CathexisVision GUI Setup

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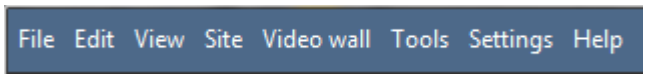
[1] While Cathexis has made every effort to ensure the accuracy of this document, there is no guarantee of accuracy, neither explicit, nor implied.
Specifications are subject to change without notice.

1 Introduction

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.

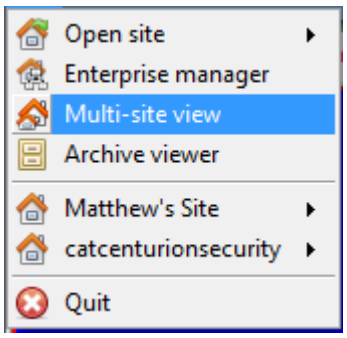
While there is some overlap between setup and operation (e.g. layouts and sequences), this division of documents is a necessary one.

2 Menu Bar



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 assignation of Resource Sites occurs in the Enterprise Manager as well.

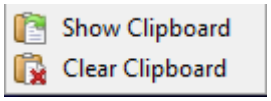
Archive Viewer
This will open up the Archive Tab. If you have any archived video it can be viewed here.

Open Site List
The names under Archive Viewer and above Quit will represent the Sites that currently have connection tabs open in the GUI.

b. Edit

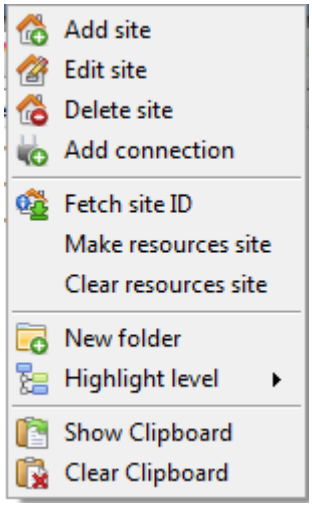
The edit menu, in general only displays the Show Clipboard, Clear Clipboard options. When you have the Enterprise Manager open you will see a range of different options.

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



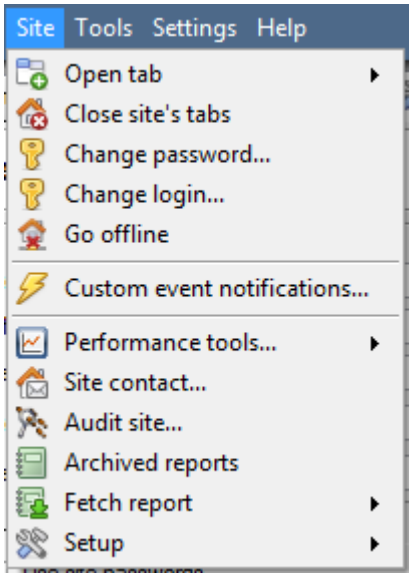
Add/Edit/Delete Site
Will add a new Site; edit an existing Site, or delete an existing Site.
Add Connection
Will add a unit connection to the selected Site.
Fetch Site ID
This gives a created site an ID, which is essential for a site to run. Perform this after creating the site, and adding unit connections to it.
Make Resources Site
This 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—>Site—>Open Site.** 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 Password will change the password for the current user (if they have authorisation to change their own password.)
Change Login will change the user who is logged in.
Custom Event Notifications below
Go Offline will terminate the connection to the Site.
Performance tools Please see the Appendix to this document, for a detailed explanation, with examples.
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, that 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***

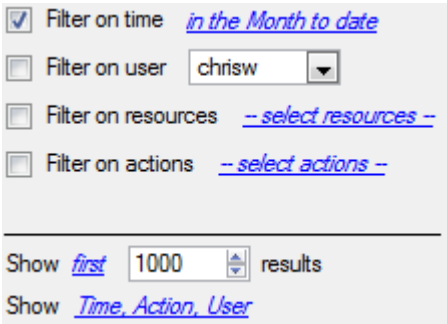
There are 4 levels at which these notifications can be configured (one global, and three tiers of Site based settings).

Global Level (all events for all sites)	The notifications can be configured per event priority. This is done in *Settings Menu —> Default Event Notifications.*
Site Level	The event notifications can be overridden for a specified for a particular site. *Site menu —> Custom Event Notifications —> Site Tab.*
Server Level	The event notifications can be specified for a particular server on the site. *Site Menu —> Custom Event Notifications —> Servers Tab.*
Event Level	The event notifications can be specified for a particular event. *Site Menu —> Custom Event Notifications —> Events Tab.*

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.

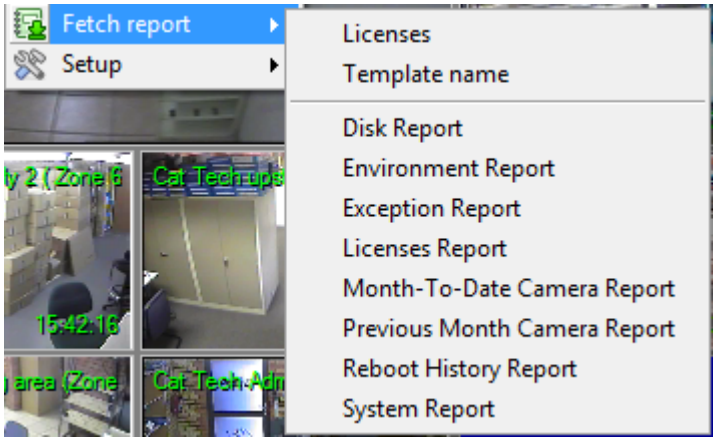
- ***Print, Save, Refresh***

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

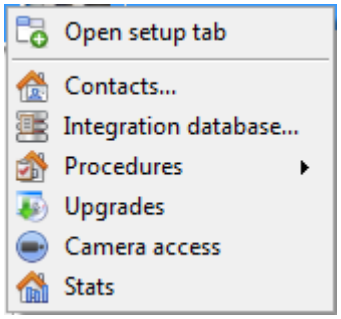


This menu allows you to pull a full report for the entire Site.

You may select to pull a **Template**, or pull up a quick report based on the list of variables below the border line.

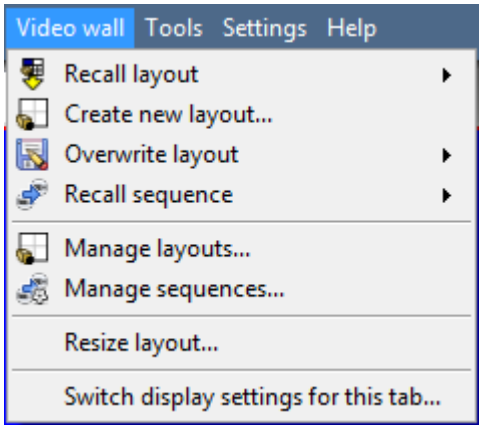
Note: For individual unit reports, and a full description on the nature and details of reports see the **Setup Guide —> Configure Servers —> Reports** section of the manual.

Setup



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.[2]
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.
Camera Access You may quickly change access level rights for all Site Cameras from this option.
Stats this is stats for the local server if it's an NVR, or for the viewing station.

e. Video Wall



In pre-5403b 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.

[2] The documentation for this is currently in the Integration Section of Configure servers.

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 Visa Versa.)

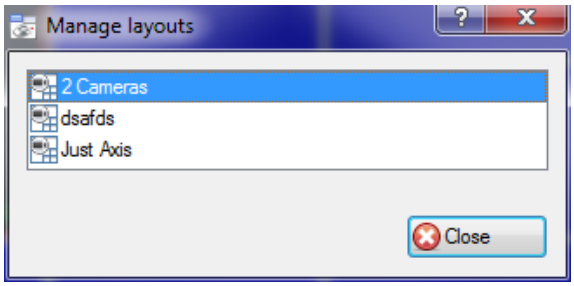
- ***Recall a Layout***

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.

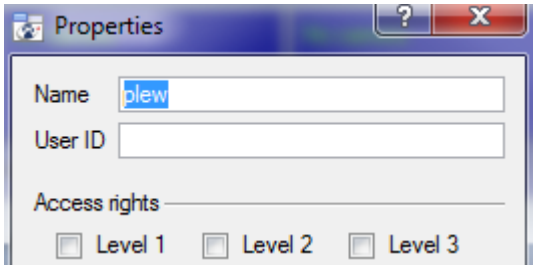
- ***Manage Layouts***



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.

