



i-Catcher Console

User Guide

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Installation

The installation of i-Catcher Console is a straightforward process with little or no options that need to be selected in the installer application. The installer offers the chance to change where Console is installed, and additionally allows for certain options to be set after installation is complete:

Add desktop icon:

If enabled, this option adds a shortcut icon to your desktop.

Automatically start Console:

If this option is enabled, i-Catcher Console will be added to the startup group and will be automatically started at the next login to the system. This setting is also available in the global settings and can be changed later.

Automatically start Alert:

If this option is enabled, the i-Catcher Alert component will also be started automatically at the next login. I-Catcher Alert is used to process alerts generated by multiple feeds for the purposes of email, text message, and FTP upload alerts (amongst others).

If you are not using the advanced alerting features, you can opt to not start i-Catcher Alert at startup.

Registration

Your registration details will have been supplied to you when you purchased your i-Catcher Console license. An unregistered i-Catcher Console will prompt for these details to be entered on startup, alternatively you can click the 'Registration' button on the main Console menu bar after installation to enter your details.

The registration name and key need to be entered exactly as shown. There is no need to enter each key field separately, you can copy and paste the entire key into the first key field and the remaining fields will populate automatically.

Please ensure there are no spaces or other extraneous characters before or after the registration name, as these can cause the registration process to fail.

System Requirements

The i-Catcher product range is designed to run on almost any PC system, and is equally at home on personal system running a couple of cameras as it is on a corporate CCTV server running many cameras.

Due to the wide variety configurations possible, there is no definitive system requirement that encompasses all types of setup, however the following will provide a guideline if you are intending to purchase a dedicated system.

A base system should start at around 1 GHz with an absolute minimum of 128MB of RAM, although a 256Mb minimum is recommended. Hard disk requirements will depend on your intended image retention time and frame rate. UK Police CCTV recommendations are for a minimum of 5 fps for 21 days, which on an average motion detection rate will require around 2 – 3 gigabytes per camera.

The maximum recommended cameras for a single system under normal operating conditions is 32 cameras, and should be run on a dual-core or quad-core system with 2GB of RAM and between 500 – 750GB hard disk.

Note that CPU usage is not constant when i-Catcher Console is running. If Console is to be used as a web cam system in addition to recording, then additional CPU load will be incurred for each remote viewer, especially if web playback is used.

Adding Cameras & Devices

i-Catcher Console supports three main types of device that can be used as a video capture source for feeds:

USB Devices (typically web cams)



Simple web cams provide a low-cost starting point for surveillance, and modern web cams are becoming more and more sophisticated in terms of features and video quality.

There are also USB video capture devices that allow capture from composite video sources such as camcorders and 'traditional' CCTV cameras.

i-Catcher Console can make use of USB devices that are supplied with a video capture driver that conforms to the Microsoft WDM standard. These are also known as 'DirectShow' drivers.

Some older devices are supplied with drivers that conform to the older 'Video for Windows' standard. These can also be used with i-Catcher Console, however support will be more limited; typically settings for the device can not be saved by Console, so you will have to rely on the driver itself to retain settings when Console is not running.

PCI Capture Cards



i-Catcher Console supports many PCI video capture cards using the same mechanism as USB devices above, and are subject to the same driver limitations.

i-Catcher Console supports multi-port devices in two ways: firstly, the device can be used as a single video source by selecting which input to use from the device configuration. The device is also selectable as a 'multi-port' device, which uses Console's built-in Video Switching service to capture from multiple inputs.

Configuration in this mode is more limited than using the device directly, but allows the use of multiple inputs at the cost of reducing frame rate.

Some PCI cards feature onboard hardware encoders (typically JPEG or MPEG4) for capture compression. Unfortunately, i-Catcher Console is not able to make use of these encoders as it requires a decoded image for pixel by pixel motion analysis.

Euresys Capture Cards

i-Catcher Console provides direct support for the Euresys Pico range of video capture cards. These are classified as 'Local' devices (along with USB and PCI cards) and allow high performance capture from multi-input cards.

Each card is listed as one device. Each input of each card can be used by multiple feeds without conflict, and all settings will be saved by Console when closed down.

Network Devices



i-Catcher Console supports a large number of network or IP-based devices. These devices (typically cameras and 'video servers') connect to a local network and effectively act as a miniature computer serving out image data.

i-Catcher Console can make use of almost any network video device that makes video data available using the JPEG and Motion JPEG encoding standards, via standard HTTP streaming access.

Unfortunately, some cameras use proprietary streaming and encoding methods that prevent i-Catcher from receiving video. A full list of supported cameras and devices is available at the i-Catcher web site.

i-Catcher is also able to make use of the MPEG4 streams available from Axis and Etrovision devices.

Video Servers (also called Video Encoders) are devices that convert a composite video signal into a network video source. Typically they have 1 or 4 video inputs. i-Catcher Console is able to make use of each input on the 4-input models as independent feed sources.

Adding Feeds

When i-Catcher Console is first started, there are no feeds configured on the system.

New feeds are added easiest using the new feed wizard, which can be accessed either via the 'Cameras' button on the main window, or by right-clicking on 'Local Console' and selecting 'New Camera'.

The window shown on the right will appear, asking you to select a camera type. In this instance, we have selected a network camera, and provided a feed name of 'Front Door'.

i-Catcher Console - Camera wizard

Camera type
This wizard will guide you through configuring the cameras and feeds for your system. Enter a name (for example, "Stock Room") and select the type of camera you want to set up.

Feed name:
Group:

Local Camera
Local cameras are cameras or devices connected directly to this computer. (e.g. USB cameras or TV capture cards)

Network Camera
Network cameras are devices connected to your PC via a network. These can be network enabled cameras or normal CCTV cameras connected via a video server.

Batch/FTP Camera
Add a new batch mode camera for remote periodic feeds.

Manual configuration
Manual configuration adds a new feed but does not set up any device and uses any existing settings.

Previous Next Cancel

The 'Group' option can be used to define camera groups, e.g. 'First Floor', 'Courtyard', etc. This is optional, can be left blank to not assign a group.

There are four types of camera that can be added:

- | | |
|-----------------------------|---|
| Local Camera | A USB or PCI device connected camera, included the Euresys Pico video capture cards |
| Network Camera | A device capable of providing video that is connected to the local computer network, including wireless networks |
| Batch/FTP Camera | A camera that uploads its images to a folder accessible from the PC running i-Catcher Console |
| Manual Configuration | A completely unconfigured feed. This can be used to set up a feed using a manual URL that is not supported by the feed wizard |

In our example, clicking 'Next' takes us to the camera information page of the feed wizard.

The 'Manufacturer' and 'Model' fields should be set to match your camera or video server. In our example we have selected an Axis 241Q 4-port video server.

The 'Video Type' setting will depend on your device. Most support 'Motion JPEG stream' which is preferred format. Some devices only support 'Single JPEG images' which is slower.

i-Catcher Console - Camera wizard

Network camera details
i-Catcher Console needs to know what model your camera is, as well as its address. If your camera is not listed, and you know how to access an image, select custom.

Manufacturer:
Model:
Video type:
Address: Port:
If you have enabled security in your network camera, please enter the username and password.
Username:
Password:

Previous Next Cancel

Many Axis devices also support MPEG4 stream formats. Etrivision stream format is selected in the camera and handled automatically.

Note: Axis MPEG4 and Etrivision cameras require additional set up to be used in i-Catcher Console. You will need to download the Axis MPEG4 Pack to receive MPEG4 streams from Axis devices. To use Etrivision devices, you will need to visit the Etrivision camera and accept the installation of ActiveX controls to install the necessary components.

'Address' is the hostname or IP address of the device you are adding. This is usually obtained from the configuration software that comes with your device. If the device is on the internet, you can also enter its internet IP address or hostname here.

If your device requires you to login to view images, enter the username and password here.

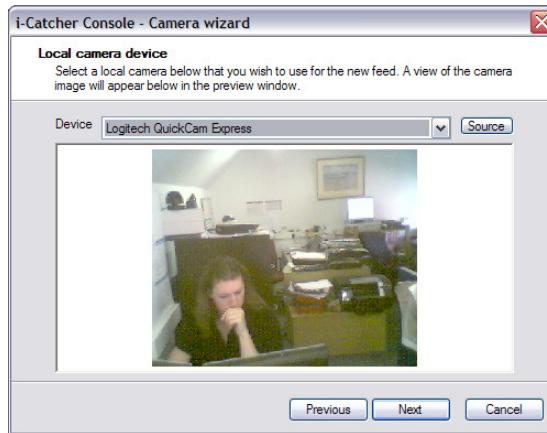
Some cameras support recording using the H.264 "stream-to-disk" method. This method saves the H.264 encoded data directly to disk and makes use of the camera features to determine motion detection, etc. Accelerated video hardware is used to show the feed on screen reducing CPU usage.

In this mode, some of the features of i-Catcher Console will be disabled as they can not be supported with the H.264 data format.

On clicking 'Next', you will be asked which video server input to use (if applicable), or taken to the preview screen. A sample image from the device is shown on screen to confirm you have used the correct settings.

If there was an error connecting to the device, it will be shown at this stage. You can click 'Back' to adjust the settings if they are incorrect.

The preview screen for local cameras is slightly different. As shown in this screenshot, a drop-down list is available for selecting the local device to use (including Euresys Picolo cards) along with a 'Source' button to access the configuration to specify which video input to use.

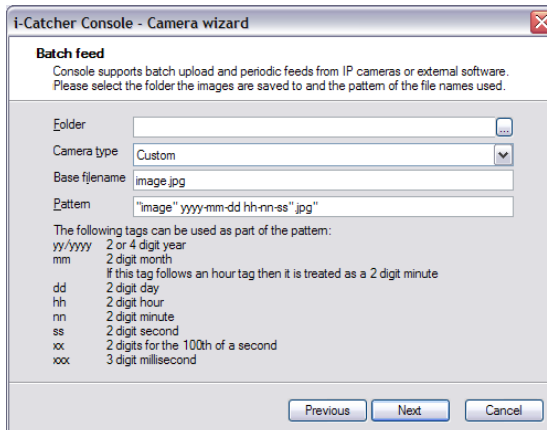


When the device or input is changed, the preview image will update so you can confirm the selected device and input are correct.

Batch feeds allow you to specify a feed where a camera or device uploads images to a folder on the file system.

'Folder' specifies where the images can be found. Camera type allows you to select a known image filename pattern. If your device is not listed, you can specify 'Custom' and use the base filename and pattern fields as shown to define a custom filename pattern.

You can change the batch feed configuration once the feed is running



through the local settings. In this case a reduced set of configuration settings is presented, along with an extra configuration tab for batch feed settings, where the feed input folder and filename format can be adjusted.

Manually configured feeds do not require configuration in the feed wizard. When started, they will have no configuration set. You can then change the feed manually (see below) as required. Until this is done, the feed will show a warning image reminding you to configure the camera.

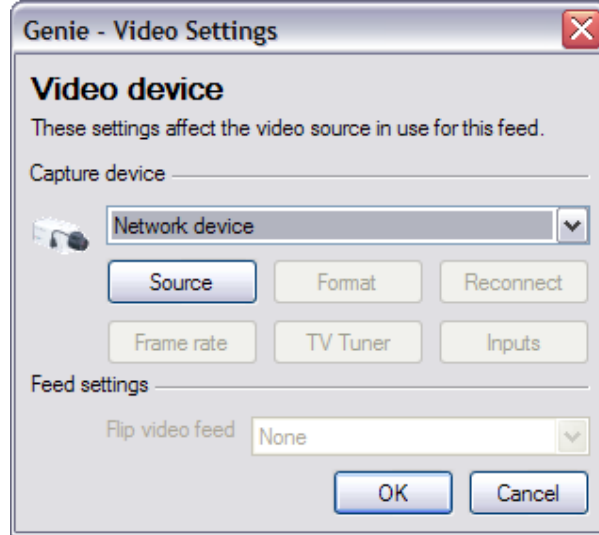
Once the feed wizard has been completed, you can either finish setting up cameras, or enable the “Add another feed” check box to continue the set up process. If you do this, some basic settings will be retained, including the camera manufacturer and model.

Manual Configuration of feeds

An existing feed can be configured at any time by selecting the feed's device settings. This can be done by right-clicking on the feed in the feed tree list and selecting 'Device' or by clicking on 'Cameras', selecting the feed, and then clicking the 'Devices' button.

