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instructions and the software is properly licensed, the software should perform substantially as described in the Genius Vision materials that you receive in or with the software.

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If you would not agree to the terms, please do not use the software.

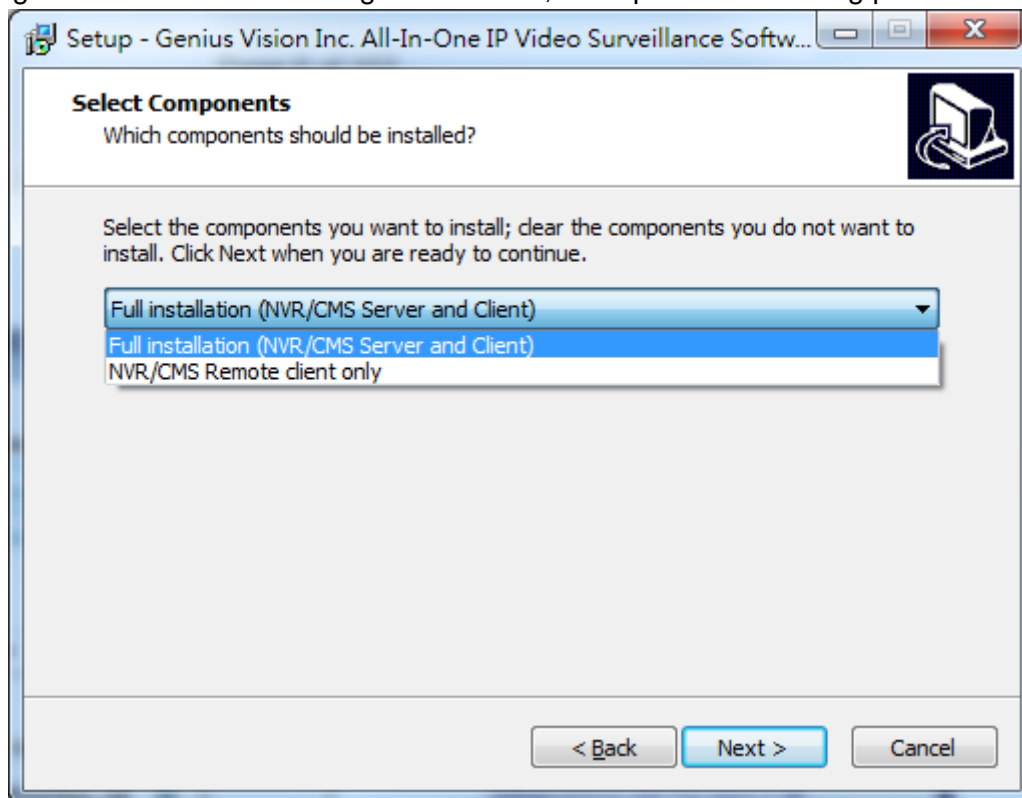
# Getting Started with Genius Vision VMS

## YOUTUBE Tutorial

The best way to getting started is to watch our [YOUTUBE tutorial video](#).

## Installation Types

You will be given choice when installing the software, as depicted in following picture:



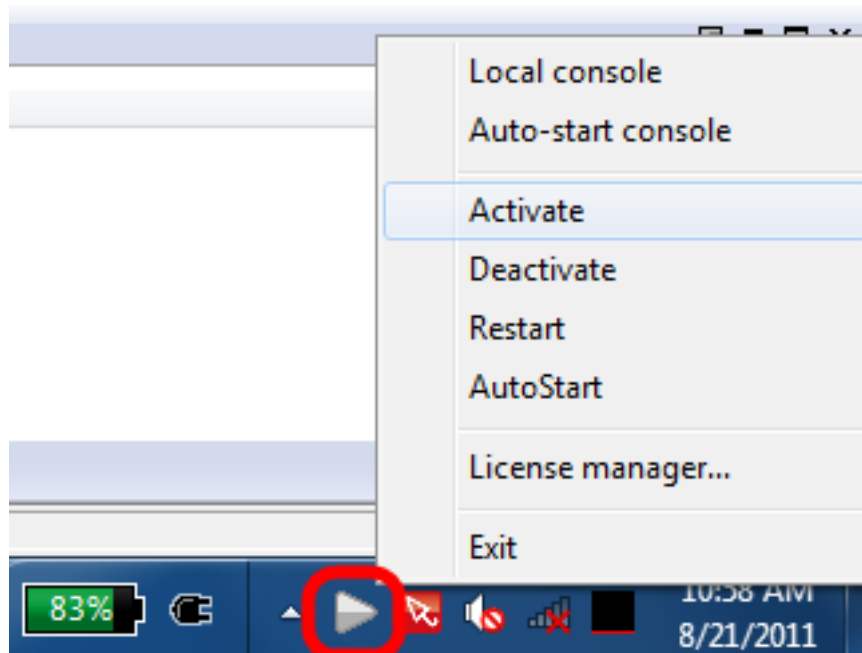
Options explained:

- **Full installation:** Install both NVR recording engine (the server) and client console on your computer. This will require a valid license.
- **NVR/CMS Remote client only:** Only install client console on your computer. The software installed with this option only equips you with the capability to connect to a NVR server on *remote* computer, it cannot work alone.

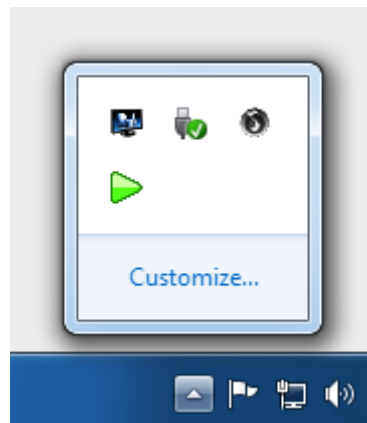
NVR footage player will be installed for both options. You will be able to play NVR exported footage after installation.

## System Initialization

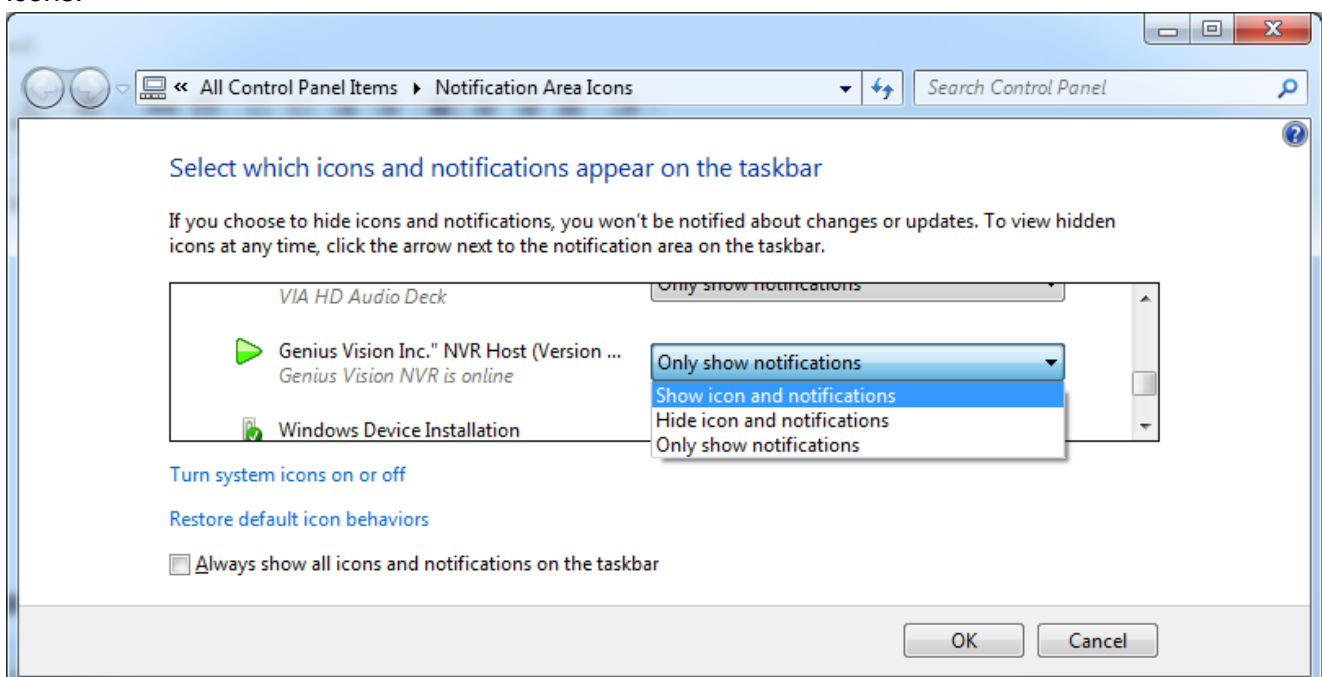
The installer will install a Windows service. You can manage it with our organizer, a triangle in Windows task-bar. When the triangle is green, you are good to go.



## Windows 7 and Hidden Tray Icon



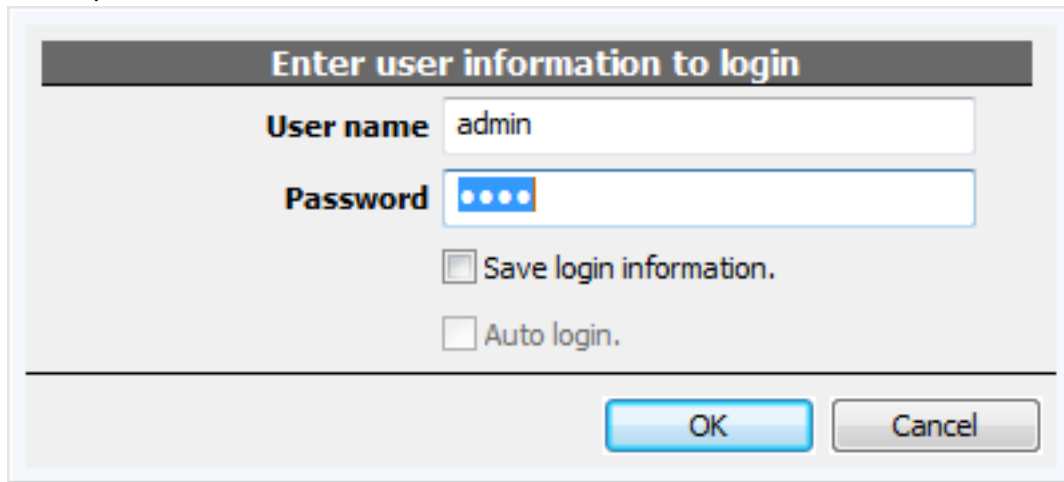
In Windows 7, tray icon is hidden by default. You have to click the white triangle to access hidden icons.



To make the hidden icon always visible, click “Customize...” and set the icon to “Show icon and notifications”. Invoke the console to interact with the server.

## Login for the first time

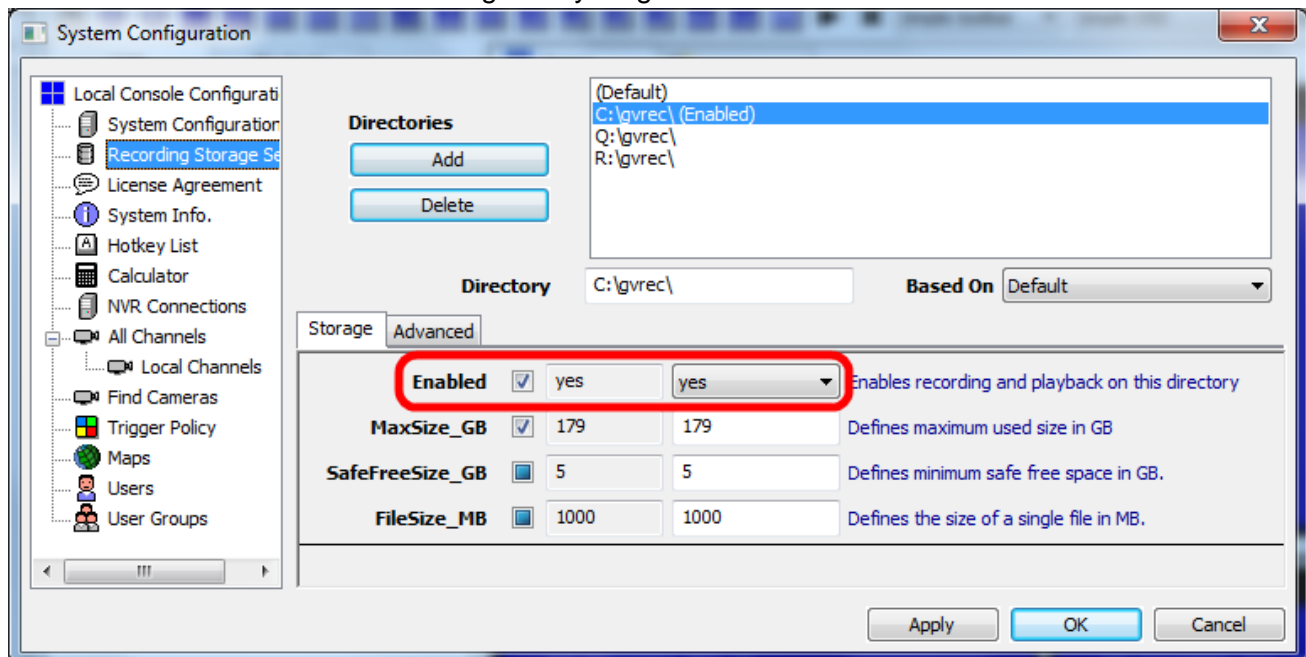
Default account/password is admin/1234.



The login dialog box has a title bar 'Enter user information to login'. It contains two input fields: 'User name' with the text 'admin' and 'Password' with four dots. Below these are two checkboxes: 'Save login information.' and 'Auto login.', both of which are unchecked. At the bottom right are 'OK' and 'Cancel' buttons.

## Minimum Configuration

The first thing you need to do is configuring storage. All available drives are listed automatically. Just enable the drive you want to use to store recorded data. You may want to change "MaxSize\_GB" if the drive is not dedicated to recording. Everything else should be left untouched.

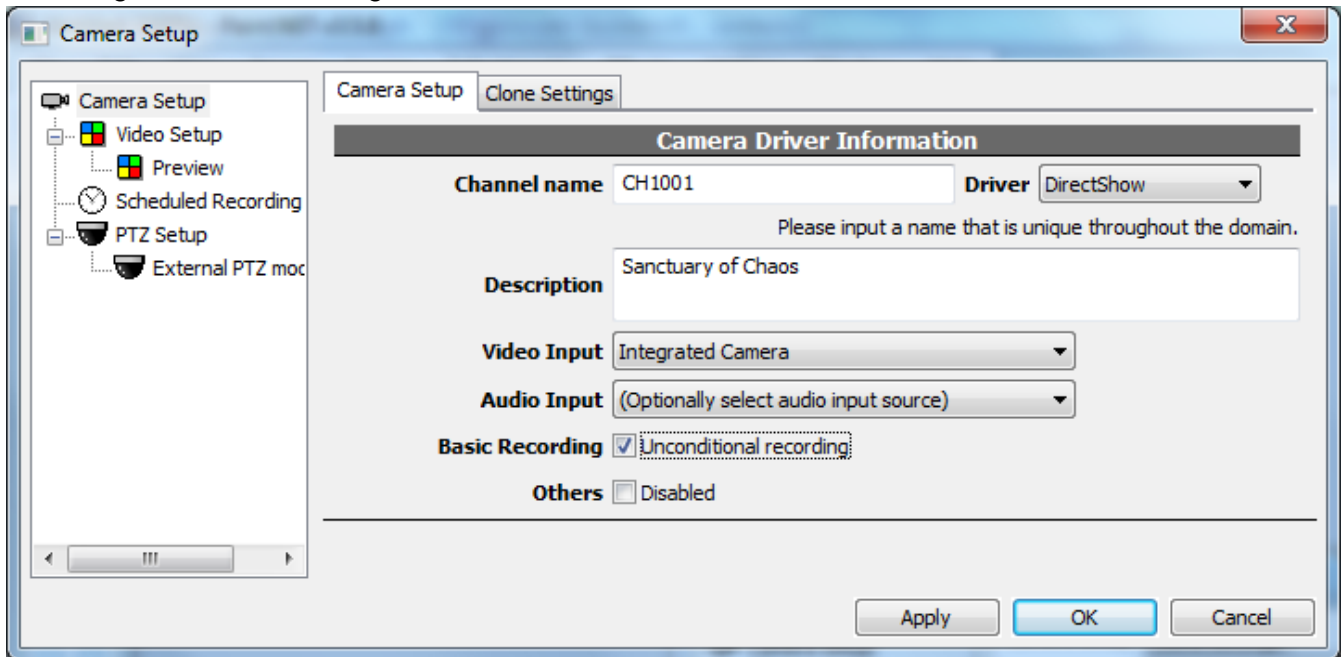


The 'System Configuration' window shows a tree view on the left with 'Recording Storage Set' selected. The main area has a 'Directories' list with 'C:\gvrec\ (Enabled)' selected. Below this is a 'Directory' field with 'C:\gvrec\' and a 'Based On' dropdown set to 'Default'. The 'Storage' tab is active, showing a table of storage settings. The 'Enabled' checkbox is checked and highlighted with a red box. The 'MaxSize\_GB' is set to 179, 'SafeFreeSize\_GB' to 5, and 'FileSize\_MB' to 1000. The 'Apply', 'OK', and 'Cancel' buttons are at the bottom right.

Property	Value	Description
Enabled	<input checked="" type="checkbox"/> yes	Enables recording and playback on this directory
MaxSize_GB	179	Defines maximum used size in GB
SafeFreeSize_GB	5	Defines minimum safe free space in GB.
FileSize_MB	1000	Defines the size of a single file in MB.



The second to do is adding a camera. Channel name is a unique identification associated with recorded data and events. It can't be changed in the future so name it carefully. Put additional information in description instead. Select driver DirectShow for webcam. Check "unconditional recording" for 24x7 recording.



Okay. Now the setup is done and the server is recording. The server is running as long as the PC is on, even before any user logged in Windows.

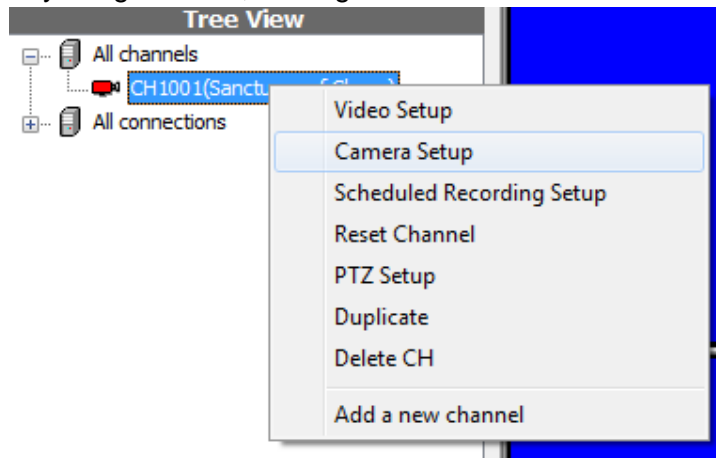
Check our website and YouTube channel to learn more about schedule recording, trigger policy, intelligent video, motion detection, storage report, 3GPP streaming, and many advanced functions.

<http://geniusvision.net>

<http://www.youtube.com/user/cybercyding#p/u>

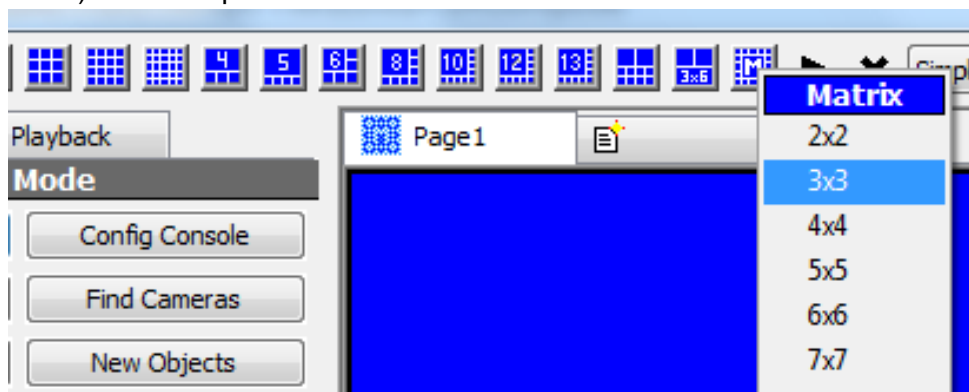
## Other Useful Tips

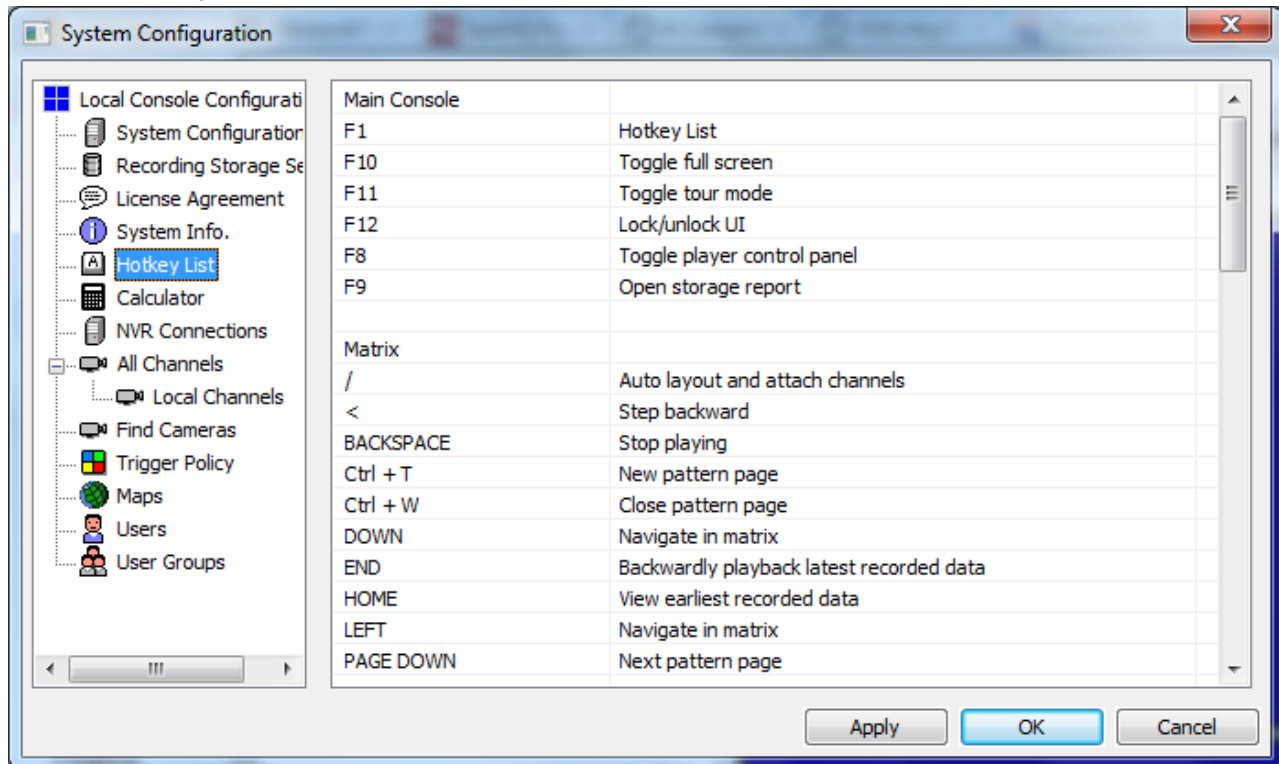
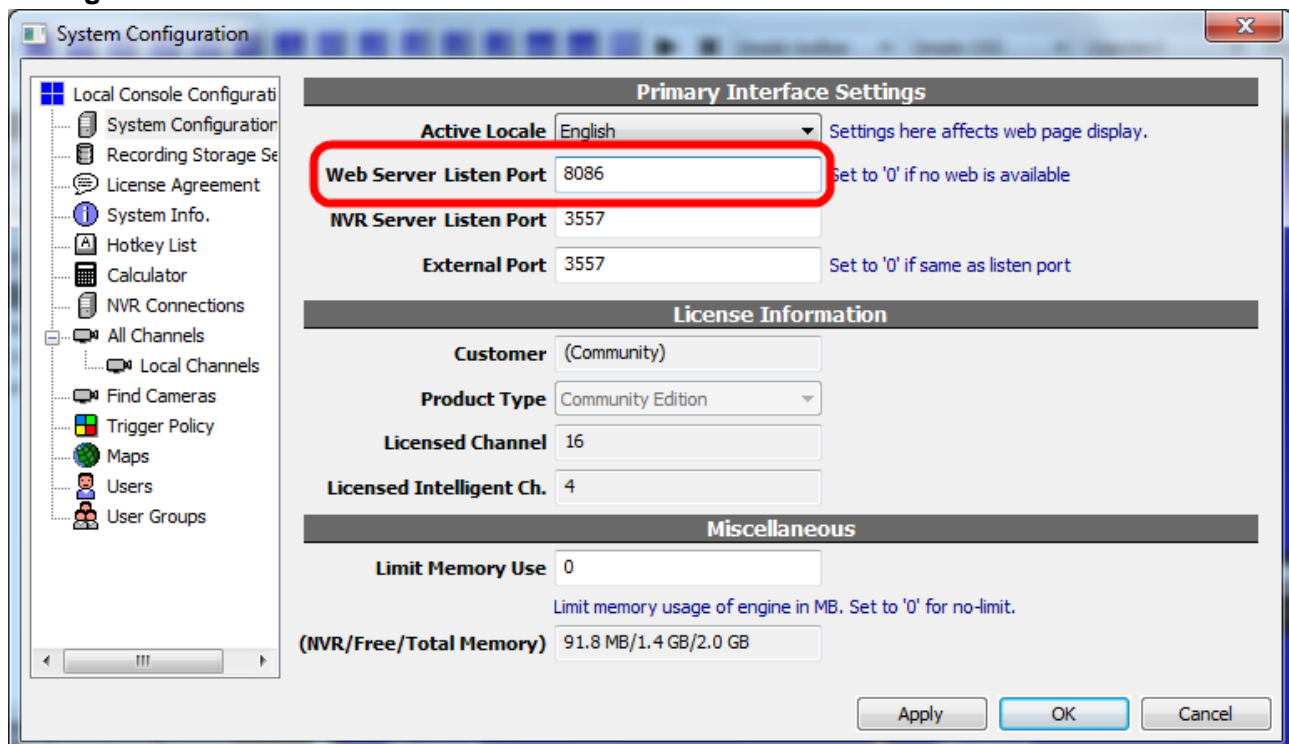
**Config camera**, and many things as well, with right click menu.



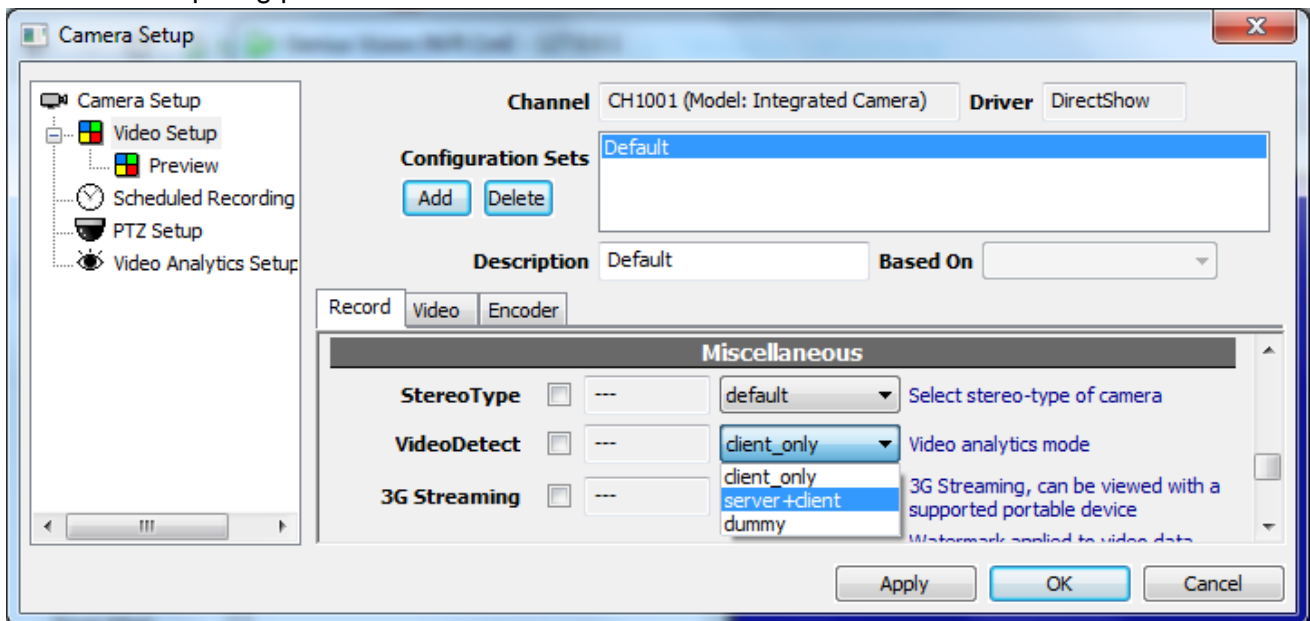
Cameras, maps, and some objects can be dragged and dropped. Experiment with various operations with mouse drag and drop.

Use [matrix mode](#) for better performance. Decoding massive channels with massive resolution consumes a lot of computing power. Use simplified player (no OSD, no aspect control, no zoom, no playback, no audio) for better performance.

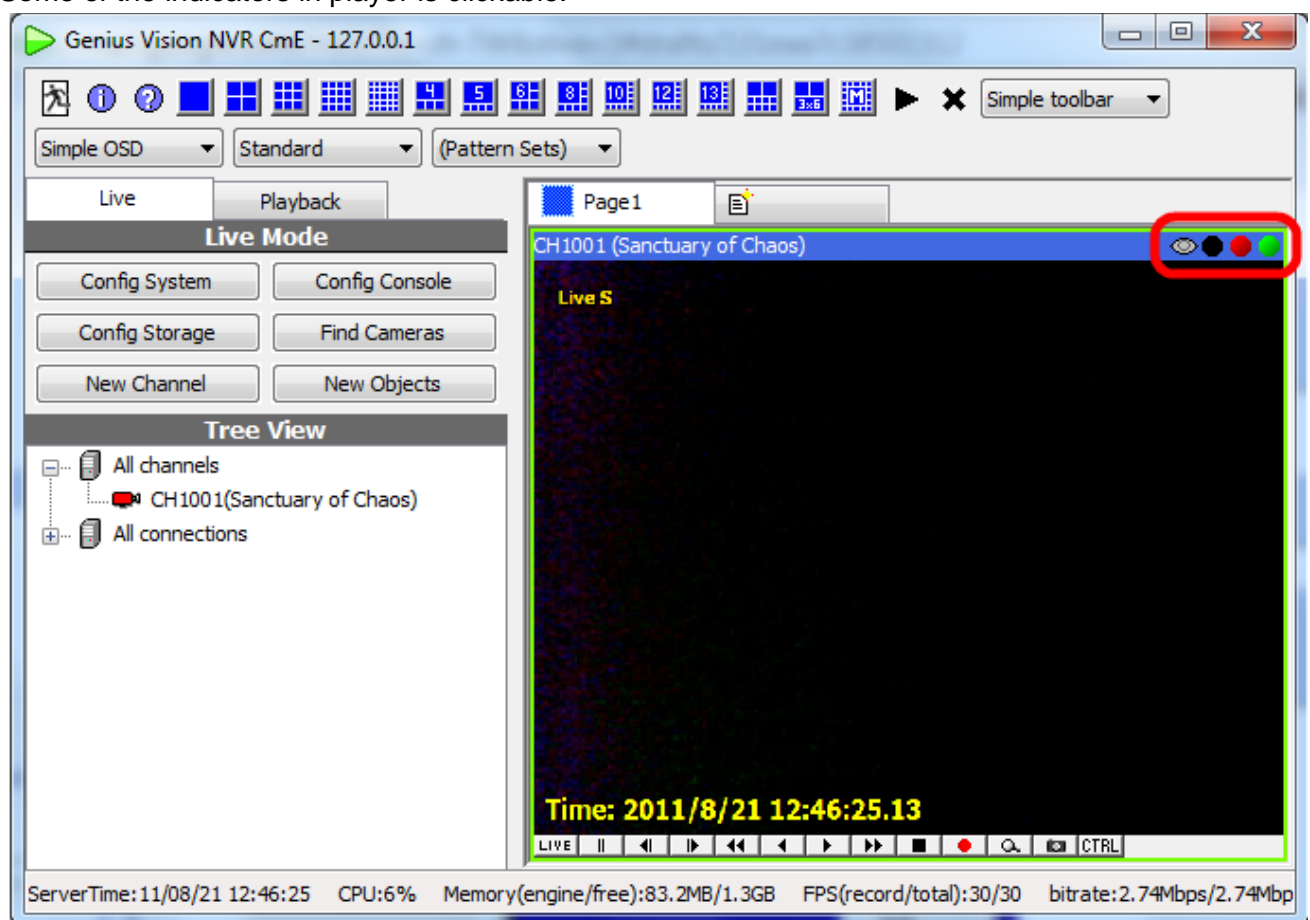


**List all hot-keys.****Config for IE access.**

Enable **intelligent video analytic** on server in camera config. You don't want to do this if the server is not dedicated to surveillance. To analyze video, the engine must decode it first so it consumes fair amount of computing power.

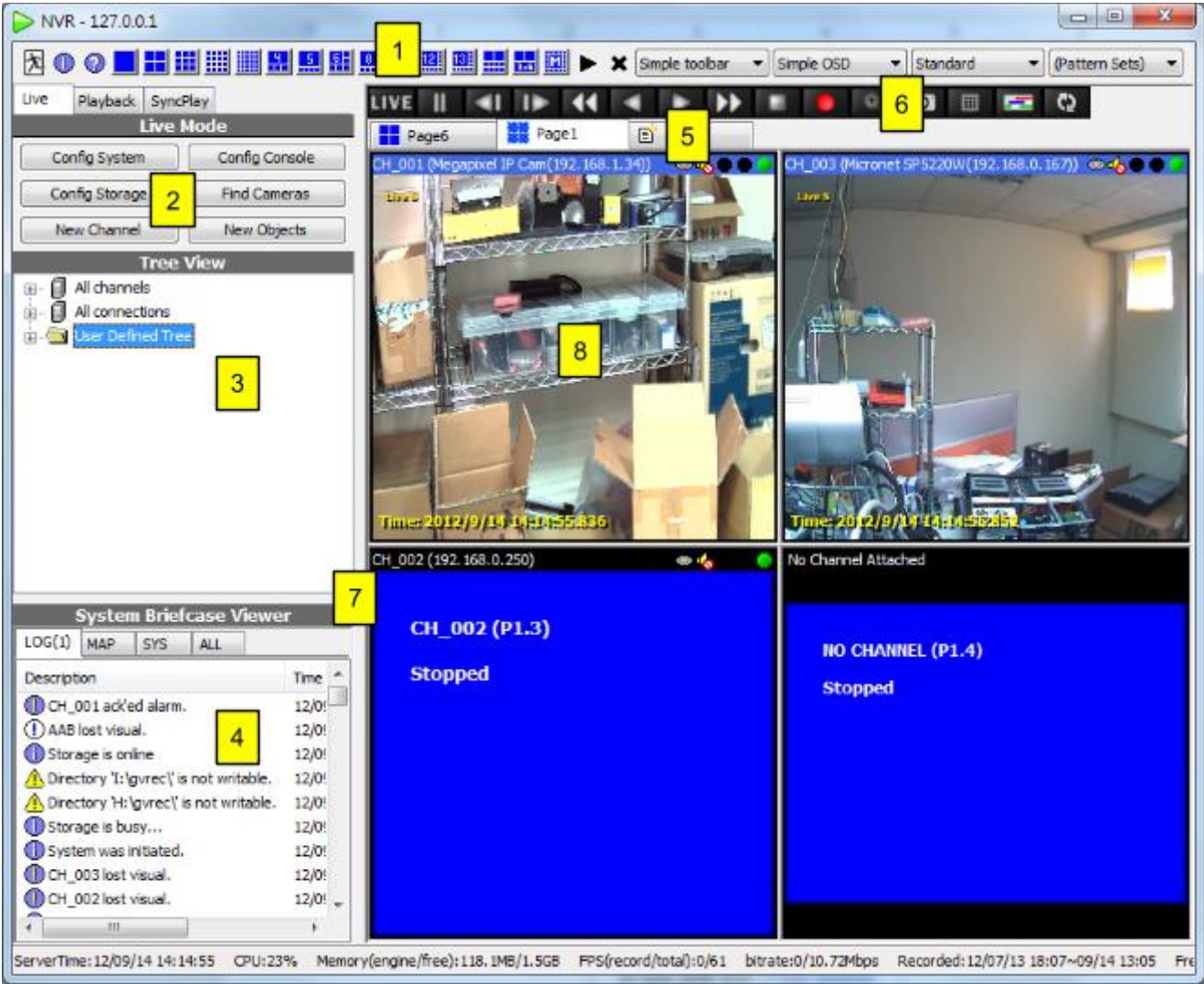


Some of the indicators in player is clickable.

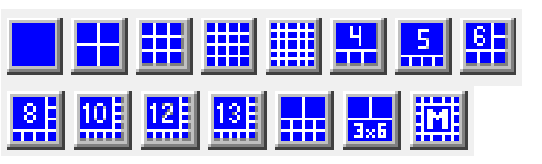






# Console overview

## GUI Overview

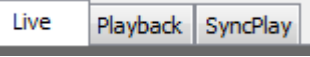
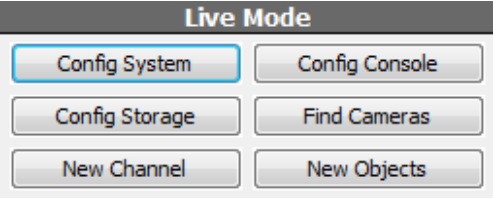
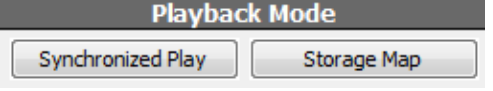
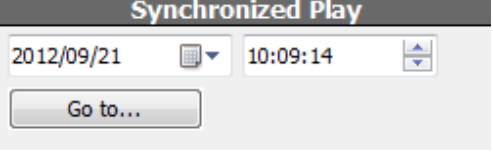
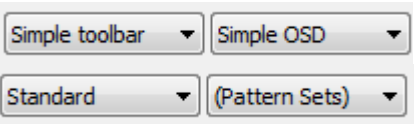


## 1 Layout control

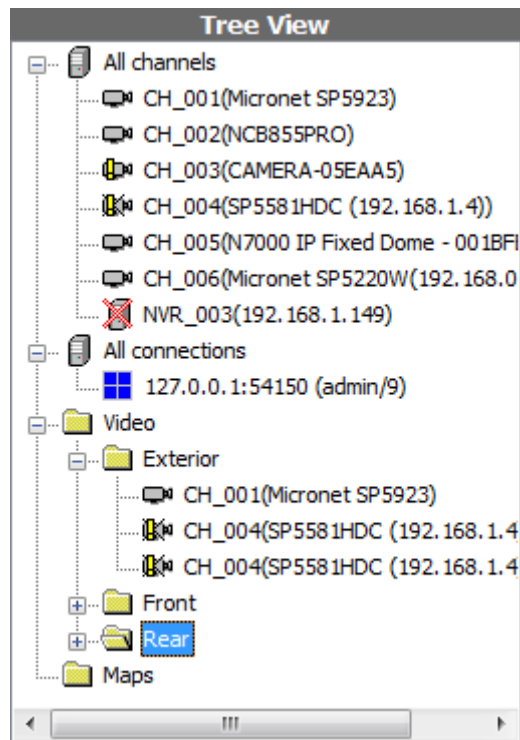
	Switch between the pre-defined NxN or special layouts.
	Matrix mode.  See also <ul style="list-style-type: none"><li>• <a href="#">Matrix Mode</a></li></ul>
	Stop all players.

	Make all players show live.
	Logout. The local console will be closed but the system is not terminated. You will need to enter account/password to operate the system.

## 2 System control

	<p>Operation mode</p> <ul style="list-style-type: none"> <li>• Live</li> <li>• Playback</li> <li>• SyncPlay</li> </ul>
<p>Live Mode</p> 	<p>Config System, Config Console - See also <a href="#">Console setting</a>          Config Storage - See also <a href="#">Configuring Video Storage</a>          New Objects - Add a new channel, user, group, map..., etc.          See also</p> <ul style="list-style-type: none"> <li>• <a href="#">Adding a channel</a></li> <li>• <a href="#">Adding a user</a></li> <li>• <a href="#">Adding a group</a></li> <li>• <a href="#">Creating Maps</a></li> <li>• <a href="#">Trigger Policy</a></li> </ul>
<p>Playback Mode</p> 	<p>Synchronized Play - See also <a href="#">Synchronized playback</a>          Storage Map - See also <a href="#">Storage report</a></p>
<p>Synchronized Play</p> 	<p>See Also</p> <ul style="list-style-type: none"> <li>• <a href="#">Synchronized Playback Tab</a></li> </ul>
	<p>From left to right respectively:</p> <ol style="list-style-type: none"> <li>1. Toolbar type selector: Set the default toolbar for all players. This overrides all individual players' toolbar settings.</li> <li>2. OSD type selector: Select OSD information level for all players.</li> <li>3. Main layout selector: Select default console layout type.</li> <li>4. User saved <a href="#">pattern sets</a>.</li> </ol> <p>See Also</p> <ul style="list-style-type: none"> <li>• <a href="#">Using playback timeline</a></li> <li>• <a href="#">Pattern-save functions</a></li> </ul>

### 3 User tree



User can manage objects by creating folders and drag&drop to change the hierarchy and the order. Folders can also be renamed. Remind that the tree is global and local changes effect all remote "Genius Vision NVR" connected.

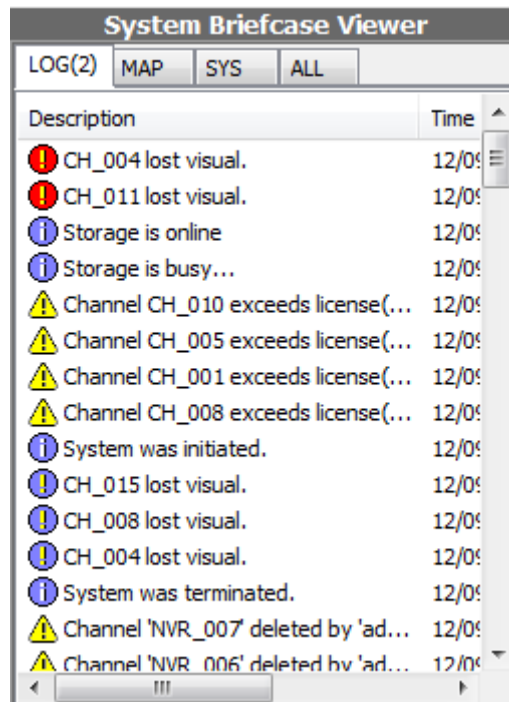
The node "All channels" are predefined and cannot be modified. Dragging a channel in "All channels" to a user-created folder creates its representatives which can be operated like the original channel item. But deleting a representative doesn't remove the channel from the system.

See Also

- [Building user tree](#)



## 4 System briefcase viewer

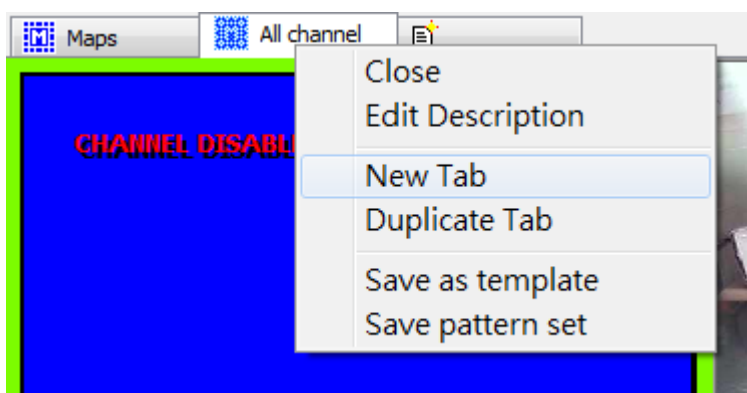


A system briefcase viewer let the users browse system objects like userlogs, channels, maps, users, etc. There are three components in system briefcase viewer; the filter, the header, and the list. The filter controls what types of items to be displayed. The header can be clicked to sort the items by different columns and different order. Right-click on different types of objects invokes their corresponding context menus. Items may also be dragged into players. Drag&drop behavior depends on the destined player state and the item type.

See Also

- [Viewing logs](#)

## 5 Pattern tab control



User can create and rename tabs in pattern tab control. Each pattern tab has its own layout and state.

See Also













- [Managing layout pages](#)



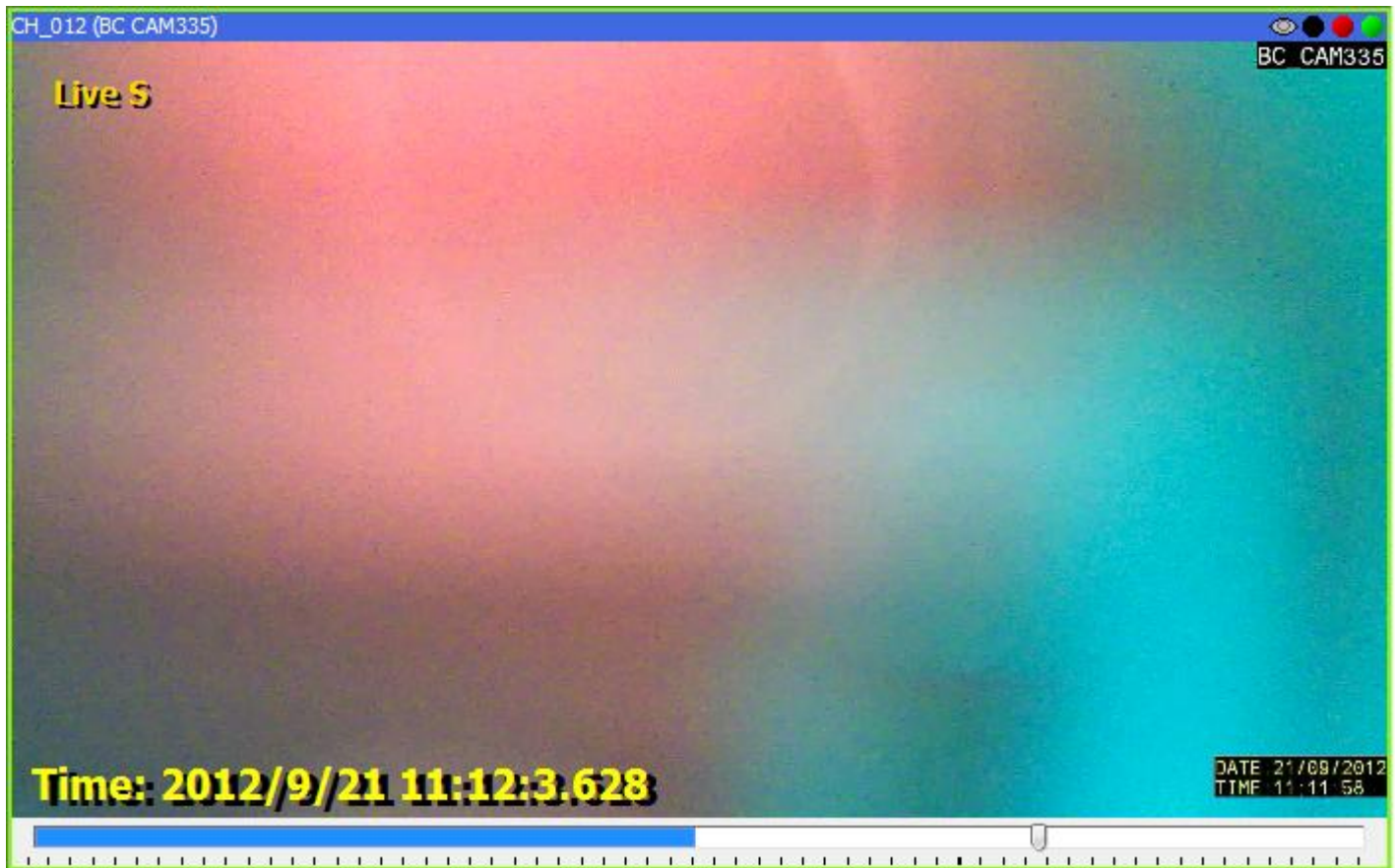


## 6 Toolbar



	View live video
	Pause video
	Step backward/forward
	Fast backward/forward
	Playback backward/forward
	Stop video playing
	Manual recording
	Digital zoom in
	Take snapshot
	Invoke Player Control Panel
	Toggle Timebar
	<p>Synchronize all players. When the button is sinked, playback control of all players are synchronized.</p> <p>See Also</p> <ul style="list-style-type: none"> <li>• <a href="#">Synchronized playback</a></li> </ul>

## 8 Player



There are three components in the player; status bar, display, and toolbar. Status bar shows the title of the channel attached and its states. The three indicators on the top-right shows if the channel is recording(red), accessing recorded data(yellow), live video(green), or alarm. The toolbar is used to control the player.

See Also

- [Player](#)

## Player (Multi-Function-Display) Capabilities

Each player slot in the console has an number as their identifier. Those are P1.1, P1.2.. P1.16, etc, as illustrated below. Their function is slightly different, as illustrated in the table following the picture.



Player identifier	Can play live & PB?	Can view maps?	Can view Ext. Map?
P1.1	Yes	Yes	Yes
P1.2	Yes	Yes	No
P1.3	Yes	Yes	No
P1.4	Yes	Yes	No
P1.5 ... P1.25	Yes	No	No

## Matrix Mode

Matrix mode uses layout that incorporates simplified player. There are 2 types of player in Genius Vision NVR: full player and simple player. They can be easily distinguished by the caption (title).

	Full player	Simple player
		
Optimized for	Quality	Performance
OSD	Yes	No
Aspect Control	Yes	No
Digital PTZ	Yes	No
Title (channel name, description)	Yes	No
Map	Yes	No
Playback	Yes	No

## Hybrid Layout

Hybrid layouts have one or few full players with more simple players. It's useful to balance functionality and performance for system with limited processing power.



# Using Online License Authorization

## Concepts

Online license authorization offers software publisher a more flexible way to sell license and to eliminate additional logistic cost. In NVR system, it even gives the flexibility to license software in per-single-channel basis. Therefore it's more cost-effective to the customers.

In our system, there are two types of license:

- **Online license:** This type of license requires periodic Internet check of license validity. It allows users to transfer license from one computer to another, as long as the maximum concurrent license does not exceed the purchased ones. In most scenario, this offers greatest flexibility, highest cost efficiency, and minimum risk.
- **Offline license:** This type of license does not require Internet when normal operation. However it needs to be "bound" to a specific computer. The operation to bind a license to a computer is called "commit". If you *committed* a license to a computer, it became *fused* to that specific computer state (including its system and the underlying hardware). If you change the underlying system or hardware, you risk losing the license.

It is generally recommended unless situation is required, one should avoid using offline license and choose the online one. Even if offline scenario is required, one should start from using online license. After a period of stable running, one can always convert online license directly to offline ones through the process of committing.

To generate effective license (called authorization code, or auth. code), one need two elements

- **Request code:** This code contains information about target computer, number of channels and type of product requested.
- **Purchase code:** This is the code that you paid money for. (Giving away this code is same as giving away your money. So you need to keep it in secret.)

In online environment, the request code is transparent (invisible) to users. You only need to input purchase code in the GUI to get authorized. However, in some special environment, where Internet access is not possible, we also offer an offline way to activate license. In this scenario, you must generate a request file (which contains encrypted request code), copy it to a portable storage device, and bring it to a computer where Internet access is available. You then connect to a vendor-provided URL (<http://geniusvision.net/offline>) to upload the request file, and enter purchase code. The web-page will then generate authorization code in a file. This auth. code is generated specific for the computer on which the program generated the provided request file. It will not work on other computers. You need to copy this auth. code file back to the target computer and then import it. Please note, however, license activated in this manner implies it's an offline license and therefore cannot be transferred to another computer.

In addition to the types of license, there are some attributes associated with a specific license. Depending on actual business terms, a license might have a number of following properties:

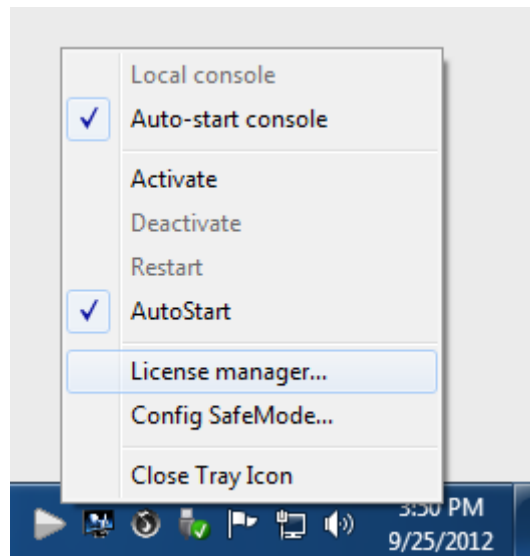
- **Forced online license:** If a license has this attribute, it cannot be committed to computer. If you try to do that, it will fail (OfflineInstallForbidden). This is needed in some business terms to enforce certain licensing policies.

- **Limited (Expirable) license:** A license may subject to expire after certain date (either demo license or not). This kind of license implies "forced online license".
- **Demo/Evaluation:** If a license has this attribute, the program will display an evaluation notice stating that *"using the software in production environment of any kind is strictly prohibited"*. This is needed for customers who want to try the software before paying. The function of the program is, however, almost same as the formal one. Demo version implies "forced online license" and "limited license" (the reverse is not true). A demo license can be transparently converted to formal one by paying fees to clear the demo flag on the server. The user only needs to restart the NVR engine to obtain formal license automatically.

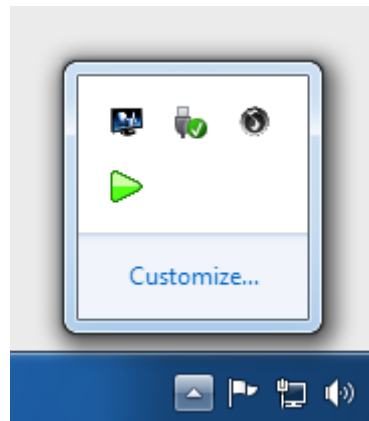
## Bring up License Manager

To bring up license manager, right-click on the [NVR organizer](#). In this alternative, however, you must note following:

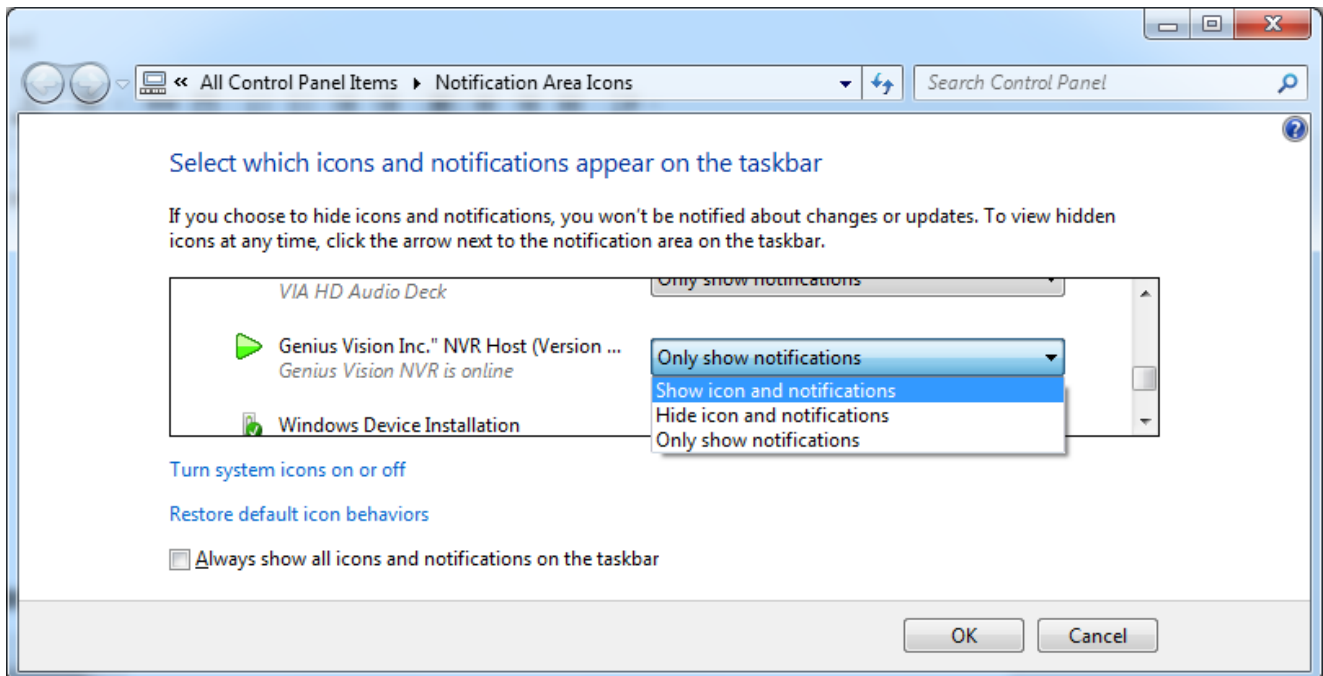
- You must have administrative privilege. As running license manager requires administrative access to your computer.
- On systems like Windows Vista or Windows 7, where administrative privilege is often not given in default scenario, you will need right-click NVR organizer and select "Run as administrator" to let the program gain administrative access.
- The NVR engine service must NOT be also running. That is: only one of NVR engine and License Manager can be running at the same time. They are, sort of, exclusive to each other. If you try to start NVR engine service while License Manager is running, it will cause the NVR service license check to fail.