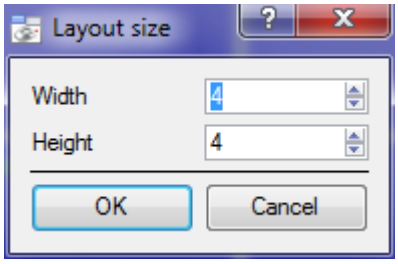
These are both done by right-clicking on the Layout in the list.



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.

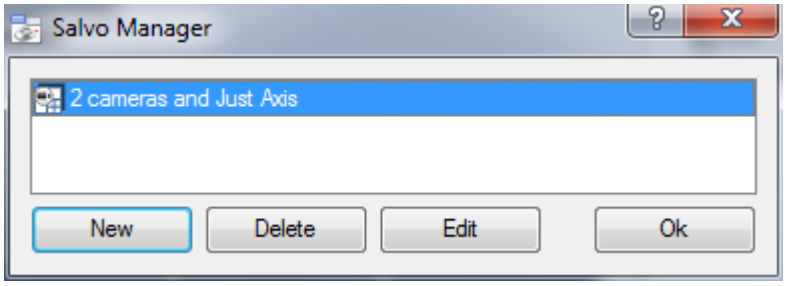
You may define how many cameras there are per row, and per column.

The maximum amount of cameras you may have per screen will be an 8*8 matrix. This gives you a possible 64 cameras per Layout. (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.

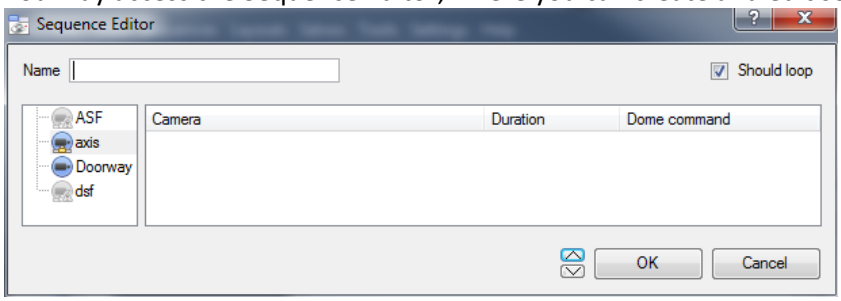
- ***Sequence Manager***



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.

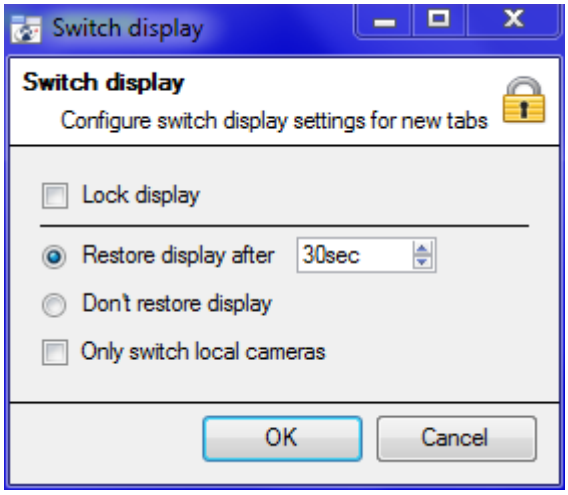
Sequence Editor Procedures	
Add a camera to a Sequence	You may: -double-click on a camera in the list of available cameras. -Or click-drag one, or multiple cameras, across into the Sequence list.
Remove a camera	Right-click on the camera and select Delete.
Set the duration of a camera for each loop of the Sequence	-Right-click, and select Set Duration. -Enter the duration in seconds, and click OK.
Looping	If the 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.

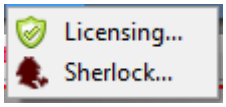
Restore display after
Will define how long after switching to the Event Cameras the Cameras Tab will return to the original display settings.

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.

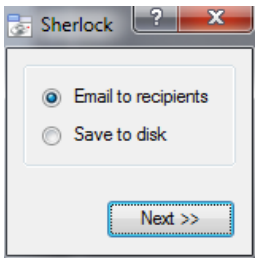
Note: you may also either lock, or unlock, the currently opened Cameras Tab by clicking on the little lock located at the end of the Timeline on the Review Controls.

f. Tools



Viewing Station Licensing
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.

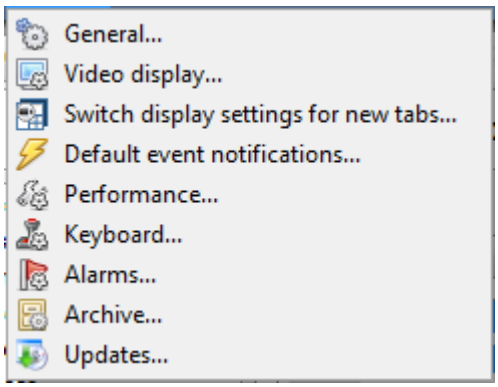
Viewing Station Sherlocks



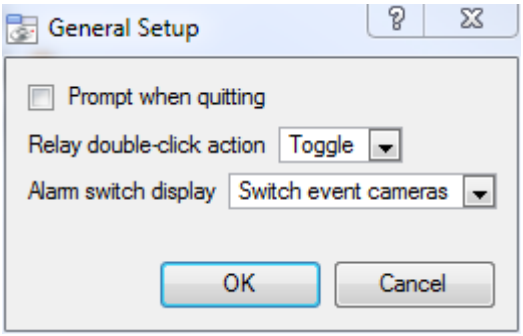
Sherlock files are a diagnostic tool, used by the Support Desk. The normal procedure is to email the Sherlock file to the Support Desk, with a description of the problem, but you may also save it to disk.

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



General

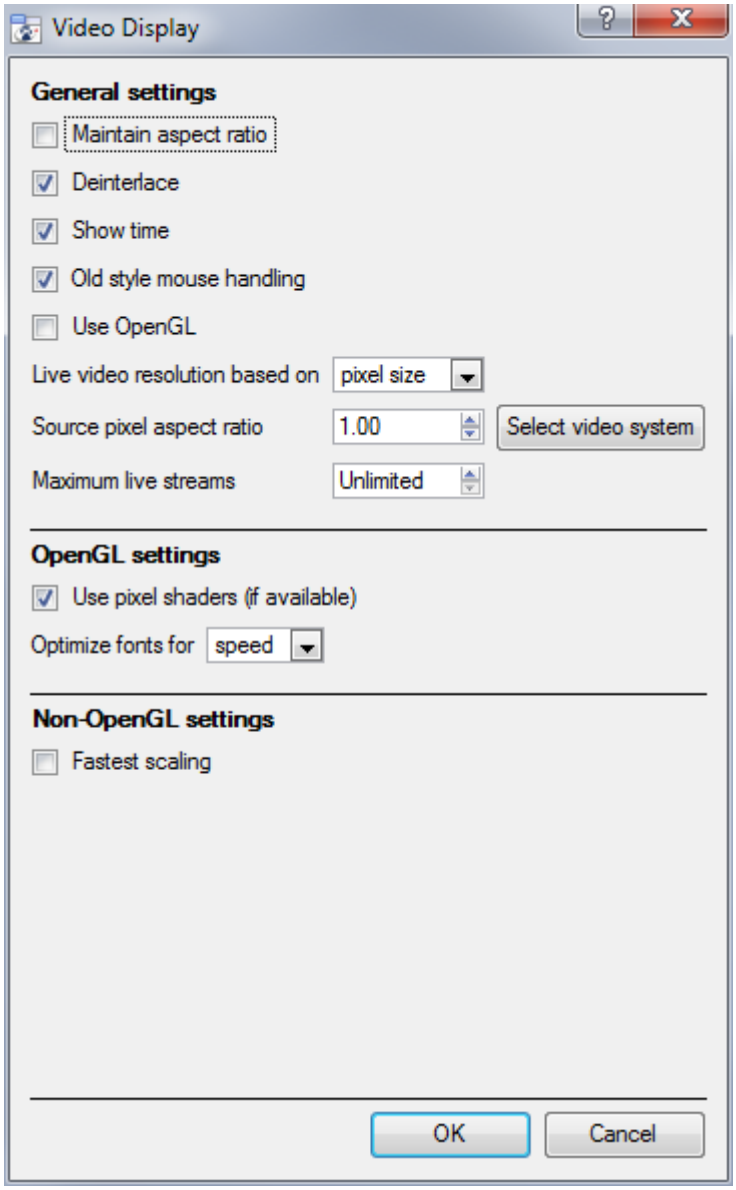


Prompt When Quitting will prompt you every time you quit CathexisVision about whether or not you want the current tabs to be reopened when you next start the program.