The window shown opposite shows the options available, which includes some options not available in the feed wizard.

The main drop-down list allows a device to be selected. The first item is always 'Network Device' and refers to any device connected to the local network. The remaining entries (if any) are local devices including USB and PCI webcams and capture devices and any Euresys Picolo cards installed in the system.



There are six buttons that allow configuration of the feed. Not all of these buttons will be available at all times.

The 'Source' button allows you to configure settings associated with the video source. For network devices this is the URL to the image or stream source. For WDM-devices this pertains to image processing properties, e.g. brightness, contrast, exposure, etc. For Video for Windows devices, this will be almost every setting relating to the device. For Euresys devices, this controls the image processing properties, signal type and video input selection.

The 'Format' button is only available on WDM, Video for Windows and Euresys devices. For Euresys devices, it controls the video resolution, interlaced capture option, and field capture options (see section on Euresys capture for more details). For others, it controls the video resolution only.

'TV Tuner' and 'Inputs' are available on WDM devices only, and control the properties for a TV Tuner input and Input Selection respectively.

'Frame Rate' controls the rate in which video is received into the system, and is not available for network devices. Note that this is not necessarily the rate at which images are processed by i-Catcher Console, but simply the rate at which data arrives at the software.

Lastly, the 'Reconnect' button allows you to force an attempt to reconnect to a 'lost' device. This refers to a network device that lost contact at the last attempt to receive video data. You can also configure settings relating to video flipping here. There are four options:

None	Do not flip the image at all
Horizontal	Perform a 'mirror image' flip about the vertical axis
Vertical	Perform a 'mirror image' flip about the horizontal axis
Both	Perform both flip options, equivalent to a 180° rotation

Configuration

i-Catcher Console divides configuration into a different sections, each pertaining to a different aspect of operation:

Feed Settings:

Configuration that is specific to a particular feed, including motion detection, overlays, scheduling, PTZ control and object counting. Accessed either by right-clicking on the feed in the feed tree list and selecting 'Settings' or by clicking the tools icon on the feed's video window.

Feed Alert Settings:

Configuration that is specific to alerts concerning a particular feed. Individual alert types can be enabled, and set to either inherit settings from the global configuration, or use their own settings instead. Accessed either by right-clicking on the feed in the feed tree list and selecting 'Alerts' or by clicking the bell icon on the feed's video window.

Global Settings:

Configuration that affects the whole Console system, including startup options, history (recordings) storage, archiving, user access, web server and application appearance. Accessed by clicking on 'Settings' on the main Console menu bar.

Global Alert Settings:

Configuration for alerting that will be applied to all feeds whose alert settings have "Use Global Settings" set. This allows alerts to be configured for all feeds in one step, and is accessed by clicking on 'Alert Settings' on the main i-Catcher menu bar.

Feeds:

The cameras i-Catcher Console manages. The list of currently configured cameras can be accessed by clicking on 'Cameras' on the main i-Catcher Console menu bar. If no cameras have been configured, clicking on this will start the New Feed Wizard automatically.

Console Menu Bar

The screenshot on the right shows the main i-Catcher Console menu bar.

It is organized into different sections that control various aspects of i-Catcher's operation.

The top 'Console Status' section shows the LCD status panel, the start/stop button and the lock option. Console can be temporarily stopped using the stop button to recover processing time if other intensive tasks are running.

The 'Lock' button can be used to prevent changes being made to Console settings as well as preventing Console from being shut down. Its use requires an administrative username and password, of which configuration details can be found in the Users section of this manual.

The LCD status panel alternates through various mini screens to show the current system time (as shown in the screenshot), the uptime, remote users, total frames per second being processed and the available disk space on the history (recordings) drive.

The panel also shows a scrolling bar graph of the amount of motion being detected across the whole system, and an indication of the running state of i-Catcher Console.

The next section contains the tree list and shows all the connected cameras and other components that have been configured. At the top of this list is 'Local Console', which can be renamed as appropriate. Under Local Console, are the different definable groups of cameras, as well as the master 'All Cameras' group which can not be removed or renamed.

New Groups can be created by right-clicking on 'Local Console' and selecting New Group. Both Local Console and user-defined groups can be renamed by right-clicking on them and selecting 'Rename' while 'Delete' can be used to remove unwanted camera groups (note that this does not remove the cameras themselves).

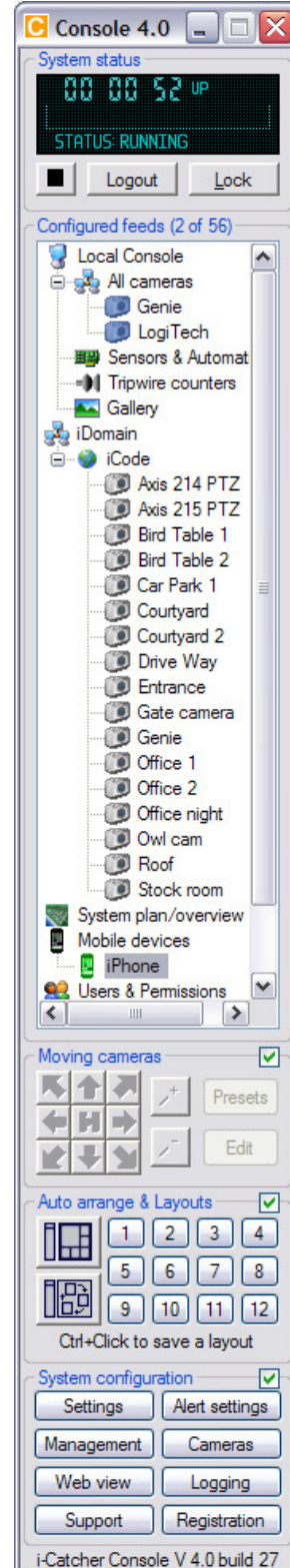
Each camera group (including Local Console) have Show All Cameras and Hide All Cameras options to make management of groups of cameras easier.

Sensors & Automation lists all the configured sensors and other I/O ports. Please see the Sensors section for more information.

The remaining sections have a checkbox in their upper-right corner that allows them to be hidden if they are not needed. The reclaimed space can be used to show more of the feed tree list.

The Moving Cameras section contains controls for PTZ (Pan/Tilt/Zoom) cameras. Please see the PTZ section for more information.

The next section concerns the layout of feeds on screen. Please see the Layouts section for more information.



The remaining section contains buttons for accessing settings and other features:

Settings:

The global application settings.

Alert Settings:

Settings that apply to all feeds whose alert settings have the 'Use Global Settings' checkbox enabled.

Management:

Shows statistics on the recorded history and allows you to delete unwanted history manually.

Cameras:

Allows you to add and remove cameras from the system.

Web View:

Starts a web browser with the i-Catcher Console web view loaded. This feature requires the web view to be enabled, and you will be prompted if has not already been enabled.

Logging:

Opens the Console log window to show system status messages. Please see the Logging section for more information.

Support:

Shows information on how to obtain technical support for the i-Catcher software products. Also available here is the stills browser – a special playback browser that can play from archives of images.


Registration:

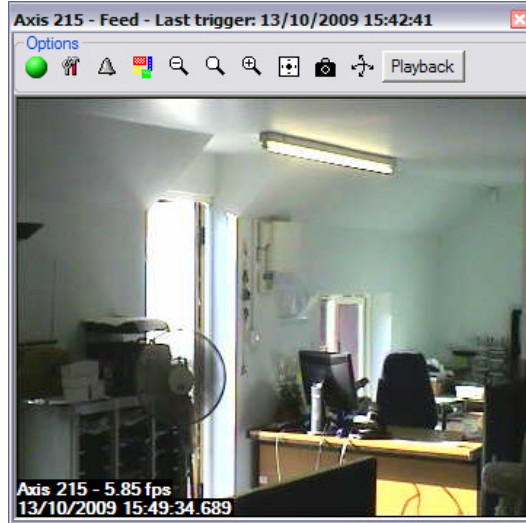
You can enter registration information here if you have recently upgraded your i-Catcher Console license. Please see the section on Registration for more information.








Feed Windows and Layout

i-Catcher Console features a very flexible layout system that not only allows virtually any on-screen layout, but also to switch between layouts as required.

An example of a feed window in i-Catcher Console is shown on the right. Each feed window features a toolbar that allows some aspects to be adjusted.

-  The 'LED' on the left of the toolbar indicates the motion level. Red indicates recent motion (as is confirmed by the green crosshair). Orange indicates less recent motion, and green indicates no motion. A grey LED indicates that the feed has been stopped.



-  The tools icon configures the feeds settings. Please see the appropriate section of this manual for more information
-  The bell icon configures the alerts. Please see the appropriate section of this manual for more information
-  The next icon configures motion masks for the feed. Please see the section on motion detection and masking for more information
-  The next three icons allow the window to be zoomed in or out. The middle of the three magnifying glass icons resets the window to its native size
-  The next icon sets the feed to be full screen. A full-screen feed can be restored by clicking on the feed and then pressing Escape or F11
-  The camera icon takes a snapshot. A single click will record one image to the history regardless of motion. Holding CTRL while clicking the camera icon will enter snapshot mode, where every captured image is recorded. Click on the camera icon again to leave this mode
-  The two-arrows icon brings up the PTZ controls for this feed. If PTZ has not been configured you will be prompted to specify a PTZ driver and settings first

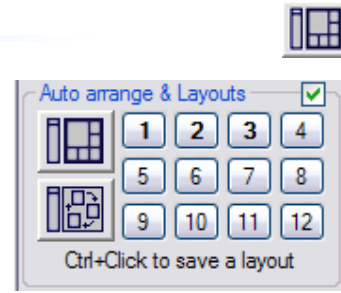
Lastly, the playback button brings up the playback viewer for the feed.

Layouts

The feeds currently on screen can be automatically arranged into a 'best-fit' by clicking the Auto-Arrange button. In some cases, the number of cameras can't be elegantly fitted on screen while maintaining the correct aspect ratio, and you will see a 'hole' in the layout.

Note that in a multiple monitor system, feed windows are only moved within the monitor they are on, and are not moved to other monitors.

The current layout can be saved by holding CTRL and clicking on one of the 12 numbered layout buttons. To restore a layout, you can click on the button without using CTRL.

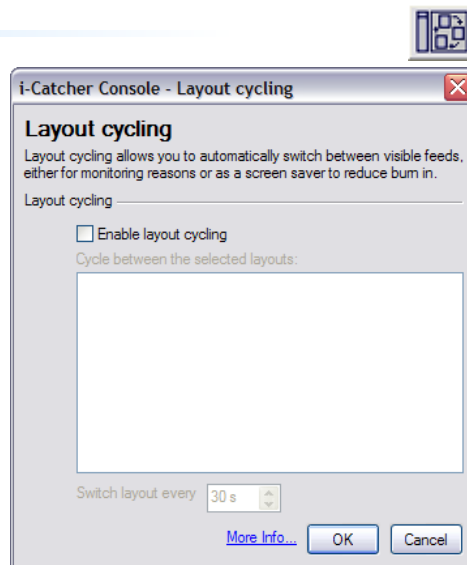


Layout Cycling

i-Catcher Console supports automatic cycling between layouts.

To control this behaviour, click on the layout cycling button, and select 'Configure layout cycling'. The window shown opposite appears, and allows you to enable the layout cycling feature as well as specify which layouts to cycle and how frequently to cycle them.

You can also enable and disable layout cycling from the menu that appears when you click the layout cycling button, as well as force an 'early jump' to the next layout.



Multi-Monitor Support

i-Catcher Console uses separate processes for each feed it runs, so layouts can be flexible across multiple monitors. Each feed window can be dragged between monitors and set wherever necessary. When saving a layout, its monitor location is saved along with its position.

Playback

Each feed window has an associated playback window that can be accessed either by clicking the playback button on the feed window, or by right-clicking on the feed in the tree list and clicking on 'Playback'.


It is also possible to playback images that have been archived (see the Storage, Archiving and Validation section) using the stills browser. This is accessed via the Support button on the main Console menu bar.

The playback window is shown opposite. The viewer starts with the first recorded image of the day, and a marker points on the timeline to the current position.

The timeline shows in coloured bars the points during the day in which motion was detected and recorded.

Also available are controls to jump to a different date and time, adjust the playback speed, and controlling the playing of images.