## Windows 7 and Hidden Tray Icon



In Windows 7, tray icon is hidden by default. You have to click the white triangle to access hidden icons.

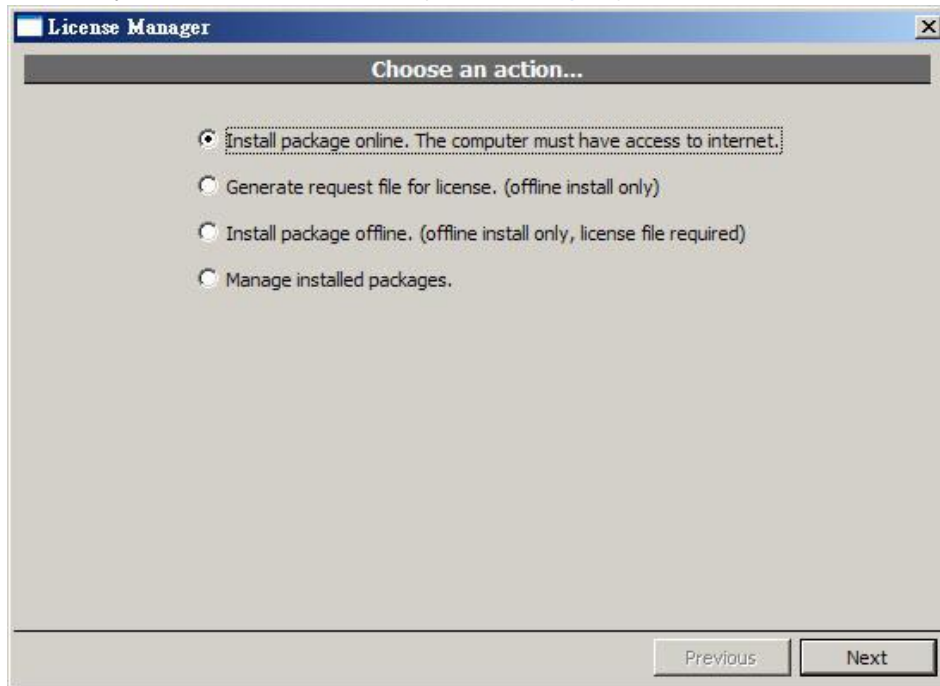


To make the hidden icon always visible, click “Customize...” and set the icon to “Show icon and notifications”.

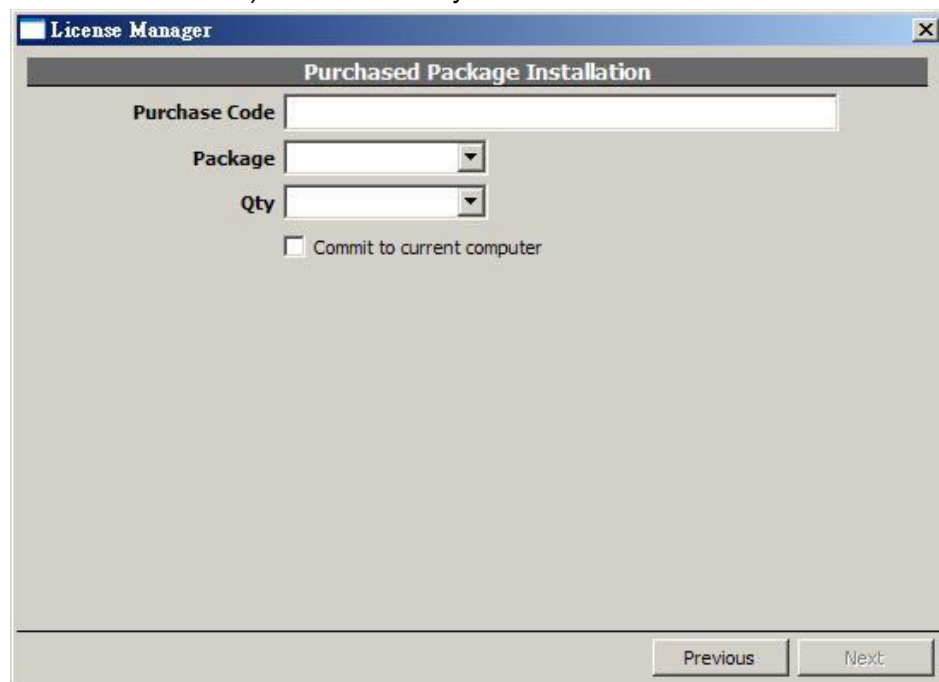


## License Manager - Install package online

The fastest and most convenient way to install package is through "Install package online" option. You will need unrestricted access to the Internet to use this option. Please note however, using this option means you will need Internet even in normal operation, as License Manager will check in the background periodically for license validation. (see [Concepts](#).)



After clicking "Next", following screen will appear. You need to enter purchase code, package, and desired quantity. Please note the desired quantity must not exceed the remaining purchased quantity. If you check the "Commit to current computer" box, this will become an offline license (unless the licensing terms doesn't allow that). You can always convert an online license to an offline one later.



## Package Types

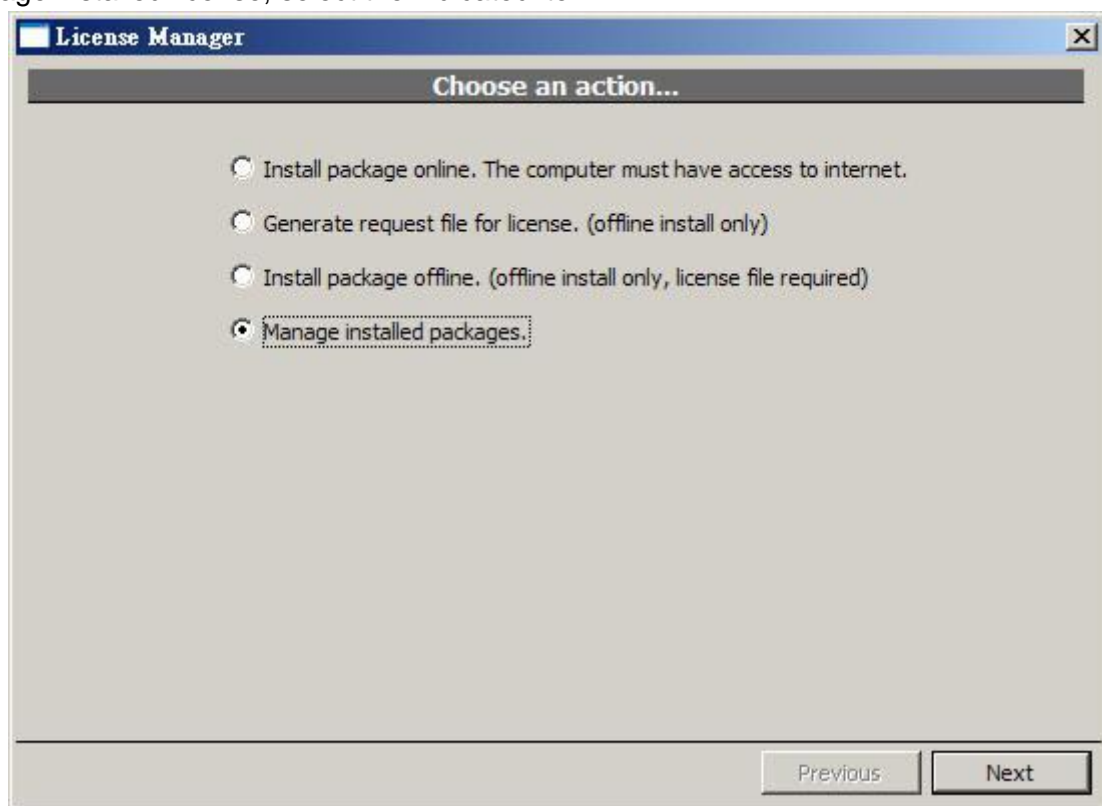
There are 3 types of packages, when selecting license to install:

- **"pro"**: This means the NVR Professional edition.
- **"ipr"**: This means the NVR Intelligent edition.
- **"pano"**: This means the NVR Panorama edition.

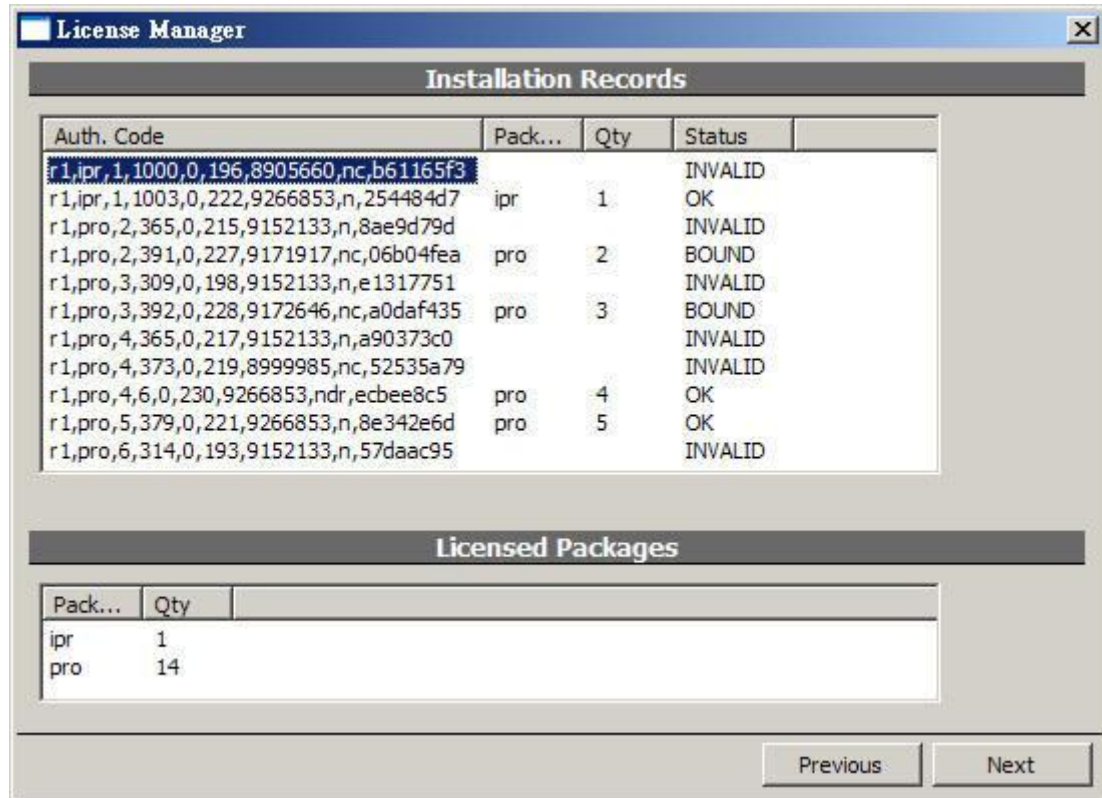
The prices for different packages are different. You can mix "pro", "ipr", and "pano" packages freely on the same computer.

## Managing Installed License

To manage installed license, select the indicated item:

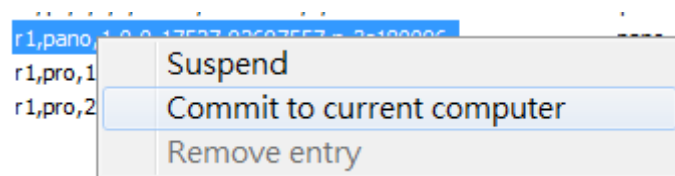


Following screen will appear:



Below explains license status:

- **"OK"**: This online license works correctly.
- **"NEW"**: This is a newly installed license.
- **"BOUND"**: This is an offline (committed) license which works correctly.
- **"UNKNOWN"**: This license is currently working (and is previously known working). But due to some factors (such as lacking Internet connection or exceeding maximum concurrent license), it might soon be invalidated.
- **"FAIL"**: This license is invalidated, mostly likely due to license check failure, or license revoked at server-side.
- **"INVALID"**: This license is invalidated, mostly likely due to computer system change.
- **"SUSPEND"**: This license is suspended by user. Can be reinstated.
- **"RESUME"**: User has requested to reinstate this license. But licensing server has not granted yet.



If you want to commit a online license to current computer, right-click on that license and bring up a context menu. Select "Commit..." to perform the commit operation. You'll need Internet connection to perform this operation.

## Backup/Restore License

Sometimes if the whole system is overwritten for some reason (reinstallation of the OS) or accidentally purges the entire software installation, the license information could be gone

permanently. To prevent this from happening, you need to backup the license and restore it when needed.

**Note:** that you can only restore license to the same system (OS+computer hardware). Restoring to different system will render the license useless.

This function is a relatively new feature. Please refer to following references:





**See also**

- [Backup/Restore License](#)

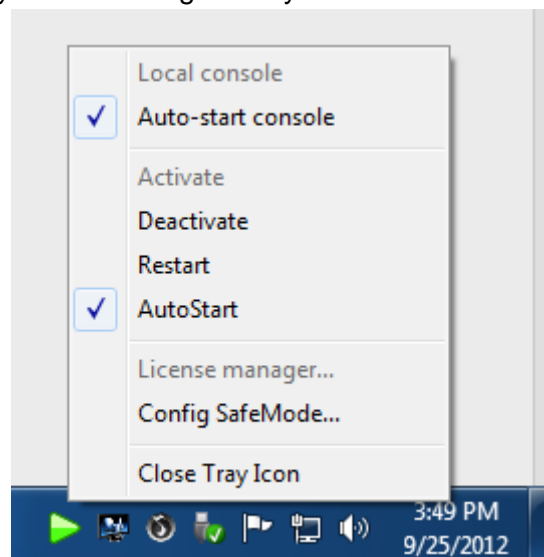
## Starting the service

### Use the Tray Icon

The color of the tray icon indicates the system status:

Icon	System State
	The NVR is offline.
	The NVR is online.
	The NVR will be auto-started very soon.
	The NVR is busy starting up or shutting down.

You can right-click on the tray-icon to change the system state:



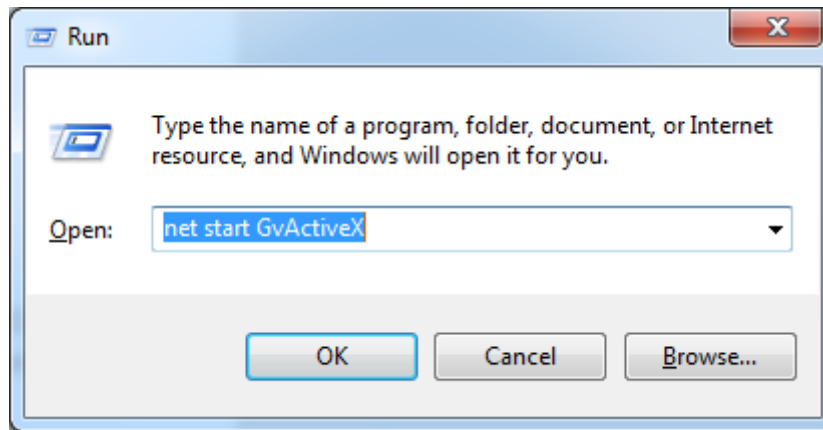
In production environment, you should configure your NVR as "Auto-start", so it will automatically start on system startup, and it will also automatically restart on abnormal shutdown.

### Alternative Way to Activate NVR

The tray icon manager of the "Genius Vision NVR" should automatically appear . If it's not, you can activate the tray icon by using Windows service manager to start service "GvActiveX".

#### Option 1: Start by “net” command

Use "Start Menu"=>"Run"



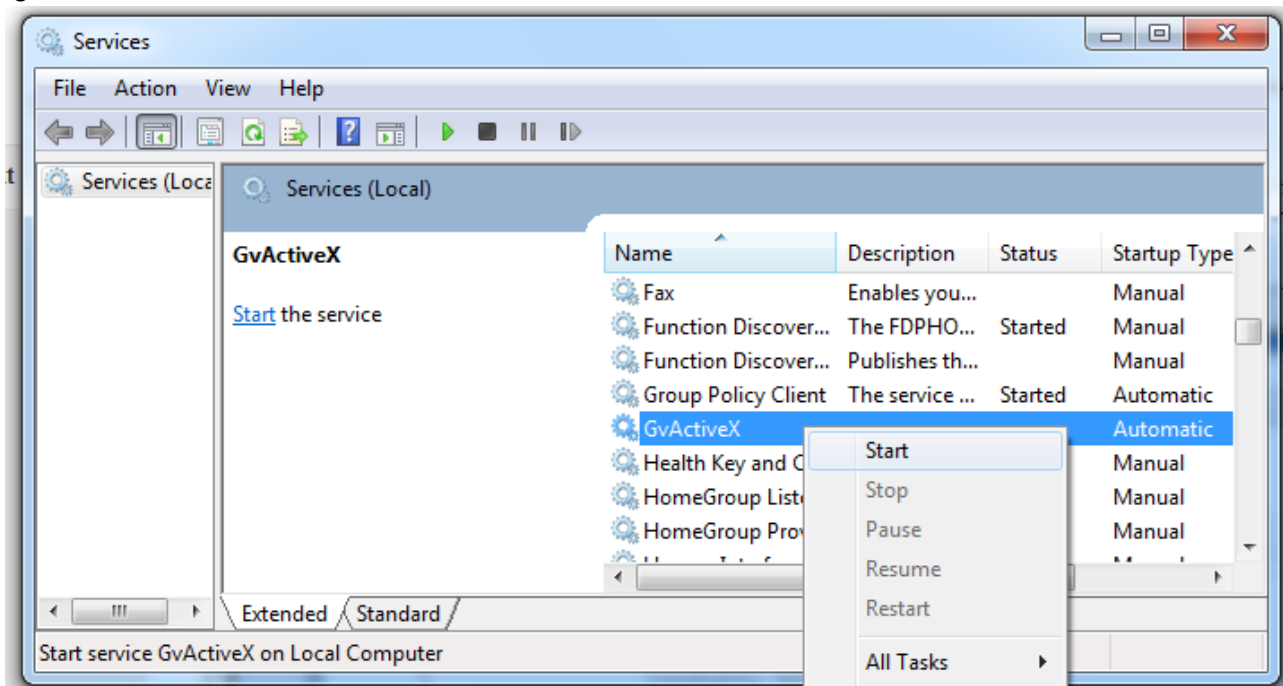
A dialog will appear. Now enter "net start GvActiveX" and press ENTER.

### Option 2: Start by Windows Service Manager console

Use "Start Menu"=>"Settings"=>"Control Panel"=>"Administrative Tools"=>"Services"

Locate "GvActiveX"

Right-click and select "Start".



Note: Sometimes the GUI of the service manager is not updated so you will be unable to select the "Start" from context menu. In this case, press F5 to refresh the GUI.

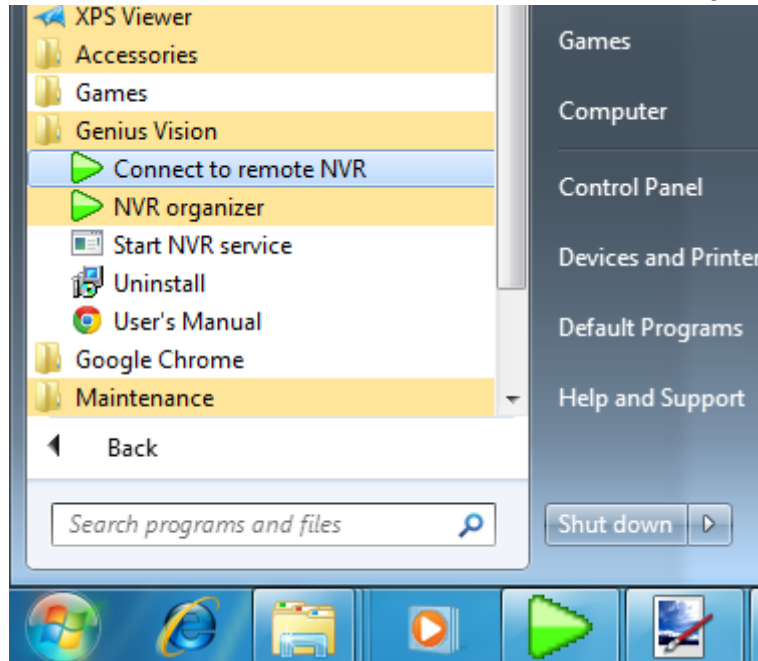
## **Part I: Configuration**

The section of manual will show you how to configure NVR system.

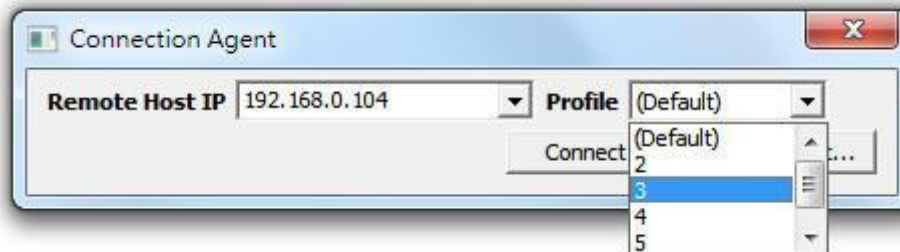
# Setup for Multi-monitor

## Consoles and Profiles

A profile stores states and settings associated with a local console, including the window position, layout, saved login information, IP address of server... etc. To invoke a console with specific profile, click Connect to remote NVR in Genius Vision in Start Menu. Connection Agent dialog will be opened.



To select a profile, use the Profile combo box.



IP address of the remote server must be specified before connecting. If the server and console is on the same computer, enter 127.0.0.1 in IP address.

Click Make Shortcut... button and a shortcut will be created in windows desktop. Simply double click on the shortcut and the console with this profile will be invoked. Rename the shortcut or it may be overwritten next time a shortcut is created.



## Multi-monitor



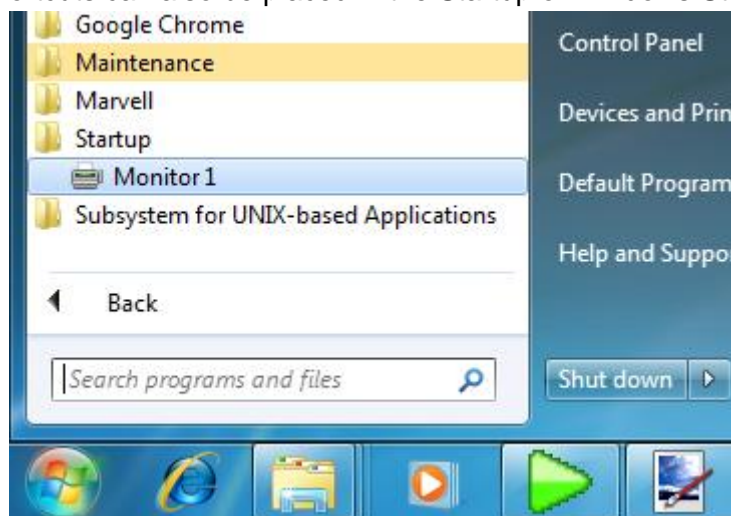


The following demonstrates how to setup GV NVR for multi-monitor. The example uses 3 monitors but this can be applied to more or less monitors as well.

1. Set the multi-monitor to Extended mode in Windows. This is not a requirement but it's recommended for easier setup and more intuitive operations. In extended mode, multi-monitor act as a single desktop. Just navigate the mouse cursor in different monitors to access them. For more information, refer to the manual provided by video card vendor.
2. Create 3 shortcuts with different profiles. They may connect to the same NVR server or different ones. Or they may connect to local host using 127.0.0.1 as IP address.



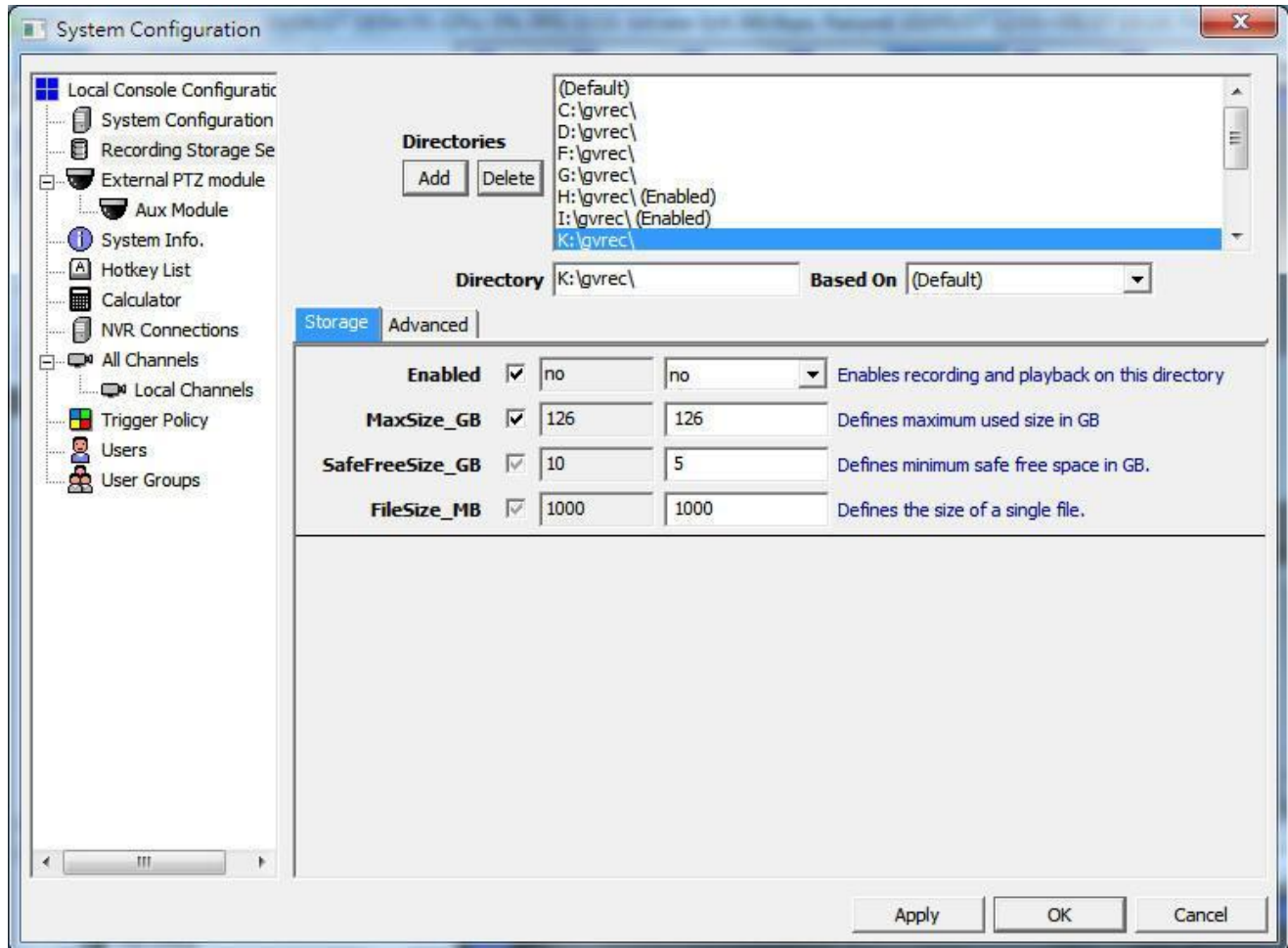
1. Invoke the consoles using the shortcuts. There will be 3 windows. Move them to the monitors you want to place in and change the layout. To move among different monitors, simply move the mouse to the left/right edge of the monitor.
2. For best viewing experience, close menu of some consoles by pressing F10 on keyboard.
3. Next time the shortcuts are clicked, the consoles will be invoked as their last states and layouts. The shortcuts can also be placed in the Startup of Windows Start Menu.



# Configuring Video Storage

## GUI Overview

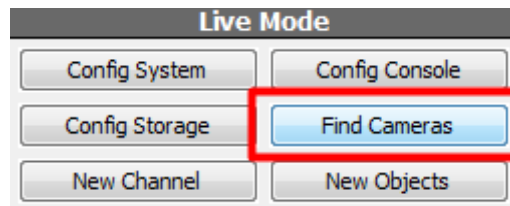
Click on the "Config Storage". Following dialog box will appear. If no directories has been enabled, this dialog will appear automatically after login.



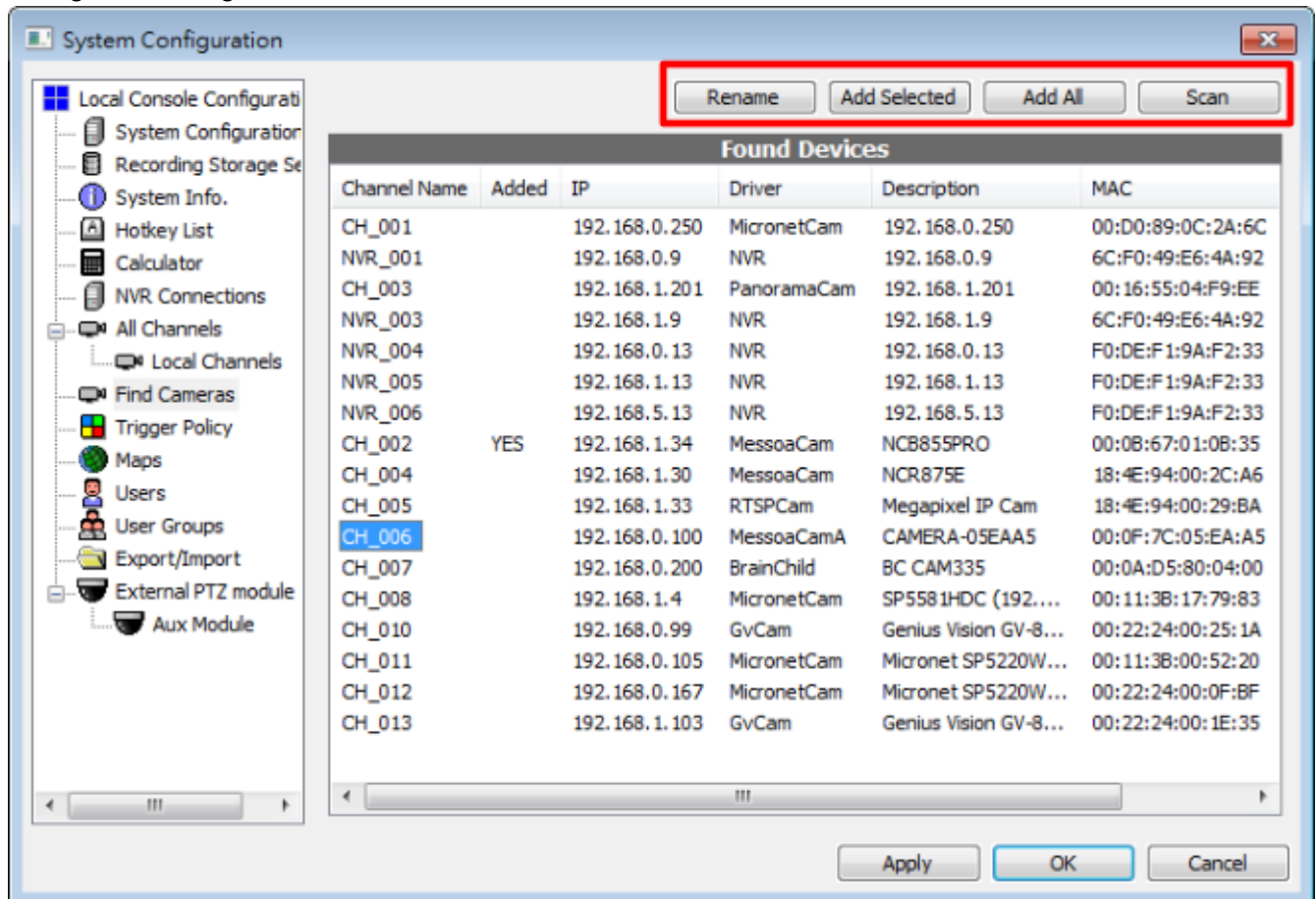
## Storage Space Parameters

Parameter	Description
Enabled	Is the directory enabled?
MaxSize_GB	Maximum space the recording process will utilize.
SafeFreeSize_GB	Safeguard of free space. If free space is lower than this value the system will start to recollect space from old video data.
FileSize_MB	The size of a single file.
ReadCache_MB	This is the global setting of storage system read (playback) cache. Adjust this value according to your available memory and required performance.
WriteCache_MB	This is the global setting of storage system write (record) cache. Adjust this value according to your available memory and required performance.

## Adding Cameras by Finding in Local Network



Click "Find Cameras" in the main console and a dialog will be invoked listing found cameras. You may have to wait for few seconds before NVR can find cameras. You can click "Scan" to reset the dialog and find again.



To add the camera in the NVR system, double click on the channel name (CH\_001, NVR\_001...). It will be added with auto-assigned channel name. If you want to change the channel name, select an entry and click "Rename".

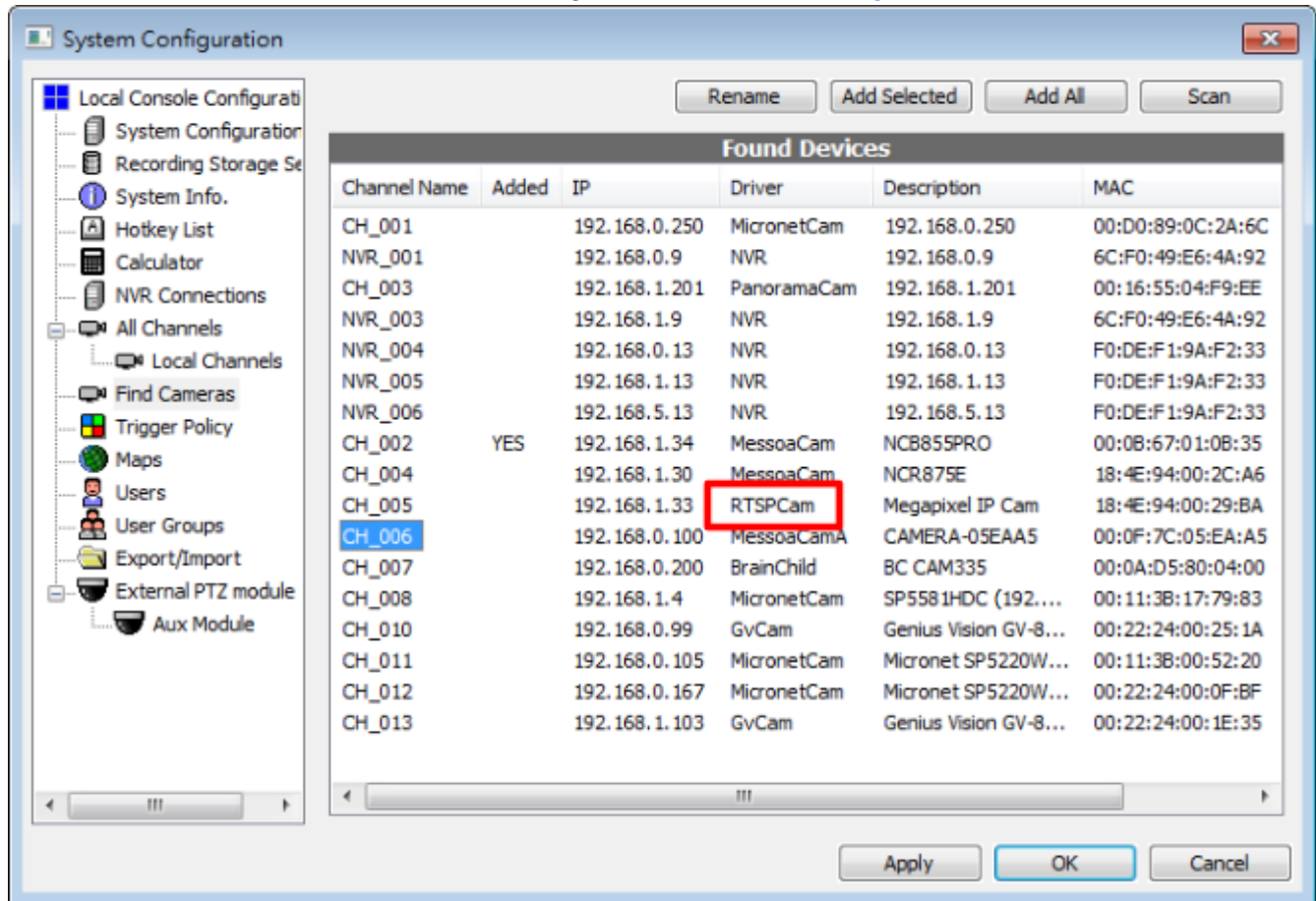
CH_005	192.168.1.33
renamed	192.168.0.100
CH_007	192.168.0.200

## Missing Cameras

- Camera that is in different network segment cannot be find. For example, if IP address of NVR is 192.168.0.10 and that of the camera is 192.168.2.2
- Camera that doesn't support UPnP or the function is not enabled cannot be found. You will need to add it manually. (See also: [Adding a channel](#))

## Unsupported Cameras

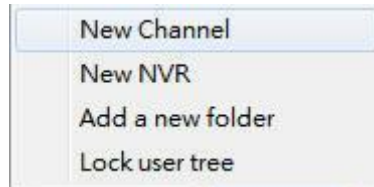
For supported cameras, driver and username/password (if not changed out of box) will be configured automatically. Other cameras will be found as RTSPCam. User have to configure URL described in camera document to receive video streaming. Please refer to [Adding RTSP camera](#).



## Adding a channel

### Adding a channel

Right-click on the empty area of the user tree panel, and then click "New Channel..."



Following dialog box will appear.

 The "Camera Setup" dialog box is shown. It has a left sidebar with a tree view containing "Camera Setup", "Video Setup", "Preview", "Scheduled Recording", "PTZ Setup", and "External PTZ moc". The main area is titled "Camera Driver Information" and contains the following fields and options:
 

- Channel name:** A text input field with a note: "Please input a name that is unique throughout the domain."
- Driver:** Radio buttons for "IP Cam" (selected), "Webcam(DirectShow)", "RTSP video source", and "Remote channel".
- Series:** A dropdown menu.
- Description:** A text input field.
- Domain name:** A text input field.
- Enter camera IP address:** A field with "0 . 0 . 0 . 0".
- Port:** A field with "80".
- Channel:** A field with "1".
- Enter login information:** A text input field.
- Password:** A text input field.
- Basic Recording:** A checkbox for "Unconditional recording".
- Others:** A checkbox for "Disabled".

 At the bottom right are "Apply", "OK", and "Cancel" buttons.

This is an integrated dialog with everything about channel configuration; camera setup, video setup, schedule recording setup, PTZ setup. Navigate through the tree nodes to change the items to be configured.

Enter the channel name, IP address, etc information.

**Note:** "Channel name" is an important signature of a channel and therefore cannot be changed after it's created. Nor can it be duplicated with other channels. You should choose the channel name carefully, as it associates all configuration and storage information with that channel. If you expect a more user-friendly description, you can use the "Description" field for the purpose.

## Parameters

- **IP Address:** IP address of the network camera
- **Port:** The TCP/IP port number of the network camera
- **Channel:** The channel number of the network camera. This value may apply if a single video server has multiple channels.
- **Unconditional Recording:** Check this box, if you wish the NVR to start recording immediately. To configure other types of recording, you need to perform additional operations after channel creation.
- **Disabled:** Temporarily disable the channel. NVR will not access any channel with this box checked. You can always enable it at later time.



## Adding RTSP camera

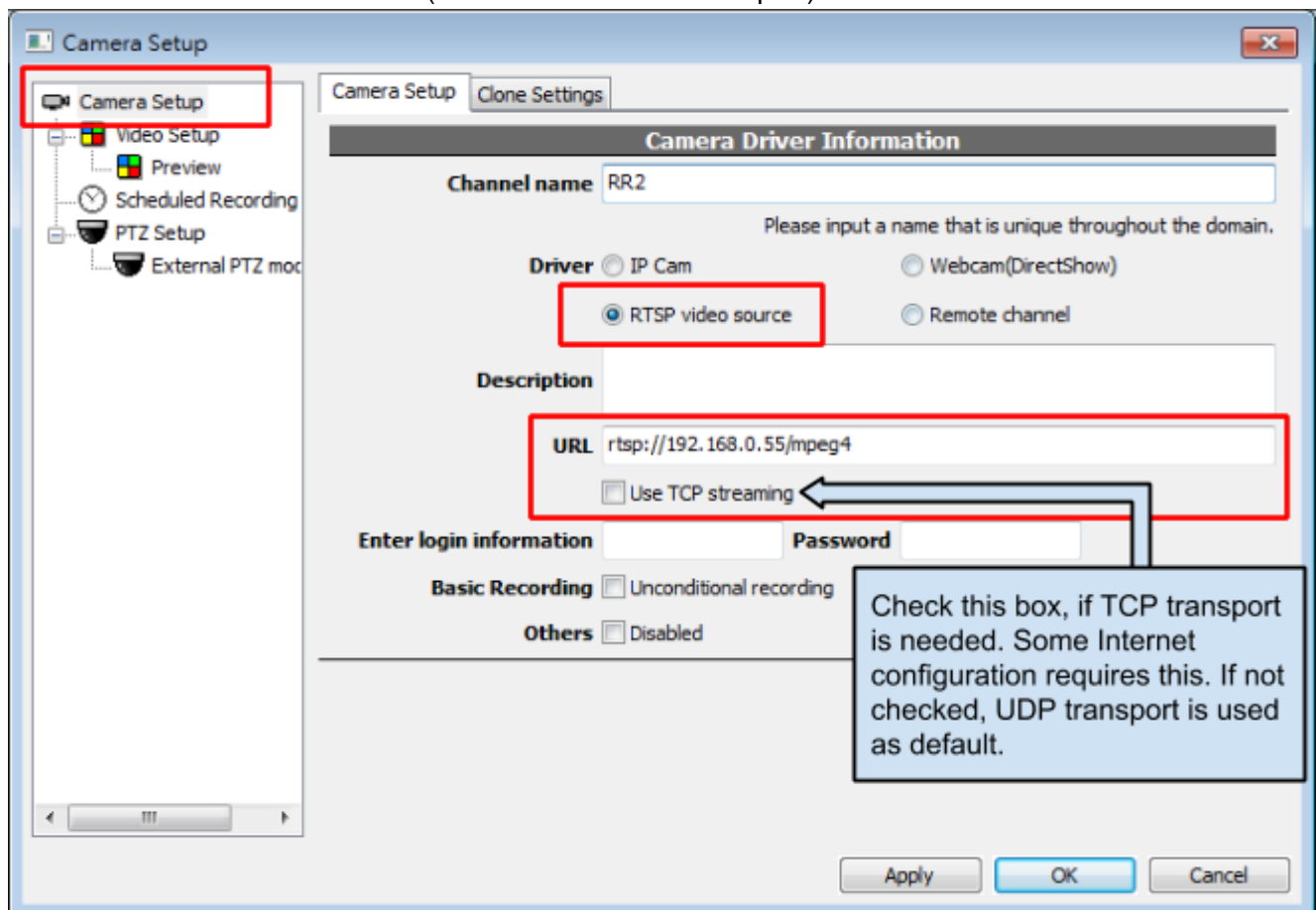
### Instructions

Let's assume you have a RTSP video source as follows:

**rtsp://192.168.0.55/mpeg4**

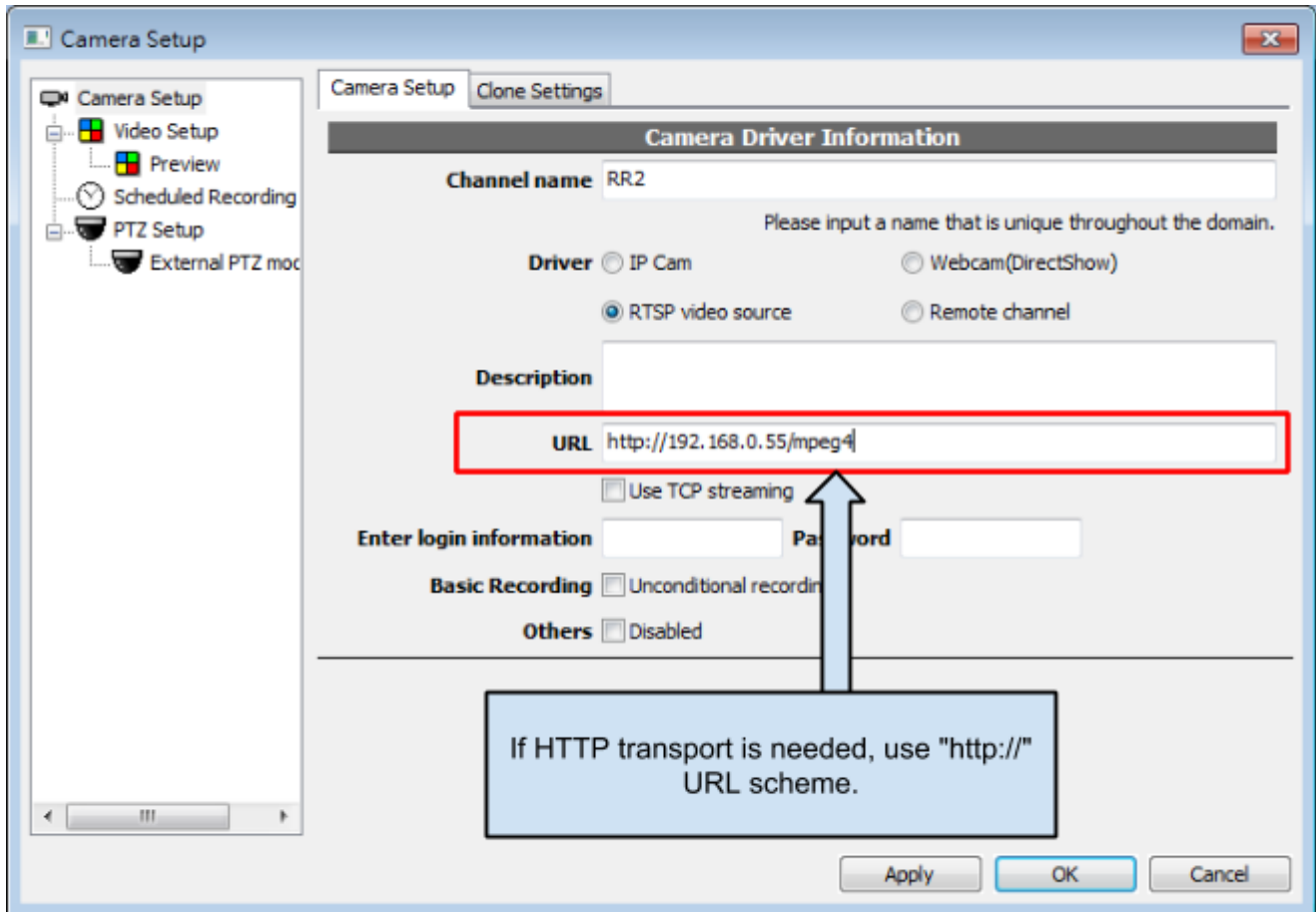
In this example, you need to perform following configuration steps in Camera Setup

1. Select RTSPCam as driver
2. Enter correct IP address (Port is not related RTSP port)

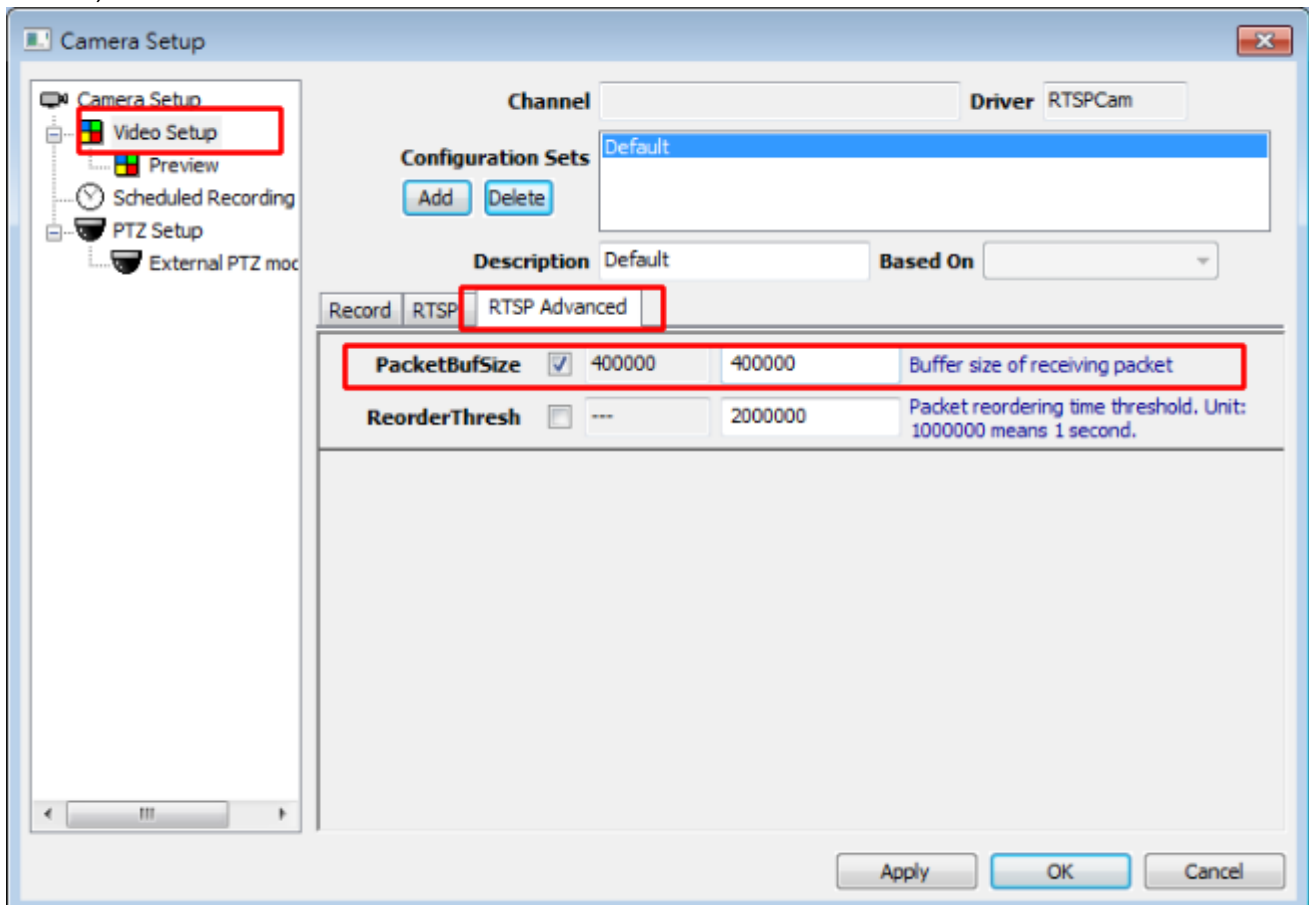


If you need HTTP transport, use "http://" URL scheme in the dialog.

**Note:** HTTP transport is one of RTSP underlying transport methods. This is not the same as [HTTP camera](#).



If your frame packet is extraordinarily large, you may need this step to increase RTP buffer size (as follows):





## Adding RTSP camera (Legacy)

**Note:** this section only applies to software version [b60](#) or older. Camera setup dialog GUI has been updated since [b70](#). Updated content please refer to [Adding RTSP camera](#).