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.

Video Display



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. This frees up the CPU, thus putting les strain on the CPU.

Show time: Shows the time on the video.

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 CatSite 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.)

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.

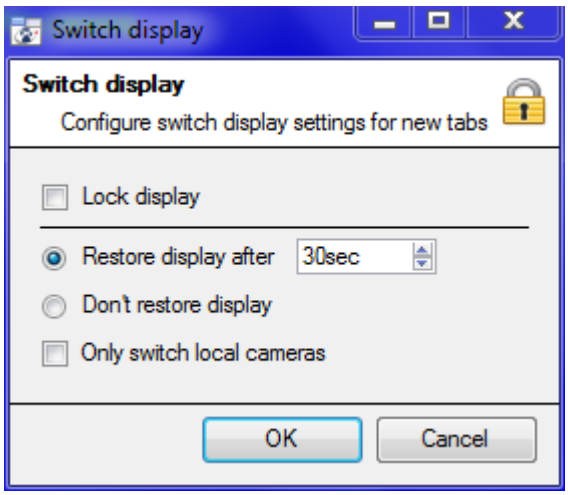
Pixel shaders: Similar to OpenGL.

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

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.



Lock Display
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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.

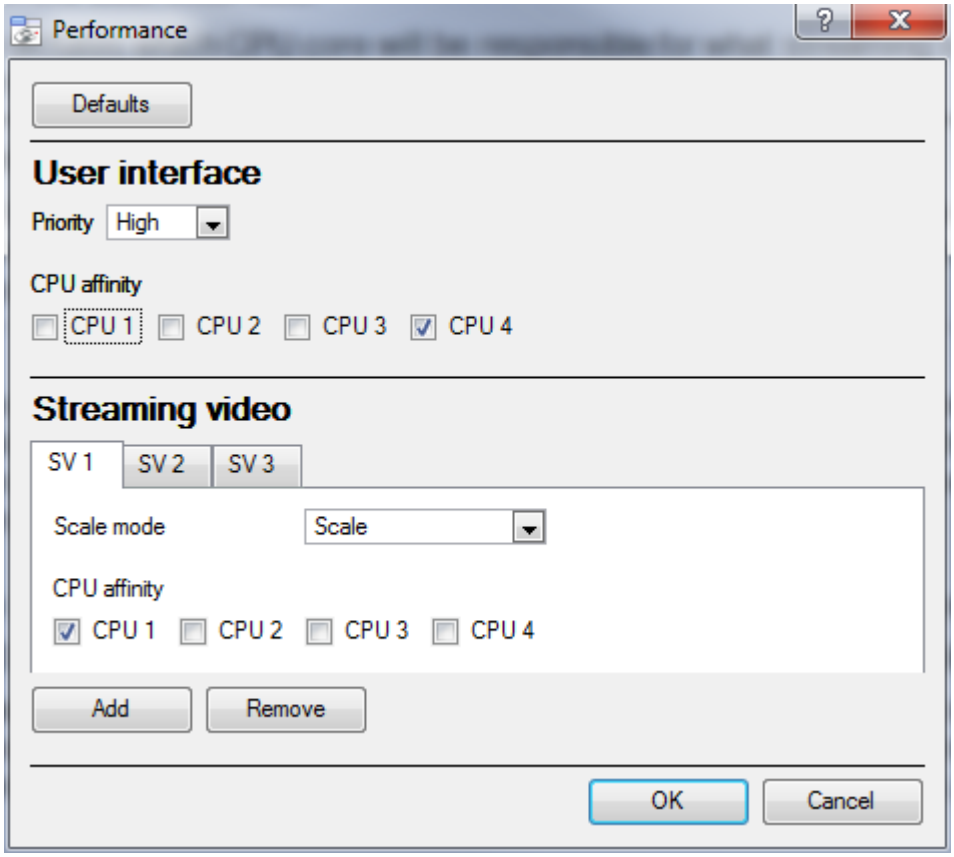
Note: you may also lock, or unlock, the currently opened Cameras Tab by clicking on the little lock located at the end of the Timeline on the Review Controls.

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.

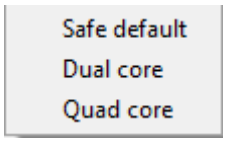
Unless you have an understanding of this technology, and an explicit reason for changing these settings, don't change them.

(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)

Even Cameras only (The SV only scales the even-numbered cameras, with the odd-numbered cameras presumably being scaled by another SV. For example, if you have a dual core system with two streaming video servers SV1 and SV2, with SV2 set for Even cameras, then SV1 will scale odd-numbered cameras, and SV2 will scale even-numbered cameras).

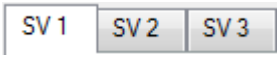
Streaming Video Server (SV):

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:

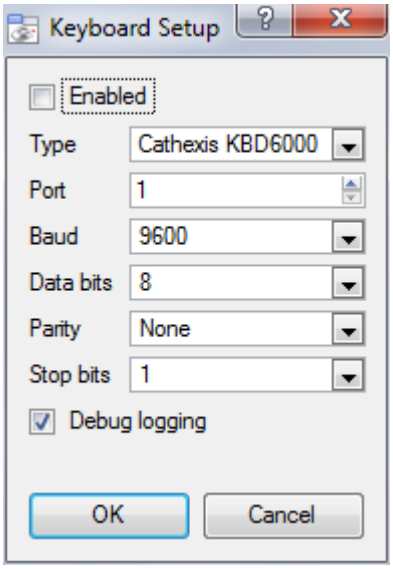


CPU affinity with the streaming video:

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.

Archive

The settings here merely determine if you want your archives to be written to somewhere other than the CathexisVision installation folder.

Updates

This will define whether you want your software to automatically check for updates. If you want the system to check for updates then tick the box: ☑ Check for updates .

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.