The play controls are as follows:

- | | | | |
|---|----------------------------|---|-------------------------|
|  | Go to beginning of images. |  | Go back one image. |
|  | Play backwards. |  | Stop. |
|  | Play forwards. |  | Step forward one image. |
|  | Go to end of images. |  | Set loop playback mode. |

It is also possible to operate playback in 'loop play' mode. When selected, this causes playback to continually loop through the last recorded images as specified, thereby continually showing the last motion event.

The playback window is updated as new images are recorded (if applicable).

There are also tools on the top of the playback window:

- | | | | |
|---|-----------------------------|---|-----------------------------|
|  | Show/Hide playback controls |  | Show/Hide Film Strip |
|  | Digital Zoom Out |  | Show Native Size |
|  | Digital Zoom In |  | Copy Image to clipboard |
|  | Print Image |  | Show/Hide Image Enhancement |
|  | Create AVI Video |  | Show Image Information |
|  | Add Image to Gallery | | |

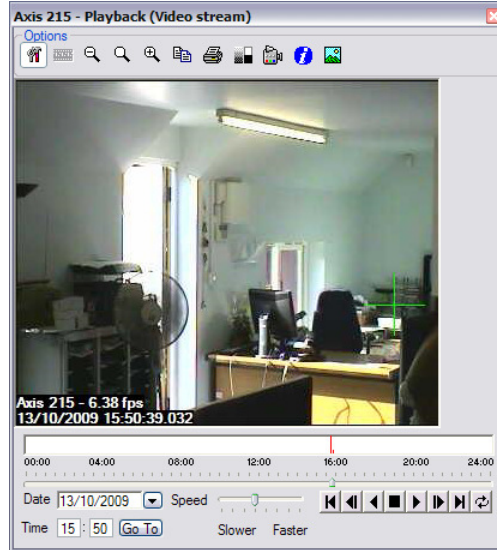


Image Enhancement, Film Strip & Gallery



For images recorded that are not clear, e.g. due to bad weather, you can show the image enhancement controls, which allow you to adjust the gamma correction and brightness of the image to reveal extra details.

There is a Film Strip option to show the previous and next two images.

You can also add the image to the i-Catcher Gallery feature (please see the Gallery section for details).

Creating AVI Video Files



Clicking on the Camcorder icon will start the wizard for creating AVI video files from the playback window.

You will be prompted to specify the start and end time for the video. Note that videos can not at present span across midnight, i.e. the video has to be entirely within one day of recording defined from midnight to midnight.

When specifying start and end times, blue markers will appear on the timeline to highlight the video range.

After selecting start and end times, you will be asked to choose a filename to save, and also a video codec.

Codecs (enCOders/DECoders) are used to compress the video data so that it uses less space in the video file. Some codecs are better than others, and you are encouraged to try different codecs to see which is most suitable for you.

Not all codecs are compatible with the recorded image format. You will be notified if i-Catcher Console is unable to make use of the codec selected.

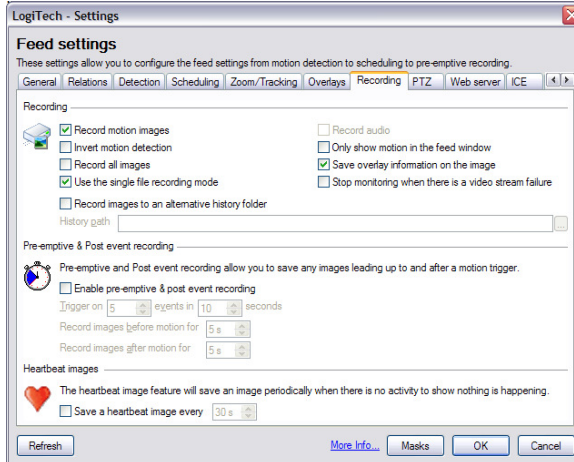
After this selection i-Catcher Console begins compiling the images into the video file specified. A progress bar is shown to indicate the progress of this operation.

Recording

i-Catcher Console can be configured to record using a number of different options. Console's primary mechanism for triggering a recording is using the Motion Detection system, and various options can be used to change the behaviour when motion is detected.

Recording options can be accessed in the feed settings on the Recording tab, as shown in the screenshot opposite.

Recording can be turned off completely by un-checking both 'Record motion images' and 'Record all images'. This is useful for a system that functions only as a webcam, and saves system resources and processing time.



Record motion images:

Record any images for which the motion detection engine has determined contain movement.

Record all images:

Record all images regardless of whether they contain motion or not.

Invert motion detection:

This option can be used in systems that are looking to catch something ceasing movement, e.g. a conveyor belt.

Record Audio:

On cameras where audio recording is supported, this option enables recording of the audio in additional to the video.

Only show motion in the feed window:

When checked this will prevent the feed window from being updated unless movement has been detected. This can save additional processing time on high load systems with many cameras.

Stop monitoring when there is a video stream failure:

This will cause the feed to stop if it encounters problems receiving video data. Normally, Console will try to reconnect after 30 seconds, however enabling this option will cause the feed to stop completely.

Save overlay information on the image:

This causes the feed to add the overlay text to the feed as part of the image. When this option is disabled, the information is saved as metadata to the image file, and drawn by i-Catcher Console. Turning this option off can improve performance as it eliminates the need to re-encode the image to JPEG before saving. Note that some features, such as motion masks will turn this option on, as mask information can not be saved as metadata.

Storage

There are two options regarding storage in the feed settings. If enabled, a separate storage path can be configured independent of the system storage path. This can be used on large systems to spread the recordings across multiple disks.

This can be enabled by checking 'Use alternative history folder' and selecting an appropriate folder path. If the setting is not enabled, the feed will record to a feed folder under the main storage folder.

i-Catcher Console 4.0 introduces a new method of frame storage called "Single File Recording". Rather than store individual frames as separate files, Single File mode stores all the frames in one large file along with an index and a motion history. This reduces load on the hard disk and filesystem and improves system performance.

This mode also leads to a faster response from the archiving and management functions. The recording files are written to in such a way as to occupy the disk in multiples of 100M chunks. When the current end of the recording file is reached, the file is extended by another 100 megabytes ready for the next set of frames. This saves the system from having to relocate all or part of the recording file to a different part of the disk at regular intervals, further improving performance.

The option 'Use the Single File recording mode' enables this recording method. It will be enabled automatically for all newly created feeds. Feeds that have been upgraded from earlier versions will continue to use the older method of recording.

Pre- and Post-event Recording

i-Catcher Console can record for a period before and after a motion event if required. In order to prevent false positives while using these features, trigger settings are used to define a motion event, in the form of E events in T seconds. With the default settings, no pre- or post-event recording will take place until 5 motions have been detected in the space of 10 seconds.

The recording duration for before and after the motion event can be configured separately.

Heartbeat Recording

i-Catcher Console is able to record an image at a fixed interval regardless of motion detection. This feature is called heartbeat recording, and allows an interval as low as 1 second.

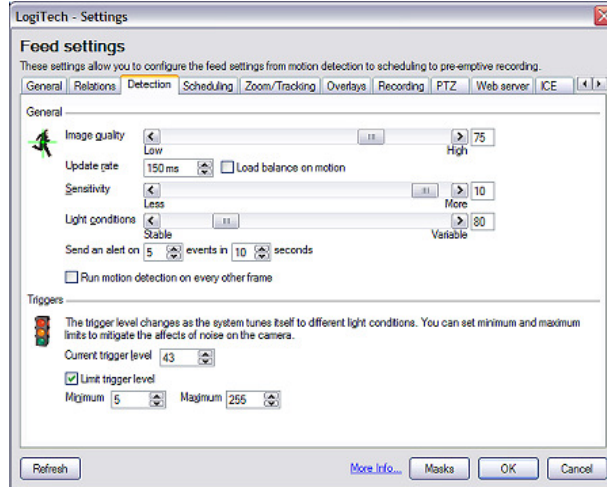
By configuring motion detection to its lowest sensitivity (using a combination of trigger level settings and the sensitivity control) and enabling heartbeat recording, a simple time-lapse system can be achieved.

Motion Detection

i-Catcher has two modes of motion detection, known as 'Standard' and 'ICE'. The Standard mode applies a simple pixel comparison between images, whereas ICE goes further to look for moving objects.

Both systems use basic settings to tune the sensitivity of the motion detection, shown in the screenshot of the feed settings opposite.

Most feeds will work correctly 'out of the box', however some feeds may need tuning to eliminate problems caused by camera noise.



To effectively tune the motion detection, it is important to understand the basic means in which the motion detection algorithm operates. The main configuration is via the 'Trigger Level' settings shown in the screenshot.

When comparing images, i-Catcher compares the differences between individual pixels. When this difference is greater than a threshold (the Trigger Level) the pixel is classed as motion. The image is then analysed in terms of blocks of pixels. If enough blocks have moved (controlled by the sensitivity slider) then the image is considered motion. The number of moved pixels required to consider a block moved is an internally calculated value and can not be changed.

Lastly, the 'Light Conditions' setting is considered, which is an upper threshold for moved blocks. If the number of moved blocks is above this setting (a percentage of available blocks) then any motion is ignored. This feature is useful for cameras situated outdoors that are liable to experience sudden changes in sunlight.

When adjusting the tuning settings, it is best to start with the trigger level setting, as this affects the primary sensitivity mechanism. The trigger level itself can not be changed with any lasting effect, as an auto-tuning algorithm attempts to adjust this level to match the camera conditions. Instead, limits can be set to stop the trigger level from being adjusted too greatly.

On problematic cameras, the limits should be set to be 10 either side of the current level, after the camera has been allowed to run for a while. For example, if the current level is 30, set the minimum to 20 and the maximum to 40. Then adjust the level limits accordingly to ensure motion is detected at the correct times.

You can also set motion detection to run every other frame on cameras with high frame rates. This will reduce processing time required for high performance cameras.

Triggers & Update Rate

i-Catcher Console feeds are normally configured to process one frame roughly every 150 to 200 milliseconds, giving a rough frame rate of around 5 frames per second. The update rate setting is the time between the completion of processing one frame, and beginning processing the next, so frame rate is not guaranteed to be constant. Increasing the update rate value slows down the feed, reducing the update rate value speeds the feed up.

Note that feeds sourcing from local devices may have the device frame rate set to a lower frame rate than the update rate would theoretically achieve. To increase the frame rate of such feeds, both settings need to be changed. The device frame rate can be configured via the device settings, as described in the section on manual configuration.

In order to eliminate the possibility of 'false positives', an alert trigger system is employed, based on E events in T seconds. This requires that E motions in the space of T seconds of time is required before any configured alerts will be sent. This removes alerts sent on camera noise and brief insect visits causing motion.

ICE Motion Detection

ICE (i-Catcher Clump Engine) is an advanced motion detection system that extends the Standard mode by grouping moved pixels into clumps and then tracking their movement through the field of view. Intelligent processing allows different clumps to be identified separately, as well as handling clumps that stop moving for a brief period of time.

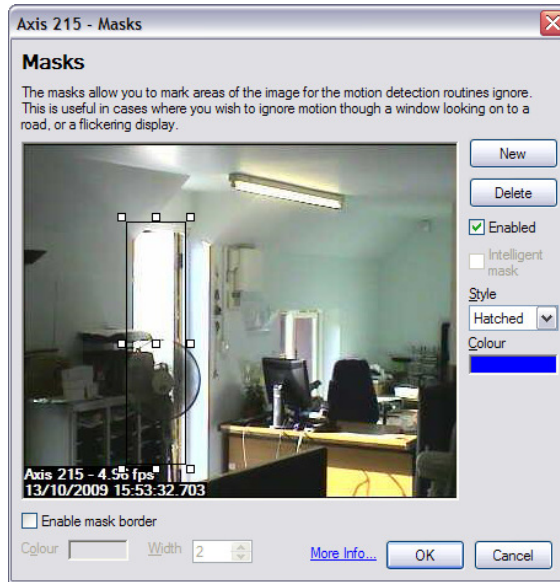
ICE also supports counting facilities to count the number of clumps in the field of view, total visitors to date, and also the ability to count clumps crossing 'virtual trip wires'. Please see the ICE section for more information.

Motion Masks

In some situations, there may be areas of the field of view that are constantly moving, such as trees, or a doorway opposite your premises. To handle these situations, i-Catcher Console supports Motion Masking.

The screenshot opposite shows the masks configuration, accessible by clicking the masks icon on the feed window, clicking the Masks button on the overlays tab of the feed settings, or by right-clicking on the feed in the feed tree list and selecting Masks.