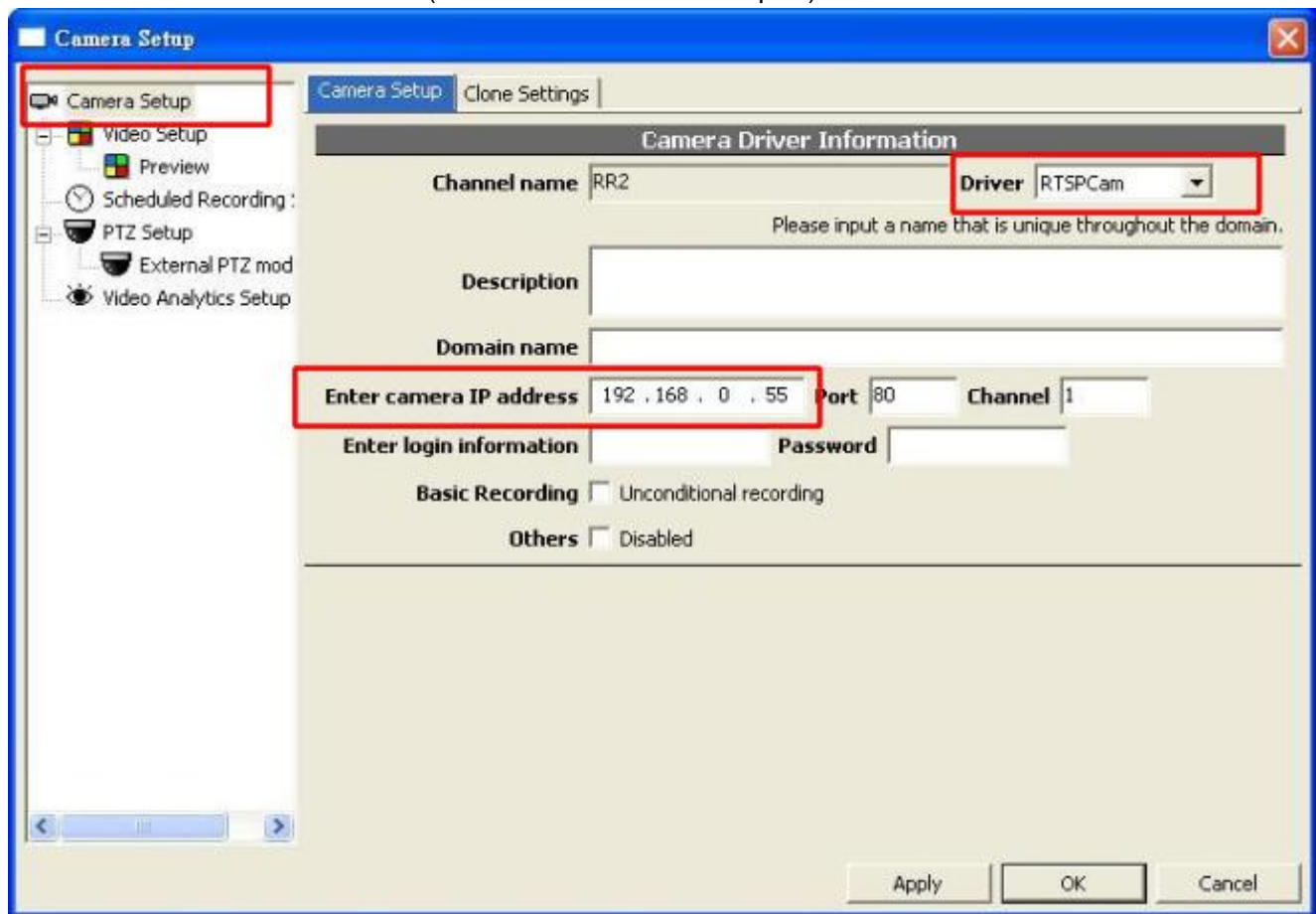
### Instructions

Let's assume you have a RTSP video source as follows:

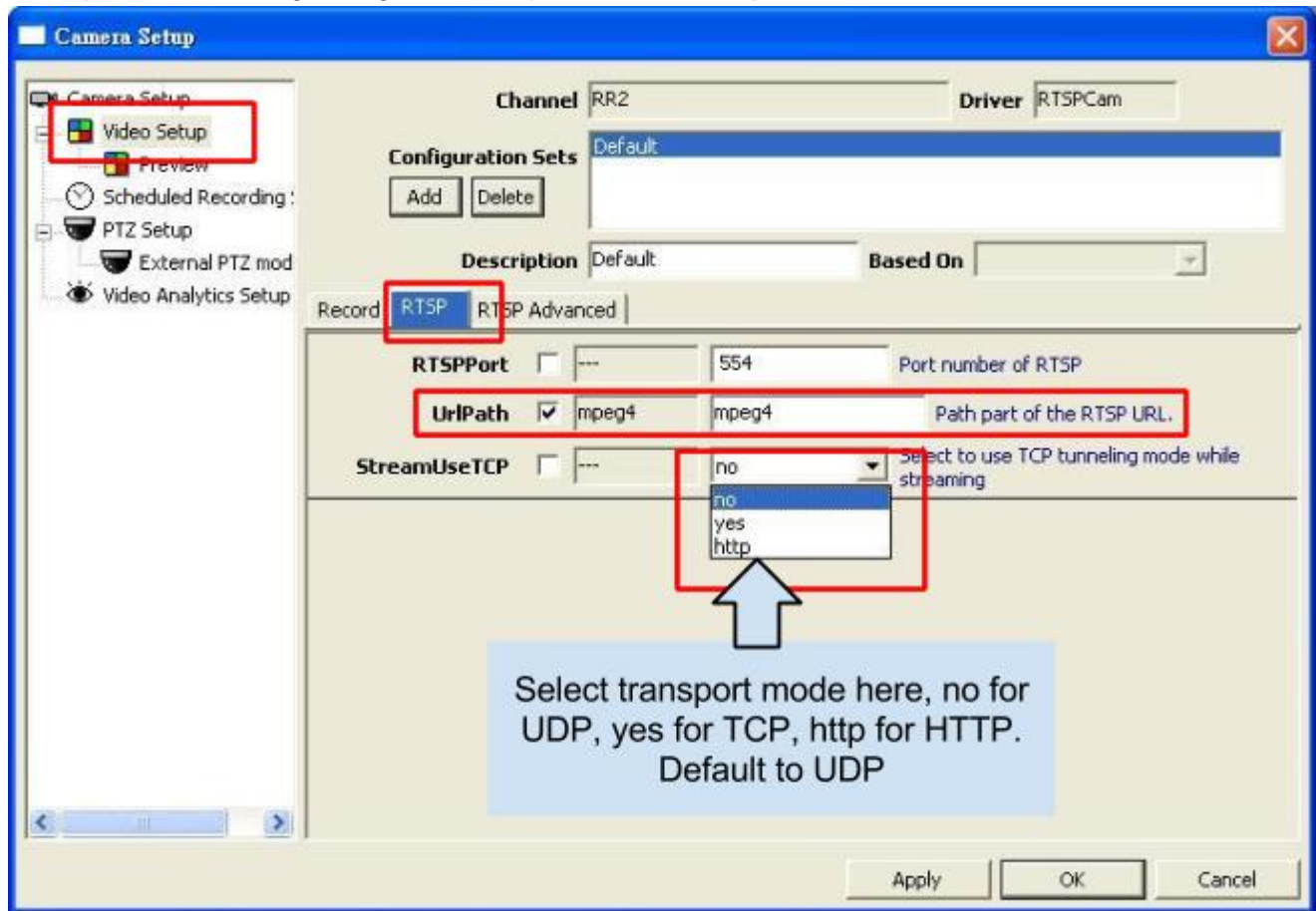
**rtsp://192.168.0.55/mpeg4**

In this example, you need to perform following configuration steps in Camera Setup

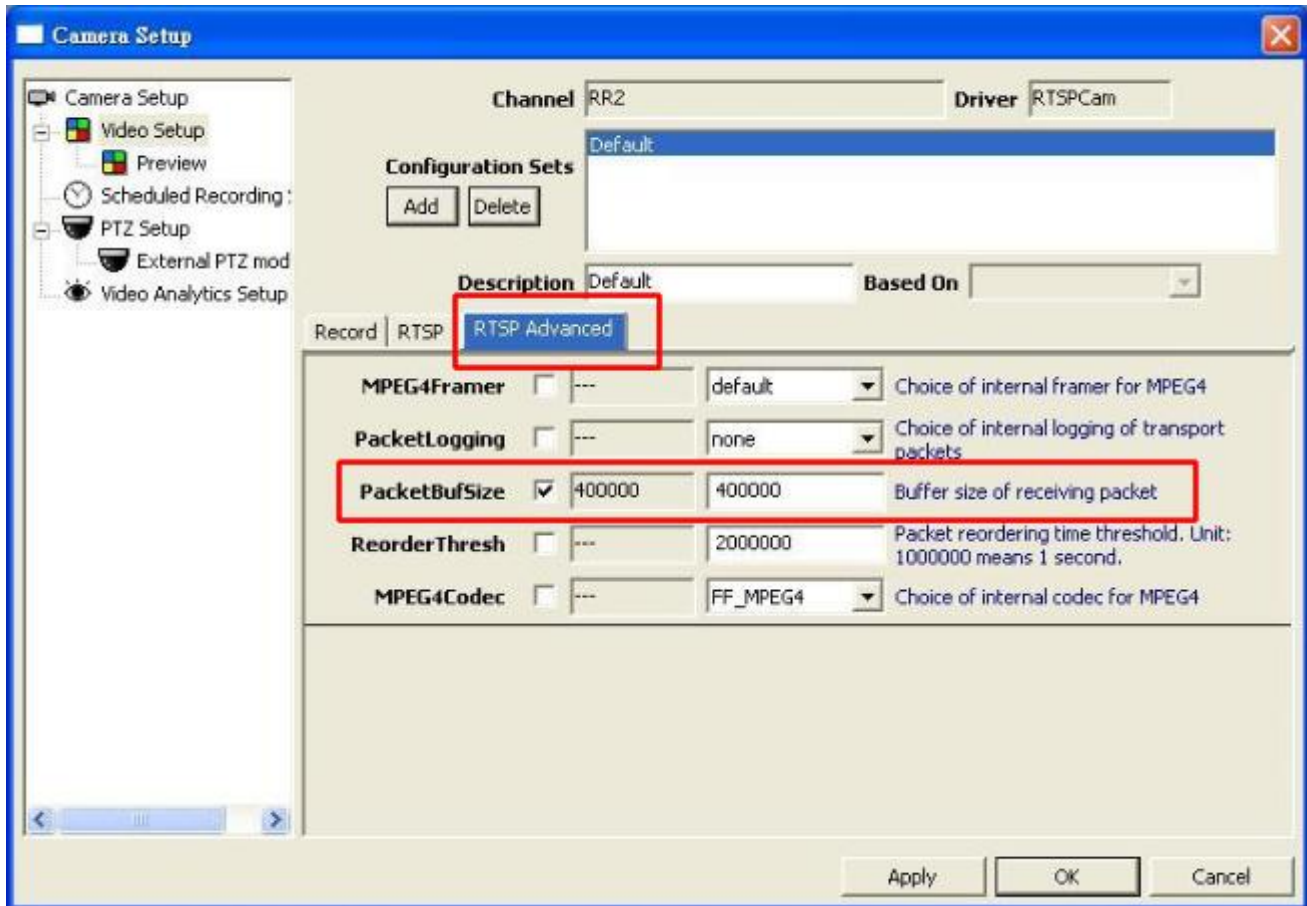
3. Select RTSPCam as driver
4. Enter correct IP address (Port is not related RTSP port)



Then perform following configuration steps in **Video Setup**:



If your frame packet is extraordinarily large, you may need this step to increase RTP buffer size (as follows):

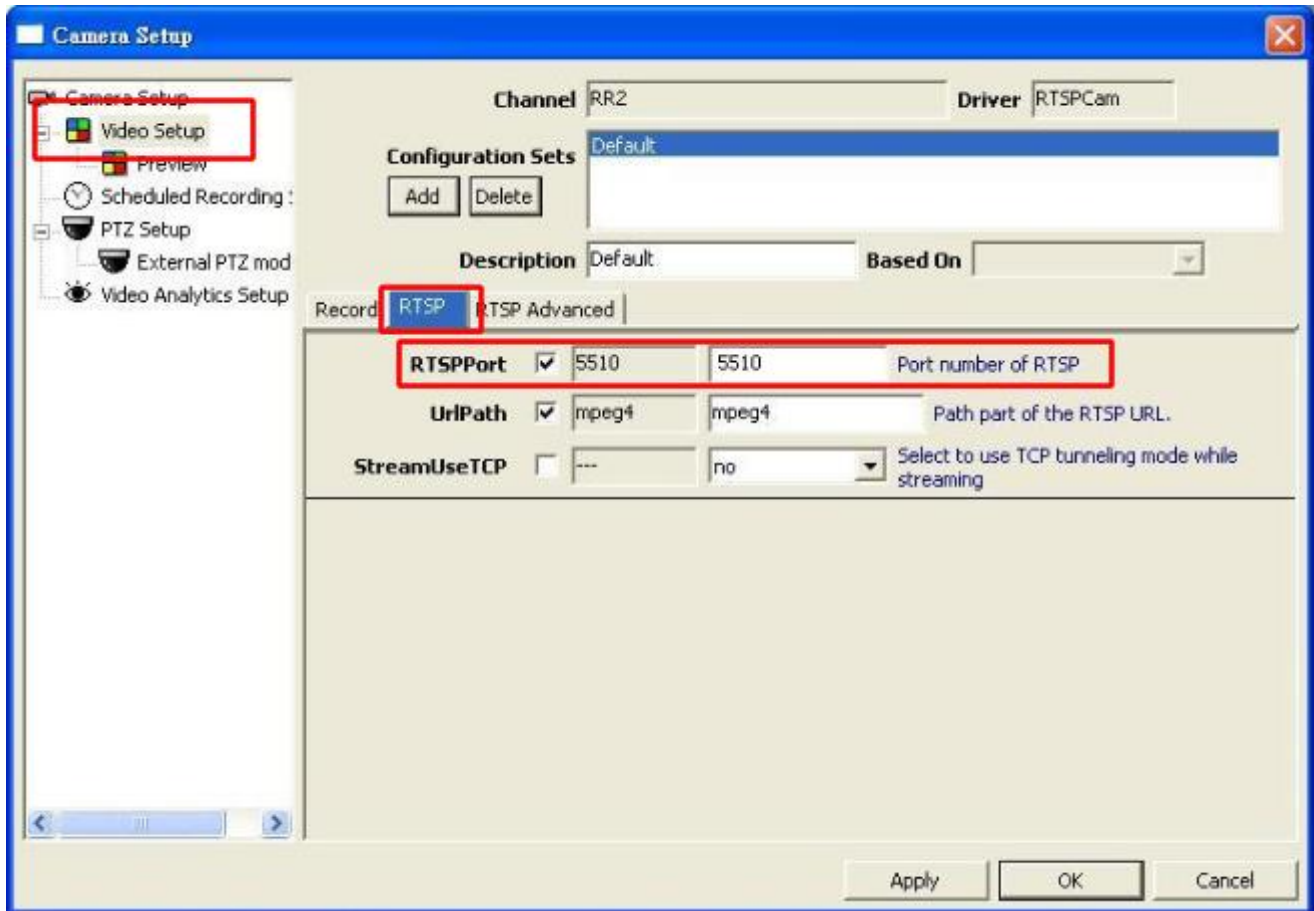


## How to deal with non-standard RTSP port?

RTSP has a standard control port number 554. If you have a non-standard RTSP control port, your RTSP URL will look like:

**rtsp://192.168.0.55:5510/mpeg4**

When you encounter this situation, you need to change **RTSPPort**:



## Adding HTTP M-JPEG camera

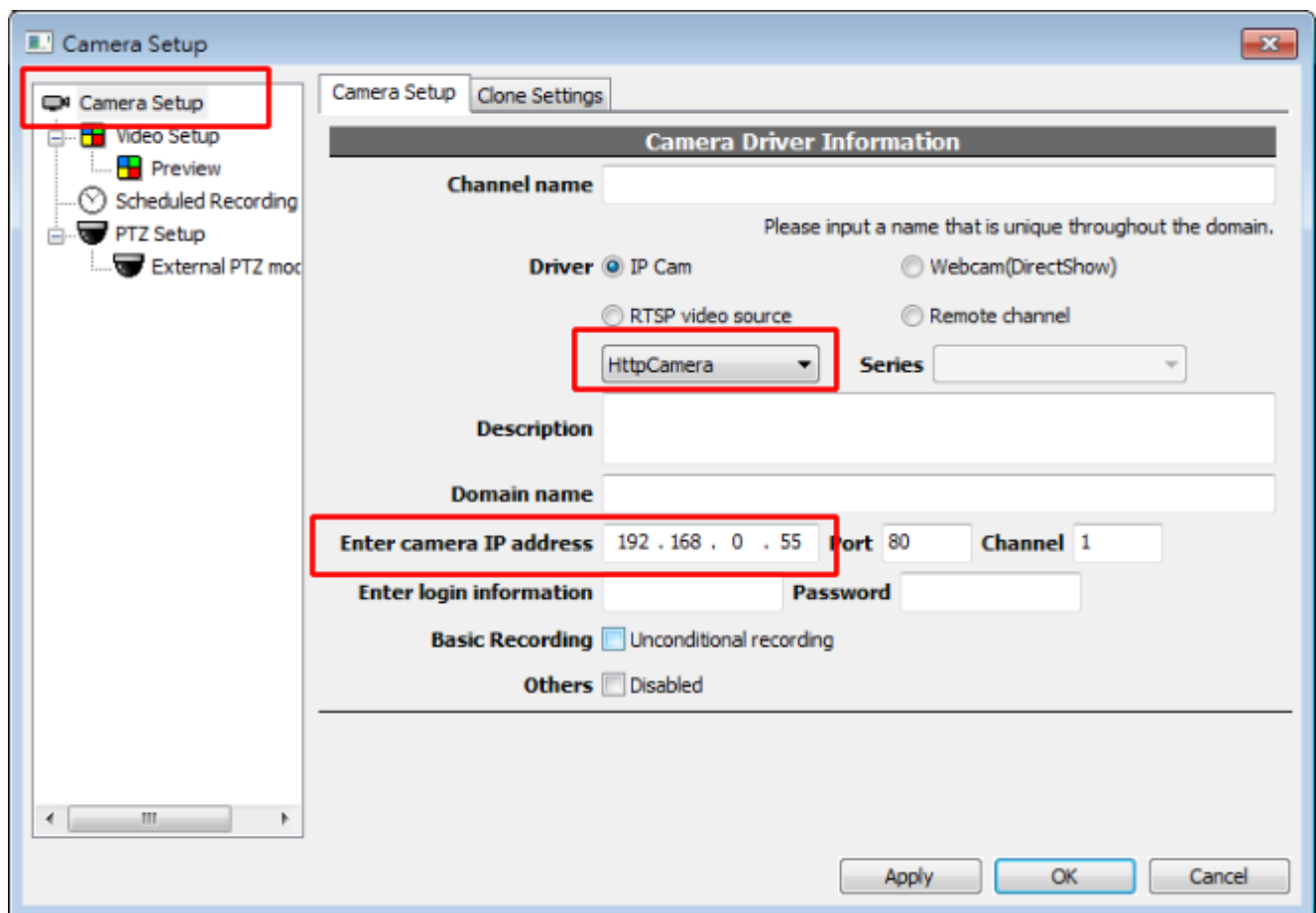
### Instructions

Let's assume you have a HTTP video source that produces continuous Motion JPEG stream as follows:

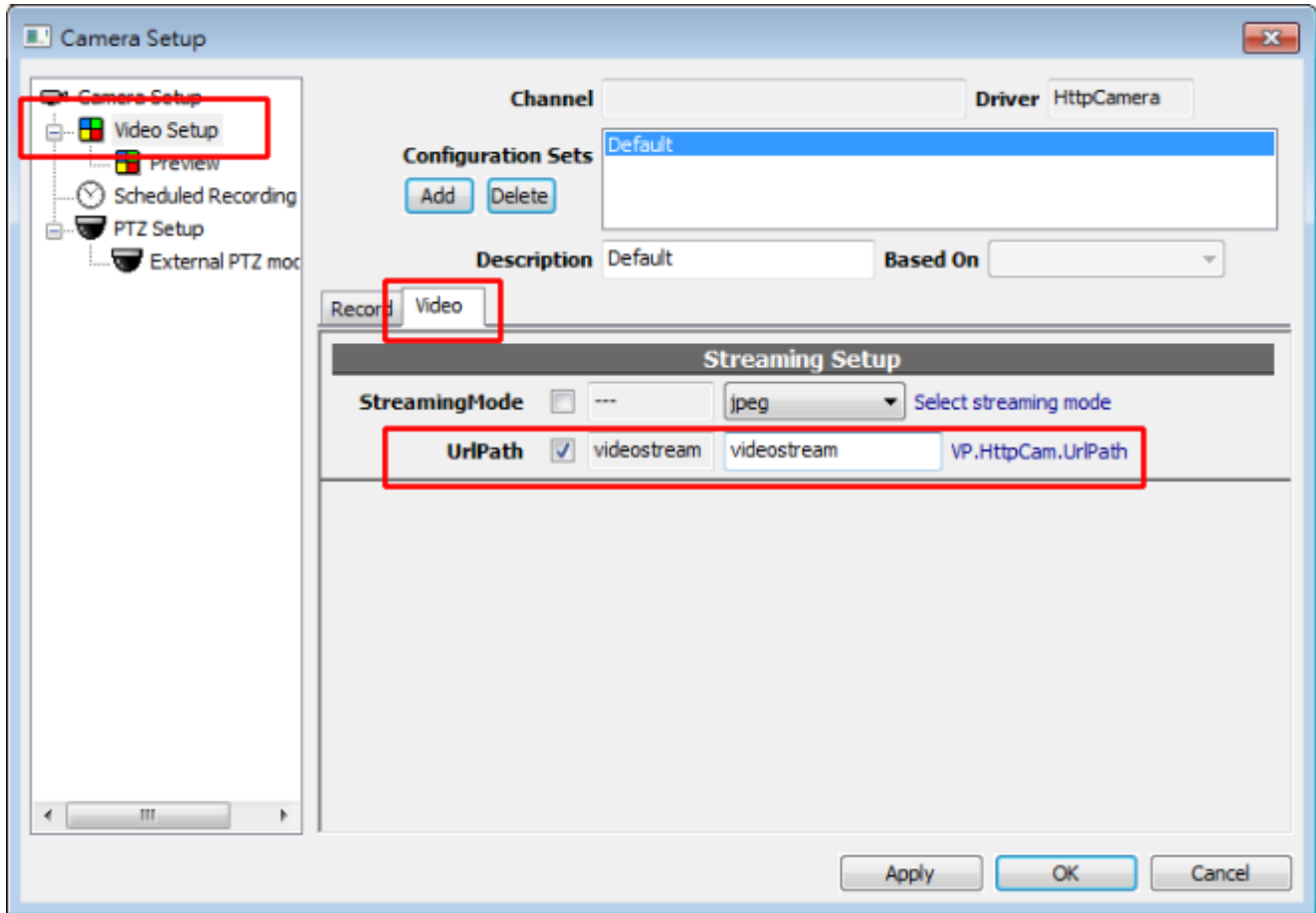
**http://192.168.0.55/videostream**

In this example, you need to perform following configuration steps in *Camera Setup*

5. Select *HttpCamera* as driver
6. Enter correct IP address



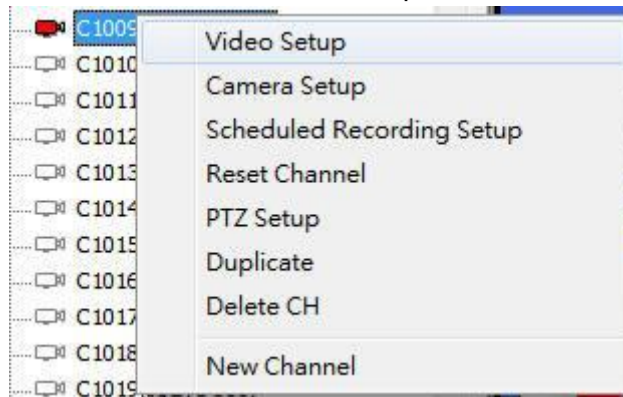
Then perform following configuration steps in **Video Setup**:



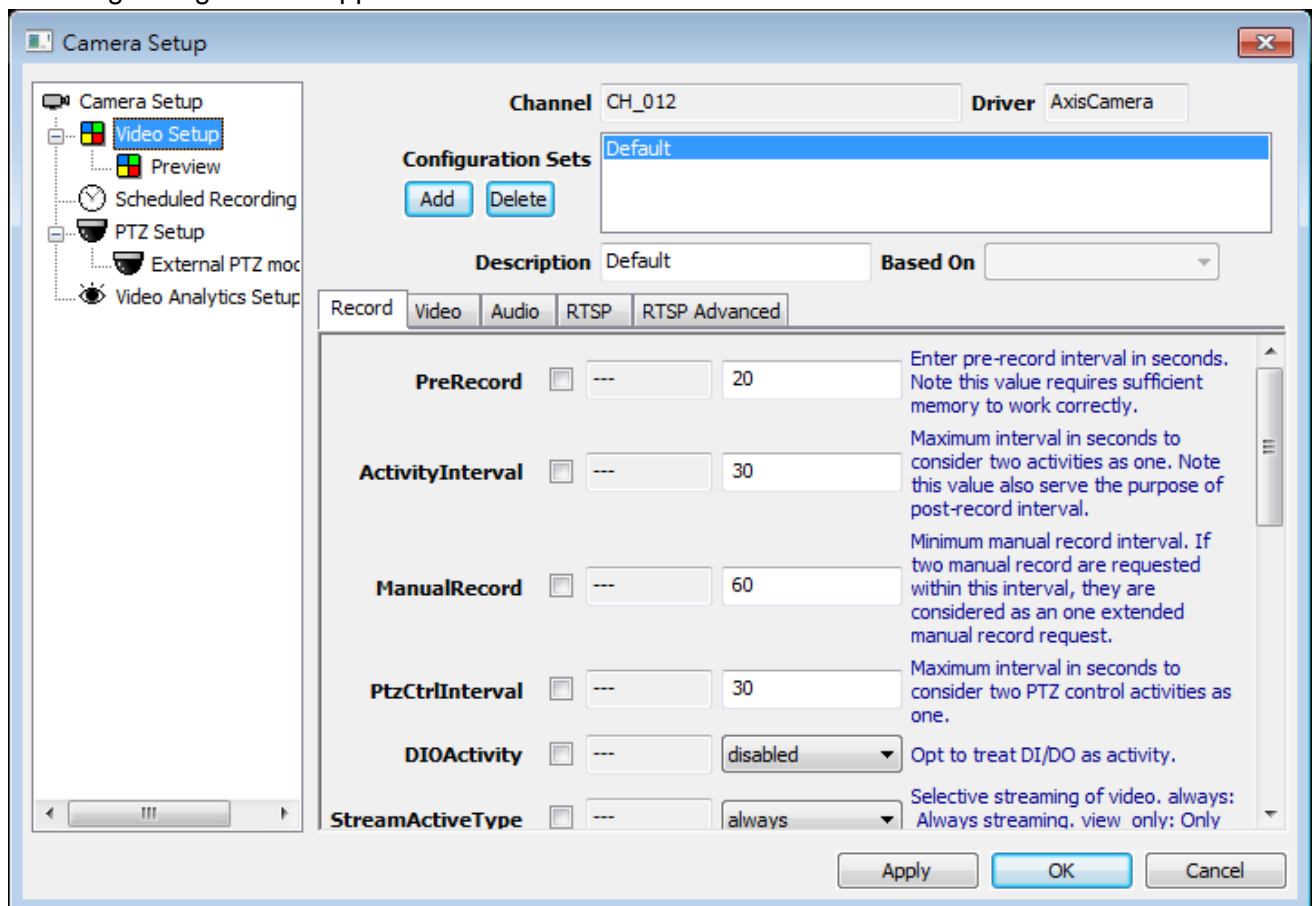
## Setting Video Parameters

### GUI overview

Right-click on the desired channel and select "Video setup".






Following dialog box will appear.



### Concepts of configuration set

Each channel can be associated with multiple set of configurations. A configuration set is composed of multiple parameters. A configuration set can also "inherit" from another configuration set.

Each parameter, except for its value, can also specify its effectiveness depending on the status of the checkbox:

Effectiveness	Description	Icon
Unspecified	The value is not specified in current configuration set. The effective value depend on the inherited configuration set.	
Clear	The value is "cleared" by current configuration set, meaning the parameter will not be in the effective parameter list.	
Set	The value is set by current configuration.	

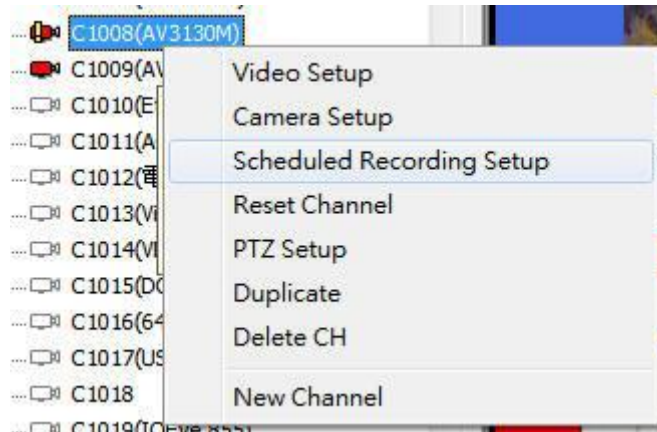
Carefully planning of configuration set can make your system extremely versatile to deal with various different situations. Especially note that the schedule config can associate to a specific configuration set.

The meaning of each parameter can differ from various vendors of IP cameras. You can refer to the description beside the parameter or look for vendor manuals for further information.



## Schedule configuration

### GUI overview

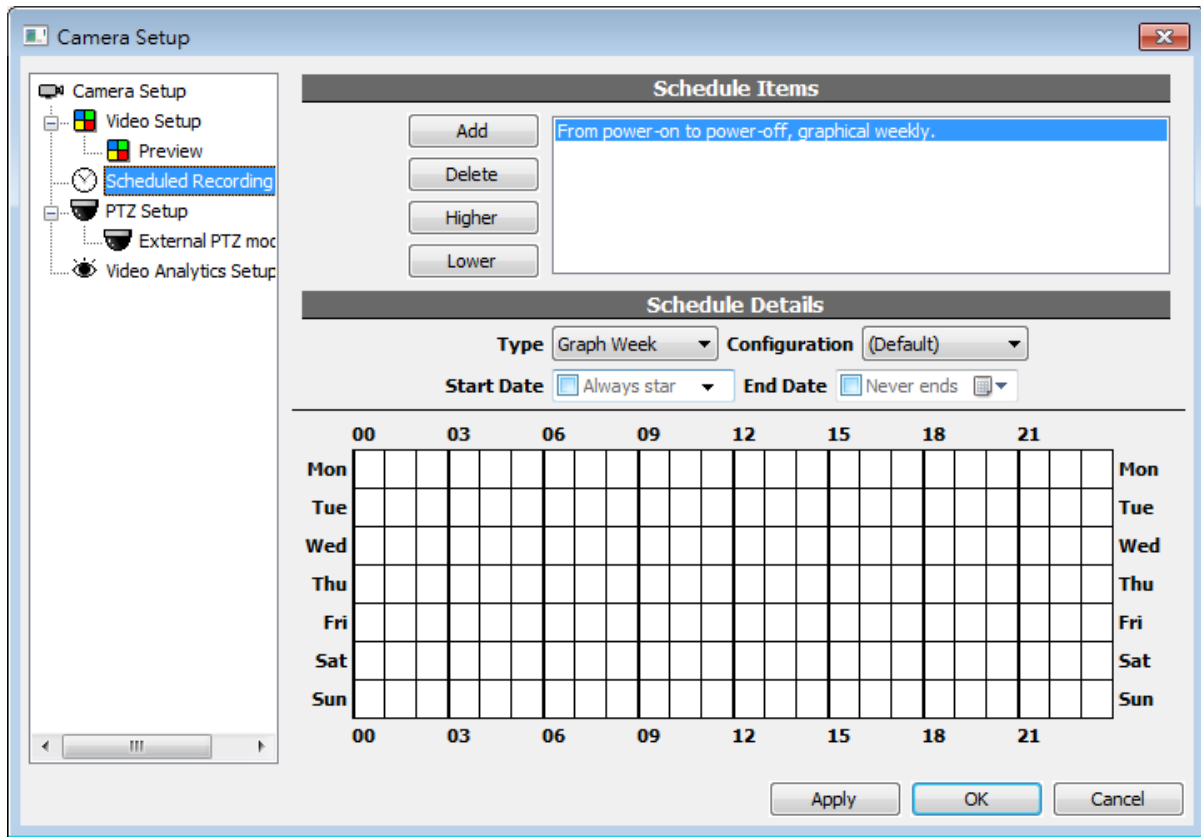


### Schedule Types

Scheduled configuration items has various types, including whole day, daily, weekly (detailed), weekly (graphic), disabled. You may add multiple items.

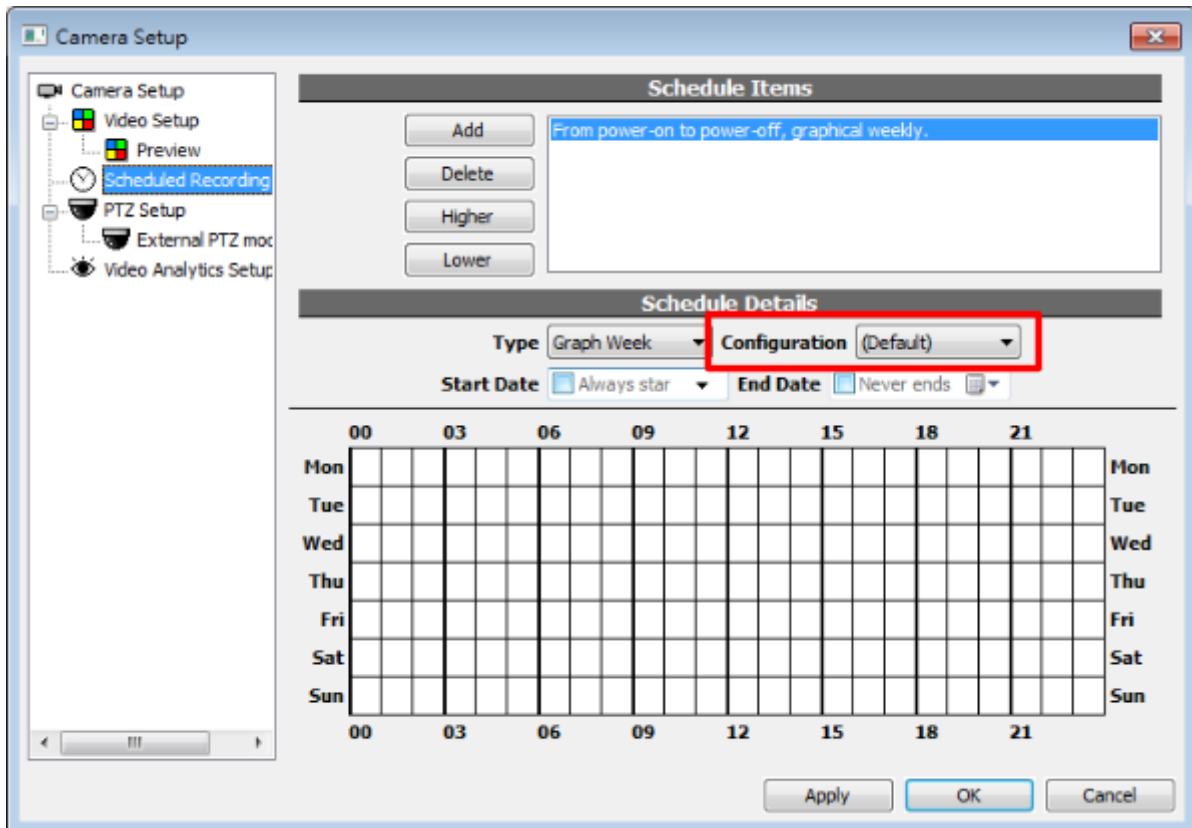
Type	Description
24x7	24 hours recording
Daily	Daily fixed interval . For example: daily 08:00:00 to 21:30:00.
Weekly (Detailed)	Resembles "Daily", but you may appoint to days within a week. For example: Every Monday, Wednesday, Friday 08:00:00 to 21:30:00
Weekly (Graphic)	Weekly schedule. Each slot is united an hour.
Interval	Fixed interval, each starts with offset every X seconds, lasts Y seconds.
Disabled	Disable current schedule item.

## Weekly (Graphic) Schedule Configuration



Horizontal axis is time, with hour as the unit. Vertical axis is day in a week. Click to change the schedule status. Blue means enabled, white means disabled. Click any cell and drag will copy the state of the clicked cells to others.

## Scheduled Video Configuration



You may specify a Video Parameter for each schedule configuration item. When that item is activated during appropriate time, the specified parameter will be used. If you choose (Default) for the value, schedule configuration will not affect video parameters.

When multiple schedule configuration item is in effect, the higher (in order) one will apply. To change the priority of the items, use **Higher** and **Lower** buttons.

## Permission control overview

### Concepts

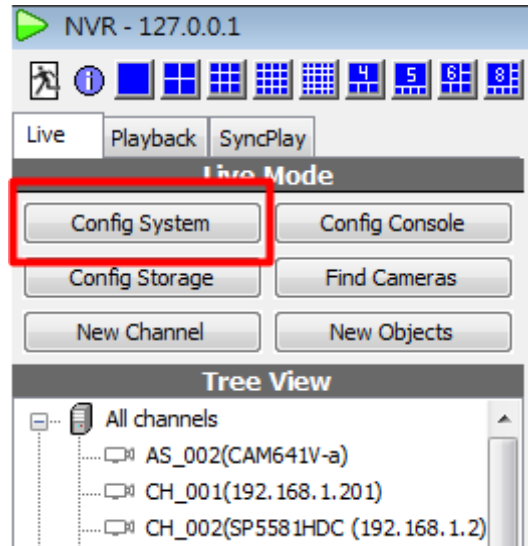
The permission control in "Genius Vision NVR" is group-based. The administrator configures permissions for groups, and then assign the user to one or more groups. Permissions are not assigned directly to the user, but rather associates to the user through groups.

### Permission Types

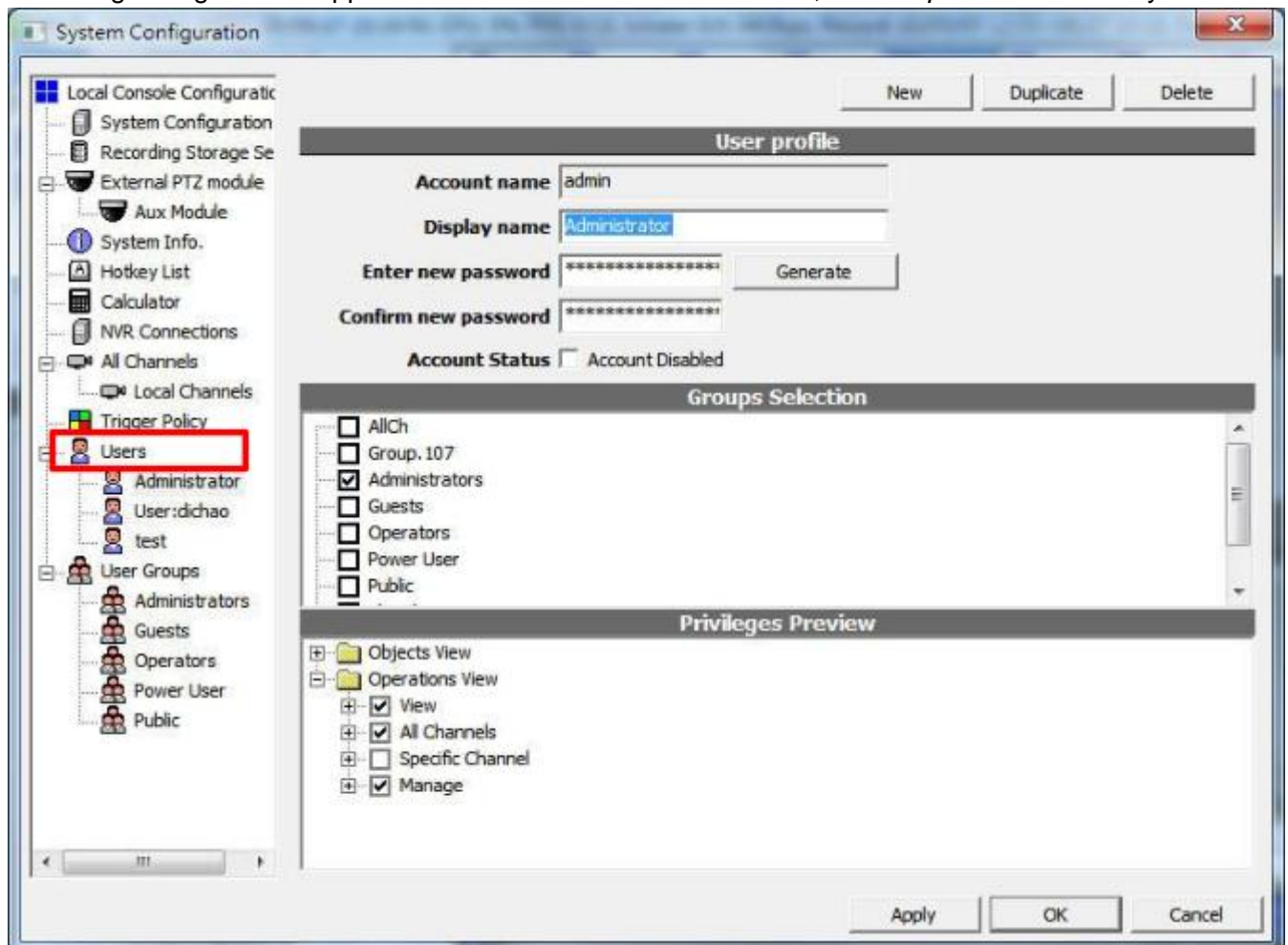
Type	Description
System admin	Allows to control system-level configuration, such as permissions or creating a channel.
System operation	Allows creating or deleting a channel, editing maps and files.
All channel permissions	Configures permissions to all channels.
Specific channel permissions	Configures permissions to specific channels.
Channel live video	Allows to view live video
Channel playback	Allows accessing archived (playback) video.
Channel operation	Allows to operate on PTZ, manual recording, or channel resetting.
Channel administration	Allows to change settings.

## Adding a user

### GUI overview

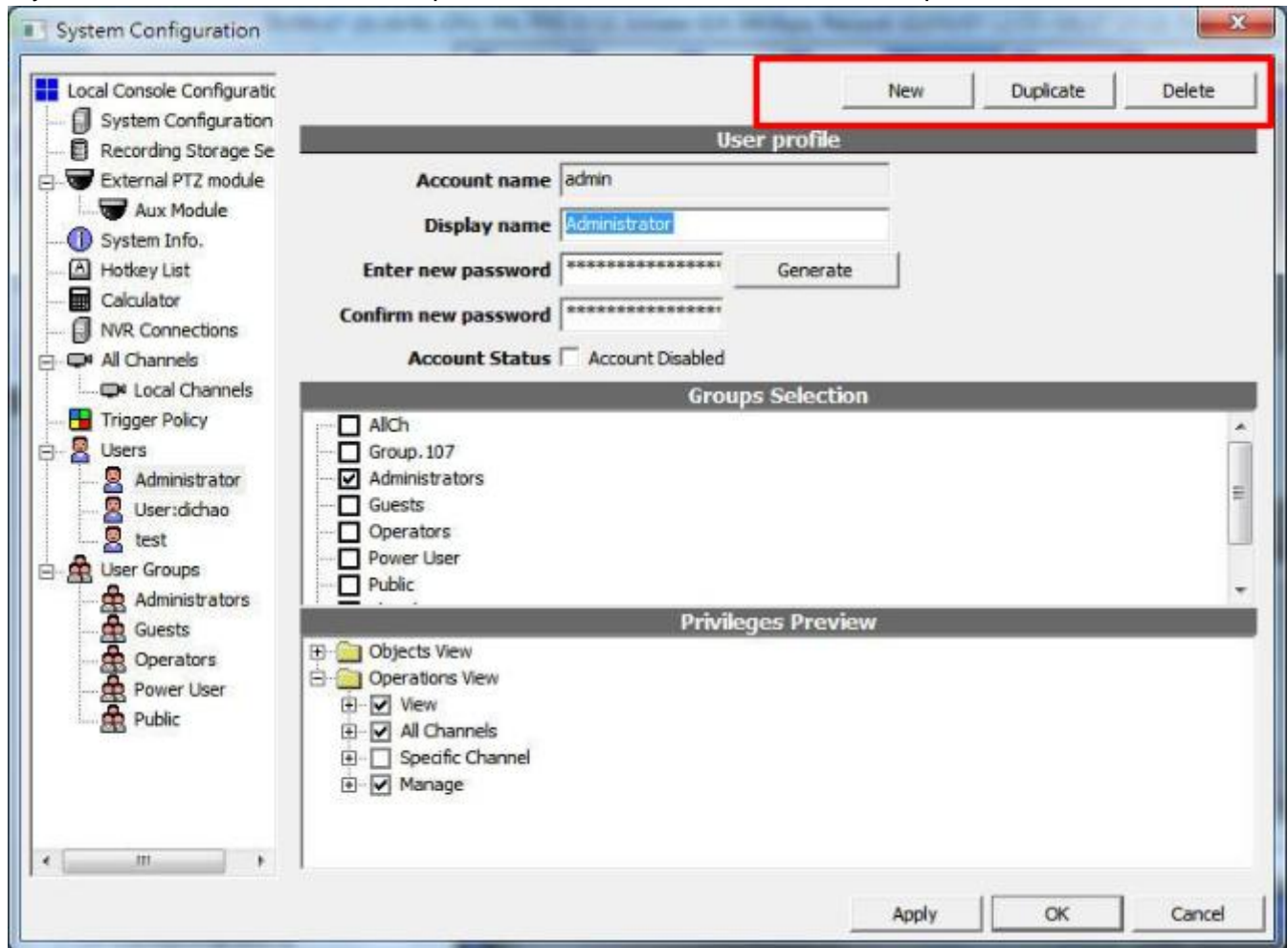


Following dialog box will appear. Please click on Users tree node, it will *expand* automatically.



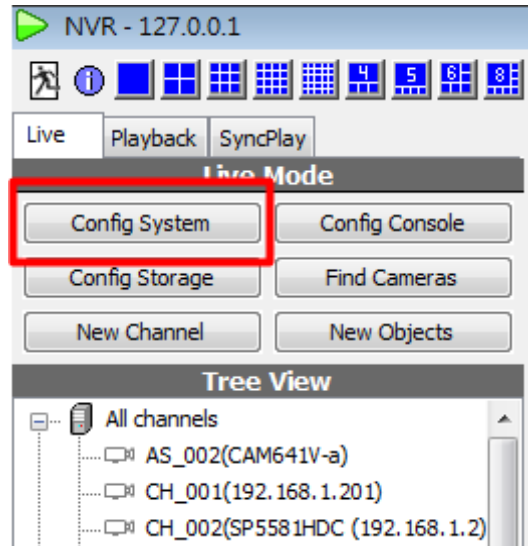


If you want to create, delete, or duplicate a user, use the buttons on the top area.

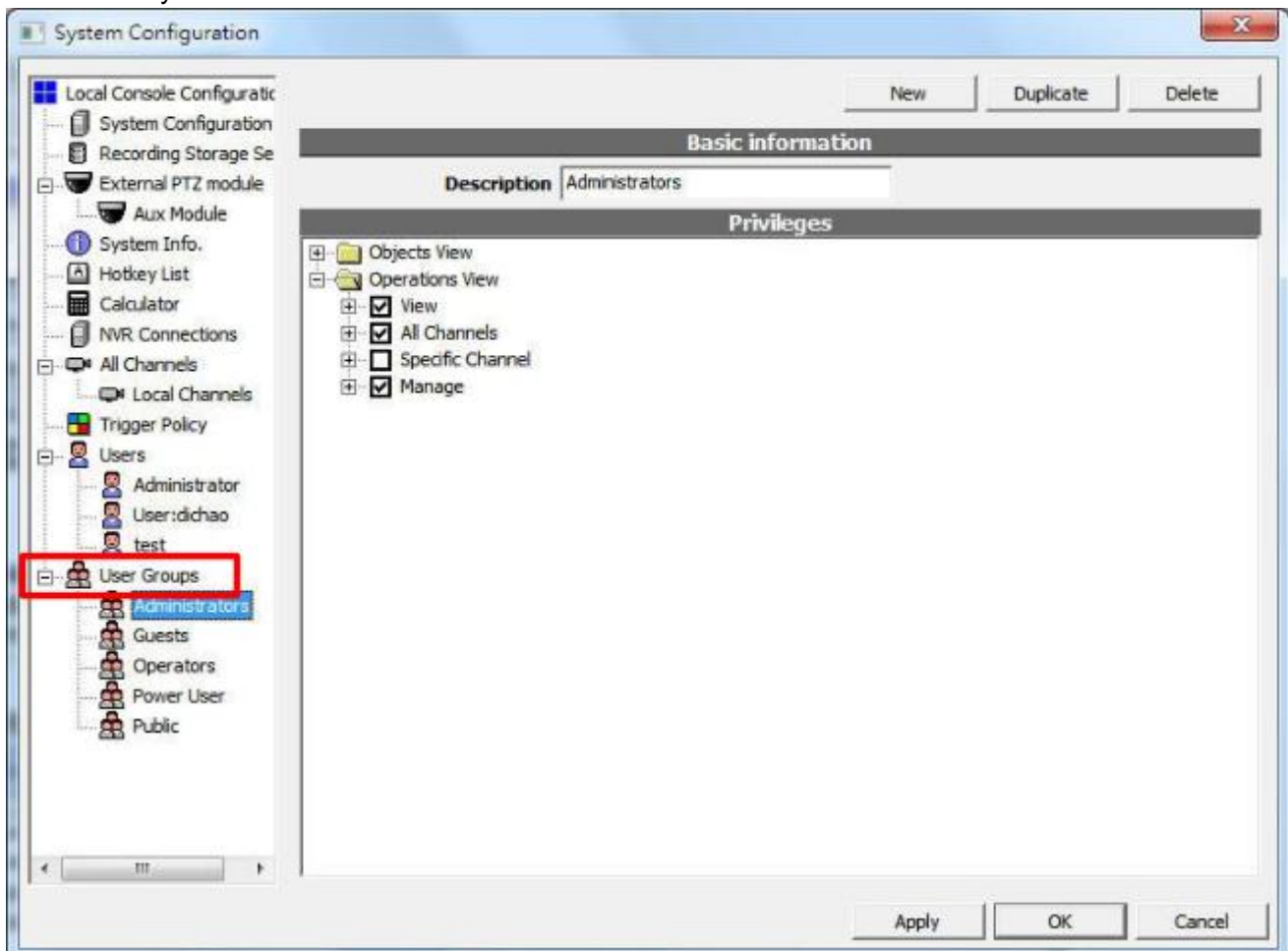


## Adding a group

### GUI overview



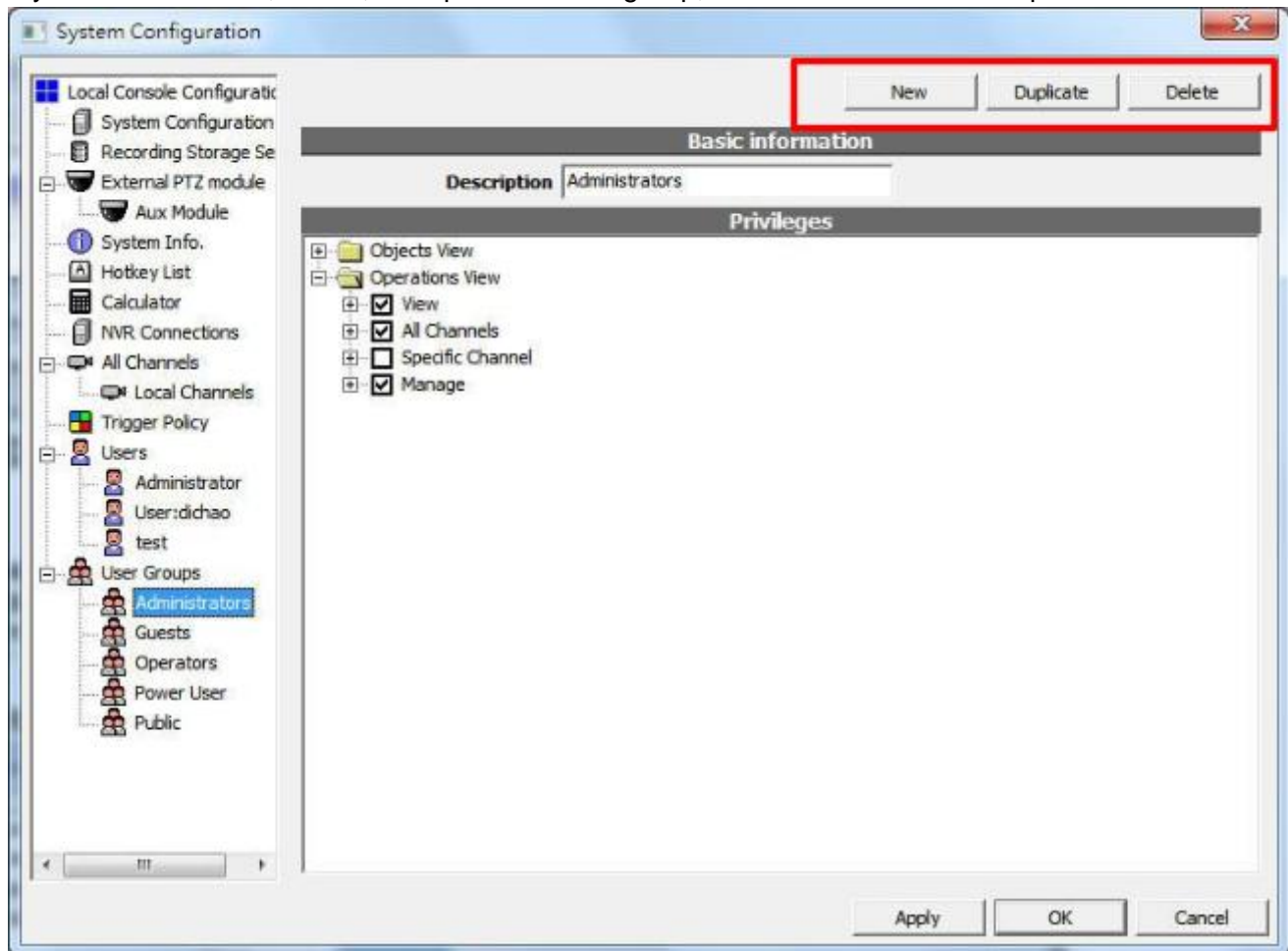
Following dialog box will appear. Click on the “User Groups” tree node and it will *expand* automatically.





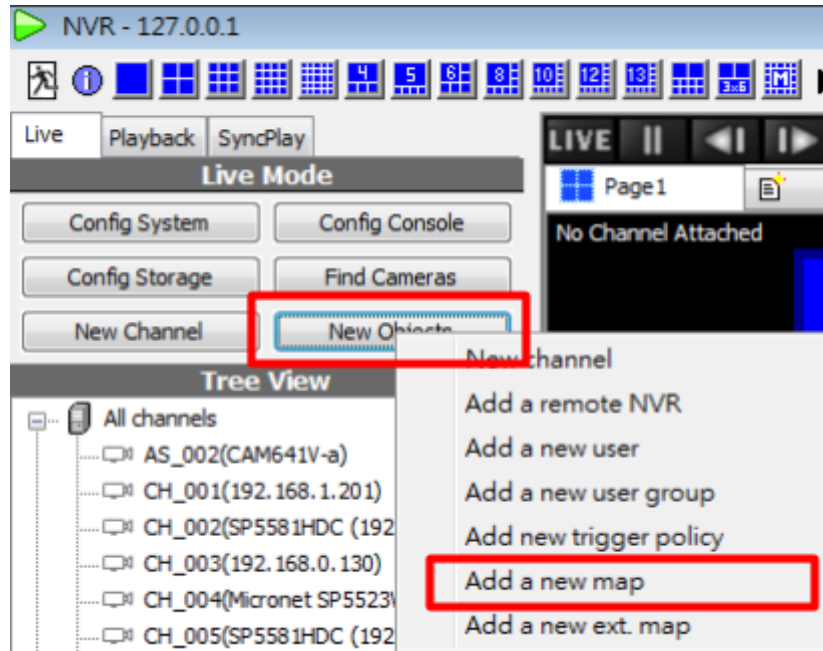
You can check the privilege you wish to grant to the group.

If you want to create, delete, or duplicate a user group, use the buttons on the top area.



## Creating Maps

### Create New Map



Select Add a new map in menu of New Obj. The map can be dragged into User tree and be operated as it is in system briefcase viewer. To view the map, drag it in a player. [Not all players support maps.](#)











See also

- [Console overview](#) ([User tree](#) · [System briefcase viewer](#) )

### GUI overview



## Toolbar Functions

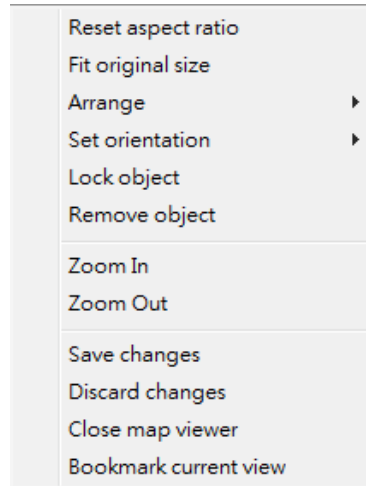
Icon	Description	Icon	Description
	Enter map viewing mode		Restore 1:1 view of map
	Enter map editing mode		Map properties
	Enter delete object mode		Map hyperlink
	Enter map panning mode		Save changed map
	Zoom-in map		Exit map editor

## Adding Items

Item Type	Add Item Instruction
Bitmap	Drag a JPEG/BMP file in the map. Or drag a previously uploaded file from system briefcase viewer.
Channel	Drag channels from system briefcase viewer or user tree.
Hyperlink	Assuming you want to add the link of map A in map B. 1. Open both map A and map B in players. 2. Adjust the view of map A with zoom in/out. 3. In the toolbar of map A, drag Map hyperlink icon to map B.
IO port	Drag IO ports from system briefcase viewer or user tree.

## Basic Operations of Objects

Right-click on any types of map objects, following context menu will appear. Not all operations are available for all objects.



### Reset aspect ratio

Reset the object to its original aspect. Only applies to Bitmaps.

### Fit original size

Reset the object to its original size. Only applies to Bitmaps.

### Arrange

Arrange the object's display order(Z order). "Back" objects covered by "front" objects are not visible.

### Set orientation

Set orientation of the object to 0/90/180/270 degrees.

### Lock object

Position/size/direction of a locked object cannot be changed. Its "property" dialog is still accessible if available for that object type.

### Properties

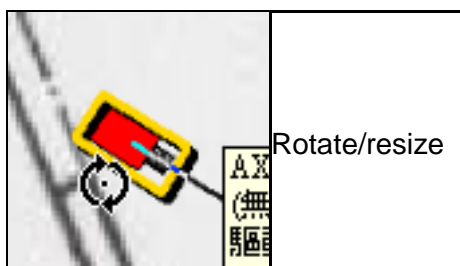
Invoke the property dialog to edit additional information such as description or stereotype(icon). Only applies to hyperlink and IO port.

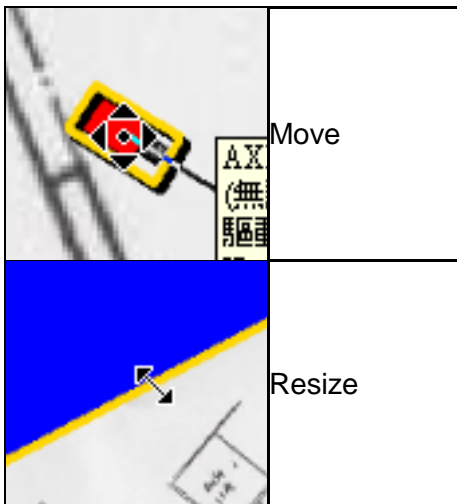
### Remove object

Delete the map object.