3 Status Bar

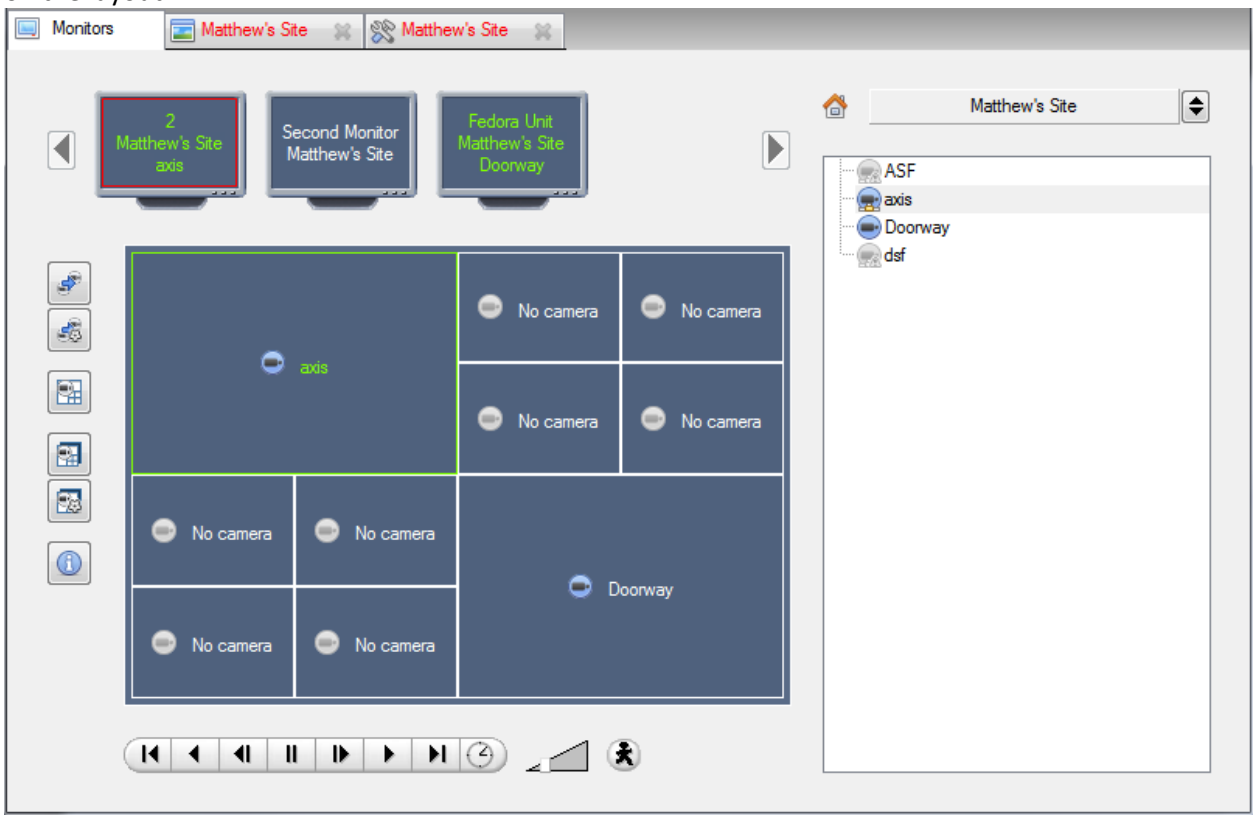
The status bar runs along the bottom of the interface. On the bottom right of the bar are a useful set of notifications:

	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.

4 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.

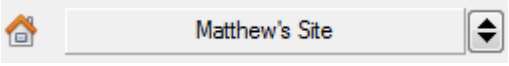
You will not see any video playing on the interface. You will see the names of cameras where they are placed on the layout.



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.)

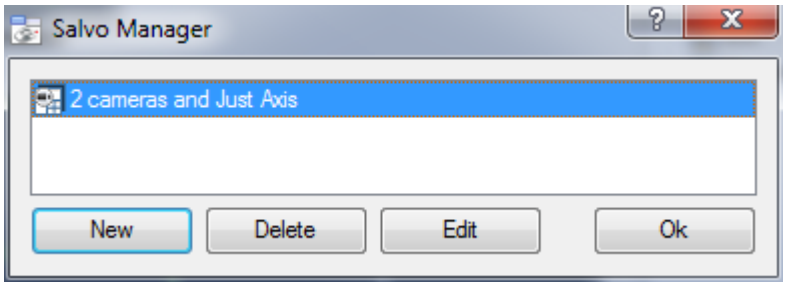
Edit an Existing Layout
Setup the cameras as you desire (double-left-click to expand; single-right-click to reduce). Then click **Layouts—>Save As**. Then select the Layout that you wish to overwrite, and click okay.

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

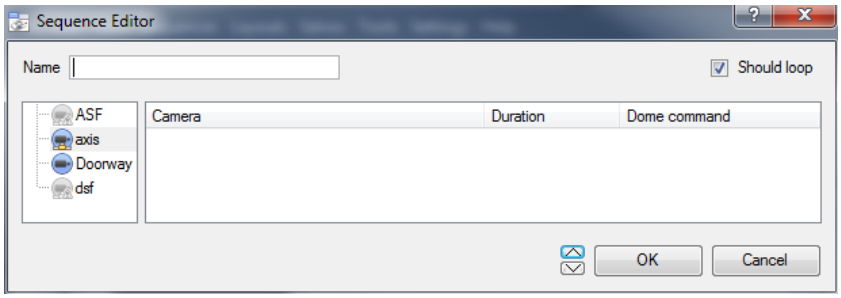
A Sequence will run a set of cameras, in a single camera panel.

- ***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.

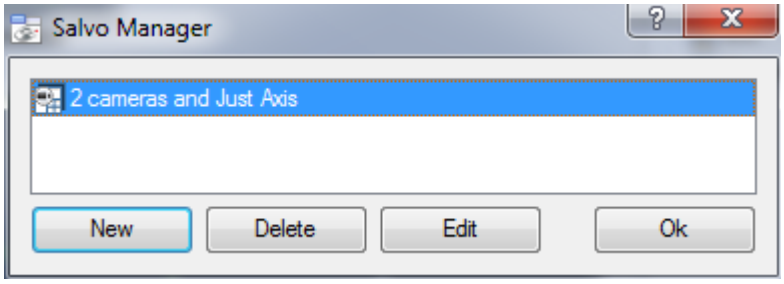
The right hand panel will hold a list of cameras that are included in the Sequence.

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 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 relevent Sequence from the drop down menu.

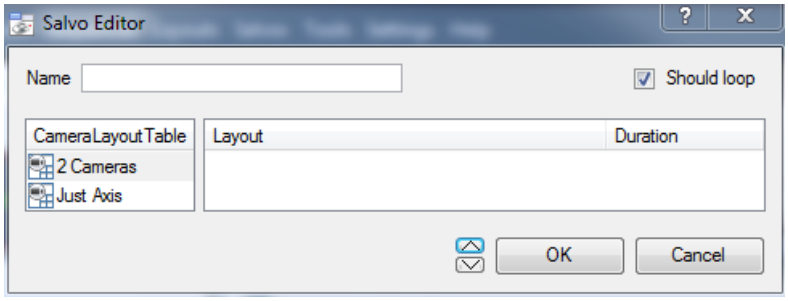
Salvo

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.



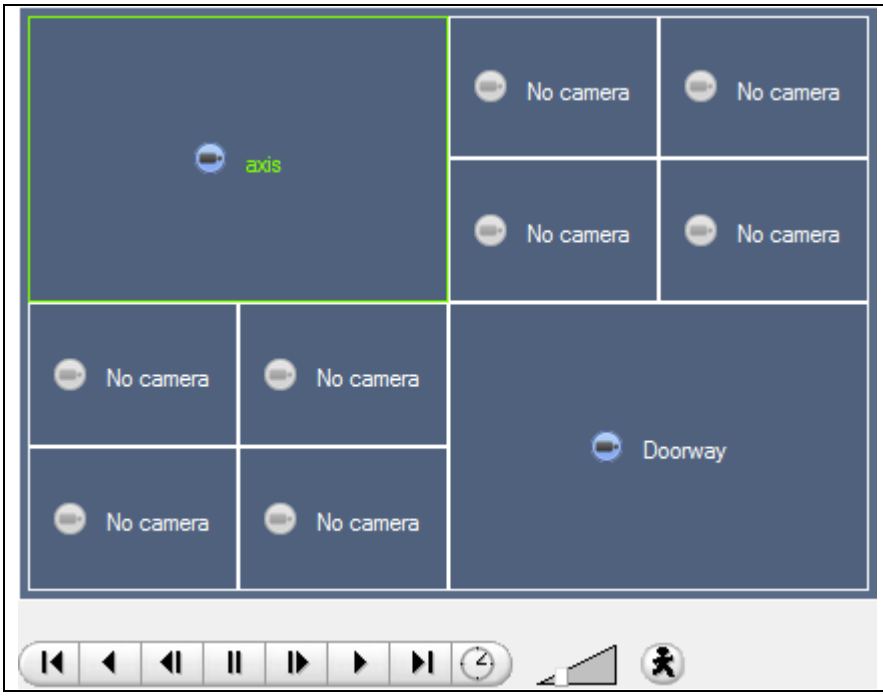
Name your Salvo appropriately.

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 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 relevent Salvo from the drop down menu.