One mask (over the right-hand monitor) has been added. The white blobs surrounding the mask can be moved to resize or reposition the mask as required.



Masks can be temporarily disabled by un-checking the 'Enabled' check box. This may be useful for testing purposes.

There are different types of masks that can be set up. The 'Style' drop-down list defines three mask styles:

- Invisible** The mask can not be seen at all on the feed image
- Hatched** The mask will be shown as a cross-hatch pattern, with the original image visible underneath
- Solid** The mask will be shown as a solid block, and the original image will not be visible at all

Additionally, a mask border can be enabled to outline the edge of the masked area, as identified by all the masks together.

Intelligent Masks

If the feed is using ICE motion detection, the mask can be set to be an 'Intelligent' mask. This differs from normal behaviour in that it will only mask motion that *originates* in the masked area. Clumps that started moving outside of the masked area will still be tracked as they move through the masked area.

The advantage here is that any motion such as trees, etc. will still be ignored, but if a person moves in front of the same trees they should be tracked by the motion detection system.

Overlays

i-Catcher Console supports adding a wide variety of information as a text overlay onto the feed image, as well as a motion highlighting crosshair. The overlays configuration can be accessed on the Overlays tab of the feed settings.

With the text overlay enabled, the position can be set to one of nine positions relative to the image itself: Each of the four corners, centred on each of the sides, top and bottom, and centred in the whole image.

The colour of the overlay text is controllable, along with the background which can also be set to transparent.

The information that can be included can be from dynamic sources, which are specified using *macros*. This includes the current time and date, feed name, and sensor states. The default feed overlay text is:

```
[name] – [fps] fps
[date] [time].[milliseconds]
```

Macros are identified by being surrounded by square brackets []. The default text specifies the feed name, the current number of frames per second being processed, the current date, the current time, and the millisecond value of the image. Please see the Overlay Macros appendix for more information, as well as how to include sensor states and counter values.

From this tab you can also configure the crosshair options. Crosshairs can be set to the following styles:

None	No crosshair will be displayed to highlight motion
Small Crosshair	A small-sized cross will be used
Full Crosshair	A cross whose hairs stretch the height and width of the image will be used
Bounding Box	A box will be drawn around the motion area
Corners	The corners of the equivalent bounding box will be drawn

The colour can also be adjusted if required. In addition to a crosshair, the moved blocks (see Motion Detection for more information on blocks) can be highlighted, and the highlight colour set. When using ICE motion detection, you can additionally outline detected clumps and show some statistical information alongside them.

The following clump outline styles are available:

Dot-to-dot	The horizontal extremes of the left and right edges are joined together to form an outline
Polar	The extremes measured out from the centre of the clump are joined to form an outline
Quadrilateral	The topmost, leftmost, rightmost, and bottommost points are joined together
Rectangle	The top left, top right, bottom left, and bottom right corners are joined together
Ellipse	An ellipse is drawn around the clump

PTZ Camera Configuration

i-Catcher Console is able to control a number of IP-based PTZ cameras, and RS485/Pelco cameras via a suitable RS232 adapter. Serial-based PTZ control systems that are connected to IP video servers capable of driving them can also be used.

PTZ is configured in the feed settings, and requires a PTZ driver is specified. This should match with your camera in terms of manufacturer and model. For IP cameras the IP address of the camera or device will need to be entered. If your camera uses authentication you will need to include this in the address.

Pelco/RS485 cameras can be controlled from the PC serial port by specifying the Pelco RS485 driver and selecting the required settings under 'Advanced'.

The following 'Address' examples demonstrate how authentication details can be added:

No authentication: 10.1.4.3
 Username only: admin@10.1.4.3
 Username and password: admin:password@10.1.4.3

Controlling Cameras

PTZ Cameras can be controlled from two places. A PTZ control section on the main menu bar becomes active when a PTZ camera is selected in the feed tree list. This provides the 8 direction controls and the home position control, along with zoom in and out controls and facilities to edit preset positions.

A separate PTZ control window can be accessed by clicking on the PTZ icon on the feed window. Clicking the icon a second time hides the PTZ control window for that feed.

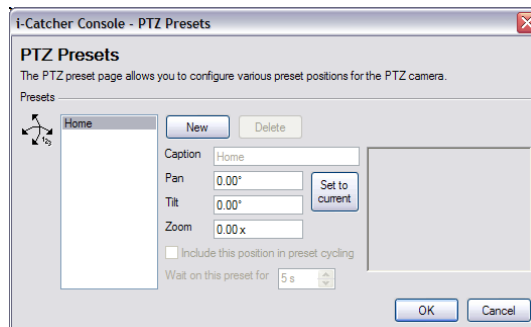
The PTZ control window has the same controls as the menu bar PTZ section, and also allows you to show the PTZ tab of the feed settings by clicking on the Settings button.

Preset positions

By clicking on the Presets button, and selecting 'Edit Presets' you can configure a number of preset PTZ positions for your camera.

There is one preset that can not be removed, which is the Home preset. This defines the default position for the camera, and is used when PTZ tracking is enabled.

To add a new preset, move the camera using the PTZ movement controls to the required position, then click on 'New' to create a new preset at this position. You can also change an existing preset by selecting it, moving the camera, and clicking 'Set to current'.



It is also possible to set a reference image for PTZ presets. This image will be used for the web view to give a visual reference as to the significance of the preset position.

PTZ Tracking

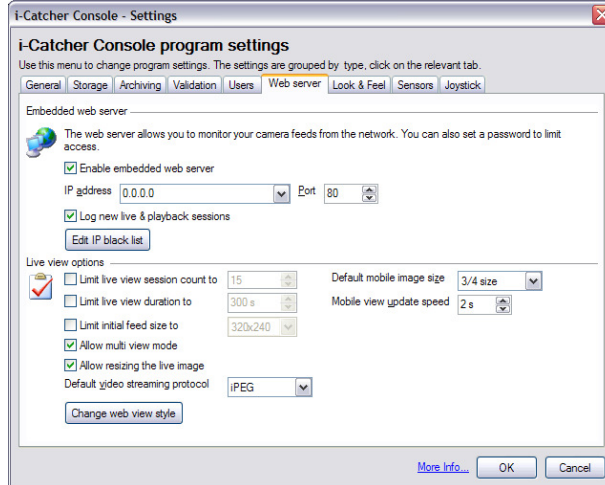
If the option to track motion is enabled in the PTZ settings for the feed, i-Catcher Console will move the camera to follow the motion being detected. Once motion stops, Console will wait a moment then move the camera back to home position.

Built-In Web Server

i-Catcher Console has a built-in Web Server that can be used for remote access on a local network or via the internet.

As well as providing web-cam style views of the running cameras, the web interface also allows remote playback of feeds, statistics view, and a limited amount of remote administration.

The configuration for the web server is shown opposite. Once enabled, various options can be set to customize the configuration, though for most situations the default configuration is adequate.



For advanced users who specifically require 'Binding' (the use of a specific IP address on the system, rather than all available) the IP address to listen on and port can be changed. The default of 0.0.0.0 refers to 'any available' and port 80 is the standard port for HTTP/Web access.

Various options are available for restricting use of the web interface:

Log sessions:

Writes to the i-Catcher Console log when a new web interface session is started.

Limit live view sessions:

Stops too many people from using the web interface at once.

Limit live view duration:

Stops visitors from using the web interface for too long.

Limited initial feed size:

Prevents the feed image from being too large, regardless of the native size of the image as images are served out at the size requested to save bandwidth. This option has no effect once the web view zoom options have been used.

Allow multi-view mode:

Allows visitors to see more than one live feed at a time.

Allow resizing the live image:

Allows visitors to zoom the live image in and out.

Default mobile image size:

The image size used by the view intended for mobile browsers.

Mobile view update speed:

The time to wait before the mobile view reloads the live image.

Default video streaming protocol:

i-Catcher Console can either stream using standard Motion JPEG streaming, or using the i-Catcher iPEG protocol, which reduces bandwidth per frame by only sending the blocks that have changed since the last update. This typically results in higher frame rates over slower internet connections.

There is also an option for a 'firewall' of sorts by means of the IP black list. IP addresses in this list will be prevented from accessing the features of the web view, and will instead be presented with an 'unauthorised access' web page. Instructions on how to edit the black list file are included in the file itself.

Lastly, the look of the web interface can be adjusted to a small degree. Clicking on 'Change Web View Style' will allow you change some of the colours used, apply a custom style sheet and adjust the header graphics seen on all pages.

The creation of CSS style sheets is beyond the scope of this manual.

There are also settings relating to web access in the feed settings. The Web Server tab allows you to specify if the feed can be accessed through the web interface at all, as well as whether the feed should be shown in the feed list (it can be hidden but still accessible by direct URL – see the Appendix for more information).

There is also a list of users with permission to see the feed that can be edited. This list can also be edited from the users global settings (see the section on Users for more information).

Digital Zoom/Tracking

i-Catcher Console can perform automatic digital zooming on feeds when motion is detected. These features are configured on the Zoom/Tracking tab of the feed settings.

Increase video size when motion is detected:

The first option allows you to increase the video size when motion is detected, and is a simple on-screen window size zoom.

Zoom in to the video and centre on motion when it is detected:

The second option to zoom into the video will cause the window size to remain the same, but the image content will be digitally zoomed, centred on the centre of motion, simulating tracking through the digitally zoomed image. This is how the image will be recorded.

When using the ICE motion detection, tracking will apply to the largest clump in the field of view.

The Plan View

i-Catcher Console allows you to represent camera motion detection on one or more plan views of your premises.

The system is already set up with an example plan view, which can be shown by right clicking on 'System Plan/Overview' and selecting 'Show Plan'.

You can also delete or rename plan views, or add additional plans by right-clicking on the empty space of the tree list area, and selecting 'New Plan'.

To set the background, right-click on the plan and select 'Properties'. From here you can rename the plan and set the background image.

Once the plan view is on screen, you can drag cameras and sensors from the feed tree list to the plan.

Cameras on the plan view will be highlighted when motion is detected, initially in red, then orange. The highlight will shrink as the time without motion increases. Sensors will have marks to show their current state.

The plan view window is considered when using the auto-arrange function, and will count as one of the windows when trying to find a 'best-fit' layout.

The Gallery

i-Catcher Console can create a gallery of key images from your recorded footage. Clicking on the Gallery icon of the playback window will bring up the gallery, alternatively it can be displayed by double-clicking the gallery icon on the tree list.

Individual galleries can be created with the Add Gallery button, and images added from the playback window can be added to galleries. Expanding the window will allow you to edit information relating to the gallery and the currently selecting image.

On the wizard tab, you can define the information that will be used for the web pages generated while exporting the gallery, including fonts and colours.

Clicking on 'Export Gallery' or 'Create Website' will allow you to export the gallery and images in a miniature web site format to a folder. This folder can then be uploaded to a website for visitors to examine.

Evidence CD Creator

If you should need to present evidence to the Police or other authorities, i-Catcher Console provides a means to export images and videos of the incident to a CD.

The generated CD contains a stand-alone evidence browser that requires no software installation to run (Windows PC required to view). The browser shows you all the incidents recorded on the CD with the opportunity to play back each one. The playback operation is identical to that of i-Catcher Console.

To activate the Evidence CD Wizard, right-click on Local Console in the tree list, and select 'Create Evidence CD'.

The Wizard starts by asking for information about the first event to add to the CD. You will need to select the camera the incident occurred on, the date of the incident, and the start and end times of the incident. As with creating AVI video files from playback, you can not span across midnight boundaries.

Once you click next, you will be shown the list of events added so far. You can add more events by checking 'Add More Events' and then clicking next.

Once the event list is complete, clicking Next will allow you to specify the folder to export the CD structure to. By default, this is the Microsoft Windows XP/Vista CD Burning folder. When export is completed, you will be able to burn the files to CD by right-clicking on the CDROM drive under My Computer, and selecting 'Burn these files'.

For other versions of Windows, you can specify an alternative folder and use your own CD Writing software to write the CD contents.

At this point, you can choose if the Evidence CD Creator should also compile AVI video files of the recorded footage. These AVI files can be played back in a media player (such as Windows Media Player or QuickTime) independently of the evidence CD browser.

If you choose to create an AVI video, you can select "Change Video Codec Settings" to change the video compressor and its associated configuration, along with the compression quality and frame rate.