**Note:** that only the map object is deleted. The entity the object represents to will not be deleted.

### Mouse operations

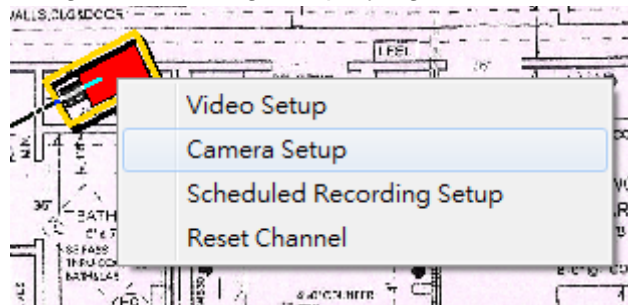




## Special operations

### Channel operation

You can perform channel configuration through map by right-click on channel icon.

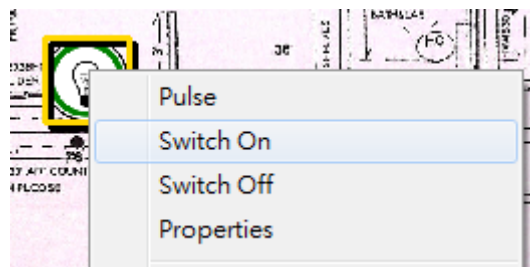


See also

- [Setting video parameters](#)
- [Schedule configuration](#)

### IO port

You can perform I/O port operation (switch on/off, pulse, etc) through map by right-click on I/O port icon.

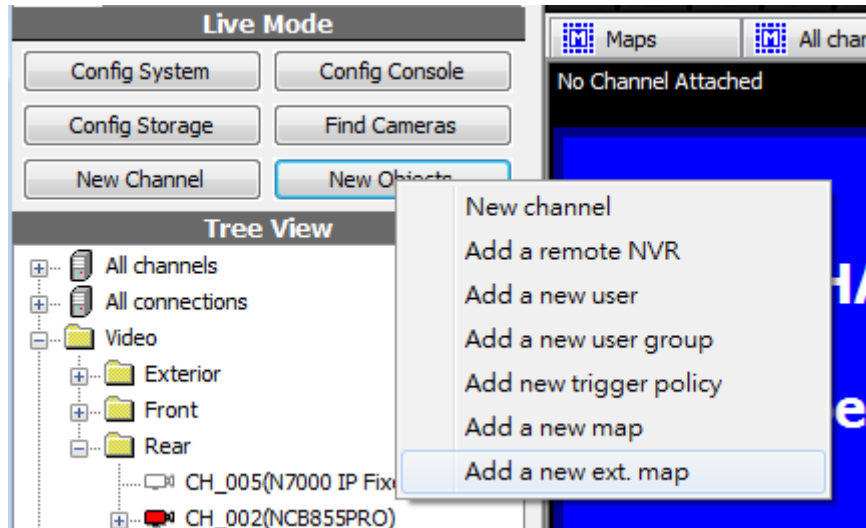


See also

- [IO Port](#)

## External Maps

### Create New Map









Select Add a new ext. map... in New Obj menu. The map can be dragged into User tree and be operated as it is in system briefcase viewer. To view the map, drag it in a player. [Not all players support external maps.](#)

See also

- [Console overview](#) ([User tree](#) 、 [System briefcase viewer](#) )



## Toolbar Functions

Icon	Description
	Enter map viewing mode
	Enter map editing mode
	Added a bookmark of current map and current view in system briefcase.
	Save changed map
	Reloading the map from map server. Any unsaved changes will be discarded.
	Exit map editor

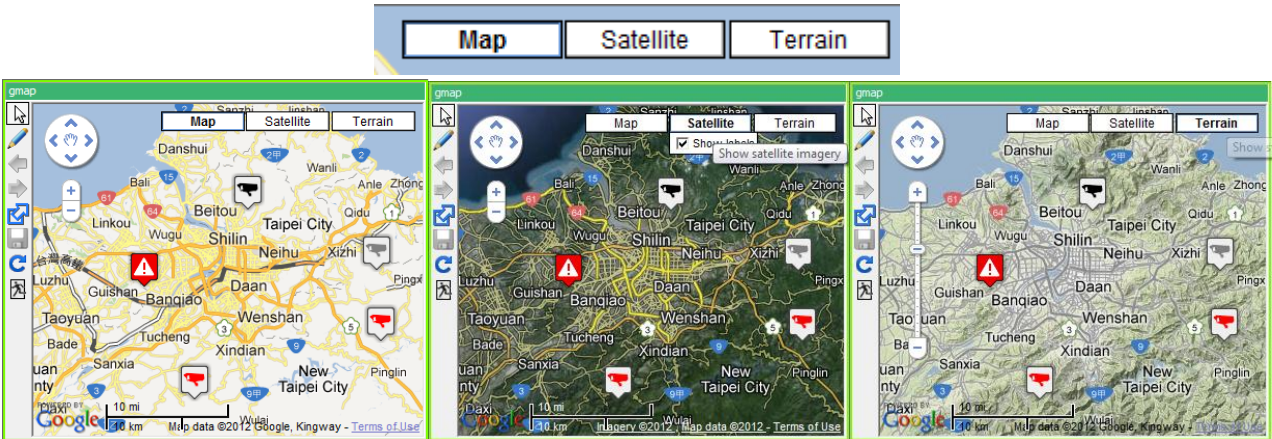
## Basic Operations - Zoom In

Use mouse wheel or click the scale bar on map.





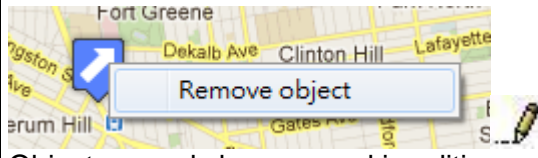
### Change Map Type



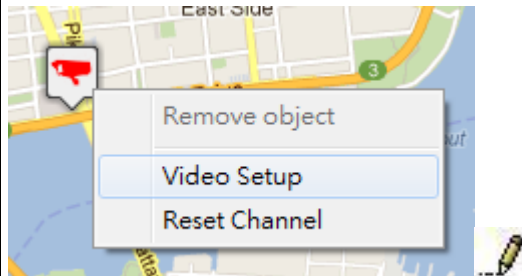
### Adding Items

Item Type	Instructions
Channel	Drag channels from system briefcase viewer or user tree.
Hyperlink	Drag a map hyperlink from briefcase viewer or from internal map viewer.
IO port	Currently unsupported.

### Basic Operations of Objects

Remove object	 Object can only be removed in editing mode.
---------------	---

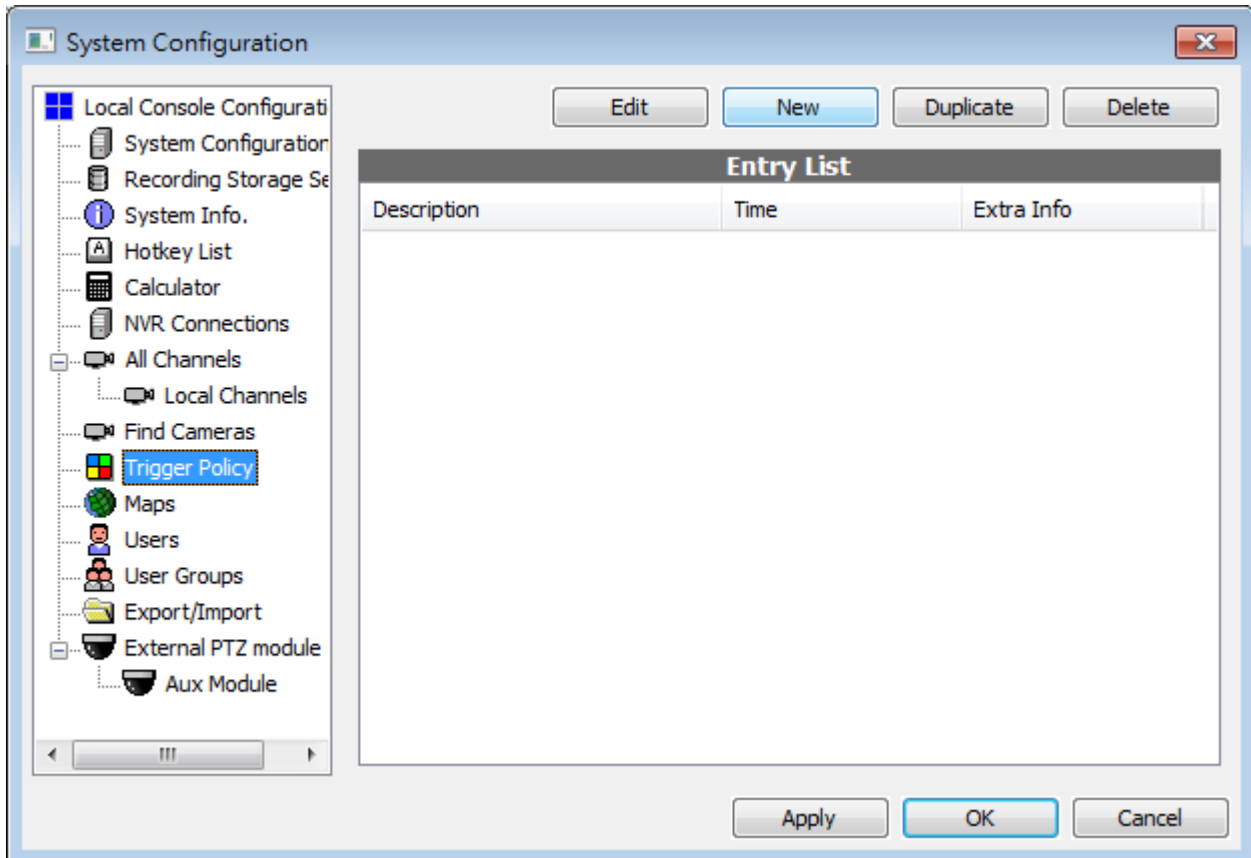
### Special operations

Channel operation	 See also • <a href="#">Setting video parameters</a>
-------------------	--



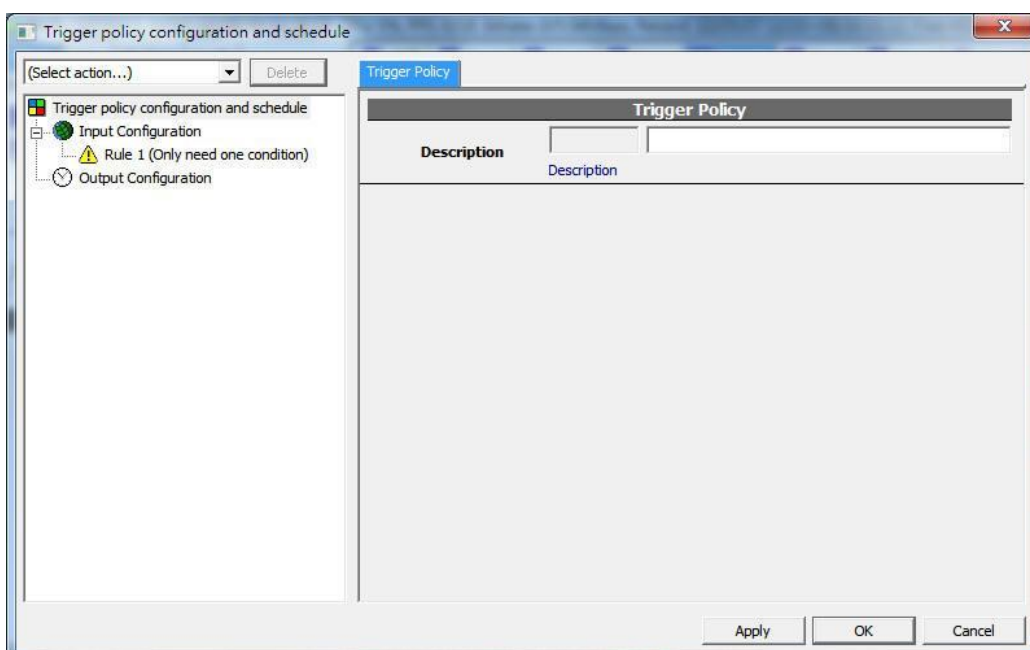
# Trigger Policy

## Adding New Trigger Policy



In **System Configuration** dialog, click **Trigger Policy** tab.

Click **New** to add a trigger policy. There can be multiple entries of trigger policy.



## Input Configuration

Item type	Description
Channel trigger	Triggered by channel events such as video loss, alarm, IO port... etc.
System trigger	System events such as system start, system config change... etc.
Schedule trigger	Triggered at specified time.

## Output Configuration

Item type	Description
Channel control	Recording, IO control, PTZ control
Email	Send Emails
FTP	Upload file to FTP server

## Channel trigger

Value	Description
on	IO on
off	IO off
vloss	video loss
vreturn	video recovered
disabled	disabled
enabled	enabled
record	is/start recording
nrecord	not/stop recording
alarm	alarm triggered
alarm_progress	alarm in progress
alarm_tamper	Tamper detected (IVS)
alarm_foreign	Foreign object is detected (IVS)
alarm_missing	Missing object is detected (IVS)
alarm_tripwire	Tripwire is crossed (IVS)
nalarm	alarm dismissed

## Schedule trigger

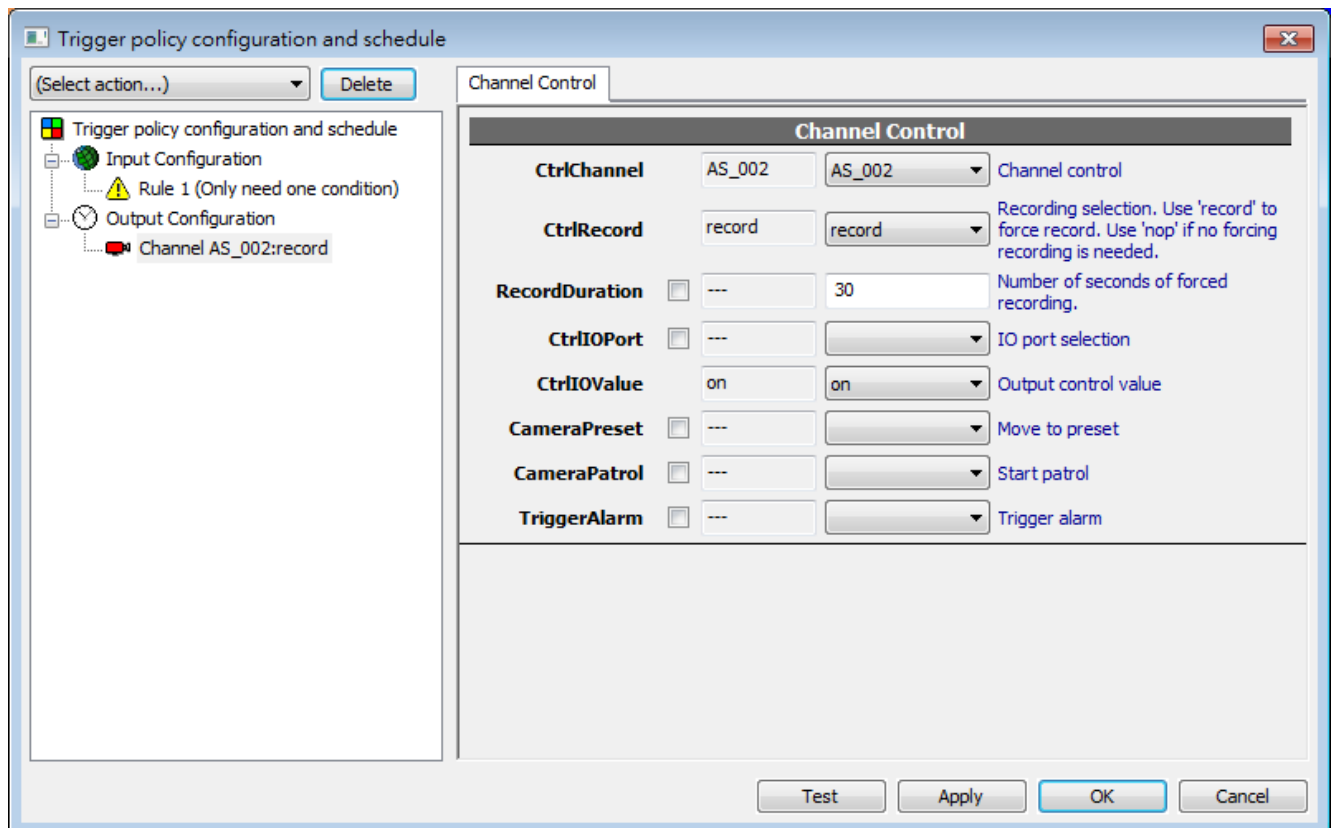
See also

- [Schedule configuration](#)

## System trigger

Value	Description
any_vloss	any video loss
system_start	system start
error_restart	system start after error shut down
system_config_change	system config changed
channel_config_change	any channel config changed

## Channel control



Field	Description
CtrlChannel	The channel to control
CtrlRecord	Recording selection. Use 'record' to force record. Use 'nop' if no forcing recording is needed.
RecordDuration	Number of seconds of forced recording.
CtrlIOPort	IO port selection
CtrlIOValue	Output control value
CameraPreset	Move to PTZ preset
CameraPatrol	Engage PTZ patrol
TriggerAlarm	Trigger specific type of alarm

## Email

**Trigger policy configuration and schedule**

(Select action...) Delete Email Snapshot Settings

**SMTP Server Settings**

**SMTP.Server** mail.domainn mail.domainname.net SMTP Server

**SMTP.Port** ☒ 25 25 SMTP Port

**SMTP.User** ☒ user@domair user@domainname.net SMTP User name

**SMTP.Passwd** ☒ password password SMTP Password

**Email Settings**

**Email.FROM** user@domair user@domainname.net Email FROM field

**Email.FROM.Display** ☒ Email From Email From Email FROM display

**Email.SUBJECT** Subject Subject Email SUBJECT field

**Email.MEMO**

Email content to give receiver a comment.

**Email.RCPT** recipient@m: recipient@mail.com

Email receipts. Use comma to seperate multiple receipts

**Email.Format** snapshot snapshot Format of Email.

Test Apply OK Cancel

## Required parameters

Field	Description
SMTP.Server	IP or domain name of SMTP server
SMTP.Port	Port, usually 25
SMTP.User	User name to log in
SMTP.Passwd	Password to log in
Email.RCPT	Recipients. At least one is required. Separate multiple recipients with ,

## Snapshot (Email)



SecurityGuy

to me ▾

Server Time: 12/09/25 16:18:19

Trigger Condition: Rule 1 (Only need one condition)

12/09/25 16:18:19	Trigger policy " changed by 'admin'.
12/09/25 16:18:17	Trigger policy " changed by 'admin'.
12/09/25 16:18:10	Trigger policy 'Trigger Policy' executed successfully.
12/09/25 16:18:04	Trigger policy " changed by 'admin'.
12/09/25 16:18:03	Trigger policy " changed by 'admin'.
12/09/25 16:17:37	Trigger policy " changed by 'admin'.
12/09/25 16:17:21	Trigger policy " changed by 'admin'.
12/09/25 16:17:21	Trigger policy " changed by 'admin'.
12/09/25 16:16:52	Trigger policy " changed by 'admin'.
12/09/25 16:14:43	CH_002 lost visual.



If "Email.Format" is set to "snapshot" and one or more channel control exist in this policy, a snapshot of the channels is attached to the email. Multiple channels will be composed as a single snapshot automatically. The dimension and quality of the snapshot can be configured in Snapshot Settings tab.

## FTP

Trigger policy configuration and schedule

(Select action...) Delete

FTP Snapshot Settings

**FTP**

FTP.Server  SMTP Server

FTP.Port ☐ --- 21 FTP Port

FTP.User ☐ FTP User name

FTP.Passwd ☐ FTP Password

FTP.Directory ☐ FTP Upload directory

FTP.Format snapshot snapshot Format of FTP content.

Test Apply OK Cancel

### Required parameters

Field	Description
FTP.Server	IP or domain name of FTP server
FTP.Port	Port, usually 21
FTP.User	User name to log in
FTP.Passwd	Password to log in

### Snapshot (FTP)

Snapshot is composed as it is in [email](#).

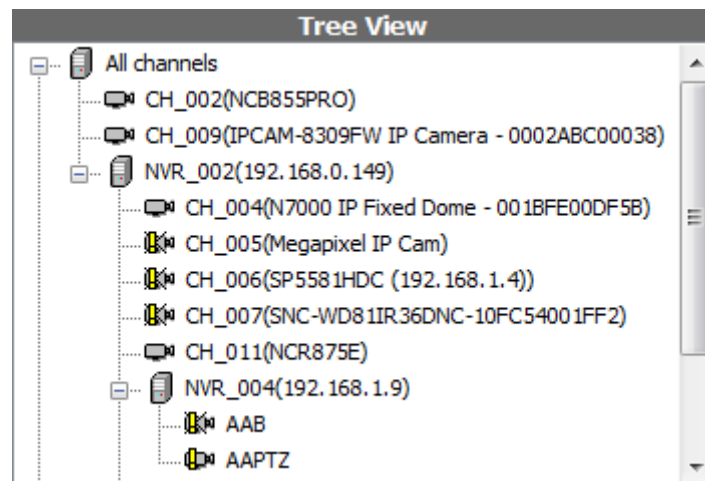
### Trigger policy logics

Multiple trigger conditions can exist in a single trigger rule. Action is done only when all or some of the conditions are met, depends on AND or OR logic being applied. Logic OR is always applied to the first rule. Logic AND is applied to any added new rule.

## Central Management Station (CMS) Introduction

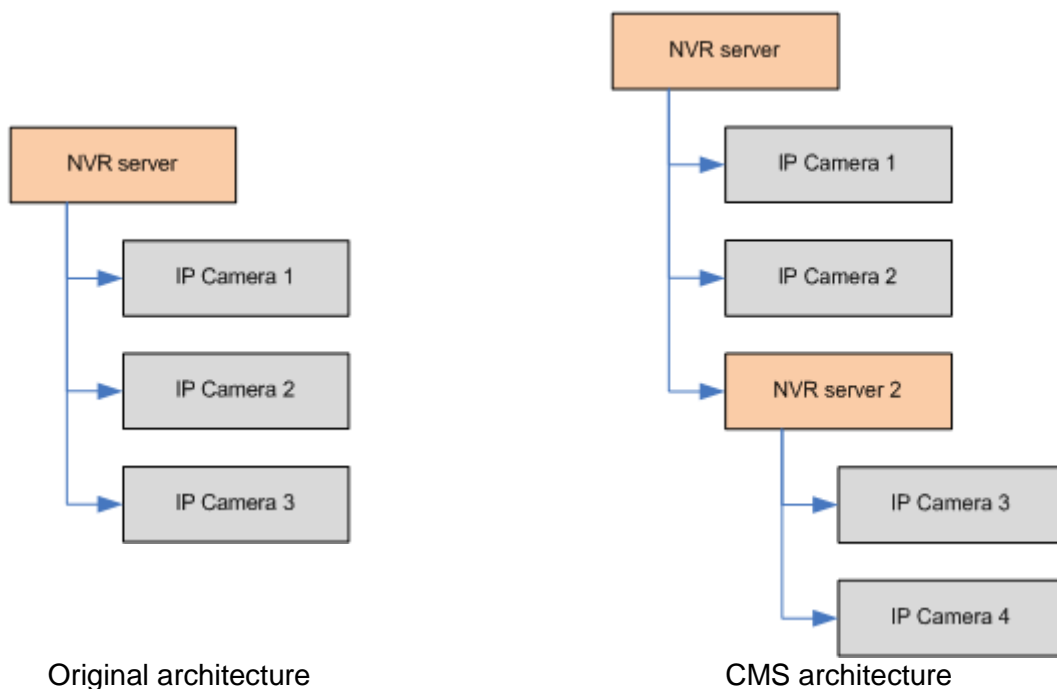
### Overview

In the past, Genius Vision NVR client (console) can connect to only one remote server. All operation are restricted to single remote server. With the new CMS architecture, users are allowed to connect to multiple NVR servers simultaneously. Users are also allowed to perform live, playback, map, configuration across multiple servers at the same time.

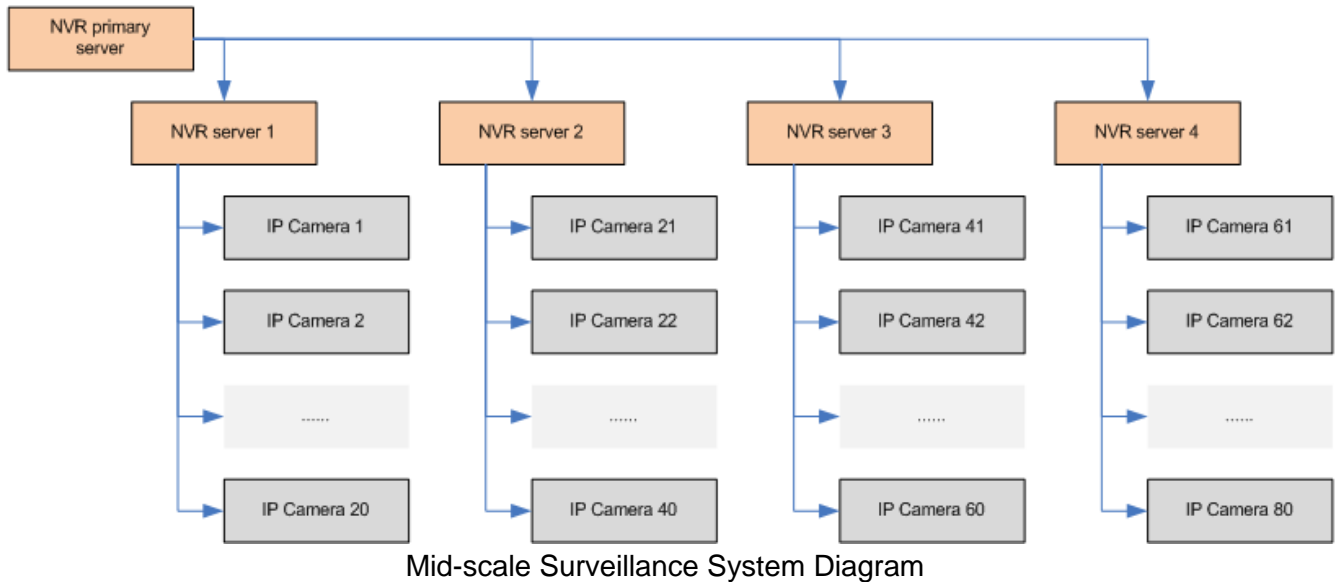


Example of CMS tree view

To understand how it works, just think of a NVR connection as a IP camera channel, with the difference that a NVR connection expands to one or more IP cameras. Illustrated in the following diagram:



With the new CMS architecture and careful project designing & planning, a fairly scalable system can be constructed, as illustrated below:

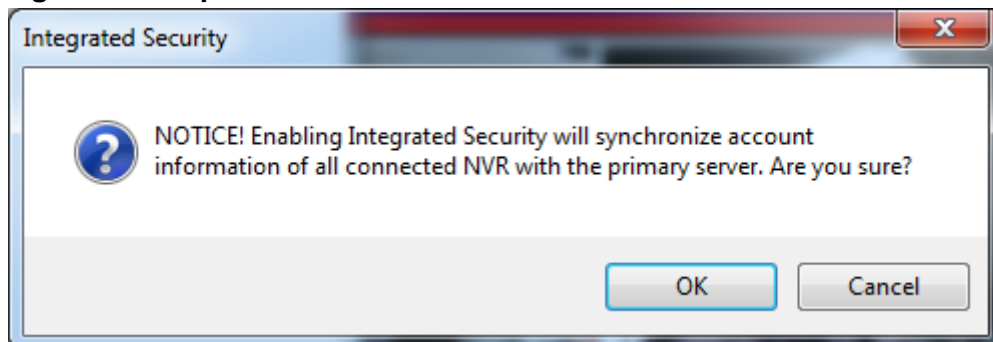


### Primary NVR server

For the CMS architecture to work, there need to exist a primary NVR server, which holds the information of other NVR servers (like the diagram above). This server will be the server to connect when client is connected from a remote site.

This primary NVR server is sometimes referred to as the "CMS server".

### Synchronizing User/Group Information



For middle to large scale system, managing user accounts and their passwords could also be a challenging task. Therefore our CMS architecture offers "integrated security", meaning that the administrator could opt to synchronize all account information to the primary server. This spares administrator the effort to manage different user names of different servers.

### How-tos

Here's a of list quick questions that might help you to find the information you need:

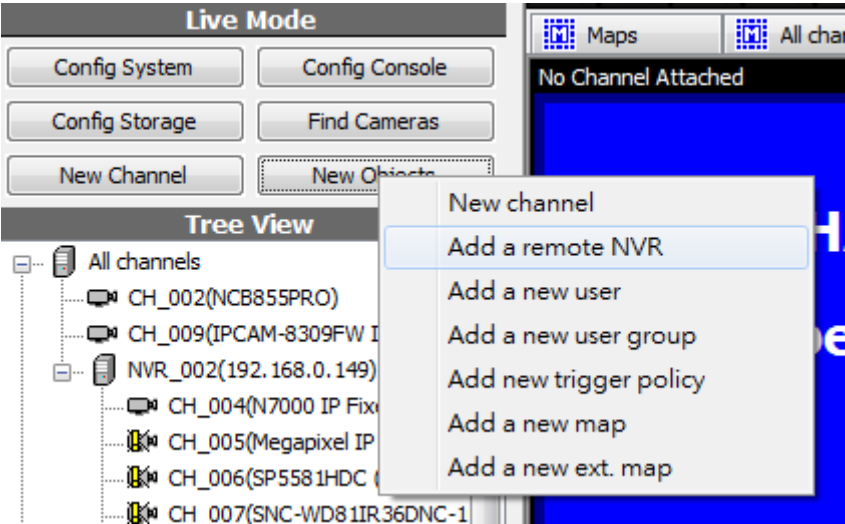
- [How to add a NVR connection?](#)
- [How to view live and playback video in CMS system?](#)
- [How to use map on the CMS system?](#)
- [How to use integrated security, that synchronizes account information on all servers?](#)
- [Do I need additional license to use CMS?](#)
- [Can I connect to CMS server from a remote location?](#)
- [Do I need a special client or server program to enable use CMS??](#)
- [Can I connect to NVR of other types or vendors?](#)
- [How to configure user accounts in CMS?](#)
- [Can I connect to two NVRs that contains channels with the same name?](#)
- [Can I connect to yet another CMS \(nestable CMS configuration\)?](#)



- [Does the network traffic of the child NVR go through the primary NVR server?](#)
- [How to configure child NVR channels?\\*](#)
- [What are the credentials used for a client to login to child NVR servers?](#)
- [How should I configure my child NVRs if I want to connect from public Internet?\\*](#)
- [What are the benefits of having a primary NVR server?](#)
- [Mob](#)

### How to add a NVR connection?

Click "New Object" and select "Add a remote NVR".



Following dialog will appear. Each field is described as following paragraph.

The screenshot shows the 'NVR Configuration' dialog box. The 'NVR Connectivity' tab is active. It contains the following fields and options:

- Channel name**: A text input field.
- Driver**: A dropdown menu set to 'NVR'.
- Description**: A text input field.
- Domain name**: A text input field.
- Enter camera IP address**: A text input field with '0 . 0 . 0 . 0'.
- Port**: A text input field with '3557'.
- Channel**: A text input field with '1'.
- Enter login information**: A text input field.
- Password**: A text input field.
- Others**: A section with checkboxes for 'Disabled', 'Integrated Security', and 'Use primary credential'.

At the bottom, there are 'Apply', 'OK', and 'Cancel' buttons.

Field	Description
Channel name	The channel name of the NVR connection. Please note this name shares the

	same name-space of IP camera channel names. It has to be unique from all existing channel names.
Description	Description of this connection.
Domain name	Optionally supply the domain name of the host address.
IP address	IP address of the host address.
Port	TCP port of the server. Default is 3557 if not otherwise changed.
Login information	Login credentials to the NVR server.
Disabled checkbox	Check to disable the connection.
Integrated security checkbox	Check to enable integrated security, which will synchronize all account information to the primary server.
Use primary credential checkbox	Check this to use the same client-supplied password to connect to this NVR connection, rather than the connection-supplied password. Checking this box is generally considered more secure than non-checking. (See <a href="#">What are the credentials used for a client to login to child NVR servers?</a> )

See also

- [Can I connect to two NVRs that contains channels with the same name?](#)
- [What are the credentials used for a client to login to child NVR servers?](#)

## How to view live and playback video in CMS system?

Viewing live and playback video on CMS is no different than using it on NVR. Please refer to following links for more details.

- [Viewing live video](#)
- [Viewing playback video](#)

## How to use map on the CMS system?

Using map on CMS is no different than using map on NVR. Please refer to [Creating maps](#) for more details.

## How to use integrated security, that synchronizes account information on all servers?

In the NVR connectivity configuration dialog, you must check the "Integrated Security" checkbox. Enabling this checkbox will cause all account information be synchronized.

The screenshot shows the 'NVR Configuration' window with the 'NVR Connectivity' tab selected. The 'NVR Connectivity' section contains the following fields and options:

- Channel name:** A text input field.
- Driver:** A dropdown menu set to 'NVR'.
- Description:** A text input field.
- Domain name:** A text input field.
- Enter camera IP address:** A field with four segments, each containing '0'.
- Port:** A field containing '3557'.
- Channel:** A field containing '1'.
- Enter login information:** A text input field.
- Password:** A text input field.
- Others:** A section containing three checkboxes:
  - ☐ Disabled
  - ☐ Integrated Security (highlighted with a red box)
  - ☐ Use primary credential

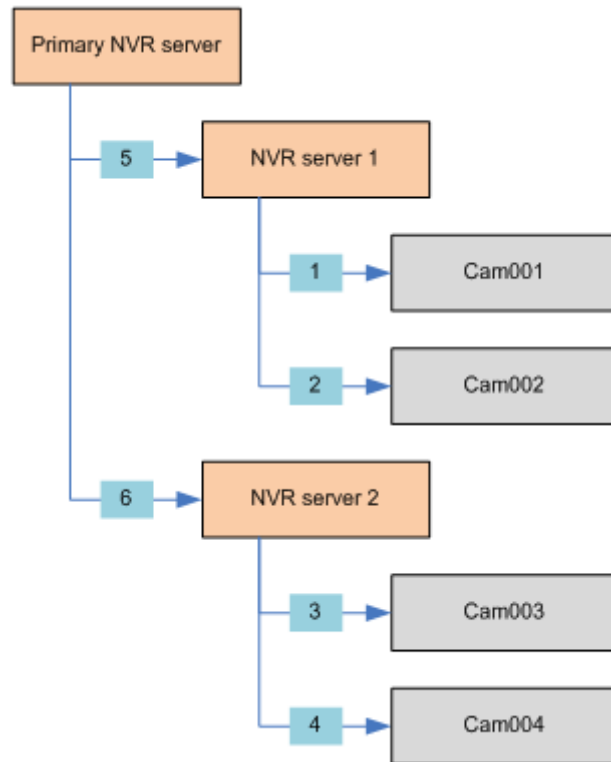
At the bottom right of the window are three buttons: 'Apply', 'OK', and 'Cancel'.

## Do I need additional license to use CMS?

Yes.

Each NVR connection is similar to one IP camera connection. Therefore for each NVR connection you need additional one channel license. Only professional edition and intelligent edition qualifies the use of CMS.

Let's use an example scenario in the following diagram. A primary NVR server connects to 2 child NVR servers, which individually has two IP cameras connected. The small blue box highlights the license requirements. This example requires 6-channel license installed in a way that Primary NVR server has two channels, NVR server 1 has two channels, and NVR server 2 also has two channels.



## Can I connect to CMS server from a remote location?

Yes.

Genius Vision CMS server is no different than the NVR server. Genius Vision CMS client is also the same as the NVR client. All operations, including maps, alarm processing, live & playback, permission control, can all be performed from a remote location.

This offer great flexibility when planning a complex project. For more information, please refer to [What are the benefits of having a primary NVR server?](#).

## Do I need a special client or server program to enable use CMS??

No.

CMS feature is tightly integrated into original NVR client/server architecture. No special software is required to enable this feature.

You do, however, need to use a sufficiently new version of software that comes with the CMS feature, both for client and server.

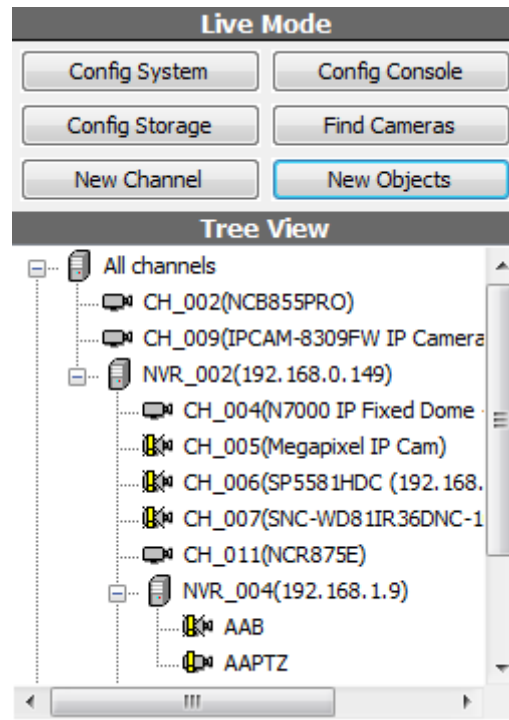
## Can I connect to NVR of other types or vendors?

No.

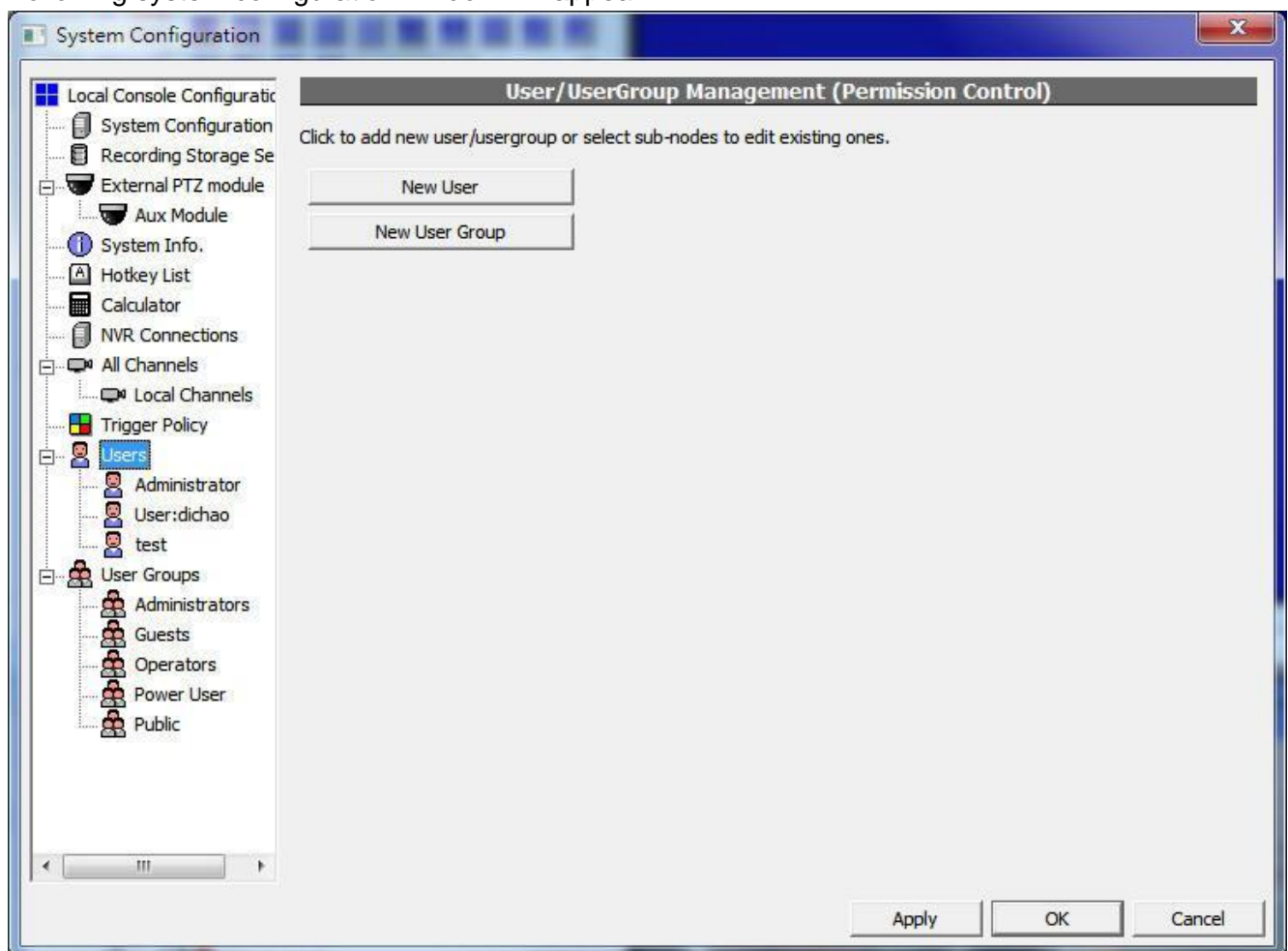
Only Genius Vision NVR Professional Edition or above is and will be supported in CMS architecture.

## How to configure user accounts in CMS?

In the main console left panel, click "Config System", like the following picture:



Following system configuration window will appear.



Click on the "Users" node as highlighted in the picture above. All users and groups will expand immediately.

You may then click on the specific user or group to modify their information. Or you can click "New User" or "New User Group" to create new users or new groups. For more detailed information about

permission control, please follow links below:

- [Permission control overview](#)

## Can I connect to two NVRs that contains channels with the same name?

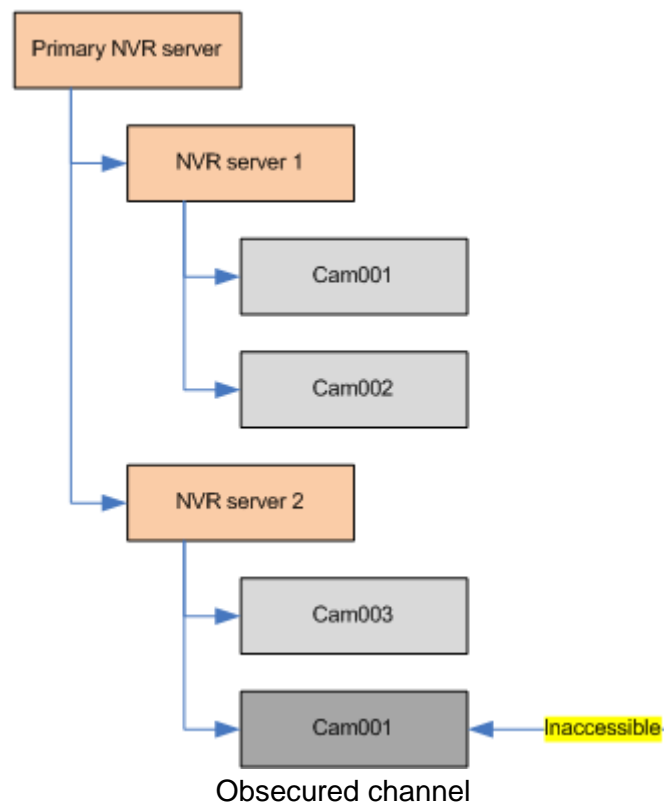
Yes but not recommended.

As the channel name must be unique throughout the domain (the entire domain that is reachable from the primary NVR server), connecting two NVRs with some channels having the same name causes name conflicts.

Our system has a way to automatically resolve name conflicts, in order to make the system to continue functioning properly. However, such conflicts will render only one of the channels with the same name usable. Thus all accessible channels keeps their names unique throughout the domain. (This is how we call that one channel is obscured by another, rendering it inaccessible, due to duplicated names).

Though the system is equipped with automatic resolution of name conflicts, configuring your system with duplicated channel names is highly unrecommended. Such configuration could easily causes user misunderstanding.

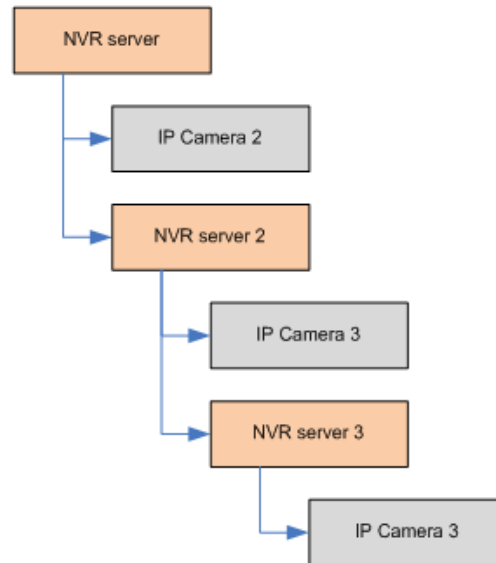
This can be illustrated in the following diagram. In this example there are two cameras both named "Cam001". As a result of name conflict, the CMS will only be able to access one of them, the "Cam001" inside "NVR server 1". The "Cam001" inside "NVR server 2" will not be accessible (hidden) from user. (Unless the first Cam001 is removed from "NVR server 1", or the "NVR server 1" is removed from the CMS)



## Can I connect to yet another CMS (nestable CMS configuration)?

Yes but not recommended.

Our CMS architecture fully support nested configuration. (as illustrated below)



Nested CMS configuration

However such configuration is not recommended. As it would easily cause user misunderstanding.

From previous Q&A, we know that each channel name must be unique throughout the domain. Configuring nested CMS structure could potentially extend the domain without the inner domain knowing.

### **Does the network traffic of the child NVR go through the primary NVR server?**

No.

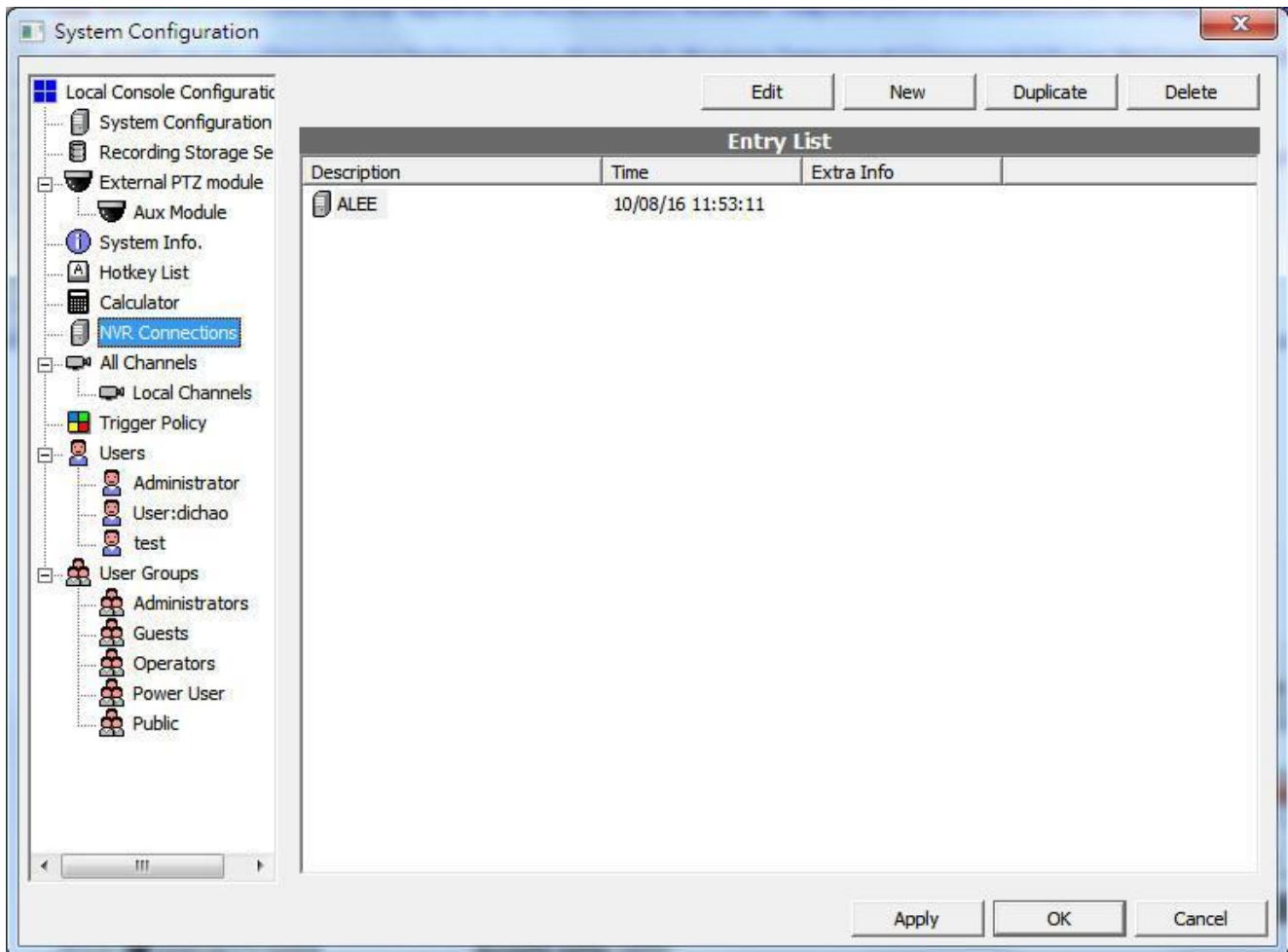
Network traffic, such as live or playback video, goes directly from child NVR into the client. They do not consume any primary NVR server bandwidth.

From this point of understanding, the child NVR must be in a network domain that is directly accessible by the client console, otherwise video could not be viewed.

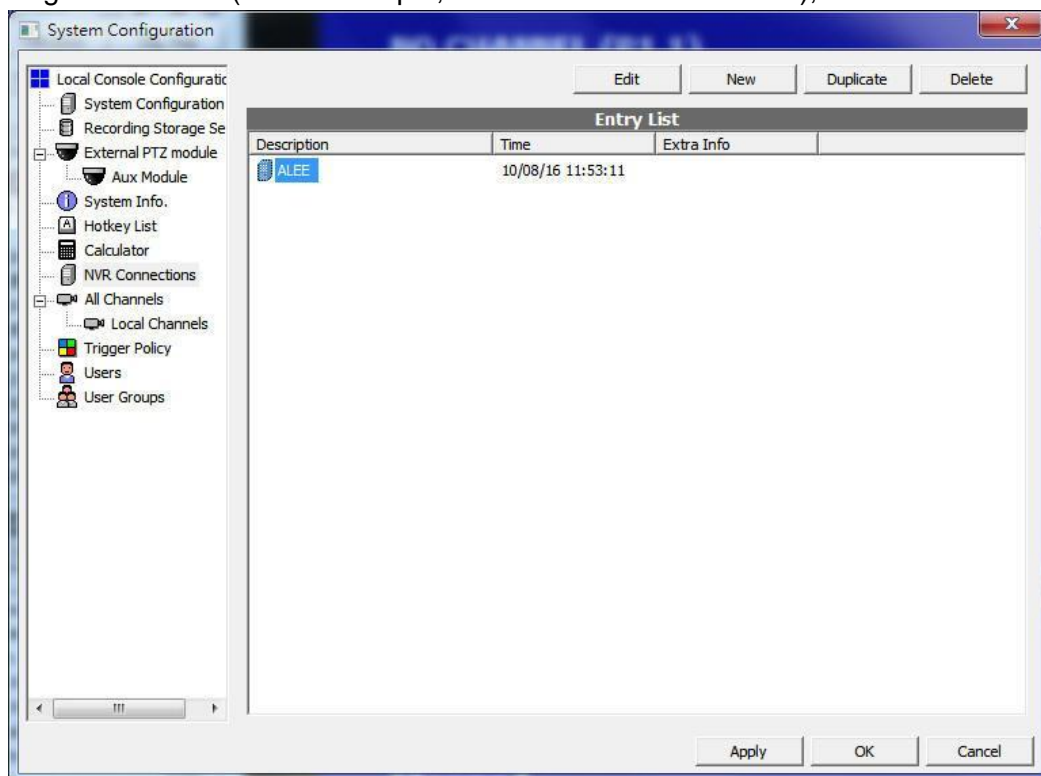
### **How to configure child NVR channels?**

Follow the instruction below:

Firstly, invoke "Cfg. System" dialog and switch to the "NVR Connections" node.



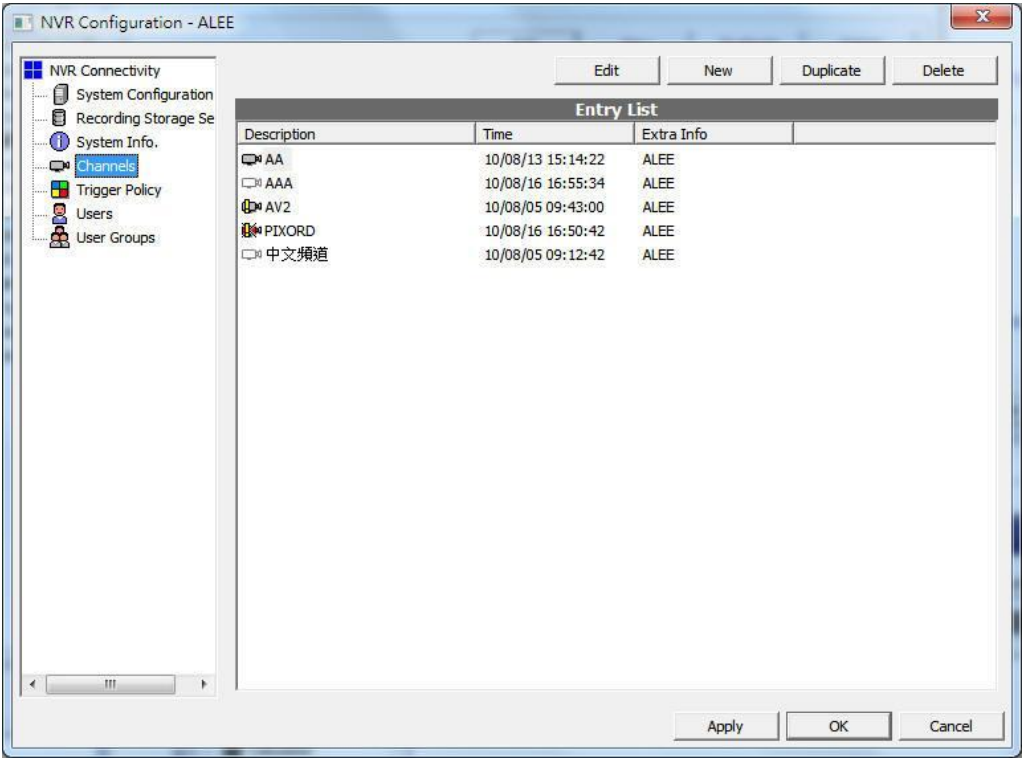
Select the target child NVR (in this example, the child NVR called ALEE), and click "Edit".



After clicking "Edit" in previous screen, a second configuration dialog pops-up. This is the child NVR configuration window. Now click to the "Channels" node. You are now able to perform all channel

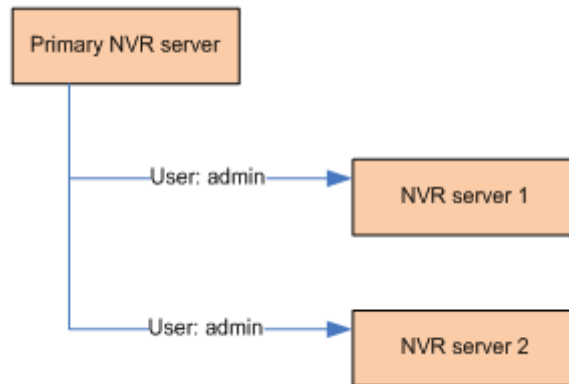


configuration operations in this child NVR.



## What are the credentials used for a client to login to child NVR servers?

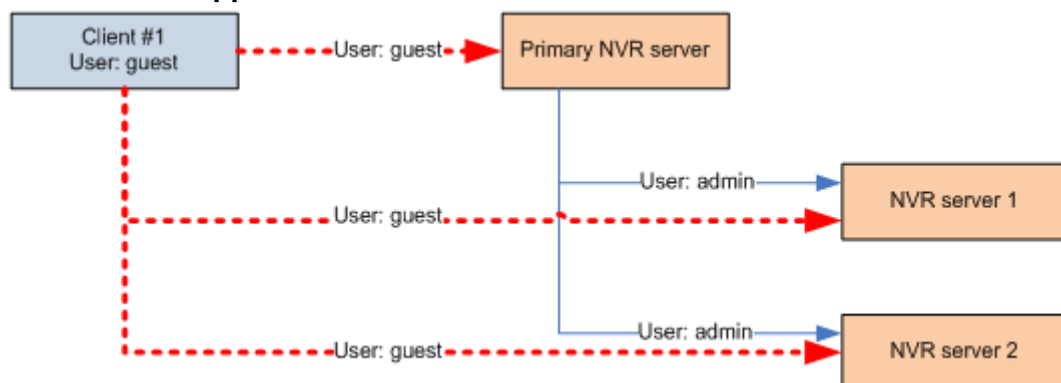
There are two types of NVR connection, in the sense of the credentials used. To illustrate this, let's suppose we have a CMS structure as follows:



The two child NVR connection is configured to connect as "admin", which usually has the highest privilege. This kind of configuration is usually a necessary scenario because the primary NVR server needs to have enough access to the child NVR to perform management tasks.

However when a user login, there could be two kinds of scenarios, described in the following table (notice the yellow highlighted differences) :

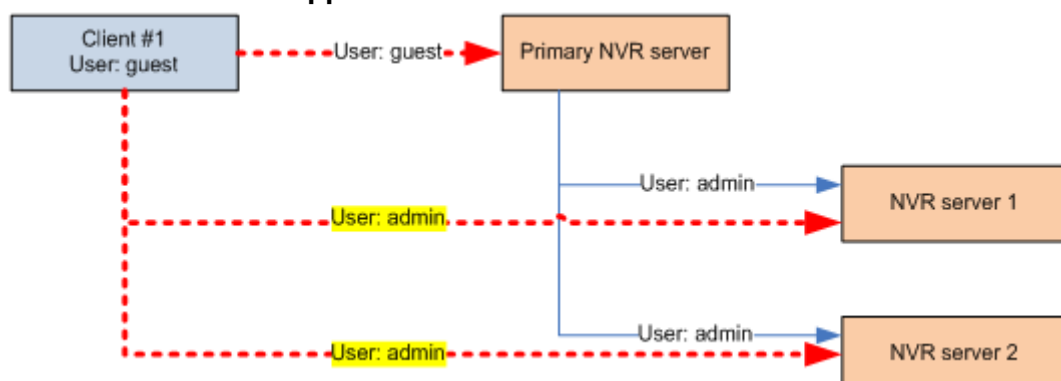
### Scenario 1: Use user supplied credentials



Pros: Higher security

Cons: More difficult to configure.

### Scenario 2: Use connection supplied credentials



Pros: Easier to configure

Cons: Lower security

Because of the existence of the two possibilities, an option exist to let the administrator to choose the type of connection when setting up a child NVR connection, the "Use primary credential" checkbox in the NVR connectivity dialog:

The screenshot shows the 'NVR Configuration' window with the 'NVR Connectivity' tab selected. The 'Channel name' field is empty, and the 'Driver' dropdown is set to 'NVR'. A note below says 'Please input a name that is unique throughout the domain.' The 'Description' field is empty. The 'Domain name' field is empty. The 'Enter camera IP address' field contains '0 . 0 . 0 . 0', 'Port' is '3557', and 'Channel' is '1'. The 'Enter login information' field is empty, and the 'Password' field is empty. There are three checkboxes: 'Disabled' (unchecked), 'Integrated Security' (unchecked), and 'Use primary credential' (unchecked). At the bottom right are 'Apply', 'OK', and 'Cancel' buttons.

When the checkbox is checked, the connection uses "Scenario 1: Use user supplied credentials", when it's unchecked, "Scenario 2: Use connection supplied credentials" is used.

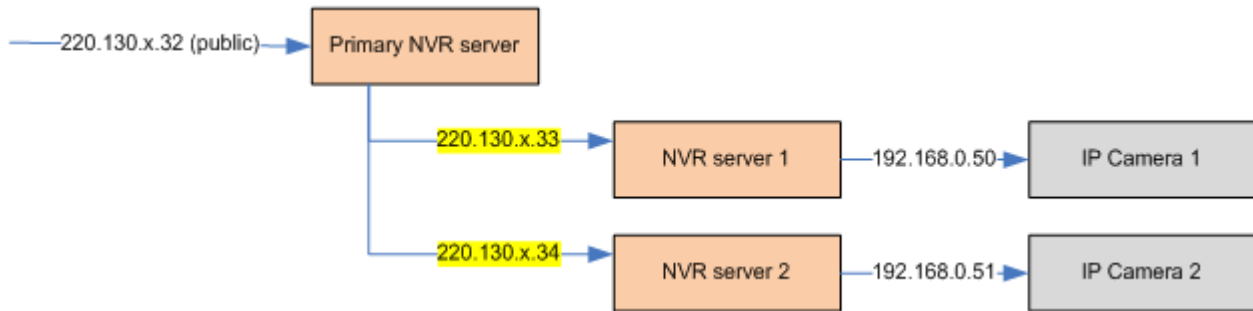
## How should I configure my child NVRs if I want to connect from public Internet?

This is an advanced topic. Audience should have moderate network configuration experience.

Please read the two Q&A before continuing this topic.

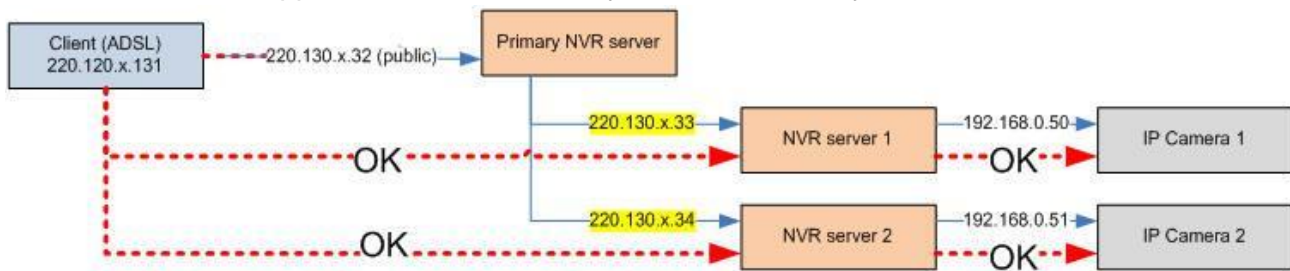
- [Does the network traffic of the child NVR go through the primary NVR server?](#)
- [What are the credentials used for a client to login to child NVR servers?](#)

If you would like to configure your system to be publicly accessible, then all NVR nodes in your system should have public IP addresses. This is because a client connects to child NVR directly, rather than passing-through the primary NVR:

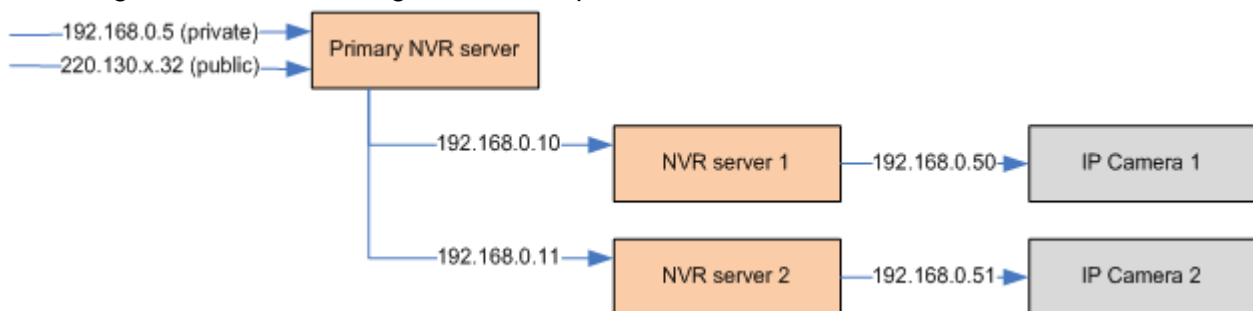


### Configuration

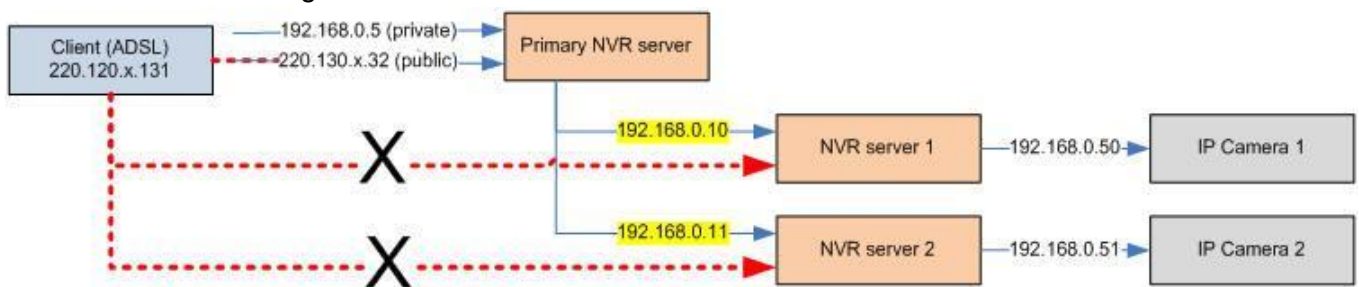
Note that IP cameras connected to child NVRs are allowed to be configured to private IP, while still accessible by remote client. This is because the client accesses the IP camera (live/playback, etc) through the NVR. This is what happens when the client actually connects to the system:



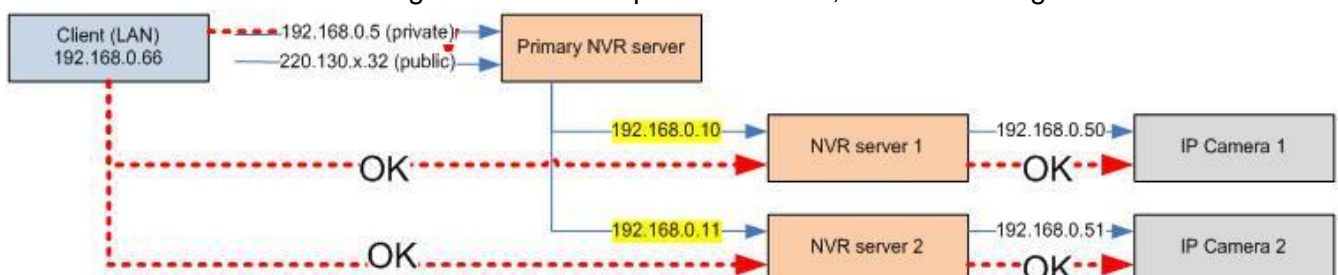
Following is an incorrect configuration example:



Note in this example, NVR server 1 and 2 are configured as private IP address. This will make the client have trouble connecting to the IP camera inside:



However, if a client is connecting from inside the private network, then this configuration is workable:



## What are the benefits of having a primary NVR server?

Genius Vision defines CMS architecture by requiring a primary NVR server. This architecture has some advantages over those that does not require one:

- **CMS can be remotely accessed:** Metadata like maps or trigger policies can be stored in a central location. User can logon to CMS from any remote computer and still be able to access to the preconfigured map data with rich GUI.
- **CMS run as a server monitor:** This architecture treats the CMS server a daemon process (without GUI) that runs in background. So even when no user is monitoring anything, the daemon process can still be configured to monitor events by rules. This provides great flexibilities to plan complex projects.
- **Architectural uniformity:** Such architecture is directly extendable from original client/server architecture. Our system can scale from a single computer (self-fulfilled client/server) into a large-scale multi-location enterprise system, all in the same architecture. Such architecture reduces the possibility that some functions are used less than others because they are only used in large-scale system, and thus lack proper testing.

## Mobile Phone Video Streaming (3GPP)

### Overview

If you have a mobile phone that is compliant to 3GPP standard, then you can now use it to connect to our NVR to see live video streaming.

If your system is properly configured to support 3G video streaming, you will firstly use your browser to enter the URL to your NVR in the form:

- `http://<ip_to_your_nvr>:8086/`

Note: The "8086" is the default port number of the NVR built-in web server, the one that also serve Internet Explorer. This can be changed from system configuration.

Step 1. Enter first page, list all channels available. Step 2. View video streaming.





## How-tos

Here's a of list quick questions that might help you to find the information you need:

- [Is the 3G video streaming default enabled?](#)
- [How to enable 3G video streaming?](#)
- [Why can't I see 3G video streaming?](#)
- [How to change default web server port number?](#)
- [What are the frame-rate or image size of the 3G streaming video? Can they be changed?](#)

## Is the 3G video streaming default enabled?

No.

3G video streaming involves potential video transcoding. It has to be enabled in the server before you can really use it. Also, be informed that enabling this feature consumes certain resource (though not much) on the server.

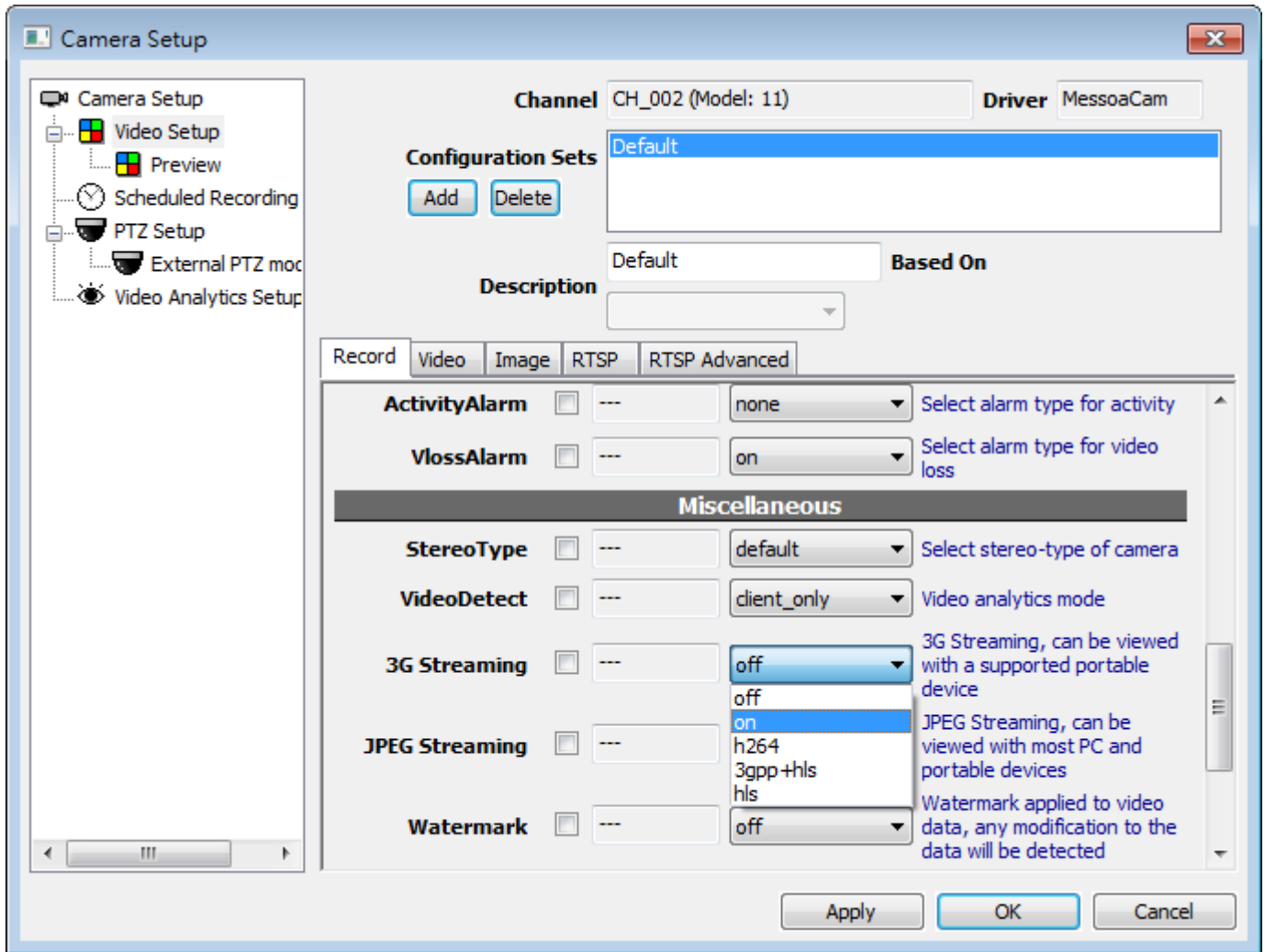
## How to enable 3G video streaming?

To enable 3G video streaming, open "Video Setup" of a designated channel. On first tab "Record", scroll down the page to look for attribute "3G Streaming".

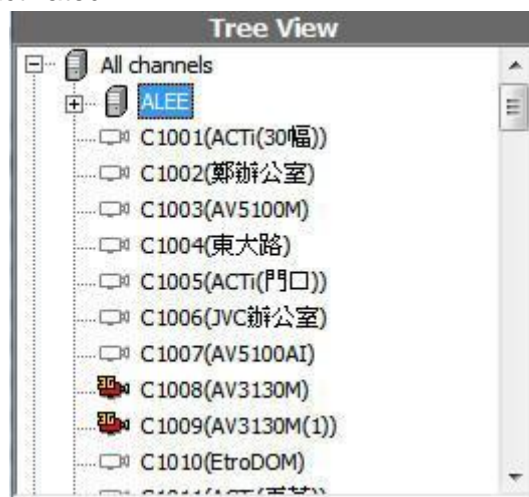
There are three options:

off	3G video streaming is disabled.
on	Turn on the 3G video streaming, using MPEG-4 codec.
h264	Turn on the 3G video streaming, using H.264 codec.





If the 3G video streaming is successfully enabled, a small "3G" will appear beside the camera icon, indicating 3G transcoding is activated:



## Why can't I see 3G video streaming?

There could be a number of reasons. Firstly, your mobile phone must support 3GPP standard for this function to work. Secondly, when the mobile browser tries to reach NVR web server, it will automatically determine the phone type. If this detection is not successful, you may not be redirecting to the correct page. In this case, enter the following URL:

- [http://<ip\\_to\\_your\\_nvr>:8086/3gp/v.html](http://<ip_to_your_nvr>:8086/3gp/v.html)



If you still can't see video streaming, please contact our technical support, with your mobile phone model number (or device) available to us for testing and diagnosis.

## Unsupported Mobile Devices

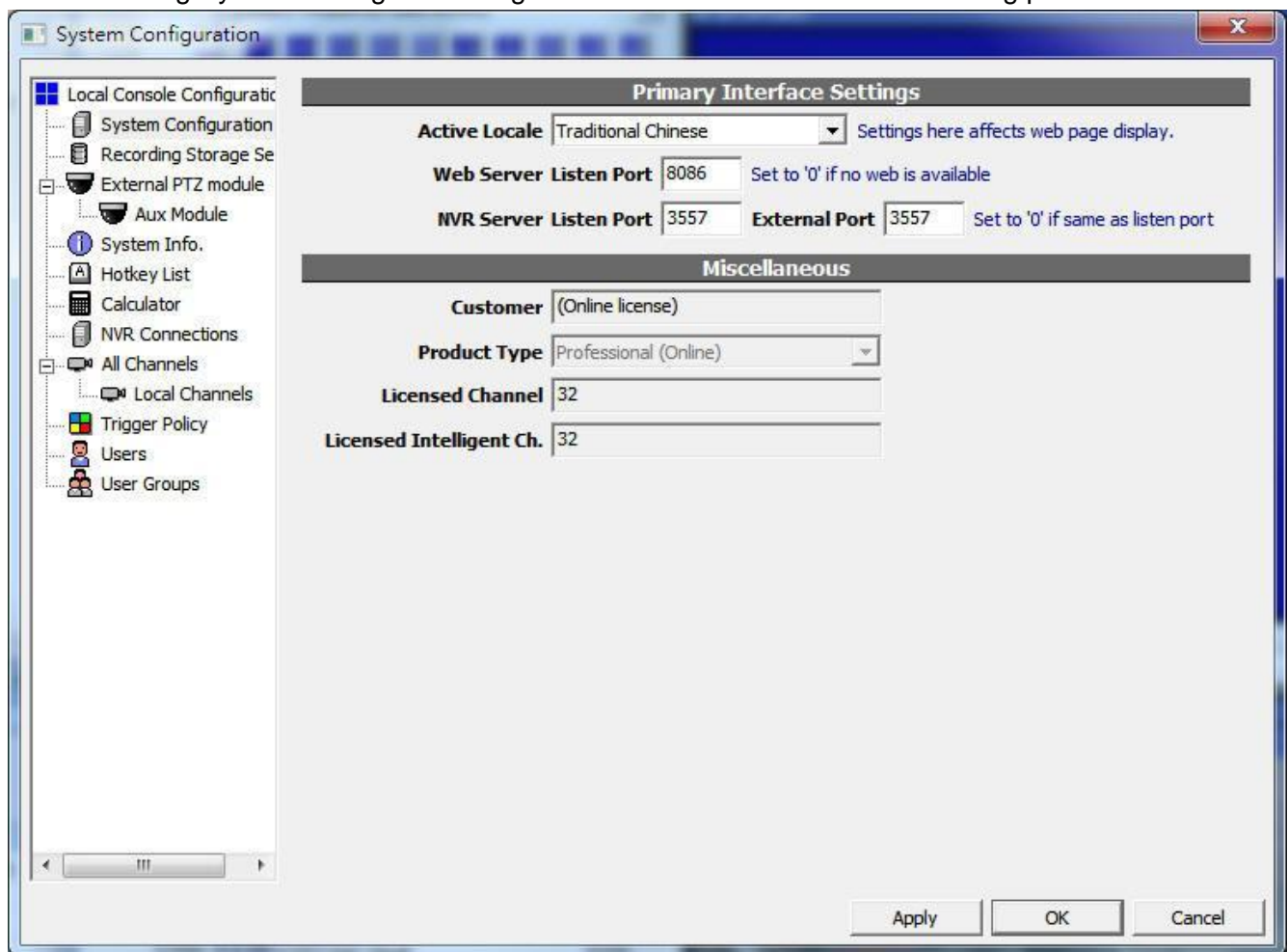
If your mobile device doesn't support 3GPP standard, you can use our more generic feature called "JPEG streaming" that could convert all video streams into industry standard JPEG/HTTP streams that can be rendered on almost all mobile browsers.

See Also

- [JPEG Streaming](#)

## How to change default web server port number?

Invoke "Config System" dialog and change the value as indicated in the following picture:



**What are the frame-rate or image size of the 3G streaming video? Can they be changed?**

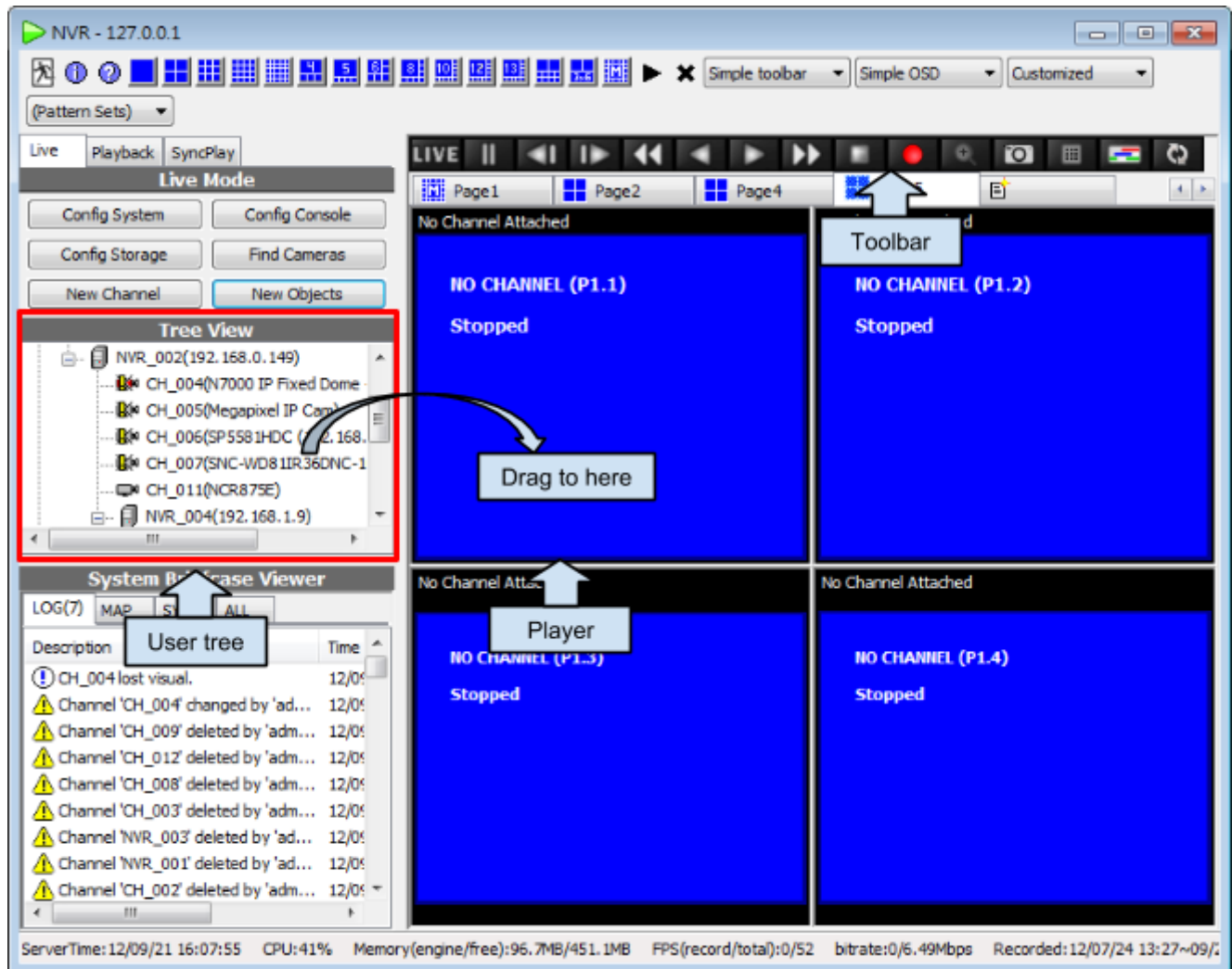
The image size and frame-rate is currently fixed at 320x240, 5 frames-per-second.

There is currently no GUI offered to change these settings. You can only choose to enable this feature or not.

## Part II: Operation

# Viewing live video

## GUI Overview



Before viewing live video, a channel must be attached to a player. To attach a channel, drag it from user tree(the red box above) to a player(the blue area above). Or double click to auto assign it to an available player.



To switch from playback to live video, click LIVE(the leftmost) in the toolbar. Or when the player is focused, press ENTER on keyboard to view live video. Players can be focused by left mouse click on it. You can tell if a player is focused by a green frame around it.

## Digital PTZ

### Digital Pan-Tilt-Zoom

User can right-click context menu and select "Zoom-In" to drag a rectangular area to zoom-in.

Step 1. Click on the magnifier icon on the player toolbar.



Step 2. Drag to select a rectangular area.





Step 3. Zoomed-in.



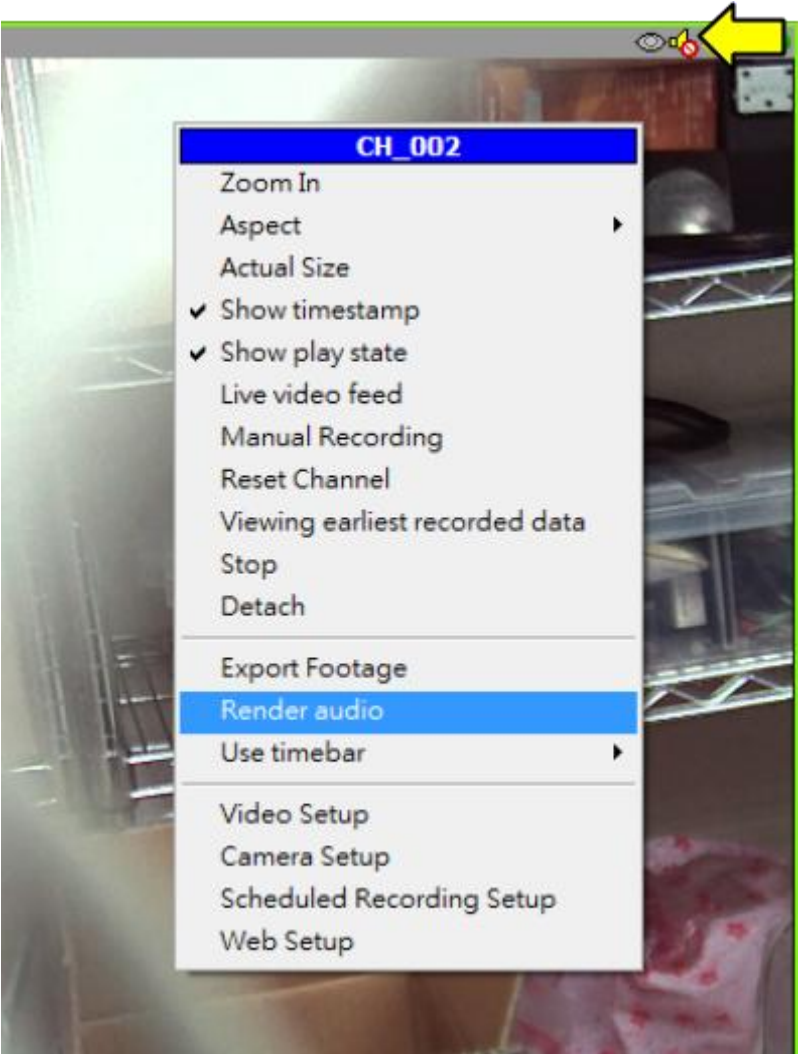
Under the zooming mode, user can hold mouse left button down to pan the zoomed area.

User can also use mouse-wheel to easily zoom-in and zoom-out interested area quickly.







# Rendering audio

## GUI Overview



In the context menu of players, click "Render audio" to enable audio. To mute the channel, just click it again. Or click on the speaker icon.

## Audio Icon Explained

Icon	Description
	The channel has audio, and is currently playing.
	The channel has audio, but not playing.
	Though audio playing is requested, but no audio is available.
	Audio playing is neither requested nor available.

# Viewing playback video

## Concept

There are several methods to view playback video. You can:

1. Use the toolbar in player. It works just like the buttons on a CD/DVD player.
2. Use player control panel.
3. Use the timebar in player.
4. Use the storage report.
5. Hot keys



## Console toolbar

Live view

Pause

Step backward

Step forward

Fast backward 2x/4x/8x

Backward playback

Forward playback

Fast forward 2x/4x/8x

Stop

Manual recording

Zoom in

Take snapshot

Open control panel

Toggle timebar

Synchronized playback

See also

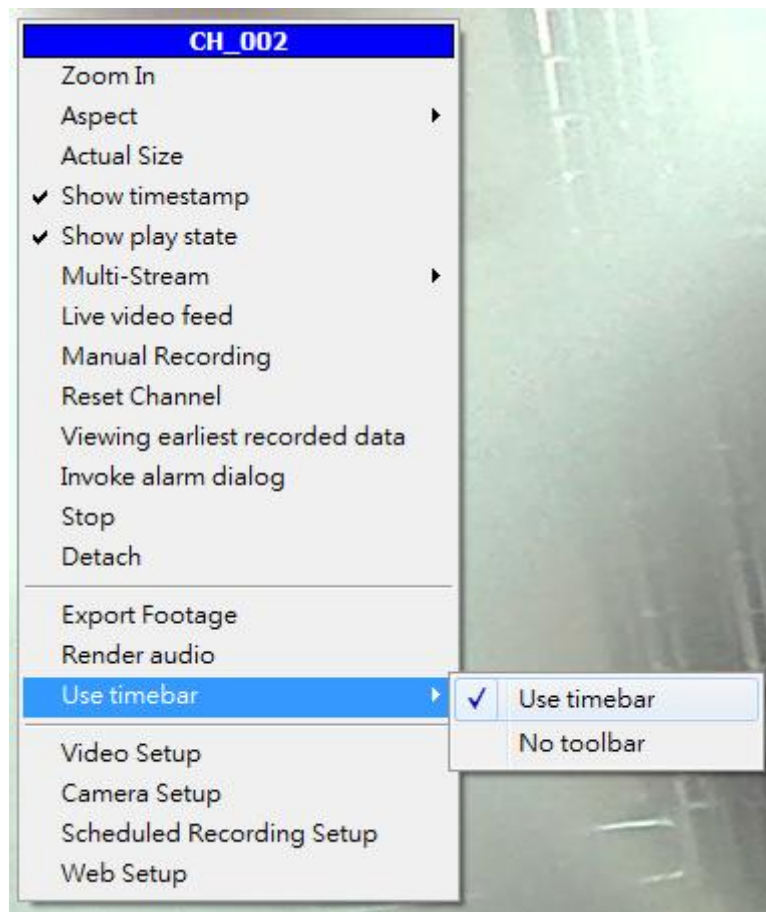
- [Using playback timeline](#)
- [Storage report](#)
- [Player Control Panel](#)

## Using playback timeline

### Overview

A timeline is an integrated tool for both inspecting recorded data and navigating in video playback. The timeline can be configured to show different information of recorded data. User can access the desired data easily based on the information the timeline provides.

### Using timeline



Timeline can be enabled in player context menu.

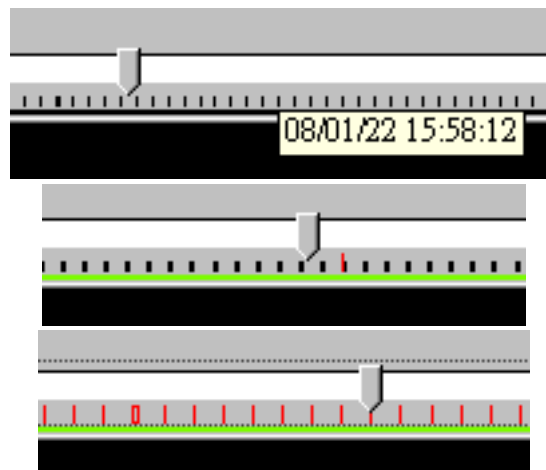


Before timeline can be operated, it must acquire window focus first. The user can use the mouse wheel to zoom in or zoom out the timeline. The ruler indicates the scale.

See also

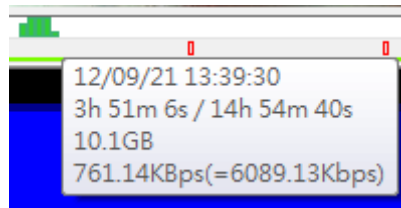
- [Focused player](#)

## Basic operations

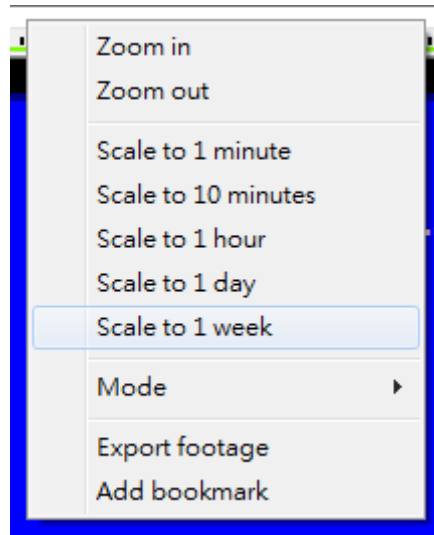


Drag on the ticks to navigate in the timeline (the cursor changes to four-way arrow before you can do this). Use mouse wheel to zoom in/out. The ticks change automatically depends on the scale. You can also hover on the timeline to see the exact time.

There're four types of ticks. The black thin lines are for seconds. Black thick ones are for minutes. Red thin lines are for hours. Red boxes are for days.

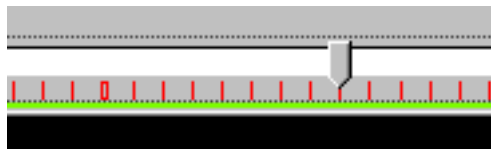


You can also select an interval by mouse dragging in the trackbar area. The interval length will be displayed.



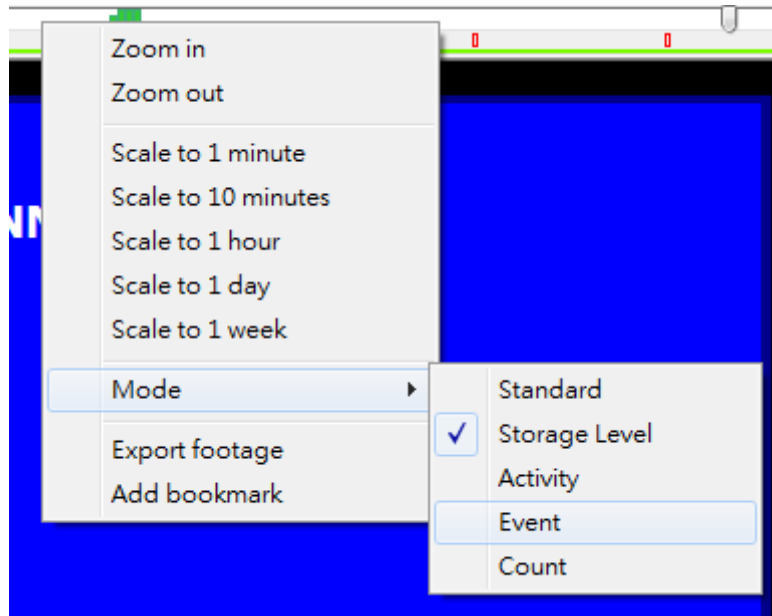
Fast navigation are also available in context menu.

## Playback

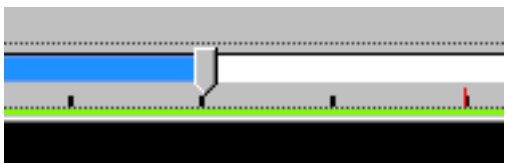



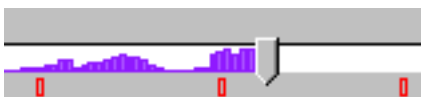


You can double click on anywhere in trackbar area of the timeline to jump to that time point, or drag the arrow.

## Timeline modes

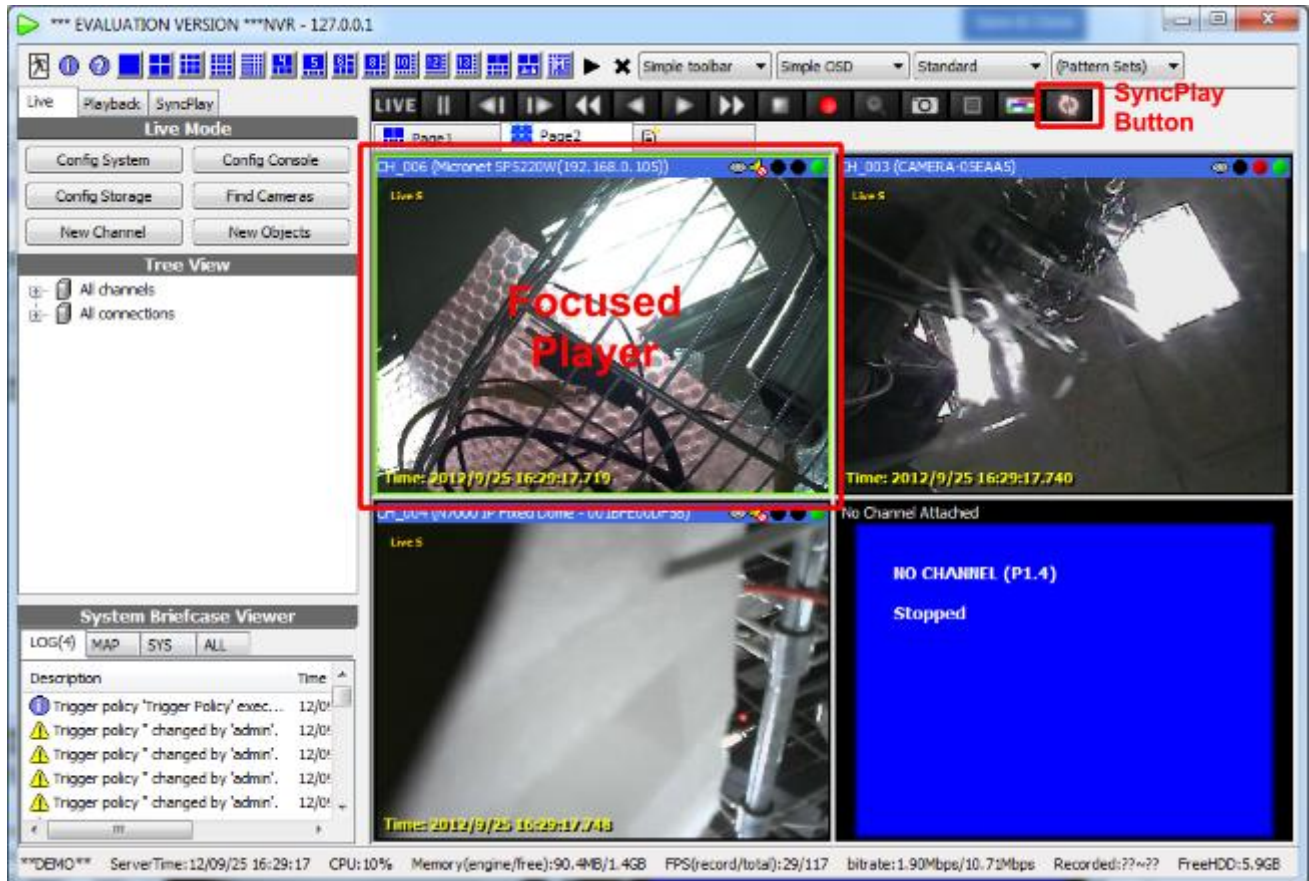


There are various modes in timeline to display different information. It can be set by right click on the timeline.

Type	GUI Example	Description
Standard		Blue area indicates that there are recorded data. White area means there's no recorded data.
Storage level		Green blocks indicates the storage level of recorded data. This is the average of a fixed timespan, which depends on the scale of the timeline. In this mode, user can calculate storage by selecting an interval.
Activity		The height of the orange block is the counts of activities in a fixed timespan, which depends on the scale of the timeline.
Event		Orange: activity Green: recording Purple: unexpected system off Gray: normal system off
Counting		The purple bar shows the level of tripwire counting. Results of all tripwires in this channel are summed up, including both directions of every tripwire. See also <ul style="list-style-type: none"> <li><a href="#">Object Tracking</a></li> </ul>

# Synchronized Playback

## Enable synchronized playback



(note the green frame)

When synchronized playback is enabled, the play control of all players are synchronized. The video is synchronized to the focused player when playback is requested.

The timestamp of all synchronized channels may not match exactly. Because it's impossible for every channel to have available frame for any given time. This is obvious especially when the frame rate is low.

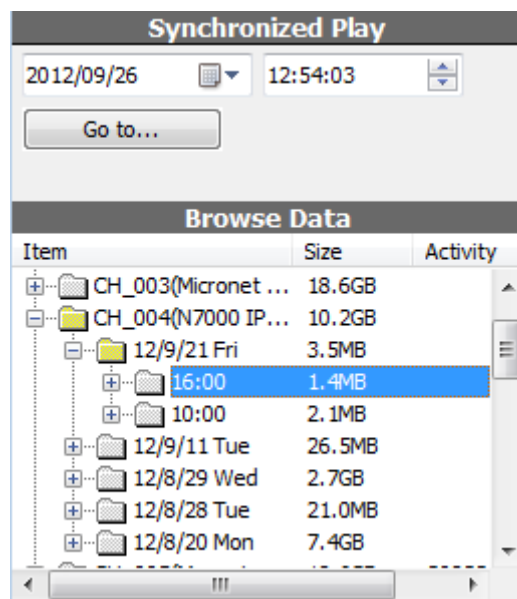


## Synchronized Playback Tab

Synchronized Playback tab is very similar to synchronized playback button. Only it provides a date time control and a storage report to jump to specific time quickly.



Specify a date and time then click “Go to...”, or browse and click the node in treeview, to jump to specific time.





## PTZ (Mechanical)

### Basic operation



If a channel support PTZ and is attached to a player, users can hold left mouse button on it to start PTZ control. An yellow circle appears when the operation is valid. Hold mouse button and drag to the direction you want the PTZ camera to turn.

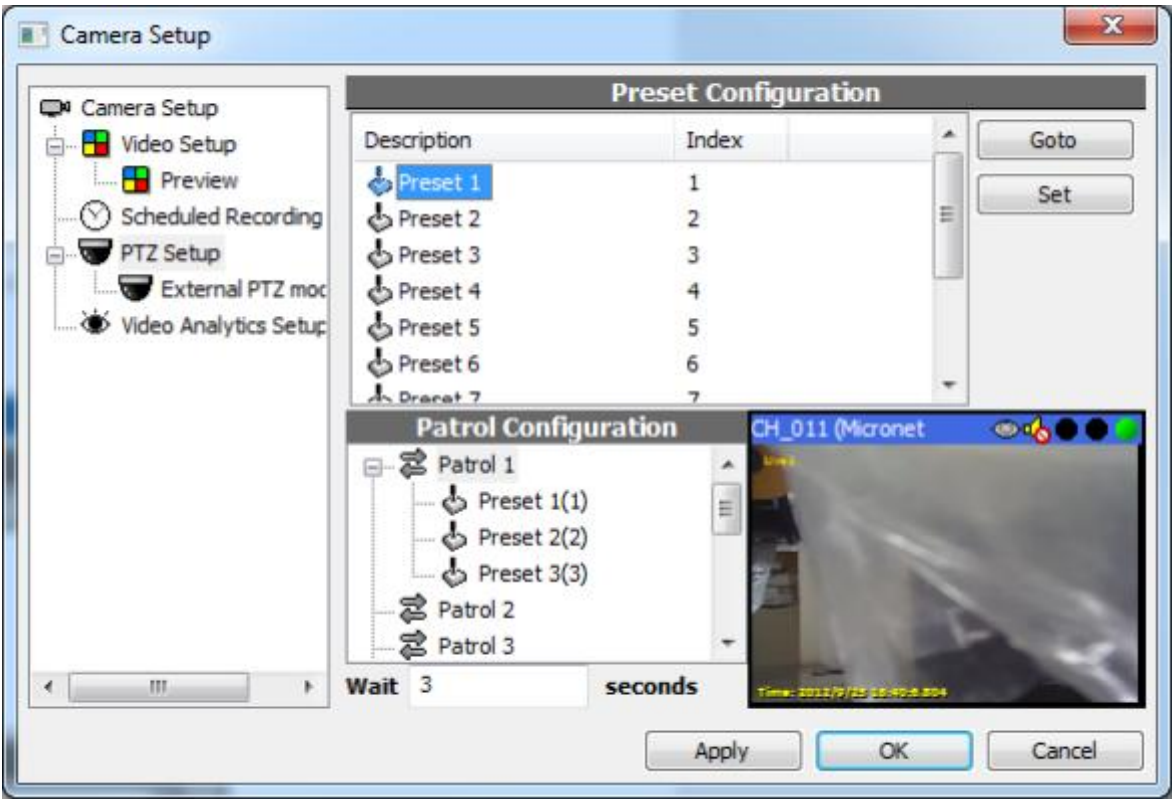
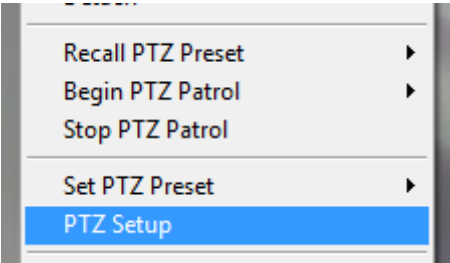


An yellow arrow indicates the direction and the speed to turn the PTZ camera. The camera turns faster when the arrow is longer. To stop the camera, simply release mouse button. To zoom in/out,

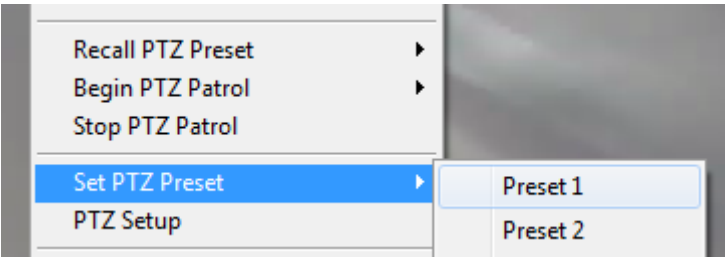
use the mouse wheel.

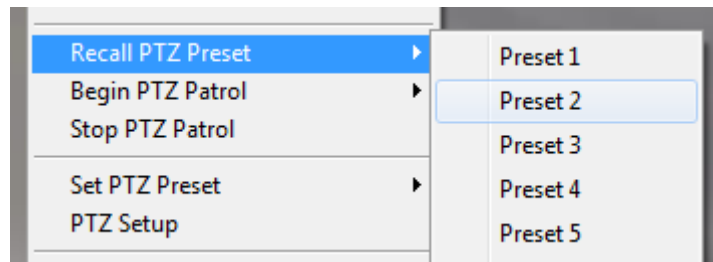
**Presets**

Before you can use presets, you must first configure PTZ configuration. To invoke the configuration dialog, click PTZ config in player context menu. If there's no PTZ config item in the context menu, check the video config to see if the proper PTZ type is selected. For more information, check Video Configuration.



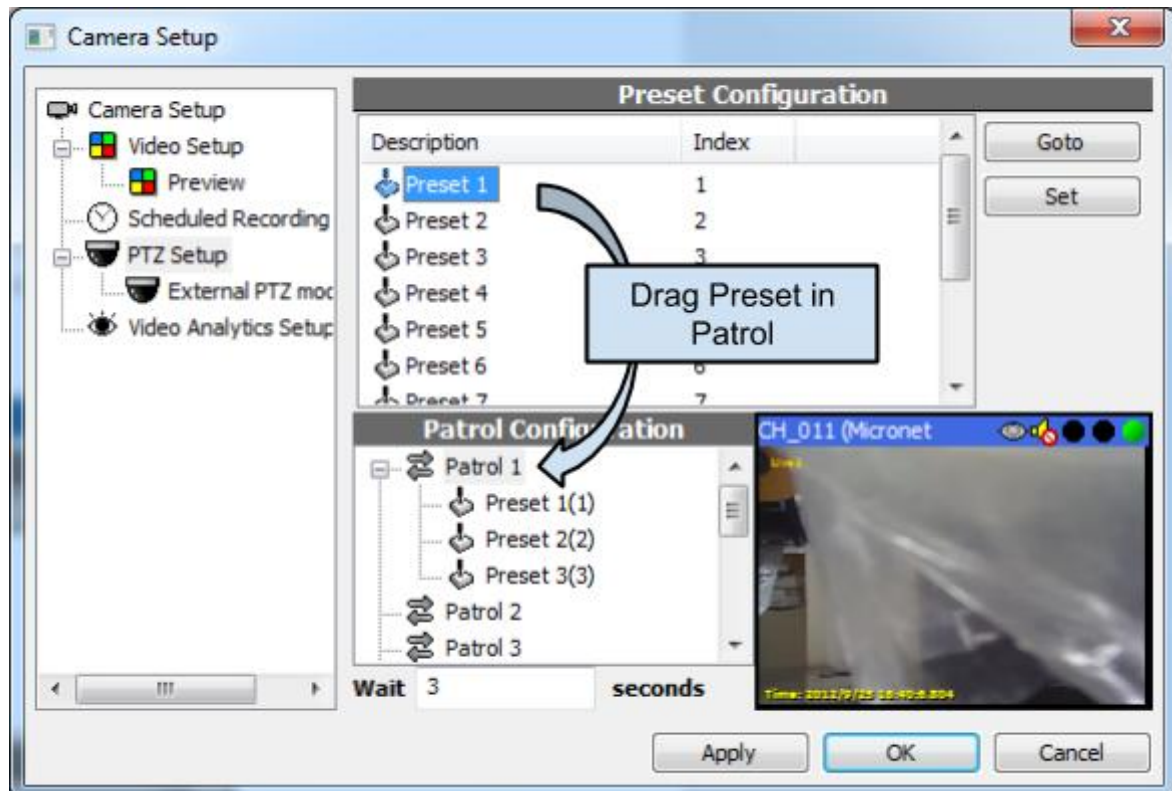
The description can be renamed by clicking on its description. Click OK when you done with configuration.





After PTZ is configured, you can use context menu of player to set or recall presets. Or use keyboard 0-9 to recall when the player is focused.

## Patrol



Patrol is a list of presets to be called in sequence. You can manage up to 10 patrols in the PTZ dialog.

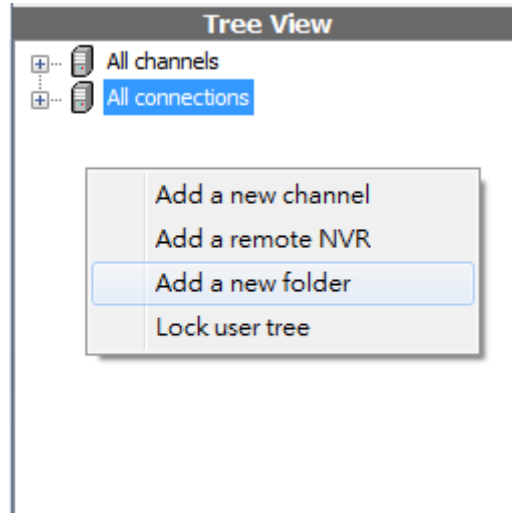
The interval and speed of patrol can be set with "Wait X seconds".

To add a preset in the patrol, drag it from Preset list and drop it in Patrol. Preset in patrol can also be dragged to change order.

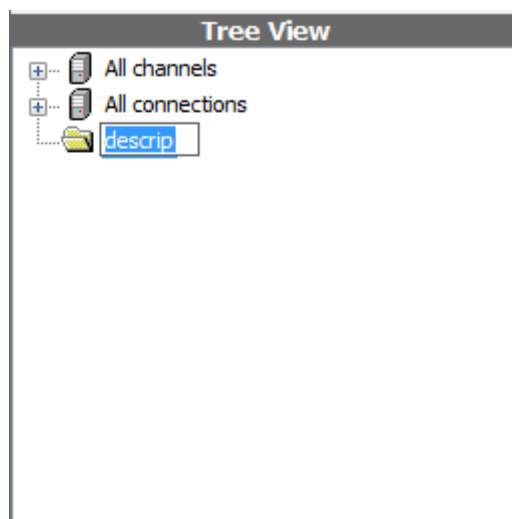
<NOTE> PTZ functionality is limited by the actual specs and SDK support of the hardware. Not all models support the functions mentioned above.

## Building user tree

### Add/edit folders



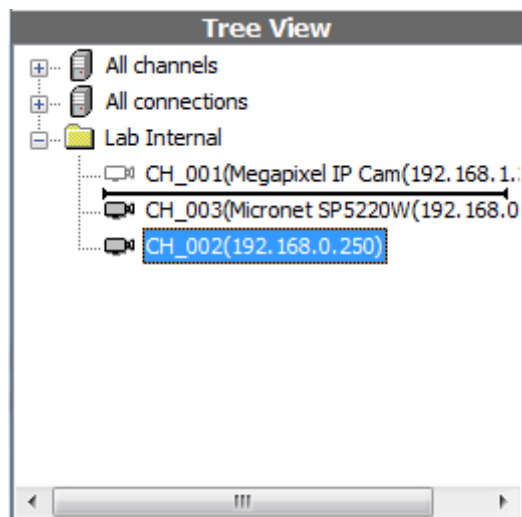
To add a new folder, right-click on blank area and click Add a new folder.



To edit folder description, click it again when it's already selected.

### Add/edit tree items

To create a channel representative in user-created folder, drag a channel from folder All channels to the destined folder.



To change the order of items, drag and drop it in the tree.

## Taking snapshot



To take a snapshot, click the camera button in the player toolbar. A message will be popped if the snapshot is taken.

## Managing layout pages

### Overview

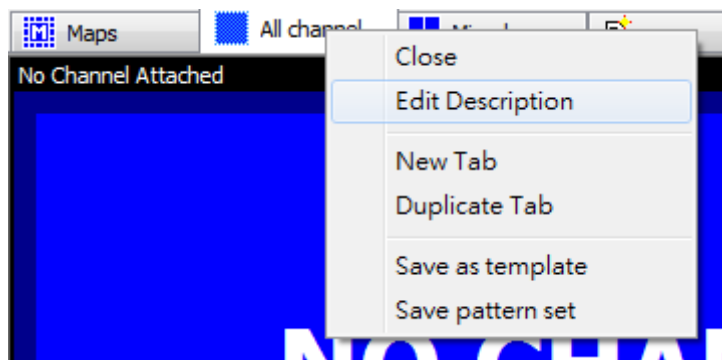
A page is a set of players with its own layout settings and player state. Each page is configured separately and doesn't affect other pages. Users can create multiple pages and configure them for management purposes. For example, you can create a page named it "all channels". Switch its layout to 4x4 and attach 16 channels in it. And then create another page named "map". Switch it to 1x1 and open a map. Then you can switch between the two pages easily without open multiple windows or applications.

### Add a new page

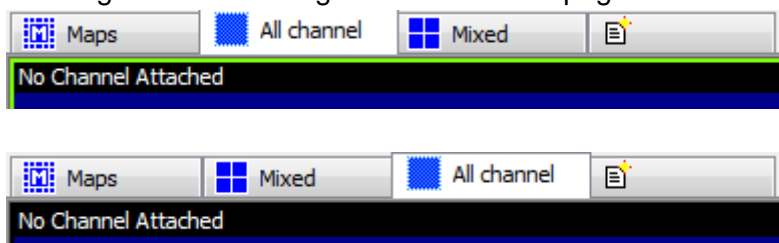


Click on the right most tab button to add a new page.

### Editing pages



User can create, remove, and rename tabs in pattern tab control. Each pattern tab has its own layout and state. You can also drag the tab to change the order of the pages.



# Tour

## Design tour phases

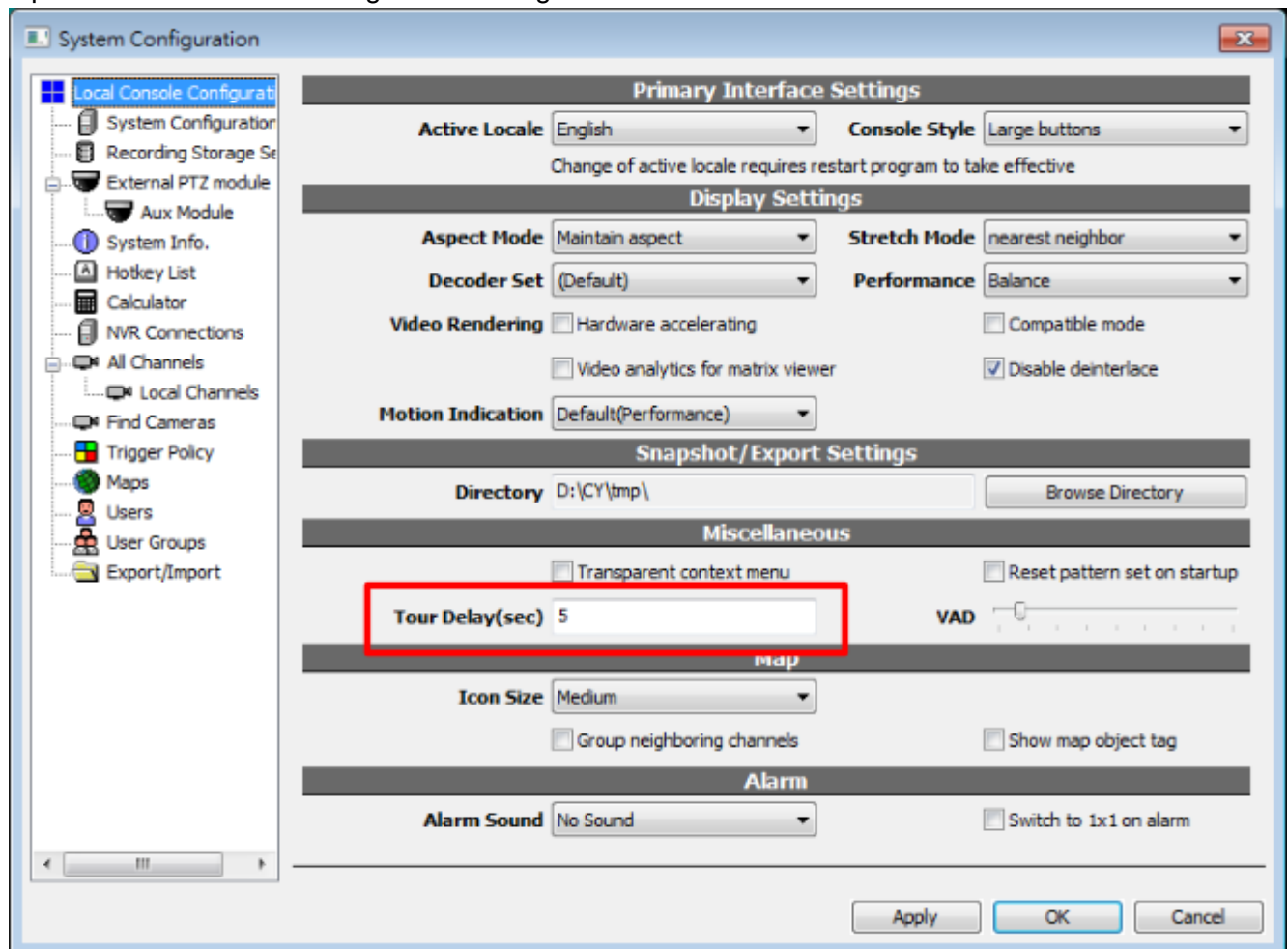
You can use tab managing functions to create pattern pages and properly order them as the actual tour required.

## Activating/stopping tour

Press F11 to toggle activating or stopping tour.

## Configuring tour interval

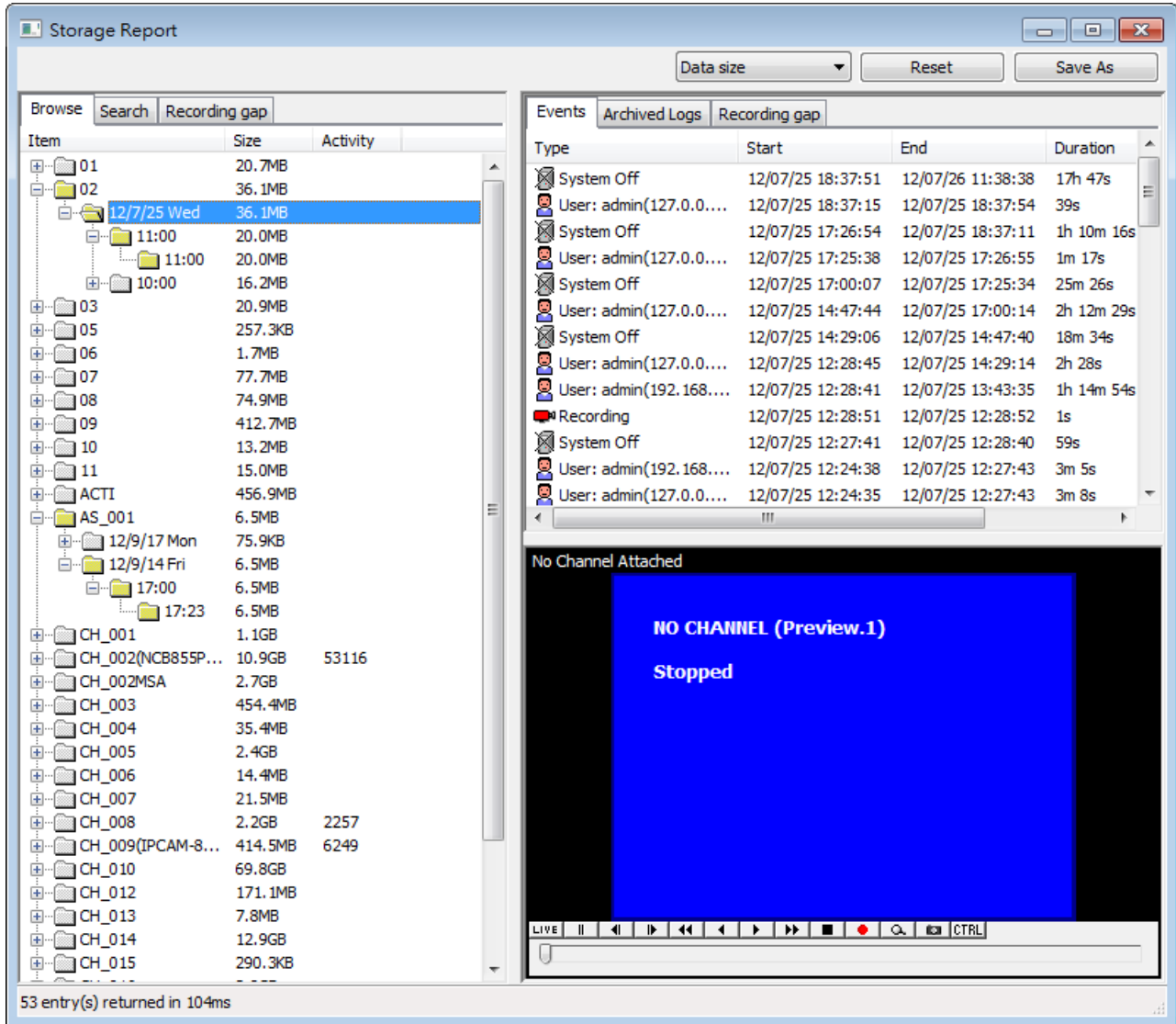
Open the local console configuration dialog.



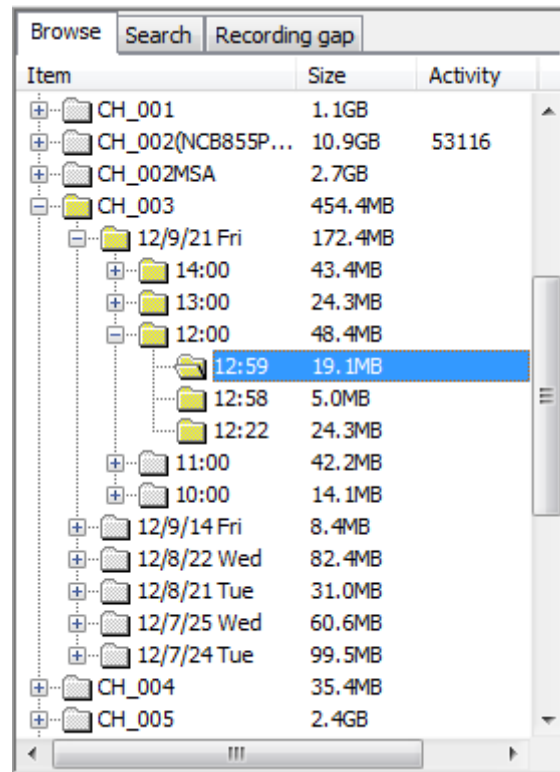


# Storage report

## GUI overview



By using the subnodes of the root nodes, you can easily explore recorded video in the scale of days, hours, or minutes. The second column indicates the size accumulated of the item. The third is called the activity indicator value. If this value is larger than more activity has happened during that period.



## Event viewing

At right panel you can view the related events to the selected period of time. If you wish to examine the video of a specific event, you can either double-click the event to let an idle player to play it. Or that you can drag it to a specific player to play it.

## Data size / data rate

Through the selection of the combo-box you can also change between viewing data size and data rate.

## Resetting

After a long period of time of last query, or that the storage report stop refreshing latest data, you can click the "Reset" button to retrieve updated information.

## Intelligent Video Report

If one has properly configured intelligent detection (for example: double-tripwire counting), you can see additional nodes below the All Channels node. Try to open it to see detailed intelligent video report.

The screenshot shows the 'Storage Report' window with the following components:

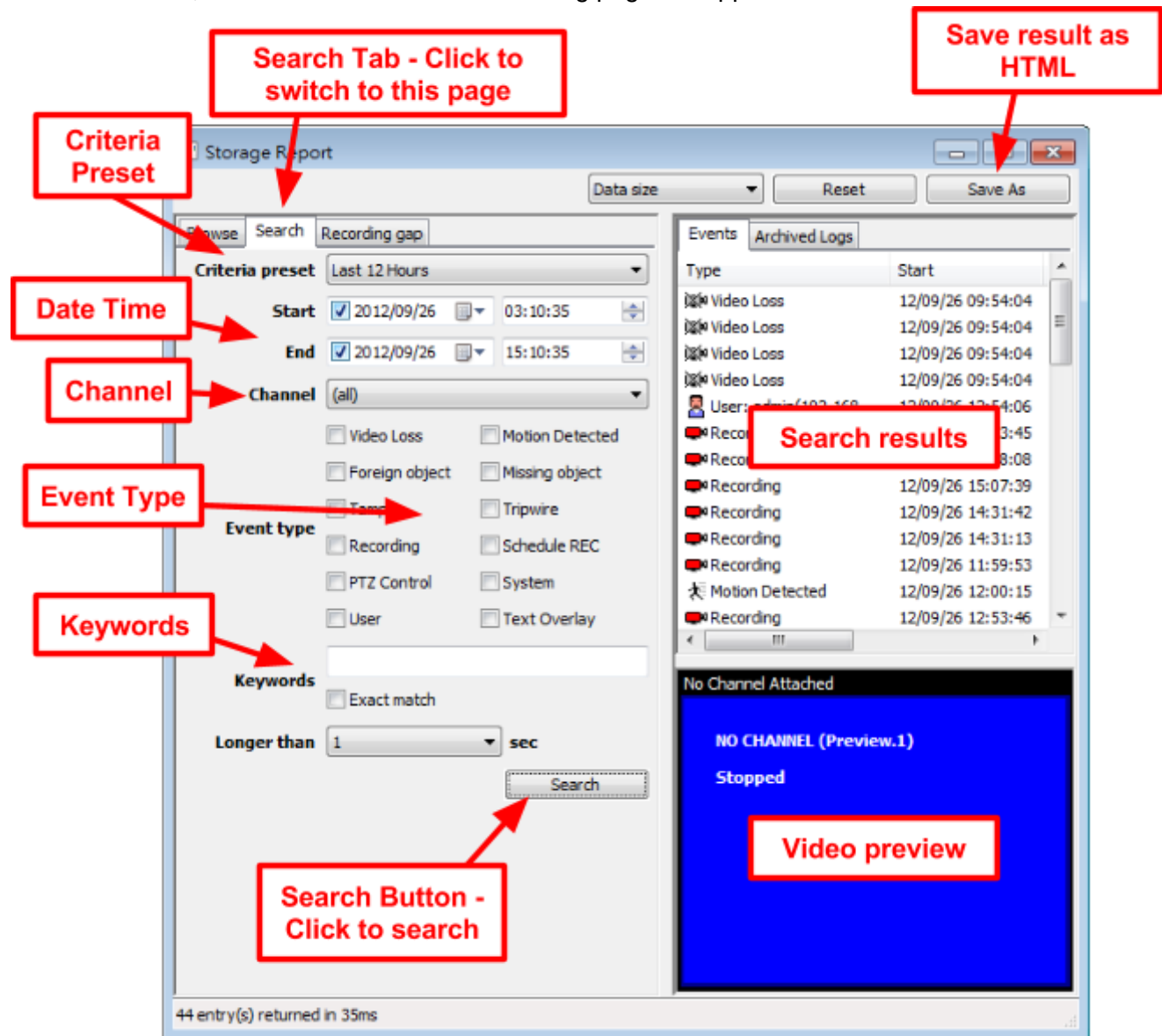
- Top Bar:** Includes a 'Data size' dropdown, 'Reset', and 'Save As' buttons.
- Left Panel (Browse):** Displays a tree view of storage data.
 

Item	Size	Activity
All channels		
Cnt1(StarDot_001)	667	
12/9/25 Tue	667	
18:00	126	
18:38		
18:37	3	
18:36	8	
18:35	8	
18:34		
18:33	6	
18:32	5	
18:31	1	
18:30	4	
18:29	17	
18:28	4	
18:27	8	
18:26	10	
18:25	8	
18:24		
18:23		
18:22		
18:21		
18:20		
18:19		
18:18	2	
18:17	8	
18:16	20	
18:15	5	
18:14		
18:13	3	
18:12	1	
- Right Panel (Events):** Displays a list of events with columns for Type, Start, and End.
 

Type	Start	End
User: admin(192.168....	12/09/25 18:38:18	12
User: admin(127.0.0....	12/09/25 17:27:49	12
Recording	12/09/25 18:37:59	12
PTZ Control	12/09/25 18:38:19	12
User: admin(192.168....	12/09/25 17:28:02	12
Recording	12/09/25 17:44:07	12
Motion Detected	12/09/25 17:44:27	12
Recording	12/09/25 17:27:49	12
PTZ Control	12/09/25 17:28:03	12
System Off	12/09/25 17:26:36	12
User: admin(127.0.0....	12/09/25 16:52:59	12
User: admin(192.168....	12/09/25 16:52:57	12
Recording	12/09/25 17:24:47	12
- Bottom Right (Preview):** A video preview window titled 'StarDot\_001 (0030F4-00F0FF)' showing a blue screen with the text 'StarDot\_001 (Preview.1)' and 'Requesting video...'.
- Status Bar:** Displays '48 entry(s) returned in 46ms'.

## Event Search

To search event, click Search tab and the following page will appear.

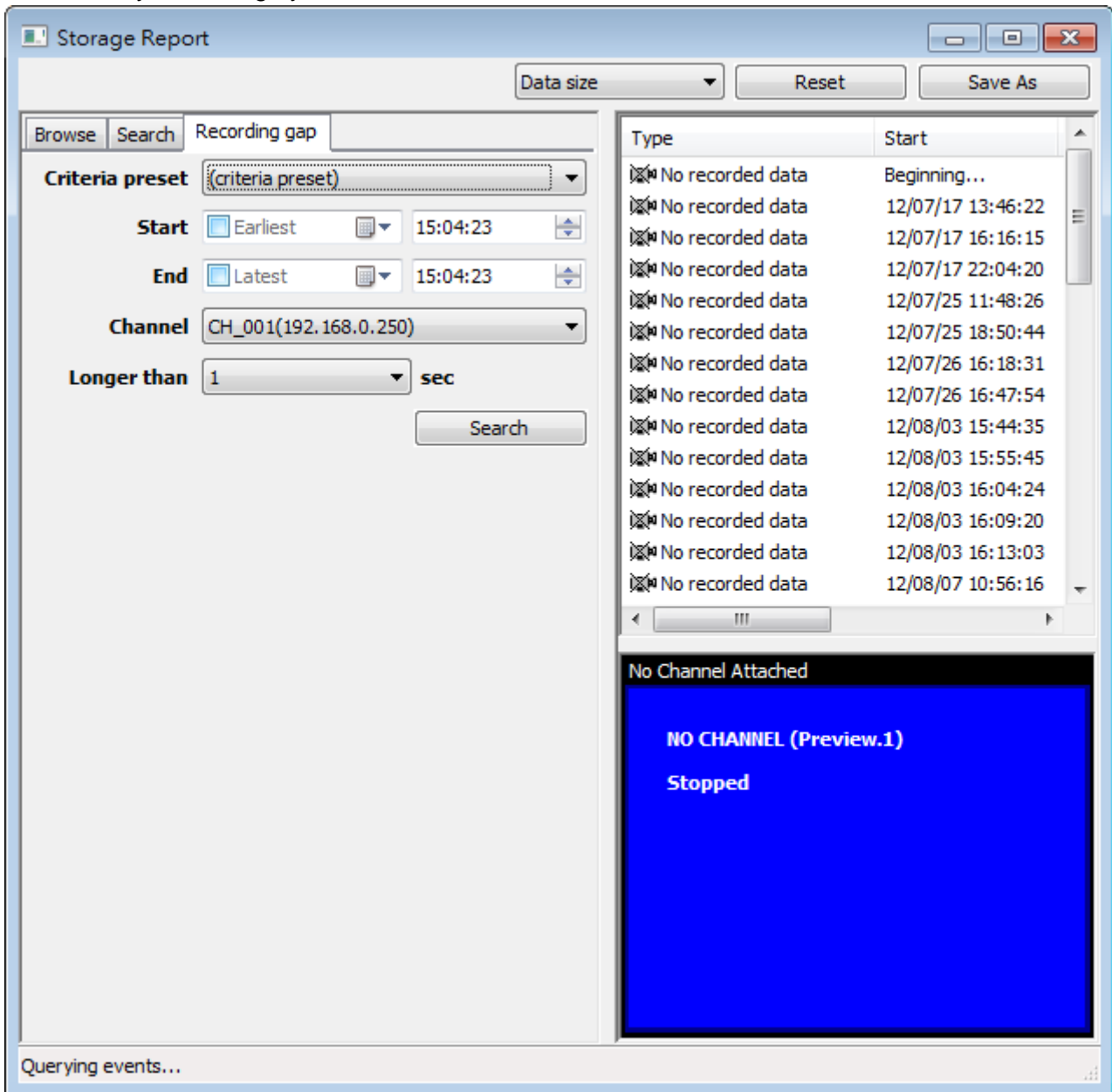


Use Criteria Preset to do quick search or specify the following criterias manually...

Channel	Search all or one specified channel.
Date Time	Specify time span for the search. Both Start and End can be omitted.
Event Type	Search one or more types of events.
Keywords	Match keywords. Currently only Text Overlay and User support keyword search.
Longer than	Limit result to entries with duration longer than X seconds. This is useful to filter motion detection false positive.

## Recording Gap Search

Recording Gap is very similar to Event Search. It searches for timespan without recorded data. It's useful to verify data integrity.



# Alarm Dialog

## GUI Overview

The Alarm Dialog window displays the following information:

- Channel:** CH\_003
- Alarm Status:** Active
- Start:** 12/09/14 16:11:44
- Update Time:** 12/09/14 16:11:44
- Alarm Types:** Vloss
- Event List:**

Type	Start	End	Duration
Video Loss	12/09/14 16:11:44	12/09/14 16:11:48	4s
- Comment List:**

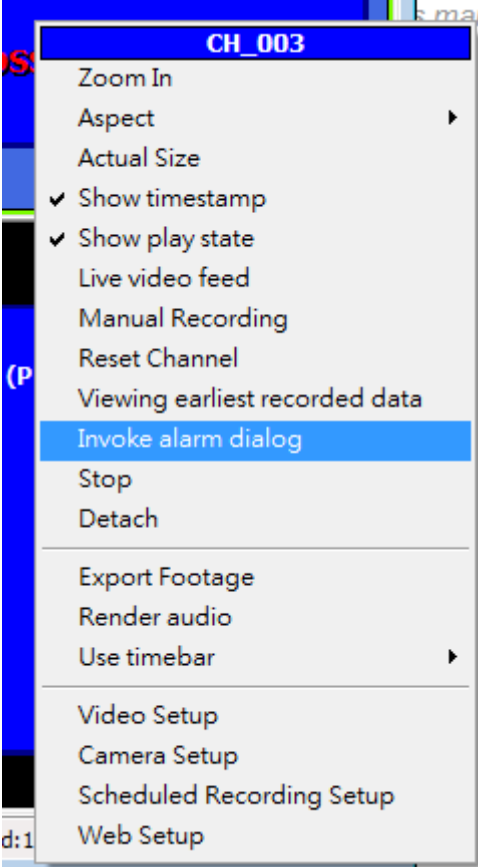
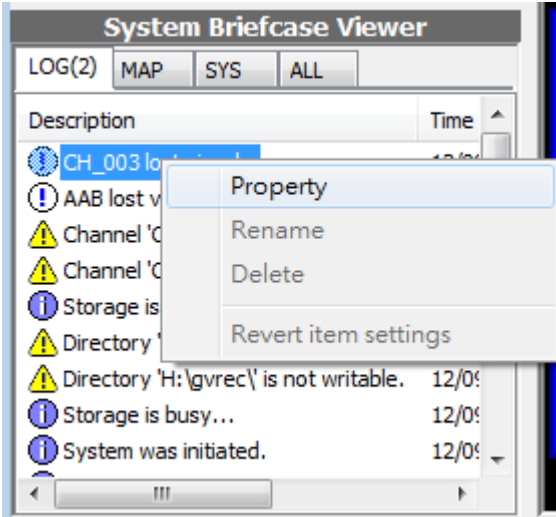
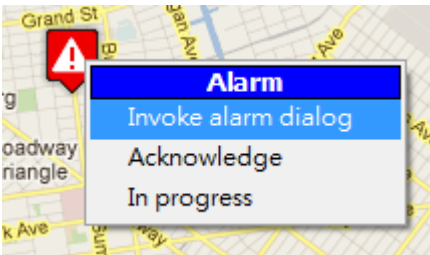
Author	Time	Comment
System	12/09/14 16:11:44	Alarm type changed: Vloss
System	12/09/14 16:11:44	Alarm activated
- Post Comment:** The guard is hit and struck by a smooth criminal.
- Buttons:** Post Comment, Refresh, Acknowledge, In progress, Close
- Status:** 1 entry(s) returned in 4ms

## Concept

Alarm dialog provides the information of an alarm instance, which may consist of one or more alarm events. For each channel, there's always only one active instance. Any new alarm event is appended to the active instance. And the instance is deactivated once it's acknowledged. Inactive instance can no longer be modified, by user or by system. For active instance, user can change its state or post comment.

## Open Dialog

There are few ways to open the dialog:

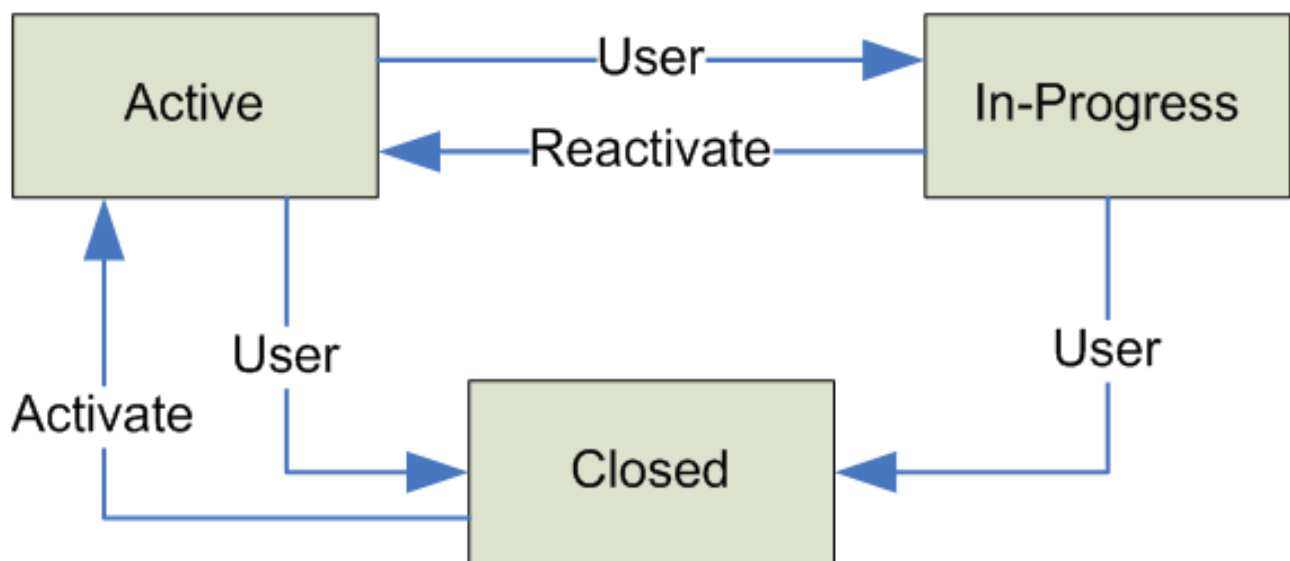
Player		Use player context menu and select Invoke alarm dialog of player or press key "A".
Briefcase Viewer		Use context menu of an alarm instance in briefcase viewer. Or use left-click menu if it's active.
Map		Left click on a channel with active alarm instance, in internal or external maps.

## Alarm Types

Type	Description
Vloss	Video loss
Tripwire	Tripwire crossed
Foreign	Foreign object detected
Missing	Missing object detected
Tamper	Tamper detected (e.g. lose focus, spray, occlusion...)

## Alarm State

State	Description
Active	Alarm is new and active
InProgress	Alarm is in progress. New alarm will reset the state to Active.
Acknowledged	Alarm is acknowledged and closed.

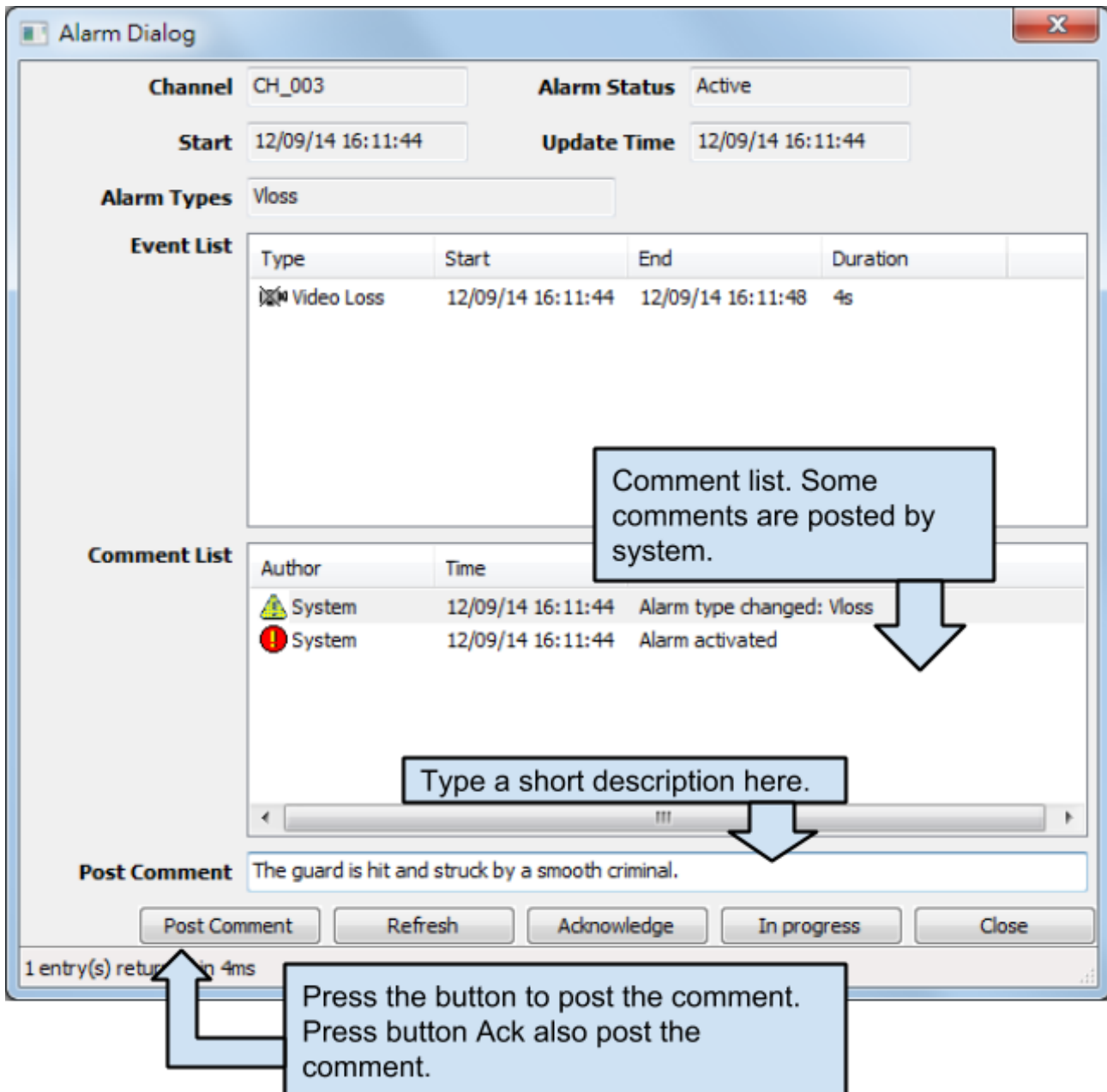


Alarm state transition diagram

## Post Comment

User can only post comment of active or in-progress alarm instance.





## User calculator

The screenshot shows the 'System Configuration' window with a tree view on the left and two calculator sections on the right. The tree view includes: Local Console Configuration, System Configuration, Recording Storage Set, External PTZ module, Aux Module, System Info., Hotkey List, Calculator (selected), NVR Connections, All Channels, Local Channels, Find Cameras, Trigger Policy, Maps, Users, User Groups, and Export/Import. The 'Storage Calculator' section has four radio buttons: 'channels' (4), 'megabits/sec of data rate' (1.5), 'gigabytes of storage' (500), and 'days of storage capacity' (7.90, selected). The 'Optics Calculator' section has a 'Sensor Format' dropdown set to '1/3', 'Horiz. Resolution' set to '720 (pixels)', and three radio buttons: 'focal length of lens (mm)' (8), 'object distance (m)' (20), and 'field of view horizontal coverage (m)' (12, selected). The 'Resolving Power' is set to '60.00 (lines per meter)'. At the bottom right are 'Apply', 'OK', and 'Cancel' buttons.

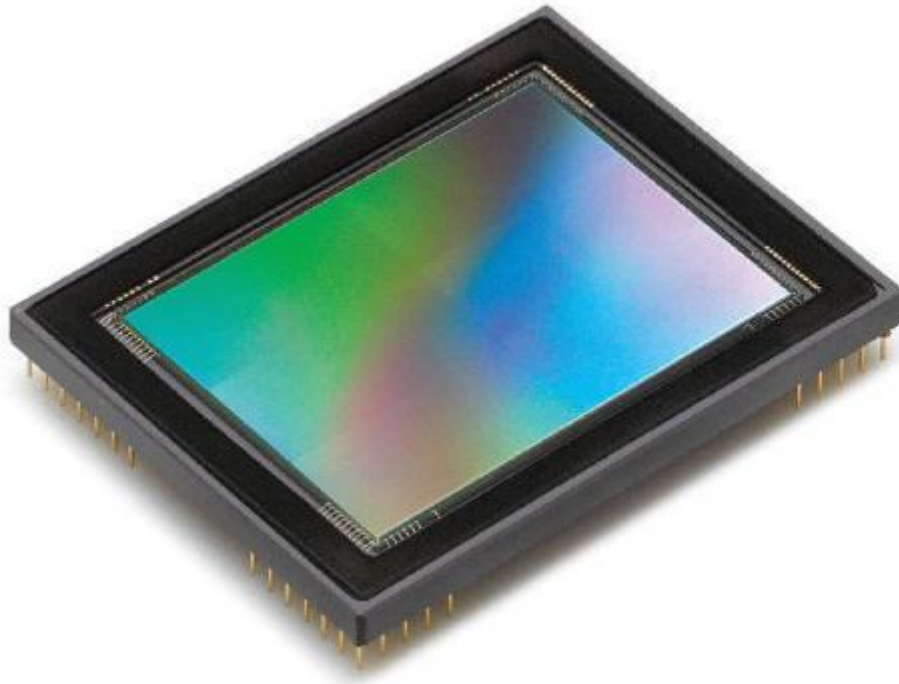
### Storage Calculator

Users can input any 3 of the 4 variables. And the checked field will be calculated using the parameters provided.

### Optics Calculator

For any calculation, sensor size and horizontal resolution of the camera must be provided. Please refer to the manufacturer's spec sheet of the camera. The user can provide 2 of the 3 variables; lens focal length, object distance, and horizontal coverage. The checked field will be calculated using the provided variables.

## Sensor size



Please refer to the spec sheet provided by the camera manufacturer.

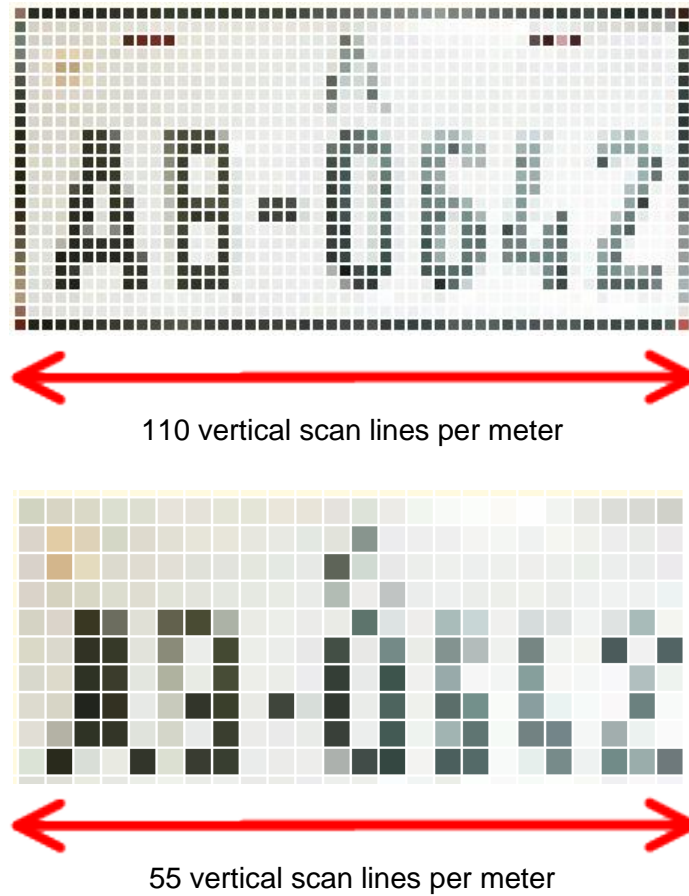
## Horizontal coverage



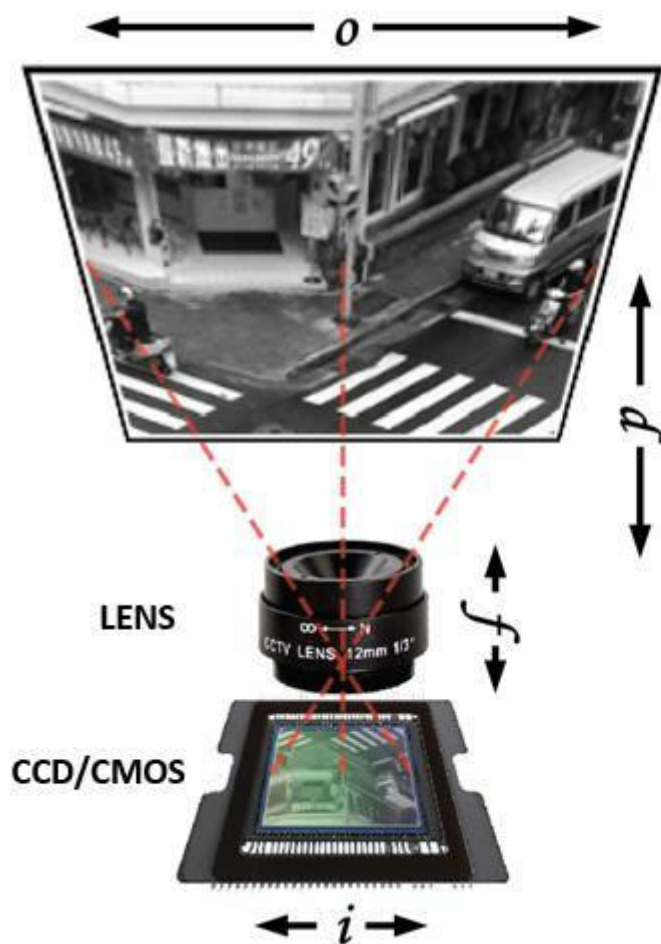
XXX meters

You can input lens focal length and object distance to let the system calculate the coverage, or vice versa.

## Resolving power



Resolving power is a measurement of how many details can be seen in real world. The more the resolving power is, the more easier to identify the object. It can be used as a reference to determine if something can be identified or read. For example, about 100 lpm (horizontally) minimal is required to read car license plates. However, the value is just for reference as there are other factors affecting image quality as well. For example, weather, shutter speed, and focusing.

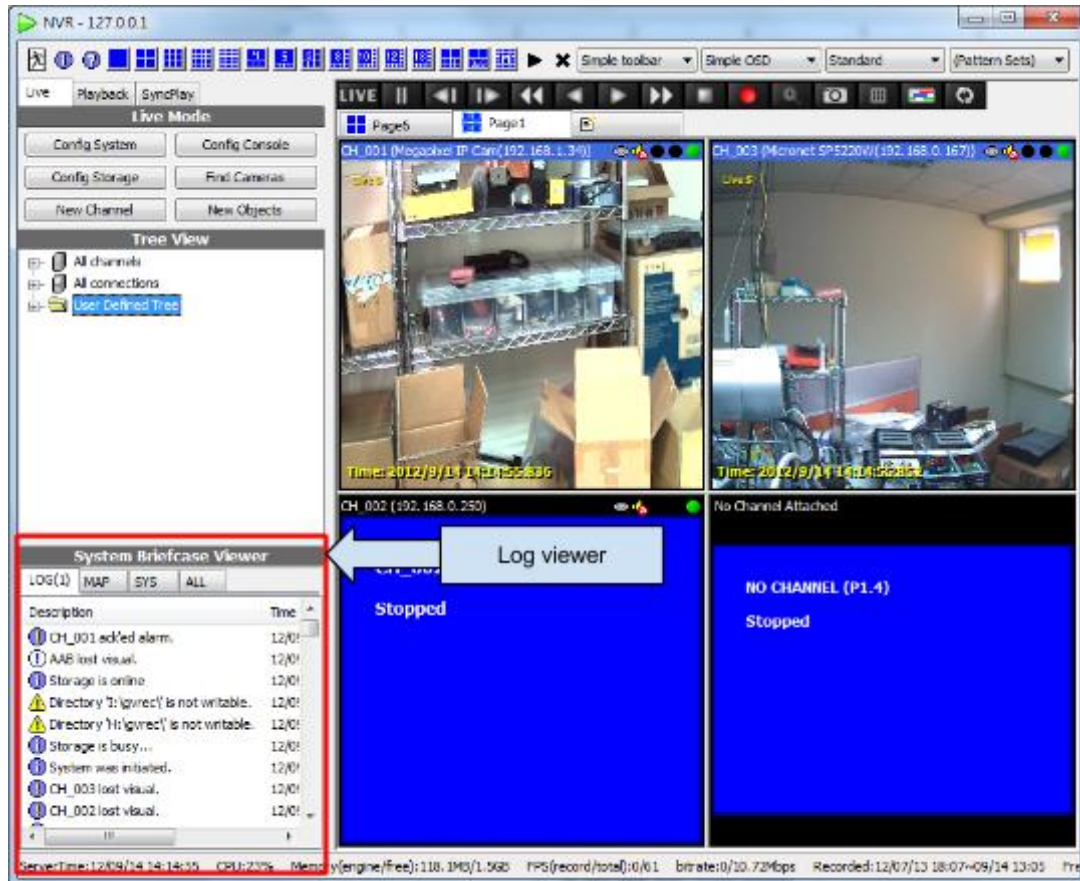


### Diagram Explained

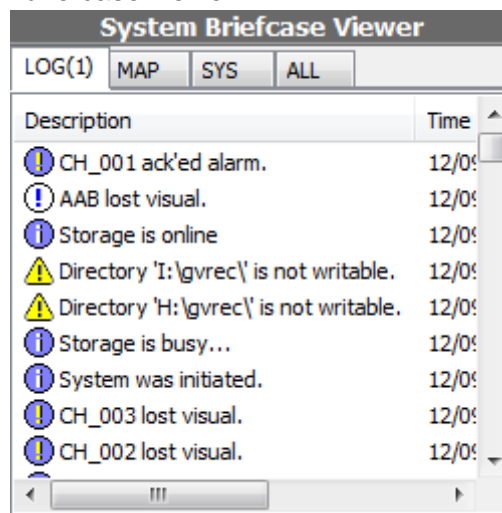
Legend	Description
$o$	Width of field of view (in meters)
$i$	Sensor horizontal resolution (in pixels)
$d$	Object distance (in meters)
$f$	Focal length of lens (in mm)
$i/o$	Resolving power (lpm, vertical)

# Viewing logs

## GUI Overview



Logs can be browsed in system briefcase viewer.



To make it easier to read, click on the tab to show certain types of items only.

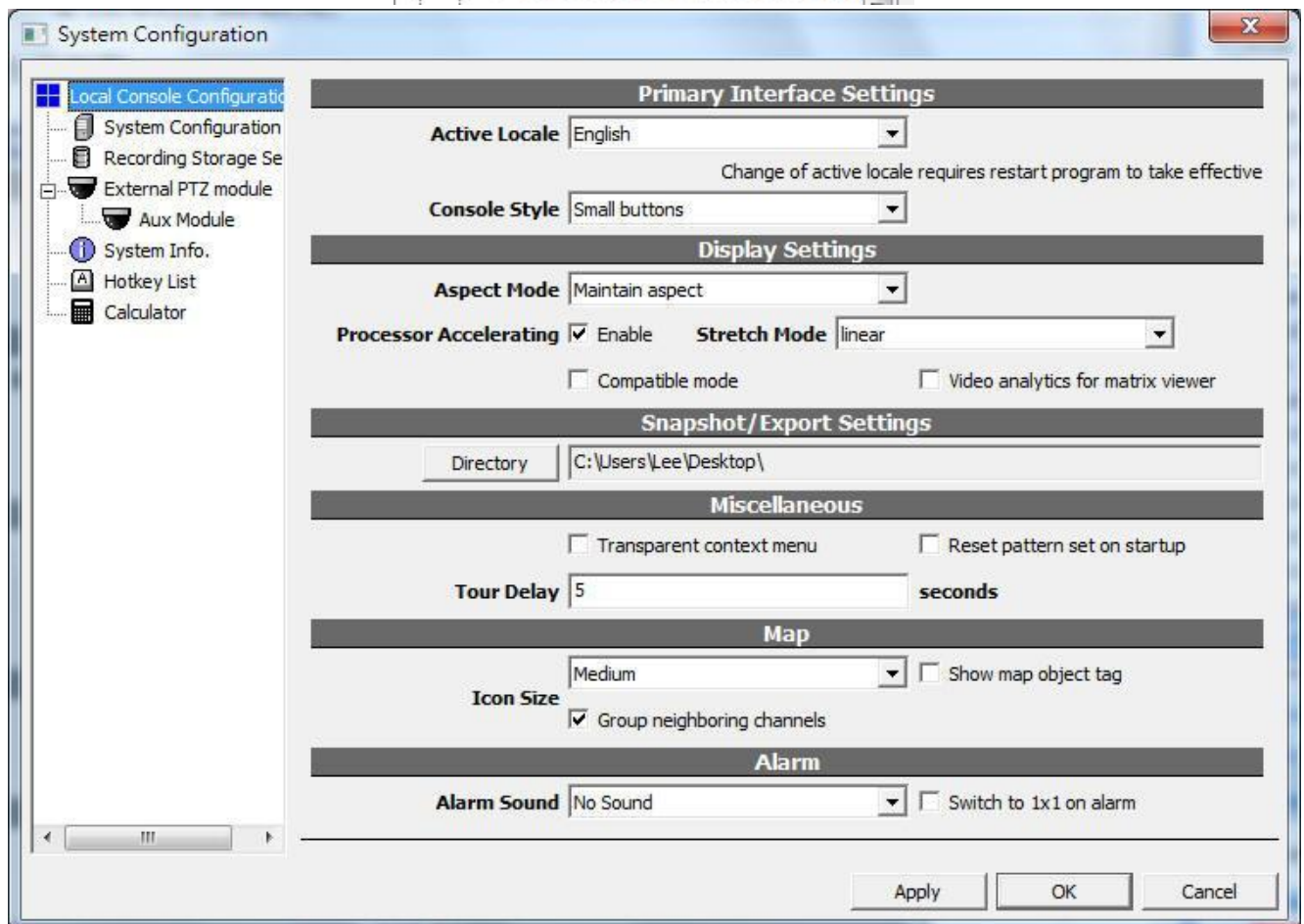
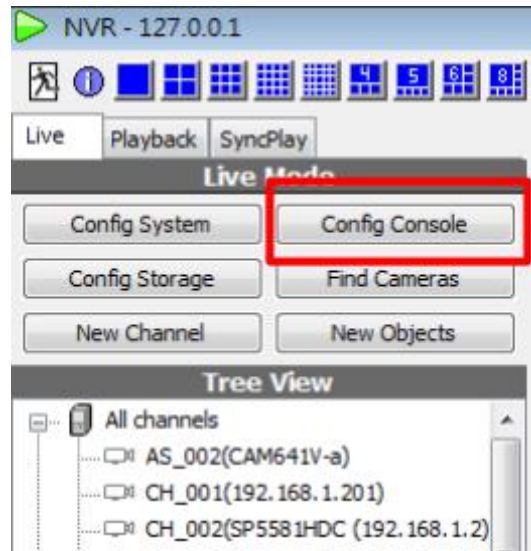
See also

- [Console overview \(System Briefcase Viewer\)](#)



# Console setting

## GUI overview



## Display Settings

### Aspect Mode

The video is not always fit perfectly in the player. It may be too wide or too tall. The player will display the video depends on this setting.



Maintain aspect



Stretch video



Crop to maintain aspect



## Processor Accelerating

Enable Intel MMX, SSE, and SSE2 processor accelerating functions. 3 modes are available. Nearest neighbor has best performance and Cubic offers best graphics quality.

**Disabled(Windows GDI)**



**Nearest neighbor**



**Linear**



**Cubic**



## Compatible mode

Disable all graphics accelerating to solve display problems. The following are solutions for possible display problems. If the solution doesn't work, use Compatible mode.

Problem	Recommended action
Video card doesn't support DirectX 9	Replace the video card
DirectX is not installed	Download DirectX 9 from Microsoft

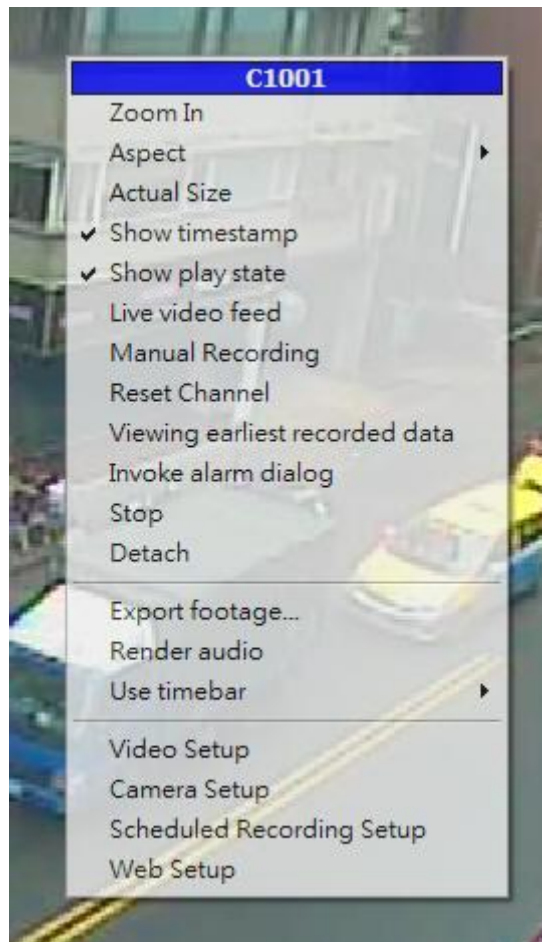
\* Use compatible mode only if some display problem is encountered.

## Snapshot/Export Settings

Currently only JPEG is supported.

## Miscellaneous

### Transparent context menu



### Reset pattern set on startup

See also

- [Pattern-save functions](#)

**Tour Delay**

See also

- [Tour](#)

**Map**

**Show map object tag**

Display tags for channel objects in maps.



**Group neighboring channels**

With this option on, overlapped channels are represented with a G icon. Click on the icon to zoom in and see grouped channels.

Example	Option
	Grouped channels
	Not-grouped

**Alarm**

**Alarm Sound**

Play sound upon alarm.

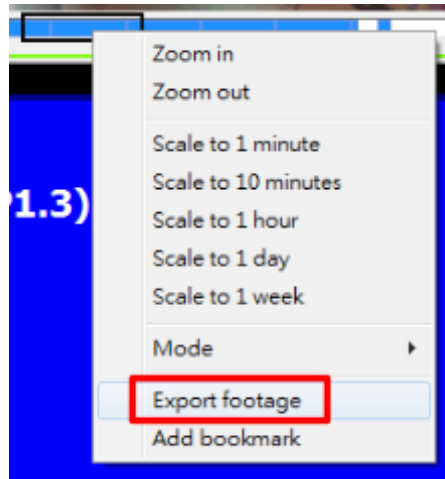
**Switch to 1x1 on alarm**

When alarm is triggered, switch the channel to 1x1. Even if the channel is not currently viewed, it's forced to display.

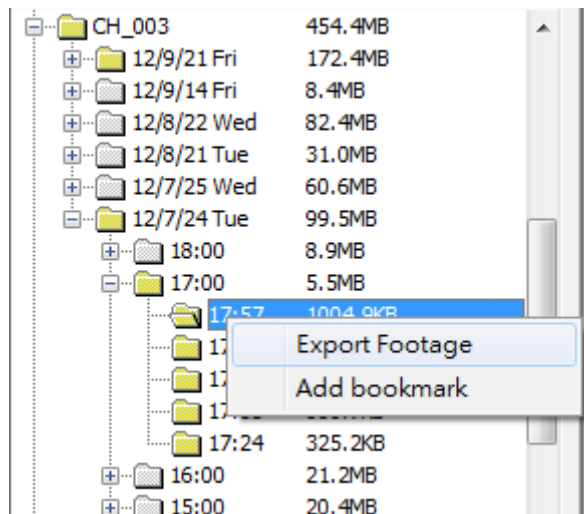
## Exporting footage

### Using timeline

When a time interval is selected in timeline, export footage dialog can be invoked in its context menu to export the selected time interval.



### Using [Storage Report](#)



### The dialog

**Export Footage**

**Footage Source Selection**

**Capture Channels**

門口夜視 (ACTI(門口))

**Others**

OCTC1  
OLEE  
ONEUTRON2  
OQUAD  
AA  
AAA

**Start Time** 2010/08/30 15:33:59

**End Time** 2010/08/30 15:40:48

**Format** XGV

**Export File Options**

**Directory** C:\Users\cyiny\

**Filename Prefix**

**Max File Size** 500 MB

**File Numbering From** 1 **To** 100 **With** 4 **Digits**

**Export Status**

**Current Status**

**Progress**

Download Cancel

Field	Additional Description
Capture channels	The left list are the channels to be exported and the right are the available channels. "Genius Vision NVR" support multi-channels exporting.
Start time	
End time	
Format	XGV is "Genius Vision NVR"'s proprietary format. Select AVI if you wish to play the video in other video players. No player is guaranteed to be able to play the exported video as codec installed on a computer varies. For a list of audio/video codecs supported in AVI export, please refer <a href="#">here</a> .
Directory	
Filename prefix	
Max file size	If the exported data exceed this limit, it's divided into multiple files. When using storage media with small space such as CDs or floppy disks, this must be set.
File numbering from	If exported data is to be divided using Max File Size, the files will be named in sequence. You can also fix the length of the filename by setting the digits. For example: with 4 digits, the files will be named as prefix0001, prefix0002, prefix0003...
Current Status	Indicates if the exporting is started, paused, or cancelled.
Progress	

See also

- [AVI-Export Supporting Information](#)

# Hotkeys

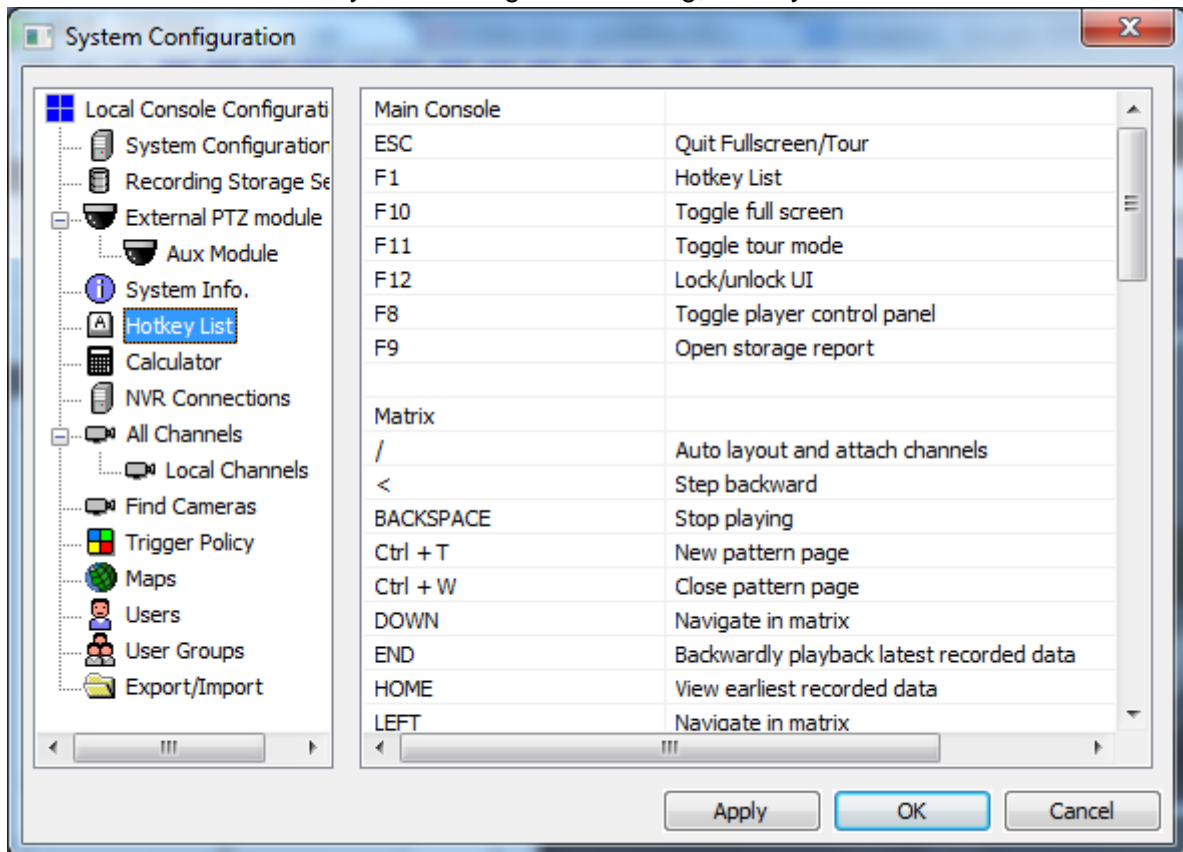
## Enable hotkeys

To enable hotkeys, you must first focus on a player. To do so, left click on the player you want to operate.