Virtual Cameras interface



The virtual cameras interface is the interface where you

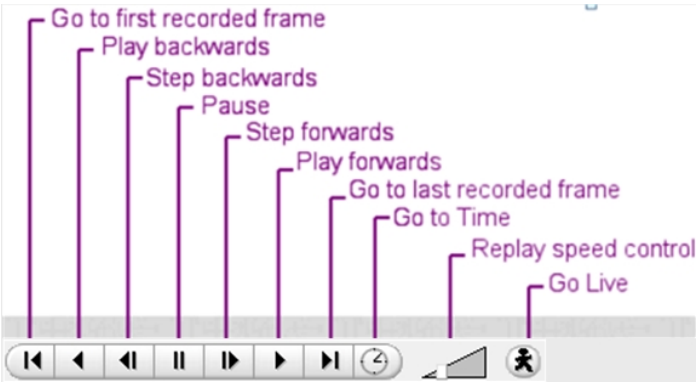
- See the Layout that the cameras will take on the Monitor that you have selected.
- See what cameras are in which panels.
- May control the overlays on each camera
- And use the Playback controls to review video on the Monitor.

- ***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:

5 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 F**rames Per Second Rate**.

General Camera Information

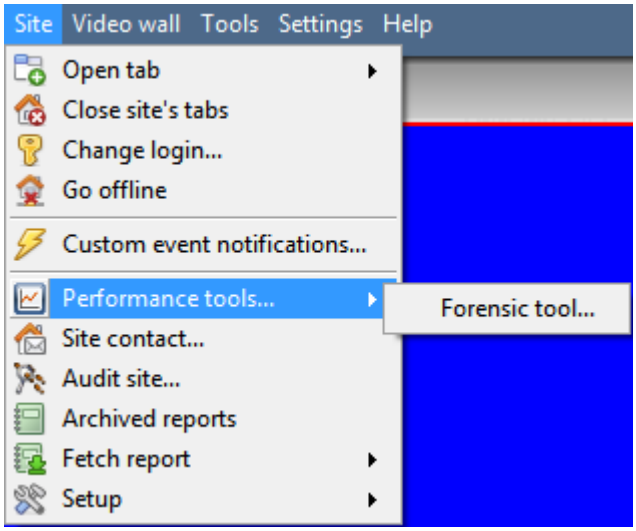
By pressing CTRL-I you will bring up the general camera information overlay.
Unit is the unit this camera has been added to**.**
Camera is the cameras name.
Index is a number given by the NVR to identify this camera.
Format this is the format the video is streaming in.
Type this is the type of the device 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 forms part of the CathexisVision 2014 software. It is used to troubleshoot and obtain historical network, storage, event, camera streaming, and other valuable data.

Note: The Forensic Tool is 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.

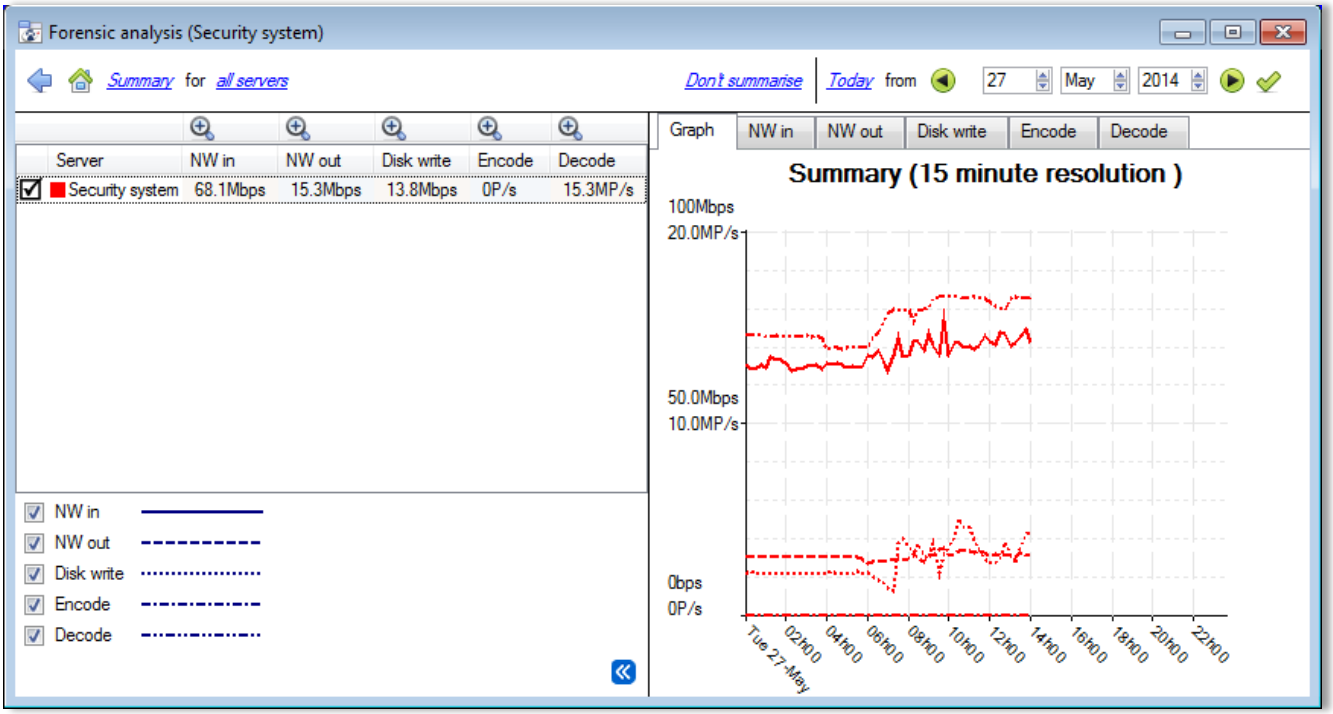
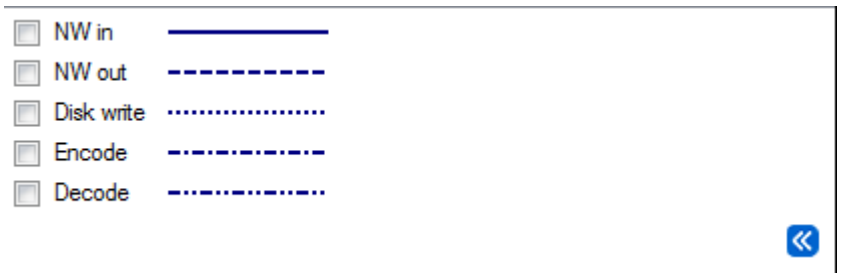


Figure 1 Main Forensic Window

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:



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.

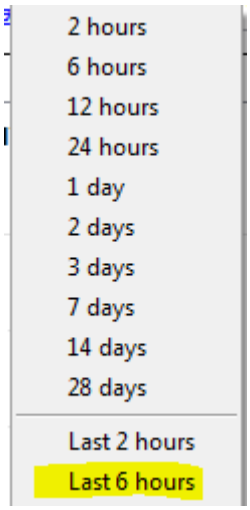
c. Date/Time Selection

You have two ways to select the graphing period:

- ***Time Bar Selection***

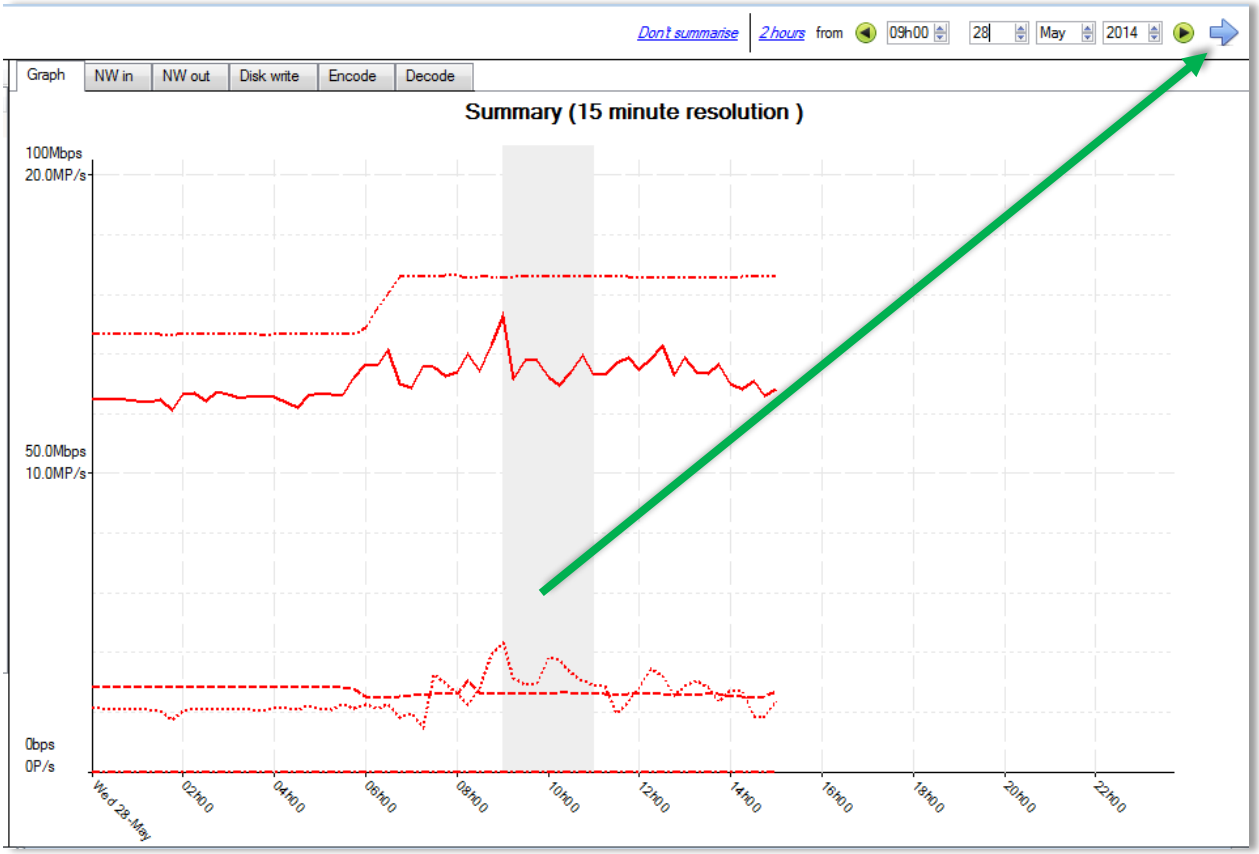
Choose a date, and time, as the starting point for your graph. Then select to fetch data *6 hours* from the selected date/time.

- ***Time Frame Selection***



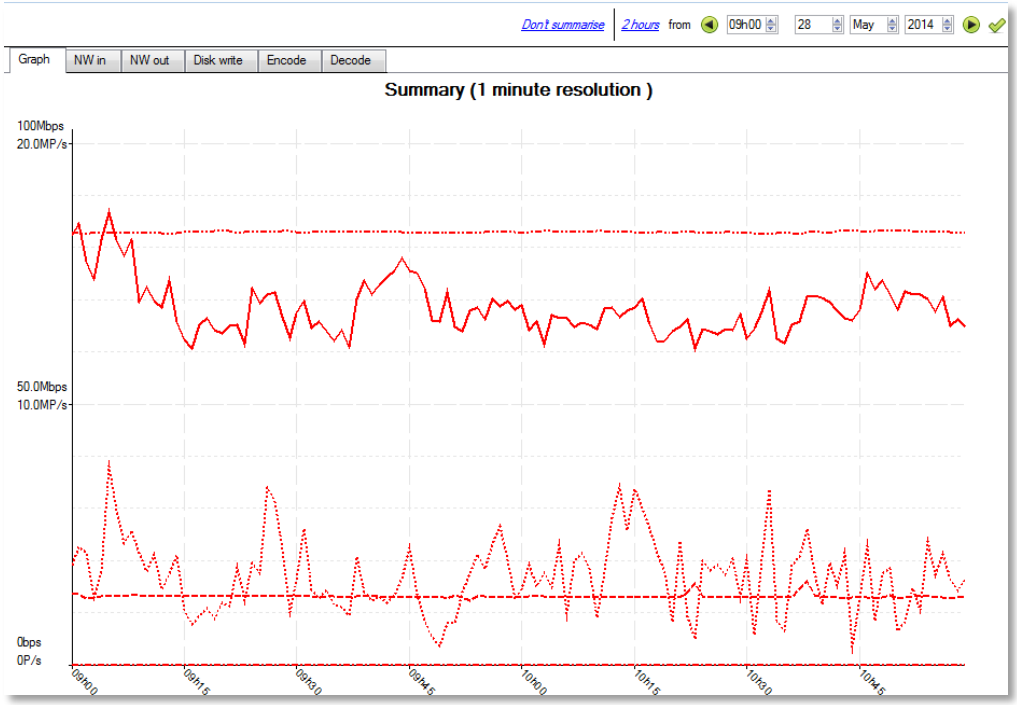
Or select to graph the "Last 6 hours", "Last 14 days", etc. This will automatically move the date/time to the required position to reflect the selected period.

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 example below:

Graph | NW in | NW out | Disk write | Encode | Decode

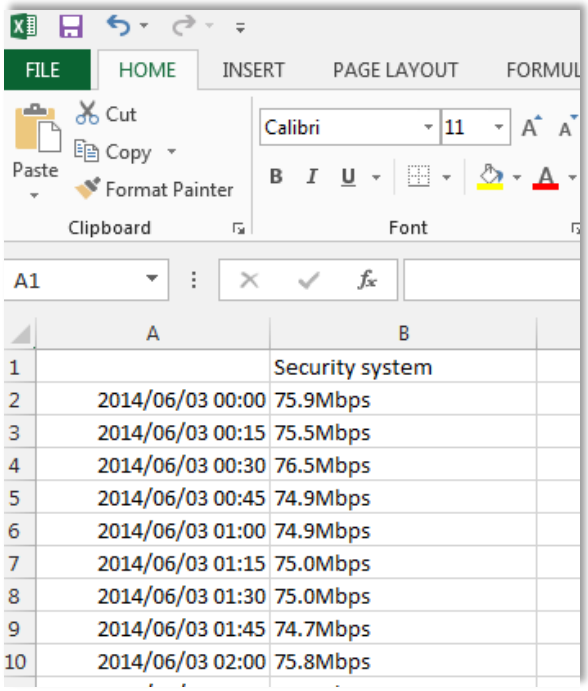
NW in

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

Data in columns ☑ Show units Export

- ***Export as a Comma Separated Values (CVS) file***

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.

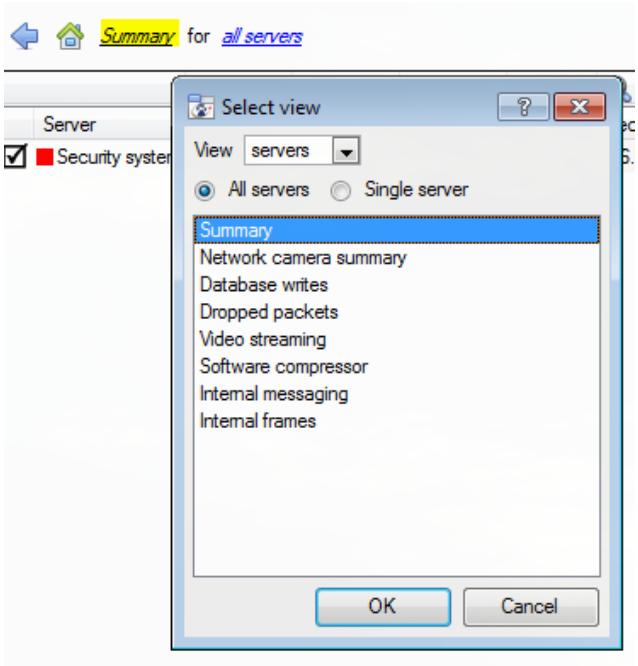


	A	B
1		Security system
2	2014/06/03 00:00	75.9Mbps
3	2014/06/03 00:15	75.5Mbps
4	2014/06/03 00:30	76.5Mbps
5	2014/06/03 00:45	74.9Mbps
6	2014/06/03 01:00	74.9Mbps
7	2014/06/03 01:15	75.0Mbps
8	2014/06/03 01:30	75.0Mbps
9	2014/06/03 01:45	74.7Mbps
10	2014/06/03 02:00	75.8Mbps

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 “Servers” view. 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.

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.