Note that when an H.264 stream-to-disk feed is being used, the H.264 data will be directly passed into the resulting AVI file, and codec settings will be unavailable. The video will playback at the rate and quality used at the time of recording and will use the H.264 compression mechanism.

Clicking Next will ask you to confirm you are ready to create the Evidence CD. Upon clicking Finish, the image files will be copied, and an AVI video file generated using the codec settings of the last AVI video file creation. Lastly, the CD structure and evidence browser will be copied.

Web Interface

i-Catcher Console has a versatile web interface that allows live views, playback, statistics and limited remote administration.

Live View

The web view is shown opposite. It is divided into sections:

Live Feeds	View cameras live
Playback	View playback for the selected feed
Statistics	Information on web view usage
Mobile View	For phones and PDAs
Login	To access additional features not available to anonymous users

The live view contains extra settings to make management of the cameras on the system easier:

The screenshot shows the i-catcher console web interface. At the top, it says "i-catcher console" and "pc based digital cctv security & surveillance solutions for networks". On the right, it says "i-catchercctv". Below this, there are several sections:

- Live Feeds (4)**: A list of cameras: Axis 215, Genie, LogiTech, and Office. The "Axis 215" camera is selected.
- Image**: Controls for "Size" and "Quality" with sliders and buttons.
- Playback**: A button for viewing playback.
- Automation**: A button for automation settings.
- Statistics**: A button for statistics.
- Administration**: A button for administration.
- Mobile View**: A button for mobile view.
- Login**: A button for login.
- Display**: A section with icons for different display layouts (single, 2x2, 3x3, 4x4, etc.).
- Viewer**: A section with radio buttons for "JavaScript" and "Java".

The main part of the interface is a live video feed of an office interior. In the bottom left corner of the video, it says "Axis 215 - 6.01 fps" and "13/10/2009 15:59:57.935".

Display:

Change the number of feeds being viewed and the layout. In order the layouts are: Single feed view, 2x2 grid view, 3x3 grid view, 4x4 grid view, 6-camera view with one large and 5 small feeds, and 13-camera view with one large feed in the centre surrounded by 12 smaller feeds.

Viewer:

If Java is not supported on the browsing system, you can switch to JavaScript. Java is preferable, as it provides access to the iPEG stream which gives a higher performance and smoother live view experience. If Java is not available, e.g. on a public internet terminal, then JavaScript can be used instead.

Image:

Contains the size (zoom) controls and the image quality controls. A smaller image or lower quality image will reduce bandwidth and increase the viewing frame rate.

The rightmost quality setting will show the image at its native encoding quality. Depending on the recording settings, this may use more bandwidth to display.

PTZ:

Controls PTZ (moveable) cameras. The controls in the centre of the wheel control the optical zoom facilities of the camera. The 'Home' button sends the camera to its home position, and 'Fine' can be toggled to enable finer movement of the camera, particularly at high zoom levels.

Note that the PTZ control pane is not shown in the screenshot.

Web Playback

The web playback page looks similar to the live view page, with the restriction that you can only play back one camera at a time.

The 'Image' section also contains an information icon, which when clicked will pop up a window showing the original image (without zoom/quality processing) and information on its recorded time and date, as well as where the corresponding JPEG image can be found on the Console system.

The playback controls area shows a motion timeline indicating where and roughly how many images were recorded. The bottom of the controls area shows the VCR-like controls: Beginning, Step back, Play back, Stop, Play forward, Step forward, End. In addition to these controls, you may click anywhere on the timeline to jump directly to a particular time, or you can enter a time directly into the time text box and click the icon to its right. The timeline can be refreshed at any time by clicking the refresh icon to its right.

The playback speed can be adjusted with the speed slider. The rightmost setting enables 'double stepping', i.e. playing of every other frame. This can be useful for playing high frame rate feeds over a slow connection.

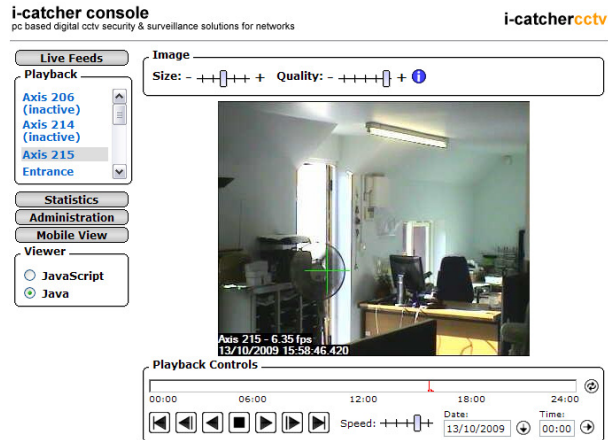
Clicking the icon to the right of the date box will pop up a calendar from which you can select a new date to play back.

Other web view features

The remote administration features control a limited number of global and feed settings. Their configuration is the same as if being configured through the application itself. Please see the appropriate settings sections for more information.

The mobile view is intended for use by mobile devices such as mobile phones and PDAs. It uses a very simple page refresh mechanism compatible with mobile browsers. Selecting the Mobile View button will ask you to select a feed to view, before being taken to a dedicated view page showing just the mobile image.

Please see the web view Appendix for information on accessing pages directly through the web view, as well as information for embedding live feeds in other pages without the web view controls.



Storage, Archiving and Validation

i-Catcher by default stores images under a single storage path, which is also used to hold the files pertaining to the alert system. For large systems where storage may need to be spread across multiple file systems, each feed can define a separate storage path on the Recording tab of its settings.

This path can be configured to be anywhere accessible to the system, including network drives and mapped drives connected via a VPN (Virtual Private Network) link. Configuration of this path is on the Storage tab of the global settings.

i-Catcher Console monitors the amount of disk space used, and utilizes an 'archiving' mechanism to reclaim disk space. When free disk space falls below a configured percentage, i-Catcher Console can either cease operation, or run an on-the-spot archive process to recover disk space.

When this happens, a day's worth of the oldest footage from each feed is removed until the disk space reaches an acceptable level.

The archiving process is configured on the Archiving tab of the global settings, and can be configured to run at a scheduled time, usually late at night.

During the archive process, images are either deleted or moved to an alternative location. i-Catcher Console is not able to track or archive images once they are moved, so these will need to be processed either manually by human intervention, or through a third party automated process.

The images moved or deleted are always the oldest images from all feeds. The archiving settings specify how many days to retain images for. Once images pass this configured age, they will be archived at the specified time.

Validation

Images are recorded with a digital signature to prevent tampering. During playback (both in Console and in the evidence browser included on created Evidence CDs) the presence of the digital signature is checked, and a warning can be given if the digital signature is missing or corrupt.

Settings on the Validation tab of the global settings allow you to switch off this feature if required for testing purposes. Digital signature checking can also be applied to images received from remote Sentry clients (see below).

Remote Sentry Clients

The i-Catcher Sentry single camera software can be used as a remotely operating camera as part of i-Catcher Console. To do this, the feeds folder as defined on the Storage tab of the global settings must be shared on your local network, and writeable from the remote computer by the user account that will be logged in when Sentry is running.

Please see the i-Catcher Sentry/Client help files for more information on configuring i-Catcher Sentry as a feed for i-Catcher Console.

Single File Storage

Feeds configured to use Single File Recording Mode will store the footage in one large file per day, rather than individual files per frame. This has the effect of increasing performance and reliability with regard to the system hard disks. Cameras configured using the H.264 stream-to-disk mode will also record in this manner.

Users and Permissions

i-Catcher Console has a flexible user and permissions system that allows different facility access to be granted to different people.

The user list is configured via the Users tab in the global settings. The screenshot opposite shows the configuration for a new user. There is one user that can not be deleted that is named 'Default User'. This refers to anonymous (unauthenticated) access to the web interface.

While the default user can not be deleted or disabled, you can remove all permissions from the default user, which will require logging in to the web interface to access facilities.

Local Administrator:

This option gives the user the ability to lock and unlock the Console. Until at least one local administrator exists, the lock feature can not be used.

Remote Administrator:

This option allows the user to configure i-Catcher Console from the web interface.

There are three options relating to remote viewing: Remote viewing (live feeds), remote playback, and PTZ control. Each of these can be enabled or disabled for the user being edited.

You can then specify which feeds the user has access to, as well as whether the user will have access to feeds created in the future. Those feeds to which the user does not have access will not be shown in the web interface when they log in.

When creating a new user, you will be asked for a password to be set. The password can be changed at a later date by selecting the user in the list, and clicking on 'Password'.

Scheduling Feed Operation

i-Catcher Console allows you to define a schedule for when certain feeds should be operating. You can access the feed schedule from the Scheduling tab of the feed settings.

Scheduling is not enabled by default, and will cause the feed to run and process image data all of the time. When you enable scheduling, the schedule starts off blank, i.e. not running at any time.

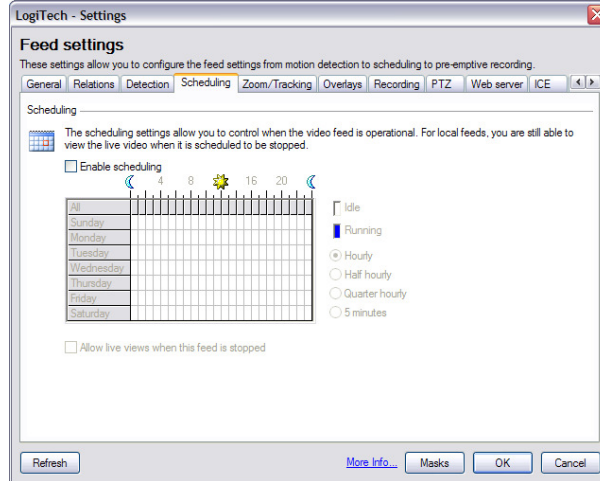
The schedule is presented (as seen in the screenshot opposite) as a grid of hours versus days. The time resolution of the grid can be set to hours, half-hours, quarter-hours, or 5-minute intervals. A blue block in the schedule indicates the feed will be running for that time interval for that day, a white block indicates the feed will not run.

You can click to set and clear individual blocks, or you can click and drag across the schedule to highlight a whole time area. Doing so will invert the state of any blocks that are already there.

Allow live views when feed is stopped:

You can configure the feed to still run but not detect motion or record images by checking the option 'Allow live views when this feed is stopped'. This will allow the feed to be viewed through the web view even when it is scheduled to not run.

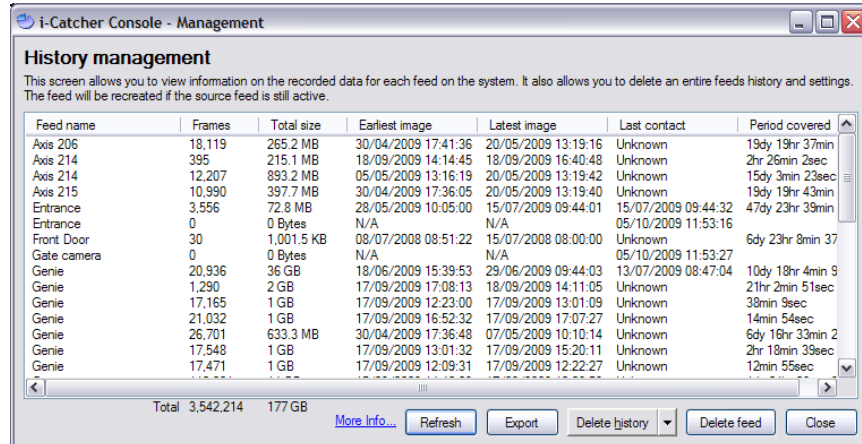
There is a similar schedule available for alerts. Please see the section on configuring i-Catcher Alert for more information.



History Management

It is possible to manually manage the images that have been recorded so far by i-Catcher Console, as well as see which cameras are taking up disk space.

The management console can be accessed by clicking on the Management button on the menu Console menu bar.



The screenshot shows the 'i-Catcher Console - Management' window. The title bar reads 'i-Catcher Console - Management'. Below the title bar is a section titled 'History management' with a brief description: 'This screen allows you to view information on the recorded data for each feed on the system. It also allows you to delete an entire feeds history and settings. The feed will be recreated if the source feed is still active.' Below this is a table with the following columns: Feed name, Frames, Total size, Earliest image, Latest image, Last contact, and Period covered. The table lists several feeds including Axis 206, Axis 214, Axis 215, Entrance, Front Door, Gate camera, and multiple Genie feeds. At the bottom of the window, there is a summary row showing 'Total 3,542,214 177 GB' and several buttons: 'More Info...', 'Refresh', 'Export', 'Delete history', 'Delete feed', and 'Close'.

Feed name	Frames	Total size	Earliest image	Latest image	Last contact	Period covered
Axis 206	18,119	265.2 MB	30/04/2009 17:41:36	20/05/2009 13:19:16	Unknown	19dy 19hr 37min
Axis 214	395	215.1 MB	18/09/2009 14:14:45	18/09/2009 16:40:48	Unknown	2hr 26min 2sec
Axis 214	12,207	893.2 MB	05/05/2009 13:16:19	20/05/2009 13:19:42	Unknown	15dy 3min 23sec
Axis 215	10,990	397.7 MB	30/04/2009 17:36:05	20/05/2009 13:19:40	Unknown	19dy 19hr 43min
Entrance	3,556	72.8 MB	28/05/2009 10:05:00	15/07/2009 09:44:01	15/07/2009 09:44:32	47dy 23hr 39min
Entrance	0	0 Bytes	N/A	N/A	05/10/2009 11:53:16	
Front Door	30	1,001.5 KB	08/07/2008 08:51:22	15/07/2008 08:00:00	Unknown	6dy 23hr 8min 37
Gate camera	0	0 Bytes	N/A	N/A	05/10/2009 11:53:27	
Genie	20,936	36 GB	18/06/2009 15:39:53	29/06/2009 09:44:03	13/07/2009 08:47:04	10dy 18hr 4min 9
Genie	1,290	2 GB	17/09/2009 17:08:13	18/09/2009 14:11:05	Unknown	21hr 2min 51sec
Genie	17,165	1 GB	17/09/2009 12:23:00	17/09/2009 13:01:09	Unknown	39min 9sec
Genie	21,032	1 GB	17/09/2009 16:52:32	17/09/2009 17:07:27	Unknown	14min 54sec
Genie	26,701	633.3 MB	30/04/2009 17:36:48	07/05/2009 10:10:14	Unknown	6dy 16hr 33min 2
Genie	17,548	1 GB	17/09/2009 13:01:32	17/09/2009 15:20:11	Unknown	2hr 19min 39sec
Genie	17,471	1 GB	17/09/2009 12:09:31	17/09/2009 12:22:27	Unknown	12min 55sec

In order to show file statistics, Console needs to scan the hard drive and build up information, which can take some time and place extra load on the system. You will be asked to confirm if you wish to show the management screen if Console is not stopped at the time.

The management window (shown above) shows each feed on a separate line, with the total number of images recorded, the total size of the images, the time and date of the first and last recorded images, and the time the feed last sent information to i-Catcher Console.

You can refresh this information at any time by clicking the Refresh button. The history for any given feed can be deleted in its entirety by clicking on the Delete History button, and selecting 'Selected Feed'. Alternatively, all history can be deleted by selecting 'All Feeds'.

A feed can be removed from the system by clicking on the Delete Feed button, and will have the same effect as being deleted from the feed management.

It is also possible to export the data available in the management view to a CSV file. This file can be imported into any application that supports the Comma Separated Values (CSV) format for data, e.g. Microsoft Excel. Select the Export button and enter a filename to do so.

Logging

i-Catcher Console logs certain events to a daily log file so that any problems can be identified. This includes loss of contact with cameras, new web view sessions (if enabled), system status, and archiving status.

The log can be accessed by clicking on the Logging button on the main Console menu bar. Options are available to select the log date, and to filter on a particular feed, the web view, or all messages.

The log shows the time of the event, the feed it relates to (if applicable) and the message itself. Messages are colour-coded to indicate their significance.

Red Messages	Critical problems such as loss of camera contact
Orange Messages	Less critical problems such as a temporary loss of camera
Green Messages	Successful recovery from an earlier problem, or successful completion.
Blue Messages	Related to the web view system
Black messages	Informational and indicate minor events

The log window is considered when using the auto-arrange facility, but is not part of the 'best-fit' system. The Log window will be treated such that it reduces the 'free' area in which to auto-arrange feeds.

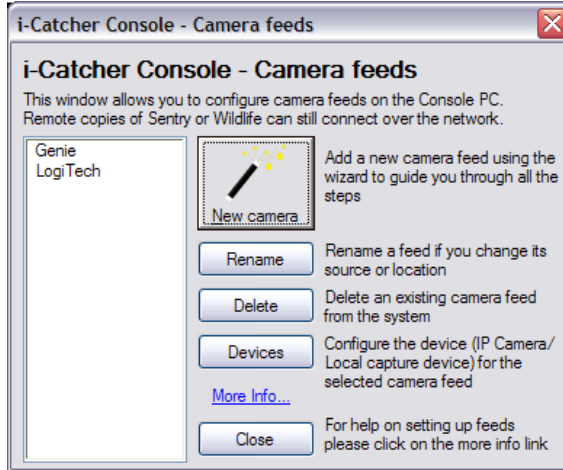
Camera Management

To manage the existing cameras, a simple camera management interface is provided, and can be accessed by clicking on 'Cameras' on the main i-Catcher Console menu bar.

From here, you can rename and delete existing cameras, and add a new camera if required.

Clicking the 'New Camera' button will start the new camera wizard as detailed earlier in this manual.

The 'Devices' button allows manual configuration of the camera as detailed earlier in this manual.



Look & Feel and Startup Options

i-Catcher Console's appearance and behaviour can be adjusted to certain requirements. This is configured via the Look & Feel tab of the global settings.

Heads-Up Display:

A 'Heads-Up' display can be enabled which shows some feed statistics when the feed is hovered over. The translucency of the display of this information can be configured.

It is also possible to configure the translucency of the main Console menu bar.

LCD Info/Status Panel:

By default, the LCD status display changes between different status modes. This cycling can be disabled, such that changing status modes must be done manually by clicking on the status panel.

Auto-Arrange:

When auto-arrange is used, the 'best-fit' algorithm reduces the available free area to account for the Console bar itself. This can be disabled, causing the whole screen area to be used, covering the Console bar.

Additionally, the playback windows can be hidden when auto-arranging.

Startup Options

Various options can be set relating to how i-Catcher Console starts up, and also the startup of Windows. These are configured from the General tab of the global settings.

Start i-Catcher Console on Startup:

i-Catcher Console can be set to automatically run when Windows starts. This still requires a user to be logged in, as a shortcut is added in the Startup program group. You can use the Microsoft TweakUI application to configure the system to login automatically if required.

Automatically start monitoring on startup:

Automatically lock Console on startup:

By default, i-Catcher Console will start monitoring all cameras when it is started. This behaviour can be disabled if required, causing Console to start up in a 'stopped' state. Likewise, Console can be configured to start with the menu bar locked, requiring a password to change the settings. This requires that at least one user is configured with local administrator privileges (please see the Users section for more information).

Add an icon to the system tray:

i-Catcher Console normally adds a 'C' icon to the system tray, which allows access to certain features. This feature can be disabled.

Automatically hide Console bar on startup:

The Console bar can be hidden by right-clicking on the 'C' icon on the system tray and selecting 'Hide Console bar'. An option is available to hide the Console bar on startup.

Start and stop i-Catcher Alert with i-Catcher Console:

It is also possible to have i-Catcher Console start the i-Catcher Alert manager on startup if you use alerts. And the startup settings for this option are set here. Please see the section on Alerts for more information.

ICE Motion Detection

The ICE (i-Catcher Clump Engine) system allows i-Catcher Console to track multiple objects in the field of view of the selected camera. Its configuration is available on the ICE tab of the feed settings.

Once enabled, the target object type can be selected, which defines what size objects you are expecting to track. This helps the system group pixels together into clumps for tracking, but does not filter out object types, e.g. if you select Large Object, it will still pick up and track small objects. Likewise, you can tune the system more by selecting the average speed of anticipated moving objects.

You can also adjust the settings more finely by clicking on 'Advanced'. From here, you can adjust the target size, target shape (tall and narrow to short and wide), and the edge margin. When clumps move into the edge margin, they are given less time to move before being removed from Console's list of clumps to track. This margin can be shown on the recorded image.

The time for which clumps are tracked can be adjusted:

Clump Persist Age:

The time for which a non-moving clump will be retained. Non-moving clumps older than this will be removed from Console's tracking list.

Clump Edge Age:

This is the same as the persist age, but applies to the edge margin as described above.

Minimum Clump Age:

This determines how long a clump of pixels needs to be moving before Console starts tracking it.

Console can also calculate the speed in which a clump is moving, if the real distance covered by the field of view specified and speed calculations are enabled. Note that this only works well for 'top-down' camera views. Other views will have inconsistent distances from one edge to the other, and will skew the speed calculation.

Virtual Tripwires and Counting

You can add a 'virtual tripwire' to an ICE feed. When a clump crosses this wire, a counter can be incremented or decremented. It is also possible to set Console to beep when this happens.

Tripwires are configured on the Counting tab of the Feed Settings. New trip wires can be added, and existing ones reconfigured or deleted.

Each trip wire can have a different colour and a horizontal or vertical orientation on the image. The size and position are set using percentages. To explain how this works, imagine an image 100 pixels across, with a tripwire with a position of 25%, and endpoints of 25% and 80%.

This tripwire will appear a quarter of the way down the screen, and will start one quarter of the way from the left (25 pixels in) and continue to 4/5ths of the way across (80 pixels in, or 20 pixels from the right).

Each trip wire when crossed increments or decrements a counter as selected. This can be set to be triggered on one direction or both, and the two check boxes will show the directions that can be monitored.

Exporting Counter Data

Counter statistics can be exported at regular intervals for analysis at a later time. The time and schedule of the export can be configured, along with the file to which the data will be saved. The data is saved in a Comma Separated Values (CSV) format, which can be imported into a spreadsheet.

There is also an option to reset the counters after the data has been exported. This can be used for example to create a daily report of visitors to an office.

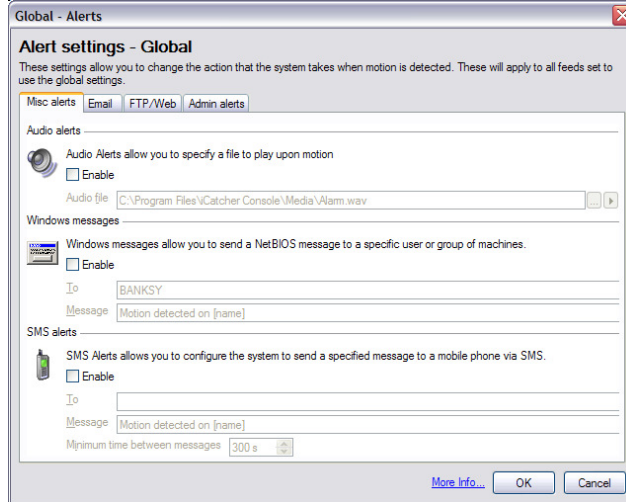
Actions

i-Catcher can be configured to perform a sequence of actions when an object crosses a tripwire in the configured manner. The list of actions that can be configured is the same as those available with sensors. Please see the sensors section for more information on the actions that can be configured.

Alerts

i-Catcher Console supports a number of different types of alert that can be generated when motion is detected. When alerts are generated most types are dispatched to a separate application called i-Catcher Alert which processes the alert type and the information it contains and takes the appropriate action.

Alerts can be configured two ways. Feed alert settings are accessed by right-clicking on the feed in the tree list and selecting 'Alerts' or by clicking on the bell icon on the tool bar of the feed window.



Global Alert Settings are accessed by clicking the 'Alert settings' button on the main i-Catcher Console menu bar.

Any feed that is set to 'Use Global Settings' for a particular alert type will inherit its settings from the equivalent global alert configuration, including whether that alert should be enabled or not.

Audio Alerts

This is the simplest form of alert, and will cause i-Catcher Console to play a chosen audio file when motion is detected. A sample file 'Alarm.wav' is included and features an 'intruder alert' style alarm sound. Any other audio file can be selected to play on motion.

Windows Message Alerts

This feature sends a network message via the Windows Network messaging system. This will cause the chosen message to be sent to the chosen PC, user or user group when motion is detected. If the destination has Windows Messaging enabled, then this will be shown as a pop-up message window.

The message can contain *Macros* which include dynamic information such as the feed name. These are words surrounded by square brackets []. Please see the Macros Appendix for more information.

Note: Windows Message alerts are not available for Windows Vista, as this feature has been removed from this version of Windows. Windows XP has the Windows Messaging service disabled by default, and will need to be enabled for this to operate. The service can be enabled via Control Panel, Administrative Tools, Services. Locate and select the Windows Messaging service and then double-click to show the service properties. Change the startup type to 'Automatic' then click 'Start' followed by 'OK'.

SMS (Text Message) Alerts

This alert sends the chosen text message to the specified telephone number. The primary mechanism for this is via the i-Catcher SMS service, which requires additional registration via the i-Catcher Web Site.

Text Messages use *credits* when a message is sent, and the number of credits used varies by the destination network. Additional credits can be purchased via the i-Catcher CCTV Shop, where you can find more information about pricing and registration:

<http://www.icode.co.uk/icatcher/cctvshop/sms-credits-c-33.html>

The message can contain *Macros* which include dynamic information such as the feed name. These are words surrounded by square brackets []. Please see the Macros Appendix for more information.

Text message alerts can be configured to hold off sending a message if another message has already been sent recently. The minimum time between messages setting determines how much time must have elapsed since the last message before a new message can be sent.

Email Alerts

i-Catcher Console can send an email when motion is detected, and attach recent images to show the event as it happens.

Console has two methods for sending emails: The main mechanism is to use your Internet Service Provider (ISP)'s mail server details. This will work with all setups and configurations, however you will need to obtain from your ISP details on your outgoing mail server (called an SMTP server). Further information is available in the section on configuring i-Catcher Alert.

Alternatively, if you have Microsoft Outlook installed, i-Catcher Console can use the mail client to send emails. Note that this does not apply to Outlook Express which is a different Microsoft product.

Note: Recent versions of Outlook (2000 and later) will not send emails automatically from 3rd party applications such as i-Catcher Console. As a security measure, Outlook will ask for user confirmation before sending emails, making it unsuitable for unattended security operation. In this instance, please use the SMTP server mechanism details above and in the section on configuring i-Catcher Alert.

Email alerts require a destination email address to send to, a subject for the email, and message contents. The subject and message can contain *Macros* to include dynamic information such as the feed name. Macros are words surrounded by square brackets []. Please see the Macros Appendix for more information.

Minimum time between emails:

i-Catcher implements a 'buffer time' between sending emails to prevent a cascade of alerts caused by the time taken to send one email. The default for this is 300 seconds (5 minutes), which means after sending one alert email, Console will not send another until motion is detected after 5 minutes.

Upload Alerts

As an off-site backup measure, i-Catcher Console can upload images of a motion event to a website when motion is detected. This can be an FTP upload, or the images can be sent to a locally accessible folder (this could be a network drive mapped over a VPN (Virtual Private Network) link).

Use FTP:

When using FTP uploads, you will need to specify the server hostname or IP address, login username and password. These details will have been provided to you by your web space provider, such as a web hosting company or your Internet Service Provider (ISP).

Directory:

For FTP uploads, this is the directory on the FTP server where the alert should be stored. For local 'uploads' this will be the folder to copy the images to.

Maximum images stored on the server:

By default, i-Catcher Console will automatically delete the oldest images to ensure there are no more than 50 images on the server/in the folder specified. This figure can be adjusted as required.

Create a summary page showing all images:

Create a page with the images for each feed:

i-Catcher Console will by default create web pages that provide an index for viewing in web browsers. The summary page will show all images from all feeds, and the 'images for each feed' page will create additional per-feed index pages that will be linked from the summary page. If web pages are not required, these options can be disabled.

Save a single still image containing the last motion:

If you have another system monitoring the uploaded images, i-Catcher Console can save the latest image under a fixed filename of *feedname.jpg*, where *feedname* is the name of the feed on which the alert was generated.

Minimum time between uploads:

i-Catcher implements a 'buffer time' between uploads to prevent a cascade of alerts caused by the time taken to upload one alert. The default for this is 300 seconds (5 minutes), which means after uploading one alert, Console will not send another image set to the server until motion is detected after 5 minutes.

Admin Alerts

i-Catcher Console can use the email alert system to send alerts when certain critical events occur. To do this, the 'Send admin alert emails' option on the Admin Alerts tab of the global settings needs to be checked.

Loss of feed:

When a feed loses contact with i-Catcher Console (in extreme circumstances) an email can be sent to notify the system administrator. This setting determines how long contact must be lost for in order for this to happen. This can be adjusted if you are running a particularly slow or loaded system where contact is lost temporarily due to heavy processing load, however on almost all systems the default of 15 seconds is adequate.

Send admin alerts to the email address for the feed:

Admin alert email address:

i-Catcher Console can be configured to either send the alert to the same email address configured for the normal email alerts for a given feed (or global alert settings if the feed is set to use them), or admin alerts can be set to send to a different address entirely (e.g. a system administrator rather than a CCTV operator). These settings configure the destination for admin alerts.

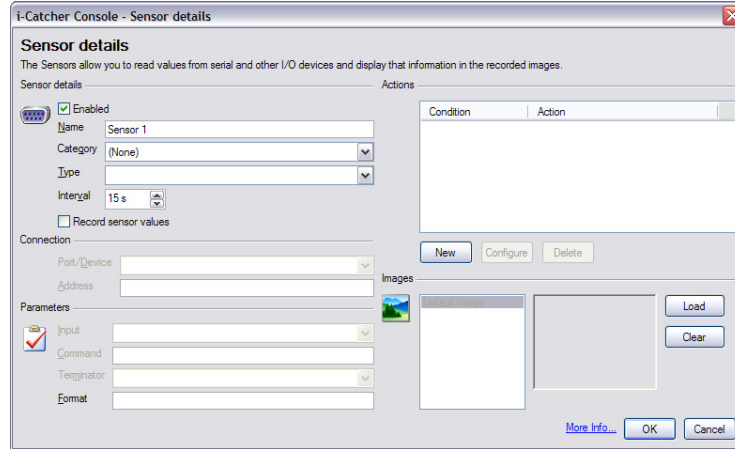
Actions

i-Catcher can be configured to execute a set of actions when motion is detected on a given feed. This is controlled via the Actions tab of the feeds alert settings. The set of actions available is the same as those available from sensor actions. Please see the sensors section for a list of actions that can be configured.

Sensors & Automation

i-Catcher Console can make use of both I/O (input/output) sensors and controls as well as Access Control systems. All of these options are grouped under 'Sensors' and can be configured through the Sensors tab of the global settings.

You can also access this tab directly by right-clicking on 'Sensors & Automation' and selecting 'Properties'. You can also add a sensor directly by clicking on 'Add New Sensor'.



Sensors can be disabled by unchecking the "Enabled" check box. This allows sensors to be temporarily shut down if there is a problem with the sensor hardware.

Each sensor has a category that defines what kind of sensor or control it is. This is used for remote access (e.g. the web view) to show an effective visual description of the sensor.

There are a number of types of sensor supported by i-Catcher Console:

- IP camera/video server I/O** An I/O port accessed through an IP video server
- RS232 device** A device that provides its sensor data through an RS232 serial port
- Access Control System** An access control system such as door locks

Note: RS232 devices do not have to be connected directly to a PC serial port. i-Catcher Console supports USB serial port adapters, including those used by the IO Networks sensors.

Interval:

i-Catcher Console periodically requests the status/value of the sensor at regular intervals. To prevent unnecessary processor loading, the default interval is 15 seconds.

IP Video Server Sensors

Some video servers and network cameras (e.g. Axis 241Q) have an I/O port with individual digital lines that can be set to a specific state to control hardware. For some devices, these can also be used as input sensors. Please consult your device's documentation on port capabilities and configuration.

Output lines are one of two types:

Logic Level The line can be set to a logic 1 (+5V) or a logic 0 (0V)

Open Collector/Drain The line can be set to logic 0 (0V) or logic 1 (disconnected)

Open collector/drain outputs require additional components for connecting hardware for control. Details of electronic circuit requirements are beyond the scope of this manual.

Input lines always read as a logic 1 or logic 0 at the device.

Port/Device:

This will need to be set to match the manufacturer of your device.

Address:

This is the IP address or hostname of the video server or camera on which the sensor resides.

Input:

This specifies which control or sensor line to use. This list will be populated automatically when the IP address or hostname of the device is filled in.

Format:

This defines how the sensor state will be interpreted. The format is two text values, separated by a / . The first defines the logic 1 state (On), the second the logic 0 state (Off). E.g. 'On/Off', 'Closed/Open', 'Connected/Disconnected'.

Access Control Systems

i-Catcher Console is capable with integrating with access control systems to lock and unlock door controls, detect the current door state (open or closed), etc.

You will need to install the controller application software for your access control system in order for i-Catcher Console to communicate with your devices. Please see your device's documentation for more information.

Port/Device:

This should be set to match the manufacturer and type of access control device you are using, e.g. a door control or door sensor.

Input:

This will list the available controls and sensors as defined in your access control system controller application software.

Format:

This defines how the sensor state will be interpreted. The format is two text values, separated by a / . The first defines the true state, the second the false state. E.g. 'Open/Closed', 'Locked/Unlocked'.

RS232/Serial Port Sensors

i-Catcher Console can read input data from a sensor connected to a serial port. These are input only sensors such as the temperature and humidity sensor from Digi.

Port/Device:

The serial port to use to access the sensor. This needs to be a serial port that is not in use by another application.

Command:

The text to send to the sensor to request the current value data to be sent back. Please see your sensor's documentation for information on what commands are accepted.

Terminator:

How the line ends of commands and responses are represented. Serial devices usually send special characters to signify the end of the line has been reached. These are typically the CR (Carriage Return) and LF (Line Feed) characters. Most serial ports use CR/LF, however you can change this option here.

Format:

The format option specifies how the data should be displayed in a text overlay. A full description of format strings is available at the Microsoft Developer Network, and more details are available in the help file.

A '0' in the format string refers to a mandatory digit, where as a '#' refers to an optional digit. The full stop '.' defines the decimal point between value components. Use of these parts together allows you to define decimal places and significant digits, as shown in these examples:

0.00 At least one digit before the decimal point and exactly two after
0.## At least one digit before the decimal point and up to two after
000.0# At least three digits before the decimal point, and at least one but no more than two after

Multi-Function serial sensors

Some sensors (e.g. the Digi Temperature and Humidity sensor) have multiple functions in them. i-Catcher Console has a built-in 'multiplexer' facility to request these values under separate sensor definitions without encountering a serial port conflict. You simply need to define two sensors using the same serial port with different commands.

Sensor Actions

Sensors can be used to trigger actions and events within i-Catcher Console. The Actions list defines a set of rules and consequences to carry out when input sensors reach certain values.

By clicking on New, you can select the type of action you are interested in performing according to the specified conditions:

Send an alert message	Send an email or text message alert
Play an audio file	Play a sound through the local sound card speakers
Record all activity on a camera	Start recording from a camera for a specified duration even if there is no motion or the camera is not scheduled to run
Move a PTZ camera	Move a designated PTZ camera to a preset position
Set the state of an output sensor	Change an output sensor to a new state, e.g. to turn equipment on or off
Run an external application	Start a third-party process running
Write an entry to the i-Catcher log	Simply write a line to the i-Catcher main log stating the sensor has change and what value it changed to

Each action has its own set of configuration that must be completed to ensure the action is defined correctly.

Reference Images

Each sensor can be assigned a reference image that identifies the sensor. A different image can be set for each sensor state. Select the sensor state, then select Load to specify which image file should be used.

Sensor to Feed Relations

i-Catcher Console allows you to specify which sensors are relevant to a particular feed, e.g. a camera looking inside a cold room will relate to sensors describing current temperature and a controller for a heater or cooling system.

The Relations tab of the feed settings defines these sensor relations. These are used mainly in the web view to show sensor controls that are relevant to the feed for convenience.

Sensor Recording

By enabling the option to Record Sensor Values, i-Catcher will log the sensor values at regular intervals for later examination. The current sensor value graph can be examined by right-clicking on the sensor in the main tree view and selecting View Sensor Graph.

Reference Images

i-Catcher Console allows you to store a 'reference' image for each feed. This allows you to see what changes have occurred on a particular feed that might otherwise be difficult to identify. It also allows you to compare the reference image with the current image if the camera needs to be physically replaced, to confirm the new camera is positioned correctly.

The reference image can be configured via the General tab of the feed settings. You can click on 'Load' to specify an existing feed image file, or you can click on 'Use Current' to use the current camera image instead.

You can also rename the camera from this configuration tab.

System Optimizer

The majority of i-Catcher systems will operate 'out of the box' and require no adjustments to the underlying operating system for a smooth experience. Some systems however, particularly those with many cameras, will benefit from the built-in System Optimizer that can adjust or disabled certain operating system features to improve performance.

The System Optimizer can be accessed via the 'Support' button on the main i-Catcher Console bar.

Three predefined optimizations are defined along with a custom performance setting. Selecting one of the pre-defined optimizations will apply changes without any further questions.

Selecting 'Custom Performance Options' will allow you to adjust the settings more precisely before proceeding:

Decrease feed update rate interval by 50ms:

To improve the rate at which image data is processed, the default update rate can be decreased from 200ms to 150ms. This will use negligible additional processing time whilst improving the rate in which images are analyzed and recorded.

Enable load balancing:

This enables load balancing for all cameras. Load balancing automatically adjusts the update rate for the camera, and normally runs the feed at a slower speed to give processing time to other 'active' cameras. When the camera detects motion, its update rate is increased to record the event, and then reduced again when motion ceases.

Disable 8.3 filenames: (NTFS only)

The NTFS system of Windows 2000, XP and Vista systems automatically maintains two sets of filenames for each recorded image, one of which is maintained purely for compatibility with older applications that can not recognize long filenames. This feature can be disabled when running on a dedicated CCTV system.

Disable last access time updates: (NTFS only)

Windows normally maintains information on when files were last read, modified or created. Disabling this feature eliminates the additional overhead of updating this information when each image is recorded.

Disable the Windows Indexing Service:

Windows runs an Indexing Services to automatically build a database of where certain files can be found on the system. This takes processing time to achieve and can be disabled on dedicated CCTV systems.

You will be asked to confirm application of changes once your settings are chosen. Clicking on 'Finish' will begin applying the optimization changes.

You may need to restart your computer for setting optimizations to take effect.

Configuring i-Catcher Alert

i-Catcher Alert is the alert processing application that runs standalone to i-Catcher Console. It picks up the alerts generated by motion on various feeds and takes the appropriate action to deliver the alert as required.

Normally, i-Catcher Alert is started by i-Catcher Console, however it can be configured to not start with Console via the Startup options on the General tab of the global settings. This should be done on systems that do not need to send alerts from an unattended operation.

When running, i-Catcher alert is either shown on screen, or minimized to an 'A' icon in the system tray. It will be in the latter state if started by i-Catcher Console and it has not yet been opened. Double-clicking on the 'A' icon will open the i-Catcher Alert main window.

The Alert manager is divided into three sections:

Current Alert Queue:

This list shows the alerts that have been generated but have yet to be processed. Alerts are processed at regular intervals, and cleared once they are actioned.

Activity Log:

This shows the activity and actions taken by i-Catcher Alert, as well as any errors encountered while processing alerts.

Processes:

From this section you can disable the sending of specific types of alert on a temporary basis. The alerts i-Catcher Alert handles are SMS (Text Messages), emails, Windows Messaging messages, and FTP uploads.

By clicking on 'Less Detail' at the top of the main window, i-Catcher Alert can be reduced to a small window that shows only its running state. The status panel shows the current running state and allows you to stop the whole of i-Catcher Alert if necessary.

i-Catcher Alert Settings

i-Catcher Alert's settings are configured by clicking on the 'Settings' button of the main Alert window. i-Catcher Alert is configured with the details required to carry out the alerts, e.g. mail server settings.

Startup Options & Connection

The General tab of the settings allows you to adjust the options relating to i-Catcher Alert startup and also how to make a connection to the internet if you are not on an 'always-on' connection.

Start i-Catcher Alert when windows starts up:

Enabling this will add i-Catcher Alert to the Windows startup program group. This option is not normally needed, as i-Catcher Console can be configured to start Alert when it starts. Please see the section on i-Catcher Console Startup options for more information

Automatically start monitoring on loading:

This will allow i-Catcher Alert to immediately begin monitoring the alert queue when it is started, and is recommended for most installations.

Automatically minimize when starting up:

This option will cause i-Catcher Alert to minimize when started.

Minimise to system tray:

This option is enabled by default, and causes Alert to minimize to the system tray when minimized. To disable this behaviour so that Alert minimizes to the task bar, disable this option.

Use dialup to connection to the internet:

Dialup connection name:

If i-Catcher Alert requires the internet to complete an alert, it can be set to automatically dial out if required. This requires that a suitable dialup connection has already been configured in Windows.

Use passive mode for FTP:

FTP normally uses a 'callback' connection to transfer data, i.e. the FTP server makes a connection to i-Catcher Alert to request the data. Most modern internet connections are configured in such a way that PCs can't be contacted directly from the internet without special configuration. Passive mode 'reverses' the data connection so that this is no longer necessary, and will allow FTP to operate. This is recommended for most connections.

i-Catcher Console settings

The Console tab of the settings allows you to specify the trigger directory for alerts. This is normally the same as the history folder, and will be configured by i-Catcher Console if Console starts Alert automatically. This should only be changed if you have changed the history folder in i-Catcher Console, and you do not start Alert automatically.

Email Alert Settings

These settings configure how email alerts should be dispatched.

Use SMTP instead of Outlook:

When unchecked, i-Catcher Alert will try to use an install Microsoft Outlook client to send emails. This will not work with Outlook Express, which is a different product. Since Outlook 2000, 3rd party applications sending emails through Outlook will cause a prompt to appear on screen making this option unsuitable for unattended operation. When this option is checked, you can use a direct connection to your ISP's mail server using the SMTP protocol.

SMTP server:

This is your ISP's outgoing mail server hostname. Your ISP can provide this for you.

From address:

The email address that the alert emails will appear to originate from. This should be a valid address for your home connection or office network. Using an invalid or undeliverable address may result in your connection being 'blacklisted' by various internet anti-spam systems, which may cause future alert emails to be blocked or undelivered.

Log in to the SMTP server:

Username & Password:

If your ISP's mail server requires you to log in before sending emails, you can enable this option and specify your login credentials here.

Note: i-Catcher Alert can not send emails via encrypted or 'SSL' SMTP connections.

SMS Alerts

i-Catcher Alert normally sends Text Message (SMS) alerts via the i-Catcher SMS service. In this case, you only need to enter your registered username and password here. Buttons are provided to register for an account and check your credit balance.

The i-Catcher SMS service charges text messages in credits, the number of credits per message varying depending on which network they are destined for. Please see the section on configuring SMS alerts for information on obtaining SMS credit pricing.

Other SMS services are available. Please see the help file for information on configuring other SMS services.

Test SMS:

There is a facility to test the SMS alerting mechanism. You will be asked for a destination phone number for the test. On clicking 'OK' a simple text message will be sent using the details provided.

FTP/Web Alerts

You can define template HTML files which are used to generate the summary and feed pages for FTP uploads. Please see the help files for more information on creating custom HTML templates.

Scheduling

i-Catcher Alert has a scheduling system similar to the feed scheduling option in i-Catcher Console.

The schedule is represented as a grid, with hours of the day horizontally, and days of the week vertically. A blue square represents a block in which the schedule is active, a white square represents a block in which alerts will not be processed. The grid can be set to divide the day into hours, half-hours, or quarter-hours.

Clear pending alerts at the start of the schedule:

This option can be used to schedule alerts for a system where the feeds otherwise run continuously. With this option enabled, any alerts in the queue at the point the schedule starts will be removed. This means the Console system can still run the feeds with recording the whole time, but Alerts will only be sent inside the scheduled times.

Mobile Devices

i-Catcher Console is able to receive updates from mobile devices to provide information on their status. Console is then able to present this information via the main menu.

On devices that support location awareness (e.g. GPS) Console can display their current location and record the path taken for future purposes.

To make use of a device, right click on Mobile Devices in the main window, and select New Mobile Device. Console uses a pairing system to establish the identity of a connecting device. The pairing PIN is set randomly and must be used on the remote device to establish a connection.

Once the device is paired Console will be ready to receive updates on the device status. You can right-click on the device to delete or rename the device or to show the device location in Google Earth if installed. Similarly you can right-click on the Mobile Devices heading and select Show All in Google Earth to show the locations of all devices.

Note at time of writing device tracking software is only available for the Apple iPhone and iPod Touch.

Device requirements

iPhone:

- Working internet connection via mobile data link or WiFi.
- Location Services enabled.
- Contact with a minimum of 3 nearby cell towers for reliable device location data.

iPod Touch:

- Working internet connection via WiFi.
- Location Services enabled.
- Location will be limited to known coordinates of the connected access point.
- Not all access point locations are recorded in the Apple database.

iDomain

iDomain is i-Catcher's system for grouping Console systems together and providing a unified monitoring system from any single point. On large systems where management of CCTV cameras must be split across 2 or more servers, iDomain serves to allow viewing of feeds on another Console system.

To use iDomain, each participating Console system must have its Web Server enabled and configured to allow access. A separate user can be set up on the source Console for iDomain use that has viewing and playback permissions for all feeds.

On the main Console you can add a secondary Console by right-clicking on iDomain, and selecting Add new Remote Console. You will be asked for a name such as a server name or location. This field is arbitrary and can be anything you like.

For the URL field, you will need to enter the address of the secondary Console as you would to access the Console via a web browser. The URL should not contain any authentication details itself, as these can be set via the following fields.

If authentication is required, you can choose to use the credentials of the user currently logged in to the Main Console, or you can use separate credentials if necessary.

The Video Streaming Protocol can be set to MotionJPEG (for quality) or iPEG (for low bandwidth). The update rate defaults to 150ms which gives a rough frame rate of 5 frames per second. Note that this is independent of any rate the feed may be processing or recording at the secondary Console.

iDomain Server Options

Once the iDomain server is added, you can right-click on it in the main window to access several options, including renaming and deleting of the server. If you need to change the server address, authentication details, video compression or update rate you can do so via Properties.

Show Console	Loads the iDomain server into a web browser at the live view page
Playback	Loads the iDomain server into a web browser at the playback page
Update Feeds	Retrieves a feed list that will be shown under the iDomain server
Close All	Closes any windows open to a feed on the iDomain server

When feeds are shown under the iDomain server, you can right-click on the feed and select Show Feed to open a window containing a live view, Playback to open a window containing a playback browser, or Close to close any open windows associated with that feed.

Appendix A – Overlay Macros

The following macros can be used in text overlays to include dynamic data:

General Data

[now]	Current date and time, excluding milliseconds
[date]	Current date
[time]	Current time, excluding milliseconds
[milliseconds]	Milliseconds value of the current image
[timestamp]	Timestamp in the format YYYYMMDDHHMMSS
[name]	The name of the feed
[fps]	The number of frames per second being processed.
[ptzpreset]	The current PTZ present location, blank if pointing elsewhere.
[lastmotion]	Time of the last motion
[lasttrigger]	Time of the last alert trigger
[triggerlevel]	The current trigger level for motion detection.

ICE Motion Detection

[clumpcount]	Number of clumps (moving objects) in image
[visitorcount]	Number of visitors seen so far

Counting

[counter ID TYPE]	Tripwire counter value (see below)
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Sensors

[<i>sensorname</i>]	The current value or state of the <i>sensorname</i> sensor.
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The parameters for the [counter] macro are as follows:

ID	The counter ID as shown in the Counting tab of the feed settings.
TYPE	<ol style="list-style-type: none"> 1: Only objects crossing from left to right or bottom to top 2: Only objects crossing from right to left or top to bottom 3: Objects crossing in both directions

Appendix B – Common Web server URLs

The following URLs can be used to access certain resources in the i-Catcher Console web view. 'ad.dr.es.s' refers to the IP address or hostname of your i-Catcher Console system. Please see the support section of the i-Catcher web site for more information on configuring your system for access from the internet.

http://ad.dr.es.s followed by:

/index.htm or /	Live view. Add <i>?feed=feedname</i> to start with <i>feedname</i> selected.
/playback	Playback. Add <i>?feed=feedname</i> to start with <i>feedname</i> selected.
/statistics.htm	Web View statistics
/admin	Remote Administration
/mobile	Mobile view for phones and PDAs
/iphone	Web view specifically designed for the Apple iPhone and iPod Touch.
/simple.htm	Embedded 'image only' page. Requires <i>?feed=</i> as per live view.