See also

- [Focused player](#)

A detailed list can be found in System Configuration dialog, Hotkey List tab.



## Basic operations

Key	Function
↑(Up arrow)	Move player selection up
↓(Down arrow)	Move player selection down
←(Left arrow)	Move player selection left
→(Right arrow)	Move player selection right
~	Select first player
-	Play slower (/2)
=	Play faster (*2)



Enter	Live
Space	Pause
[	Playback backwardly
]	Playback forwardly
<	Backward step
>	Forward step
Insert	Take snapshot
F8	Toggle player control panel
F10	Toggle full-screen
F11	Toggle tour
F12	Toggle operator-lock

## PTZ operations

Key	Function
1-9, 0	Recall preset
Ctrl + 1-9, 0	Set preset
Ctrl + ←→↑↓	Pan, tilt
Ctrl + PageUp	Zoom in
Ctrl + PageDown	Zoom out
Ctrl + Home	Focus far
Ctrl + End	Focus near

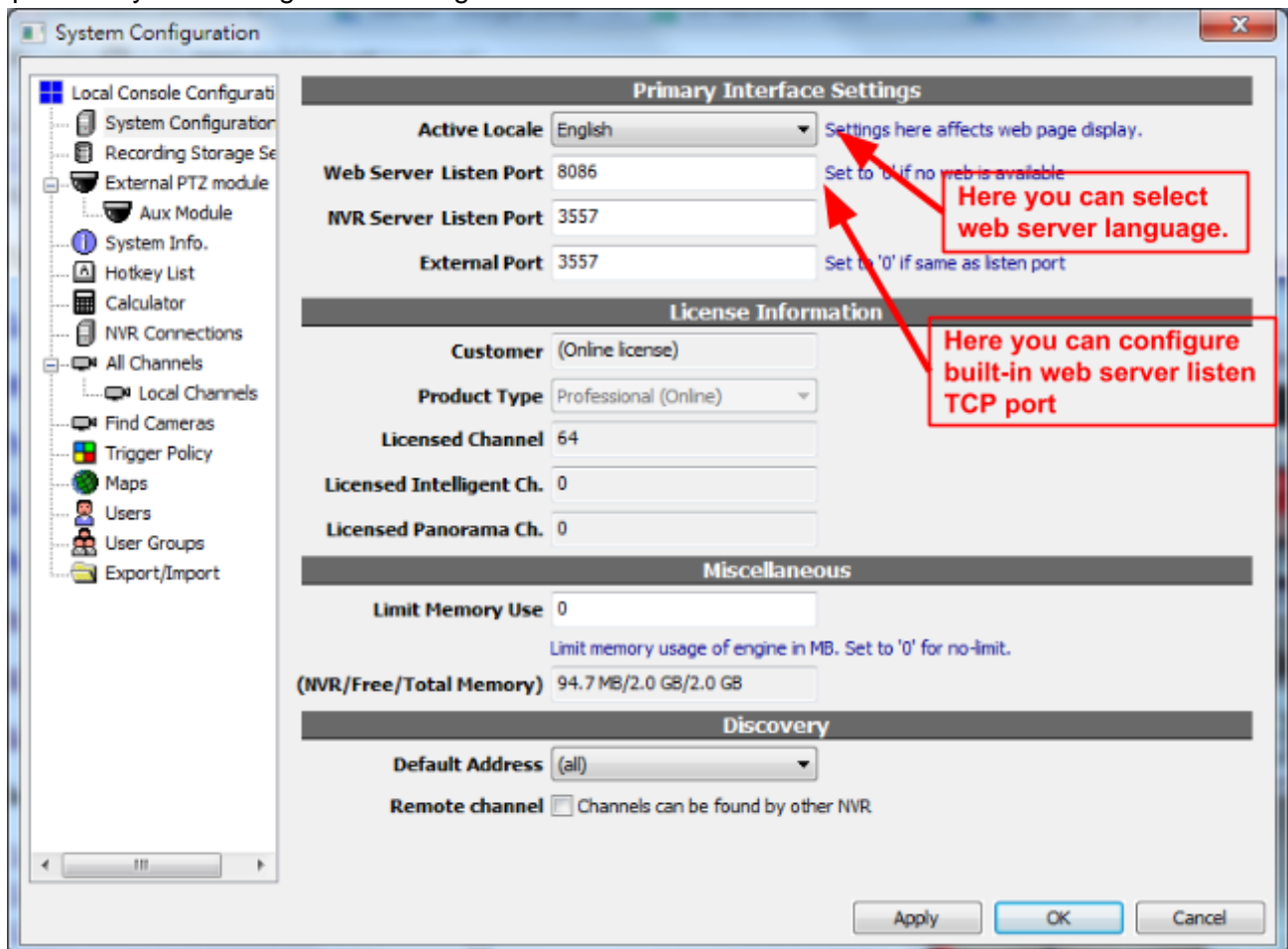
## Remote live viewing

### Synopsis

Genius Vision NVR provides a built-in web server to provide authorized and licensed remote user to view live video through Internet Explorer.

### Configuring web server

Open the system configuration dialog box.



Default built-in web server listen port is 8086. If you configure the listen port to zero ("0"), the web server will be turned off.

### Attention: Used TCP Ports

Please be noted that to make the remote live video web viewing, you are required to properly configure your firewall, if any. Two ports are needed. One is web server port, the other is NVR communication port, which defaults to 3557.

### Broadcasting integration

When a vendor is properly licensed with GvLiveX SDK (by signing the "SDK Licensing Terms")



document), he could integrate the provided ActiveX control into customized web pages to provide live audio-video broadcasting services.

If further information about SDK is required, contact us for more information.

# Memory Watchdog

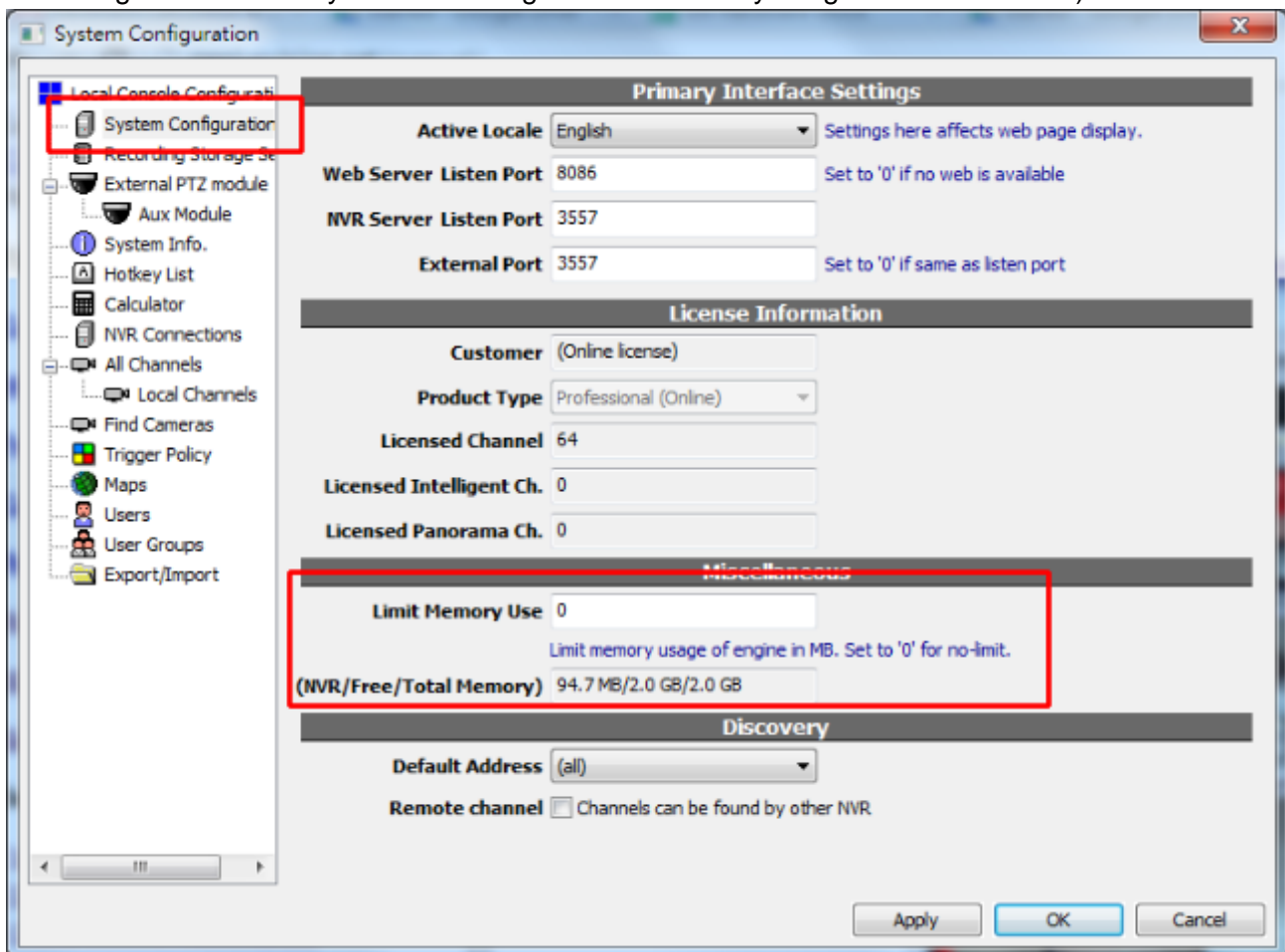
## Memory Watchdog Overview

Memory watchdog is designed to combat unknown memory accumulation problems (a.k.a. memory leak). Memory accumulation could potentially make the engine (server) process to hang, which causes software watchdog unable to work (Existing software watchdog works only by monitoring server crash. If server didn't crash, software watchdog won't be effective).

**Note:** "Memory accumulation" problems could be caused by improper configuration of server, overload of the system, or software bugs.

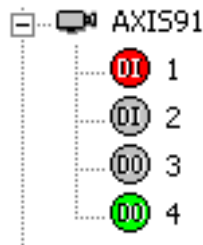
To enable memory watchdog, set a proper value to "Limit Memory Use" box. This value defines the maximum engine process usage. If the engine process reaches this limit, it will automatically restart.

This value should be configured carefully according to the actual memory usage of your engine process (displayed below the Limit Memory Use value). Three times of average memory usage may be appropriate. For example, if your engine process uses 200MB in average, then you can set a value of 600MB. (By configuration 600MB of Limit Memory Use value, you instruct the memory watchdog to automatically restart the engine when memory usage reaches 600MB.)



# IO Port

## GUI Overview

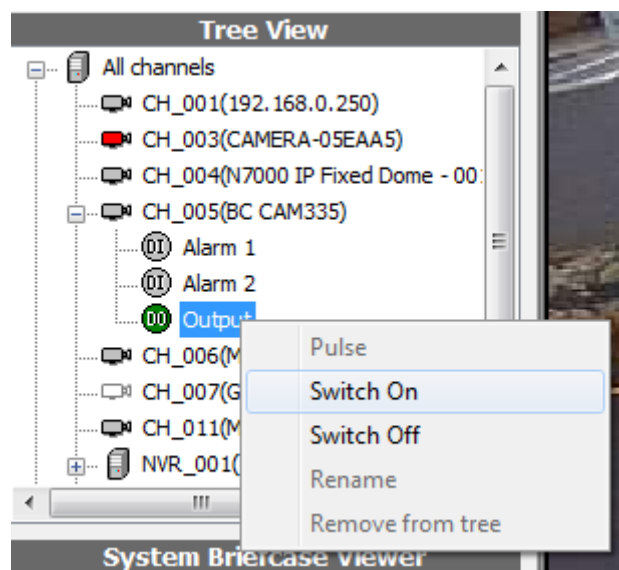


To access IO ports, expand a channel node in User Tree. Gray nodes are inactive ports. Red ones are active input. Green ones are active output. If a node is unexpandable, it doesn't support IO ports or it's not configured properly.

See also

- [Console overview](#)

## Control



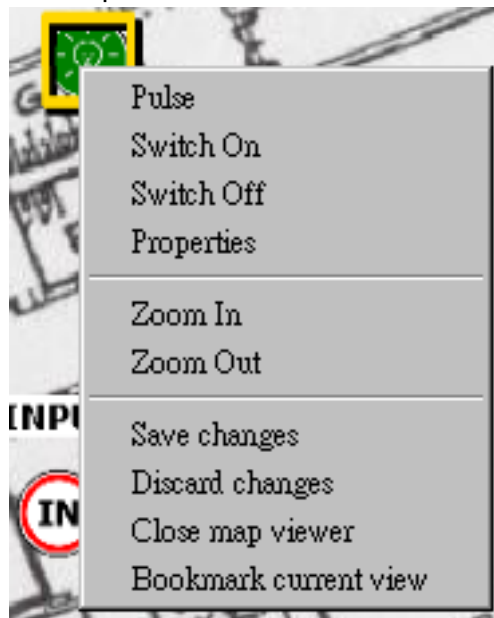
To control IO ports, right click on it to access the menu. Input ports cannot be controlled in the NVR system. They are connected to physical input devices such as switches, sensors... etc.

Pulse is a sequence of repeated on/off send to the port. Literally the controlled device will blink for few seconds. The final state is off.

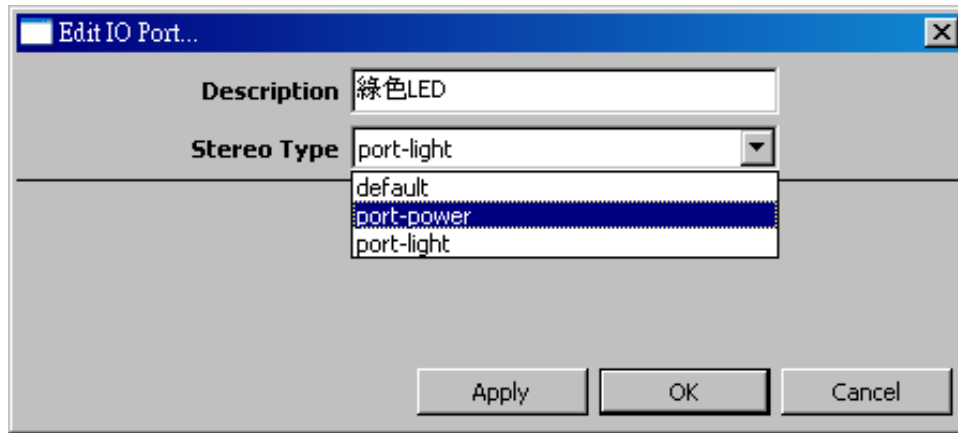
## IO Ports in Maps



To add an IO port in map, drag it in map and release.



Use context menu to control the port.



The description and icon can be edited in the property dialog. The change is only applied to the selected map item, not every item/node representing that port.

# Player Control Panel

## Concept

Player control panel is an integrated controller to control the currently focused player. Press F8 in the player to open the player control panel.

For more information about player and focused player, see also

- [Viewing live video](#)
- [Synchronized playback](#)



## “Play Control” Buttons Explained

Pause	Step backward	Step forward	Fast backward 2x/4x/8x	Fast forward 2x/4x/8x	Backward playback	Forward playback
Live view	Stop	Manual recording	Take snapshot	Frame skip mode		
View earliest recordings	Jump backwardly for 1 day	Jump backwardly for 6 hours	Jump backwardly for 1 hour	Jump backwardly for 10 minutes	Jump backwardly for 1 minute	
Backwardly playback latest recordings	Jump forwardly for 1 day	Jump forwardly for 6 hours	Jump forwardly for 1 hour	Jump forwardly for 10 minutes	Jump forwardly for 1 minute	

## “PTZ Control” Buttons Explained

These buttons are only available for channels with PTZ support.

Zoom in optically	Focus Far	Aperture Open		Stop
Zoom out optically	Focus Near	Aperture Close		

## “Editing Regions” Explained

Editing Region is an advanced function for video analytics applications. Refer to [Region Configuration](#) for more information.

### Combobox Explained

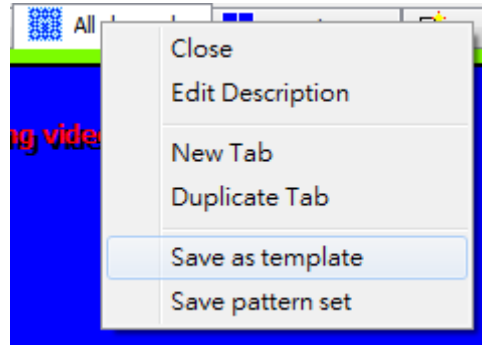
Visual layer selection	Object creation drop-down menu
------------------------	--------------------------------

### Buttons Explained

Save changes	Discard unsaved changes	Open region properties dialog	Remove selected region	Add a new rectangle	Add a new polygon
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## Pattern-save Functions

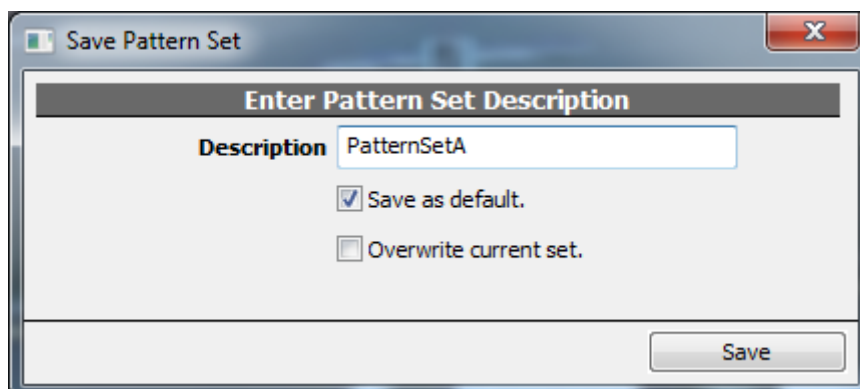
### Save pattern templates and pattern sets



System Briefcase Viewer	
LOG(1)	MAP
SYS	ALL
Description	Time
Template	12/09/24
Pattern set	12/09/24
CH_002	12/09/24
CH_009	12/09/21
NVR_002	12/09/21

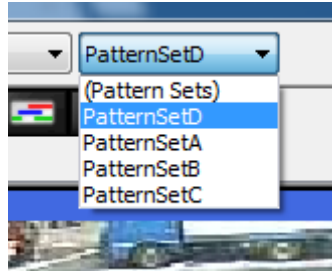
Action	Description
Save as template	Save current page as a template. The template can be accessed in system briefcase viewer.
Save pattern set	Save all pages and their states as a pattern set.

### Pattern Set



Saved pattern sets are added to the pattern set list in the local console. Click any pattern set to load. Current pattern layout will be overwritten.





If Reset pattern set on startup is enabled in console setting, the first in frequently-used layout is always loaded when local console is invoked.

## Player



## Title

Displays the name and description of attached channel/map. The background color indicates the status.

Outlook	Description
	Nothing is attached
	Channel live view
	Channel playback/Map is loading
	Map is loaded
	Map is changed and not saved
	Blinking: Active alarm Static: Alarm in progress

## Play state indicator

Indication	Description
Live	Live view
<	Pause, backward play
>	Pause, forward play
<	Play backwardly
>	Play forwardly
<<	Fast backward
>>	Fast forward
E	End of recorded data
AZ	Actual size, zoomed
A	Actual size
Z	Zoomed
S	Stretched
C	Cropped

## OSD

Display the video time, resolution, and frame rate. Depends on OSD setting selected.

See also

- [Player Control Panel](#)
- [Viewing playback video](#)
- [Taking snapshot](#)

## Timebar

See also

- [Viewing playback video](#)
- [Using playback timeline](#)

## Status indicator



	Video streaming
	Recording
	Accessing disk
	Intelligent Detection: Inactive
	Intelligent Detection: This player is actively detecting motion
	Intelligent Detection: Detected by other player (server or other client)
	Intelligent Detection: This player is actively tracking object
	Audio: Off and not available
	Audio: On but not available
	Audio: Available but off
	Audio: Available and on
	Audio Output: Actively transmitting
	Audio Output: Muted
	Audio Output: Activate but not transmitting (no signal from microphone or not loud enough)
	Watermark: Vandalized
	Watermark: Authentic

(some indicators are hidden if the function is not available)

Indicator explained:

Intelligent video	Render audio	Accessing disk	Recording	Video streaming
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See also

- [Rendering audio](#)
- [Activating Intelligent Detection](#)

## **Part III: Intelligent Video and Advanced Topics**

## Activating Intelligent Detection

### Activating/Deactivating Detection

If you wish to start intelligent detection, you need to activate the detection mechanism in addition to proper configuration. This step is necessary since detection consumes client CPU resource.

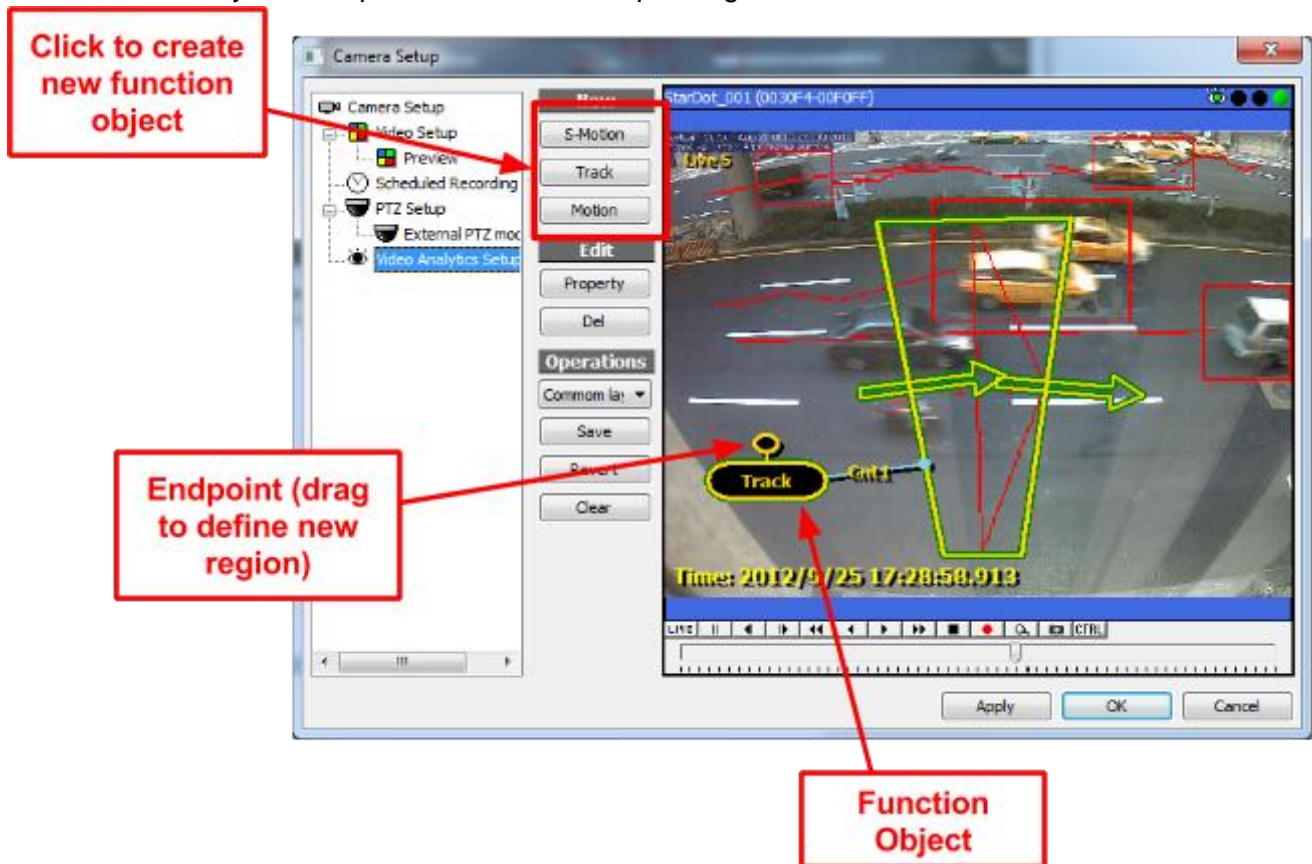


Icon semantics is as follows:

Icon	Description
	Channel is not detecting
	Channel is detecting locally
	Channel is not detecting locally, but has been activated for detection somewhere else.

## Region Configuration

Select Video Analytics Setup tab in Camera Setup dialog.

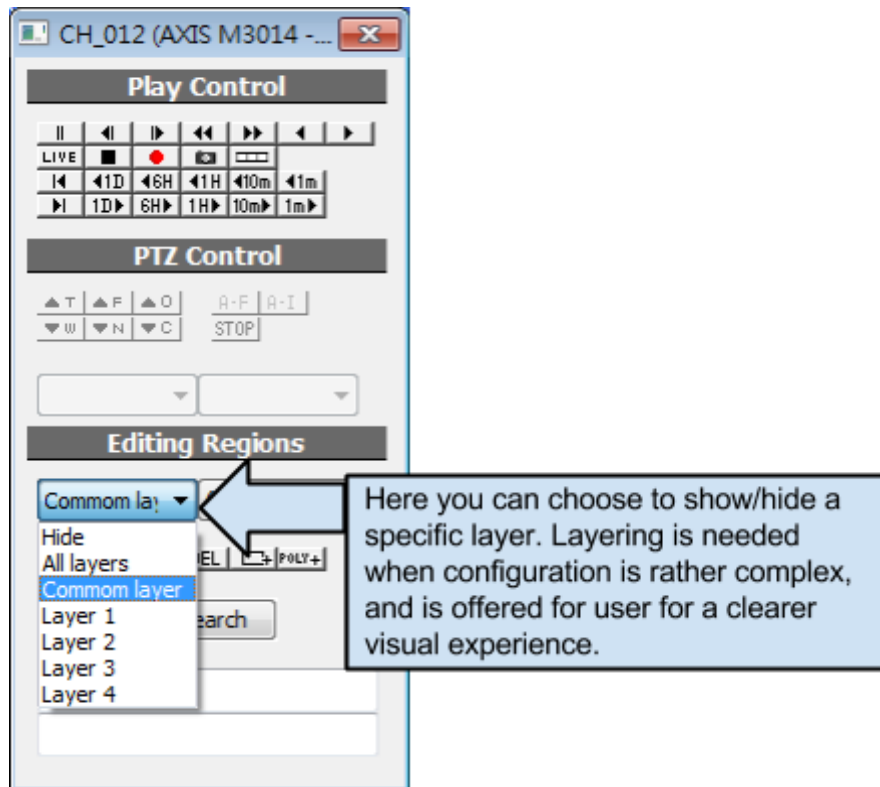


## Region Configuration (Legacy)

### Basics of region configuration

To configure regions, you need to invoke "[Player Control Panel](#)" by pressing F8.

Following window will appear:



Now to explain the "Player Control Panel" functions:

Button	Description
	Deleted selected object.
	Edit function object properties.
	Restore the modified region configuration into last saved one.
	Save current region configuration.
	Add polygon region object.
	Add rectangular region object.



# Function Object

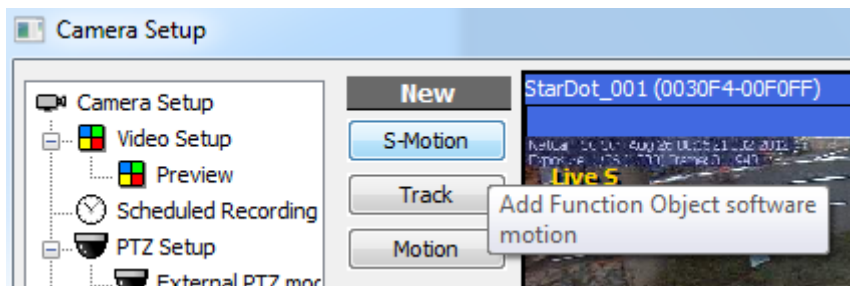
## Overview

Function Object is an abstract object that defines a VMS function. It contains parameters and can be associated with regions to define ROI or object size. The following function objects are available in the system:

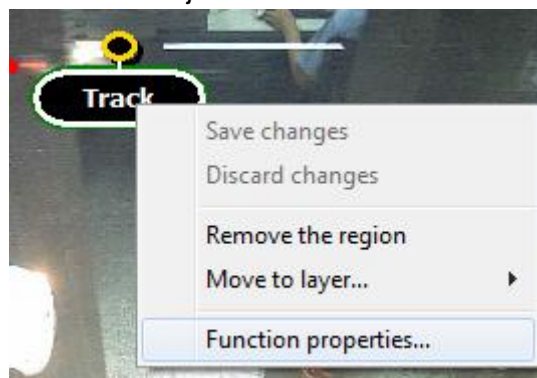
- Motion detection (hardware)
- Software motion detection
- Object tracking

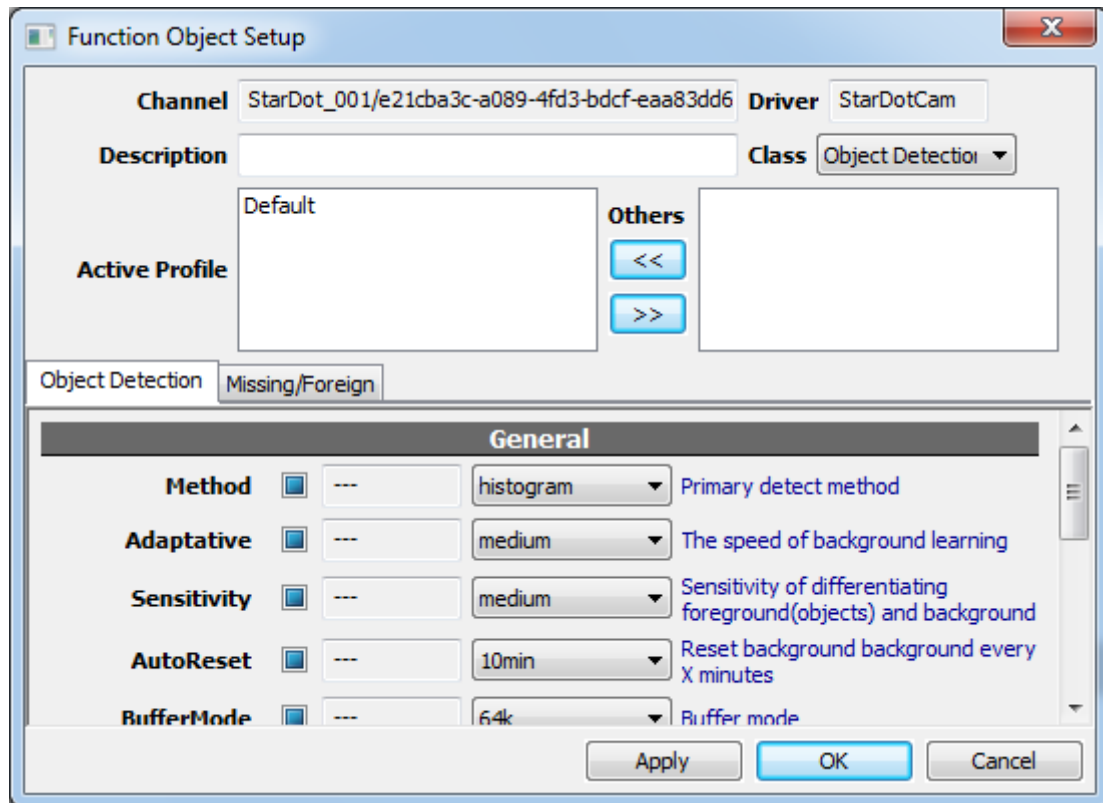
## Creating Function Objects

Invoke Camera Setup dialog and select Video Analytics Setup tab, then click on one of the New Function Object buttons.

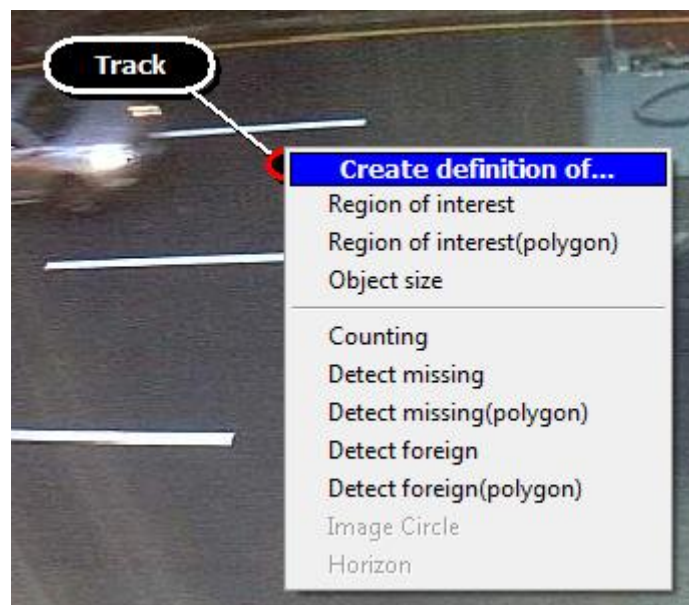


Use context menu to configure Function Object.

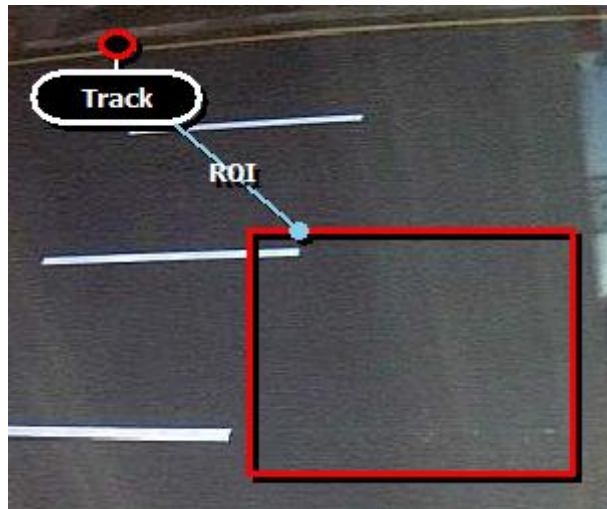




## Define Regions






Drag the endpoint of Function Object to define regions as extra parameter. Available regions depends on the type of the Function Object.



A tag will be displayed on the connection to indicate what the region is used for the Function Object. In this case, it's defined as ROI (region of interest).

## Intelligent Detection Basic Knowledge

Sensitivity	The ability to detect an event in real world.
Specificity	The ability to ignore unwanted event in real world, i.e., shadow, lighting, leaves...
False positive	The system report an event but there's actually no event in real world.
False negative	A real world event occurs but the system does not report it.
Background	The image that represents the scene. In IVS system it's a statistical model beyond human understanding.
Foreground	<p>The result of a video frame subtracts background.</p> 
Artifacts	<p>Compression generated glitches in video. It's more severe with higher compression rate (lower bit rate).</p>  <p>Note the mosaic pattern in right image.</p>
MPEG based codec	<p>MPEG based codecs include MPEG4 and H.264. Image quality fluctuates in these codecs and artifacts accumulate over time until next I-Frame. This is a challenge for intelligent detection, especially when GOP size is very large, or bit rate is very low.</p>  <p>These 2 video frames differs only in hundreds of milliseconds. Note the artifacts (mosaic) in the gray area changes dramatically when I-Frame is received. This may generate false positive if sensitivity is set too high.</p>

# Motion Detection

## Definition

“Motion detection” function detects pixel changes in live video. At certain level of accumulated pixel changes, motion are reported. The generic algorithm used to perform motion detection does not distinguish foreground from background, thus it cannot segment object from other objects.

## Configuration

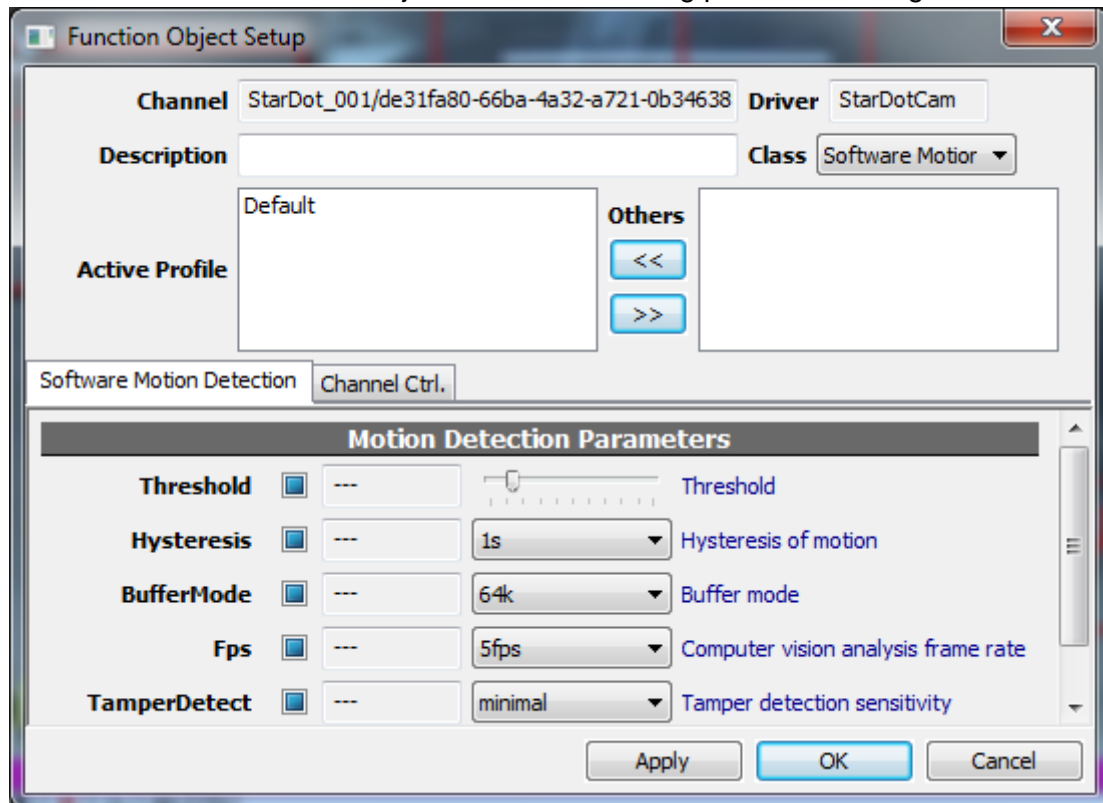
See also

- [Region Configuration](#)

## Parameters of S-Motion

“S-Motion” stands for “software based motion detection” and is implemented Genius Vision NVR software.

Right-click on the S-Motion function object to invoke following parameter dialog:



### Threshold

Pixel will be considered being changed if the value difference between video frames exceed this threshold. The higher the threshold, the lower the sensitivity is.

### Hysteresis

Hysteresis is the ability to accumulate states in the past few seconds. This function is to fight video glitch which lasts only 1 or 2 frames, in a timespan of milliseconds. Longer hysteresis decreases sensitivity and increases specificity. This function is especially useful for MPEG (H.264 included) based codec, which generates artifacts over time before next P frame.

## **TamperDetect**

Performs video tamper/sabotage detection against sudden scene change, camera lose focus, camera blocking, or abnormal noise, etc.

### **Note:**

1. S-motion must be accompanied by to [Activating Intelligent Detection](#) work properly.
2. Hardware-based motion detection requires both hardware and software support. Not all models of cameras are supported.

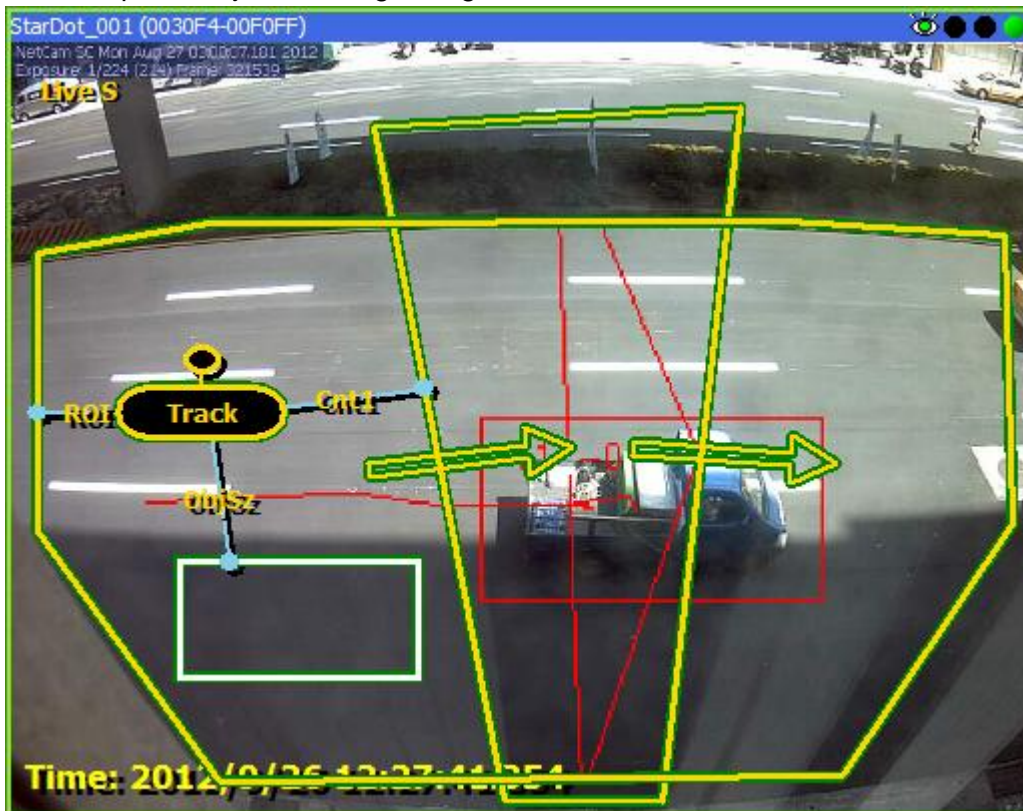
# Object Tracking

## Definition

Object tracking analyzes video sequence, isolates background (still objects) and foreground (moving objects), and then further track foreground objects to perform object trail tracking, directional counting, standing still detection (loitering), missing object, and foreign object detection.

## Configuration

An example of object tracking configuration is as follows:



Explained as table below:

Link	Description
ROI	Region of interest of detection.
ObjSz	Object size specifier.
Cnt	Object counter (with direction)
DetectForeign	Detects foreign objects
DetectMissing	Detects missing objects

- If ObjSz is not specified, the system will assign a default object size automatically.
- If ROI is not specified, the entire video screen will be used as detection area.



## Parameters (Object Detection)

**Function Object Setup**

Channel: C1001/e8cd3bba-afa0-475e-a043-047228ad4e3a Driver: ActiSDK/10000

Description: Class: Object Detection

Active Profile: Default Others: << >>

Object Detection Missing/Foreign

**General**

Method	<input checked="" type="checkbox"/>	histogram	histogram	Primary detect method
Adaptive	<input checked="" type="checkbox"/>	medium	medium	The speed of background learning
Sensitivity	<input checked="" type="checkbox"/>	medium	medium	Sensitivity of differentiating foreground(objects) and background
AutoReset	<input checked="" type="checkbox"/>	off	off	Reset background background every X minutes
BufferMode	<input checked="" type="checkbox"/>	16k	16k	Buffer mode
Fps	<input type="checkbox"/>	---	5fps	Computer vision analysis frame rate
TrackDuration	<input checked="" type="checkbox"/>	5s	5s	Duration to track an object
TripwireAlarm	<input type="checkbox"/>	---	off	Trigger alarm when object trespassing tripwire
Predict	<input checked="" type="checkbox"/>	low	low	Predict object location when lost track
Filter	<input checked="" type="checkbox"/>	low	low	Filter out objects with unstable behavior
NormalizeHist	<input checked="" type="checkbox"/>	high	high	Normalize histogram to enhance image contrast and compensate lighting change
ShiftHist	<input checked="" type="checkbox"/>	high	high	Shift histogram to compensate lighting change

Apply OK Cancel

### Method

Primary method (algorithm) used to perform object tracking. This parameter affects CPU and memory usage. Also potentially different methods perform differently on different scene.

Value	Description
histogram	High accuracy. More memory usage.
norm_dist	Less memory usage.
feature	Only applicable to very specific scene.

### Adaptive

The rate of learning background. When objects hold still for a long time, they will be treated as part of the background. This parameter affects how fast a still object to be blend in background. When still object detection is a less requirement, configure this parameter to a higher value to increase



background learning speed to prevent scene-change induced error rates.

Value	Description
high	Objects hold still for 10 seconds will be considered as background.
medium	Default value. Objects hold still for about 1 minute will be considered as background.
low	Can detect objects hold still for a long time. (More than 10 minutes)

### Sensitivity

Sensitivity to differentiate foreground and background pixels. Higher sensitivity means better detection rate, but also more false positive.

### AutoReset

Auto reset background every X minutes. In environments with inconsistent lighting, auto reset background periodically may improve tracking and reduce false positive.

### BufferMode

The internal image buffer size used to perform computer vision algorithms. Lower size consumes less memory but may lose track of small objects.

### Fps

Detection frame per second. This parameter affects the accuracy and the CPU resource usage.

Value	Description
20fps	Maximum computing resource usage, used to track high-speed objects.
5fps	Default value.
1fps	Minimum computing resource. May only detects slower objects.

### TrackDuration

Length of tracked object trail. This parameter affects tripwire counting and still object detection.

Value	Description
3s	Track slower objects.
1s	Default value.
200ms	Must be paired with Fps=20fps, used to track high-speed objects.

### TripwireAlarm

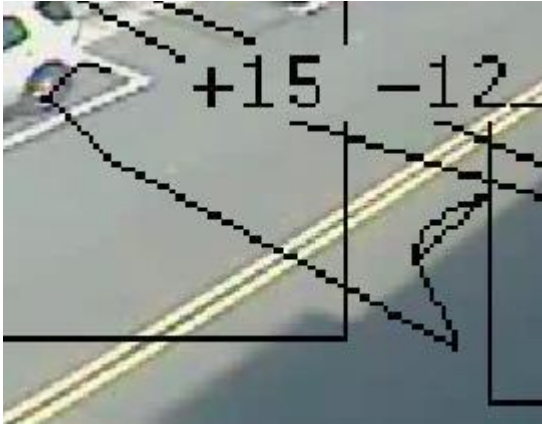
Trigger alarm when tripwire is crossed.

### Predict

When lost track, use the last position and speed of the object to predict its position in the following frames. This improves detection rate but generates more false positive.

### Filter

Filter out objects with dramatic change in size, speed, or shape.



The object shown above jumps and is unlikely to be a real object. It's actually caused by the shadow and sunlight change. High filter setting decreases false positive.

### NormalizeHist

Normalize histogram to enhance image contrast, thus improves detection rate. For image with very low contrast, this may enhance noise instead.



Left: original image, right: histogram normalized.



Contrast enhancing actually produces more artifacts than image features.

### ShiftHist

Shift histogram to compensate lighting change. This is highly recommended for outdoor detection.



Same scenario with different lighting. Before the computer learns the new background, almost the entire scene is a very big object.

NormalizeHist and ShiftHist are especially useful for cameras with unstable metering system or inconsistent exposure.

## Parameters (Missing/Foreign)

### TimeMissing

Fire alarm if object is missing from pre-configured region after specified interval.

### TimeForeign

Fire alarm if object is stayed in pre-configured region after specified interval.

## Distributed Video Analytics

### Overview and Rationale

The intelligent video detection architecture before branch [b50](#) is pure client-side. This means video detection is actually performed in NVR client, rather than server. This architecture is sometimes argued as controversial, as explained in the following table.

	Detection performed at client-side	Detection performed at server-side
<b>Advantage</b>	<ol style="list-style-type: none"> <li>1. Offload video detection from server.</li> <li>2. Distributed computing load to (potentially) multiple clients, if available.</li> <li>3. Detection result is visually accessible and verifiable.</li> </ol>	<p>As long as server is on, detection is on.</p> <p>There can be no miss, even if no client is currently viewing.</p>
<b>Disadvantage</b>	<p>When no client is not viewing video, video detection is not performed.</p>	<ol style="list-style-type: none"> <li>1. Increases server loading, making server a potential bottleneck.</li> <li>2. Detection result is not visually accessible nor verifiable.</li> </ol>

From table above, it would appear that there is not a "best" between client-side or server-side detection architecture. It's simply a architectural judgment call. For flexibility, starting from branch **b50**, both server-side and client-side detection are supported. This allows wider options for user to configure the system to their actual need.

### Video Analytics

There are 3 ways to do video analytics: by full-function player, matrix viewer, or server.

#### Detect by Full-function Player



This is the most resource-consuming way to do video analytics. And it stops detection in video playback.

It can be turned on/off by clicking on the EYE icon at top-right.

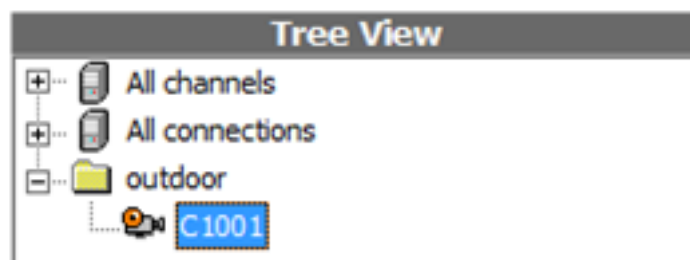
### Detect by Matrix Viewer



To turn on/off video analytics, configure it in Local Console Config dialog, under category Display Settings.

Player or Matrix Viewer video analytics can be done at remote clients; hence shares server loading.

### Detect by Server

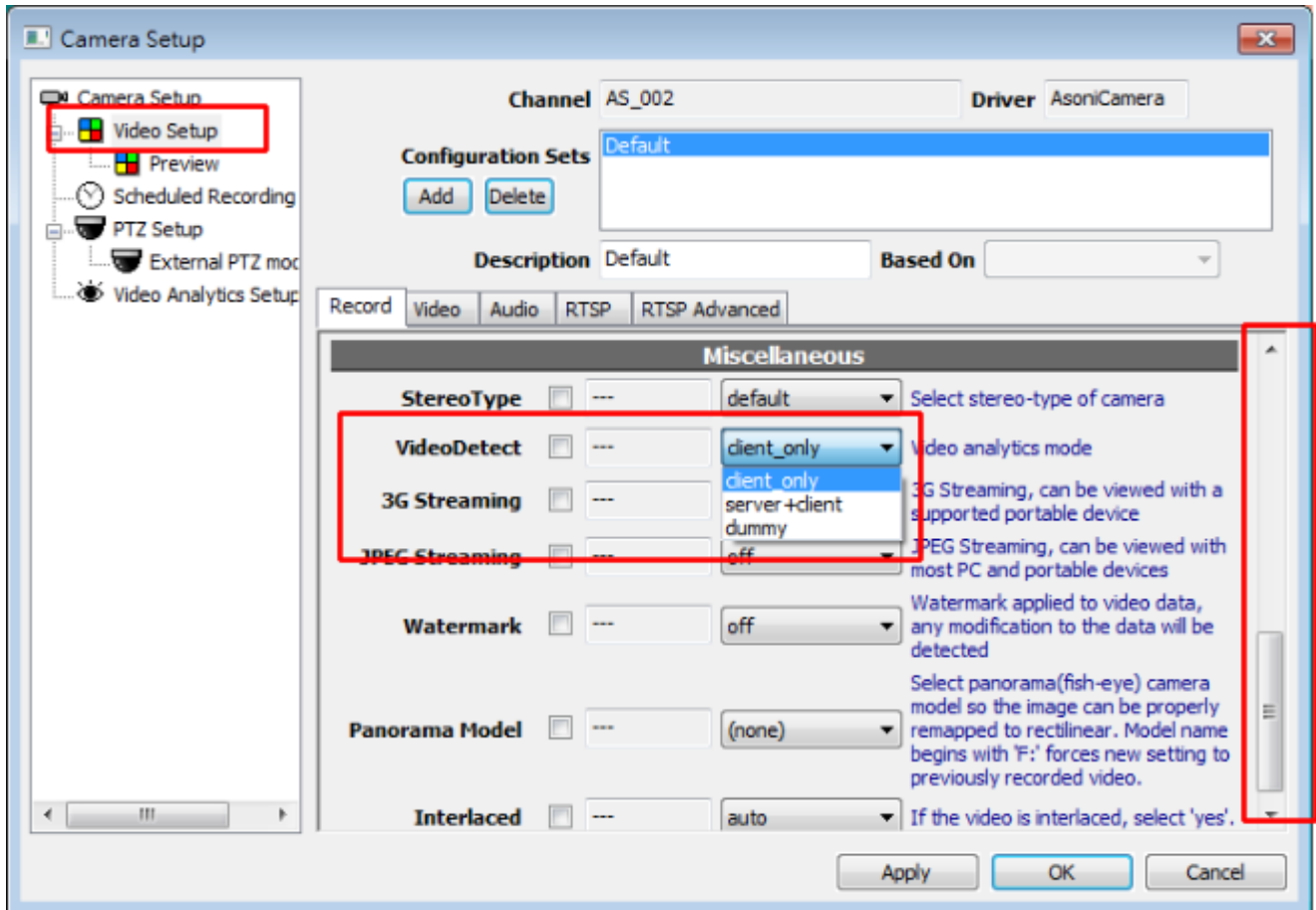


Server video analytics is indicated by the orange EYE-BALL on channel icon. There's no video rendering, and admin access is required to turn it off. So it's the most efficient and secured way to do video analytics.

To configure server video analytics, check Video Analytics Policy below.

### Video Analytics Policy

Video analytics policy can be configured in  
Camera Setup > Video Setup > Record > Miscellaneous > VideoDetect



The meaning of **VideoDetect** choice is described below:

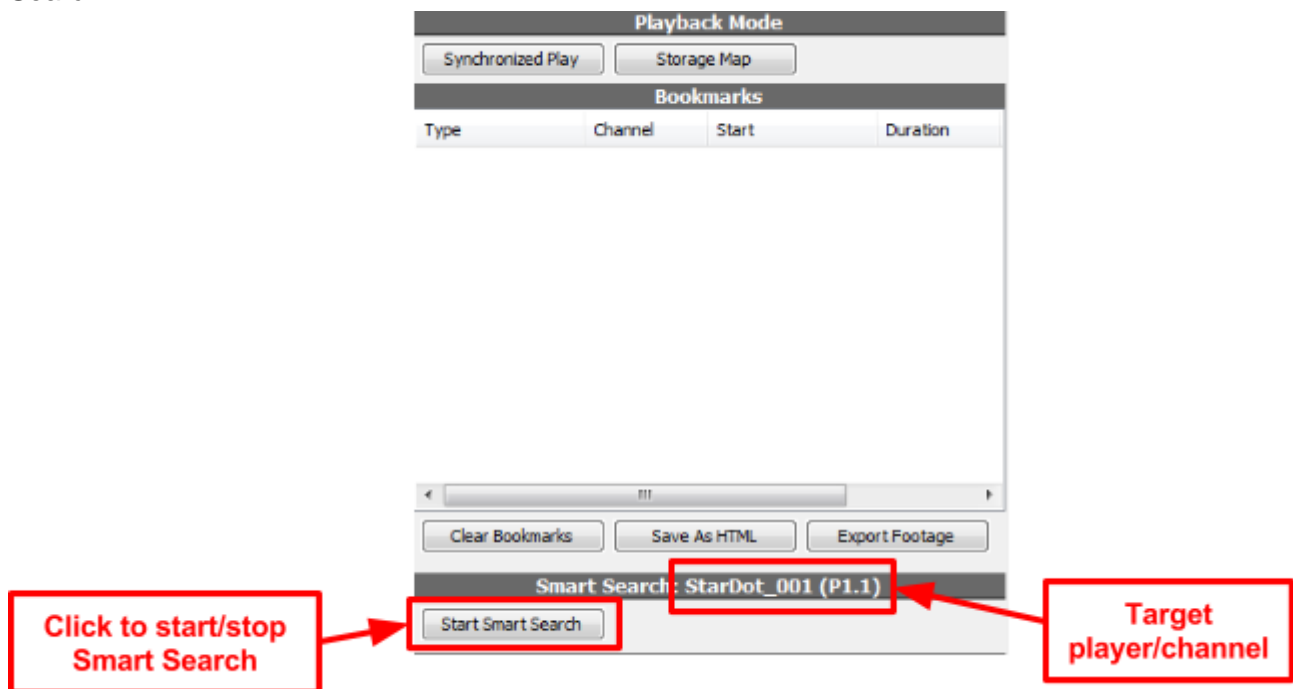
"VideoDetect" value	Description
client_only	Only client(Full-function Player or Matrix Viewer) do video analytics.
client+server	Both client and server do video analytics.
dummy	This option is reserved for engineering debug. Do not select.