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***

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***

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***

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***

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

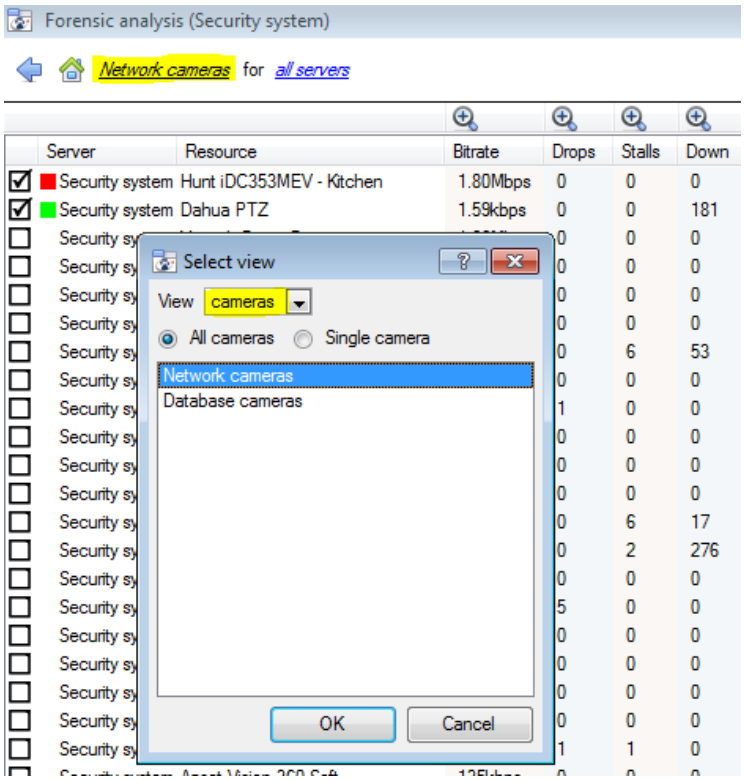
- ***Video Frames***

Video frames passed between internal processes.

Missed	Number	Video frames dropped.
Received	fps	Received video frames

Network Camera View, of Cameras

Change the Servers view to "Network cameras" by selecting the "Cameras" View option as shown below. This will give you camera-specific value.



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***

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***

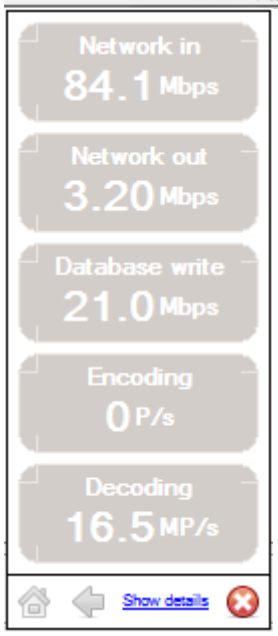
Bitrate	Mbps	Total bitrate of selected cameras.
Bytes to disk	Bytes	Bytes written do disk.
Down	Number	The number of seconds the selected cameras have been down, in a time bucket. So if the bucket is 15 minutes you would expect it to be around 900 if it was down for the whole time.

Events View, of Cameras

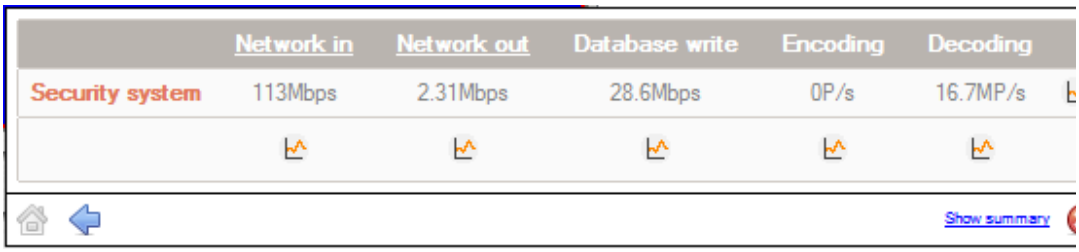
Event Count	Number	Number of events per camera for the selected period.

f. Quick View

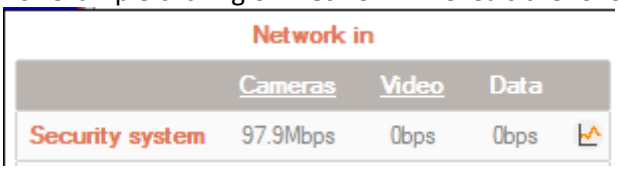
You can quickly access performance information from the CathexisVision interface. In the bottom right hand corner you will see the icon. Left-click on this icon.



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.



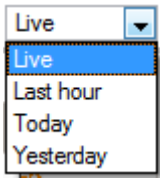
For example clicking on **Network in** reveals the following:



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).

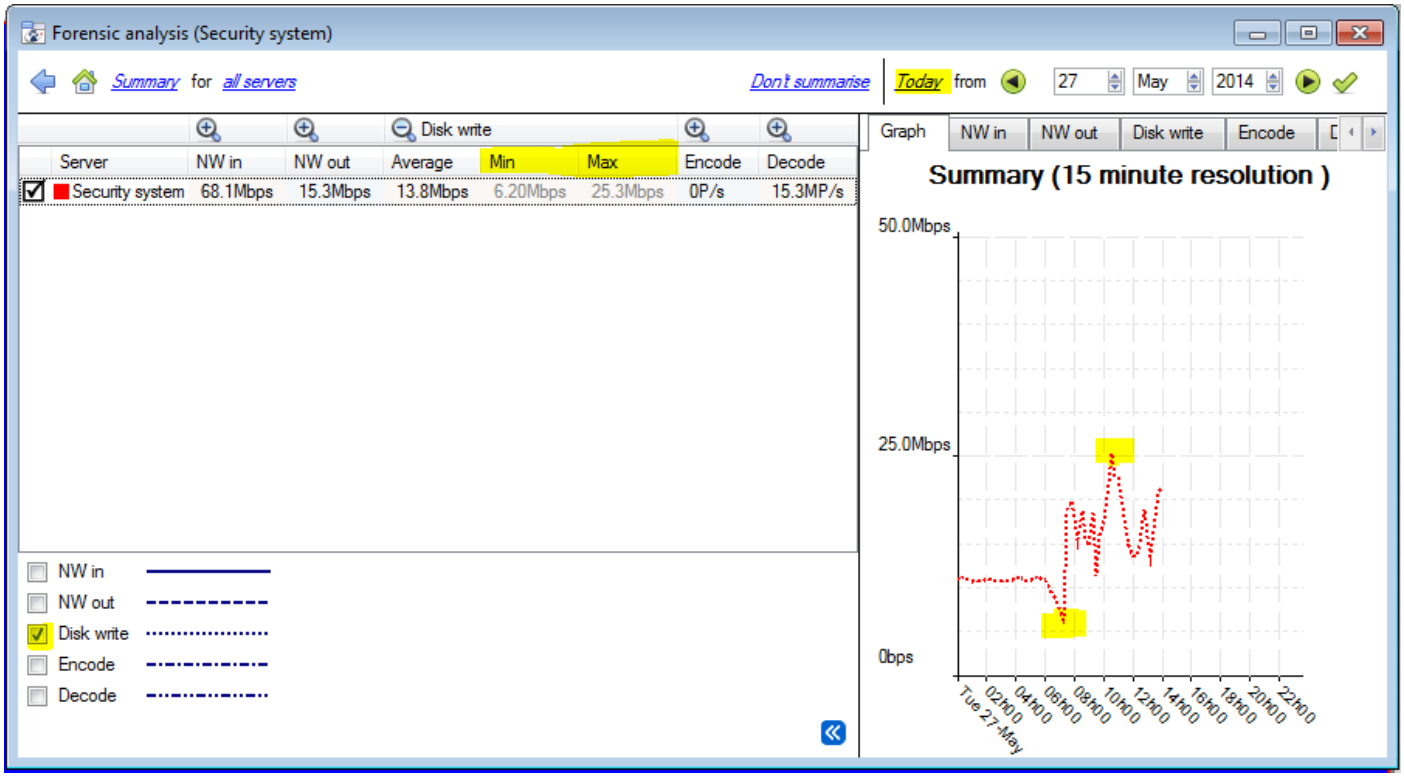


Figure 2

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***

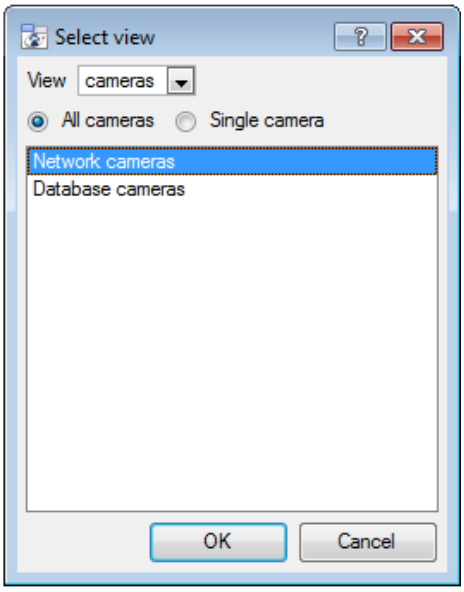
The client has indicated that the live camera views on selected cameras are tearing and there are recording gaps. The camera resources on the right hand side of the CathexisVision indicates low, moderate and high packet loss. The forensic tool can help highlight the times when the packets failed, and 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.

