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1.Preparation

1.1. System Requirement

- Microsoft Windows XP with SP2 or above version/Windows Server 2003 or above version
- 512MB system memory
- 10GB free hard disk space
- Microsoft .Net Framework 4.0

1.2. Recommend

- Microsoft Windows 10
- 2GB system memory
- 100GB free hard disk space
- Microsoft .Net Framework 4.0

1.3. Installation

CyWeb requires **Microsoft.Net Framework 4.0** pre-installed. You can download this component from Microsoft’s website, or let CyWeb Installer to download and install it for you.

There are some notes:

- Run **CyWeb_Setup.exe**.
- **CyWeb_Setup.exe**. will automatically download and install Microsoft .net 4.0 if your computer does not have it pre-installed. If this is the case, your computer must stay online during the installation. Furthermore, the size of the .net framework is up to 100MB so it would take around 10 minutes (depending on your network bandwidth and your pre-installed components) to complete the download and installation. Please be patient.

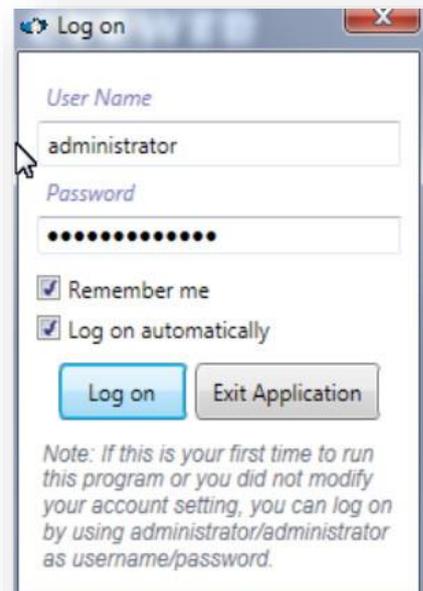
- There is a helper program 'AppMonitor' which you decide to install it or not. This program is to monitor CyeWeb running status and restart it when AppMonitor detect CyeWeb is shut down due to various reasons.

1.4. Log On

When you start the program, a log on dialog would show up.

You should logon with an account you configured in CyeWeb Account Management. If this is your first time to run the program or you did not modify your account setting, you can log on by using administrator/administrator as username/password. To create your own account, please refer to "Account Management" chapter.

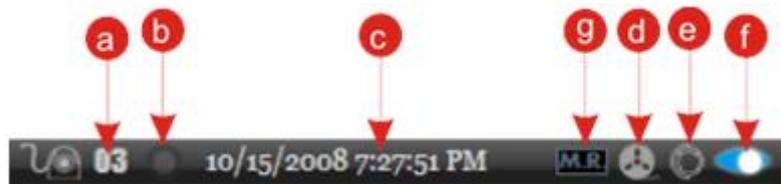
If you checked the "Remember me" and "Log on automatically" checkboxes, next time you run CyeWeb the remembered account will be used to logon. If later you want the log on dialog to show up again, you have to reset application state persistence. (Please refer to Program Settings).



2.Main Screen

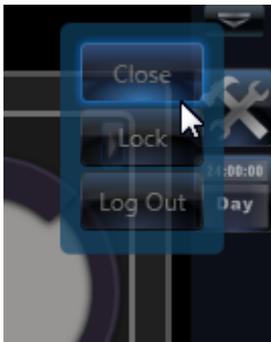


- 1) **Preview and main controls** – real-time video preview and main controls.
- 2) **Playback**.
- 3) **Float-out** – float out a tab-view. The floated-out window can be moved to another monitor. This feature is useful for users using multiple monitors.
- 4) **Channel control bar** – a bar to show information and hold control buttons for a channel. Here you can reset alarm indicator, run a channel and control a PTZ camera:



- (a) Channel number
- (b) Alarm Indicator – tell you whether alarm occurred. Left-click on this icon can reset the indicator.
Normal , Alarm
- (c) Date and time of the current video in local time zone
- (d) Instant Playback

- (e) Show up PTZ controller
 - (f) Run/stop channel – Stopped , Running 
 - (g) Manual Recording – Disable , Enable  . This button allows operator to manually start or stop recording. This is useful in the case that when the operator notices something abnormal but event detector doesn't alarm, and the channel is setup to use event-triggered recording. Please note that this button is effective *only if* the channel has bound the Recording and Streaming module and the channel is running.
- 5) **PTZ Controller** – here you can control the PTZ device which bound to the main channel.
- 6) **Show/hide non-client area** – non-client area is where you can minimize, maximize or close the program. You can right-click this button to close, lock or log out the program too.



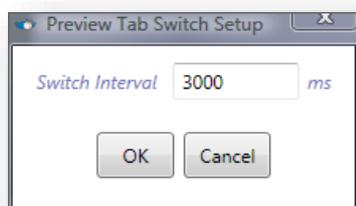
- 7) **Open setting dialog.**
- 8) **Start/stop scheduler** – here you can start and stop the scheduler.
- 9) **Main channel selectors** – here you can select the main channel.
- 10) **Start/stop audio** – here you can start or stop audio preview for the main channel or all channels (depends on your setting).
- 11) **Screen division selectors.**
- 12) **Program state indicator** – CyeWeb currently has 5 indicators:

- a) Storage Capacity: Health , Low , or Empty 
- b) Windows Media Broadcast: Active , or Inactive 
- c) CyeWeb Video Server: Active , or Inactive 
- d) Http Web Server: Active , or Inactive 
- e) Net Service: Active , or Inactive 

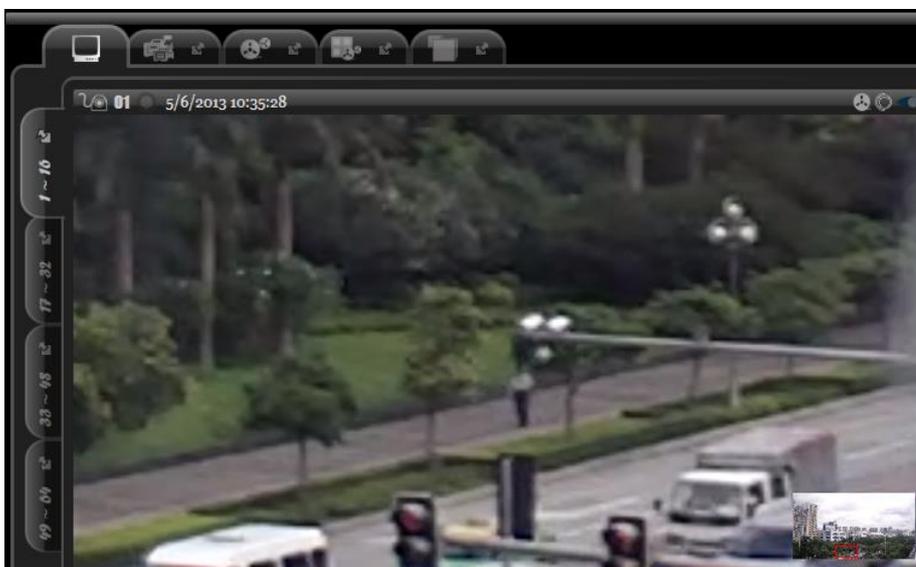
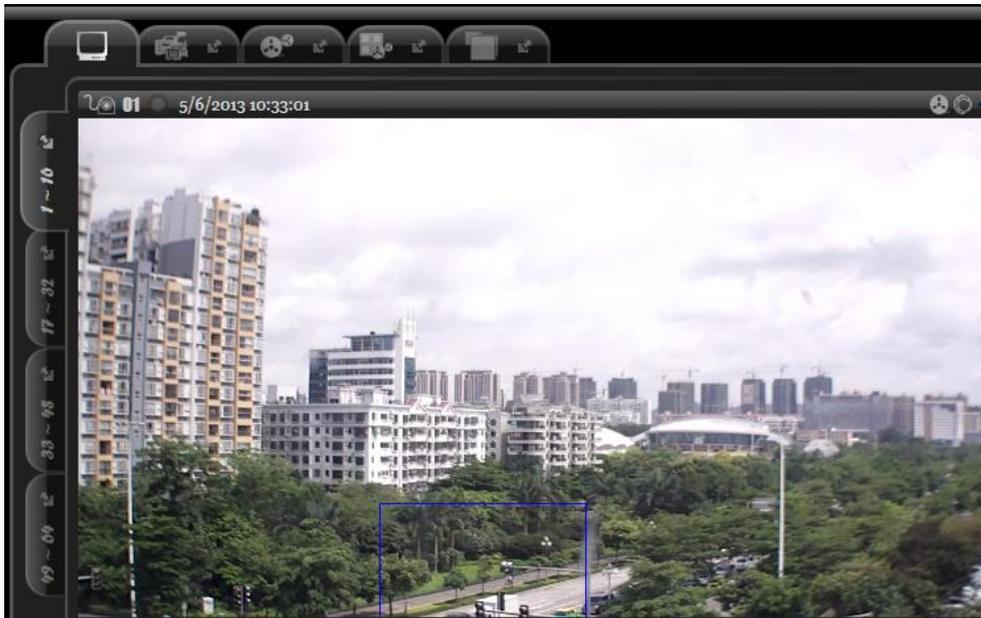
- 13) **Run/stop channels** – clicking on this button will show up a pop-up menu to run or stop some/all channels.
- 14) **Channel group selectors** – CyeWeb has 4 channel groups: 1-16, 17-32, 33-48, 49-64. Channel group can float out as a standalone window. This feature is useful for users using multiple monitors.
- 15) **Hide/Show control panel.**
- 16) **Timeline Playback.**
- 17) **Module View** – a list of floatable windows for bound application modules such as e-Map or application status log.
- 18) **Reset channel arrangement** – you can arrange channels by drag-and-drop on the preview videos. This button allows you to reset the channel order to the pre-defined state.
- 19) **Show/Hide Channel Grouper** – In the Channel Grouper you can add grouper, remove grouper, add channel, remove channel, etc. Please right-click on the icon to pop-up the menu.



- 20) **Preview tab auto-switching** – Switch the preview tab automatically. You can right-click on the button to show up the setting dialog:



- 21) **Digital Zoom** – press the right button of the mouse to select a “zoom-in” region; double click the right button to “zoom-out”.

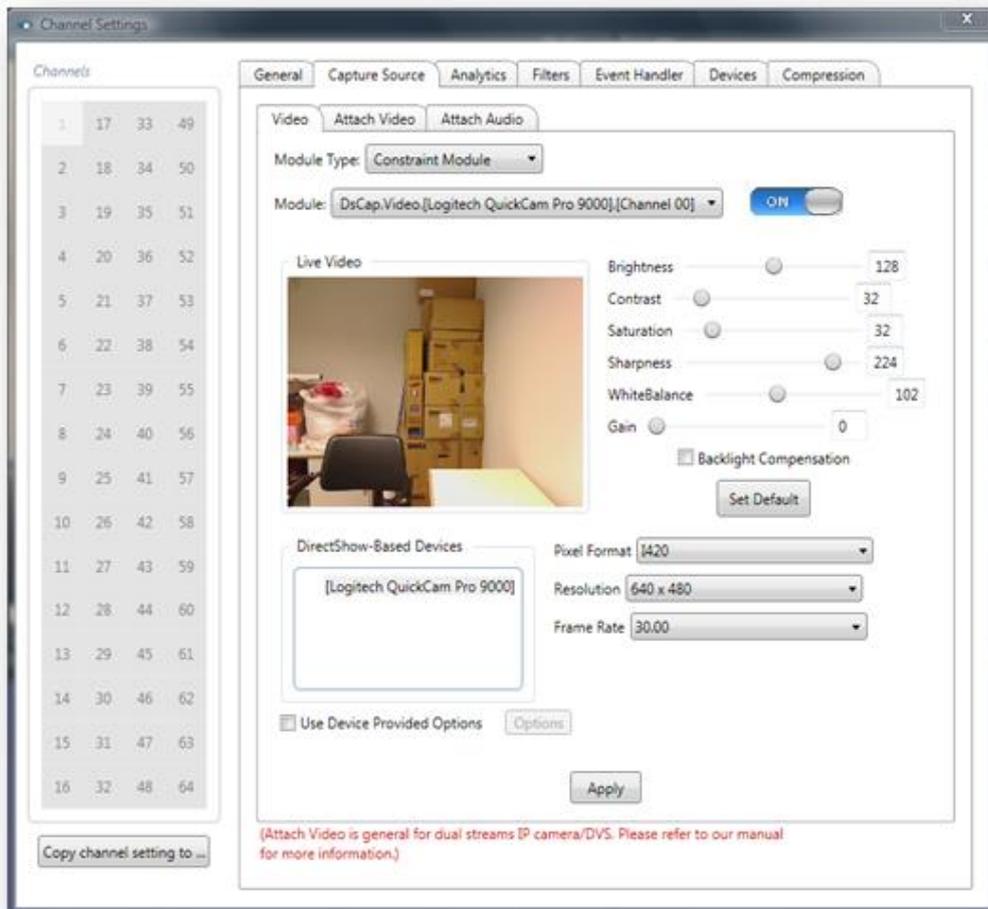


3. Connect to capture source

CyeWeb supports hybrid video and audio source. This means your USB-webcam, PCI/PCI-E capture card, hardware compression card, IP Camera, Windows Media Stream, remote CyeWeb..., etc can be connected on the same system. However, you have to make sure there is no conflict in your hardware. For example, sometimes PCI capture cards from different brands may not be able to work together due to driver and hardware conflicts. Your OS may crash instantly if this situation occurs.

3.1. Connect to a capture card or USB-Webcam

Open the setting dialog, and click the channel setting, you should see the following dialog:



In the “Module Type” combo box, select the “Constraint Module”.

Note: If your computer does not have any DirectShow compatible devices or devices

specially supported by CyeWeb, the “Module Type” option will disappear. Also, some broken driver may not implement all necessary interfaces even it is DirectShow compatible. These devices will not show up for selection.

In the “Module” combo box, select the capture card and input port or webcam you want to connect. This module allows you to select a DirectShow-based video device as a video source. Examples of DirectShow-based device are USB webcam and PCI/PCI-E capture cards (if the card vendor provides a driver with DirectShow capture filter).

You can select video standard, pixel format, resolution (from 160x120 to 1920x1080), and frame rate (from 5fps to 60 fps). In general, we recommend you to select I420 or YV12 as the pixel format if your capture device supports them. But you should also test if your capture device performs better on other pixel formats.

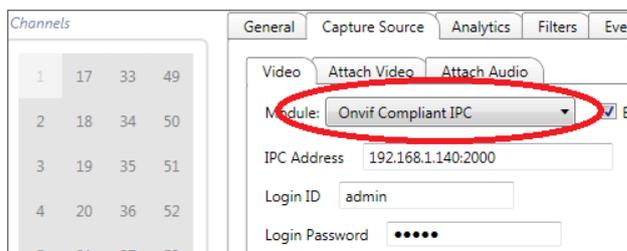
Check the “Bind Module” checkbox. Now you should be able to see the video. (If you are using the open source bt8x8 driver, you may need to recheck the box 2 times; this seems to be a bug in the driver.)

If you checked “Bind Module” but no video show up, you may check “Use Device Provided Options”. We do not recommend you to use this option unless it is necessary. In this case CyeWeb will no longer know the settings and has no way to remember them.

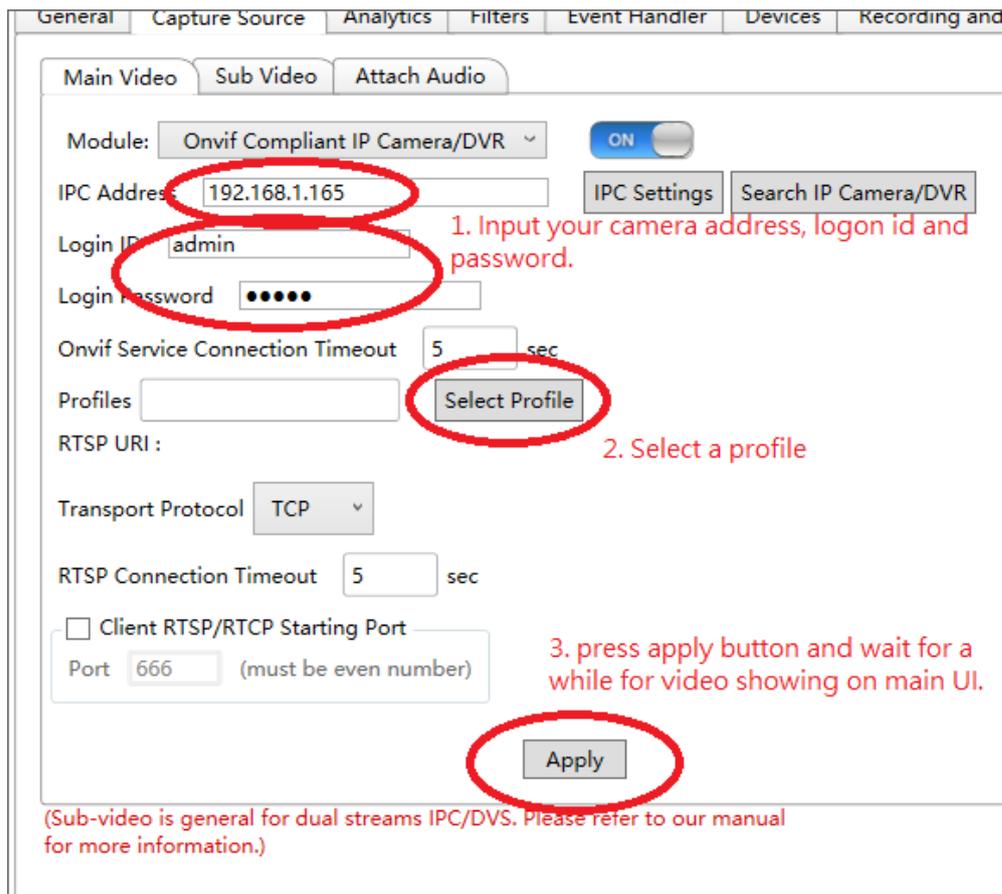
3.2. Connect to ONVIF IP camera or NVR

Most camera today in the market supporting ONVIF. You may try this option if you cannot find your camera model shown on the device list.

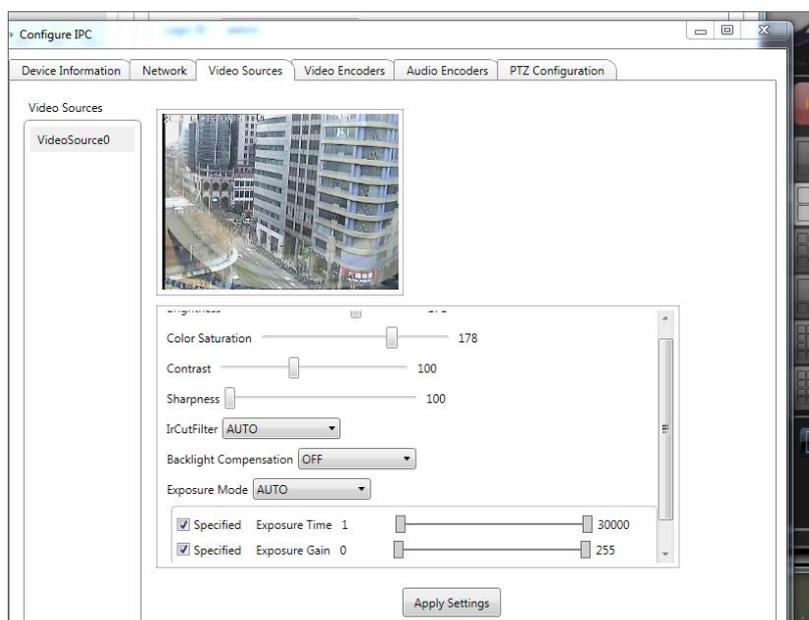
In the “Module Type” combo box, select the “**Unconstraint Module**”. (This option may not appear if there is no constraint capture device such as capture card or webcam installed on your PC, in this case you can ignore this step). In the “Module” combo box under “Unconstraint Module”, please select “**Onvif Compliant IP Camera/DVR**”. Press the “ON” button.



To setup an ONVIF compliant IPC, please follow below steps:



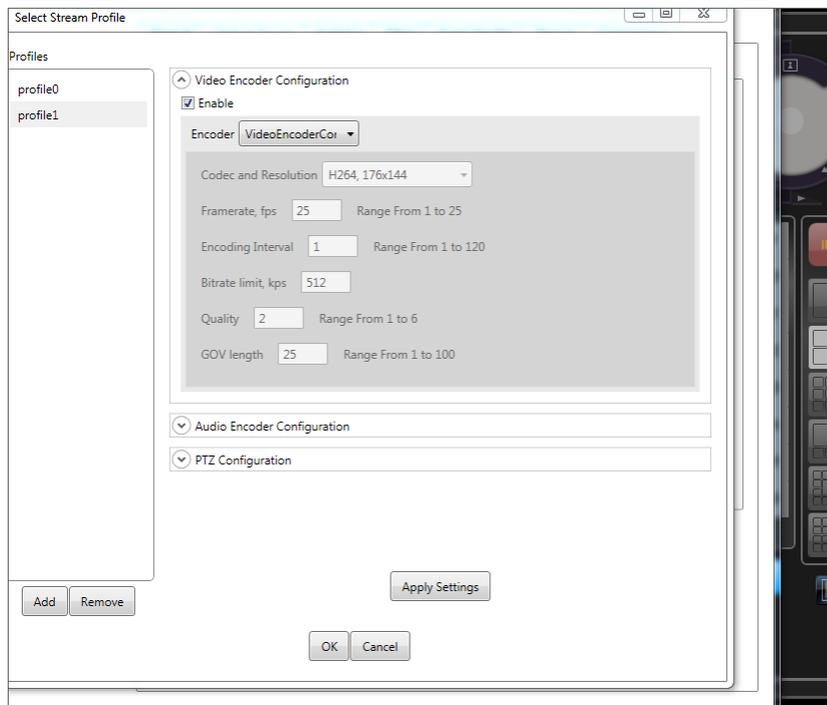
- 1) Correctly input the IPC's network address (with ONVIF port number if it is not 80), Login ID and Login Password.
- 2) Click on the "IPC Settings" button. If the information in (1) is correctly input and the IPC is online, you should be able to see a dialog like below.



In the dialog you can configure the IPC's internal settings, ex. video source settings, video encoder settings and network setting, etc. Please note that sometimes you may be failed to configure some settings, this is often due to the IPC not supporting some kinds of setting.

Although ONVIF is a standard, there is still no product in the market fully implementing this standard.

- 3) Click the "Select Profile" to select a media profile. A media profile in ONVIF is to specify what kind of video being streamed from the IPC, ex. H.264 in D1, MJPEG in 960x720, etc. Today most ONVIF IPC supports multiple streams options. The profile setting is often for defining major and minor streams. If the profile is correctly selected, you will see the UTSP URI shown up.

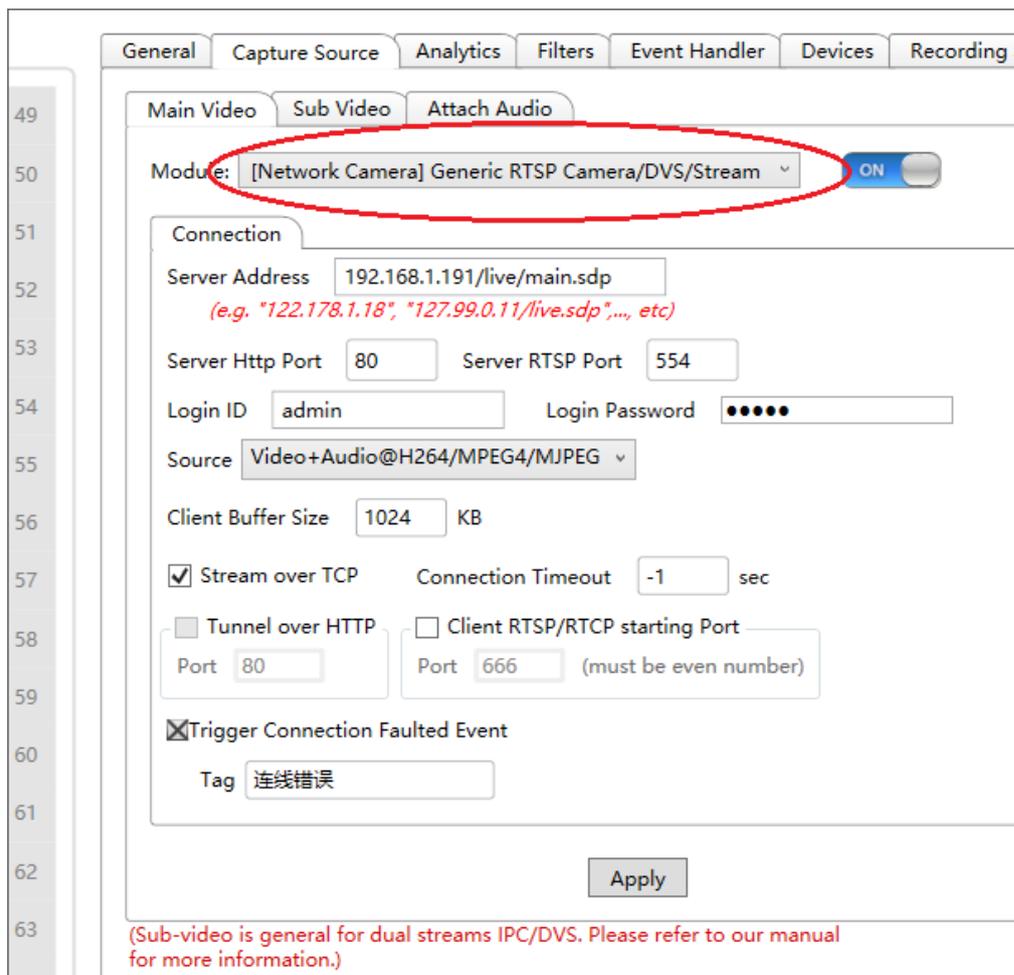


- 4) Press the 'Apply' button and wait for a while. Now you should be able to see the video on main UI if your camera is correctly setup.

3.3. Connect RTSP compliant Camera 1 (You cannot find your camera model on the camera list)

- ❖ Today most camera supports RTSP protocol. If you can find the keyword 'RTSP' in your camera manual, you camera probably supports RTSP. You can then use this option if you cannot find your camera model in the camera list.

- ❖ In the “Module Type” combo box, select the “**Unconstraint Module**”. (This option may not appear if there is no constraint capture device such as capture card or webcam installed on your PC, in this case you can ignore this step).
- ❖ In the “Module” combo box under “Unconstraint Module”, please select the camera, e.g., “[**Network Camera**] Generic RTSP camera/DVS/Stream”.
- ❖ Press the “**ON**” button.
- ❖ In the setting dialog, input the **Server Address** (i.e. camera address) and **Ports**. Also input the **Login ID** and **Password**. Please note that the Server Address typically has a suffix. You should be able to find the address in your camera instruction manual if it claims to support RTSP. If you cannot find it, contact the camera vendor.
- ❖ Press the “Apply” button. Now you should be able to see the video on main UI if your camera is correctly setup.



3.4. Connect RTSP compliant Camera 2 (You can find your camera model on the camera list)

- ❖ In the “Module Type” combo box, select the “**Unconstraint Module**”. (This option may not appear if there is no constraint capture device such as capture card or webcam installed on your PC, in this case you can ignore this step).
- ❖ In the “Module” combo box under “Unconstraint Module”, please select the camera, e.g., “[Network Camera] ACTi Network camera/DVS (Mpeg/Mjpeg@RTP)”.
- ❖ Press the “**ON**” button.
- ❖ In the setting dialog, input the **Server Address** (i.e. camera address) and **Ports**. Also input the **Login ID** and **Password**.
- ❖ Press the “Apply” button. Now you should be able to see the video on main UI if your camera is correctly setup.

The screenshot shows a configuration window with several tabs: General, Capture Source, Analytics, Filters, Event Handler, Devices, and Recording. The 'Capture Source' tab is selected, and within it, the 'Main Video' sub-tab is active. The 'Module' dropdown is set to '[Network Camera] ACTi Network camera/DVS (Mpeg4/Mjpeg@F)' and is turned 'ON'. Under the 'Connection' sub-tab, the 'Server Address' is 192.168.1.161, with a note below it: '(e.g. "122.178.1.18", "127.99.0.11/live.sdp", ..., etc)'. The 'Server Http Port' is 80 and the 'Server RTSP Port' is 7070. The 'Login ID' is 'admin' and the 'Login Password' is masked with dots. The 'Source' dropdown is set to 'Video(+Audio)@Mpeg4/Mjpeg'. The 'Client Buffer Size' is 1024 KB. There are three checkboxes: 'Stream over TCP' (unchecked), 'Tunnel over HTTP' (unchecked), and 'Client RTSP/RTCP starting Port' (unchecked). The 'Client RTSP/RTCP starting Port' has a sub-field for 'Port' set to 666, with a note '(must be even number)'. The 'Connection Timeout' is -1 sec. The 'Trigger Connection Faulted Event' checkbox is checked, and the 'Tag' is 'Connection Faulted'. An 'Apply' button is located at the bottom center. A red note at the bottom of the window reads: '(Sub-video is general for dual streams IPC/DVS. Please refer to our manual for more information.)'

3.5. Connect to an Axis IP Camera (MJPEG)

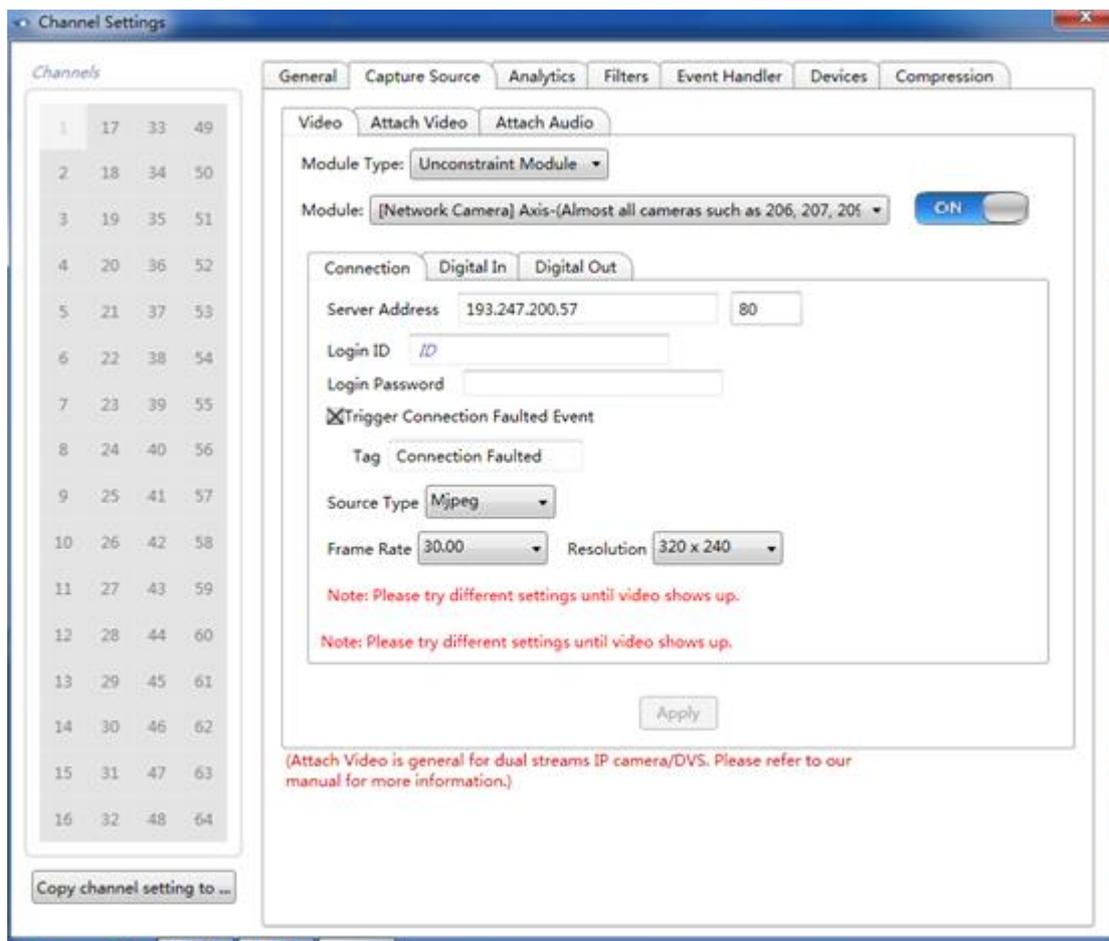
Open the configuration dialog, and click the channel setting, you should see the channel setting dialog. Under the “Capture Source” Tab, select “Unconstraint Module” as Module Type. (This option may not appear if there is no constraint capture device such as capture card or webcam installed on your PC, in this case you can ignore this step).

In the “Module” combo box, select the Axis network camera. Press the “ON” button.

Fill in the Server address and the login id and password you setup in your camera. You can also select the stream type, frame rate and resolution.

Press the ‘Apply’ button. Now you should be able to see the video.

Please note if you select a resolution that your camera does not support, the connection will fail. You can try selecting different resolution until connection succeeds.



Note: CyeWeb also supports connecting Axis Mpeg4/H264 camera via RTSP. You can try.

3.6. Connect to a HikVision IP Camera

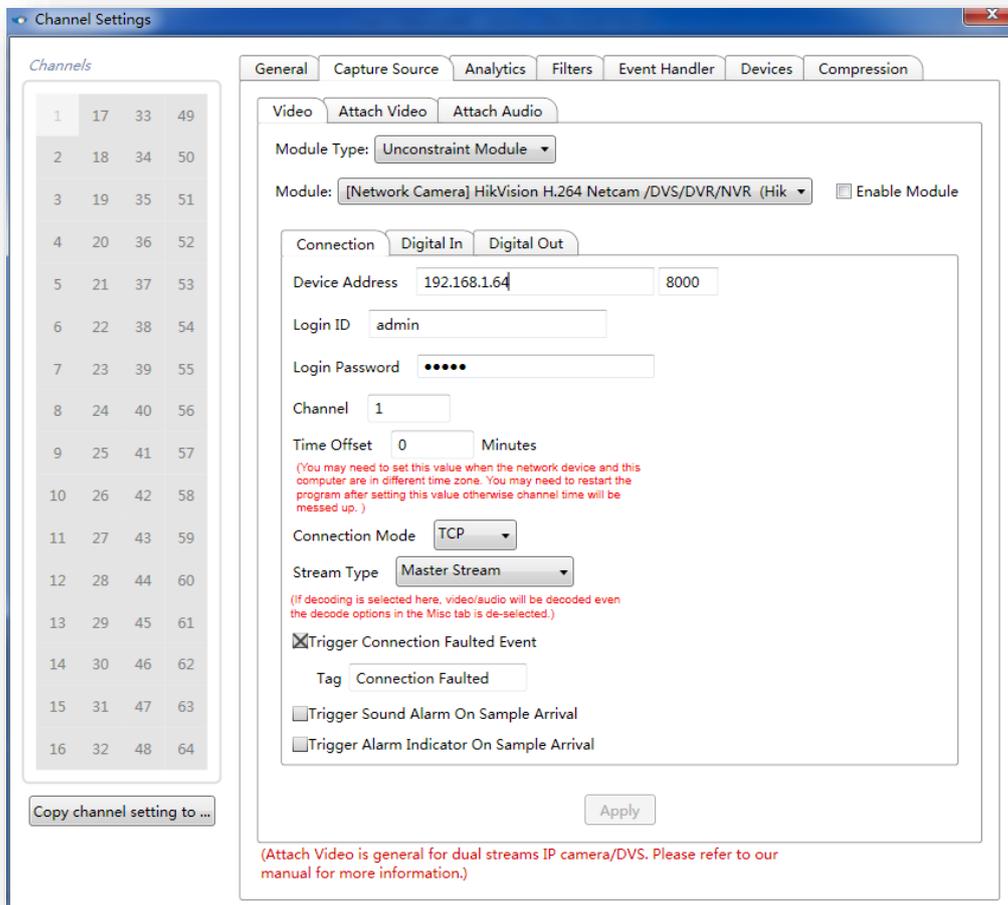
Open the configuration dialog, and click the channel setting, you should see the channel setting dialog. Under the “Capture Source” Tab, select “Unconstraint Module” as Module Type.

In the “Module” combo box, select the HikVision H.264 Netcam/DVS.

Fill in the Server address and the login id and password you setup in your camera. You can also select the stream type, frame rate and resolution.

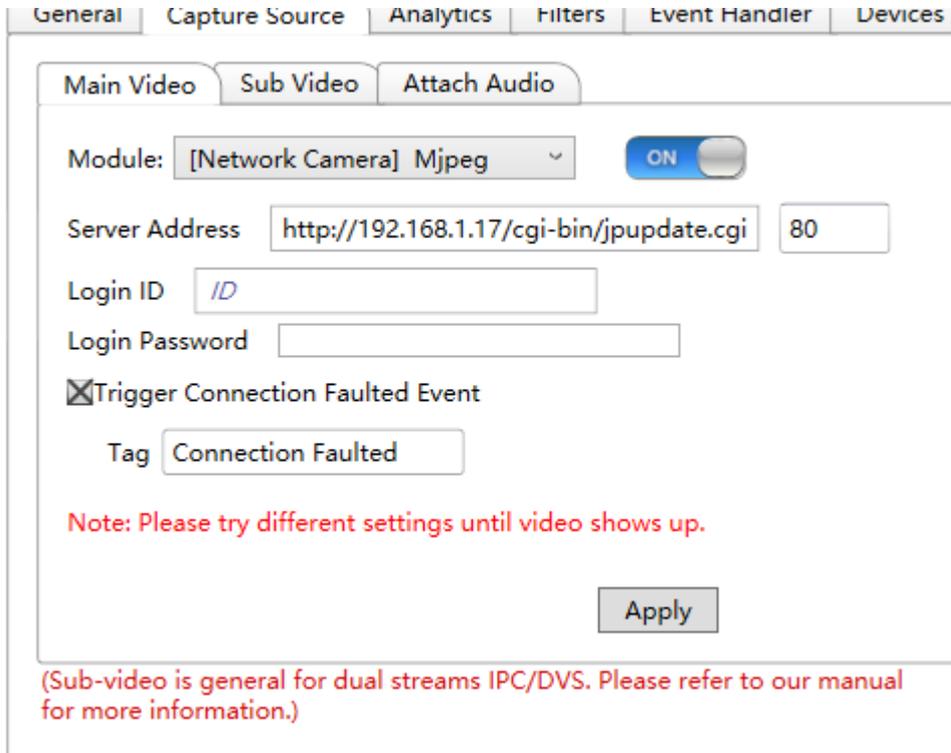
Check the “Bind Module” checkbox. Now you should be able to see the video.

Please note if you select a resolution that your camera does not support, the connection will fail. You can try selecting different resolution until connection succeeds.



3.7. Connect to an MJPEG Compatible IP Camera

Open the configuration dialog, and click the channel setting, you should see the channel setting dialog. Under the “Capture Source” Tab, select “Unconstraint Module” as Module Type. (This option may not appear if there is no constraint capture device such as capture card or webcam installed on your PC, in this case you can ignore this step).



In the “Module” combo box, select “[Network Camera] Mjpeg”. Press the “ON” button.

Fill in the Server address. You should refer to the instruction manual of your IP camera for the URL of the MJPEG stream, or you can write a message to the vendor for the URL. Most IP camera has that URL.

Press the “Apply” button. Now you should be able to see the video.

* There is an open MJPEG stream you can use for testing. The address is “http://webcam-1.duesseldorf.it-on.net/cgi-bin/nph-update.cgi”.

3.8. Connect to Other Cyeweb

This module allows you to connect to a remote CyWeb Video Server.

Under the “Capture Source” Tab, select “Unconstraint Module” as Module Type. (This option may not appear if there is no constraint capture device such as capture card or webcam installed on your PC, in this case you can ignore this step) In the “Module” combo box under “Unconstraint Module”, please select “Connect to other CyWeb”.

General Capture Source Analytics Filters Event Handler Devices Recording a

Main Video Sub Video Attach Audio

Module: Connect to other CyeWeb ON

Server Address 192.168.1.197 9981

Login ID administrator

Login Password ●●●●●●●●●●

Channel 1 Network Stream 1

Trigger Connection Faulted Event

Tag Connection Faulted

Site book

Store1

Store2

Add Edit Remove

Import Export

Apply

(Sub-video is general for dual streams IPC/DVS. Please refer to our manual for more information.)

Input the port number. The port number must match that of the Video Server setting in the remote CyeWeb.

In the dialog you need to enter the remote channel number you want to connect. The “Login ID” and “Login Password” must match an account you created on the remote side, and that account must also have the “Remote Connection to Video Server” permission.

Enter the remote channel number you want to connect, and select the network stream. The network stream means major or minor streams. This is effective only when the remote CyeWeb configures Main and Sub video for the channel being connected.

Press the “**Apply**” button. Now you should be able to see the video.

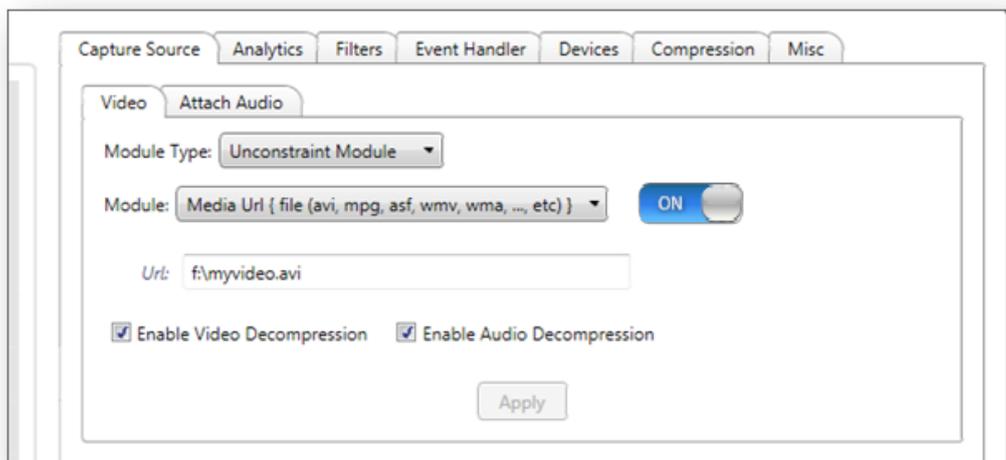
On the right hand site you can build your site book, which can save much time when you need to occasionally connect to some specific sites. The site book is shared by all 64 channels. Please note that the site data is saved in application persistence pool and is not bundled with the setting data. If you reset the application persistence, your site book will be clear also. We recommend you to export your site data whenever you finish a modification.

3.9. Connect to Media URL Source

This module allows you to select a media file as video source. NOT all media file formats are

supported. Only those formats (such as AVI, ASF, MPG..., etc) with corresponding DirectShow filter would work.

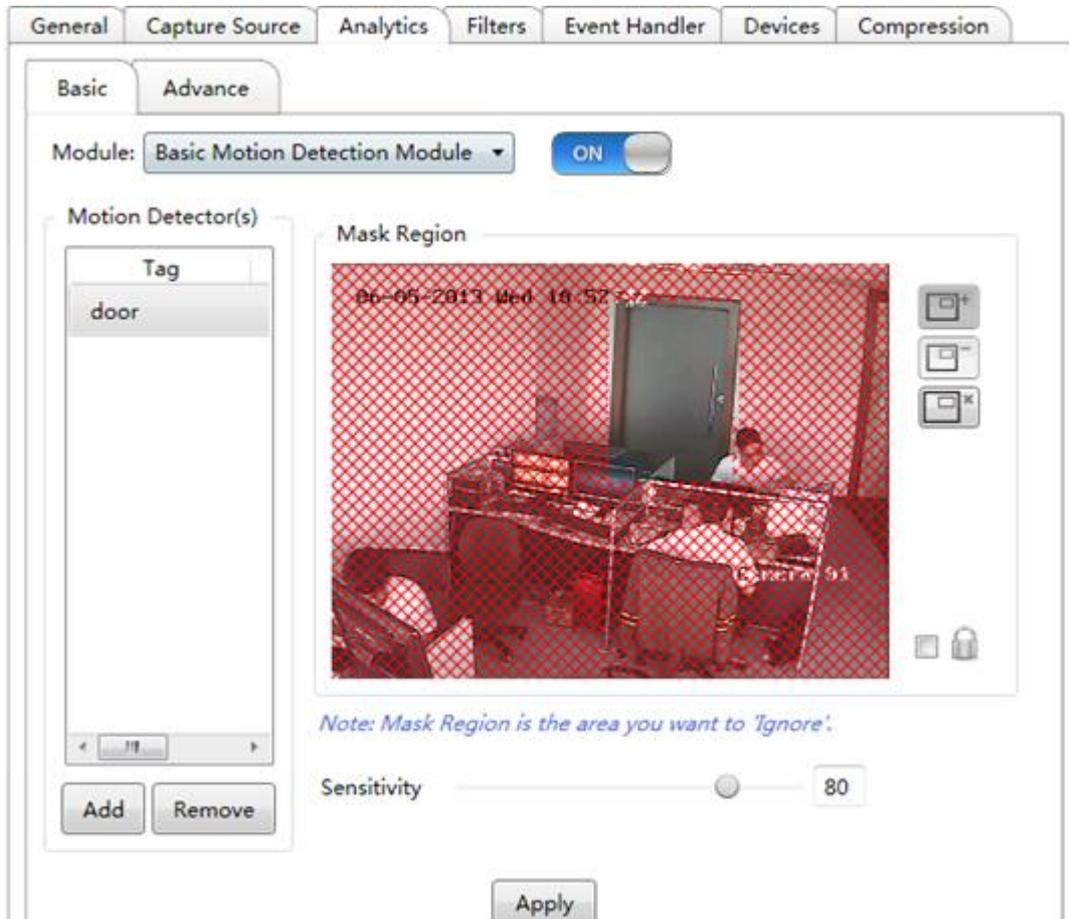
Under the “Capture Source” Tab, select “Unconstraint Module” as Module Type. In the “Module” combo box under “Unconstraint Module”, please select “Media Url {file (avi, mpg, asf, wmv, wma, ..., etc)}”.



You can enable decompression within the DirectShow filter pipeline. This is recommended if you are not sure whether your OS has the corresponding windows media codec installed.

4.Setup Basic Motion Detection

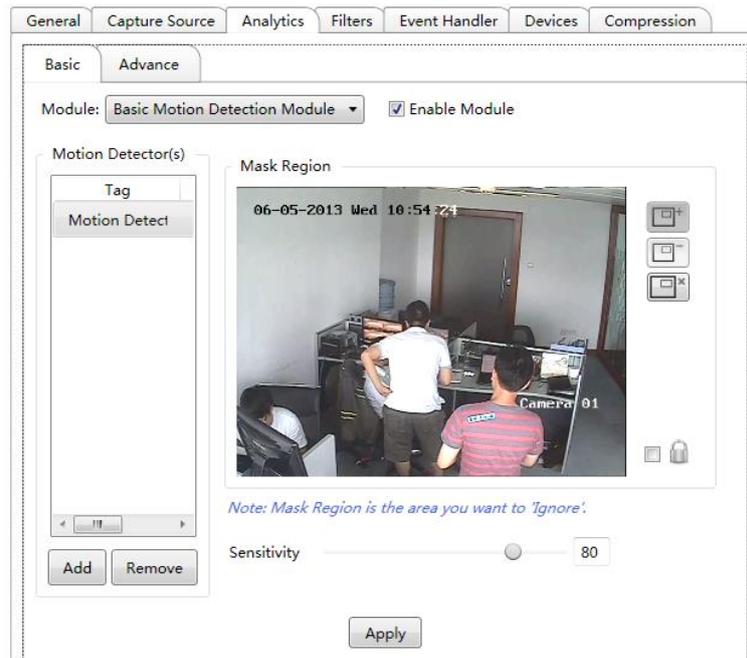
This module raises a “Motion Detect” event when motion is detected on the “unmasked area”.



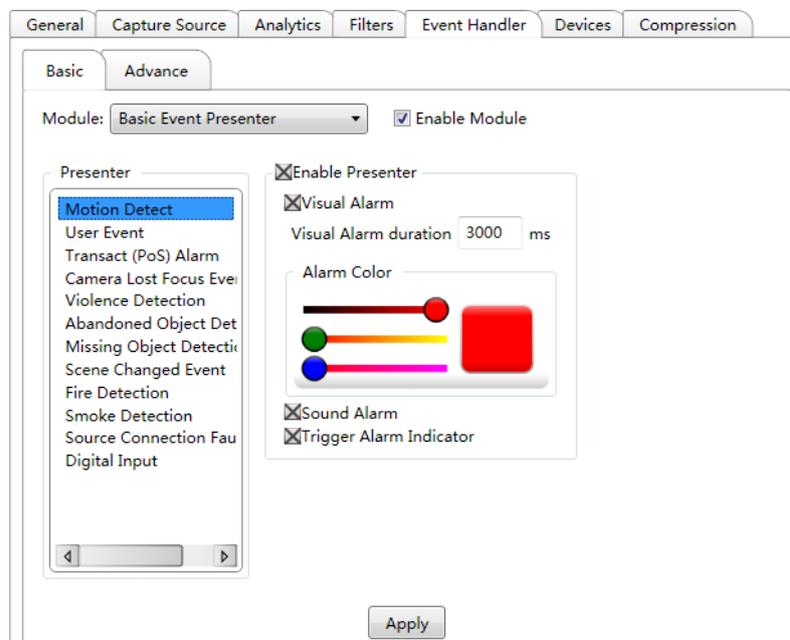
You can create unlimited number of detectors for a channel. Each detector can has its own masked area, sensitivity and tag. The tag will be inserted into the event being triggered and can be used as a keyword in video searching.

We show you how to setup motion detection as following steps.

- 1) The channel to setup must first connect to a capture source (please refer to “Connect to Capture Source” chapter).
- 2) Open the configuration dialog, and click the channel setting, you should see the channel setting dialog. Under the “Analytics” Tab, you should see the following dialog:



- 3) Press the “ON” button.
- 4) If you need to mask some areas in the video, click the  button, mask the area you want to **ignore** and then click “Apply”.
- 5) Under the “Event Handler” Tab, you should see the following dialog:
Check the “Bind Module” checkbox.



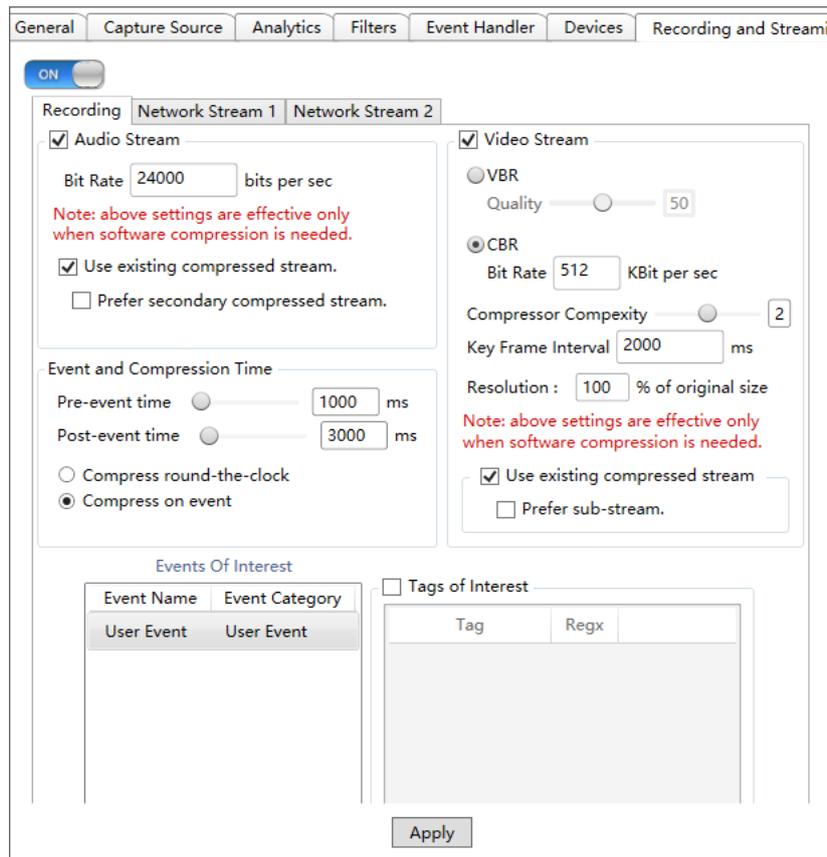
- 6) Run the channel.

Now you have successfully setup motion detection and its presenter.

5.Setup Recording

The channel to setup must first connect to a capture source (please refer to “Connect to Capture Source” section).

Open the configuration dialog, and click the channel setting, you should see the channel setting dialog. Choose the “**Recording and Streaming**” tab, you should see the following dialog:



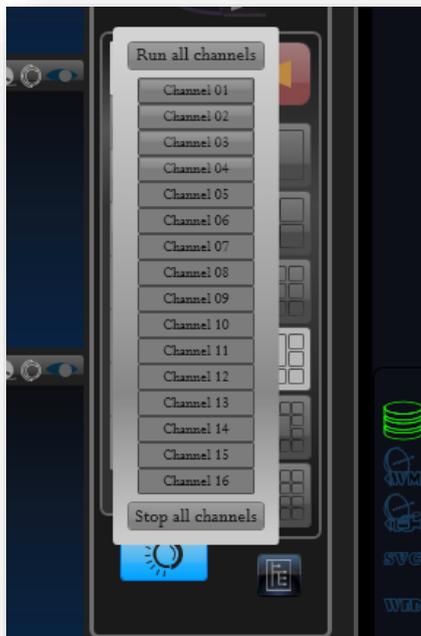
- 1) Press the “ON” button.

Note: You can select “compress on event” instead of “compress round-the-clock” (default). This can significantly reduce the usage of CPU resource. Please also setup motion detection (or advance video analysis) if you select “compress on event”. (Please refer to “compression” section.)

- 2) If the channel need softwares compression (such as the channel source is webcam, or you configure to NOT ‘Use existing compressed stream’). You may need to configure relevant settings such as CBR, VBR, etc. The default CBR bit rate is 512 Kbit/sec (524288 bit). This value is high enough for D1 video. If your video source is in video resolution

lower than or equal to 720*480, we recommend you to set this to a lower value, such as 256 Kbit/sec (262144), to lower the data size.

- 3) Press the 'Apply' button and close all dialogs.
- 4) Under the Main Console, click the Run Channel button. You should see a popup menu to run all or some channels. Run all channels or run the channel you just configured.



Now you should be able to see the new recording file on Playback system.

Note: You may need to press the refresh button on Playback system to show up the new file.

For more information about setting up Recording, please check the section [Settings > Channel Settings > Recording and Streaming](#).

6. Playback

6.1. Basic Playback



1) Search Results

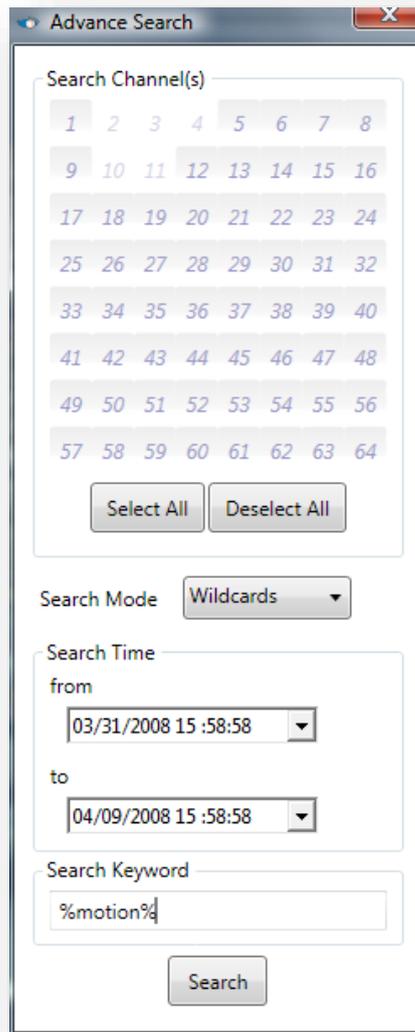
the browser here shows the search result with tag, description and event time. Click on the result will open the corresponding media-file and seek to the position where the event occurred.

2) Channel Selectors

the channel to search.

3) Search Panel

video and event searching. Keyword is the tag you inserted manually or defined in program modules. You can also open the Advance Search dialog to input arbitrary time range and channel to search.



There are 3 search modes:

- a) Simple – condition matches when a tag contains the search keyword.
- b) Exact – condition matches when a tag is exactly equal to the search keyword.
- c) Wildcards – search tag with wildcards.
 - i. '%': represent a string of zero or more characters. For example, "213%" searches tag like "213", "21300" or "213-1345", etc.
 - ii. '_': represent any single character. For example, "_ong" searches tag like "zong", "song", etc.
 - iii. '\': represent an escape character. You can use escape characters to tell the search engine to treat wildcard characters and this escape character as regular characters. For example,

“100\%” searches tag “100%”, and “abc\\def” searches tag “abc\def”.

- iv. One useful wildcards application is to search number greater than some values. For example, “%\$%_,__%” can search money greater than \$999.

4) *Date Panel*

Date to search.

5) *Playback Control Panel*

hosting the playback buttons and playback status.



- “play” button;



- “pause” button;



- “stop” button;



- “step backward/forward” button;



6) *Tag List*

When you select a media file on the browser, or click on a search result, the tag list of the corresponding media file will show up here.

To delete a tag, right-click on it and press the delete button.

7) *Media File Browser*

listing the media files of the selected date and channel.

8) *Media File Date and Time.*

9) *Allow Storage Recycle*

Tell whether the media-file can be deleted during Storage Recycle. Please note: if the selected channel does not participate in Storage Recycle, the media files will not be deleted even they are checked here.

10) *Playback Speed*

11) *Playback Module Configuration*

Here you can add playback filters, such as de-interlace filter. To configure Playback Module, the current playback state must be paused or stopped.

12) *Add a Tag*

you can add a tag to the current playing media file at the current playback position.

To add a tag, the current playback state must be paused or stopped.

13) *Snapshot*

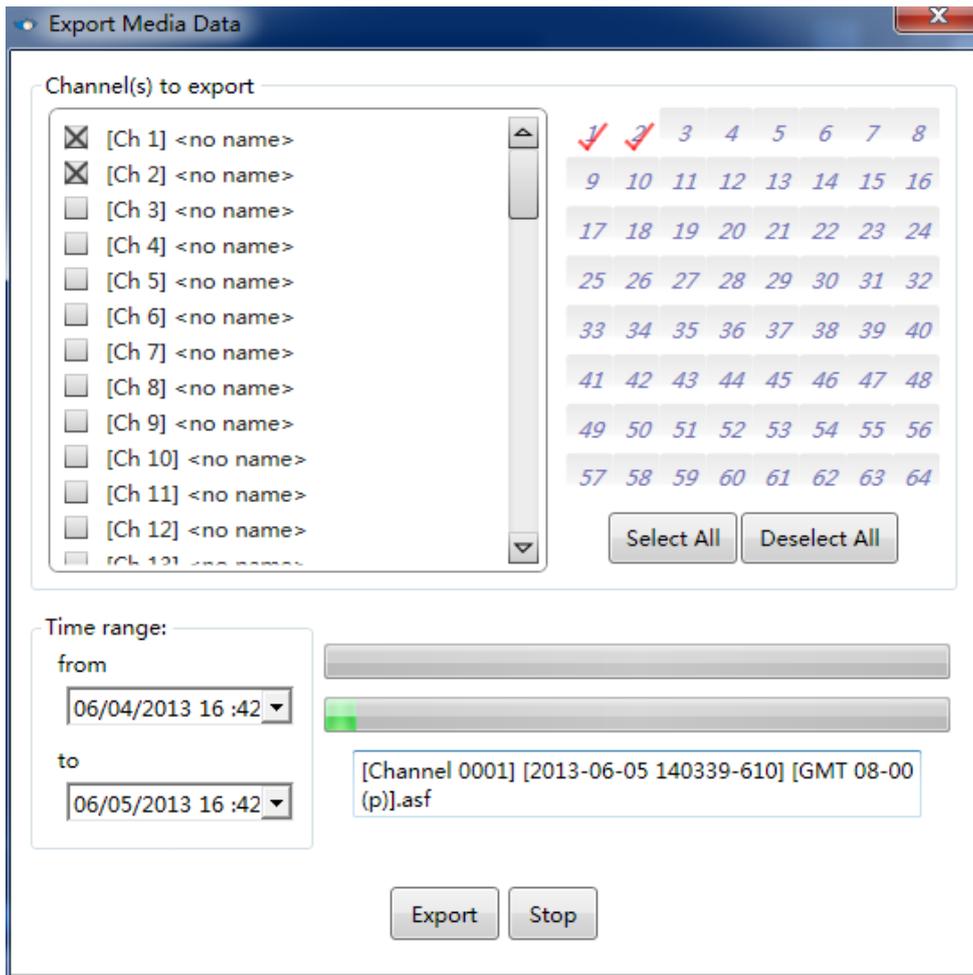
you can take a snapshot of the current playing media. To take a snapshot, the current playback state must be paused or stopped.

14) *Duplicate Playback Window*

You can duplicate the current playback window with this button. The duplicated window is set to the same selected video/search result, channel, date and position as the original one.

15) *Advance video export*

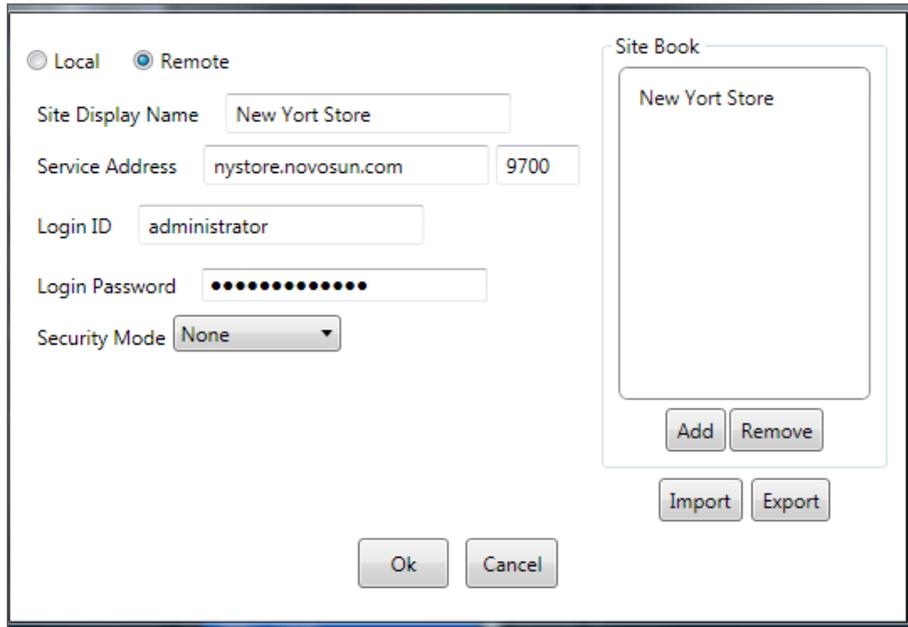
You can export video to .asf files with this dialog. The program will try to combine multiple videos into one video for each channel. If 2 videos has different video resolution or stream number, the 2 video will be still in 2 separate video files.



Please note that if the video is not compressed in “WVC1” or “WMV3”, you have to install the corresponding codec on the computer to playback otherwise the video cannot be played in mainstream media player such as WMP. Also the video may not be correctly played in WMP in Windows Vista if it is not compressed in “WVC1” or “WMV3”. (You probably need XP or older computer to play them currently.)

16) *Site Selection*

Here you can login other sites for remote playback over IP. The default is local. You can also build your site book for some frequent-use sites. The remote site to login must bind the Net Service module. The login account in the remote site must also have the permission to access net service.



6.2. Timeline Playback

Here you can access recorded videos with a 24-hour (down to second) timeline and date control. All video/audio from different channels can be played synchronously in negative and positive speed.



1) *Channel Control Bar*

Here you can enable/disable the audio of the playing media or popup a normal playback window for that media.

2) *Channel and screen division control*

Here you can select the main channel and screen division mode, and reset the channel arrangement (please note that you can arrange the channels by drag-and-drop on the video screens.)

3) *Enable/disable channels*

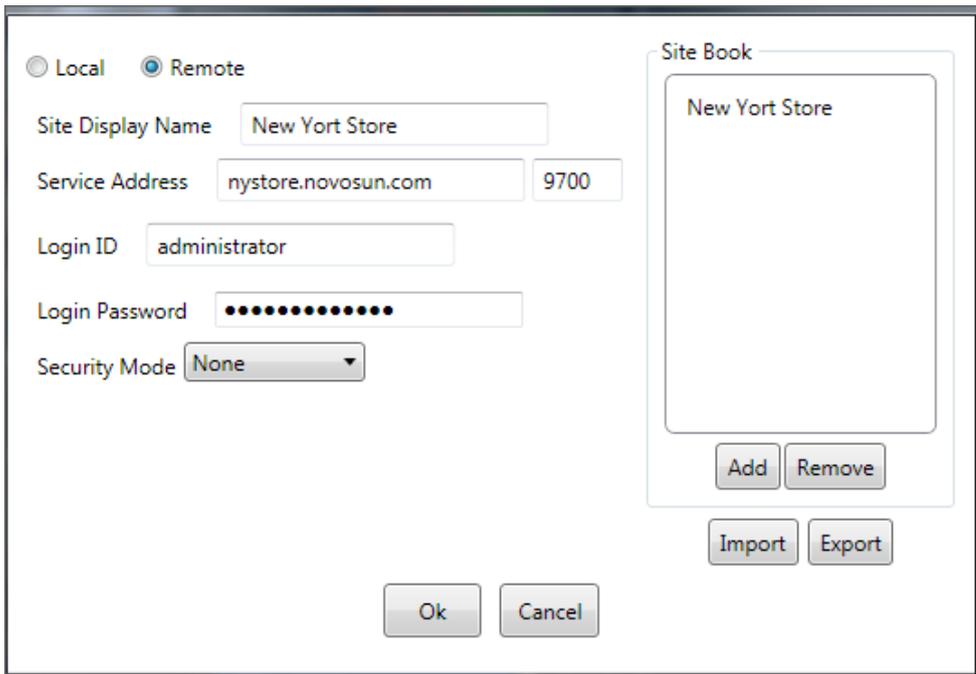
Here you can enable and disable the playback channels.

4) *Media control*

Here you can play and stop the medias, as well as you can refresh the channels.

5) *Timeline control*

Here you can locate the time (from hour to second) and control the playback speed (fast forward, normal or rewind). You can zoom the time down to second with a slider bar or with your mouse-wheel.



6) *Date selection control*

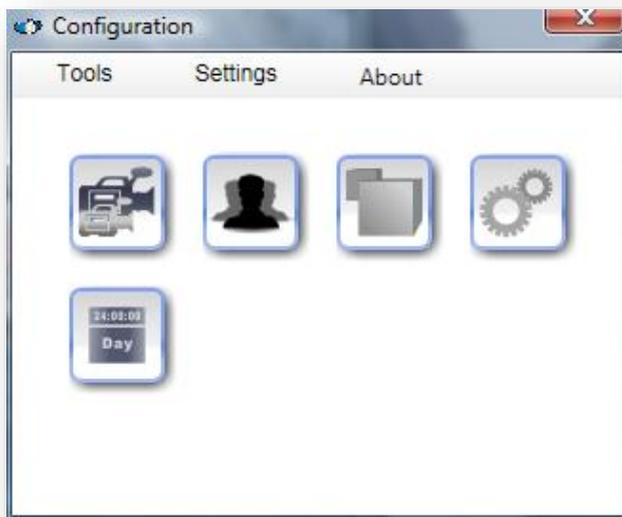
7) *Site Selection*

Here you can login other sites for remote playback over IP. The default is local. You can also build your site book for some frequent-use sites. The remote site to login must bind the Net Service module. The login account in the remote site must also have the permission to access net service.

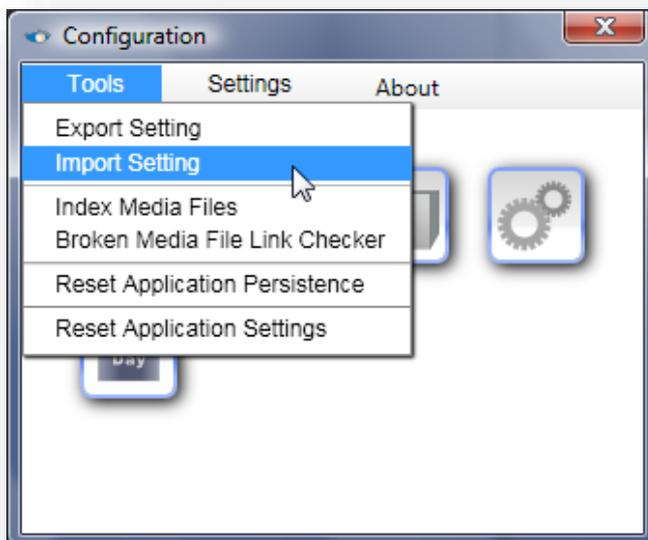
7.Settings

7.1. Program Settings

In the program setting dialog, you should see the buttons for Channel Setting, Account Management, Application Module Setting, General Setting and Schedule Setting. Press any of them will show up the corresponding dialog.



Under the Tools Menu, you should see a sub-menu with Export Setting, Import Setting, Reset Application Persistence and Reset Application Settings.

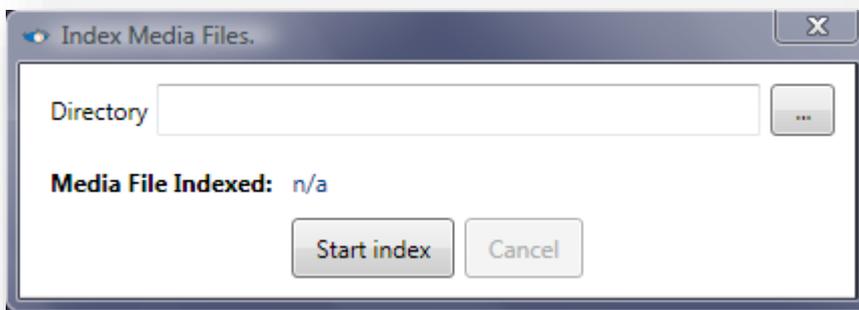


7.1.1. Import/Export Setting

Import/export CyWeb's Channel Setting, Application Module Setting and General Setting. Please note account setting and schedule setting cannot be imported or exported. The exported setting file can be used in Scheduler's "time to import setting".

7.1.2. Index Media Files

Sometimes database would be broken because of some unpredictable reasons. This function allows you to re-index. To use this function, you need to input the root directory of the storage folder, then click "Start Index" button.



7.1.3. Broken Media File Link Check

Check how many broken links in storage database. Broken link is generally caused by someone manually delete media files in the storage folder, or some storage drives were removed. It is strongly recommend to not deleting files directly in the storage folder. Instead you can delete media files in CyWeb's playback browser. Too many broken links will cause recording and storage recycle ineffective. You can periodically use this check to check and remove broken links.

7.1.4. Reset Application Persistence

Reset your application state persistence. Application state persistence contains "automatically logon" information, windows position, size information and screen division mode last time the program closed, etc. If you checked the "Remember me" and "Log on automatically" checkboxes on the Log-on dialog during program startup, every time you run CyWeb the remembered account will be used to logon. If now you want the dialog to show up again, you need to reset application state persistence.

7.1.5. Reset Application Setting

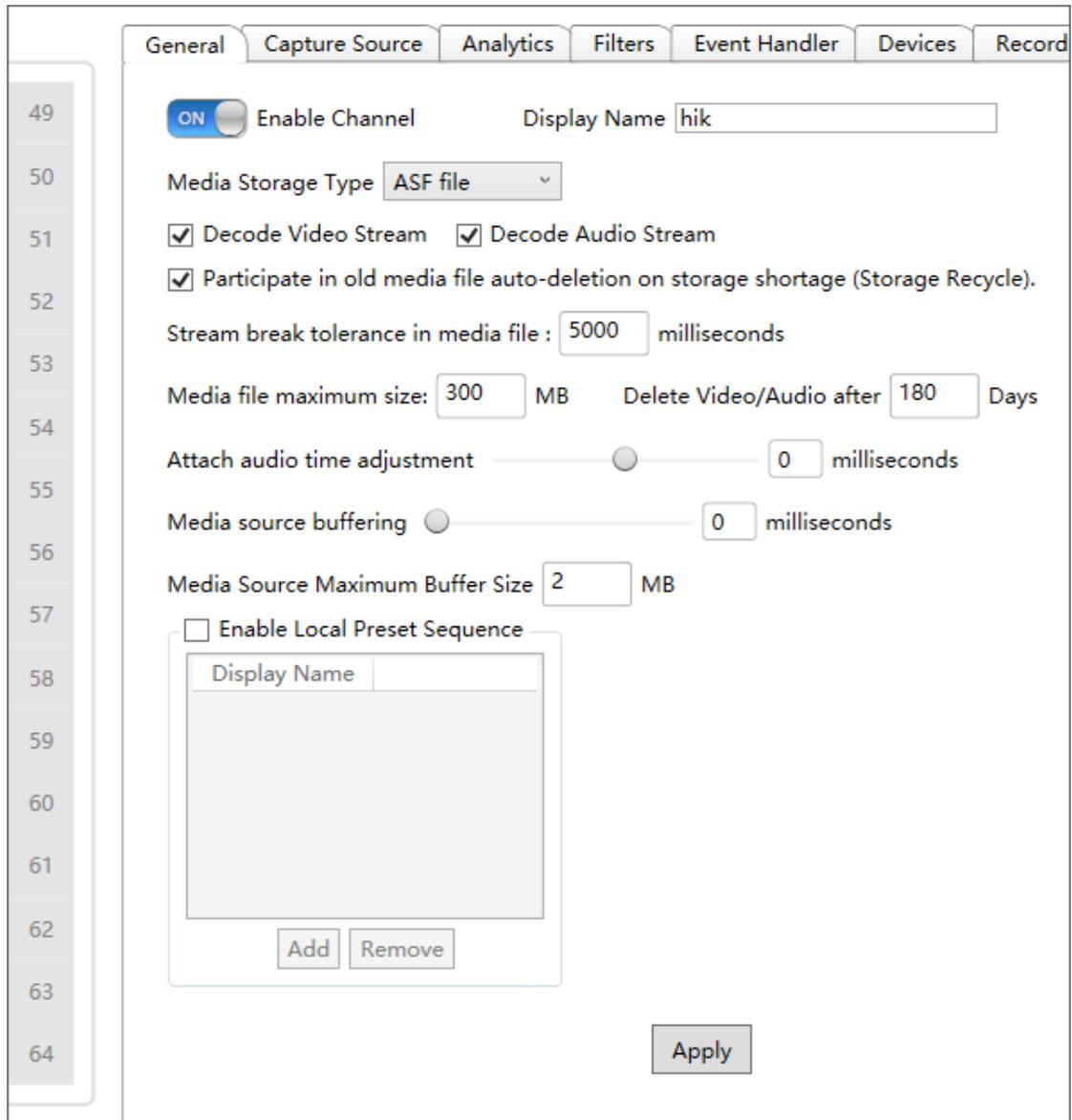
Reset all settings to the default value.

7.2. Channel Settings

Channel settings are the most important settings in CyeWeb. Here you can setup the channel pipeline.

7.2.1. General

Here you can configure the miscellaneous settings for a channel.



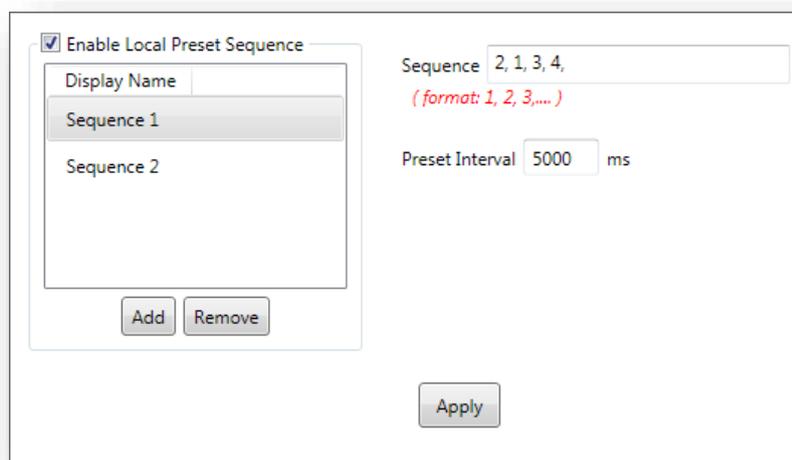
- **Enable/Disable Channel**
- **Media Storage Type** – CyeWeb supports 2 storage types: ASF file and database file. If “database file” is set, video can be played back immediately after it is recorded without

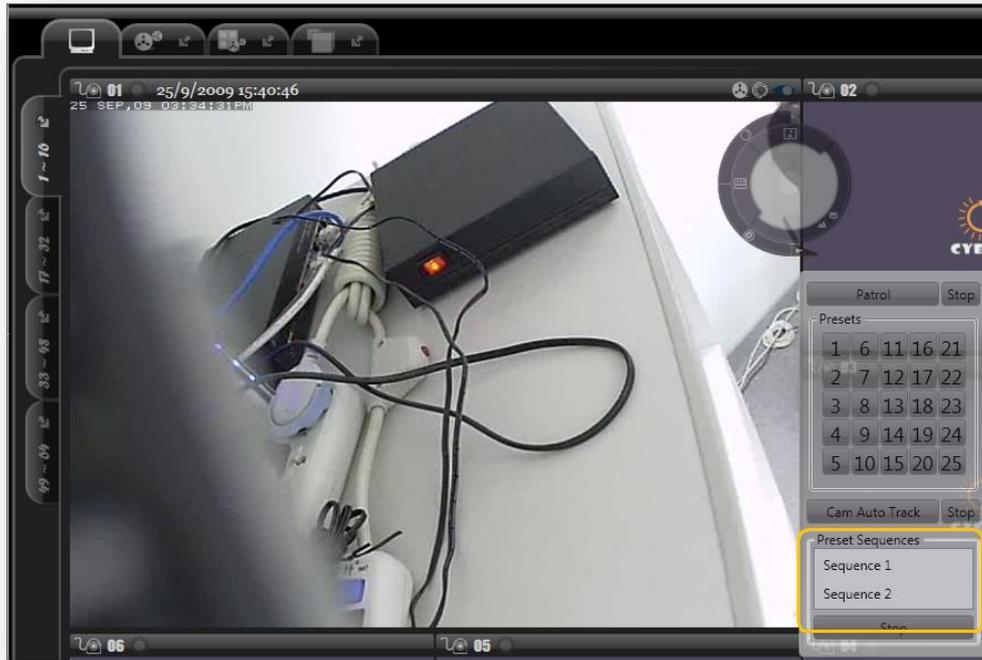
the need to break down recording file. This is useful in instant playback, remote playback and POS transaction query, etc. (Please note here that even using ASF requires breaking down recording file, it doesn't mean any data loss. It will be just split the video into a new ASF file.)

However, there are some important drawbacks to use database file. The first one is the writing performance is a lot lower than ASF file, as ASF is optimized to store media data. The second one is the data overhead is more than that of ASF, so the file size is bigger. The last one is the database file size is at most 500MB; so no matter how large value you set in "Media-file Maximum Size", once the database size reach 500MB, video data will be split into a new database file.

- **Decode Audio/Video Stream** – here you can select whether to decode the video and audio stream from compressed capture source. This setting is important for large-scale deployment of IP solution. For example, if you use a server to connect 64 IP cameras and each camera streams high resolution compressed video/audio (may be in MJPEG or other compression format) to the server. In this case you may want to disable decoding because you do not want to exhaust your server by decoding all 64 channels audio/video simultaneously. The disadvantage for this is that you no longer can use filers or motion/event detectors in the channel which decode-option is disabled. Instead you can setup multiple client PCs to connect to some selected channels of the server and do whatever you want as usual.
- **Stream Break Tolerance in Media File** – this value tell the maximum allow interval for a media-file not having media data. This feature is generally used with "compress on event" in Recording and Streaming module. For example, if you configure this value to 5000ms. Then if there've been no event for 5000 ms, the current media-file will be saved and closed. The next recording will be on a new one.
- **Participate in Storage Recycle** – here you tell whether the recorded video files of this channel can be "Storage Recycled", which is a feature that deletes old media-file on storage shortage.
- **Media File Maximum Size** - here you tell the maximum size of a media-file. Whenever a media-file reaches this size, it will be closed and a new one will be opened to continue recording.
- **Delete Media Files after Days** – here you setup the number of days a media-file will be storage.

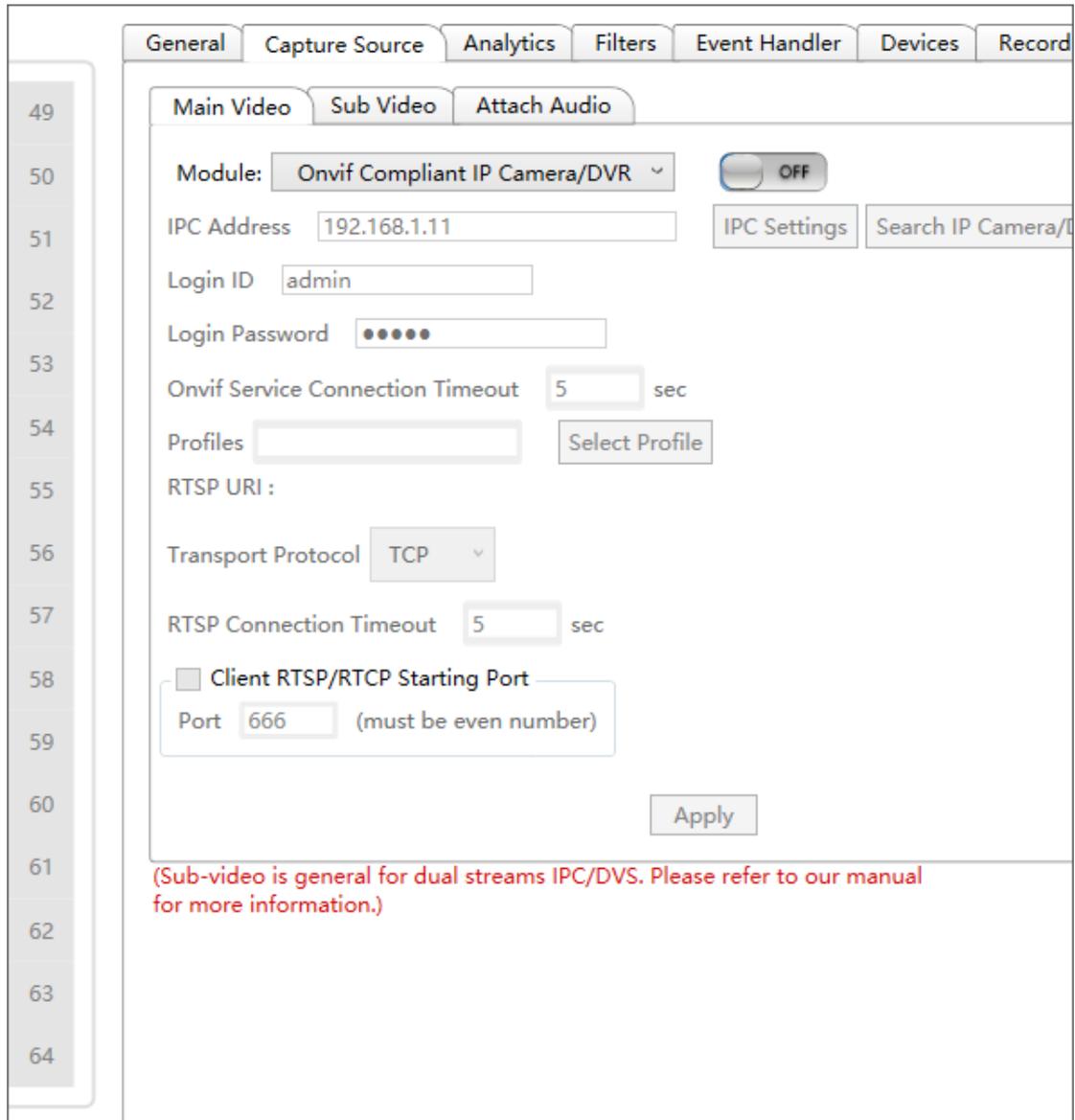
- **Attach Audio Time Adjustment** –here you adjust the sample time of the attached audio source. Typically this value is used for tuning synchronization of video and attached audio. Please note that the adjustment will NOT reflect on real-time preview, but will affect local video storage and network video streaming. Please also note that this value affect only “attach audio source”. Audio embedded with video source (such as a local video file) will not be affected.
- **Media Source Buffering** – here you tell the buffer size for video/audio source before the media pass through the pipeline. This setting is typically used with network video/audio source, such as “Connect to other CyeWeb”. If the preview video of a channel is lagging, you may try to tune this value (If you need to set this value, 1000 ms is a recommend number).
- **Preset Sequence** – here you set the motion sequence of a PTZ camera.





7.2.2. Capture Source

Here you can bind a channel to a video/audio source module.



- **Main Video:** under “Constraint Module”, you may select DirectShow-Based source (USB webcam, PCI/PCI-E capture cards..., etc) and hardware compression cards (available for purchase separately).

Under “Unconstraint Module”, you may select IP Camera, Windows Media Stream, Video files, remote CyWeb source..., etc. Please note that a video source may be also embedded with audio.

Please note that if your computer doesn’t have constraint type device installed, such as USB webcam, the combo box to select module type will disappear. In this case you can select unconstraint type device only.

- **Sub Video:** this is typically for dual streams IP camera/DVS. With attach video you can concurrently retrieve 2 streams from dual streams capture device, probably one

for live view and one for storage/broadcast. For example, CIF/15fps stream for live view to reduce decoding requirement, and 4CIF/30fps stream for storage.

Sub video is generally the secondary compressed stream in the channel pipeline. You can configure to use the sub-stream for recording/broadcast in the Recording and Streaming module.

In most case, you should also disable the real time decoding (if there is) of the sub video. Otherwise the CPU usage will be higher than you don't use it.

- **Attach Audio:** you can select DirectShow-Based audio source here.

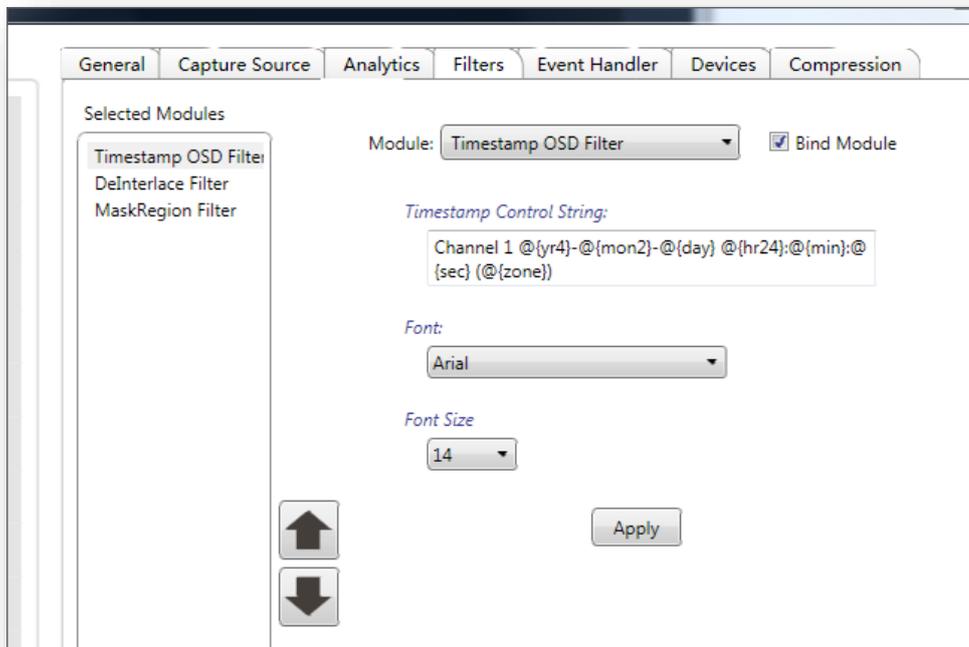
7.2.3. Analytics

For the details of the modules in channel pipeline, please refer to the “**Analytics Modules**” chapter.

7.2.4. Filter

- **Timestamp OSD Filter**

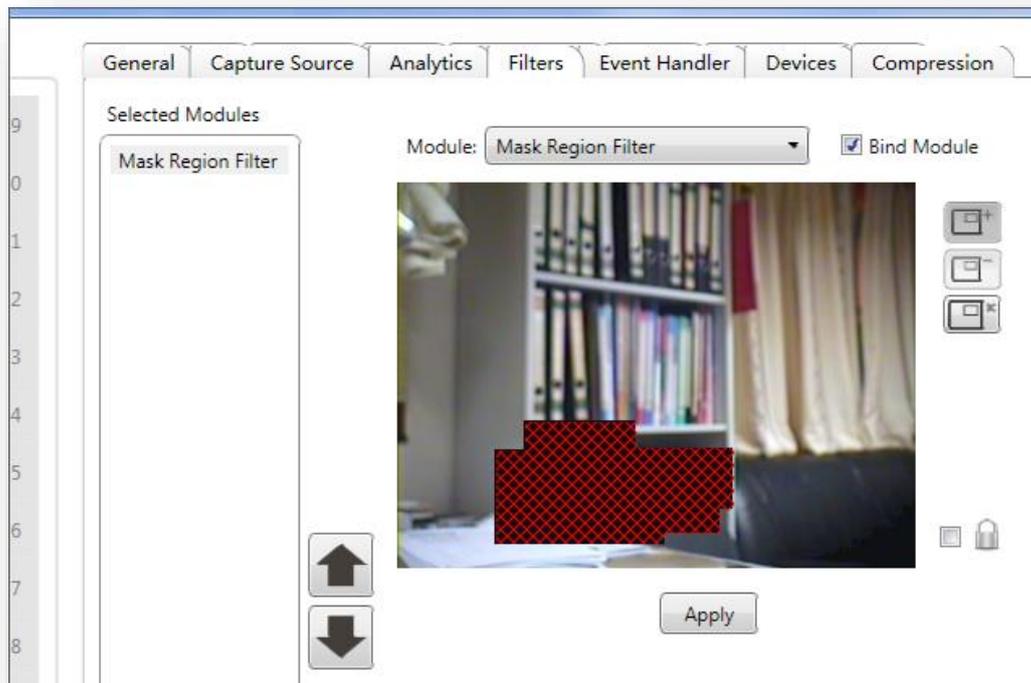
To embed a timestamp on the video you must bind this filter. This filter allows you to add additional strings, such as channel number, in the embedded timestamp.



- **Mask Region Filter**

If your video contains sensitive areas and you want to exclude those areas from the

video, you can use this filter.



- De-Interlace Filter

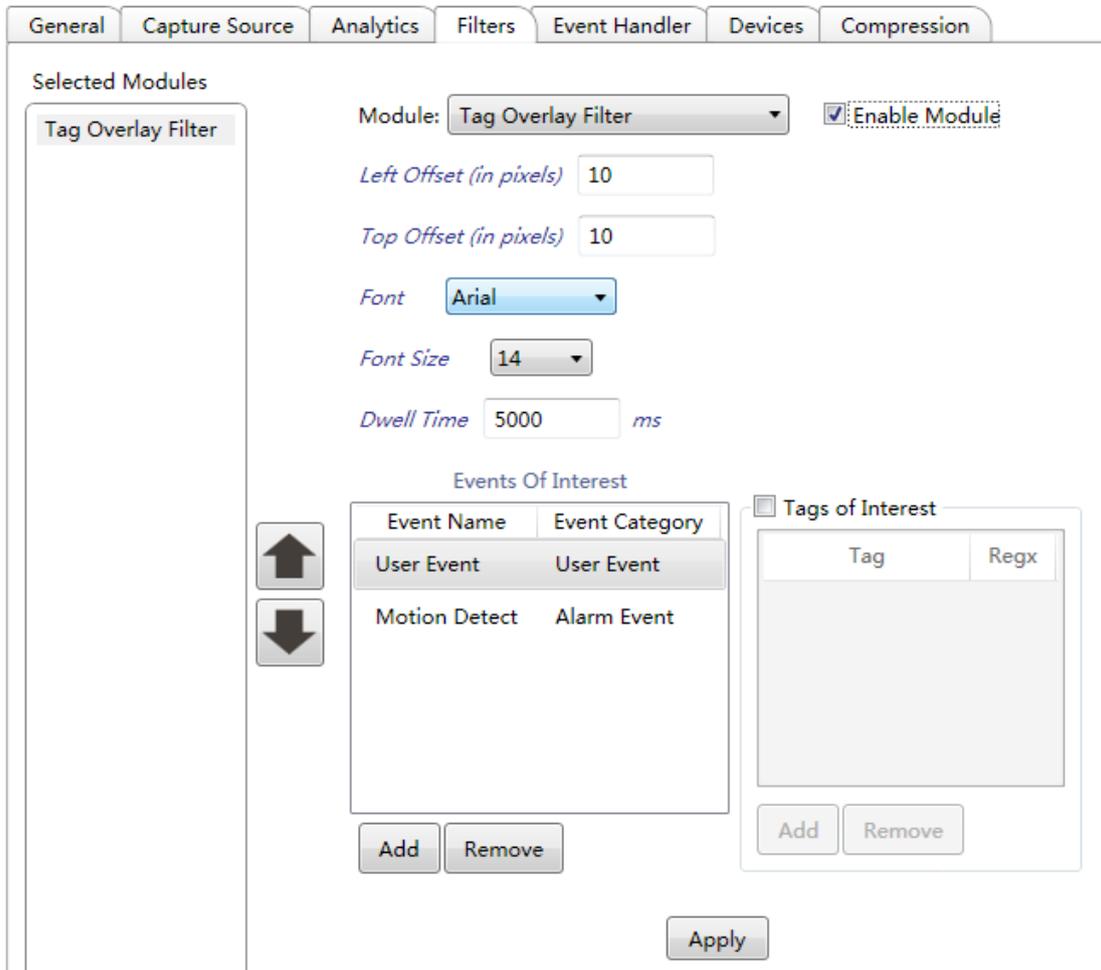
You can add a de-interlace filter to a channel pipeline. Please note that de-interlacing could make video look smoother but the process cannot be reversed. We recommend you to not use this filter on channel pipeline. Instead you could use this filter on playback system.

- Tag Overlay Filter

This filter can filter event tag to the screen, as below:

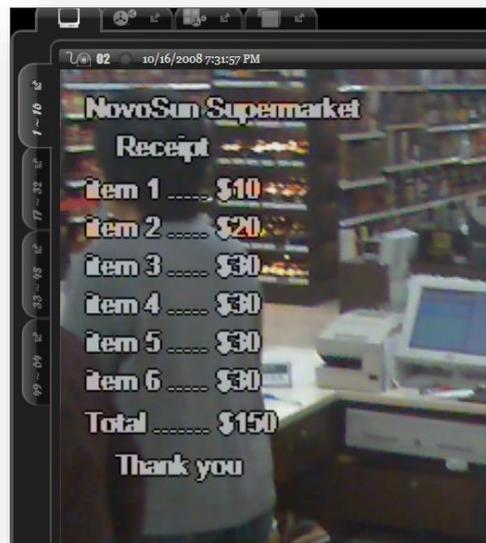


Below is the setting dialog, you can configure the offset, font, font size, dwell time (the interval the tag to stay on screen after the event is over), and event of interest.

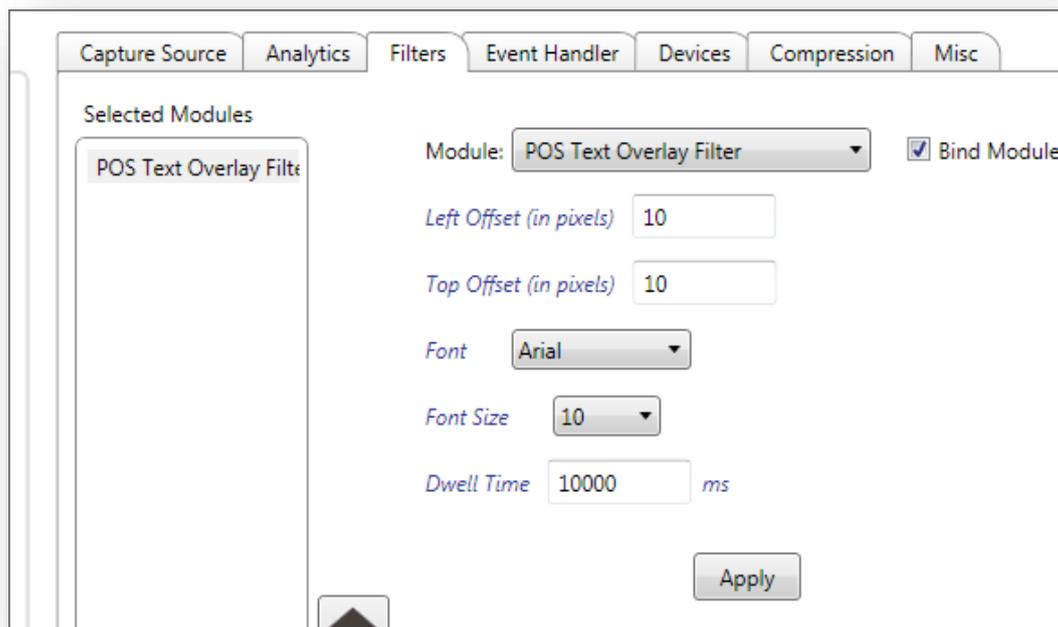


- POS Text Overlay Filter

This module can be used together with the Transact(POS) application module, or on a client computer to subscribe POS transaction event from CyWeb on another computer and overlay transaction in real-time. This filter overlay POS transaction to the live video, as below:



Below is the setting dialog:



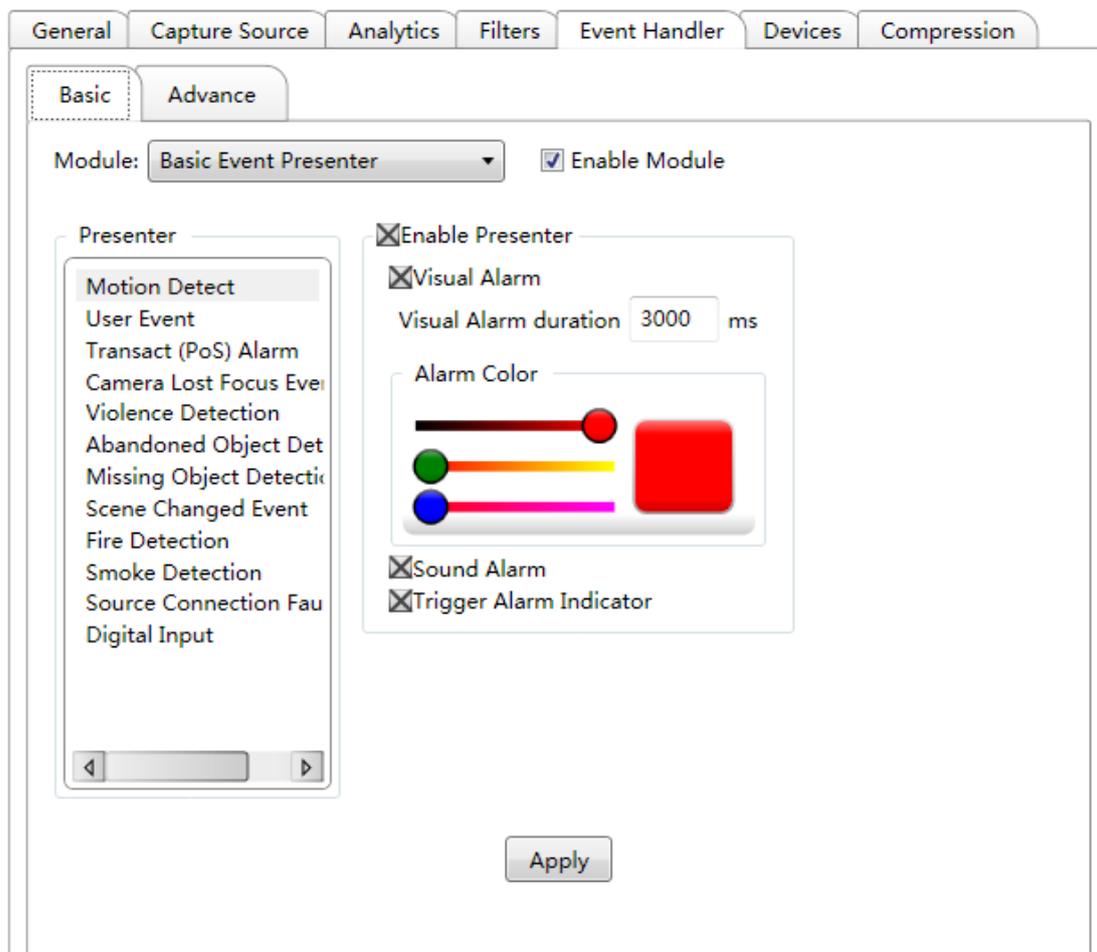
In the dialog you can setup offsets, font, font size and dwell time (the interval the transaction text to stay on screen after the transaction is over).

7.2.5. Event Handler

This presenter presents events from Motion Detection Module as alarm.

You can set the duration and color for visual alarm. You can also configure whether to trigger

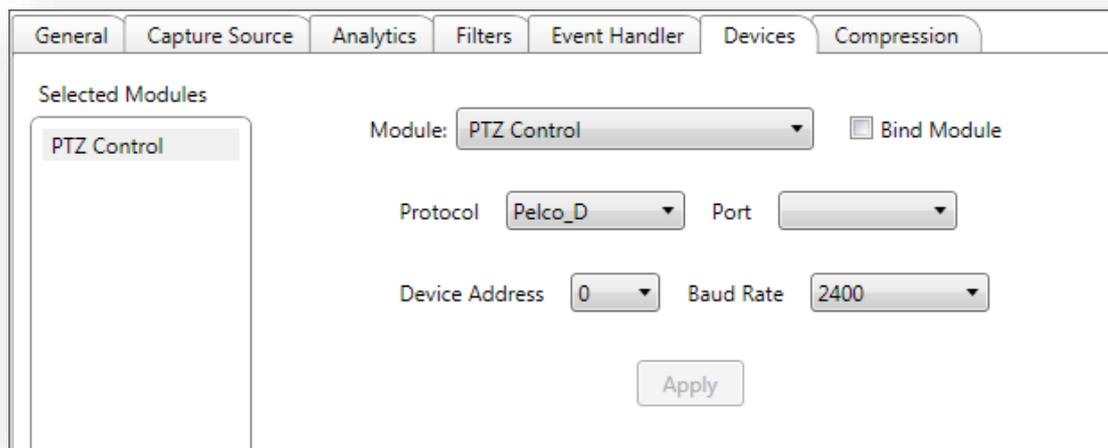
sound alarm and alarm indicator. For more information please refer to the “**Event Handler**” chapter.



7.2.6. Device

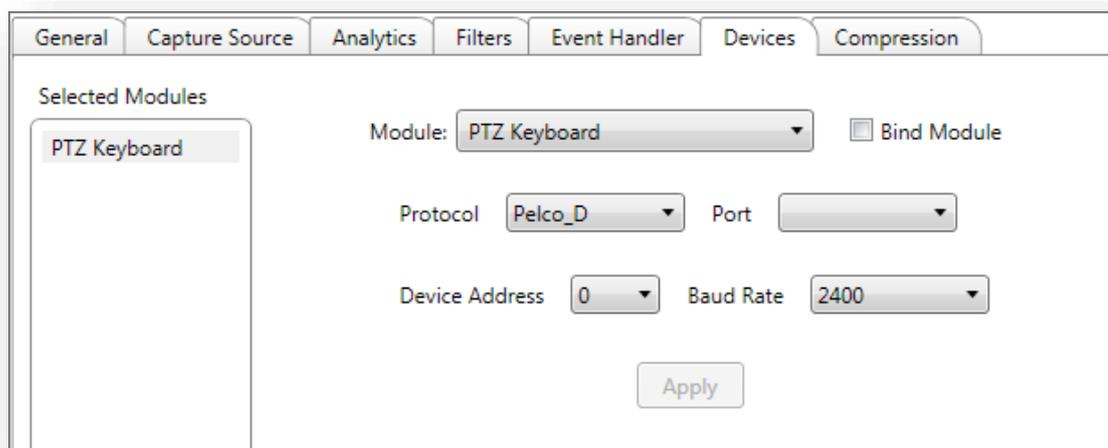
- **PTZ Control**

This is the PTZ control module. Currently this module supports only Pelco_D and Pelco_P protocol. Please note that the channel must be running otherwise this module will not be active.



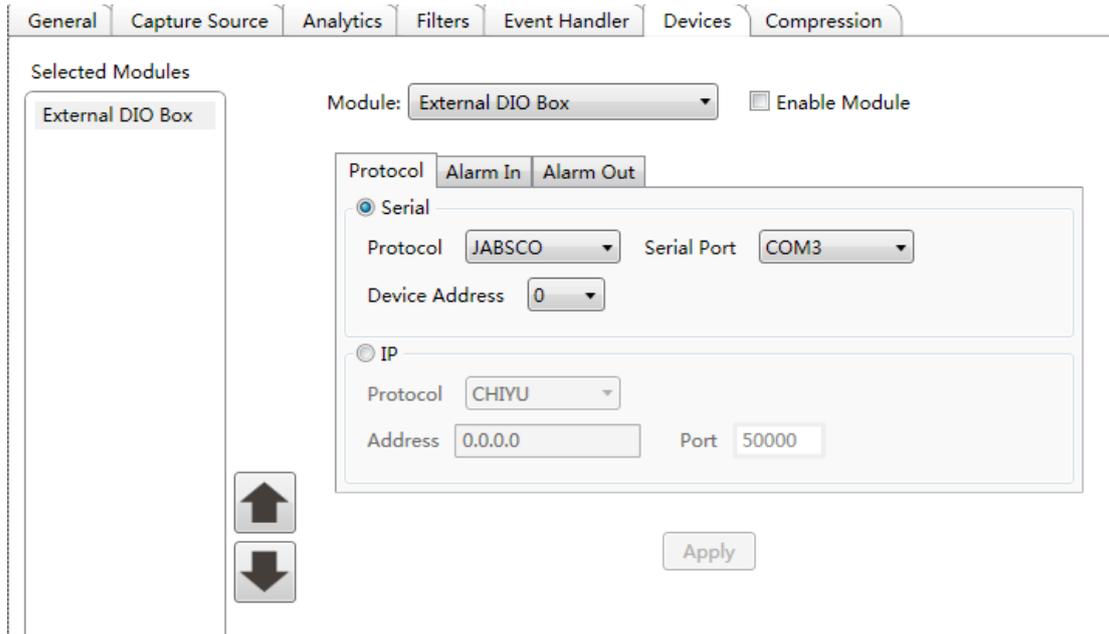
- **PTZ Keyboard**

With this module you can connect a PTZ keyboard to CyWeb.



- **RS232 Alarm Box**

This module allows you to connect external alarm box to integrate sensors and digital outputs for controlling external devices.



In the setting dialog you can setup the protocol, serial port, device address, alarm in (digital input), alarm out, etc.

In the “alarm in” setting there is a “check interval” for configuration of the frequency to check the digital input. When the digital input state match the setting, the module will post to the system a “Digital Input” event with the tag you defined.

In the “alarm out” you can select the events of interest to trigger sending of short or close circuit signal to the selected digital output ports. Please note that in the “events of interest” there is an event “Alarm Indicator Reset”. This is useful if you trigger something (e.g. signal a close circuit signal to an external device) when the other events such as motion detection occurs, and want to reset the state when the operator press the alarm indicator.

Please note that the channel must be running otherwise this module will not be active.

7.2.7. Recording and Streaming

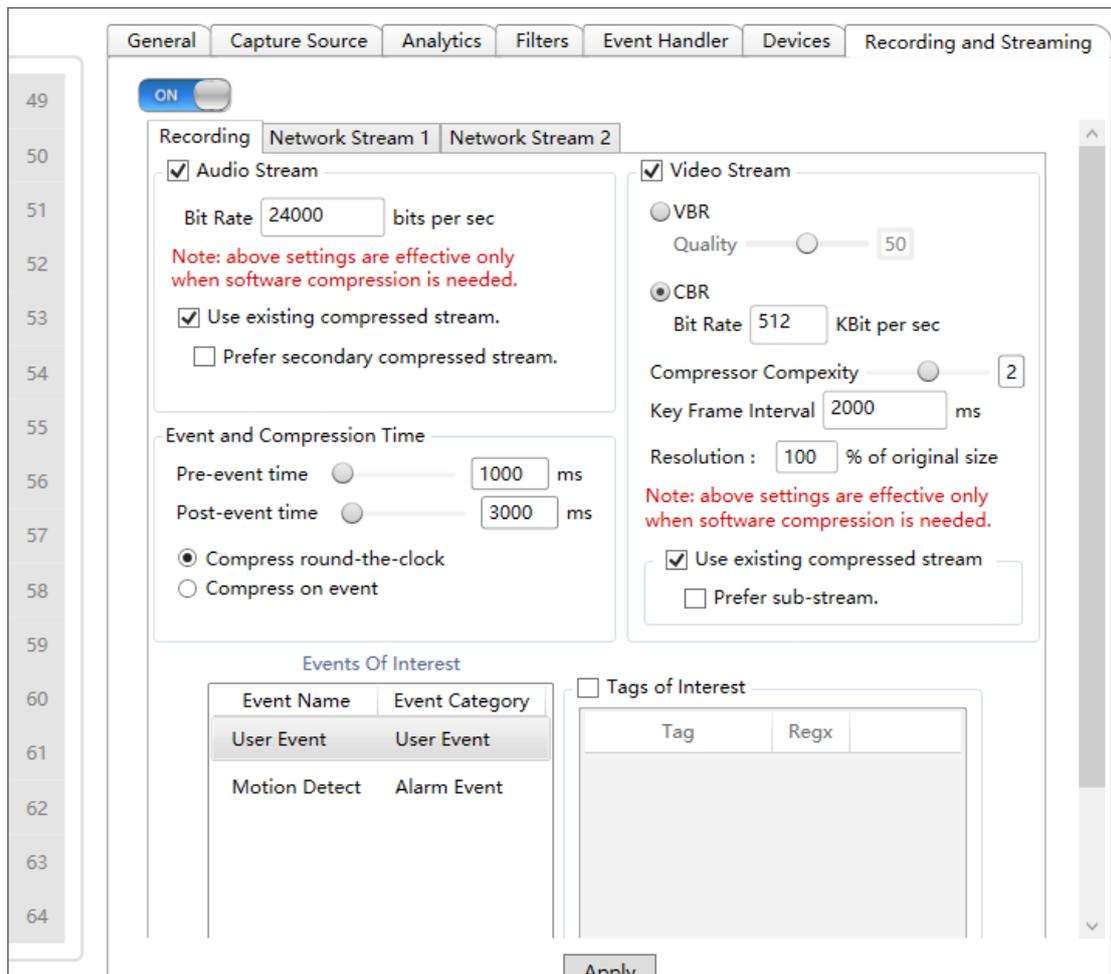
CyeWeb currently has one Recording and Streaming module, which performs video/audio compression (if need) for local storage and Internet Streaming.

There are 2 terms you must know to understand following sections:

- **Hardware compression:** video/audio is compressed with hardware chipset. This typically means (in our software) video/audio data is already produced from capture source, such as IP camera, DVR or hardware compression card.

- **Software compression:** video/audio data is compressed by your computer's CPU. This takes CPU resources. Various reasons could introduce software compression during the program is running. For example, if the capture source is webcam which normally do not have compression chipset, or when you want to downsize the video resolution for network streaming to mobile device and then you configure to not using the existing compressed data.

To locally saved or broadcast a channel, you have to enable this module, i.e. press the ON button.



- **Recording and Network Stream tabs:** These 3 tabs have almost the same set of settings; one for local storage (Recording) and 2 for network streaming. The 2 network stream settings have an option 'Same as Storage'. When this option is checked, the network stream will share the same processing unit with 'Recording' internally. Sharing the same processing unit means it takes the same input and produce the same output. This can save CPU resource if the capture source is

uncompressed data (such as USB webcam) or you uncheck the 'Use existing compressed stream' setting, this means the processing unit will need to do compression (software compression, which is CPU-consuming). But in most case, the capture source is IP camera or DVR. These capture sources already produces compressed stream (hardware compression), so there will be no compression work in the processing unit. By default, the 'Same as Storage' is unchecked and you can configure different settings for recording and network streaming. Understanding this can let you know when to use the 'Same as Storage' setting.

- **Use existing compressed stream:** Depending on your capture source, there may be already compressed video/audio stream (hardware compression). For example, source from network camera typically has a compressed stream. In this case you can save CPU from doing compression by using this option.

Using existing compressed stream is not mandatory. You can choose to recompress video/audio, especially when you need to downsize the video dimension.

Why are there 2 network streams?

This is for your client software (CMS or mobile app) to select a proper stream to view. For example, you can configure Network Stream 1 to stream the original video from camera (high resolution) and Network Stream 2 to stream a downsized video (e.g. 50%). Then in a low-end mobile phone, you can select to view stream 2 instead of stream 1 to avoid lagging.

- **VBR and CBR (effective on software compression only):** VBR stands for variable bit rate and CBR stands for constant bit rate. We recommend you to use CBR if you need to webcast the video. The default CBR bit rate is 512 Kbit/sec (524288 bit). This value is high enough for D1 video. If your video source is in video resolution lower than or equal to 720*480, we recommend you to set this to a lower value, such as 256 Kbit/sec (262144), to lower the data size.
- **Resolution (effective on software compression only):** you can configure here to downsize the video resolution. This is typically for streaming out to mobile phone.
- **Prefer sub-stream:** Depending on your capture source, there may be 2 existing compressed video/audio streams—the main and sub compressed streams. This setting allows you to select which stream to be used.

In hardware compression card, there is so-call “dual hardware compression”, which offers 2 compressed streams.

Typically the quality of the primary stream is better than that of the other, while the data size of the secondary is smaller. This type of capture source is very appropriate in situation that you want high quality data to be stored locally, while small-size data to be broadcasted over Internet. Checking this box will make the secondary compressed stream to be used.

- **Compressor Complexity (effective on software compression only):** Unless you have special reason, we highly recommend you to use the default value. Theoretically a higher complexity value would generate better quality and smaller-size data at the cost of more computation time.
- **Key Frame Interval (effective on software compression only):** The maximum interval between key frames during compression. If the compressed stream needs to be broadcasted over Internet, please set this value to around 2000 milliseconds. A bigger interval would produce smaller-size data. This could be good for local storage but may cause problem on Internet broadcast due to insufficient network bandwidth, which causes frame dropping. If a key frame is dropped, all frames until the next key frame will become useless and be dropped too.
- **Pre-event time:** adjustment to the start time of an event.
- **Post-event time:** adjustment to the end time of an event.
- **Compress on event:** compress video/audio data only when events in the Events of Interest list occur.
- **Pre-compress Cache Size:** the size of the buffer that stores uncompressed data. Bigger size consumes more system memory, while a small size would cause “Pre-event time” ineffective. You should calculate an appropriate size according to the frame rate and resolution of your capture source. For example, a video capture source with resolution 640x480 at 30fps and I420 pixel format requires $640 \times 480 \times 30 \times 1.5 =$ around 13 MB per second. So if you set the “Pre-event time” to 2000 milliseconds (2 seconds), you would need about 26 MB cache size for just video. (Note: you may need to change this value only when software compression is used)

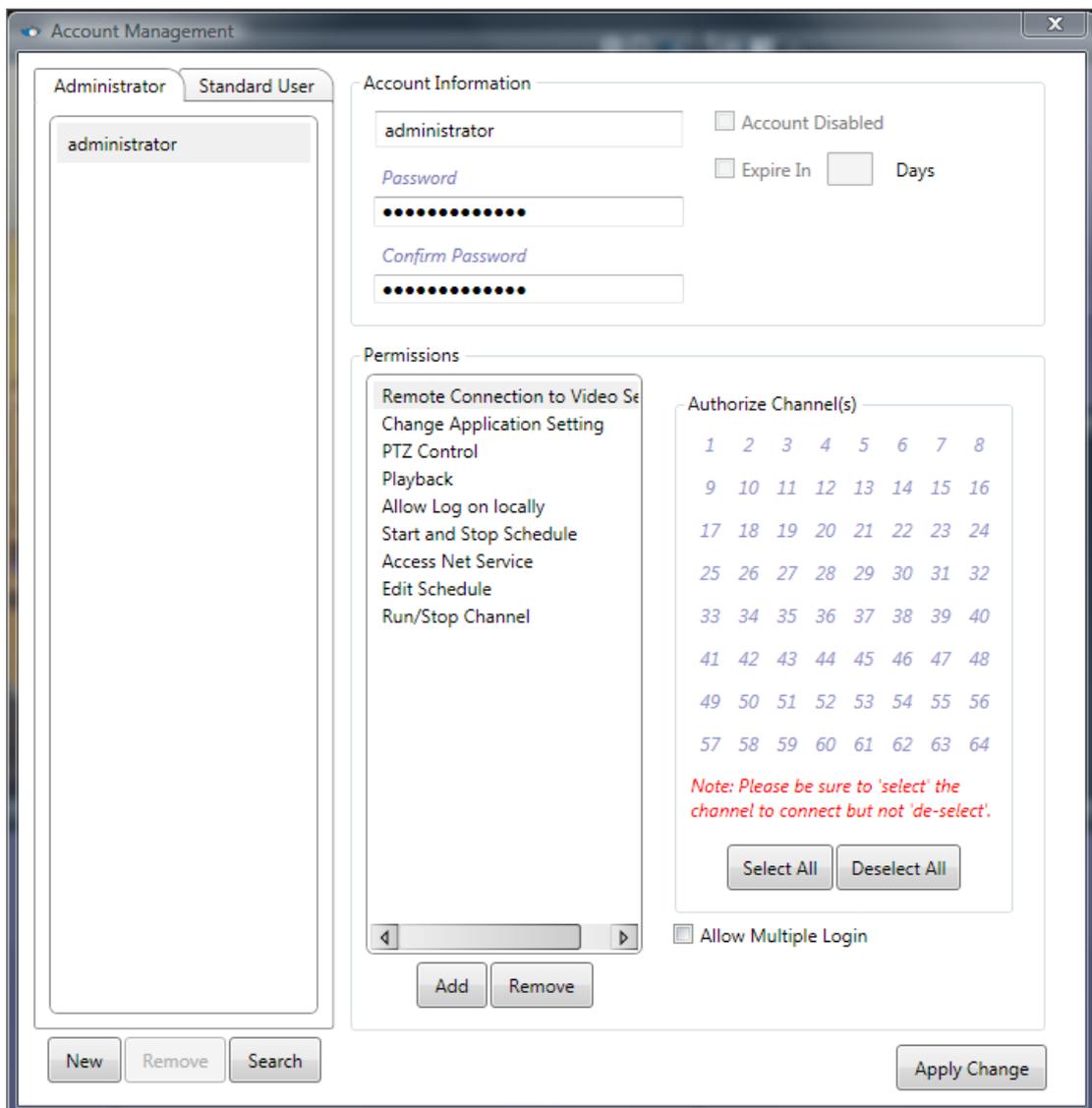
Please note that Recording and Streaming share the same cache buffer.

Note: Data filter modules (such as timestamp OSD, de-interlace, and mask-region filter) tamper data on uncompressed stream data, and require software compression to propagate the result to local storage or Internet broadcast. If you checked “Use existing compressed stream” and a compressed stream do exists, the result generated in data filters will not be propagated to storage or broadcast but just reflected on preview.

7.3. Account Management

Here you can add/remove account or change account permissions.

There are 2 types of account: Administrator and Standard User. The only different between Administrator and Standard User is that Administrator can launch account management while Standard User cannot.



There is a pre-created Administrator account “administrator” with password “administrator”. This is the only account you cannot delete or disable.

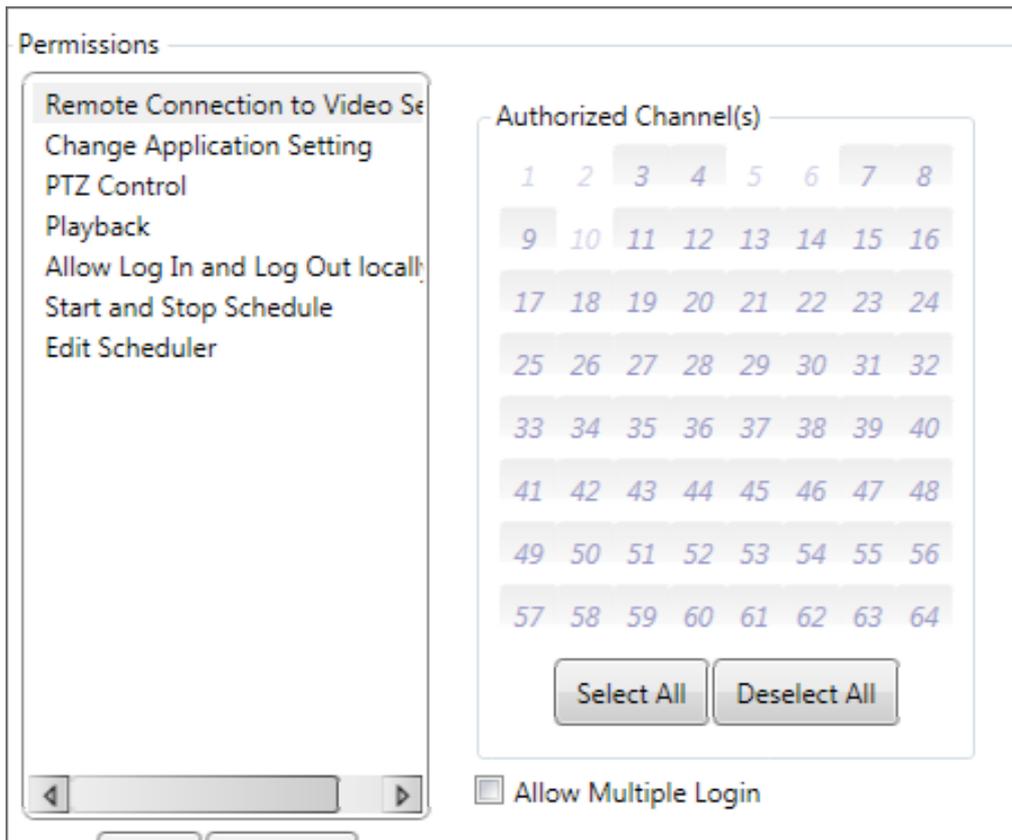
There are some pre-defined user permissions (later extension modules may add more). Permission may have sub-permissions, e.g. “Remote Connection to Video Server” and “Playback”.

Below are descriptions of some selected permissions:

7.3.1. Remote Connection to Video Server

This permission means whether you allow the user to connect to CyeWeb Video Server through Internet.

- **Authorized Channel(s)** – the channel(s) you allow to view/connect over Internet (e.g. by using Microsoft IE or other CyeWeb).
- **Allow Multiple Login** – tell if you allow simultaneously multiple connections on this account.



7.3.2. Change Application Setting

This is the permission to change your program settings. The settings includes all setting (Channel, Application Module..., etc) except this Account Management.

7.3.3. Other Permissions

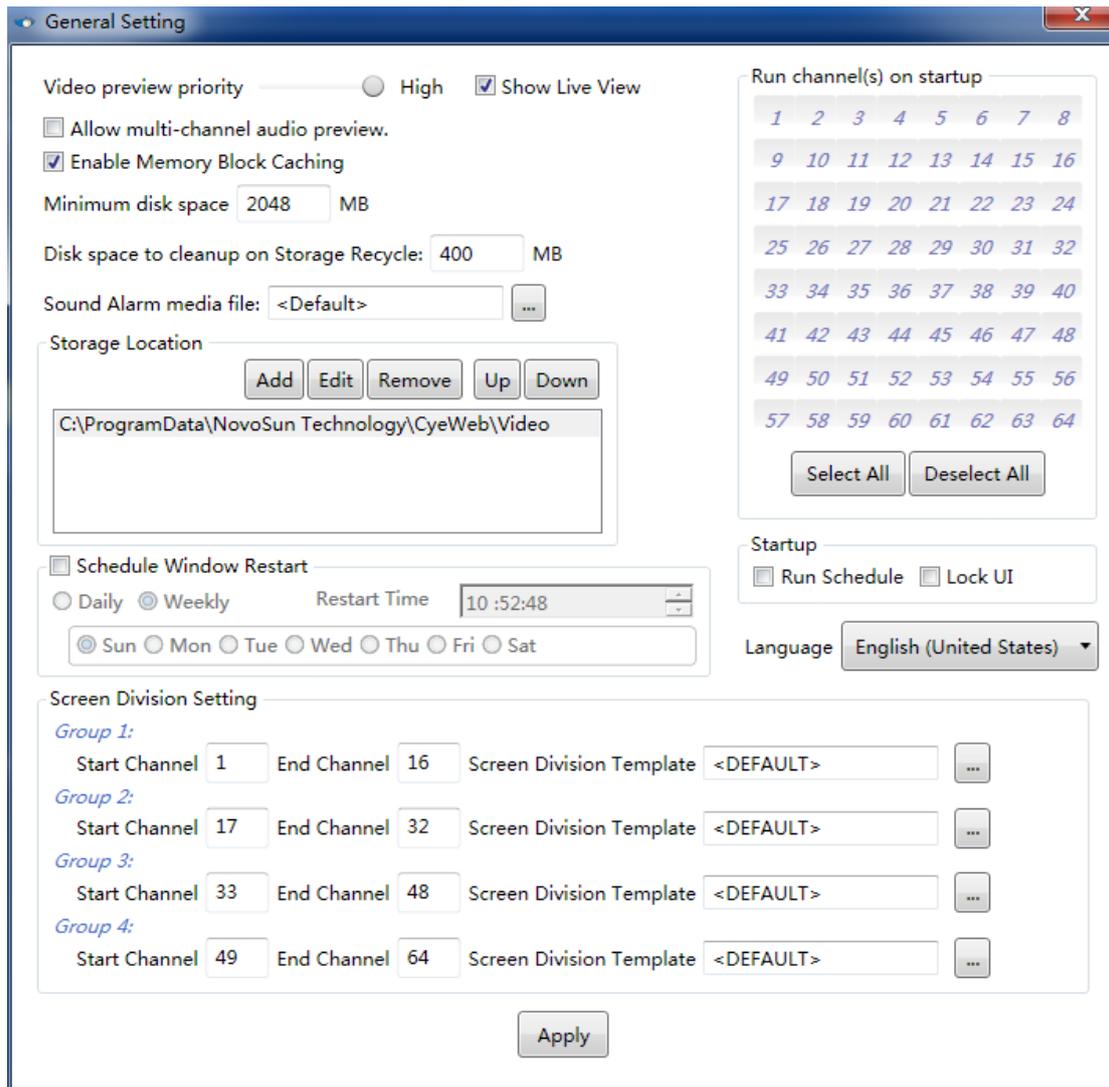
- PTZ Control
- Playback
- Allow Log In Locally
- Start and Stop Schedule
- Access Net Service
- Edit Schedule
- Run/Stop Channel

7.4. Application Module Settings

CyeWeb currently has 10 application modules: Net Service, Windows Media Broadcast, Video Server, Web Server, Application Status Log, Spot Screen, Object Counter Statistics Module, E-Map, Transact (PoS) and Channel Sequence.

For more information about the settings of the above modules, please refer to the **“Application Module”** chapter.

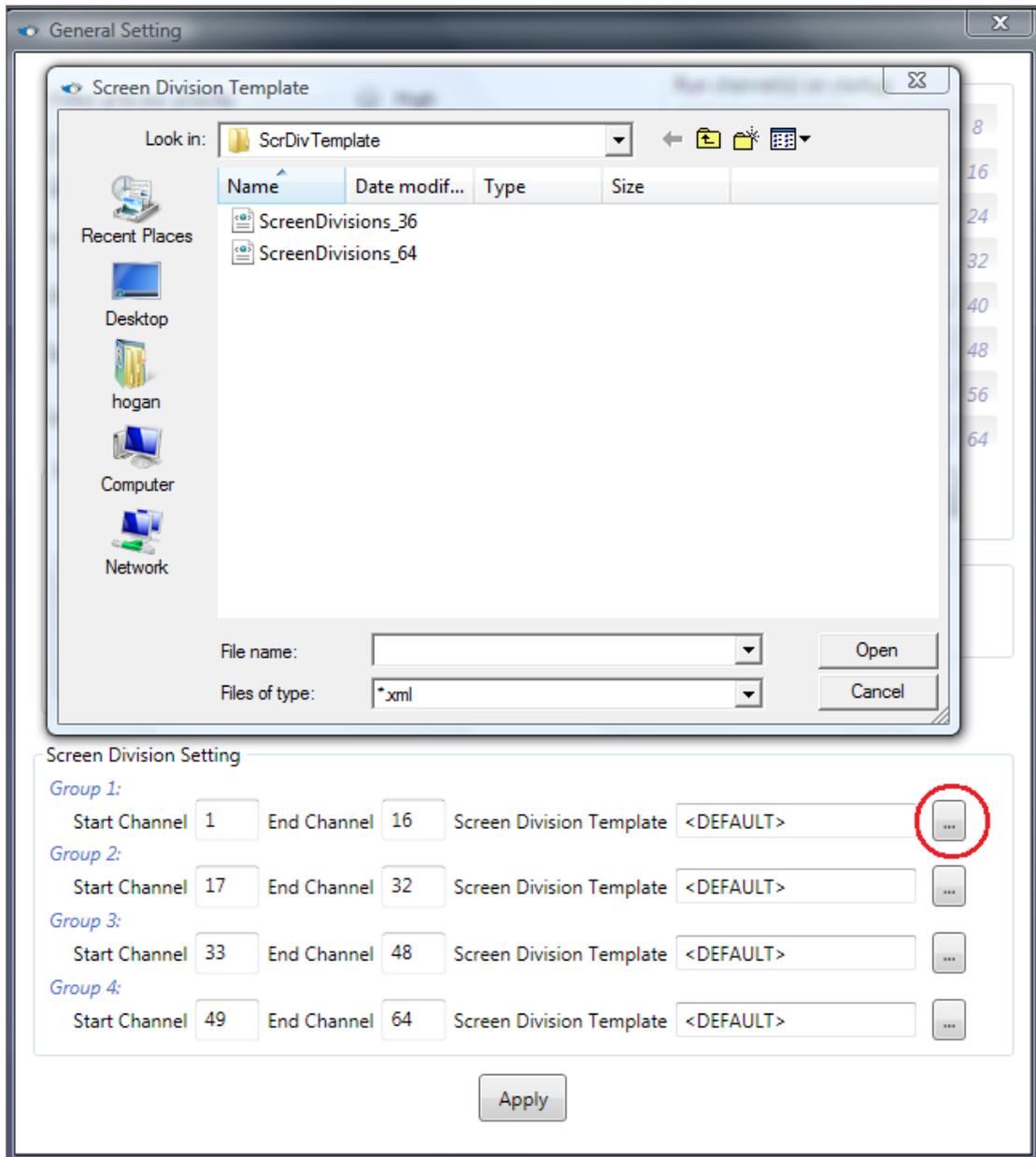
7.5. General Settings



- **Video preview priority** – priority of the real-time preview video. Higher priority would produce smoother preview video but consume more CPU resource.
- **Allow multi-channel audio preview on the same preview panel** – by default only the main channel audio will be rendered. If you checked this, audio of all channels will be rendered simultaneously.
- **Minimum disk space** – the minimum size of disk space in a storage location. If the disk space of a storage location is lower than this value, recording will no longer stored in that location until Storage Recycle release disk space on that location.
- **Disk space to cleanup on Storage Recycle** – the space to cleanup on storage shortage. Storage Recycle occurs if all storage locations are full. Old media-files marked to participate in Storage Recycle will be deleted. Files are deleted

one-by-one until disk space is free up to this value. Please note that you can configure to exclude a channel from Storage Recycle in Channel Setting.

- **Sound Alarm media file** – the audio file to play on sound alarm.
- **Language** – here you can configure the UI language. This configuration takes effect on next time you start the program.
- **Storage Location** – here you configure the storage locations for media-files.
- **Run channel(s) on startup** – here you select the channels to run on program startup.
- **Run Scheduler** – setup to run the scheduler on program startup.
- **Lock UI** – setup to lock UI on program startup.
- **Screen Division Setting** – here you can setup up screen division template, starting and ending channel. The default is to use 4 groups; each group shows 16 channels (totally 64 channels). You can setup to use 1 group to show all 64 channels, or other combination.



7.6. Scheduler

There are 2 schedule types: *weekly schedule* and *one-time schedule*. There is one note: one-time schedule has higher priority than weekly schedule. Whenever a weekly schedule overlaps a one-time schedule, that weekly schedule will be ignored.

Other than schedule type, there are also 2 types of schedule item: *time to run channel(s)* and *time to import setting*. With these 2 schedule items, you can schedule almost everything.

Note: On importing setting file, CyeWeb compare the existing settings with the new ones. Only those parts with different settings will be reloaded.

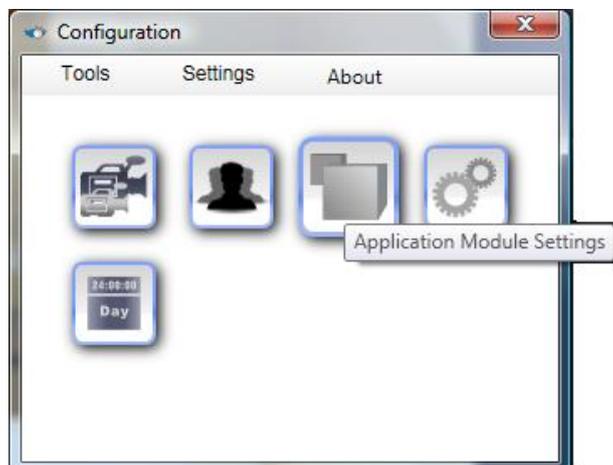
The screenshot shows the 'Scheduler' window with two tabs: 'Weekly Schedule' and 'One-time Schedule'. The 'Weekly Schedule' tab is active, showing a 'Day of week' dropdown set to 'Thursday'. Below this is a 'Run Channel(s)' section with a grid of 64 channels (1-64) and 'From' and 'To' time fields both set to '19:56:27'. There are 'Add to schedule', 'Select All', and 'Deselect All' buttons. Below the channels is an 'Import Setting' section with a 'Setting file' field containing 'Setting file', a file selection button, and a 'Time to import' field set to '19:56:27', with an 'Add to schedule' button.

The bottom section is a Gantt chart with a 24-hour grid (0-23) and days of the week (Sun-Sat). An orange bar represents a weekly schedule on Thursday from approximately 13:30 to 22:00. A mouse cursor is hovering over a green triangle on the Thursday bar, which has triggered an 'Import Setting' tooltip. The tooltip displays: 'Time: Thursday 1:33:41 PM' and 'Setting file: F:\conf2.sdf'. A 'Zoom' slider is located at the bottom left of the Gantt chart.

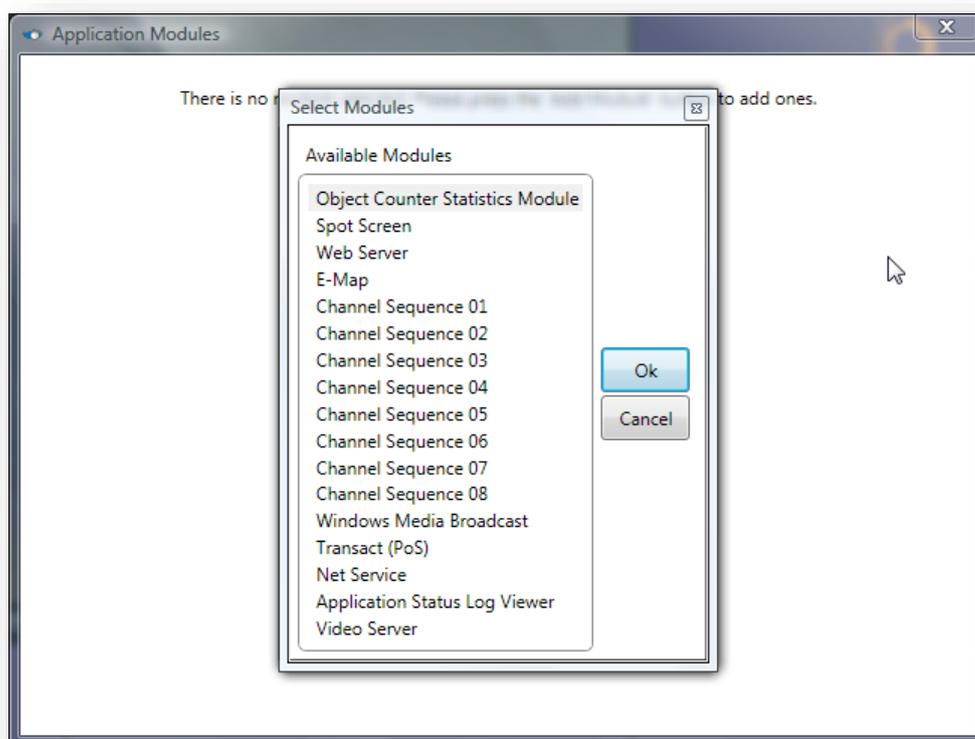
Note: One-time schedule has higher priority than weekly scheule. Whenever a weekly schedule overlaps an one-time schedule, that weekly schedule will be ignored.

8. Application Module

In the program setting dialogue, click the “Application Module Setting” button.



You should see the following dialogue:



CyeWeb currently has over 10 application modules: Net Service, Windows Media Broadcast, Video Server, Web Server, Application Status Log, Spot Screen, E-Map, Transact (PoS), Object Counter Statistics Module and Channel Sequence, etc. To add these modules, please click the “Add” button and select the module you need.

8.1. Net Service

This module is to support event forwarding, injection and remote playback. Please bind this module if you want to use these functions.

Module: **Net Service** Enable Module

Channel Event
General

Service Port 9700
Data Port 9702
Security Mode **None**

Allow Event Injection

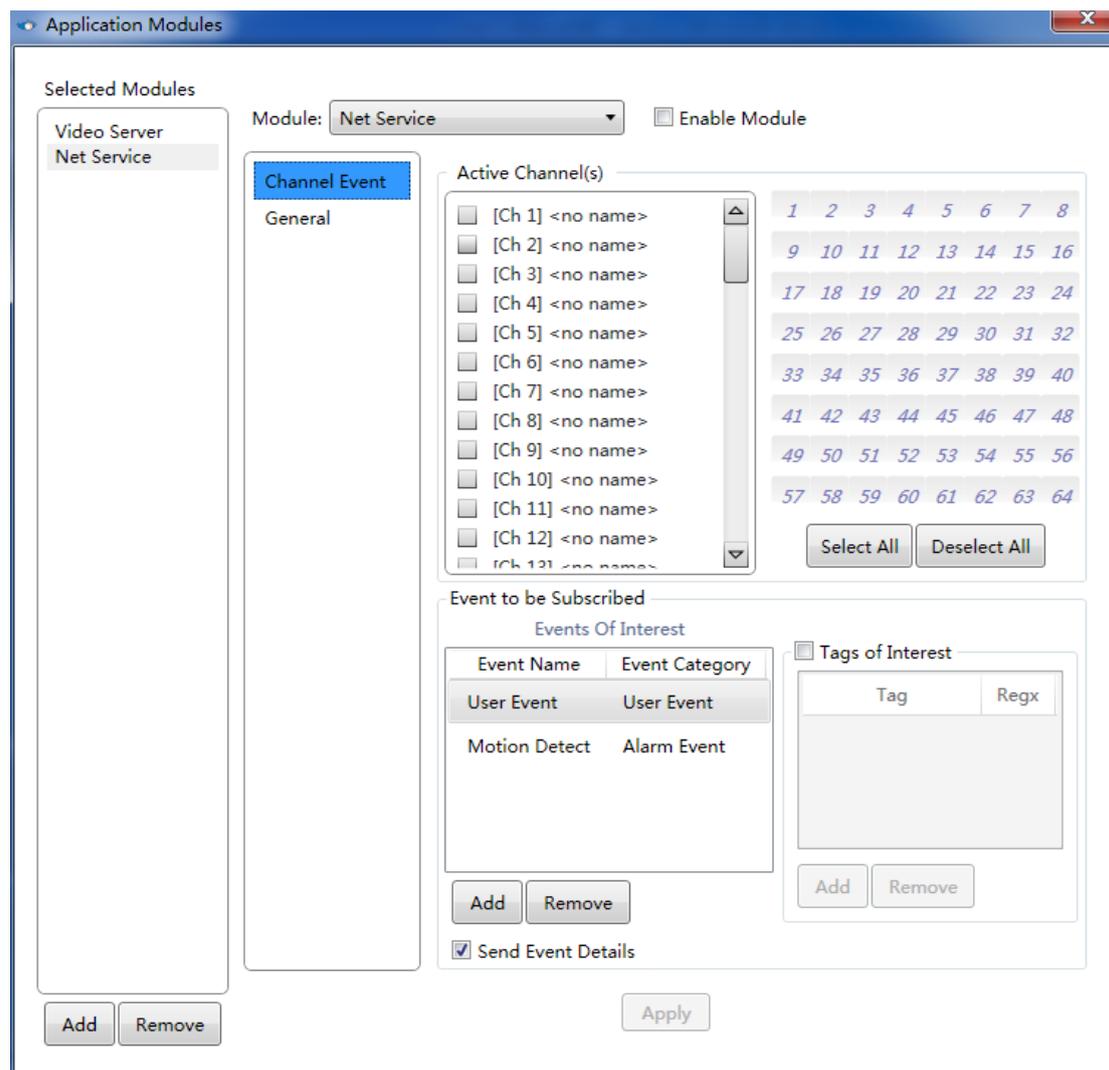
Apply

In the general setting please set the **service port**, **data port**, **security mode** and **enable/disable event injection** (from other third-party software with our SDK.)

- **Security mode** – There are 2 security modes: None and Windows. Selecting Windows (use Active Directory for encryption and authentication) is safe on Internet environment. But the computer to connect to this Service must login with the same Windows ID and password.

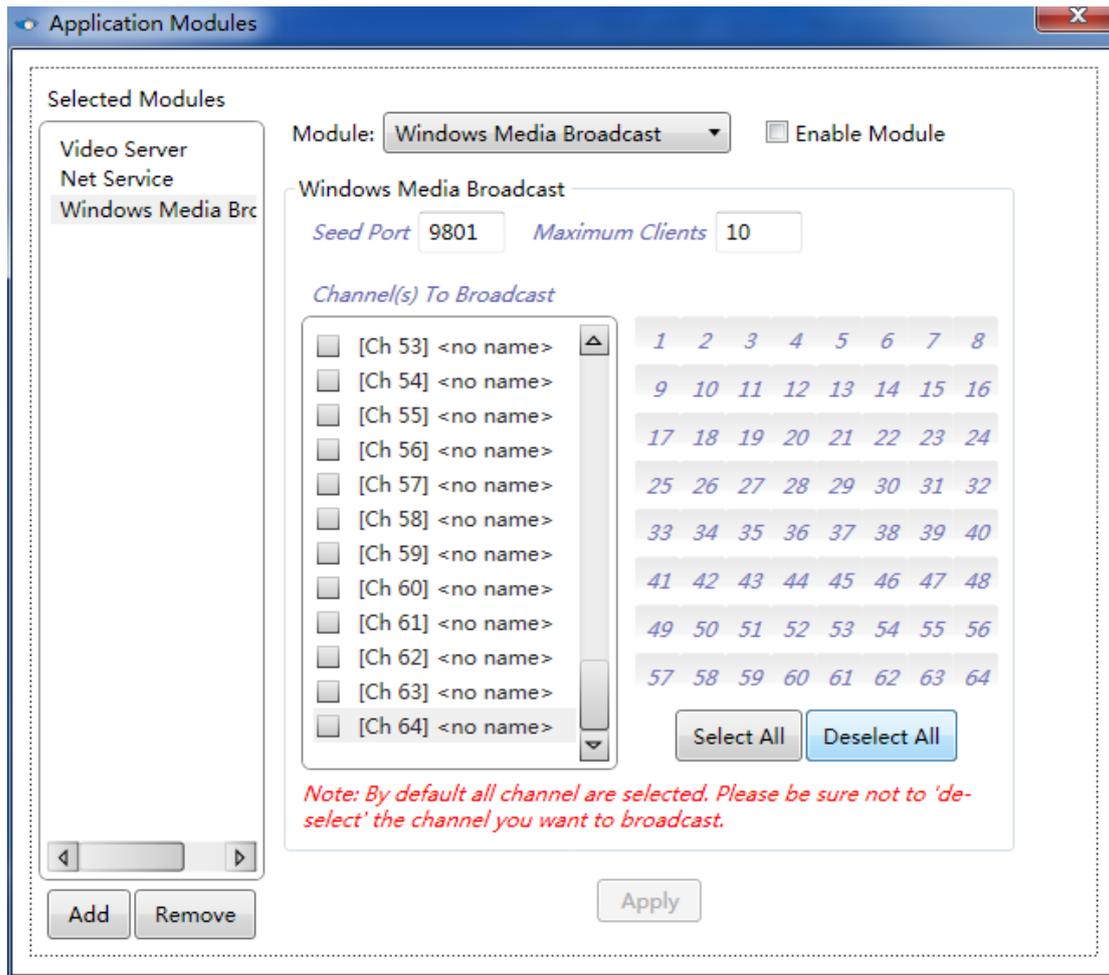
In the Channel Event Publisher setting you can select the channels, events and tags to publish. This is for other instance of CyWeb or software using our SDK to subscribe events over IP.

If you uncheck “Send Event Details”, only event id and tag will be sent. Other event details such as motion region, counting lines, etc will not be sent. For example, you will not see the red rectangle (visual alarm) of motion detection event on the client side.



8.2. Window Media Broadcast

This module receives compressed video/audio from Recording and Streaming module and then broadcast to Internet in Windows Media format.



- **Seed Port** – if you set the seed port to 9801 (default), the broadcast URL for channel 1 is mms://<your_internet_address>:9801, channel 2 is mms://<your_internet_address>:9802, and so on. <your_internet_address> is the Internet address of your computer. Windows Media Broadcast is over RTSP, HTTP or TCP/IP. (If you broadcast media data that are not compressed in WVC1/WMV3/WMA, you have to install the corresponding codec on the remote computer. You may download the codec pack on our website.)
- **Maximum Clients** – to set the maximum connection clients allowed for each channel.
- **Channel(s) to Broadcast** – to select the channel(s) allowed to broadcast.

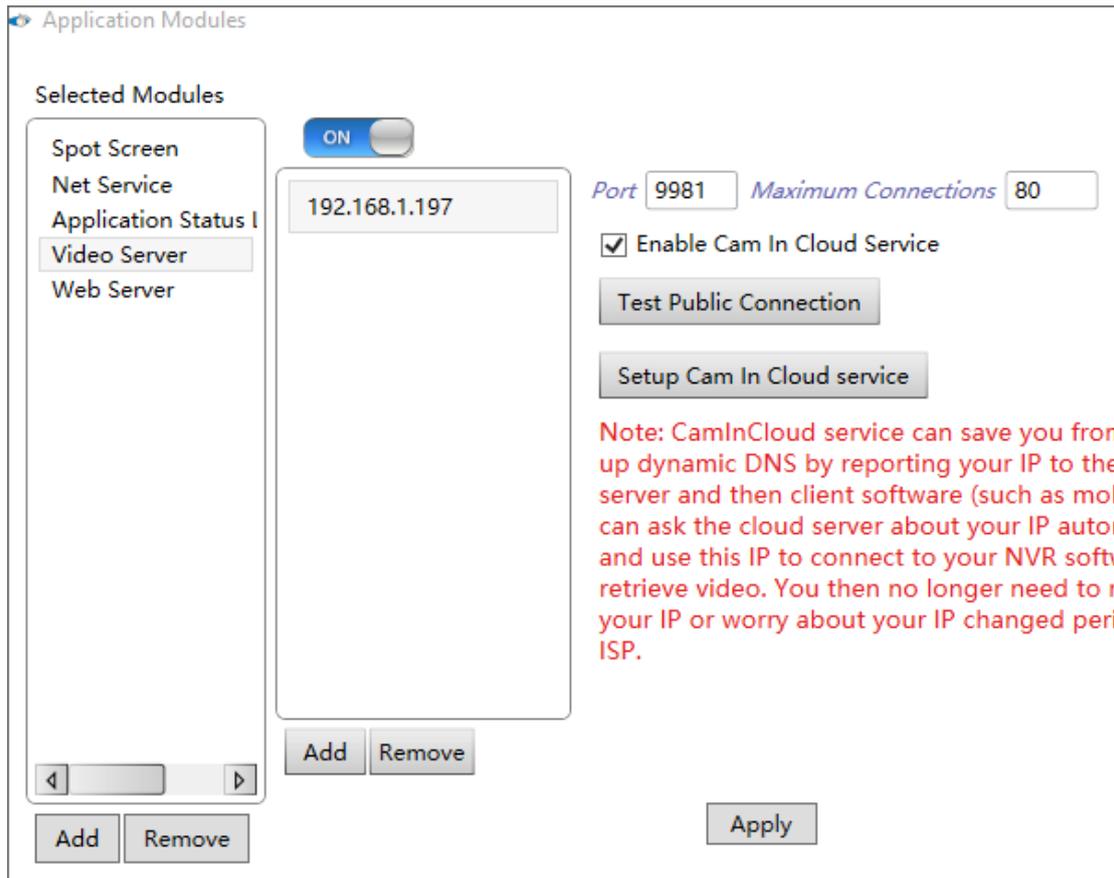
Note: Windows Media Broadcast does not have credential setting. If anyone knows your computer's Internet address and your seed port, he/she may be able to connect to your CyWeb and view live video of the channels you opened.

CyWeb initially do not offer module that directly supports remote viewing from mobile devices such as PDA or cell phone. But with this broadcast module, you may be able to use

your Windows Mobile based PDA or smart phone (if it has a Windows Media Player) to view live videos of your CyeWeb.

8.3. Video Server

This is the CyeWeb video streaming server to stream media to Internet over TCP/IP protocol. Connection to Video Server could be from Other CyeWeb, CMS, IE client, or mobile client.

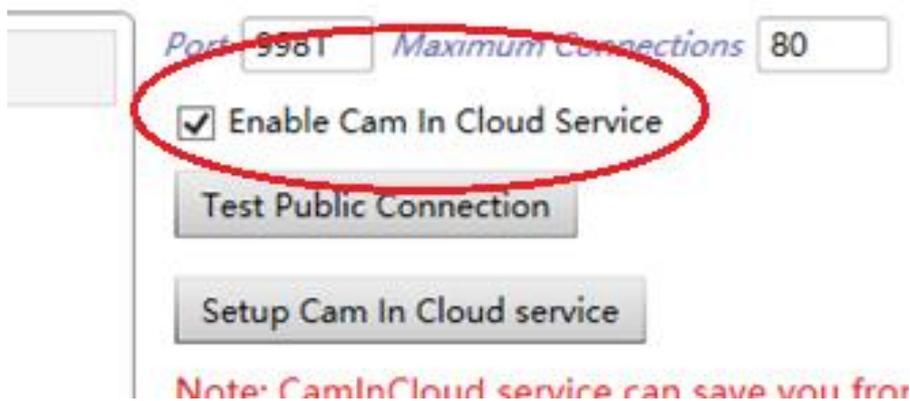
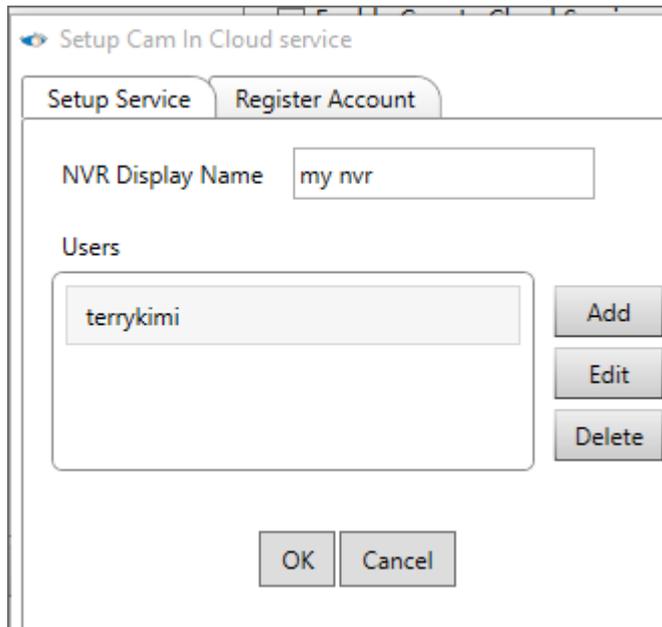


Video server also has setting for Cam In Cloud service. This is a web service to save you from setting up dynamic DNS by reporting your IP to our cloud server and then client software (such as mobile client) can ask the cloud server about your IP automatically and use this IP to connect to your NVR software to retrieve video. You then no longer need to remember your IP or worry about your IP changed periodically by ISP. Currently this service is solely run for mobile device app (EyeOnMobi).

Following steps is to setup this service:

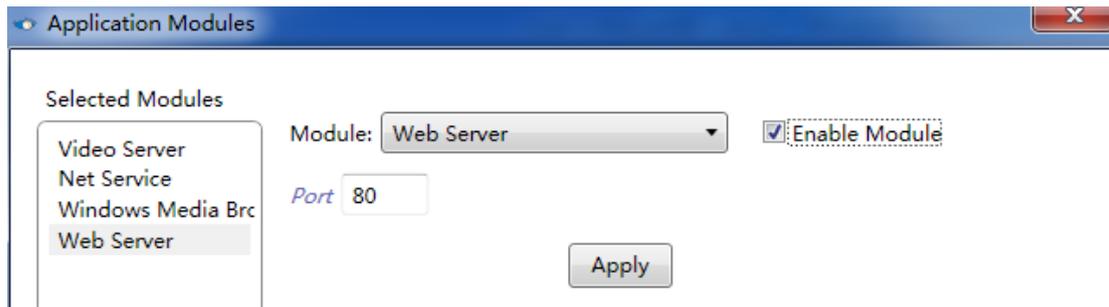
- ◆ Press the 'Setup Cam In Cloud service' button to show up the cloud service setting dialog. Register an account and add the account the 'Users' list. You need also input the NVR display name. Click OK button to close the dialog.

- ◆ Check the 'Enable Cam in Cloud Service' checkbox.
- ◆ Press the 'Apply' button to apply the new settings.
- ◆ Setup you windows firewall and routers to allows the port (9981 by default) passing through. You can press the 'Test Public Connection' button to check whether you have correctly setting up your firewall for the video server.



8.4. Web Server

This is an Http web server module for user to connect remotely with Microsoft IE. If you bind this module, please also bind the “**Video Server module**” because when IE pull live videos from CyWeb it actually pull that from CyWeb Video Server.



To connect, you must use Microsoft IE. The URL is your computer's Internet address (IP or domain name).

Once IE connect to your web server, you will be requested to install an ActiveX control. Please install it. The connection parameters in the web page should match those in your Video Server (e.g. port number) and Account Management (user name, password).

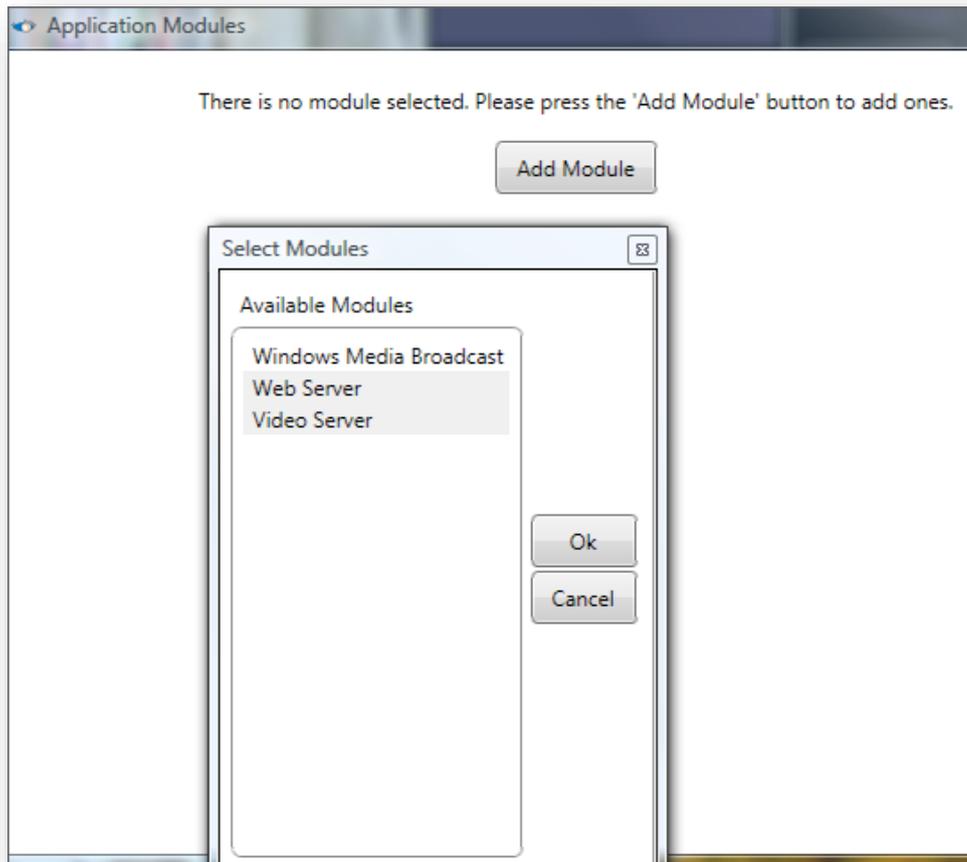
On the web page you can select which channel to view. If video is lagging because of low network bandwidth, you may disable some channels. Furthermore, you can control your PTZ camera through the page.

The ActiveX is located at "<Program folder>\Extensions\Web\". If you need to show the videos in your webpage, you can use it.

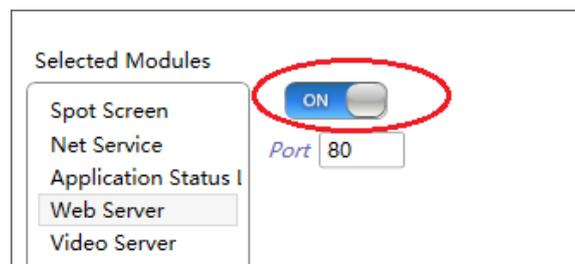
8.5. How to Setup HTTP & Video Server

This example shows you how to setup HTTP and Video Server for remote viewing. The channel to be viewed remotely must first connect to a capture source and bind to a "Recording and Streaming Module" (please refer to "**Connect to Capture Source**" and "**Setup Recording**").

- 1) Run the channels that you want to webcast. (please refer to "**Setup Recording**")
- 2) Open the configuration dialog, and click the application module button, you should see the application module setting dialog. Click the "Add Module" button, and add the web and video server.



- 3) Press the 'ON' button on the Web Server and Video Server. (You may change the port number if port 80 has been used by other software)



- 4) Now you should see the Web and Video Server Indicators lighting up on the Main Console:



- 5) Open your Microsoft IE, key in your computer's Internet address (for more information of your Internet address, please refer to the [FAQ #5 ~ 7](#)). IE would prompt you to install an ActiveX control. Install it.



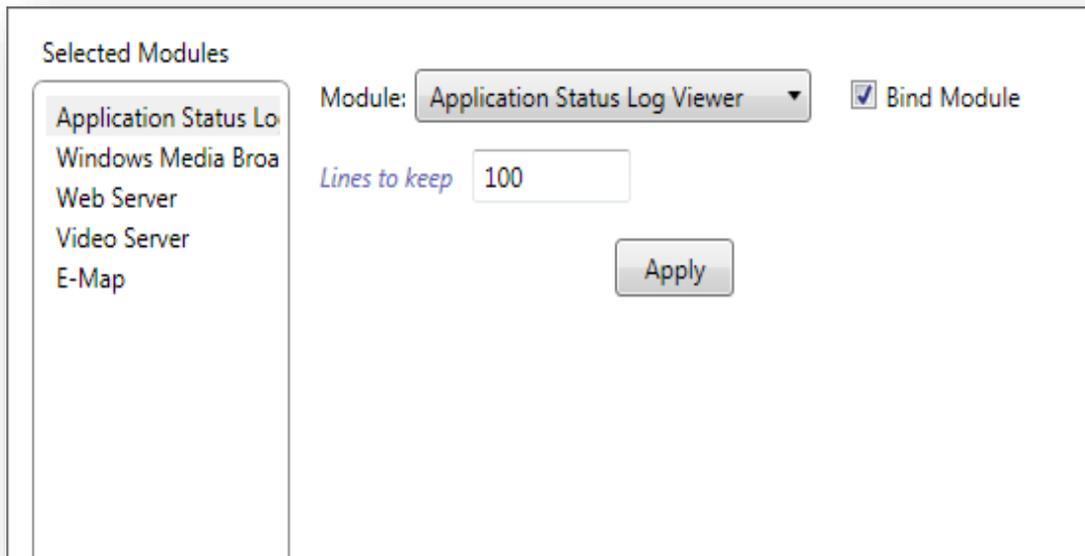
- 6) Fill in the ID/Password with "administrator"/"administrator" (if you have already setup your own account, you can use yours), and click the "Connect" button.

Note: If you see the web interface but you cannot see video after clicking the "Connect"

Now you have successfully setup and test your Video and Web server.

Application Status Log

This module posts application logs, such as video server connection logs, IP camera connection logs, etc. You can configure the number of lines of log data to keep on the log window.



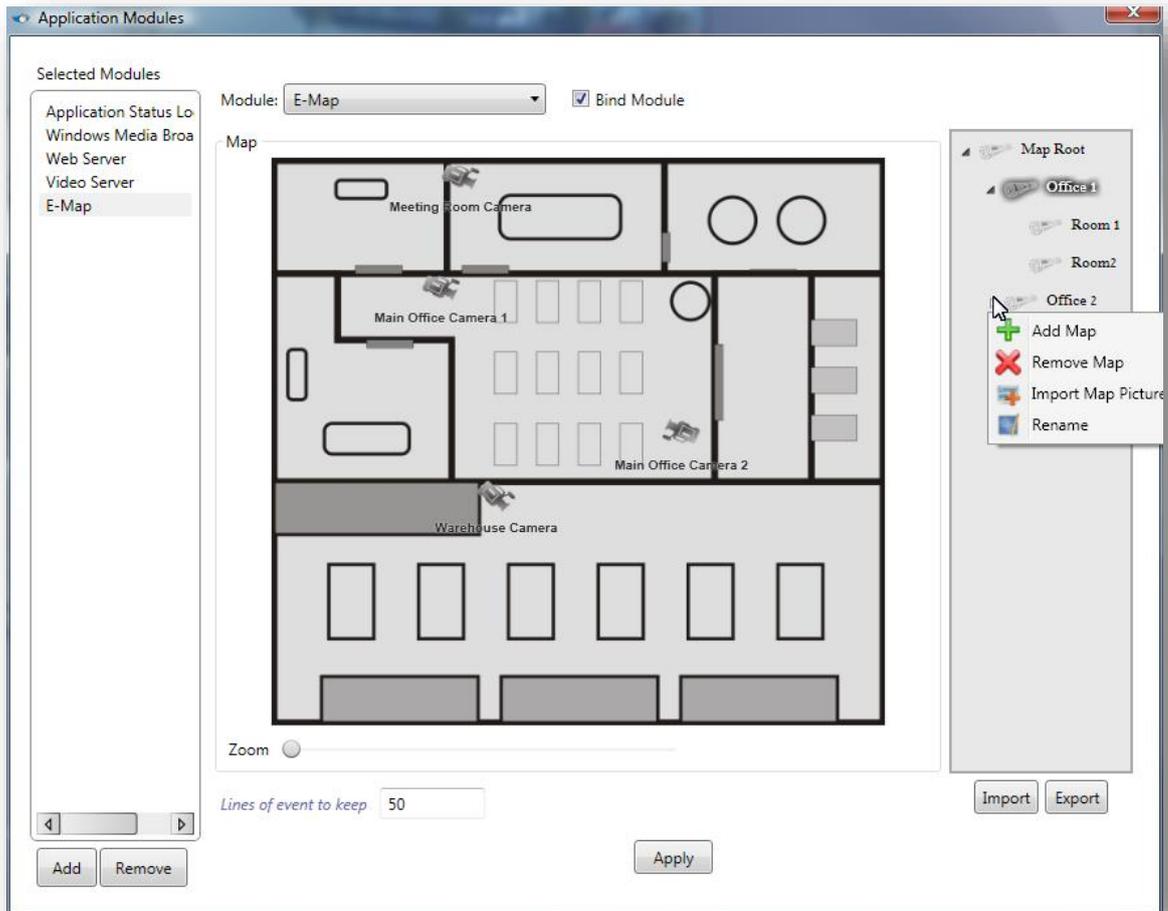
Once you bind this module, you will see the application log window on the module view in the main console.

8.6. E-Map

With the e-Map module, you can organize your cameras and devices into map view. The e-Map has an event viewer where you can quickly locate the device/camera that trigger the events and open a playback window to playback the video at the position where the event occurred. You can also quick-view the live video of any channel (at most 3 channels simultaneously) by just one click on the device.

8.6.1. Configuration

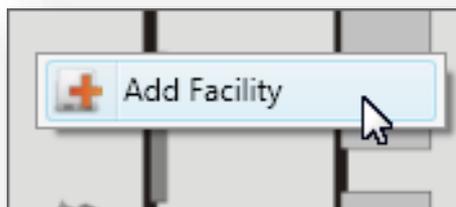
- 1) **Add a map layer** – please right click on the map item on the tree view on right hand side. Select "Add Map", you will be prompted a dialog to enter the layer name.



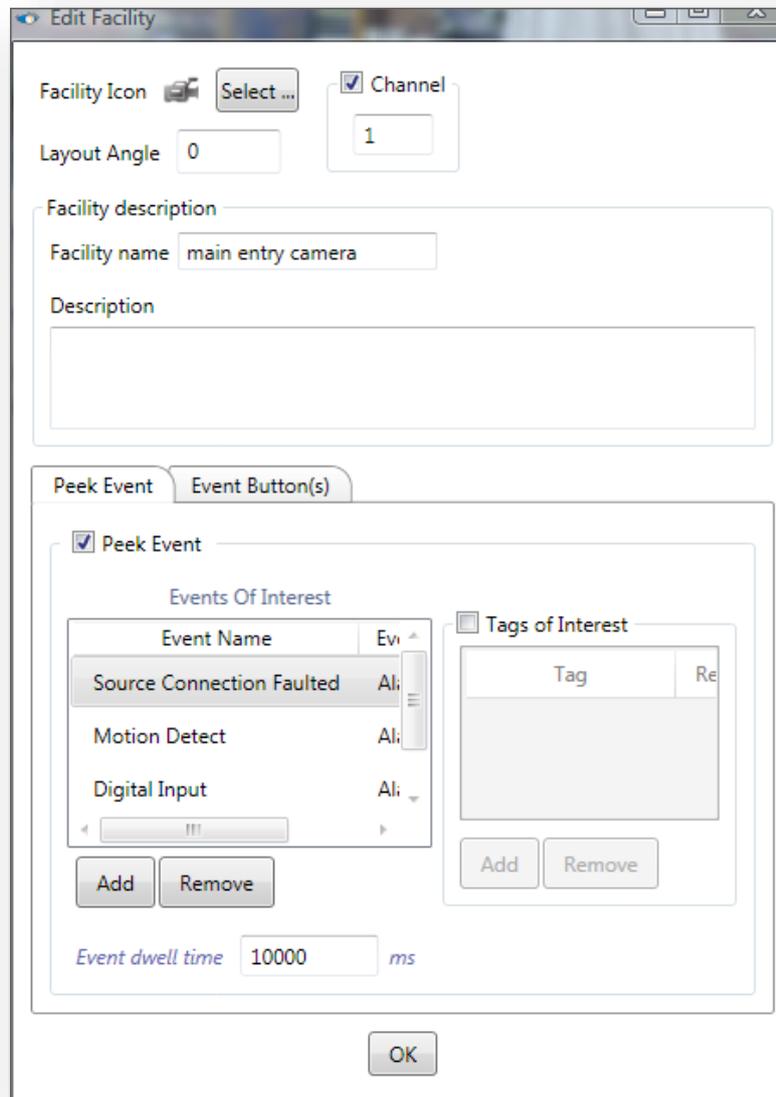
- 2) **Import a picture for a map layer** – please also right click on the map item and then select “Import Map Picture”. You can select PNG or JPG or BMP format picture.

There are “import” and “export” buttons below the tree view. These are to import and export the whole map setting from and to file. This is useful when you want to share map settings among multiple CyWebs in different computers. Or you need to temporarily change the map setting and need to roll back in some later time.

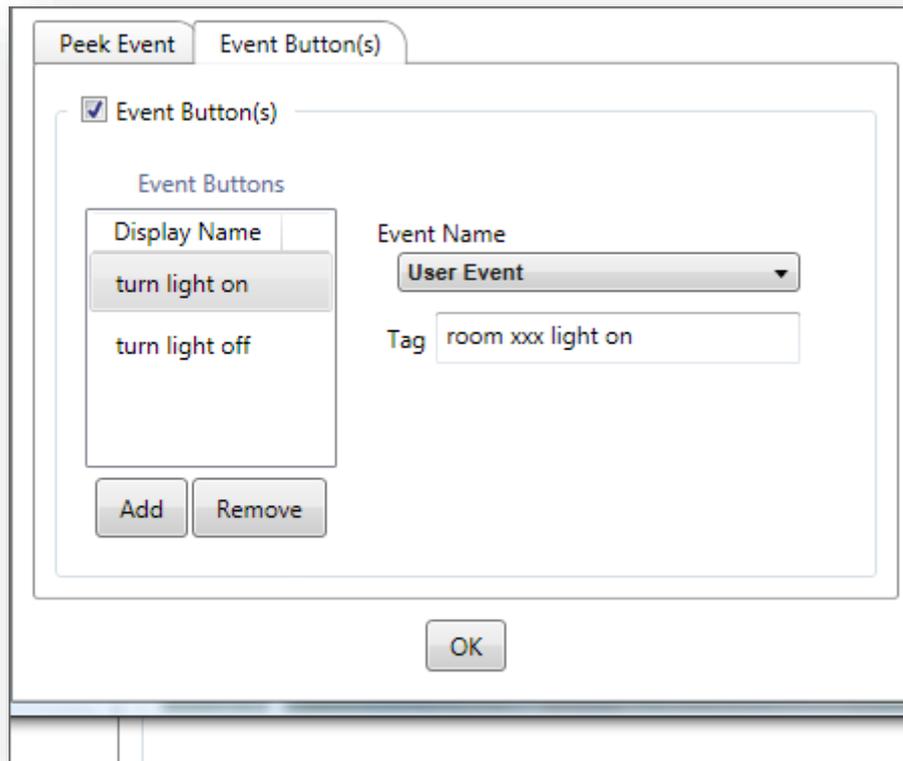
- 3) **Add a facility** (may be camera or other type of device) – right click on the map; you will see a context menu to “Add Facility”.



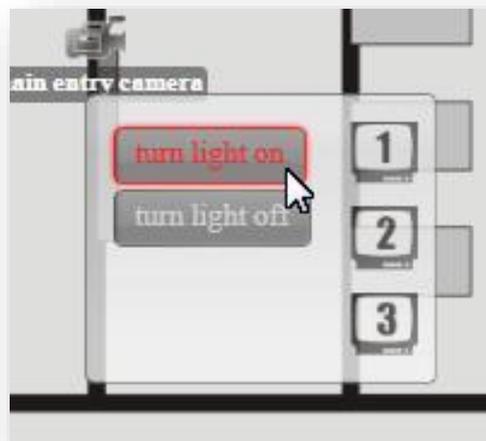
In the dialog, you can setup the channel (if this is a channel facility). You can also configure the events of interest and tags that you want to see in the event viewer, as well as the event dwell time. The dwell time means that if an event (with the same tag) happens twice within the range of the dwell time, they are considered as the same alarm.



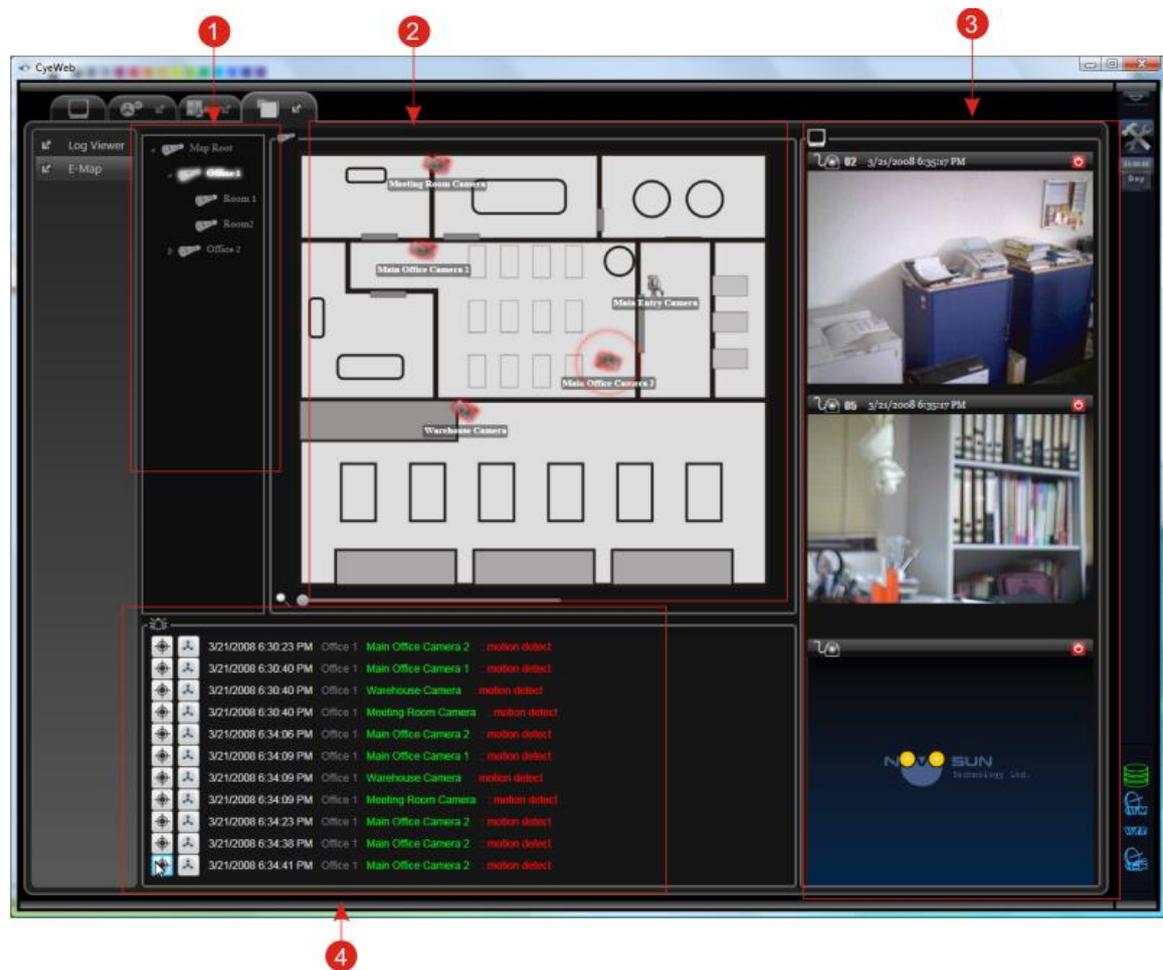
- 4) **Define Event Button(s)** – With event button the operator can manually post event to the system by just clicking a button on the facility.



On the map, you can move the facility to any location by dragging. And you can also edit, delete, and duplicate any facility by right clicking on it.

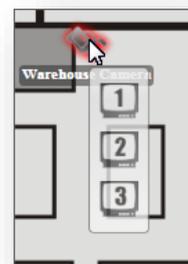


8.6.2. Control



- 1) Tree view of the map layers
- 2) Map

Here you can see the map and facilities of the selected map layer. If the facility is a channel device, you can right-click on it and select a quick view window to see the live video.



3) Quick Videos

here you can see live video of any channel facility.

4) Event Viewer

when an event occurs, and the event is any in the event of interest in any facility, that event will show up here. On the left hand side of the event log there are 2 buttons that you can immediately locate the facility as well as pop up a playback window and seek to the position where the event occurred (the popup playback is effective only on channel facility with Recording and Streaming module enabled).

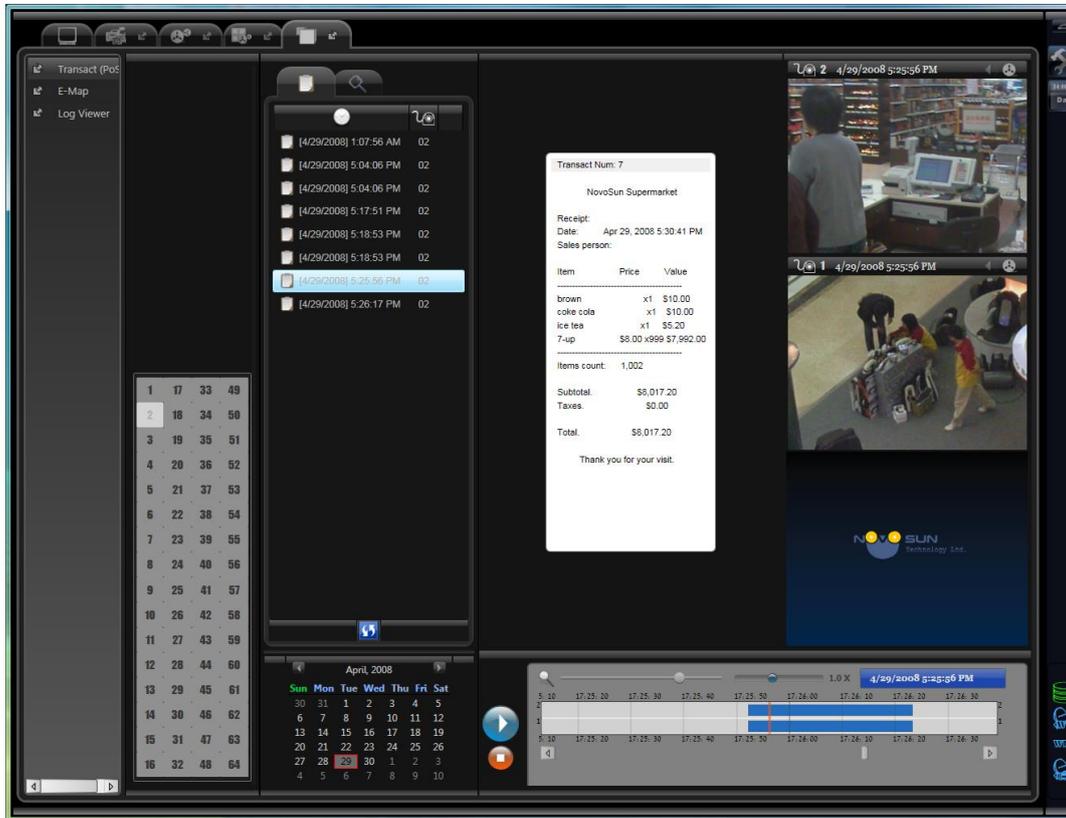
8.7. Spot Screen

This module is generally for viewing alarmed channel in a single large monitor. There is no setting required for this module. What you need to do is to bind it, and then click on the channel icon (as shown below) of the alarmed channel.



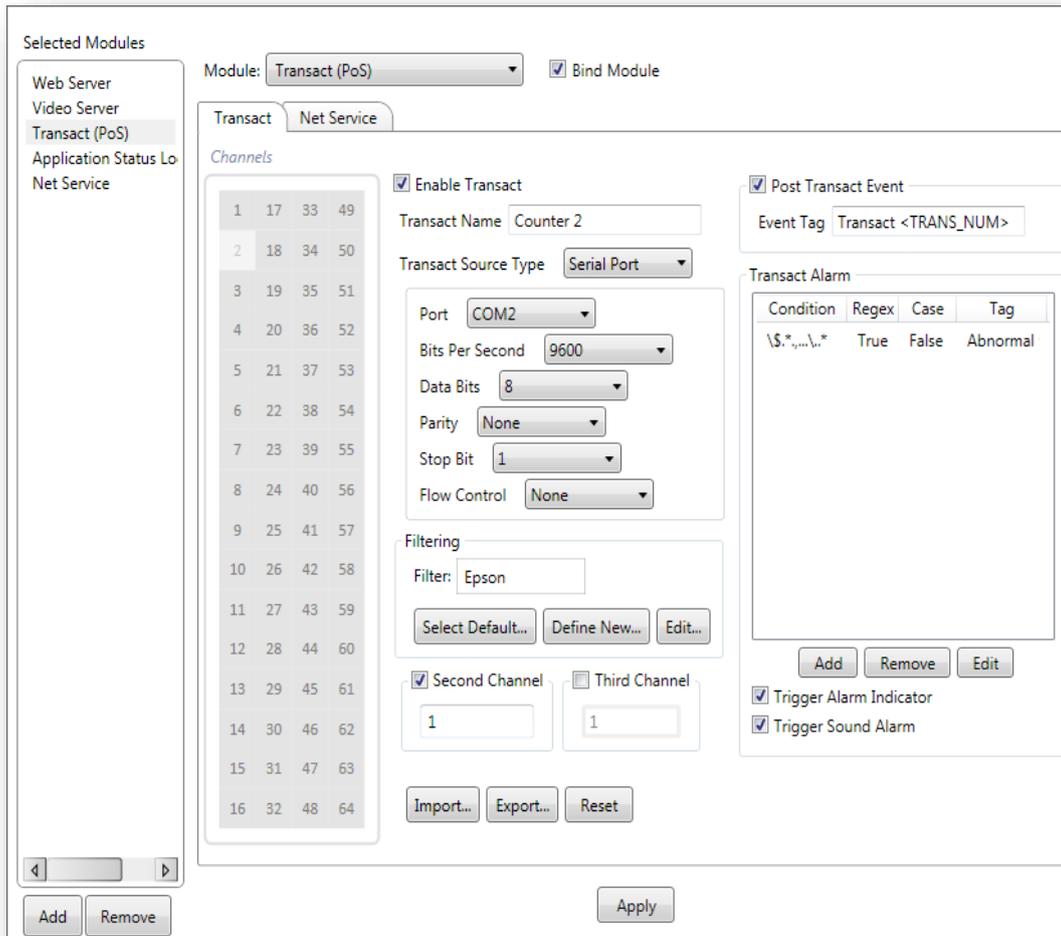
8.8. Transact (PoS)

Transact module can be used for loss prevention to capture activities at the counters of supermarket, ATM, etc. With this module you can define rules to alarm on abnormal transactions such as high amount of refund or money withdrawal. Also you can search back transact-activities and playback the videos with just a few keywords.



8.8.1. Settings

In the setting you can create transact configuration for at most 64 channels. You have the option to enable or disable transact monitoring for each channel. And you can also define 2 helper channels for each channel. This is for the case that you use 2 or 3 cameras to monitor one transact-location. More importantly, you can define alarm rules to help supervisors to real-time notice abnormal transaction.



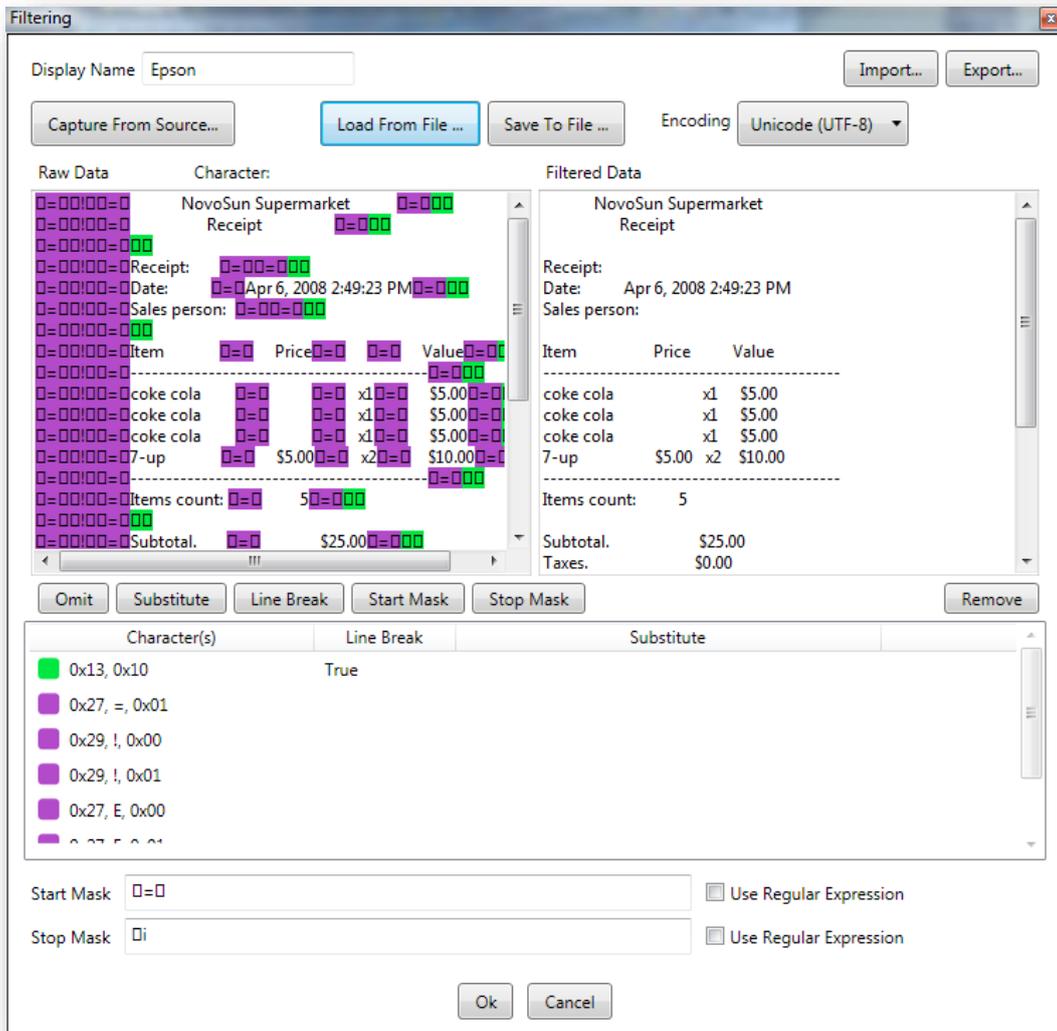
- **Connect to PoS**

Currently CyWeb supports serial port transact-source and Net Service Transact Injection.

- **Serial Port** – for serial port source, you can connect the PoS directly to your computer with a “crossover” RS-232 cable. The settings (e.g. bits/sec, data bits, etc) of the transact-source have to match with those in the PoS system. Please note that not all PoS system can be supported with the serial port. You have to try. Some minor PoS use windows printer driver to print receipt, this is not a usual way to print thing in PoS system (the PoS manufacturer should use the standard Unified POS for receipt printing, most PoS follows that, but not all.). CyWeb does not support these PoS system with serial port. But you still can use the Net Service Transact Injection.
- **Net Service** – transact Injection is a way for third-party POS system developer to connect their system to CyWeb. With our SDK the developer can inject transaction to our POS module with a simple function call over IP. Please check our SDK.

● **Filtering**

After you finished setting the transact-source you can setup filtering. Filtering is the rules to filter capture data (generally text data) from source into readable receipt. You can use the default “Epson” setting. Epson is a widely used PoS printer band and almost all PoS systems support this. If you have special need, you can also edit or define your own filtering rules.



In the filtering rule window, you first capture data from PoS system or load a text file storing raw capture data. (If you capture data directly from PoS system you can save it to file for future configuration use.) You may also define the encoding.

In the “raw data” window, you can drag and select some characters. And there are 5 operations:

- (1) Omit: define an omit-filter to omit the selected characters.

- (2) Substitute: define a substitute-filter to substitute the selected characters with some other characters
- (3) Line Break: define a line breaking filter to replace the selected characters with line break.
- (4) Start Mask: use the selected characters as start mask. (See below for start mask.)
- (5) Stop Mask: use the selected characters as stop mask. (See below for stop mask.)

The start and stop mask are to define when the receipt start and stop. Since data is captured continuously from PoS system there has to be character patterns to define the start and stop of a receipt.

You can use regular expression for the masks. Regular expression is a very powerful tool to express text pattern. For a detail tutorial you can search the Web. Here we show only the common and simplest operations:

- "." : represent any single character.
- ".*": represent a string of zero or more characters.
- "^" and "\$": indicate there should be no extra character before or after the patterns.
- "\": represent an escape character. You can use escape characters to tell the search engine to treat expression operators and this escape character as regular characters.

Here are some examples:

- "^ABC\$": represent a string of exactly "ABC".
- "^refund.*": represent a string start with "refund" and followed by any number of characters.
- "\\$.*,...\..*": represent a string that contains a '\$' followed by any number of characters and then a ',' and any 3 characters and then a '.' and then any number of characters. This pattern can search money amount greater than \$999.

● Alarm

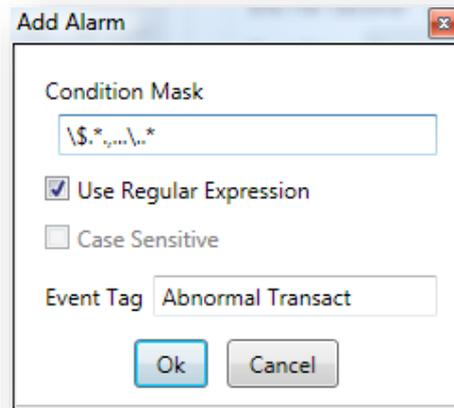
In the setting you can setup to post normal transaction event. The other modules, such as compression, email notification or e-Map can handle the event as they handle the others.

The screenshot shows a configuration window with two main sections. The first section, 'Post Transact Event', has a checked checkbox and a text field containing 'Transact <TRANS_NUM>'. The second section, 'Transact Alarm', contains a table with one row of data and three buttons below it: 'Add', 'Remove', and 'Edit'. At the bottom of the window, there are two more checked checkboxes: 'Trigger Alarm Indicator' and 'Trigger Sound Alarm'.

Condition	Regex	Case	Tag
\\\$.*,...\\.*	True	False	Abnormal

The <TRANS_NUM> in the event tag can be used to represent transact number. The program will automatically substitute this string with the real number. Please note that the transact number is just the transaction sequent number being used in CyWeb and is not relate to the one in the PoS system.

You can also define the transact alarm rule to real-time notify operators/supervisors abnormal transactions such as high amount of refund or money withdrawal.



The condition mask is the rule of the alarm. The program will check every line of a receipt with the rule. If the rule matches, the alarm will be triggered. You can use regular expression to define the rule. For the information about regular expression, please see the filtering section above.

The alarm is also an event, so you can define a tag. The other modules, such as compression, email, e-Map, can handle the event as they handle the others. For example, you can use the e-Map's Event Viewer to keep track of abnormal transactions.

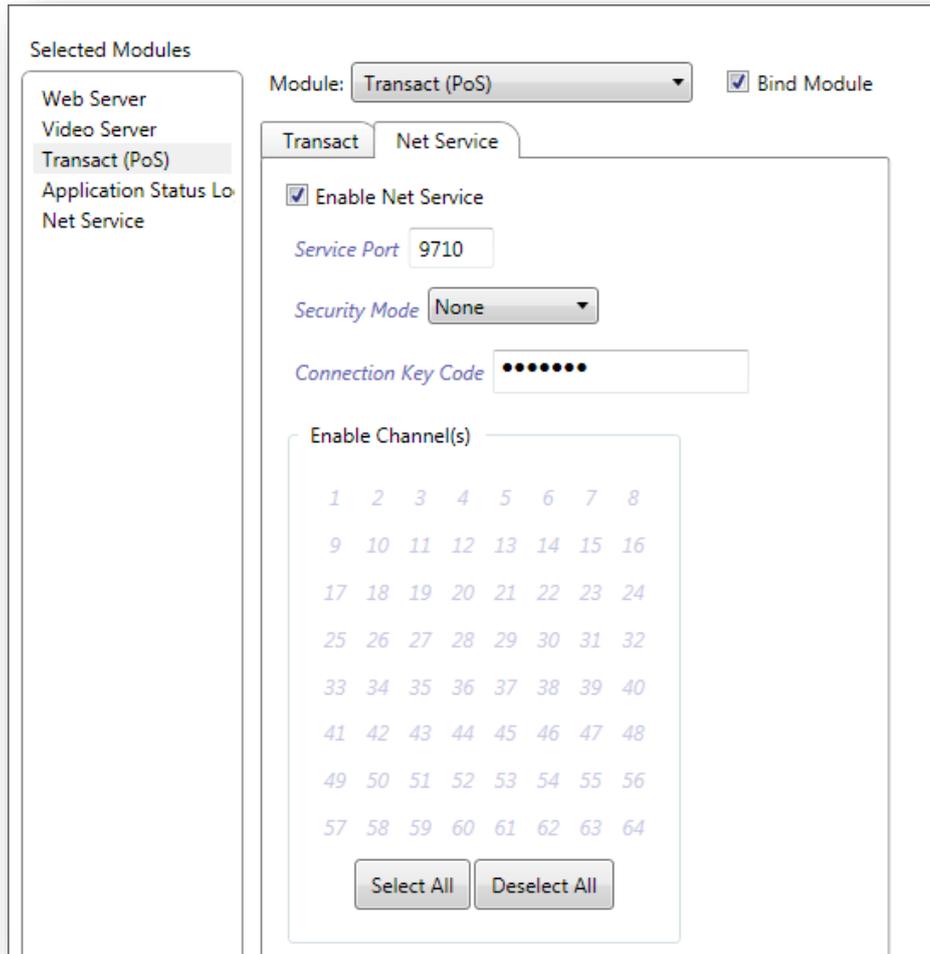
8.8.2. Net Service

POS has a Net Service to accept transaction query and injection over IP. Any third-party developer can use our SDK to inject transaction into the POS module.

To setup the Net Service, you need to assign a port, select a security mode, and optionally define a connection key code.

There are 2 security modes: None and Windows. Selecting Windows (use Active Directory for encryption and authentication) is safe on Internet environment. But the computer to connect to this Service must login with the same Windows ID and password.

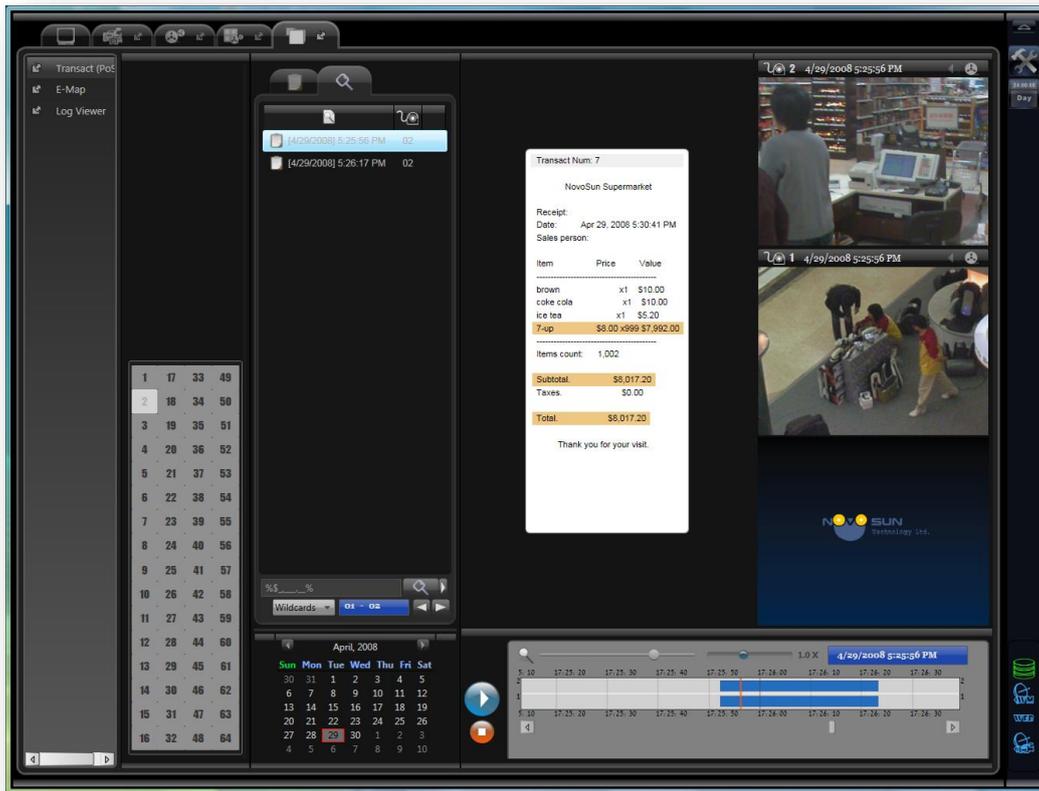
You can also define a connection key code to protect the POS module from being attack. If the key code is defined, any other software to inject transaction to the POS module will need this key code.



8.8.3. Browse and Search

In the main console you can browse and search back the transact-activities.

The control is very similar to the playback system that you can browse transactions by time and channel, or you can search back transact-activities with key phrases which can be wildcards. You can also playback the videos of the main and helper channels with a timeline control, which allow you to zoom the time down to second with a slider bar or with your mouse-wheel. (On the record browser by time and channel, please note that you have to press the 'refresh' button to show records after you selected the channel and date).



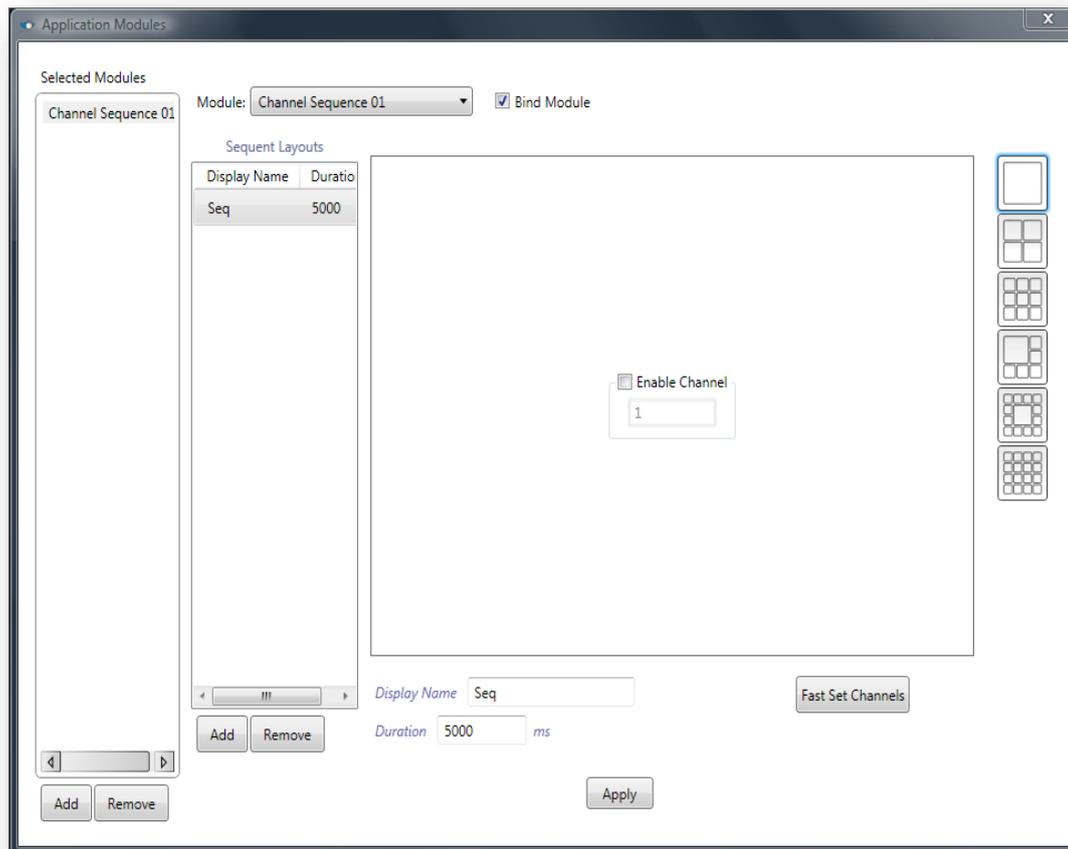
Important

- (1) While using the Transact module, you have to take care about the synchronization between the channels and the PoS system. The time of the PoS system should be synchronized with that of the main and helper channels, otherwise the time on the receipt and the videos will be mismatch. Another synchronization issue is among channels. If some of the channels are connected remotely via "Connect to other CyeWeb" (in this case the video time will be defined on the remote side), please make sure that the main and the helper channels are synchronized. Otherwise when you search back video the program will seek to a wrong position.
- (2) When you search back transact-activities, please make sure the corresponding videos are closed recording. Otherwise you will just see the receipt but cannot see the videos or tags. This generally happens when you search a transaction immediately after it is produced.
- (3) The maximum size of the database to store transaction data is 4GB, which is enough for a few millions transactions. When the database reaches this size, the program will automatically release space by deleting old transactions.

8.9. Channel Sequence

With this module, you can setup a live-view screen which displays user-setting screen rotation.

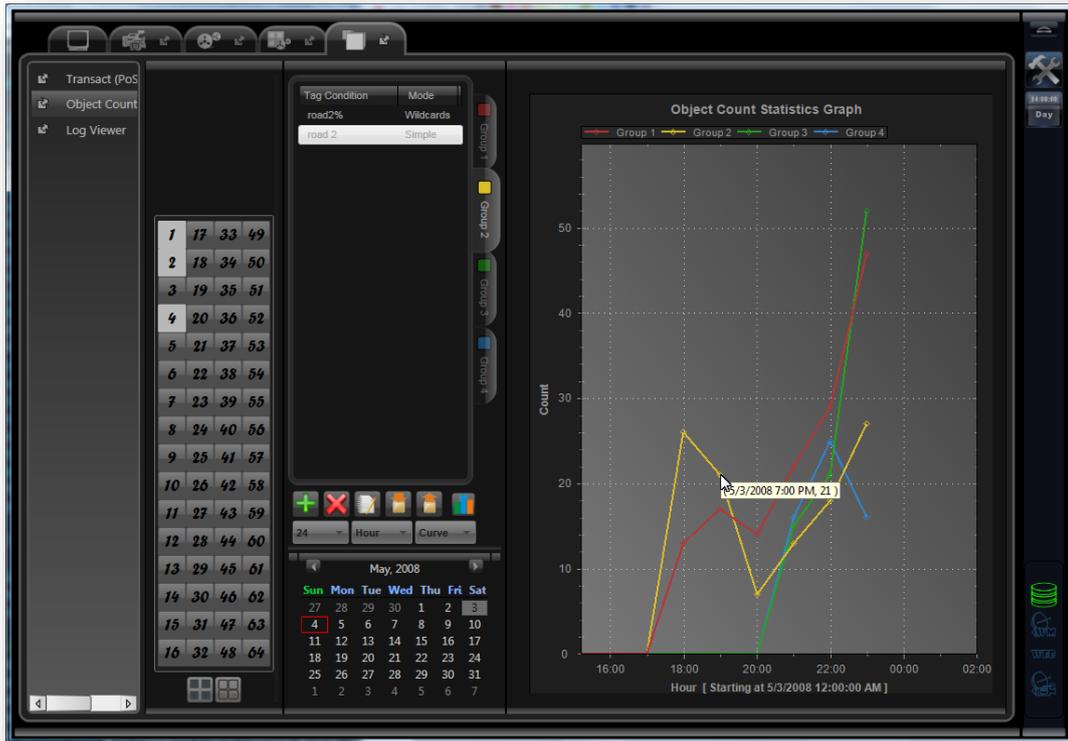
Add the “Channel Sequence” module under “Application Modules”, you should see the following configuration dialog:



- **Sequent Layout** – the number of layouts in the screen rotation.
- **Enable Channel** – the channels which display on a specific sequent layout.
- **Screen Division selectors.**
- **Duration** – the duration time of each screen rotation.

8.10. Object Counter Statistics Module

This module collects count data and presents it into statistics graphs. There is no setting required for this module. What you need to do is just to bind it.



Please note that this statistics module use a separate database to real-time collect count data. If you don't bind this module, the count data will not be collected. In this case you can only search back count result on the normal playback system but you cannot see graph for the period that this module is not bound.

After you bind the module you should be able to see the graph presenter on the main console. In the UI you can select:

- 1) Channels of interest
- 2) 4 groups of tag conditions

Each group is presented into a graph with its own color. So totally you can compare 4 sets of data. The tag condition can be in 3 modes: "Simple", "Exact", and "Wildcards". For information about the 3 search modes, please refer to the Playback chapter.

- 3) Date
- 4) Time unit

Time unit can be "Hour", "Day", and "Month". If you select "Hour", the graph will use the first hour of the selected date as the starting point. If you select "Day" or "Month", the graph will use the selected date as the starting point.

5) Number of time unit

There are 12, 24, 30, 60, 90 for selections which should be enough for the 3 time units.

6) Graph kind

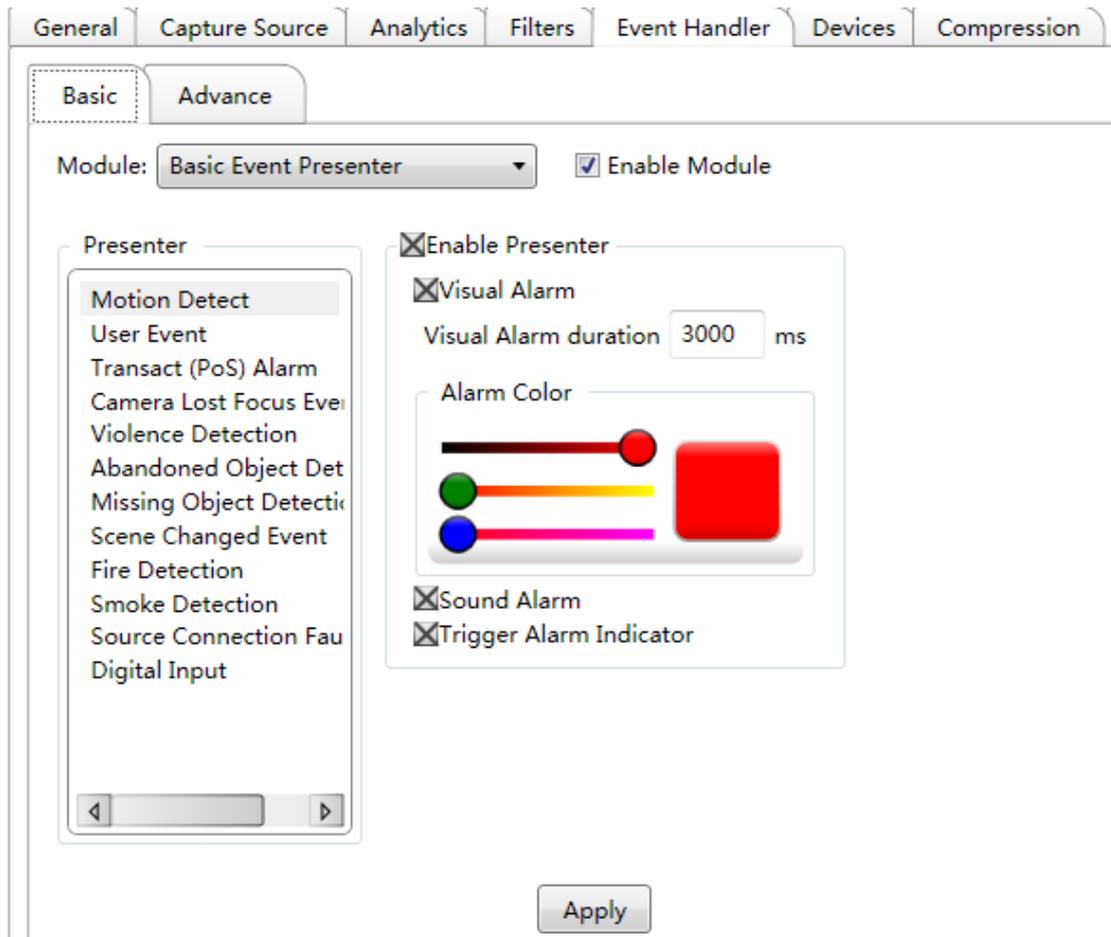
Graph kind can be “Curve” or “Bar”

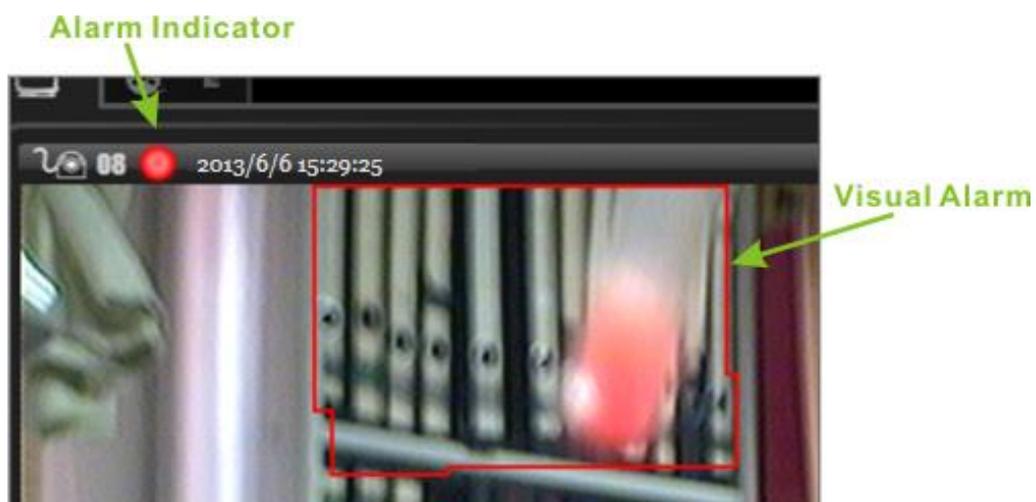
9.Event Handler

9.1. Basic Event Presenter

This presenter presents events from Motion Detection Module as alarm.

You can set the duration and color for visual alarm. You can also configure whether to trigger sound alarm and alarm indicator.

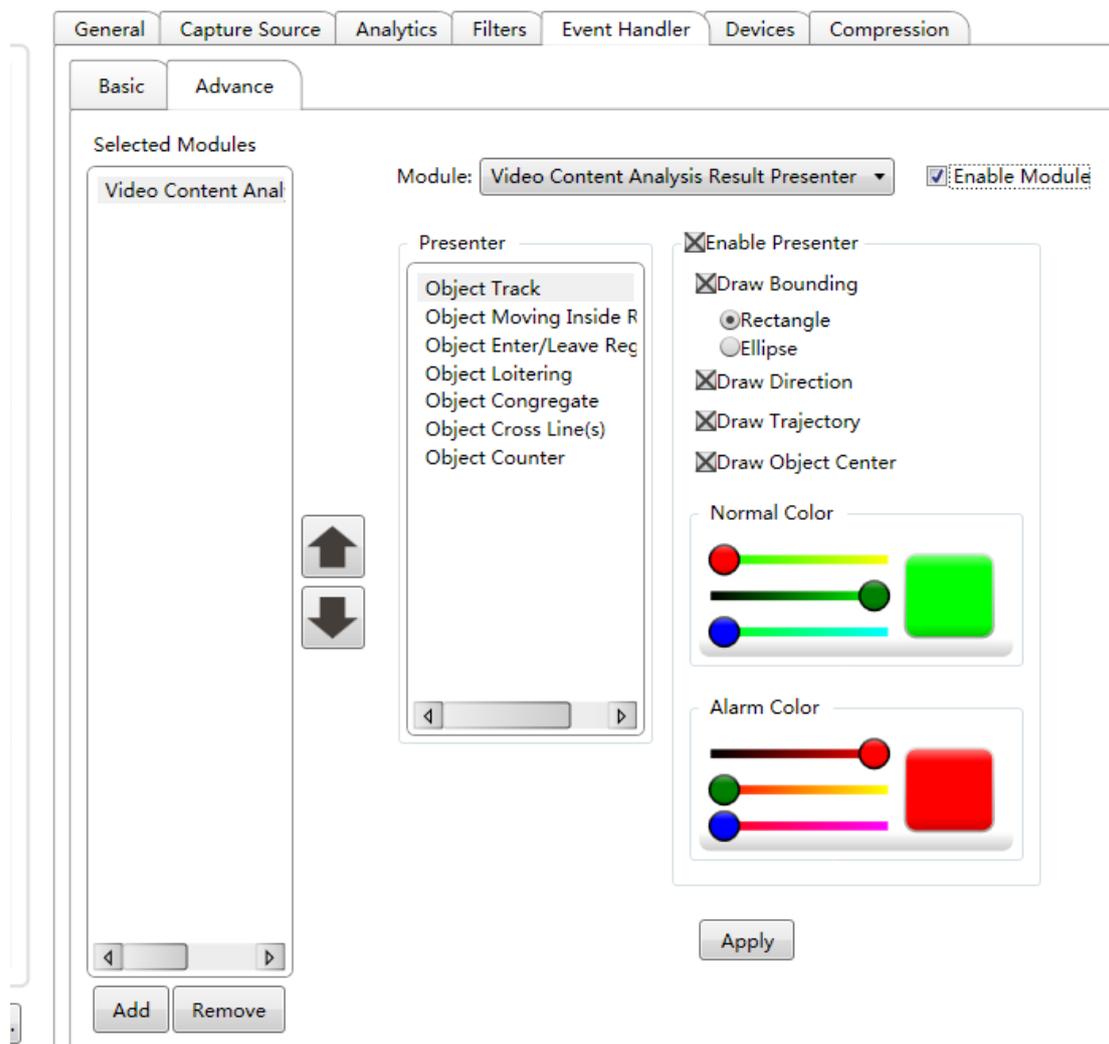




The figure above shows that motion is detected on an area of interest. The red outline area in the video is the visual alarm, and the red circle on the channel bar is the *alarm indicator*. Clicking the indicator will reset the alarm.

9.2. Video Content Analysis Result Presenter

This is the module to present result of video content analysis to the screen. Please note that this module will be active only if the Advanced Video Content Analysis had been installed.

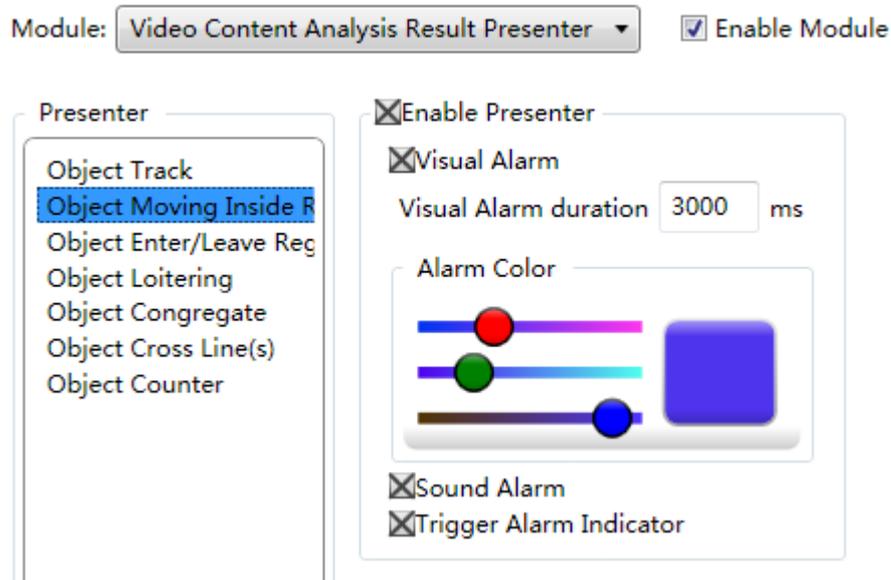


There are settings for object tracker and event detectors.

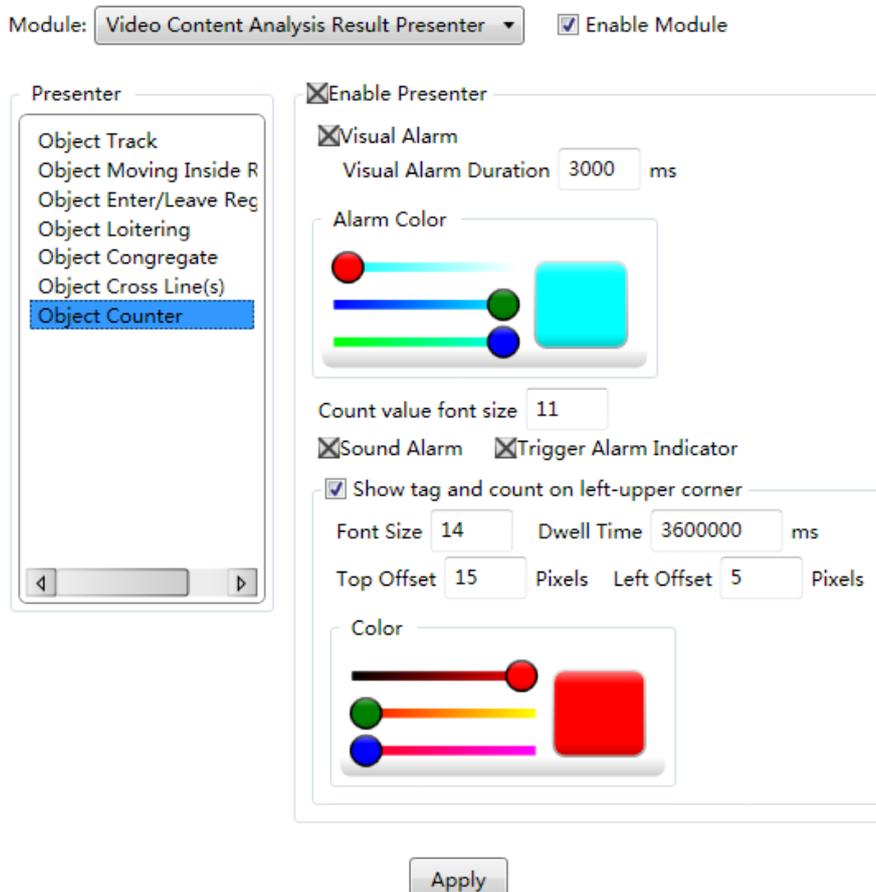
For object tracker, you can configure whether to show object boundary, object direction, object trajectory, object center, alarm and normal colors.



For event detector, you can set the duration and color for visual alarm. You can also configure whether to trigger sound alarm and alarm indicator.



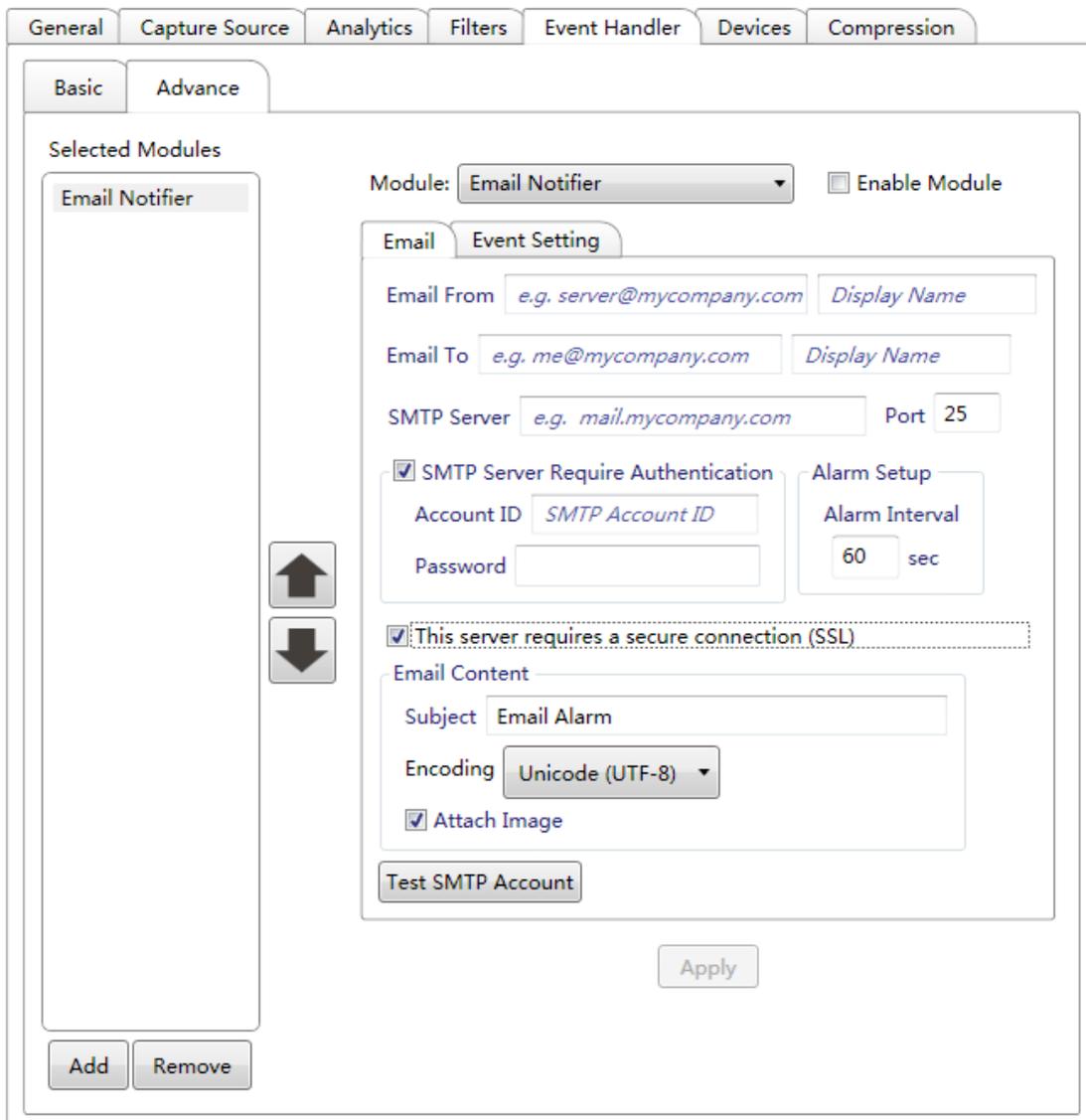
The setting for object counter presenter is a little bit more:



More than the normal event detector setting, you can also setup the count value font size, as well as select whether to show the tag and count value on the left upper corner.

9.3. Email Notification Module

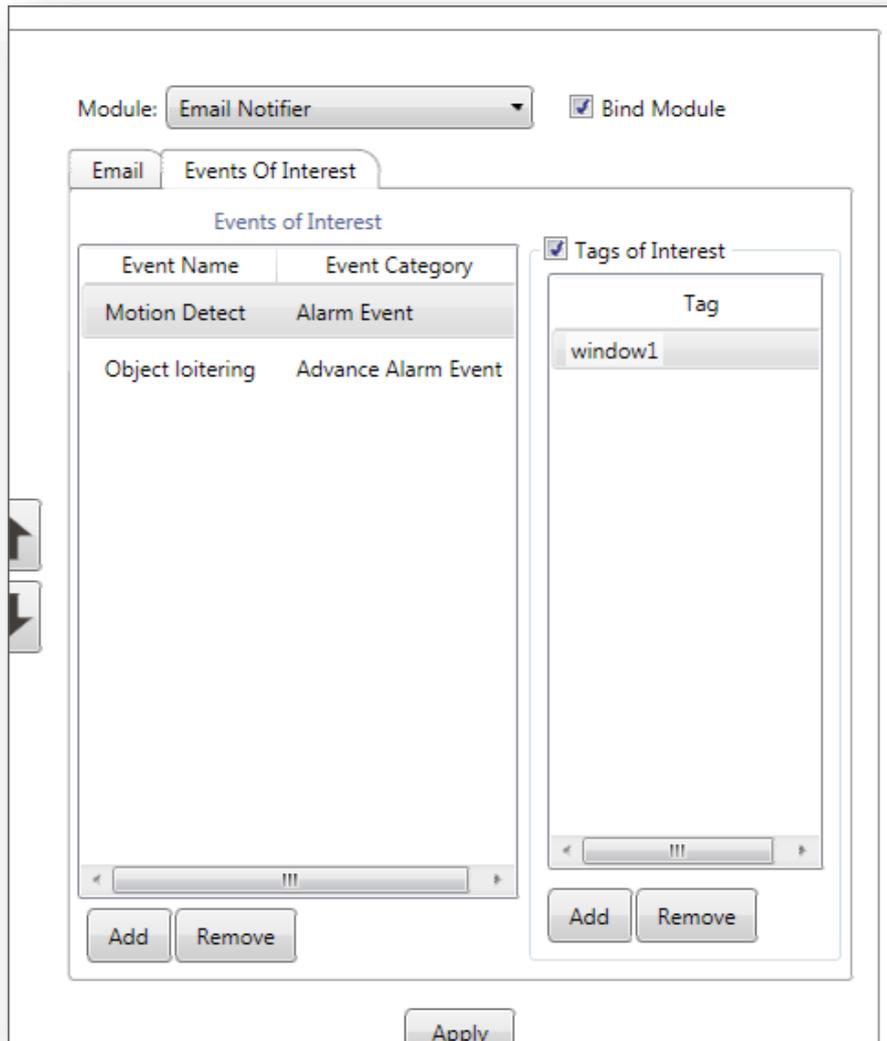
This module sends email to your email account whenever event occurs.



Here are descriptions of some selected settings:

- **Alarm Interval** – the minimum interval between each email sending.
- **Attach Image** – attach channel video images to the email. 5 images will be attached. The sample interval between each image is 1 second.

You can also configure event of interest and tag of interest.



Uncheck of “Tags of Interest” means you are interested in all tags of that event.

9.4. Alarm Popup

This module pops up video window when selected events occur.

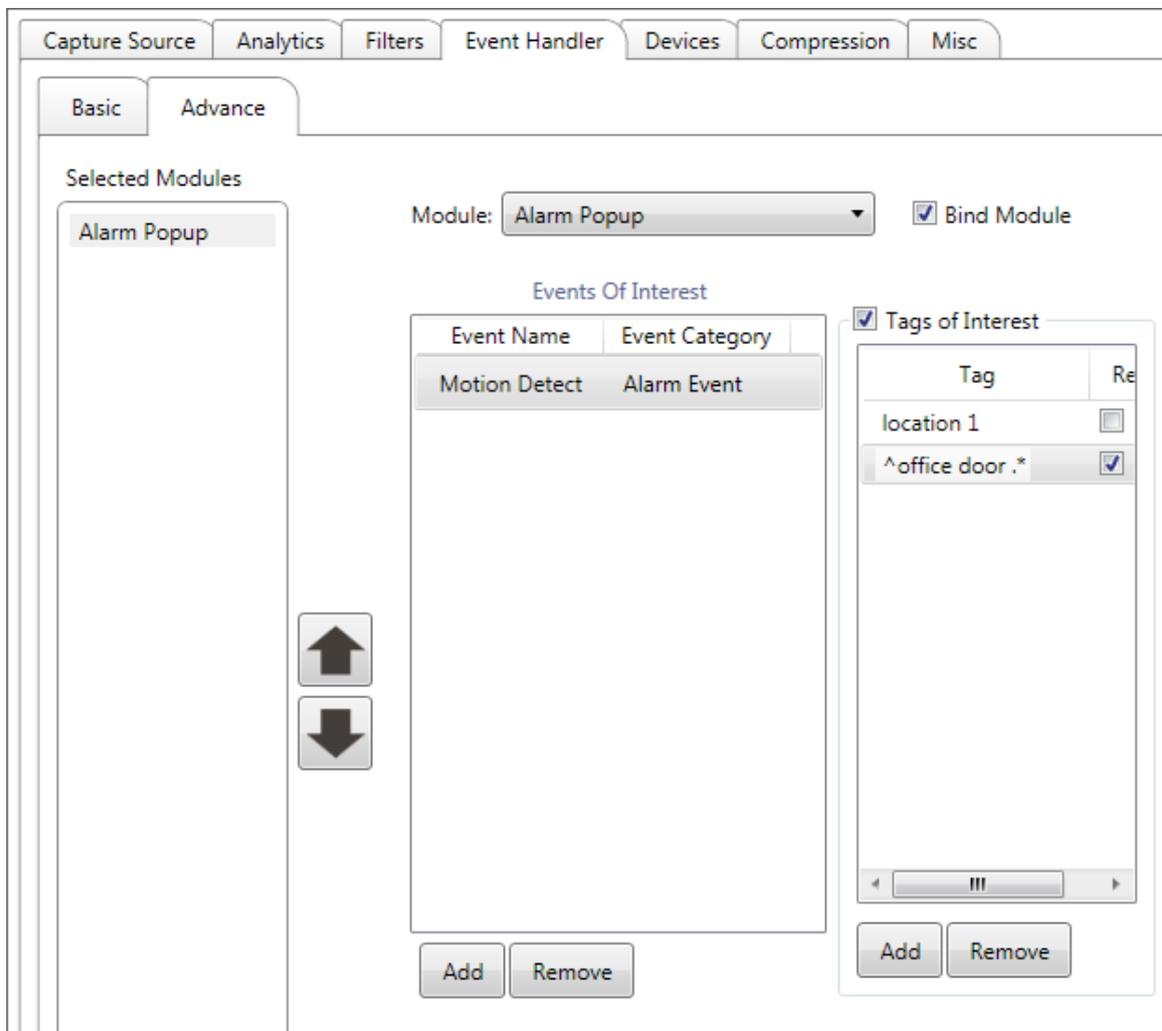
You can use regular expression pattern in defining “tags of interest”. Regular expression is a very powerful tool to express text pattern. For a detail tutorial you can search the Web. Here we show only the common and simplest operations:

- “.” : represent any single character.
- “.*”: represent a string of zero or more characters.
- “^” and “\$”: indicate there should be no extra character before or after the patterns.

- “\”: represent an escape character. You can use escape characters to tell the search engine to treat expression operators and this escape character as regular characters.

Here are some examples:

- “^ABC\$”: represent a string of exactly “ABC”.
- “^refund.*”: represent a string start with “refund” and flowed by any number of characters.
- “\\$.*,...\..*”: represent a string that contains a ‘\$’ following by any number of characters and then a ‘,’ and any 3 characters and then a ‘.’ and then any number of characters. This pattern can search money amount greater than \$999.

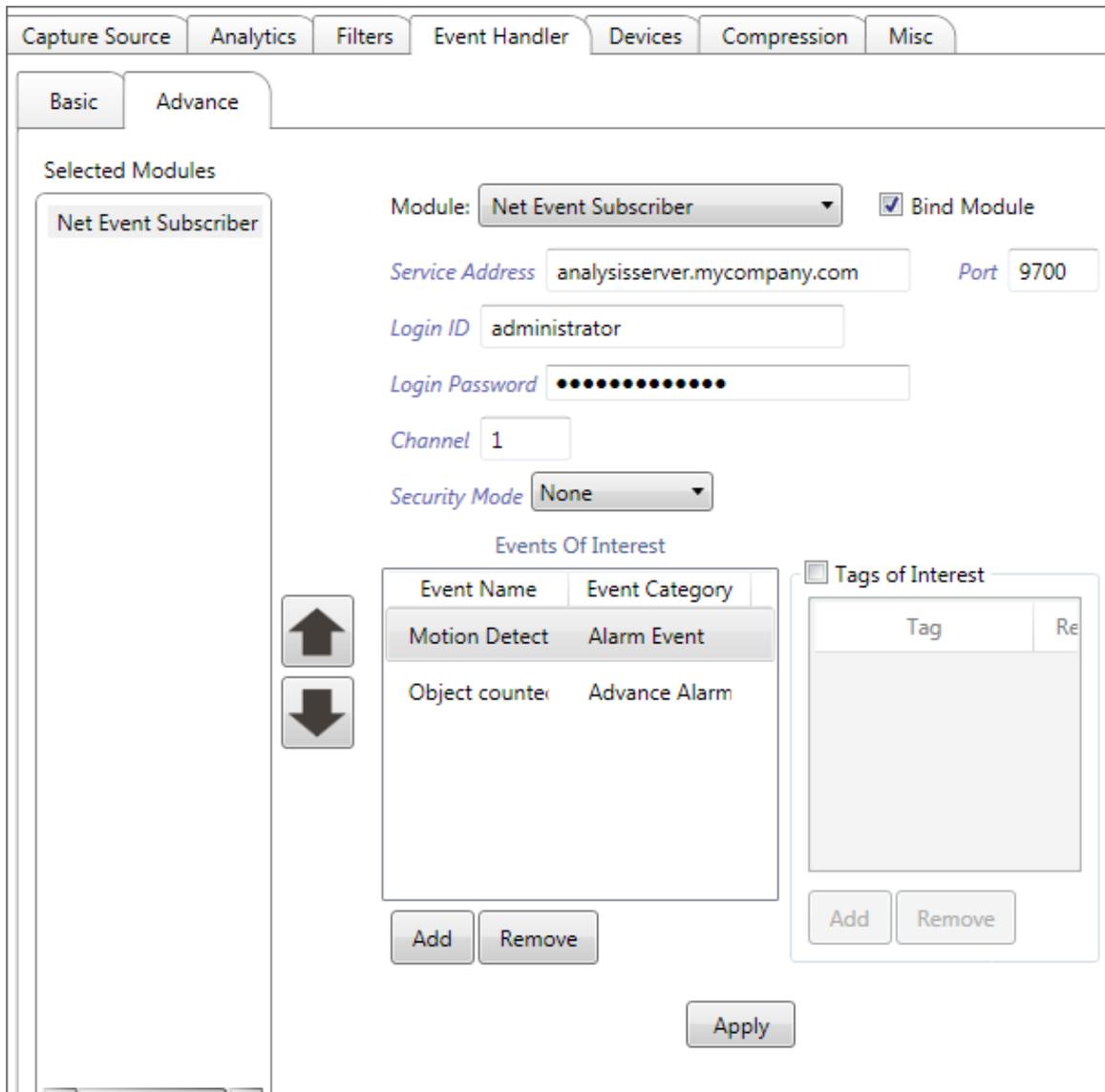


9.5. Net Event Subscriber

Subscribe event from other instance of CyeWeb. This module connects the Net Service

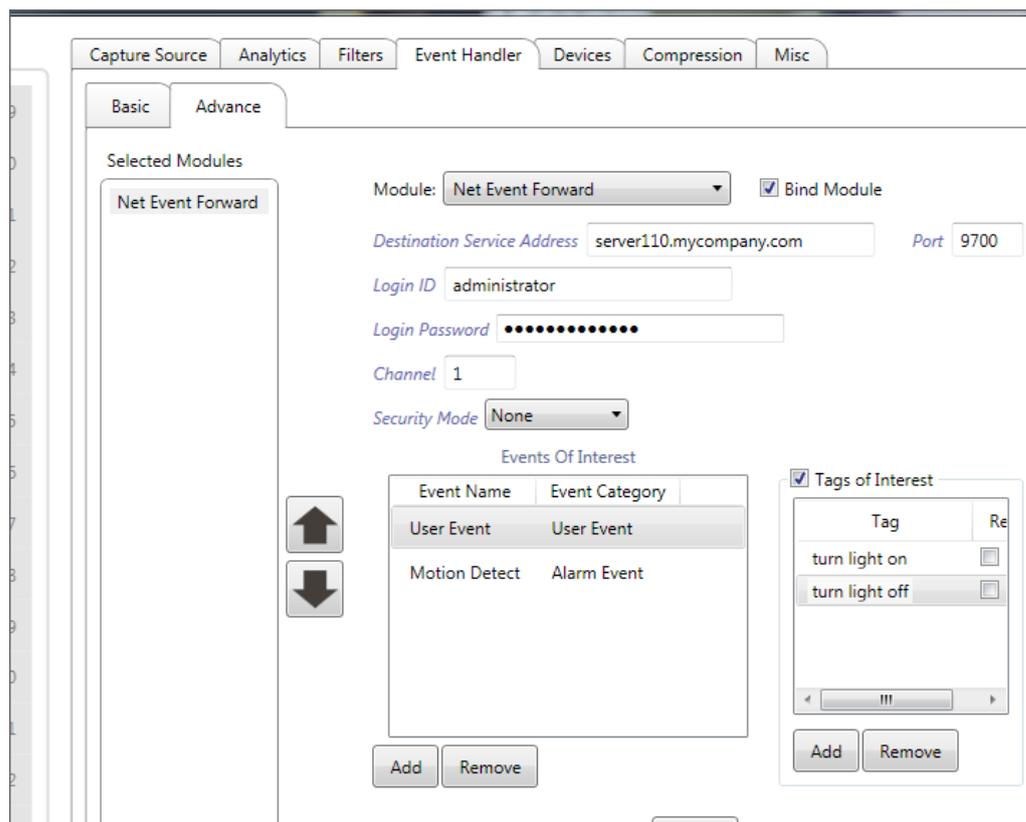
module running on any other CyWeb.

Note: the security mode must match that in the Net Service to be connected.



9.6. Net Event Forward

This is a module to actively forward event to other instance of CyWeb. For example, in server-client solution, the clients may need to actively inject event to the server. This is the module to use.



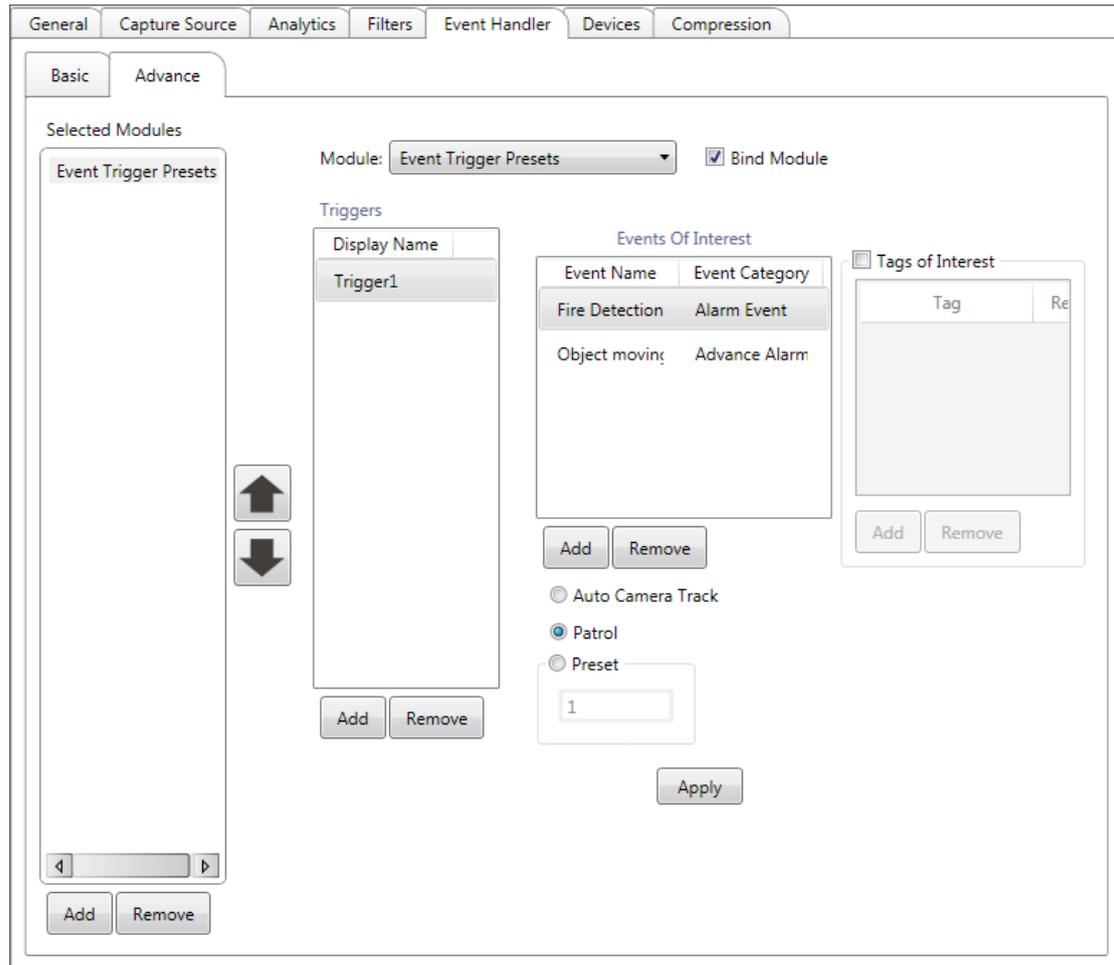
In the setting dialog you need to configure the destination CyWeb’s Net Service address, port, login id/password, channel, security mode, and events to forward, etc.

Note: the security mode must match that in the destination Net Service to be connected.

9.7. Event Trigger Presets

With this module, user can decide the action of the PTZ camera when event(s) is detected.

In the configuration dialog, user is required to select the events of interest, action after events occur.



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