When there are more than one video analytics instance, only first one is selected as final result for possible actions. The choice of detection instance is by first-in-first-out (FIFO) order.



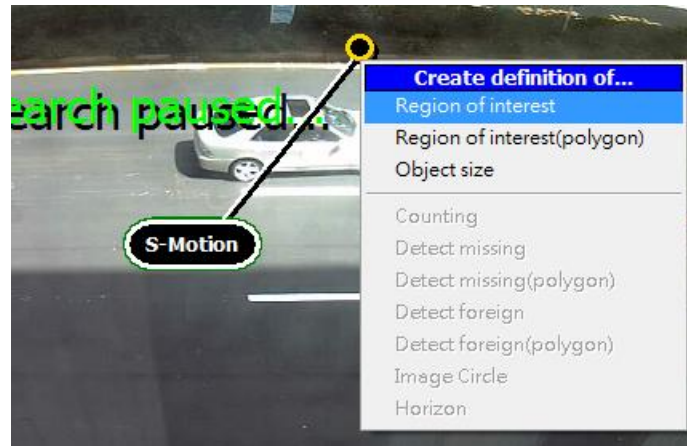
## Smart Video Search

To enable Smart Search, first switch to Playback Mode. Then focus a player and click Start Smart Search.



A Software Motion function object will be created by default. User can define additional region of interest or start playback right away to search entire scene. Search can be forward or backward, 1x/2x/4x or more. But generally it lost accuracy beyond 8x, especially for fast moving objects like automobiles.





Search results will be saved as bookmarks. Click the bookmark and video will be displayed in Bookmark Preview. Right click on bookmark to change description or delete it.

Bookmarks			
Type	Channel	Start	Duration
Motion	StarDot_001	12/09/26 12:46:34	0s
Motion	StarDot_001	12/09/26 12:46:08	17s
Motion	StarDot_001	12/09/26 12:45:50	10s

Edit Description  
 Delete Bookmark

Clear Bookmarks    Save As HTML    Export Footage

**Bookmark Preview**

StarDot\_001 (0030F4-00F0FF)

Time: 2012/9/26 12:52:30.798

Add bookmark    Take snapshot

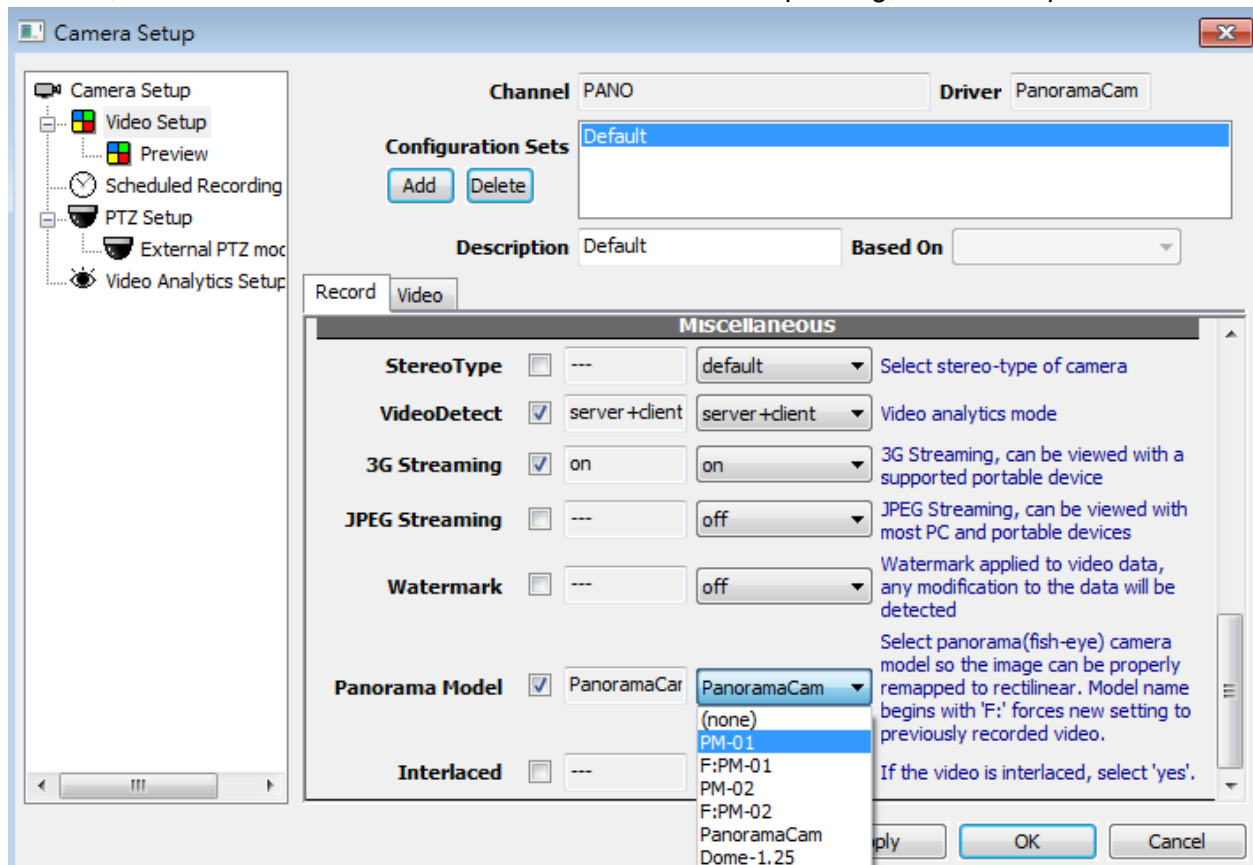
Smart Search support all intelligent detection functions. See also [Region Configuration](#).



## Using Panoramic Camera

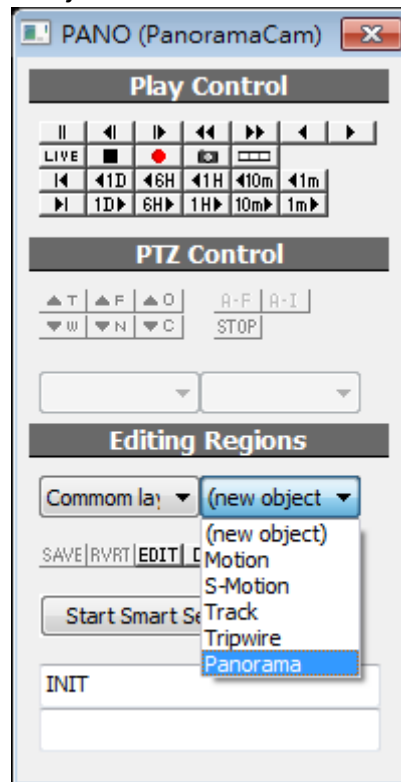
### Enable 360 Panorama

Panorama is not a standard feature. It requires additional license to be installed to activate. To activate, select one of the Panorama Model in Camera Setup dialog, Video Setup.



If there's no options in Panorama Model, the license is not installed properly.

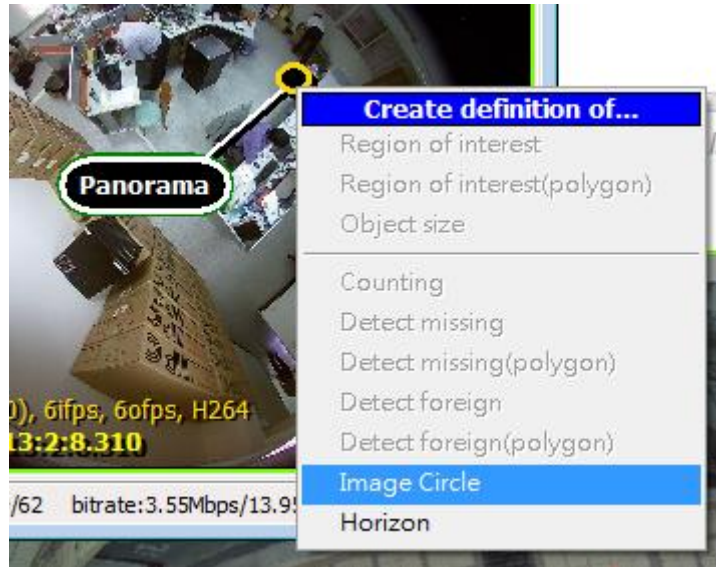
Calibration may be required. To calibrate, focus the player and press F8 to bring up player control panel. Create a "Panorama" function object.



Panorama function object looks like this:



To calibrate image circle, drag the endpoint and define a Image Circle region.

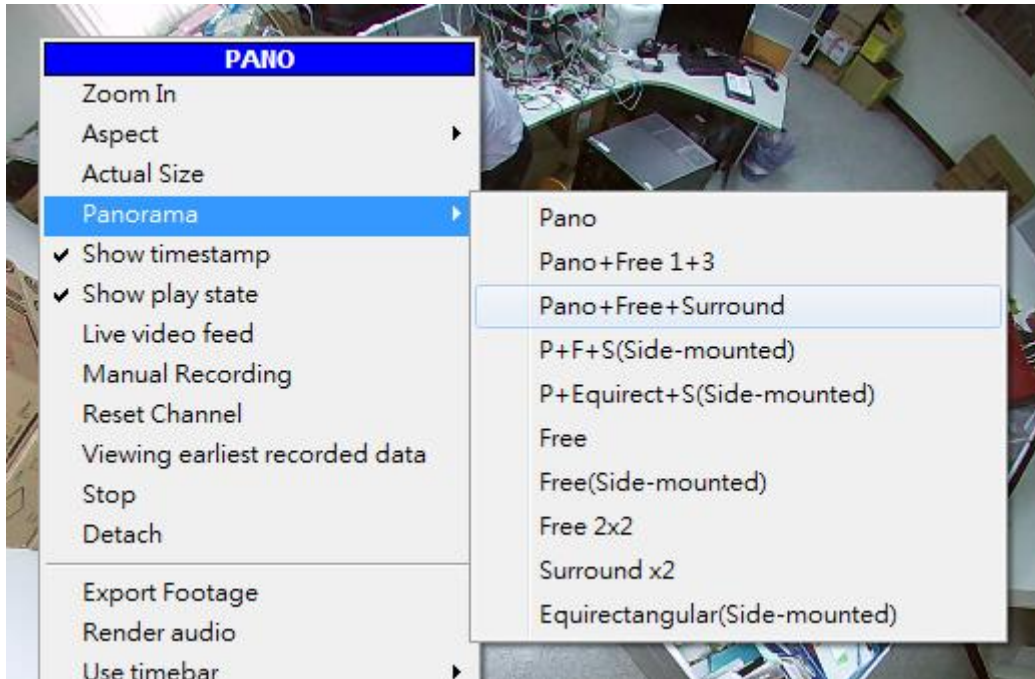


Carefully match the circle with the outline of panorama image. Expansion or contraction may be needed to get optimal result, as lens optics design varies. Click Save in player control panel to apply the setting.



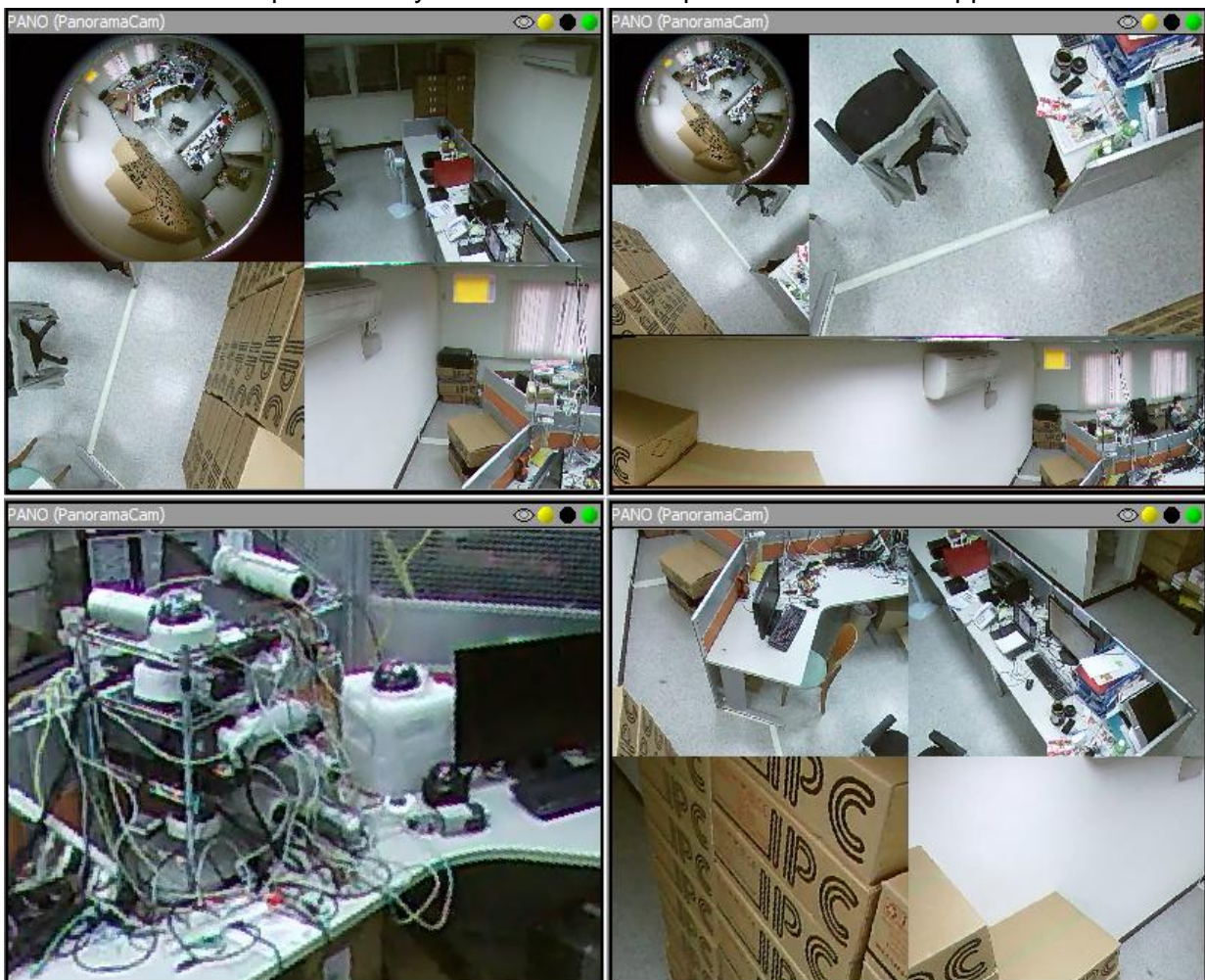


If configured properly, Panorama will be appear in context menu of player.



These are examples of Panorama modes:

- In rectilinear view, use mouse to pan/tilt/zoom. Operation is very similar to speed dome.
- Click in the original view (360° distorted) to jump quickly to the clicked location.
- Hold ALT to swap view. Only views with same aspect ratio can be swapped.



# Converting Video to JPEG Stream

## Concept

Some non-IE web browsers do not support ActiveX components provided by the NVR software. In such cases, online video or images can not be accessed; JPEG image format, on the other hand, is the world's most widely used image format. Our system supports JPEG online viewing for most browsers including those on the mobile phones. Some extra steps need to be taken to enable this feature.

## Introduction

Suppose your NVR is 192.168.0.124, this URL <http://192.168.0.124:8086/mjpeg/sdk.html> will lead you into the following page (as illustrated in picture below). This page is a tool to generate single URL to a JPEG image or more sophisticated iFrame codes to be embedded in 3rd party web pages, or to generate QR code to be used with mobile device.

**JPEG Streaming SDK**

**Single JPEG**

**JPEG Live Streaming**

To enable 3G video streaming on a channel, use 'Video Setup' on channel setup to enable 3G streaming.

**Live Streaming with Parameters**

Channel:

Dimension:  x

Framerate:  frames per  second(s)

Timeout:  second(s), '0' for continuous streaming

Overlay:  URL for overlaid image, use PNG if transparency is desired

Text:  overlaid text

URL for direct access with browsers, cellphones, pads, or other devices that support web browsing

iFrame codes to be copied and pasted in your HTML document

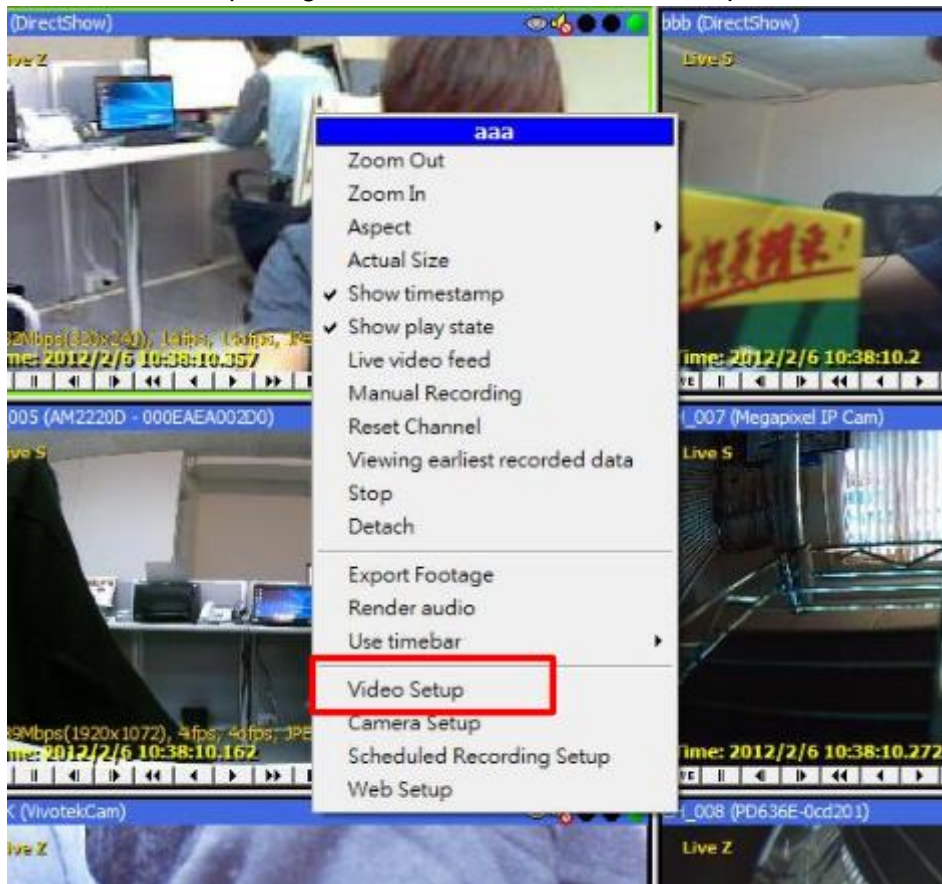
### Tips

- Adjust Framerate and Timeout if your upload bandwidth is scarce.
- Set parameters to blank to shorten URL and simplify QR code.
- If your cellphone fail to read QR code, use browser hotkey Ctrl+"+" to enlarge it.

## Enable JPEG Streaming

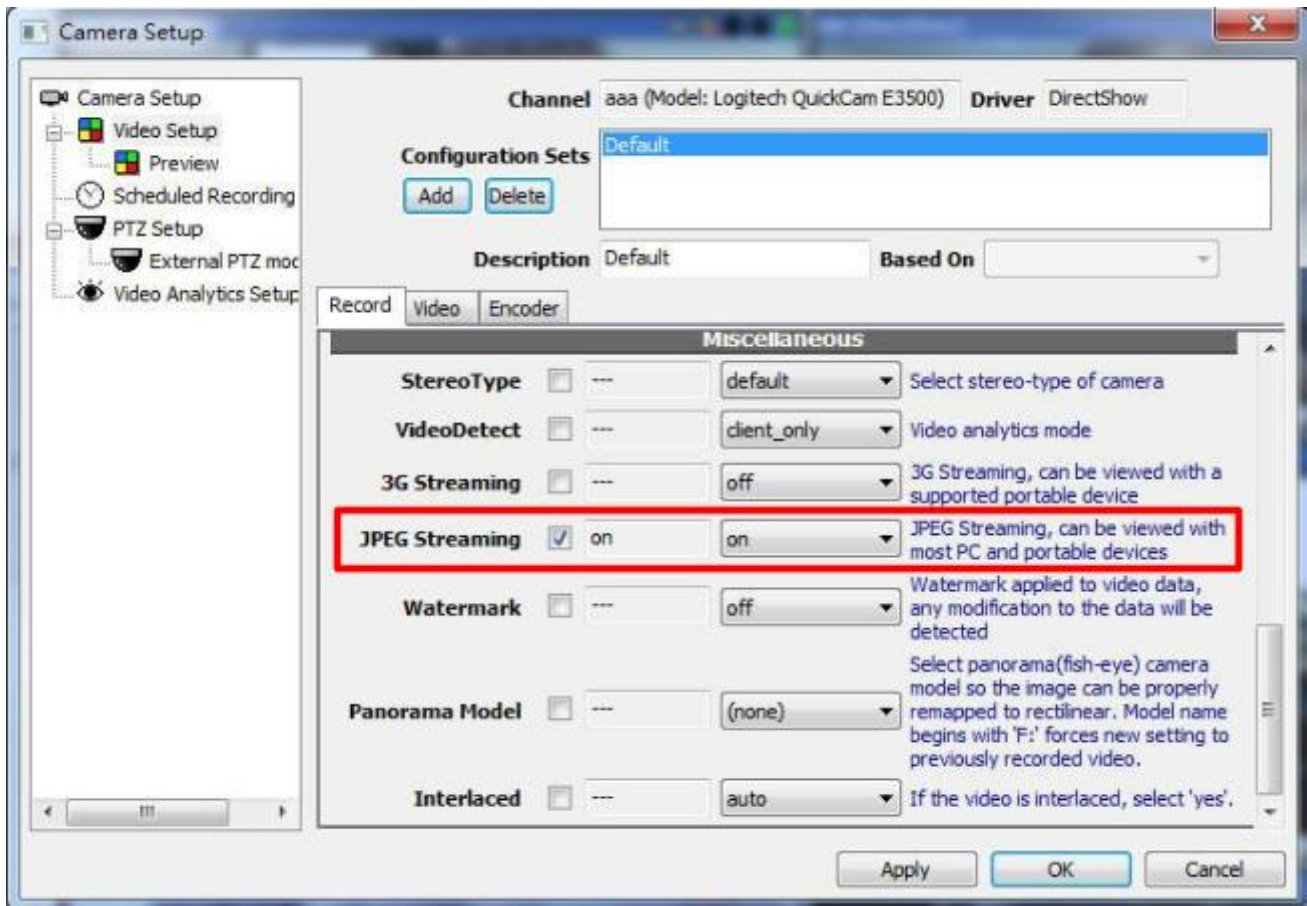
JPEG Streaming has to be enabled in Camera Setup before it can be accessed. Channel with JPEG Streaming enabled consumes hardware resource (CPU and RAM) on NVR server. So design the system carefully.

Take camera "aaa" as an example, right-click to select the Video Setup.



You need to make the following settings in Video Setup:  
Change the JPEG Streaming to "on"





## Single JPEG

Let's go back to the tool page, Camera "aaa" will appear in the list

← → ↻ 192.168.0.124:8086/mjpeg/sdk.html

### JPEG Streaming SDK

**Single JPEG**  
[aaa](#)

**JPEG Live Streaming**  
[aaa](#)

To enable 3G video streaming on a channel, use 'Video Setup' on channel setup to enable 3G streaming.

**Live Streaming with Parameters**

Channel:

Dimension:  x

Framerate:  frames per  second(s)

Timeout:  second(s), '0' for continuous streaming

Overlay:  URL for overlayed image, use PNG if transparency is desired

Text:  overlayed text

URL for direct access with browsers, cellphones, pads, or other devices that support web browsing

iFrame codes to be copied and pasted in your HTML document

#### Tips

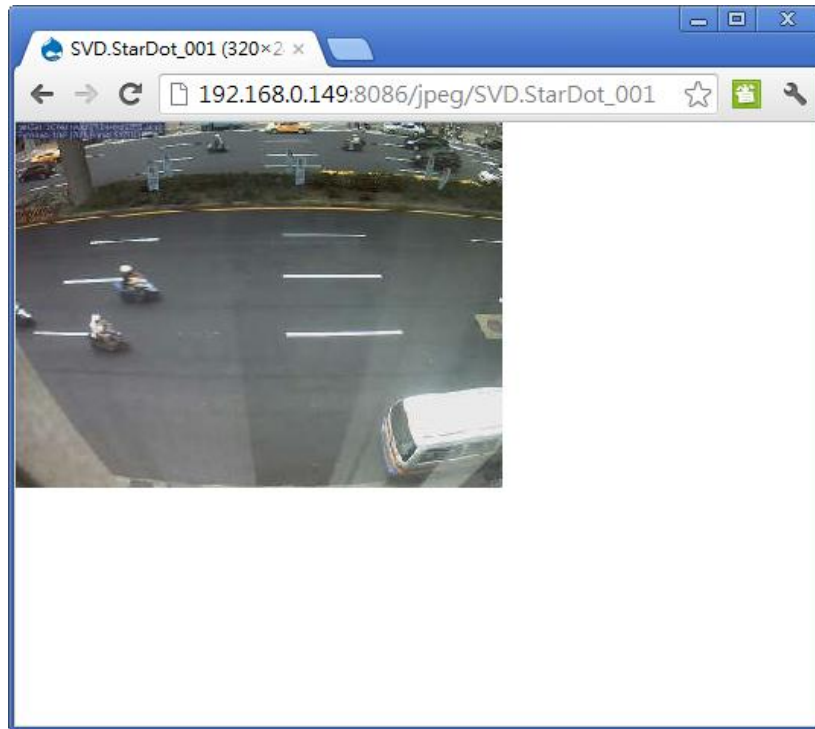
- Adjust Framerate and Timeout if your upload bandwidth is scarce.
- Set parameters to blank to shorten URL and simplify QR code.
- If your cellphone fail to read QR code, use browser hotkey Ctrl+"+" to enlarge it.

The link under the Single JPEG is a single JPEG image. Its URL can be referenced in a web page using <IMG> tag.

The link under the JPEG Live Streaming is real-time video contained in a predefined web page with JavaScript to update the image automatically.

Click to watch real-time image or video.



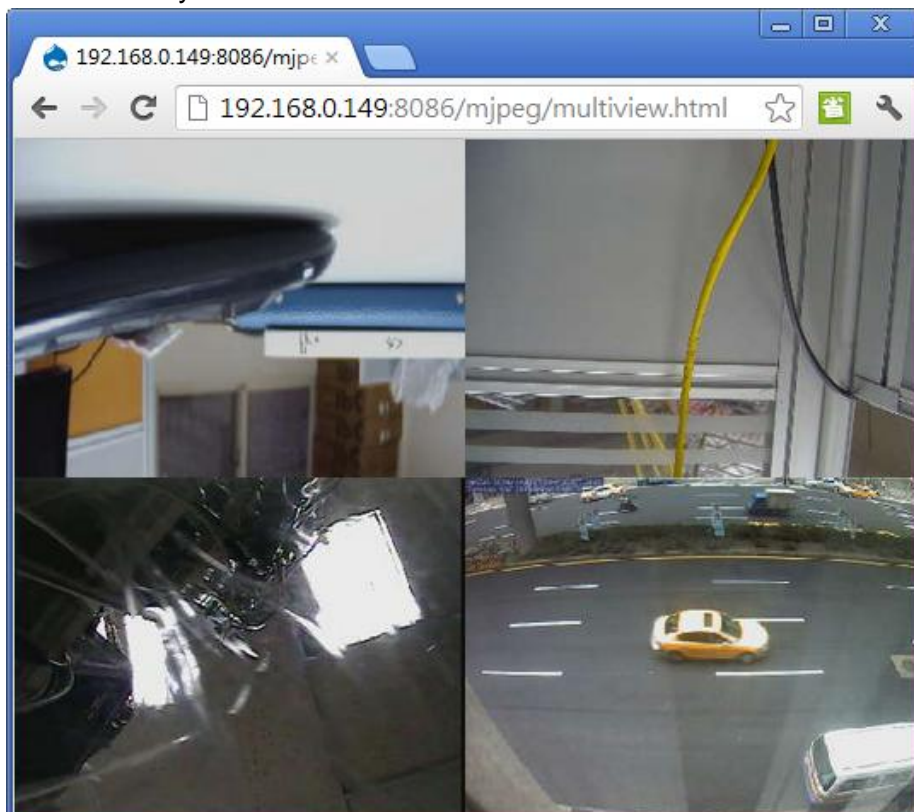


## Multiple View

Connect to this URL to view all JPEG streams...

**[http://<ip\\_address>:<port>/mjpeg/multiview.html](http://<ip_address>:<port>/mjpeg/multiview.html)**

It will be scaled automatically to fit in browser window.



## Embed Video In Web Page



**Live Streaming with Parameters**

Channel: CH\_001 (192.168.0.250)

Dimension: 640 x 480

Framerate: 5 frames per 1 second(s)

Timeout: 60 second(s), '0' for continuous streaming

Overlay: /mjpeg/overlay.png URL for overlaid image, use PNG if transparency is desired

Text: Genius Vision Inc. overlaid text

**Generate Codes**

URL for direct access with browsers, cellphones, pads, or other devices that support web browsing

[http://192.168.0.149:8086/mjpeg/streamex.html?channel=SVD.CH\\_001&width=640&height=480&fps=5&timeout=60&overlay.png&text=Genius%20Vision%20Inc.](http://192.168.0.149:8086/mjpeg/streamex.html?channel=SVD.CH_001&width=640&height=480&fps=5&timeout=60&overlay.png&text=Genius%20Vision%20Inc.)

iFrame codes to be copied and pasted in your HTML document

```
<iframe src="http://192.168.0.149:8086/mjpeg/streamex.html?channel=SVD.CH_001&width=640&height=480&fps=5&timeout=60&overlay.png&text=Genius%20Vision%20Inc." width="640" height="480" frameborder="1" scrolling="no"></iframe>
```

QR Code:



Click Generate Codes to generate HTML codes to be copied and pasted in web page using text editor or HTML editor. You need basic knowledge about HTML, web server, and public IP address to make this work. You may need to configure network switch and router properly or image cannot be accessed through internet. Consult your network administrator for more information.

The QR code cannot be referenced directly in HTML. You have to take screenshot and save as a image file on your web server.

# System Safe Mode

## Overview

Sometimes incorrect system configuration or corrupted environment can cause system unable to start. Under this circumstance, users cannot even enter the system and disable the problematic part of function so the system becomes a deadlock state. Safe Mode can come in handy to deal this kind of situation.

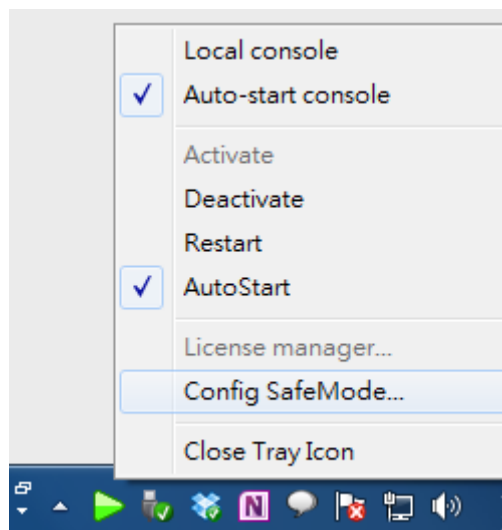
## “Safe Mode” function

When Genius Vision NVR server is started in safe mode, it will incur following behavior changes:

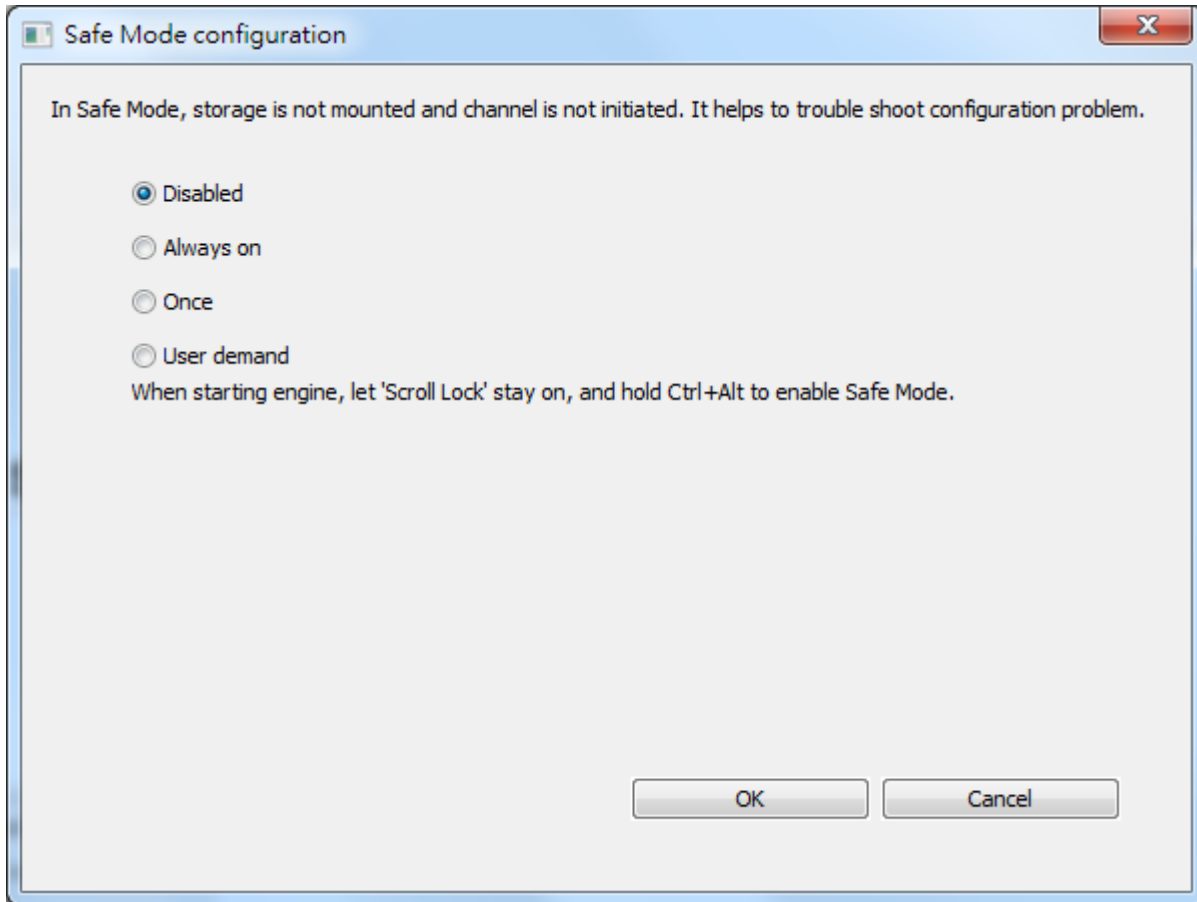
- Storage drive will not be mounted or scanned
- All channels are in non-active mode.

## Enabling “Safe Mode”

Right-click on the NVR tray icon and select “**Config SafeMode...**” to invoke safe mode configuration dialog.



Following dialog will appear and offer selection



Options explained:

Option	Description
Disabled	Not using SafeMode.
Always on	Use SafeMode, until turned off.
Once	Use SafeMode only for next system start.
User demand	When starting engine, let "Scroll Lock" stay on, and Ctrl+Alt to enable SafeMode.

## Availability

SafeMode is a relatively new function and only available since following versions:

- b70: Version 715.

## Backup/Restore License

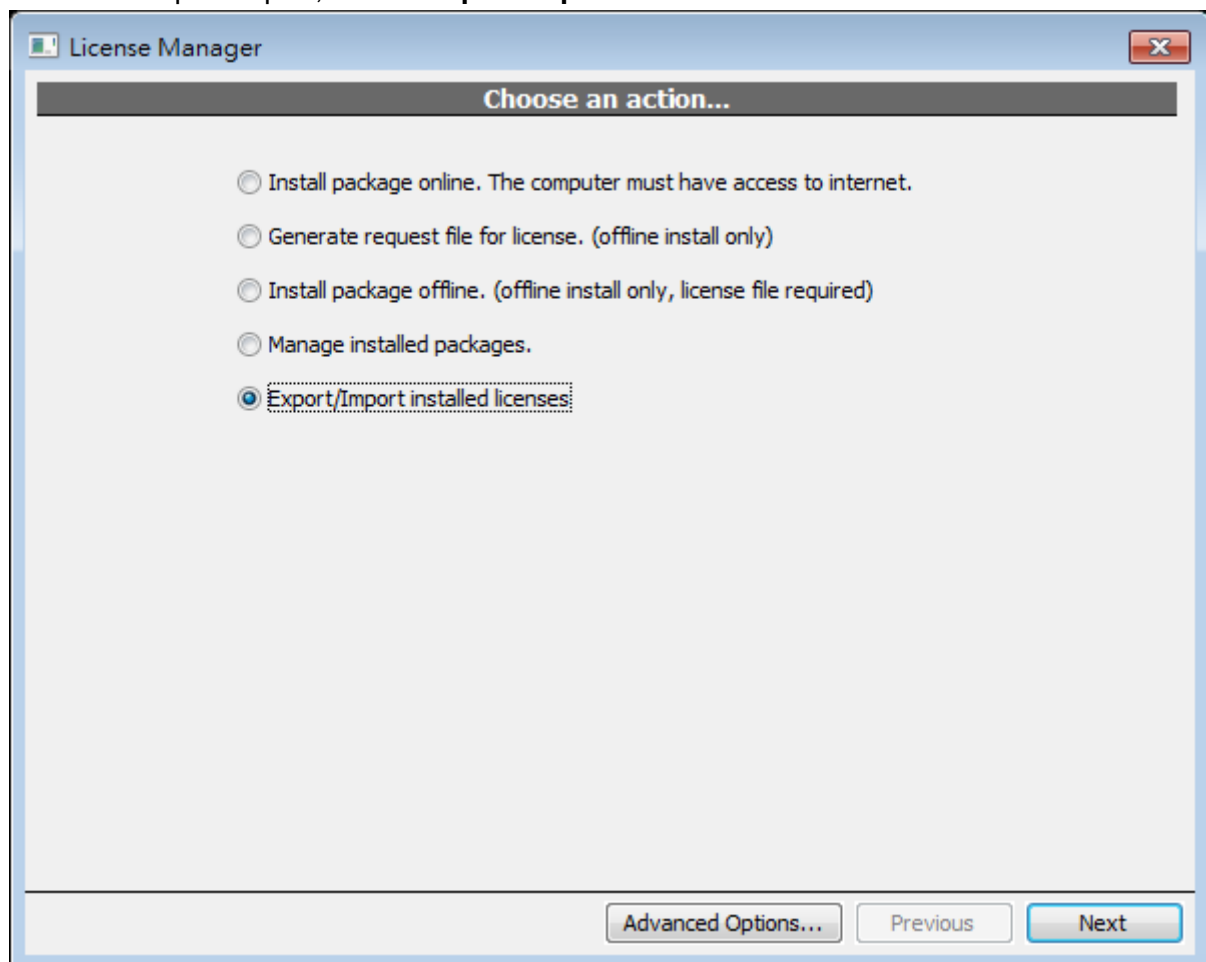
**Note:** This function is available since version 769.

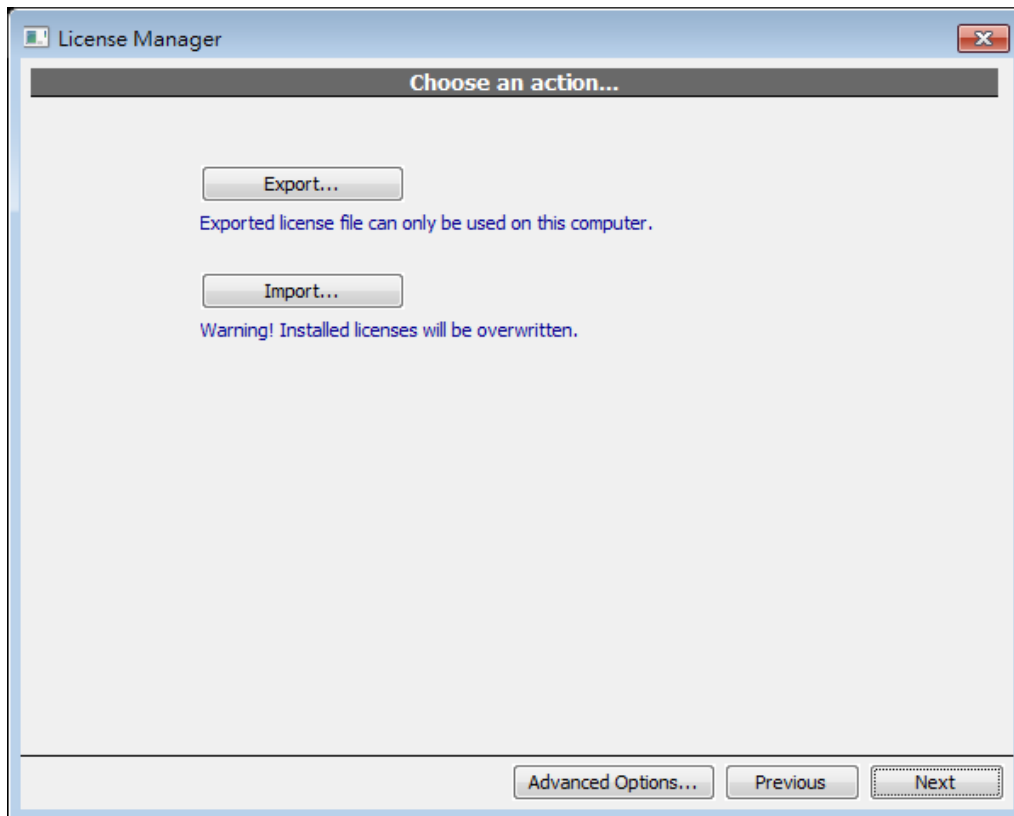
### Overview

Sometimes if the whole system is overwritten for some reason (reinstallation of the OS) or accidentally purges the entire software installation, the license information could be gone permanently. To prevent this from happening, you need to backup the license and restore it when needed.

**Note:** that you can only restore license to the same system (OS+computer hardware). Restoring to different system will render the license useless.

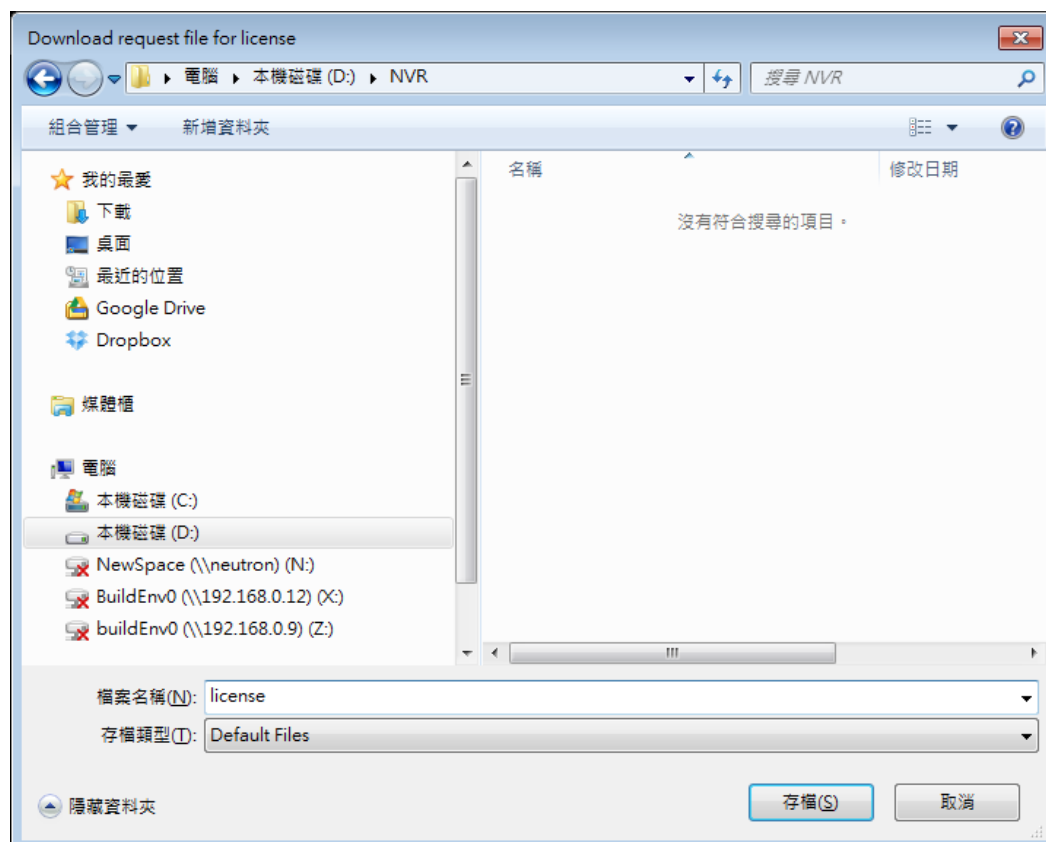
To use license import/export, select '**Export/Import installed licenses**' and click **Next..**



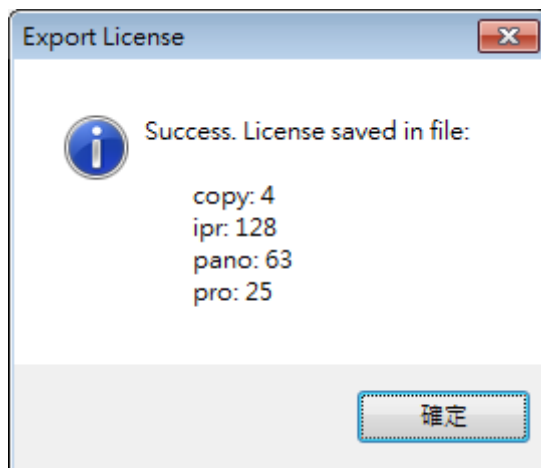


## Export (Backup)

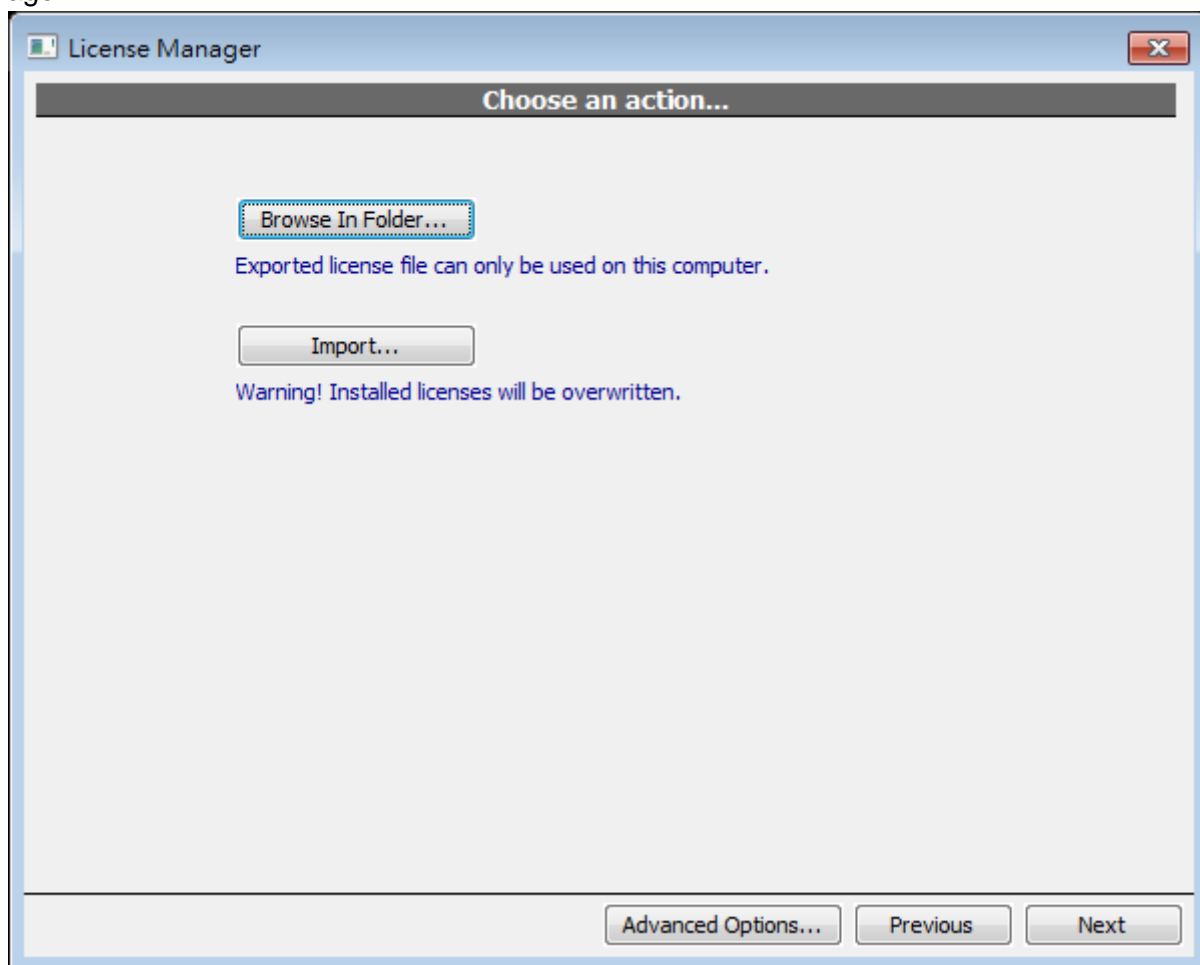
Input a filename and click **Save..**



A message is displayed if license is exported successfully.

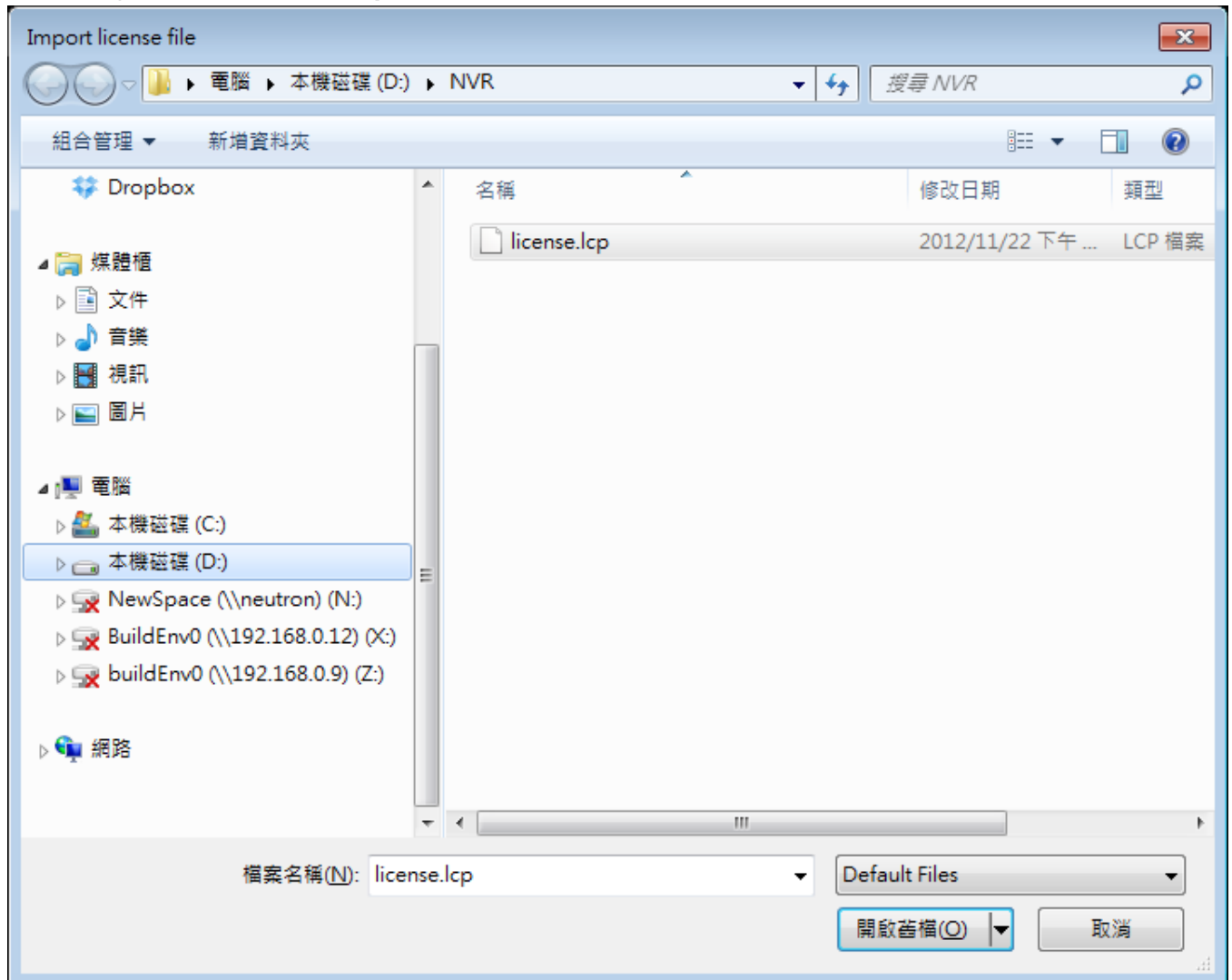


And **Export** button will be replaced with 'Browse In Folder'. Click to browse the file in Windows file manager.

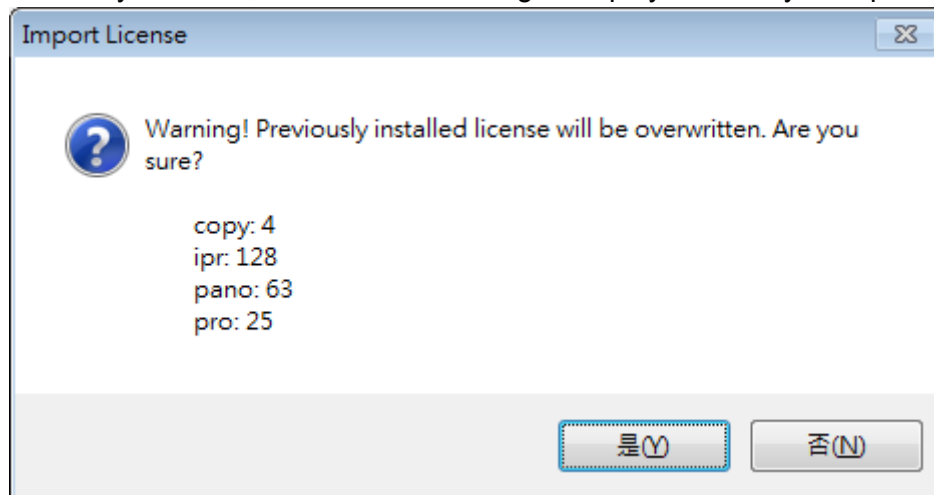


## Import (Restore)

Select exported file and click **Open**.



If there's license already installed, a confirmation dialog is displayed. Click yes to proceed importing



License manager has to be restarted to see imported license