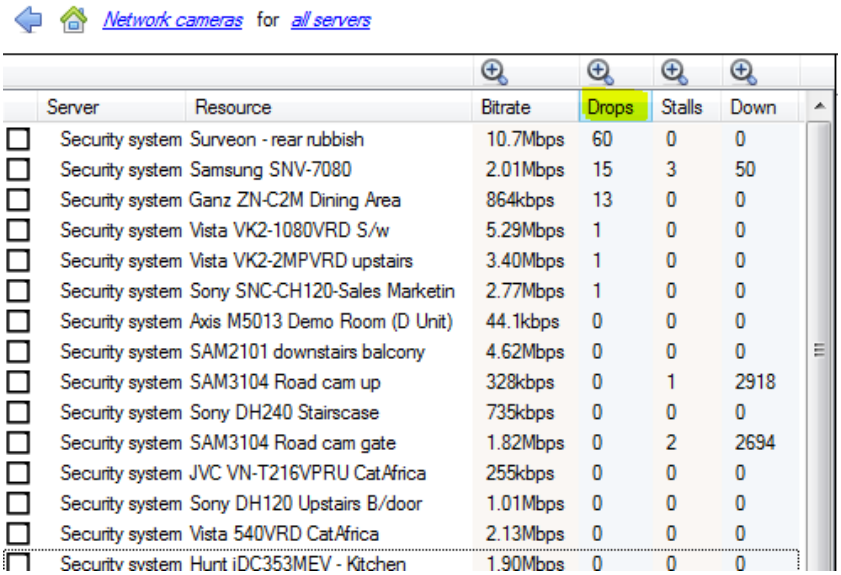
- ***Method***

1.) Change the view to "**cameras**", and then select "**Network cameras**" from the list:



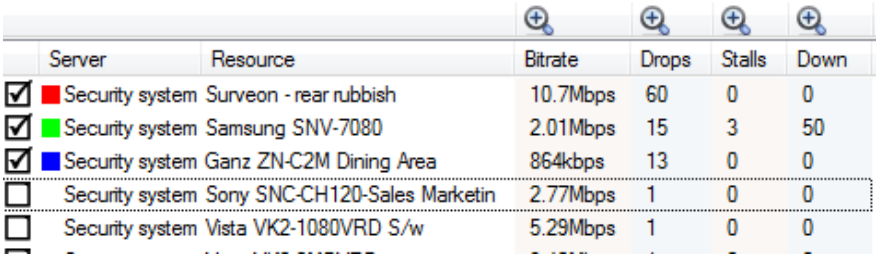
2.) To inspect packet loss on all the cameras for the last day, change the period selector to display "**Yesterday**":

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:



Server	Resource	Bitrate	Drops	Stalls	Down
Security system	Surveon - rear rubbish	10.7Mbps	60	0	0
Security system	Samsung SNV-7080	2.01Mbps	15	3	50
Security system	Ganz ZN-C2M Dining Area	864kbps	13	0	0
Security system	Vista VK2-1080VRD S/w	5.29Mbps	1	0	0
Security system	Vista VK2-2MPVRD upstairs	3.40Mbps	1	0	0
Security system	Sony SNC-CH120-Sales Marketin	2.77Mbps	1	0	0
Security system	Axis M5013 Demo Room (D Unit)	44.1kbps	0	0	0
Security system	SAM2101 downstairs balcony	4.62Mbps	0	0	0
Security system	SAM3104 Road cam up	328kbps	0	1	2918
Security system	Sony DH240 Stairscase	735kbps	0	0	0
Security system	SAM3104 Road cam gate	1.82Mbps	0	2	2694
Security system	JVC VN-T216VPRU CatAfrica	255kbps	0	0	0
Security system	Sony DH120 Upstairs B/door	1.01Mbps	0	0	0
Security system	Vista 540VRD CatAfrica	2.13Mbps	0	0	0
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
Security system	Surveon - rear rubbish	10.7Mbps	60	0	0
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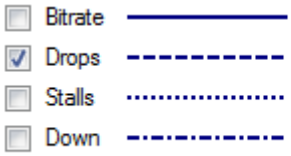
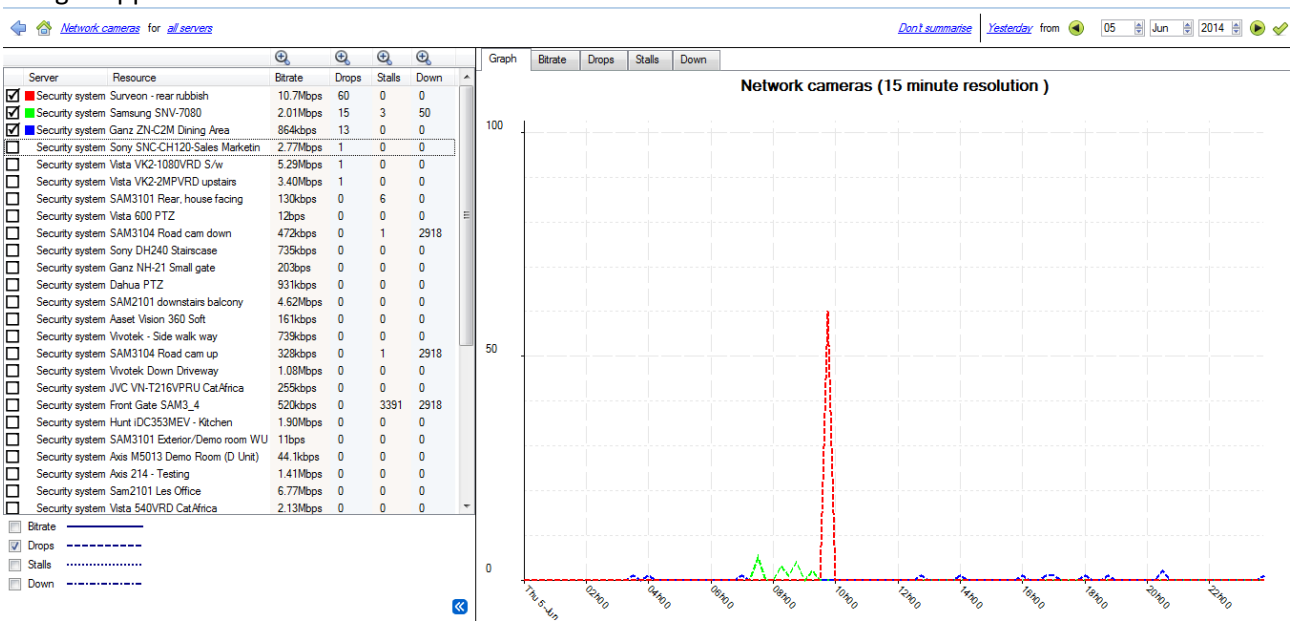
Security system	Sony SNC-CH120-Sales Marketin	2.77Mbps	1	0	0
Security system	Vista VK2-1080VRD S/w	5.29Mbps	1	0	0

5.) You only need to view the network "**Drops**", on the selected cameras. So, hide the **Bitrate**, **Stalls** and **Down** time:



6.) The figure below shows packet loss on the "Security System Surveon" camera. It indicates 60 packets being dropped at around 10 am: