User Manual for v1.0

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1 Installing Netcam Studio

The following sections contain instructions on installing and configuring Netcam Studio for initial operations.

1.1 Netcam Studio Pre-Requisites

Before installing Netcam Studio, check if your computer fulfil following requirements.

Server requirements:

- Windows XP, Vista, 7, 8, Server 2003, 2008 or 2012
- .Net Framework 4
- Visual Studio 2012 Redistributable
- Dual Core CPU

In case if you do not have .Net Framework 4 installed on your computer, follow this link:

http://www.microsoft.com/en-us/download/details.aspx?id=17851

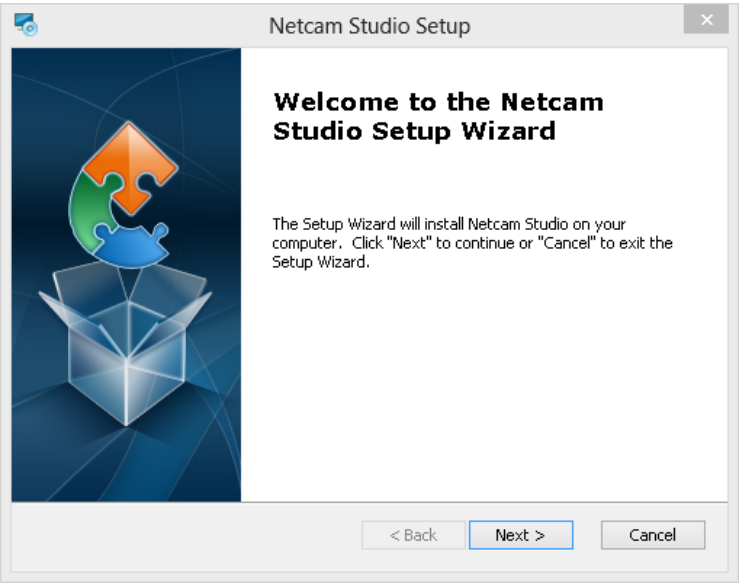
Select your language, click Download and follow the instructions given by the provider of the application.

After installing .Net Framework 4 follow on-page instructions on downloading and installing the application Netcam Studio.

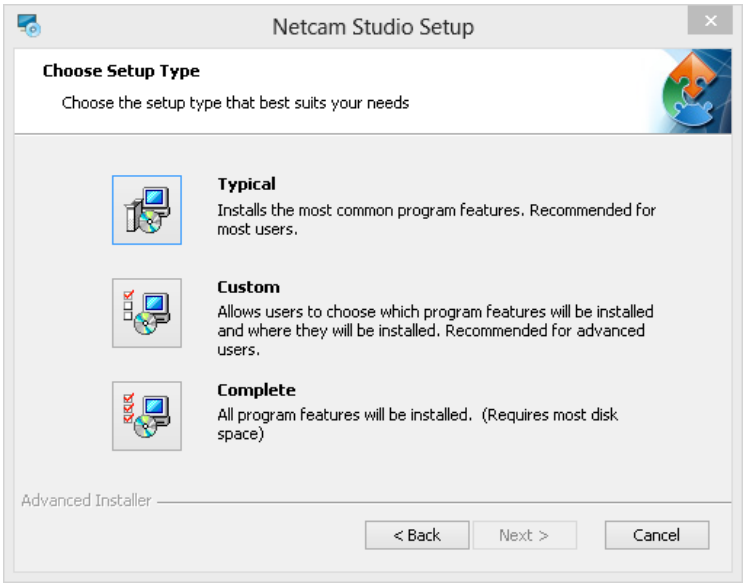
1.2 Installing Netcam Studio

After downloading Netcam Studio for Windows 32 or 64 bit from the website, double click to launch the installer.

The window with the request to confirm that you want to install Netcam Studio on this computer will appear. Validate this action by clicking on Next.

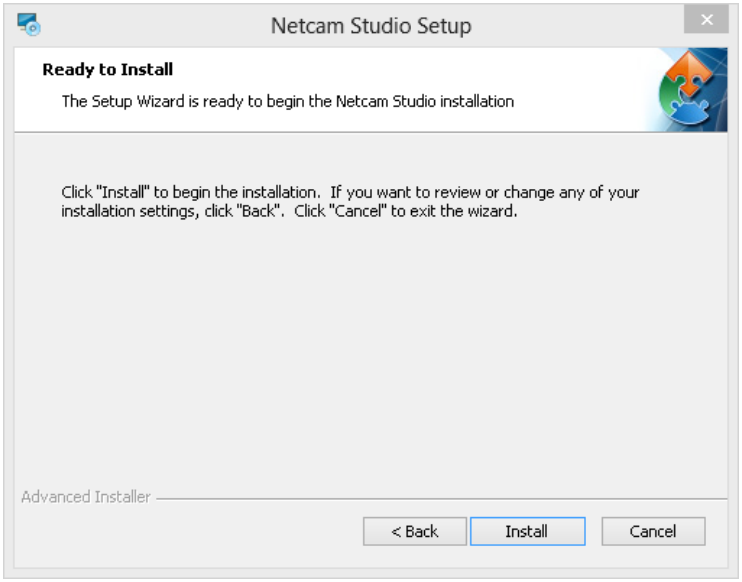


Then, the following window will appear:

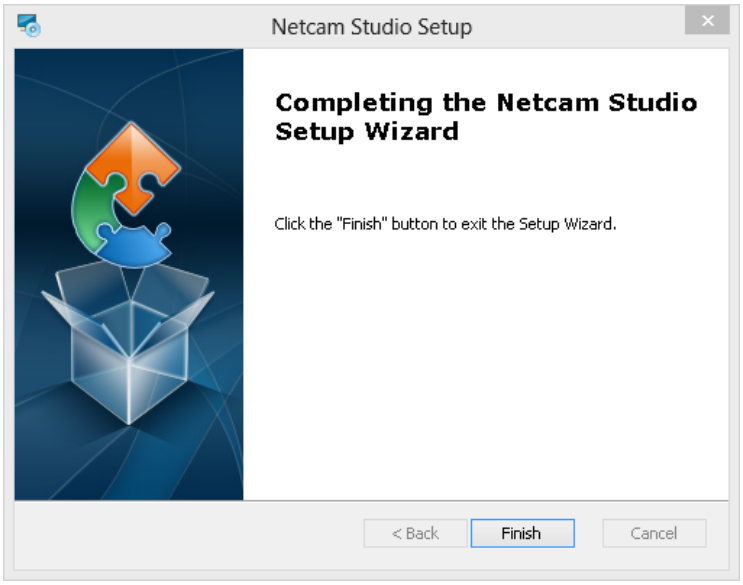


Select the setup type according to the presented description by clicking on the relevant icon on the left. Confirm your selection by clicking on Next.

The, you will get the information that the program is ready to be installed. Confirm by clicking on Install.



The following window will signify that the process of installation has finished:



Click on Finish button in order to finish the process of installation.

2 Getting Started

2.1 Netcam Studio Components

After installing Netcam Studio, you will notice that several components are available. It is important to understand their function in order to use the right one for a given purpose.

2.1.1.1 Netcam Studio X (Server)

Netcam Studio X is the main component of the application and probably the one you will start with. It includes the **Server** functionalities and a **User Interface**. When using Netcam Studio X, you do not have to use an external Client, because you can do everything through its User Interface.

However, it is not limited - it is still possible to use the 3 types of Clients described below especially when monitoring from other computers and devices.

2.1.2 Netcam Studio Service (Server)

Netcam Studio Service is the alternative to Netcam Studio X. It includes the same server functionalities but has no user Interface because **Windows Services** are running in the background.

Use Netcam Studio Service when you want to run Netcam Studio 24/7 and connect mainly from other computers and devices to perform the monitoring tasks.

One advantage of Netcam Studio Service is that it automatically restarts, when the computer gets restarted (for installing updates), even when no user is logged on the computer.

*You cannot run **Netcam Studio X** and **Netcam Studio Service** on the same computer and at the same time. Both are sharing all settings, thus it is preferable to use **Netcam Studio X** to do the initial setup. Once finished, switch to **Netcam Studio Service**.*

In order to run Netcam Studio as a Windows Service, refer to Appendix B: Installing and controlling Netcam Studio Service.

2.1.3 Netcam Studio Client

Netcam Studio Client can connect to a Netcam Studio Server locally or remotely (X or Service). It provides all functionalities for monitoring and configuring the system. The interface is very similar to Netcam Studio X, because they share the same functionalities.

In the first place, it is important to understand when it is necessary to use Netcam Studio Client and when it is not required. You can use Netcam Studio Client in the following cases:

1) If you are running Netcam Studio as a Service. Since it has no interface, Netcam Studio Client is required to monitor and configure your system.
2) If you want to connect to a Netcam Studio Server from another computer.

2.2 First time use

You are now ready to start using Netcam Studio. It is recommended to start by Netcam Studio X in order to connect your video sources, configure your system and get used to Netcam Studio.

2.2.1 Starting Netcam Studio X

In order to open Netcam Studio, click Start – Programs – Netcam Studio - Netcam Studio X (Server).

Once the application is loaded, you will find its icon in the system tray (i.e. in the lower right corner of the screen in the taskbar).

If the image of the globe is greyed-out, it means that the application is not started or loading. If the icon of the globe is coloured it means that the Netcam Studio Server is running and ready to accept connections.

Icon of Netcam Studio X (Server Stopped)

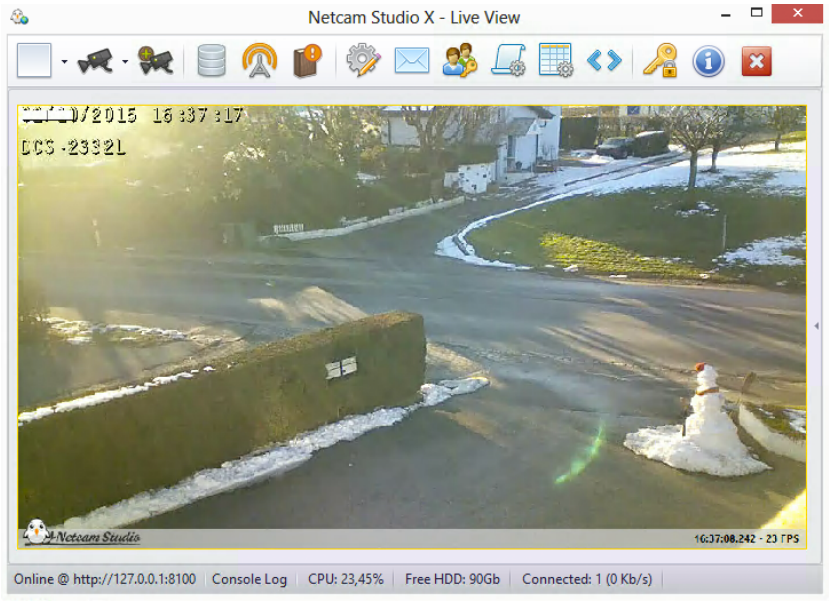
Icon of Netcam Studio X (Server Running)

The main window of Netcam Studio X will appear.

2.2.2 Description of Netcam Studio X interface

In the following chapter the interface of Netcam Studio X shall be described with the relevant links to specific chapters explaining given features in details. In the rest of document, screenshots of Netcam Studio Client are shown. However, Netcam Studio Client and Netcam Studio X have very similar layout, so it is not complicated to find given functionality on the basis of explanation of a second one. Netcam Studio X interface has simply all icons in one tab, whereas in Netcam Studio Client there are divided between two tabs: Home and Settings.

Netcam Studio X interface looks as following:



On the main toolbar there are several icons, which lead to different functionalities:

ICON	NAME	FUNCTION	LINK TO DESCRIPTION
	Multiview	To change the way of displaying images from selected connected cameras side-by-side.	Chapter 3.1.2 Single and Multiview
	Source Selection	To select and view given source in Single View.	Chapter 3.1.2 Single and Multiview
	Add Source	To add video source.	Chapter 2.2.3 Connecting a new video source.
	Library	To view all videos and still images captured by the application stored in the Library.	Chapter 2.9 Library
	Connected Users	To view all connected users of the application; to verify information about.	
	Event Logs	To monitor Netcam Studio and verify that there are no errors.	

	Configuration	To set up Library, Overlay / Watermark and Recording / Streaming process.	Chapter 4.1 General Settings
	Notifications & Synchronization	To set you email address in order to get a message every time the application captures motion. To synchronize your library with Dropbox, Icloud or Google Drive.	Chapter 4.2 Notification Settings
	Access Control	To view existing users and/or add new user of the application.	Chapter 4.3 Access Restriction
	Rule Manager	To select relevant action that will be executed after specific event	Chapter 4.5 Rule Manager
	Global Variables	Global variables are any entities that can take on different values. It is possible to add dynamic text object on the screen with relevant variable in order to see on the screen and in recordings the desired value.	Chapter 4.4 Global Variables
	Generate HTML	To generate HTML allowing to embed video streams directly on your existing web page.	Chapter 5.3 Placing a video on your website
r	Enter Licence	To register and enter purchased licence to use the application.	

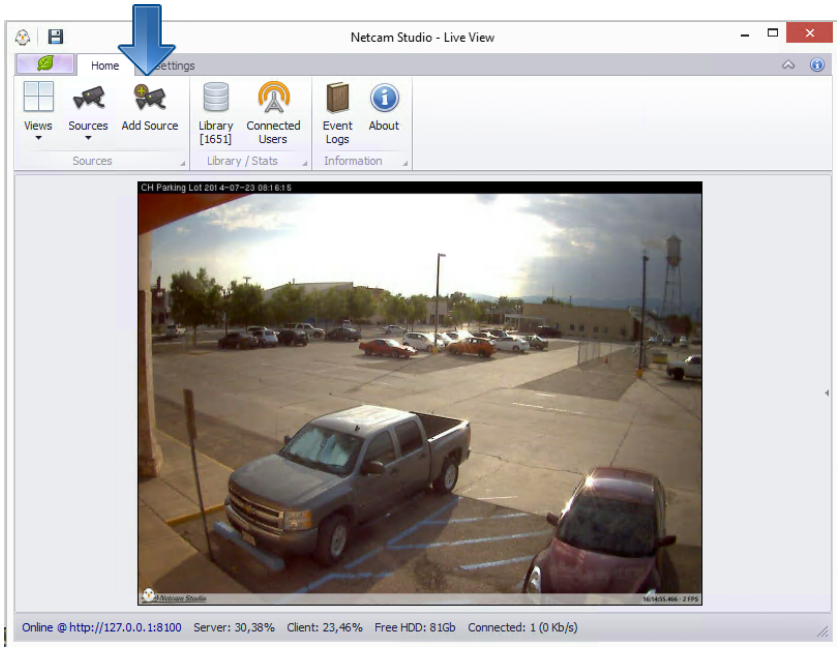
	About	To view all necessary information concerning the application.	
	Exit	To exit the programme.	

2.2.3 Connecting a New Video Source

Netcam Studio supports different types of video sources. The most common is the local camera. Local cameras are cameras that are directly connected to the computer running Netcam Studio using either a USB or a PCI connection.

Netcam Studio also supports a large range of network cameras. Netcam Studio Client can then connect to these hosted cameras, allowing you to view the camera's images and control its options (through zoom or pan).

In all cases, connecting a new source always start by clicking the icon **Add Source**.

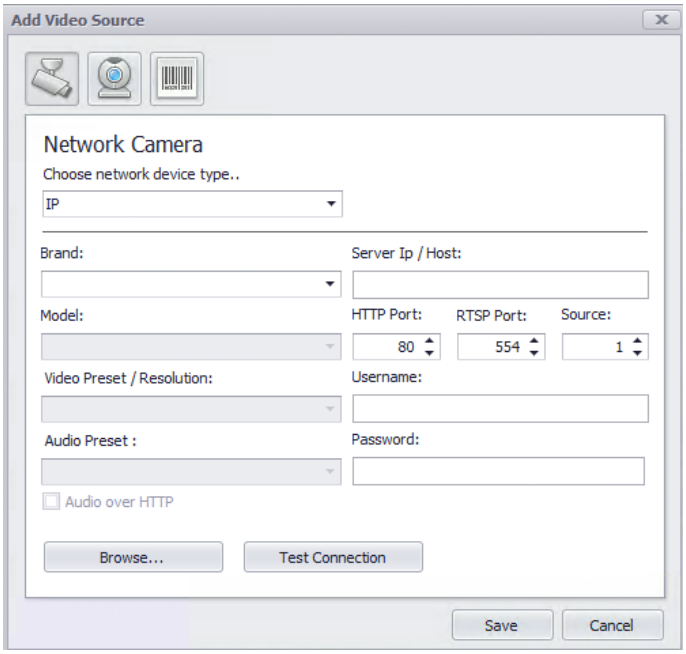


2.2.3.1 Connecting a New Local Device

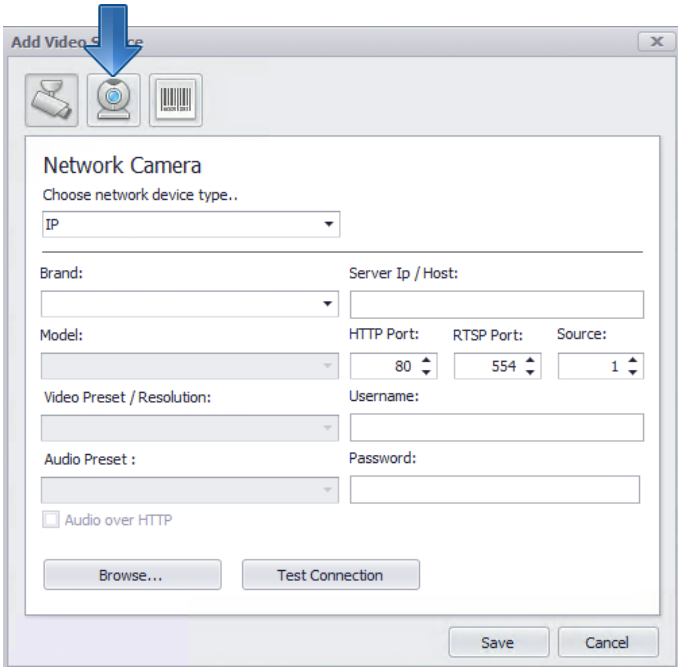
In order to connect a USB camera, begin by connecting the camera to your computer. Use the manufacturer's installation disk to download and install the necessary drivers for your camera. If your camera was not supplied with an installation disk, the manufacturer may provide the necessary drivers on its website.

For additional information on how to install and configure your camera, please see the camera's included instructional manual or online documentation.

After selecting Add Source, you will see the following window:



In order to connect a new USB camera / webcamera, click on the second icon:



The blue arrow indicates connecting a new USB camera / webcamera. Click this icon in order to open a window above.

If your camera was successfully installed, it should be listed in the submenu that appears otherwise ensure the driver is installed properly and that it is working in any other application.

Select your camera from the list, there is no additional step and the camera will be connected.

Cameras can work at different resolutions; the available formats detected by Netcam Studio are displayed in the menu under Preset / Resolution and can be used to select a different resolution. This format will be used for all features: Broadcasting, capturing and recording.

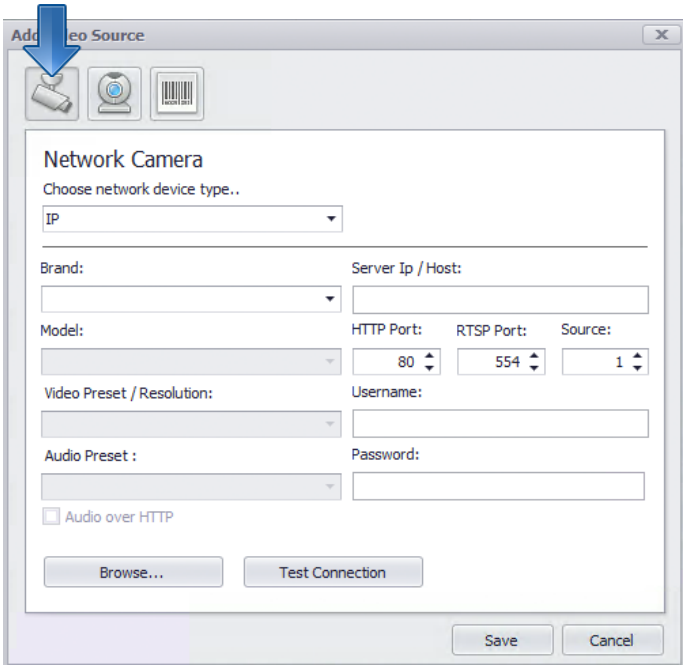
In case the Preset / Resolution menu is greyed-out, it means that Netcam Studio has only detected a single format which can be used in the application.

It is also possible to connect Audio Source - web / PC microphone, if it is supported. In this case, check the box Connect Audio and select the name of your device.

Connect Audio Source only if you plan to use it. Otherwise, it will use resources unnecessarily.

2.2.3.2 Connecting a network Camera

In order to connect a network camera, click the icon indicated by the blue arrow:



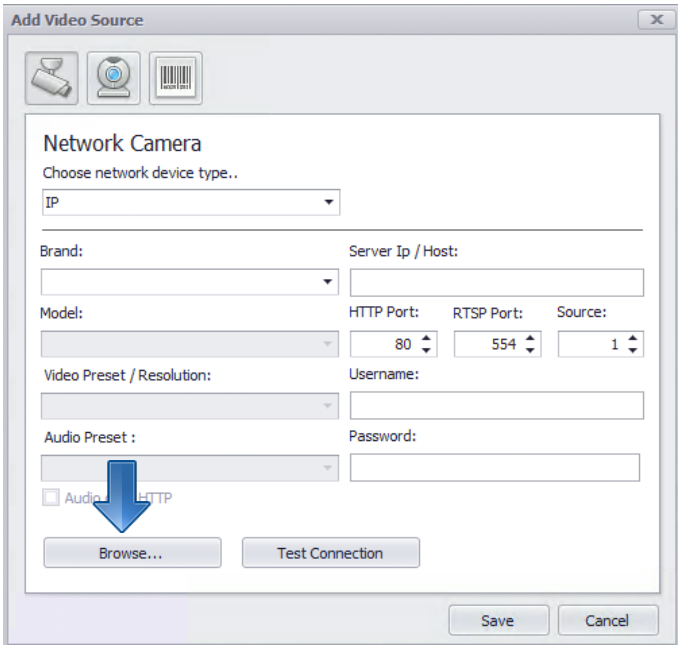
You have to fill a few details about the camera.

If you want to fill the device's data, you must enter its manufacturer. Select your camera's manufacturer from the **Brand** drop-down box. Then, select your camera's model from the **Model** drop-down box.

Select Video Preset / Resolution and Audio Preset.

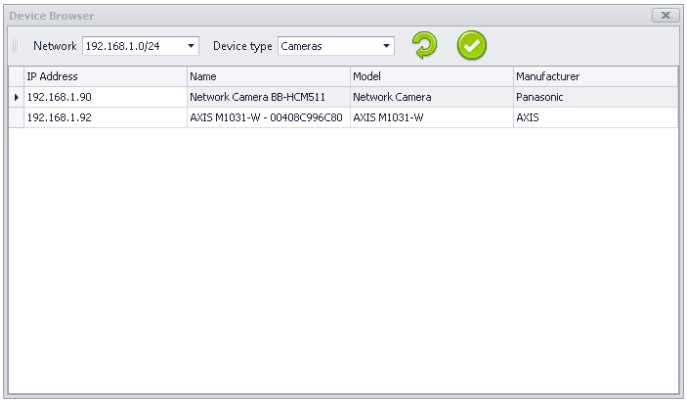
Next, you must enter the HTTP URL or IP address on which the camera is being hosted (e.g. you must know the camera's address for access) in Server Ip / Host box. Select the camera's port number in the **Port** box. In case, if your camera is password protected, enter username and password.

In order to facilitate the process of entering data of connected camera, you can click on the button **Browse**:



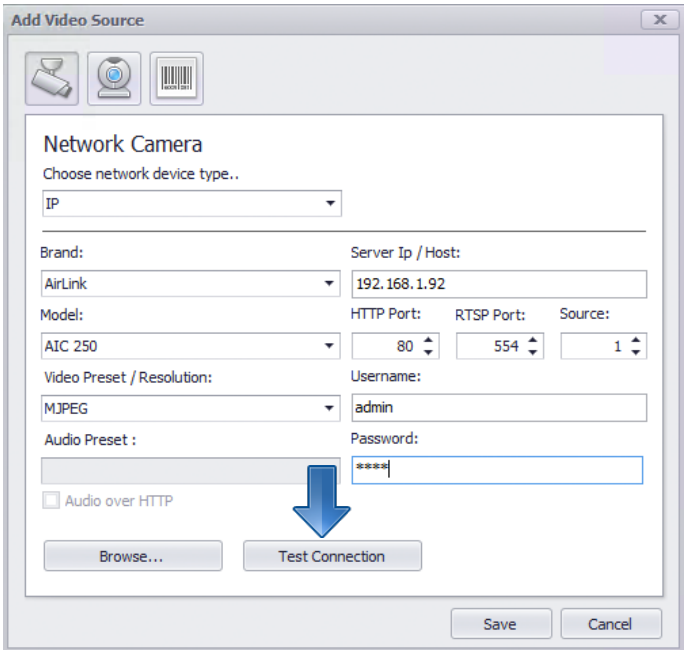
If your camera supports uPnP, it should be detected by the application and you will see its address automatically. By clicking Browse, you will see the list of all detected cameras on your network.

The window shown below will appear with the list of all detected devices:

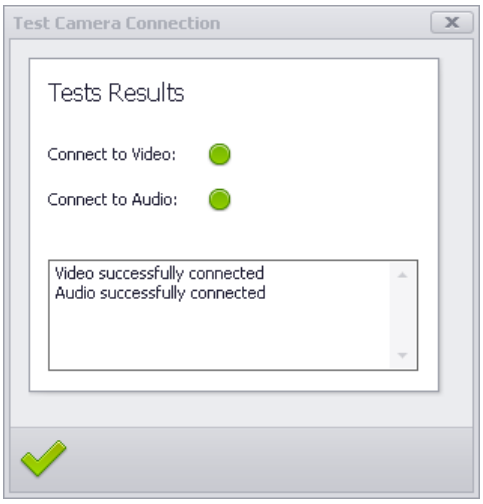


Select appropriate device and confirm by clicking the **Check** button.

Then, the address of the selected device will appear in appropriate lines:



Enter the username and password. Next, click on the **Test Connection** button to test your connection. If your connection information (e.g. the camera's URL, port, username, and password) are correct, you will be presented with a success message.

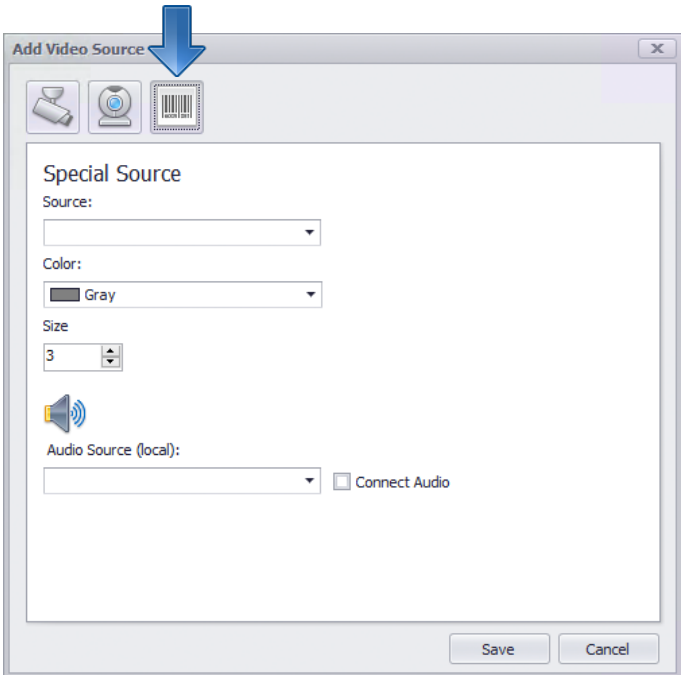


Click the **Check** button to confirm addition.

If your selected source supports audio detection, you can check the box Connect Audio and select the name of a microphone.

Connect Audio Source only if you plan to use it. Otherwise, it will use resources unnecessarily.

2.2.3.3 Connecting special sources



Connecting Special Sources is useful, when you do not have camera and still you want to test the application. It may be for example audio source.

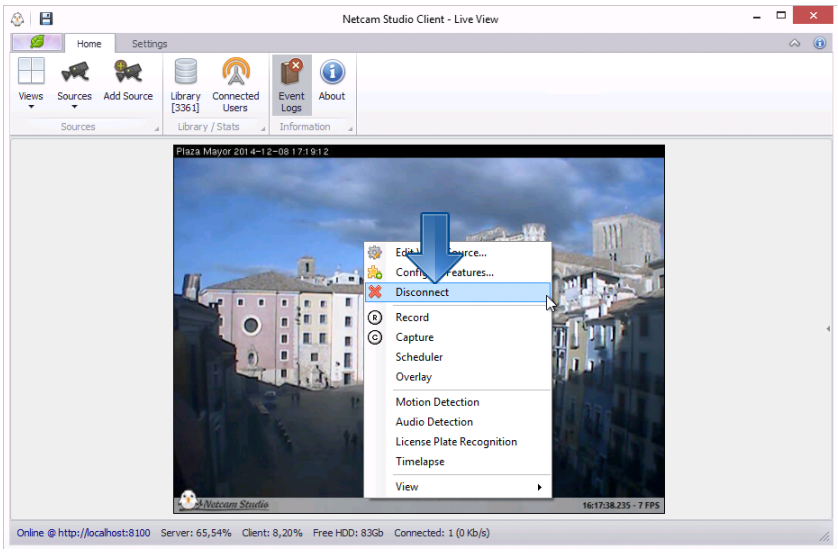
There are also two test sources (barcode and timestamp), which are useful for testing pan and tilt features when you do not have any camera available.

The audio waveform allows you to present a graph of the selected audio.

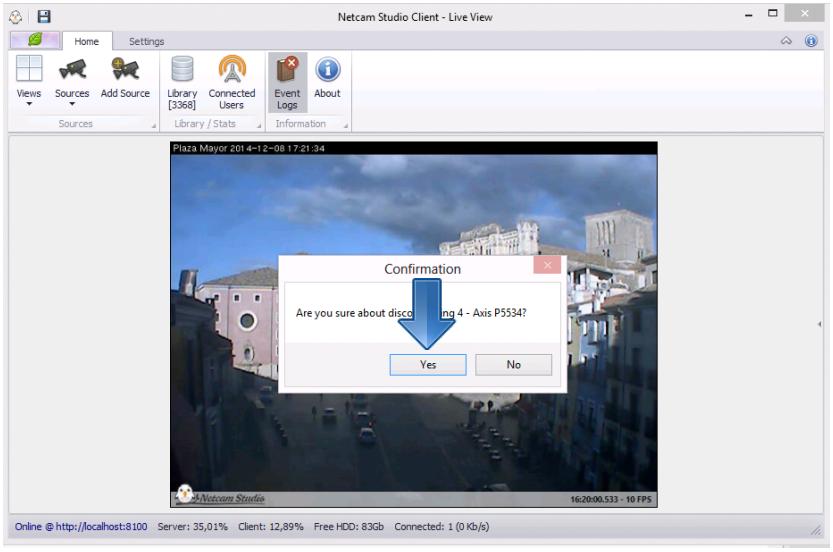
For detailed information **how to edit a source**, go to Chapter 3.3.1 Editing of video source.

2.2.4 Disconnecting of a source

Right-click on the window of a selected source, which you want to edit to open the drop-down box with quick access to configuration and fuctionalities.



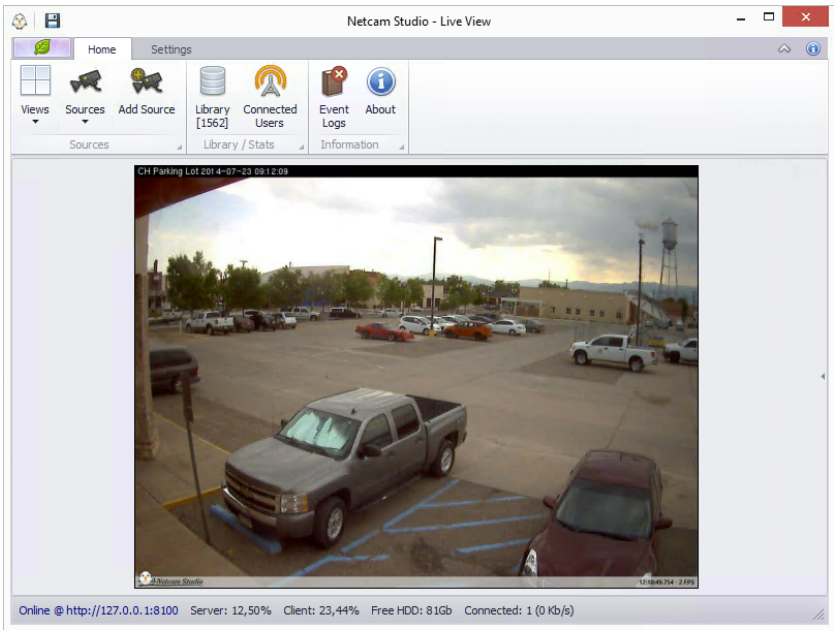
If you click on Disconnect, you can quickly disconnect the selected source. The window of Confirmation will appear. Confirm disconnecting, by clicking on **Yes**.



2.3 Motion detection

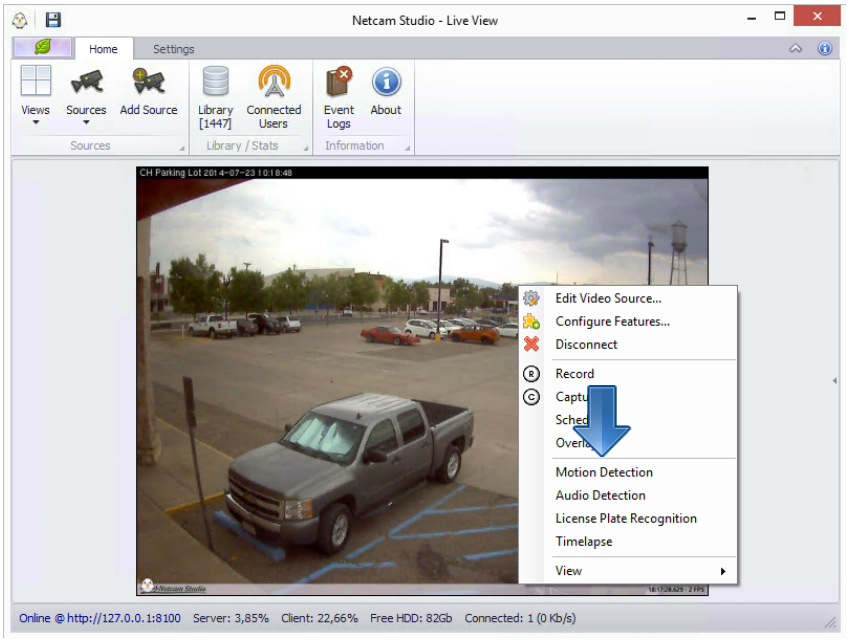
In order to start motion detection, select the target source. For this purpose, click **Sources** on the left side of **Sources** area. You will see the views from all the connected devices. Select one that you want to monitor clicking once on its view.

Shown below is a screenshot of the main view that will appear after selecting the source:



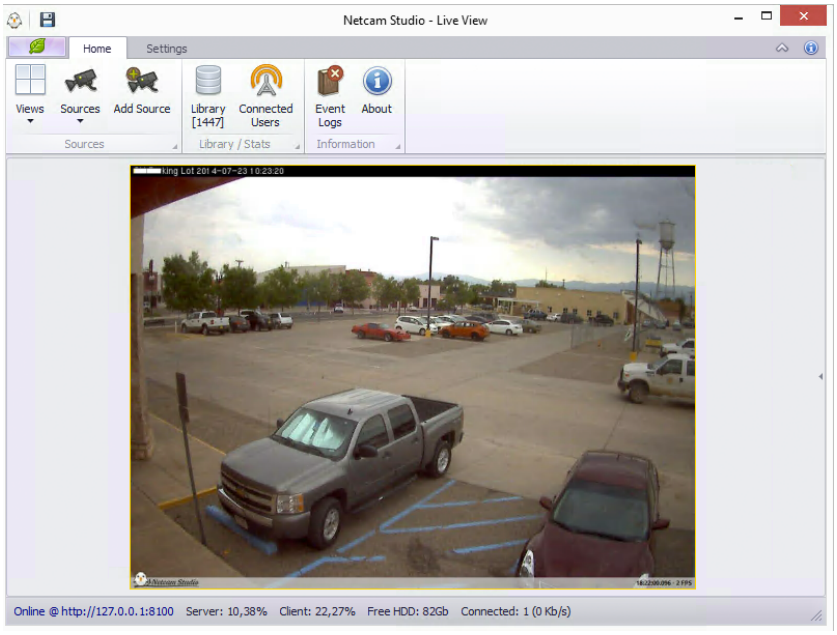
2.3.1 Enabling and disabling of motion detection

In order to enable motion detection, select the source and right-click on the view box:

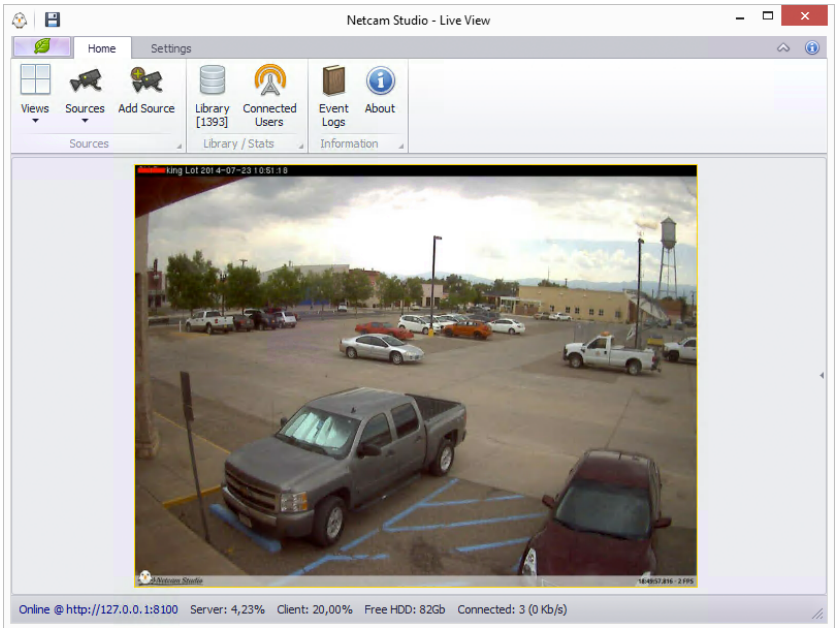


Then, the drop-down box will appear. Click on Motion Detection in order to enable it.

When you will enable Motion Detection, the window will look as follows:



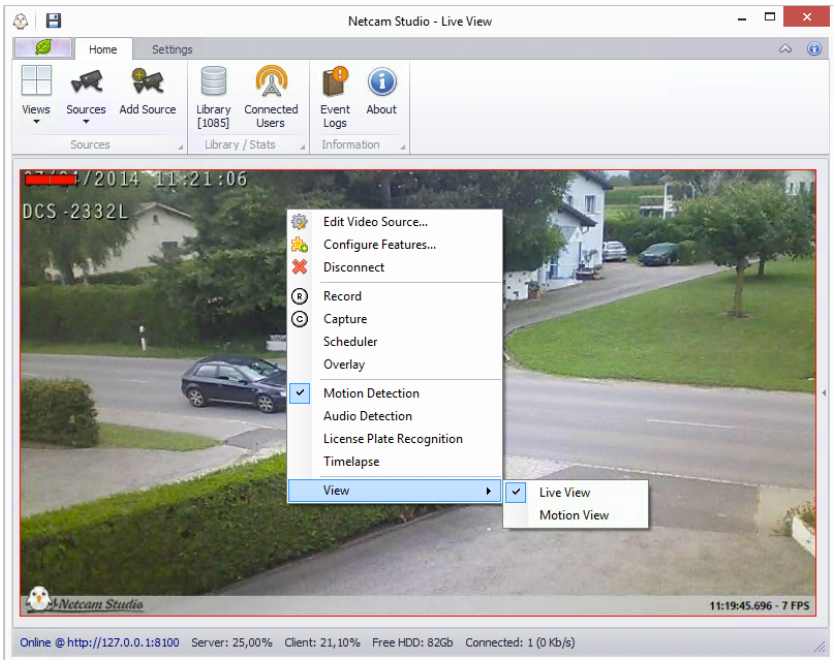
The window will have yellow frame around and there is little rectangle indicating Threshold level in the left upper corner of the window. The frame and the rectangle will turn red, if any motion will be detected and the recording will be triggered:



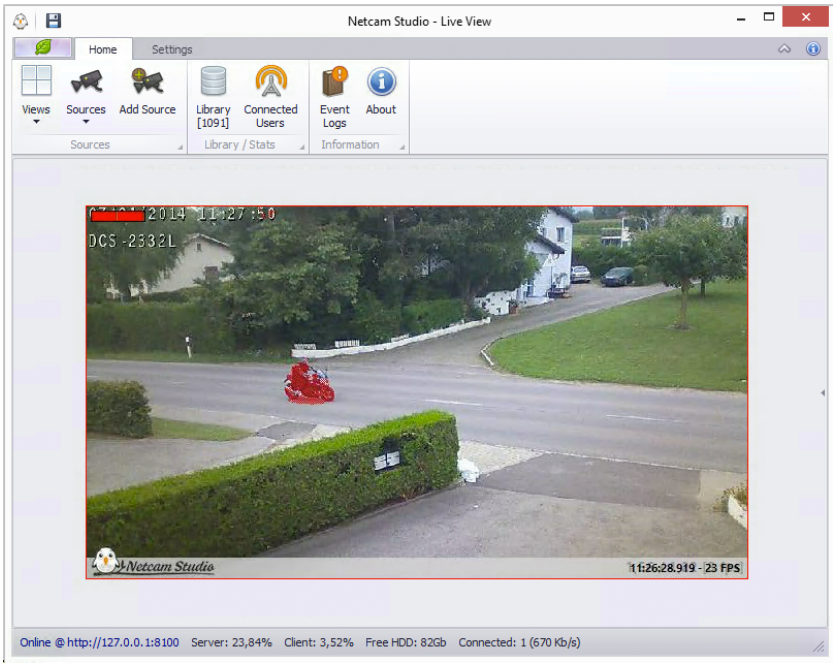
In order to **disable motion detection**, click again on **Motion Detection icon in the functional bar.**

2.3.2 Motion detection view

In order to enable motion detection view, you have to right-click on the view box. The drop-down box will appear on the screen. First, **enable motion detection** and then go down to the **View** line. If you put cursor on View, the drop-down box will appear. **Select Motion View** by clicking on it.



The motion detection view looks as follows:

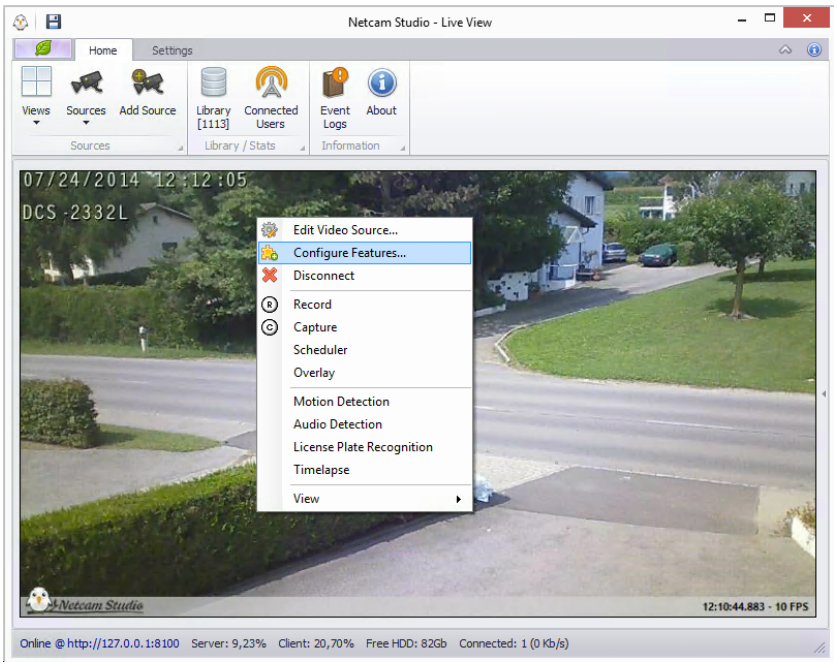


All objects that were detected as moving are indicated according to selected **Motion Display method**. In this way, you can clearly see motion on the screen.

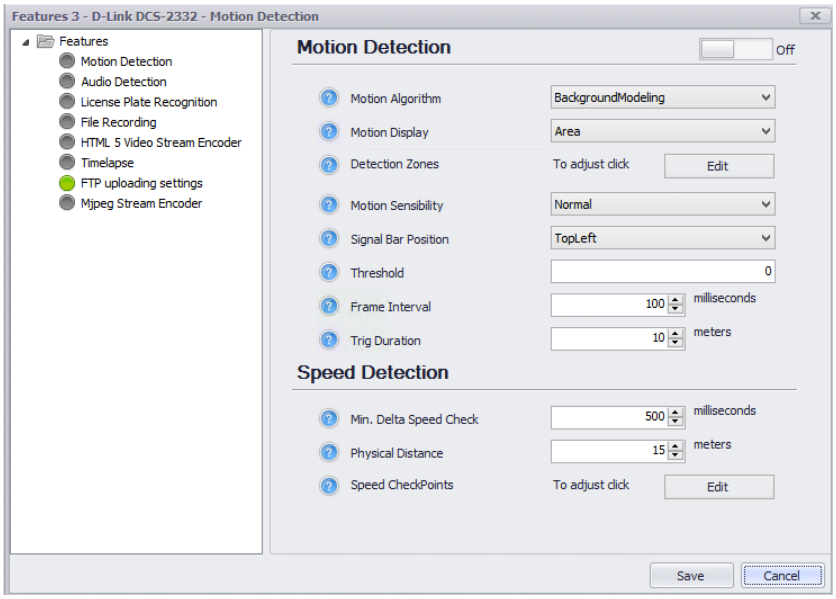
2.3.3 Setting up motion detection

In order to get optimal results of motion detector, you have to **customize all its features**.

In order to do it, you have to right-click on the view box of the selected source. Then, click on Configure Features:



Then, the following Configuration window will appear:



In order to customize motion detection, you can change different parameters: **Motion Algorithm, Motion Display, Detection Zones, Motion Sensibility, Signal Bar Position, Threshold, Frame Interval** and **Trig Duration**.

It is possible to enable and disable motion detection in this window by putting the button in top right corner of the window in appropriate position (Off/On).

The first parameter to set is **Motion Algorithm**. It allows you to optimize the way of defining the movement based on what you want to detect and the approach you want to use. You have the following choice:

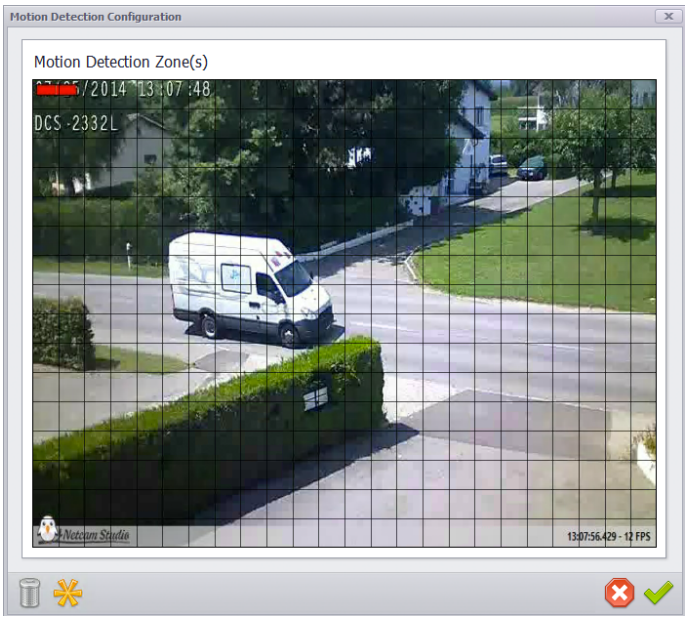
Framework Difference	The difference between two consequent video frames. The bigger the difference, the bigger the motion level.
Background Modelling	Background Modelling Algorithm defines the movement on the base of the average movement of the background during the previous 10 seconds.
Speed Detection	The algorithm allows you to detect speed of an object between specified points in the field of view. Speed detection is discussed in detail in the next chapter.

Next parameter is Motion Display, which is the way the motion is indicated on the screen. You can select one of the following options:

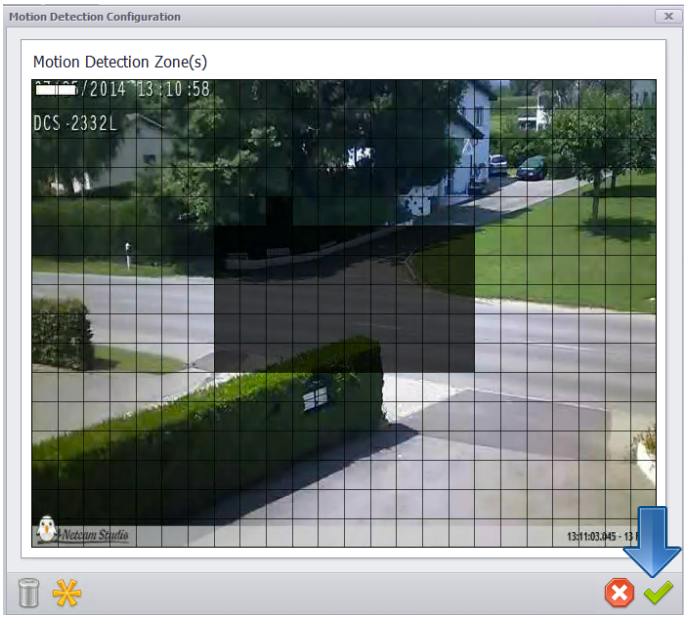
None	No motion indication.

Area	The difference between current video frame and its background. This algorithm is characterized by very clear indication of motion. **Recommended algorithm.**
Border	The algorithm highlights only the borders of moving areas or objects
Blob	The algorithm counts moving objects and highlights them with red rectangle.
Grid	The algorithm means that the screen is divided into many cells. Those cells are highlighted that have the most motion.

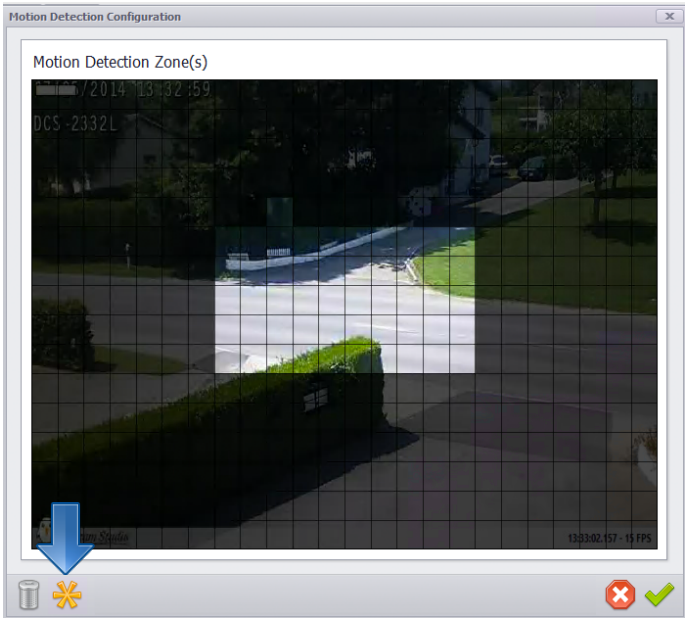
Next parameter is **Detection Zones**. This function allows you to define a specific zone for the motion detection. If you click on the **Edit button** on the right side of Detection Zones line, the following window will appear:



Press and hold left mouse button and then drag it to define the area in which you want to detect motion. As a final point, save changes by pressing the confirmation button on the lower bar.



In order to invert the view, click the following icon:



When a specific zone is selected, the motion detection view box looks as usual, but motion is detected only in indicated area.

In order to **disable the selected area**, click on the icon of dustbin in the lower left part of Motion Detection Zones window. Afterwards, save changes by pressing the confirmation button on the lower bar.

The third parameter is **Motion Sensibility**. The user can set **Very High, High, Normal, Low** and **Very Low** motion sensibility depending on his/her needs.

Next parameter is the **Signal Bar Position** on the screen. Signal Bar by default is situated in upper left corner of the view box in the main window. Signal Bar shows threshold level and real time motion

level. **Threshold level is the grey line** in the middle of the bar. Coloured bar is the **real time motion level.** If the real time motion level is lower than the threshold level, the coloured bar is yellow:

If the real time motion level exceeds the threshold level, the coloured bar turns red and the program starts to record:

In order to change sensibility of the motion detection, you have to set either lower or higher automatic threshold level.

Next parameter is **Threshold**. Threshold is sensibility of motion detector. It sets the level above which the alert will be triggered and recording will be started. **Level 0 is the default and means automatic Threshold**; the program adjusts the sensibility of the detector by itself. You can enter different level of Threshold. **NOTE:** Default level (level 0) does not indicate that the application captures any slightest movement. If you want to increase sensibility of the sensor, you have to set lower threshold level than automatic. Low value will make the motion detector to trig alert more easily (high sensibility).

Threshold level is the grey line in the middle of the Signal Bar. The function of Signal Bar was explained above this parameter.

Next parameter is **Frame Interval** that is interval between two frames in milliseconds.

Trig Duration determines how long the alert will last. This feature is useful when recording and defining the minimum length of a recording.

If you change any setting in Motion Detection Settings box on the right of the main window, you have to confirm it by clicking Apply button in the lower part of the box.

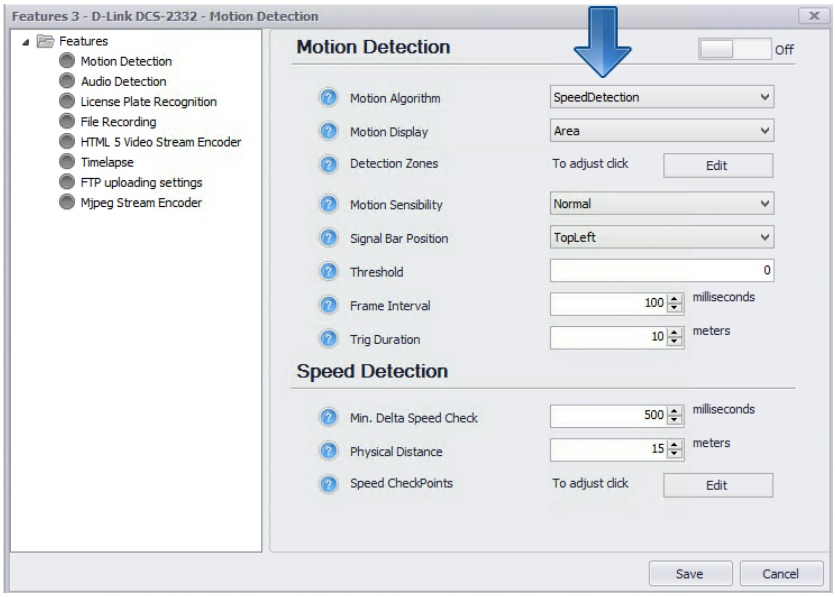
2.3.4 Speed detection

The function of **Speed Detection** is integrated in Motion Detection; however, because of its complex subject, it will be discussed in this chapter.

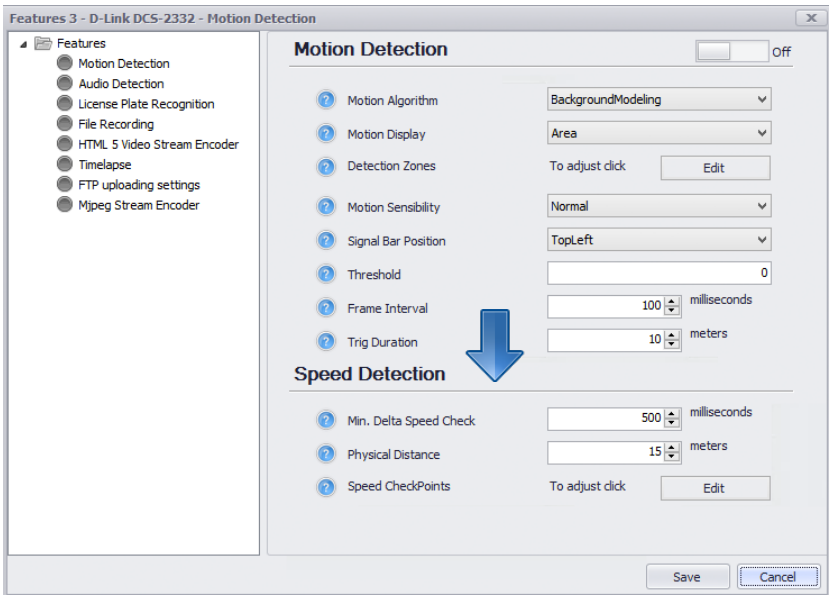
Speed detector is used to determine the speed of an object (e.g. car) moving between specified points in the field of view.

First, select target source. Then, click on **Configure Features** in drop-down box, which will appear when you will righ-click on the screen.

Then, **select Speed Detection algorithm** from **Motion Algorithm** drop-down box in Motion Detection Settings box.

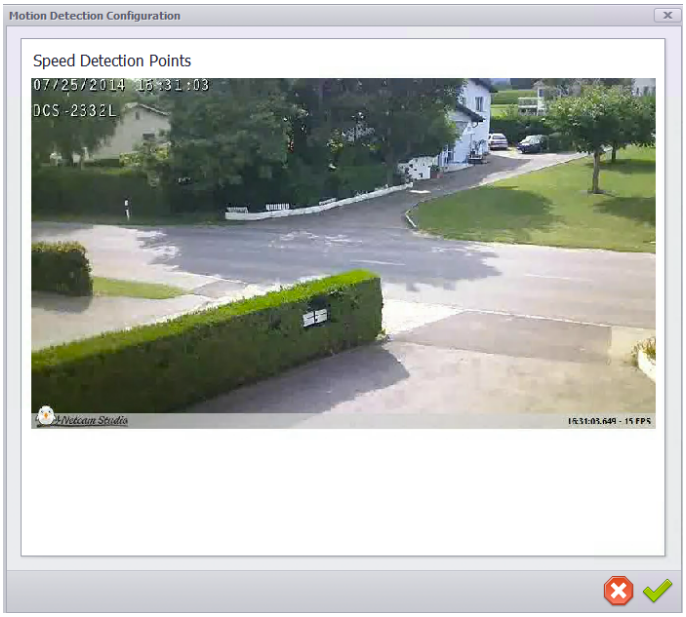


Next, you have to set up the **Speed Detection**. All Speed Detection settings are in lowe part of **Motion Detection Settings** box:

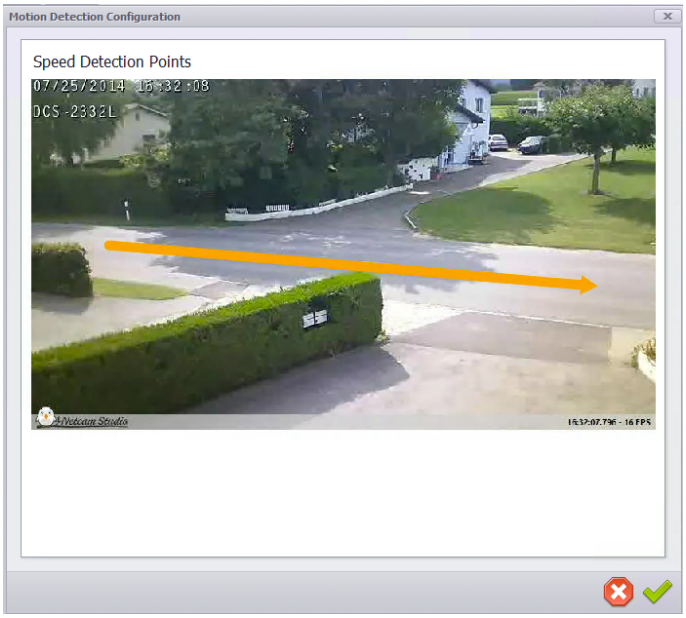


First, set the value of **Min Delta Speed Check** i.e. the minimum time between two checks in milliseconds.

Next, go to **Speed Check Points** and click on **Edit** button. The following window will appear:



D**efine the line** where the speed will be detected between points A and B by putting your cursor in the starting point (A), then clicking and holding left mouse button and then dragging it to the ending point (B). Confirm by clicking on **Save Changes** button on the lower bar.



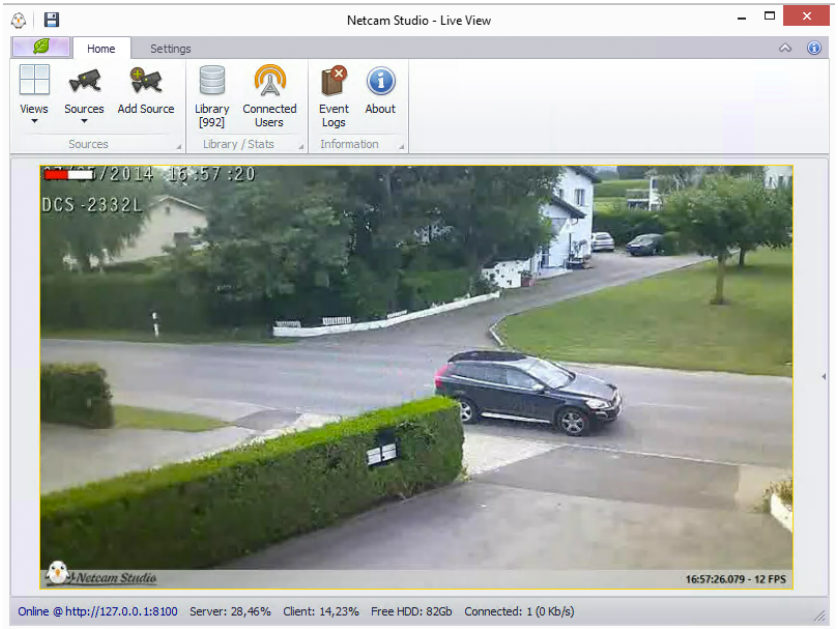
Then, you have to enter real **physical distance** between point A and point B in meters (m) in **Physical Distance** line above Speed Check Points line. Confirm by clicking **Check**.

Measuring and entering physical distance between the starting point (A) and the ending point (B) is essential for the speed detection to be accurate.

Set **manually** the **Threshold** in **Motion Detection Settings** box. The value that you enter is by default in kilometres per hour (km/h). The alerts will be triggered above the defined value of threshold. For

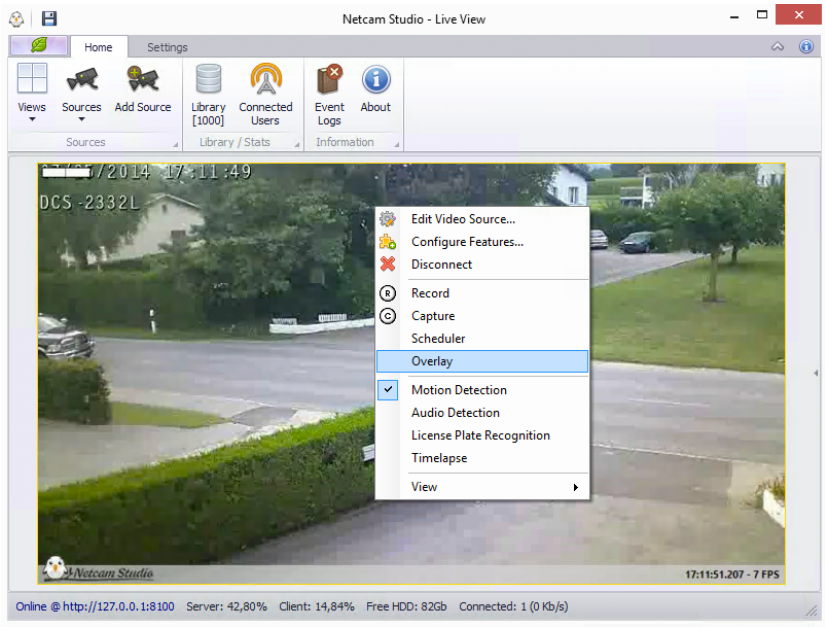
example: if you want to detect all objects that drive faster than 50 km/h, you need to put 50 in Threshold line. In other case, you will get alert of all moving objects regardless of their speed.

Now, the function of **Speed Detection** will be set accordingly:

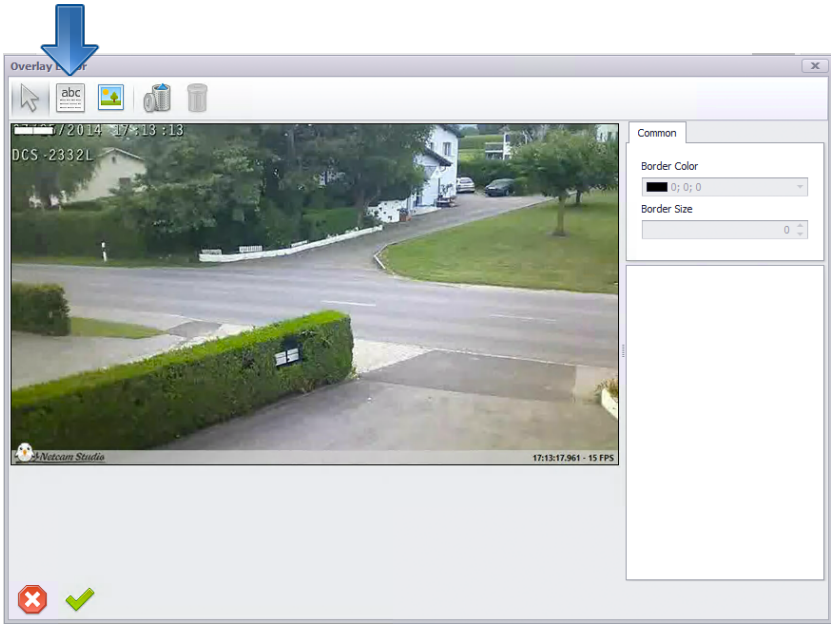


If you want to **see the current speed of an object on the screen**, you may use the function of **dynamic overlay**.

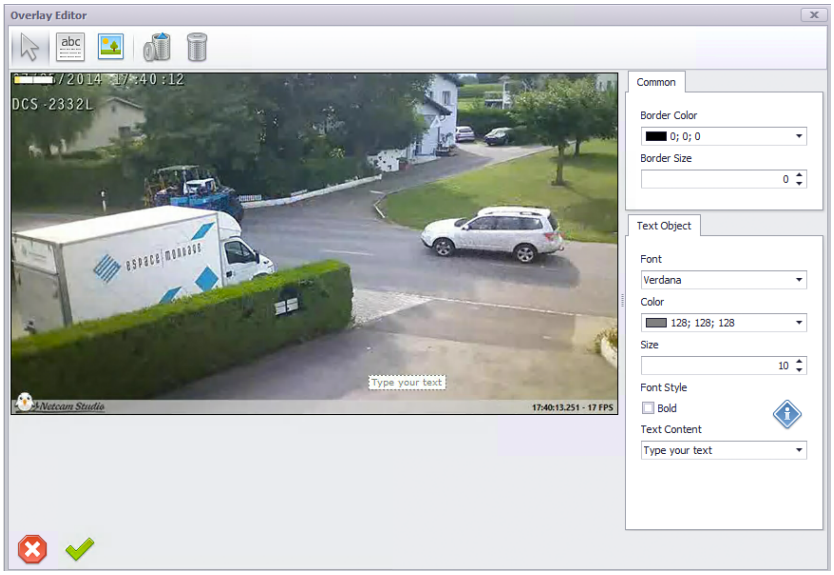
In order to put the dynamic overlay with the current value of speed, right-click on the view box and select Overlay:



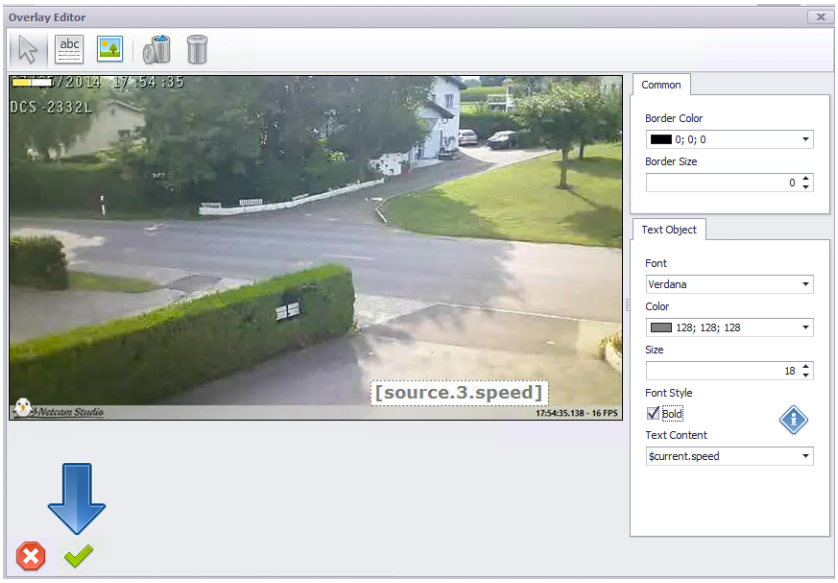
The following window will appear on the screen. **Select Text icon** from Home tab:



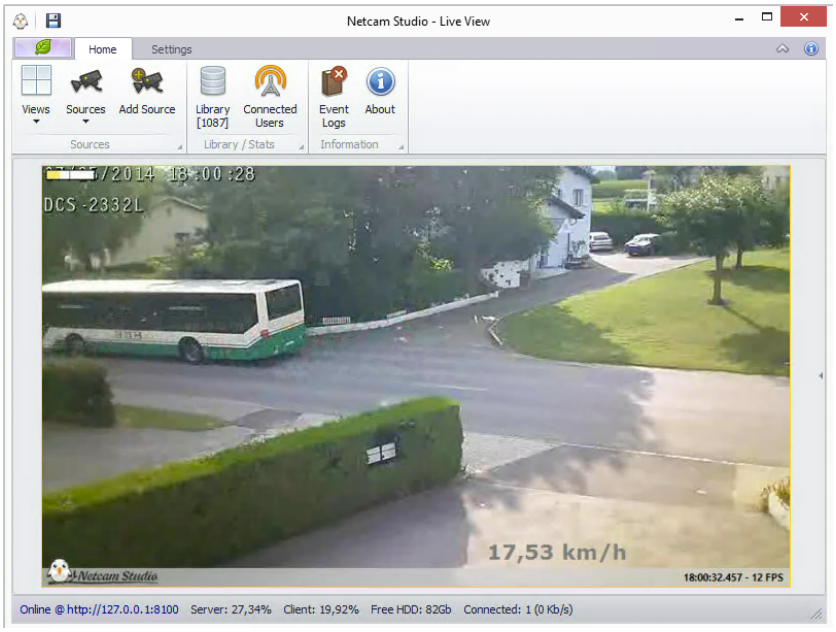
Then, click anywhere on the screen. The text: **Type your text** will appear on the screen. Click once on this inscription to highlight it. It is possible to move it to target place by dragging it with the cursor and edit the object with the use of **Text Object box**, which appears on the right side of the window:



You can select font, colour, size or boldness of the text. In **Text Content line** select the speed variable - **"$current.speed".** Confirm your choice by clicking on **Check icon**.



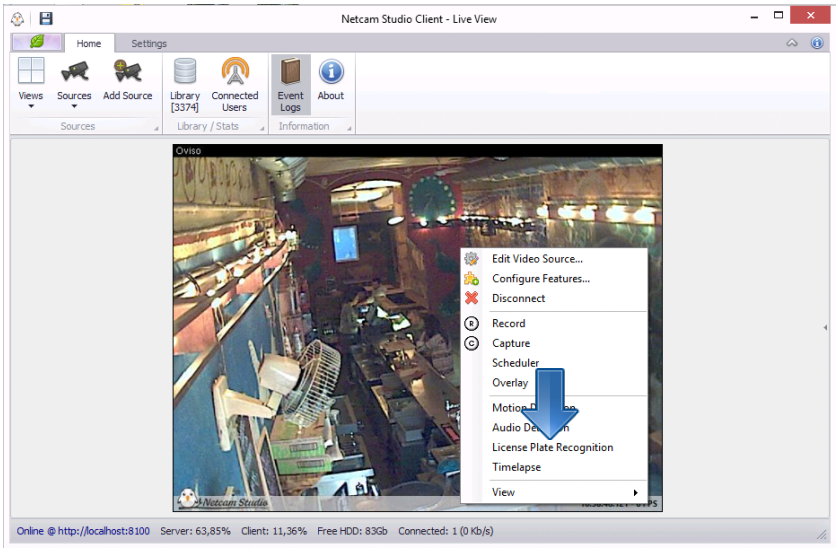
When you will confirm, the main window will appear. When the program will detect the speed of an object, it will be displayed in the edited format and place on the screen:



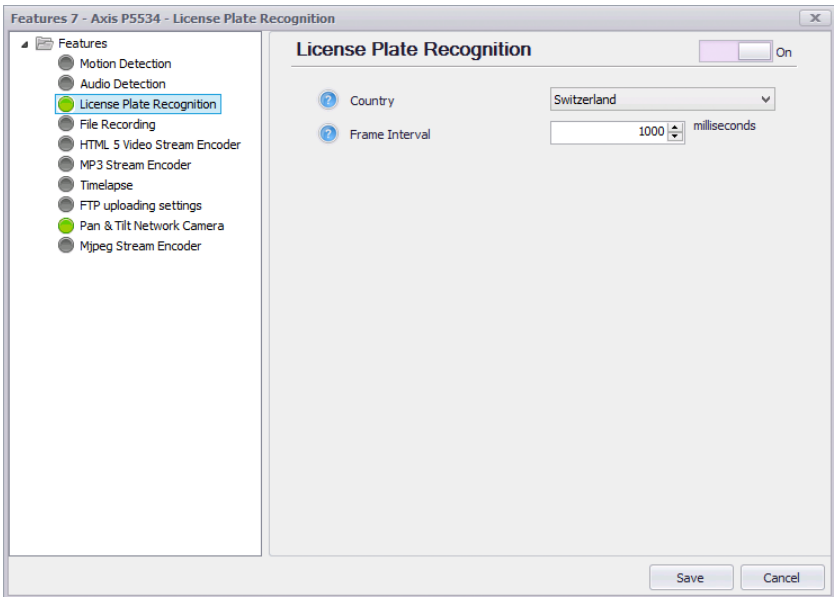
2.3.5 License plate recognition

The function of License plate recognition allows you to read, recognize and save licence plates of all captured vehicles on a camera.

In order to enable the function, right-click on the window of a source and select Licence Plate Recognition:



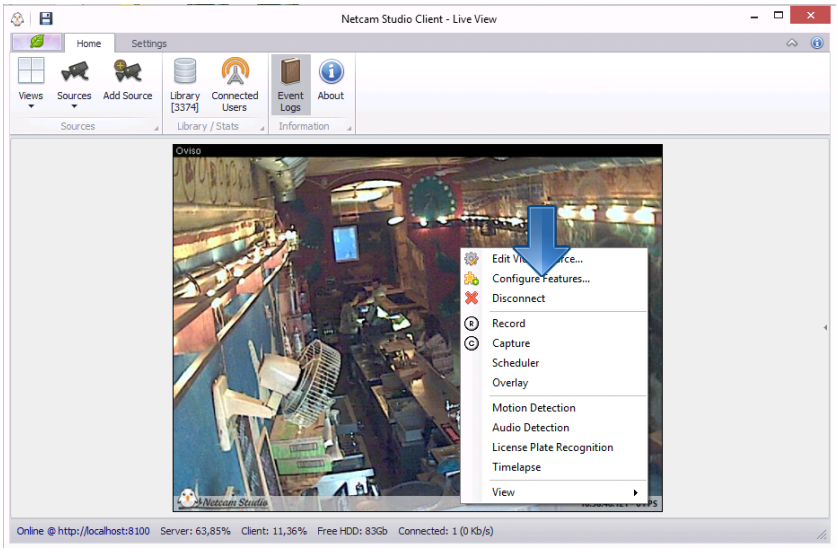
It is also possible to enable the function of Licence Plate Recognition from the level of Configuration. For this purpose, select Configure Feature from the drop-down box which appears when you after right-clicking on the screen. Then, shift the button in the upper right corner to ON position:



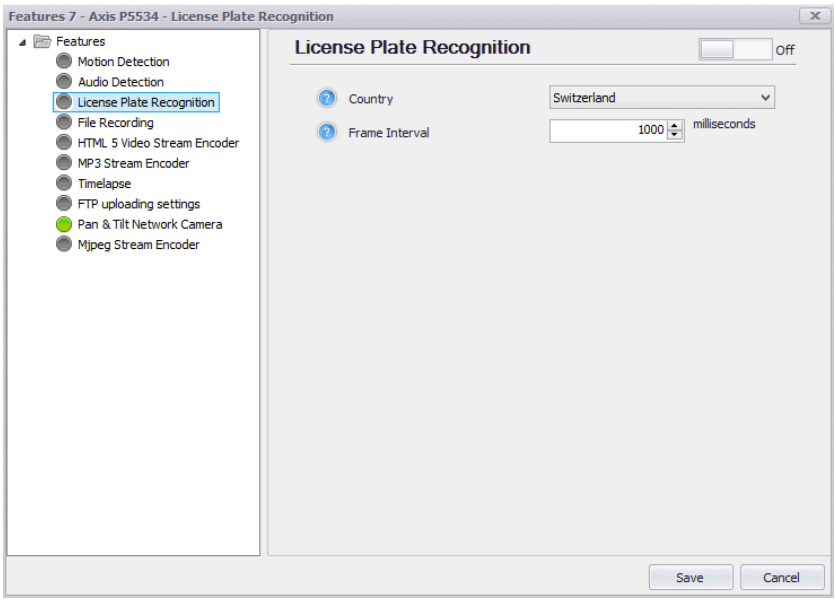
Save the changes. If the circle on the left side of License Plate Recognition in the box on the left side of the window is green, it means that the function is enabled.

2.3.5.1 Setting up licence plate recognition

In order to enter the settings of audio detection, click on the Configure Settings in drop-down box which will appear, when you will right-click on the screen:

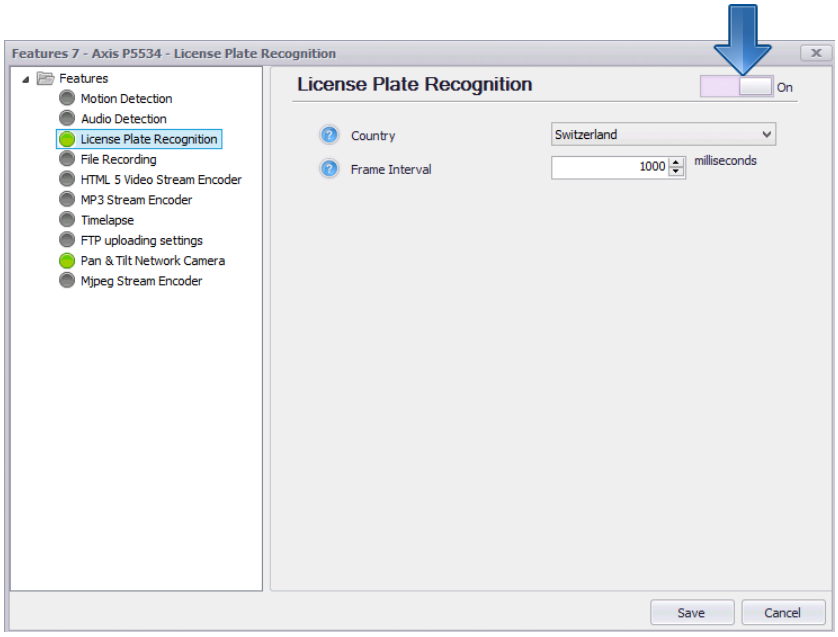


Then, select the function of **License Plate Recognition**. The following window will appear on the screen:



Select a default format of the licence plate, i.e. the country that the most of the cars are registered in. If it is necessary, change the frame interval.

From this window it is possible also to enable License Plate Recognition. For this purpose, shift the button in the upper right corner to ON position:



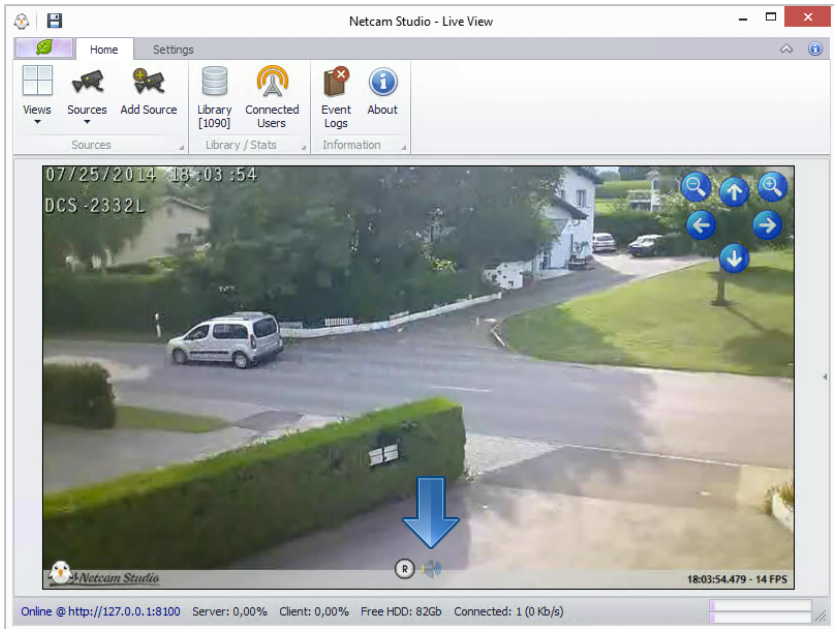
In case of implementing any changes, it is necessary to confirm changes by clicking **Save**.

2.4 Audio Detection

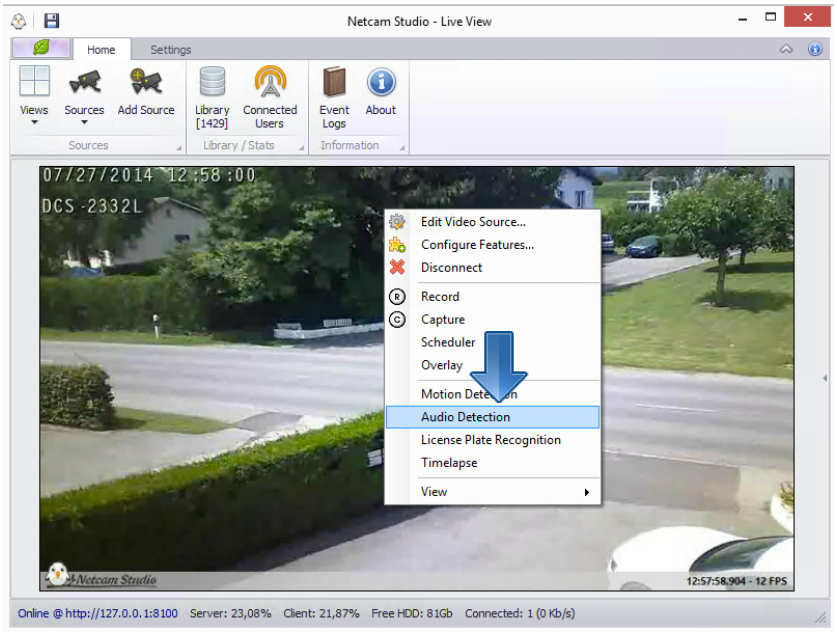
The function of Audio Detection allows you to monitor and capture audio signals from devices that support this mode.

At first, ensure that your device is equipped with microphone to support audio detection.

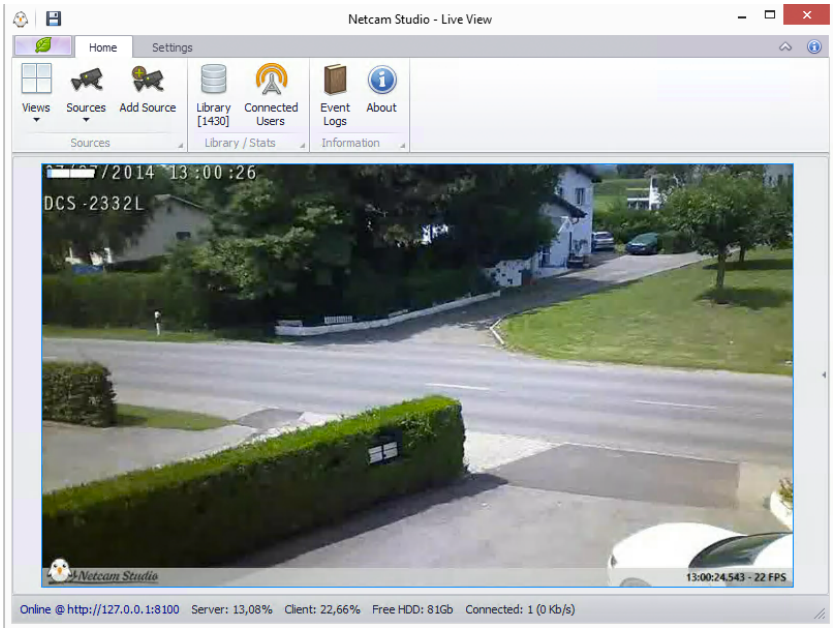
If you want, you can enable audio, by clicking on the icon of speaker:



Then, right-click on the screen. The drop-down box will appear on the screen. In order to enable function of Audio Detection, click on the **Audio Detection**:

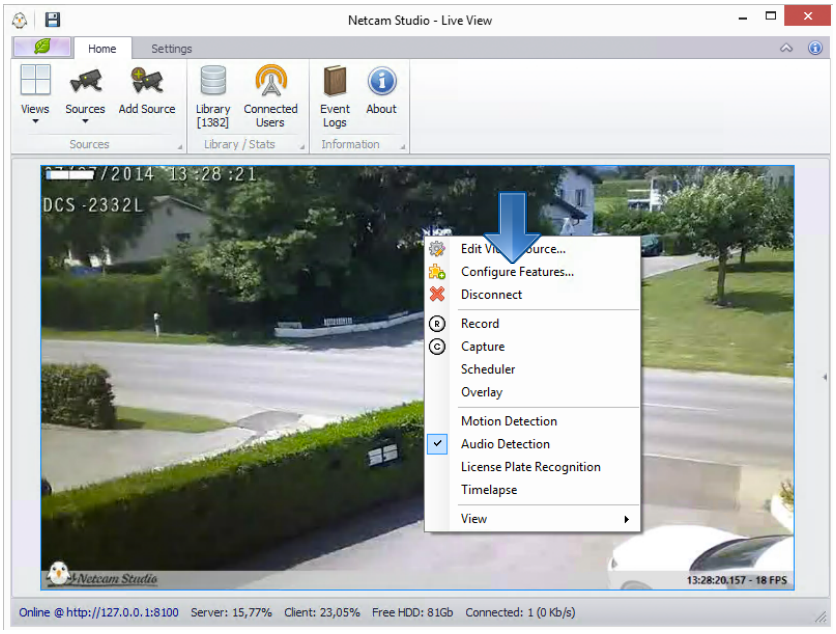


Shown below is the screenshot of the window with enabled Audio Detection. Coloured bar in the Signal Bar in the upper left corner is the **real time audio level.** If the real time motion level is lower than the threshold level, the coloured bar is blue (not yellow like for motion detection). If the real time motion level exceeds the threshold level, the coloured bar turns red and the program starts to record. The grey line in the middle of the bar is Threshold level.

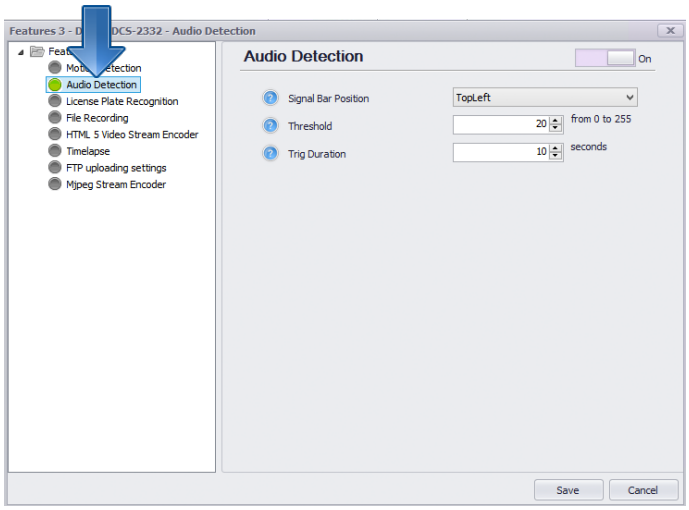


2.4.1 Setting up Audio Detection

In order to enter the settings of audio detection, click on the Configure Settings in drop-down box which will appear, when you will right-click on the screen:



The window of Motion Detection Settings will appear. Click on Audio Detection on the left side of the window to go to the window of Audio Detection Settings:



First parameter is the **Signal Bar Position** on the screen. Signal Bar by default is situated in upper left corner of the view box in the main window.

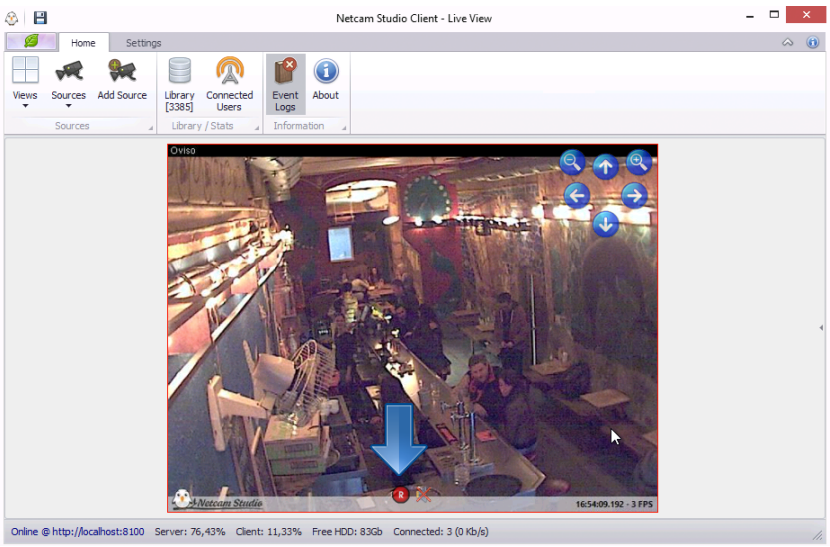
The first parameter is **Threshold** i.e. the sensibility of audio detector. It sets the sound level above which the alert will be triggered and recording will be started. **Level 20 is the default and means automatic Threshold**; the program adjusts the sensibility of the detector by itself. You can enter different level of Threshold. If you want to increase sensibility of the sensor, you have to set lower threshold level than automatic.

Second parameter is **Trig Duration** i.e. automatic duration of recording after the last detected noise. By default this value is 10 seconds; however, the user may change this duration according to his/her needs.

2.5 Recording

In order to enable the function of recording of a selected source, right-click on the window of this source and select **Record** function in drop-down box.

Then, the application will start to record the video output and the frame around the window will turn red:



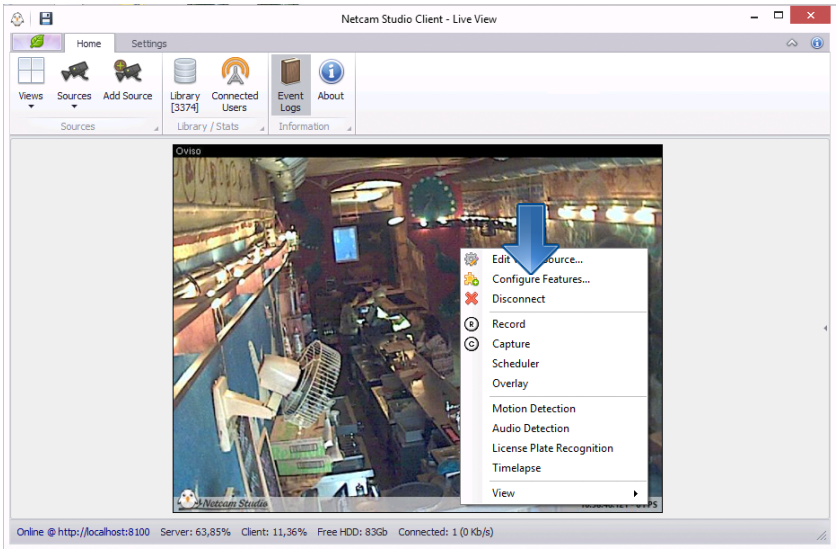
If you move the cursor on the screen, the **red "R" button** will appear in the lower middle part of the screen indicating that the function of recording is enabled.

The recorded video is stored in the Library.

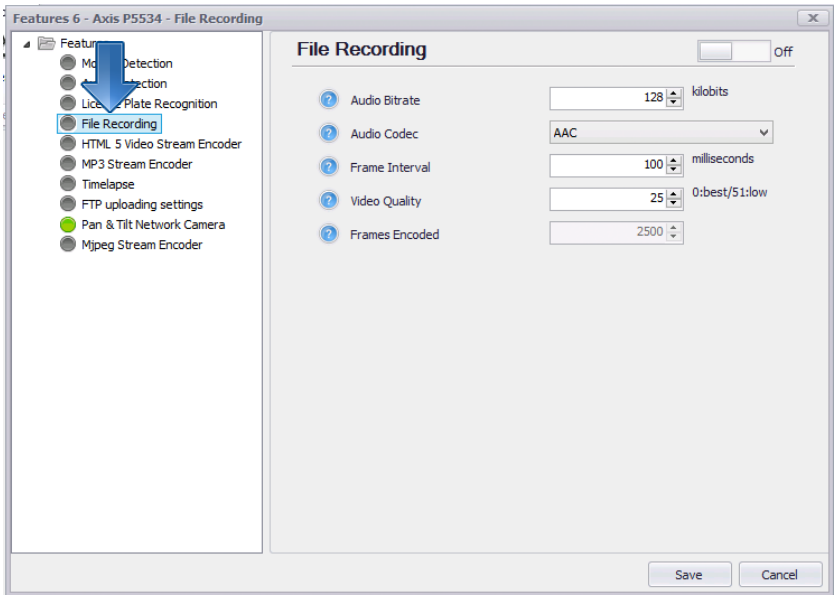
In order to **Stop Recording**, click on this red "R" button or right-click on the window and select Record function.

2.5.1 Setting up recording of a selected source

In order to **customize recording of a selected source**, right-click on the window of recorded source and select function **Configure Features** in drop-down box.



Then, the following window will appear. Select **File Recording** from the box on the left side:



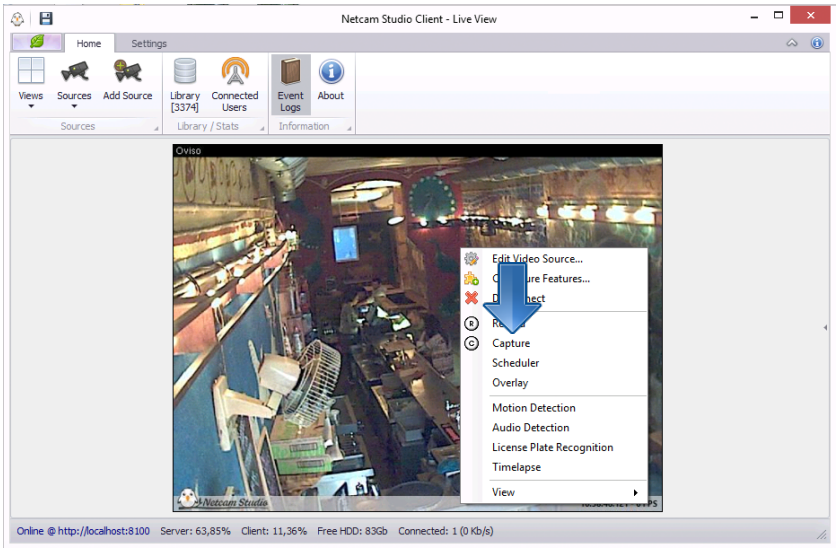
It is possible to change Audio Bitrate, Audio Codec, Frame Interval, Video Quality and number of encoded frames. All details about the above-mentioned parameters you will find by clicking on a question mark next to a parameter.

Confirm your changes by clicking **Save**.

If you want to change the default recording options for all sources, follow the instructions described in details in Chapter 4.1.3 Recording / Streaming Settings.

2.6 Capture (Still Image)

With this function, you can capture a still image of a selected source. To this end, right-click on the window of this source and then, click on Capture (C) in drop-down box.

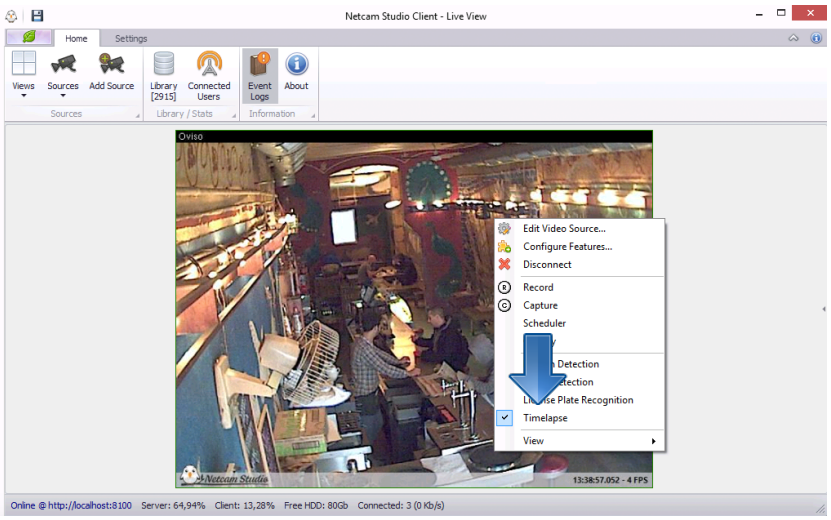


Captured image is stored in the Library.

2.7 Timelapse

Timelapse mode allows you to capture sequence of images of the same scenery with a given time interval i.e. take one still image from the same camera once for a specific period, e.g. every minute, once an hour, once per day.

In order to enable Timelapse, right-click on the window of a selected source. From the drop-down box that will appear on the screen select Timelapse:



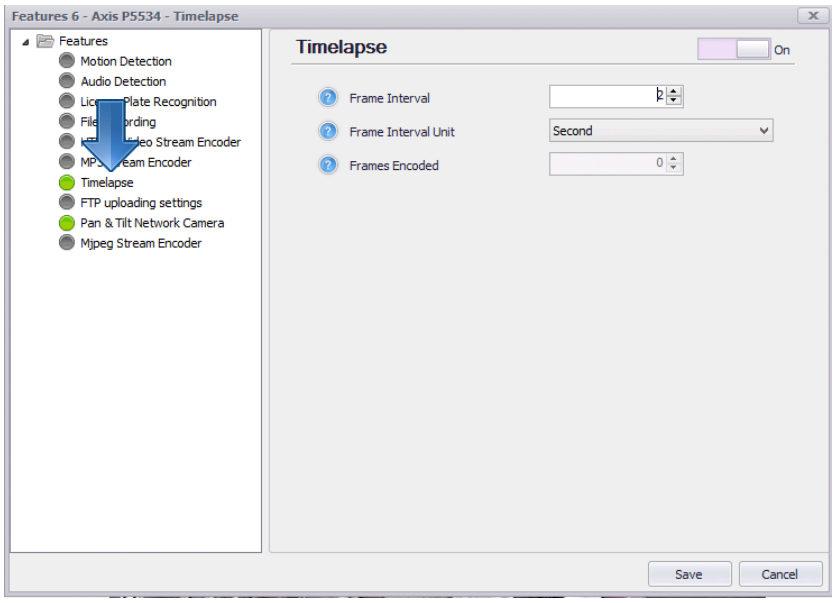
Then, it is necessary to configure Timelapse – for this purpose, go to the next chapter.

In order to **disable Timelapse**, click Timelapse in this drop-down box one more time.

2.7.1 Setting up timelapse

In order to configure Timelapse, right-click on the window of a selected source. From the drop-down box that will appear on the screen select Configure Features.

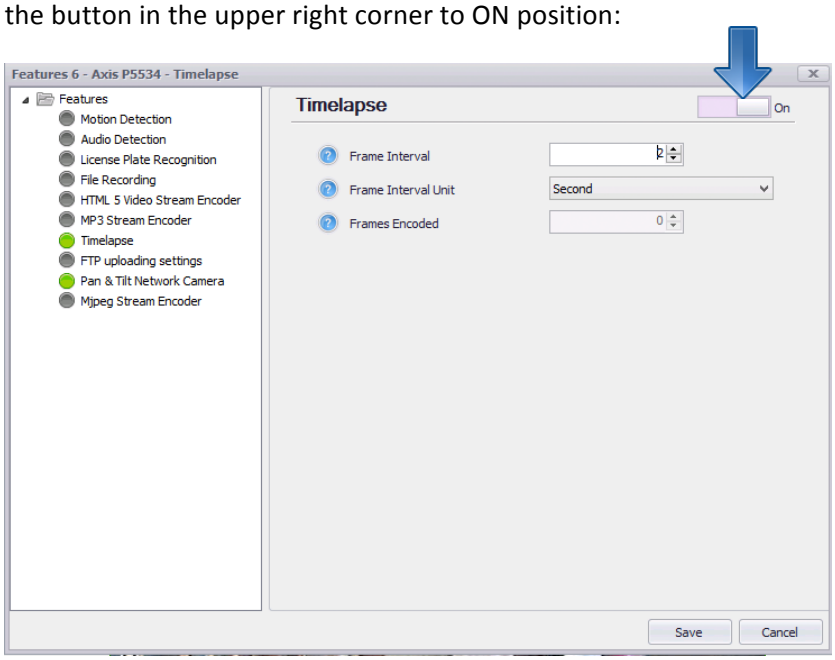
Then, select Timelapse from the box on the left side of the window. If Timelapse is enabled, the circle on its left will be green; if it is disabled, it will be grey. The following window will appear:



It is possible to change time interval between subsequent still images. For this purpose, change time interval in the first line, and unit of time (second, minute, hour, day, etc.) in the second line.

Confirm the settings by clicking on **Save** button.

From this level it is also possible to **enable/disable Timelapse**. To this end, to enable timelapse shift the button in the upper right corner to ON position:

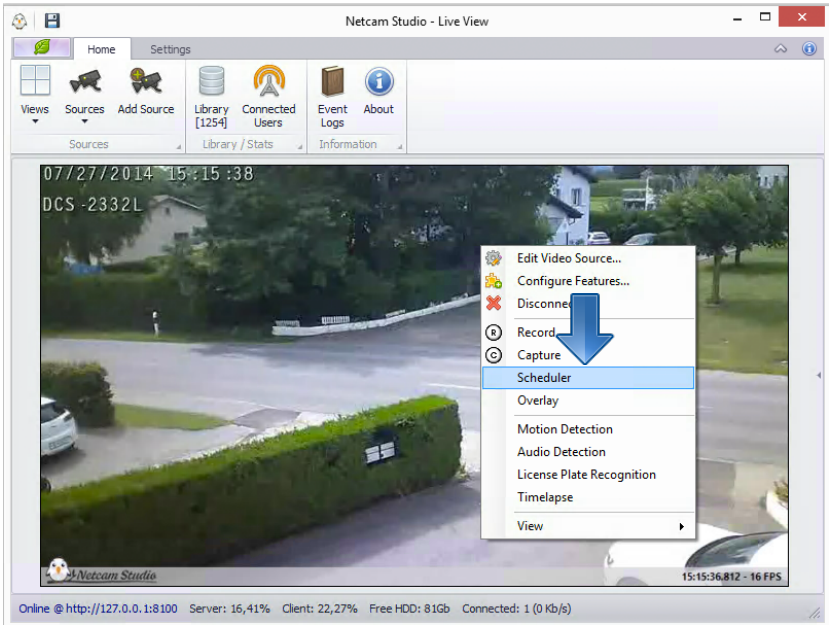


Save the changes. If the circle on the left side of Timelapse in the box on the left side of the window is green, it means that the function is enabled. In order to disable this function from the level of Configuration, simply shift the button back to Off position and save the changes (the circle on the left side will turn grey).

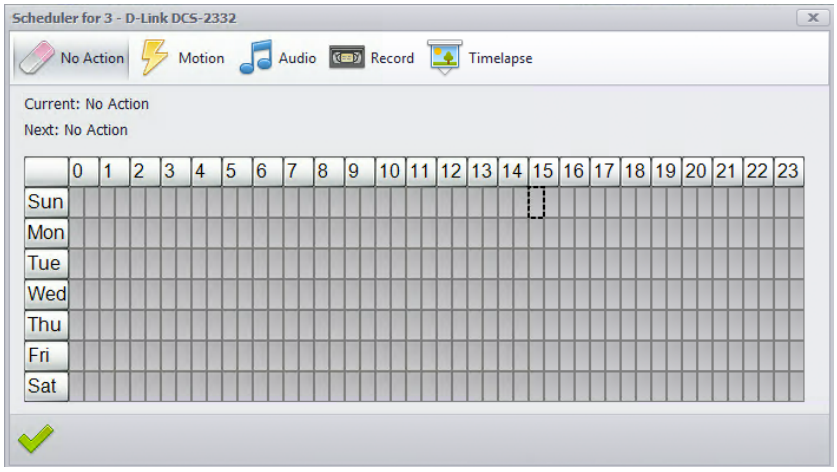
2.8 Scheduler

With this function you can set the date and time of monitoring or recording of the output of a specific source.

In order to enter the **Scheduler window** right-click on the view box and then click on the **Scheduler** button.



Shown below is the screenshot of **Scheduler** window, which will appear after clicking on Scheduler button:



On the **functional bar** above below the **Home tab** there are five icons:

ICON	NAME	FUNCTION	INDICATION COLOUR ON THE MATRIX
	No Action	To erase selected day and time of monitoring and/or	No colour

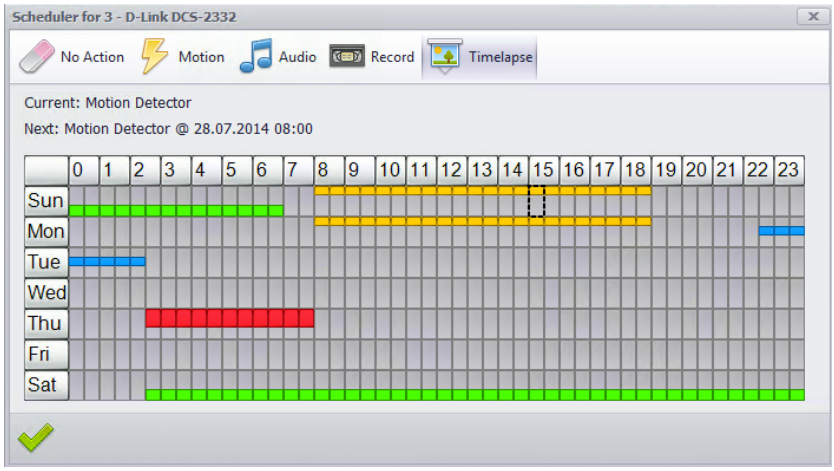
		recording.	
	Motion	To select specific day and time of start and end of motion detection.	Yellow
	Audio	To select specific day and time of start and end of audio detection.	Blue
	Record	To select specific day and time of start and end of permanent recording of the output of the selected source.	Red
	Timelapse	To select specific day and time of start and end of timelapse. Timelapse mode allows you to capture sequence of images of the same scenery with a given time interval.	Green

At first you need to select the mode that you want to monitor – motion, audio, record (the function of permanent recording) or timelapse. For this purpose, click on the relevant icon according to the above description.

Below the functional bar with the modes, there is **weekly calendar** matrix. The vertical line presents the days of the week from Sunday to Saturday, whereas the horizontal line presents the time of the day from midnight to midnight in the 24-hour format.

For the purpose of selection of the date and time when you want to monitor selected source, click on all the cells in the matrix corresponding to relevant day of the week and time.

Shown below is the screenshot of the Scheduler set for exemplary dates and time:



According to this exemplary schedule, motion detection will be triggered on every Sunday and Monday from 8 a.m. until 7 p.m., audio detection will be triggered on every Monday from 10:30 p.m. to Tuesday 2:30 a.m., permanent recording will be triggered on every Thursday from 2:30 a.m. to 8 a.m. and timelapse will be triggered on every Saturday from 2:30 a.m. to Sunday 7:00 a.m.

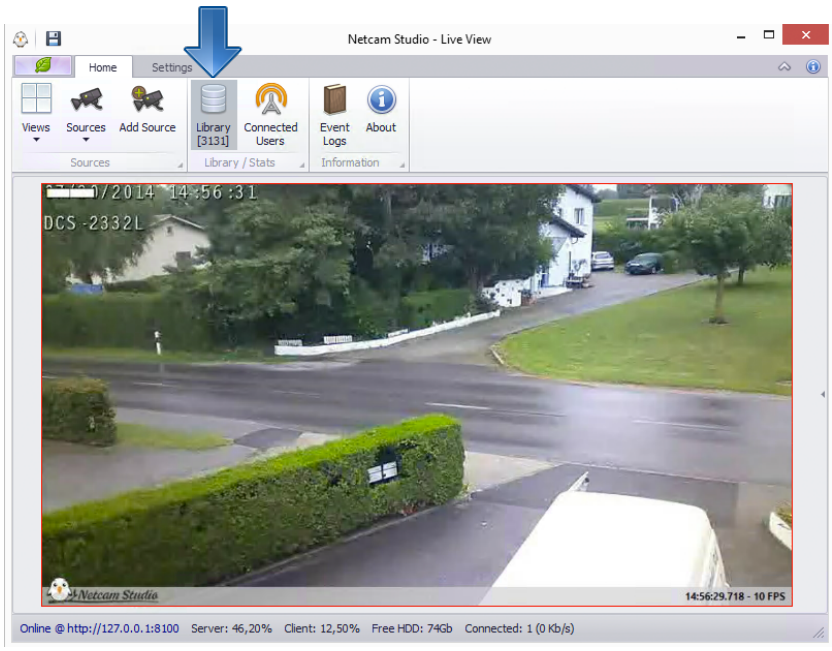
Confirm your choice by clicking on **Check** icon.

In case if you want to **clear the entered date and time**, you have to click on the **No action** icon on the functional bar (the icon of a rubber). Then you have to click on all the cells of the matrix that you want to clear. Afterwards, confirm changes by clicking on the Check icon.

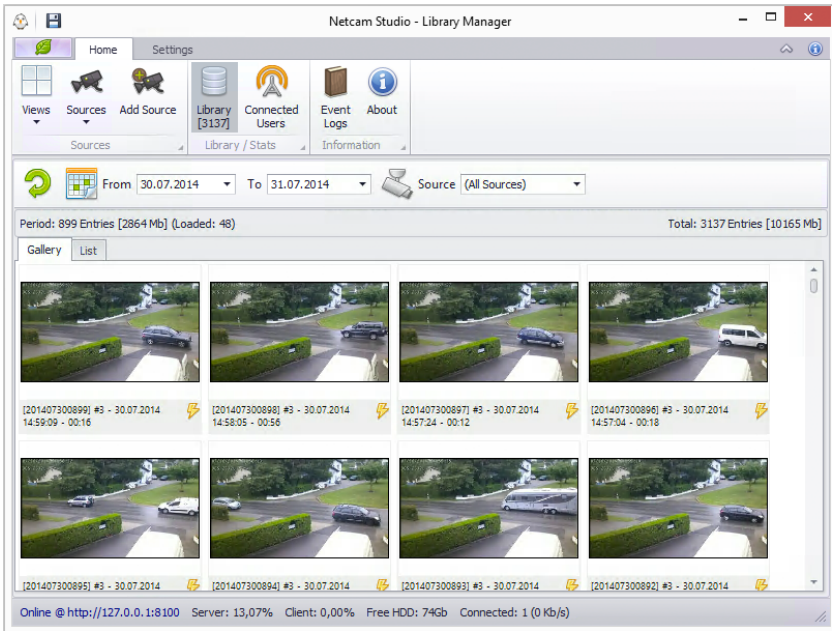
2.9 Library

The Library is used for regrouping all recordings and still images captured by the application.

In order to go to Library view, click on **Library icon** in the functional bar. The numer below the icon is the total number of items in the library:



Shown below is the main screen of **Library** view:



The functional bar below the Home tab consists of the following functions:

ICON	NAME	FUNCTION
	Refresh icon	To refresh the library view.
	Scheduler function	To filter the results by day of the monitoring.
	Source selection	To filter the results by the specific source.

Below you see multiply view of all videos and still images taken by all the modes: **Capture, Time Lapse, Recording, Motion** and **Audio Detection** during defined period of monitoring and/or from defined source.

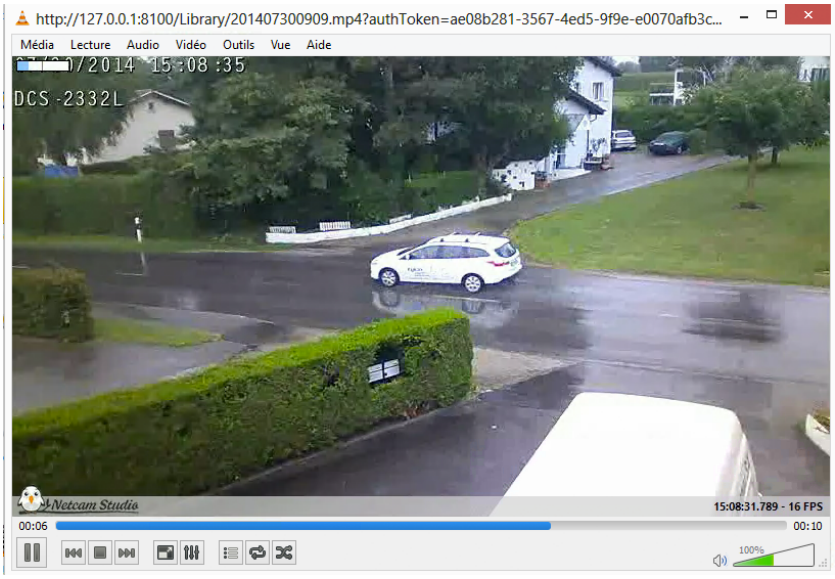
Below the screen with a snapshot of a specific footage or image there are the data concerning this source: **the date, the time, the time span** of a captured event and **the capture mode**.

If you click once on the screen with footage, you will see its **capture mode**.

ICON OF CAPTURE MODES	NAME	COLOUR OF DISPLAY
	Motion Detection	Red
	Audio Detection	

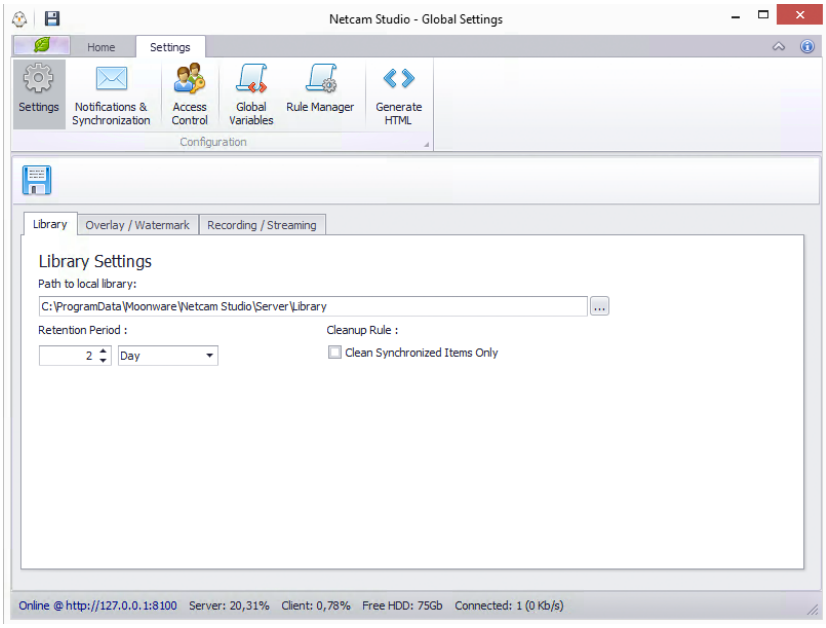
	Recording	Dark blue
	Capture	Light Blue
	Time lapse	Green

If you double-click on the screen with footage, the recording/still image will open in default program (VLC Player):



All the images and movies are stored for defined time in Library folder in Library path.

In order to **configure some features of Library**, go to Settings in functional bar:



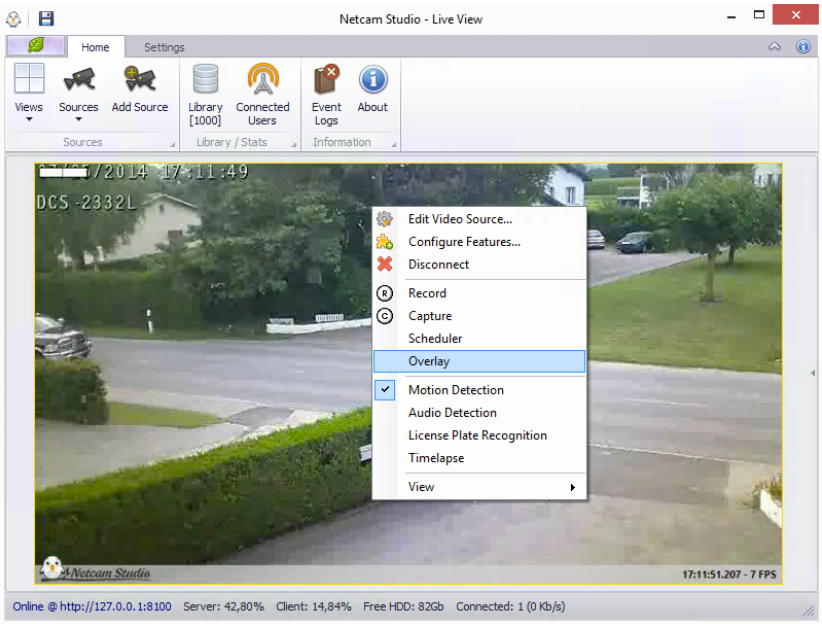
You can change the path to local library in your computer.

Next, you can define Retention Period, which is how long you will keep captured movies and pictures and decide if you want to clean only these items that were synchronized.

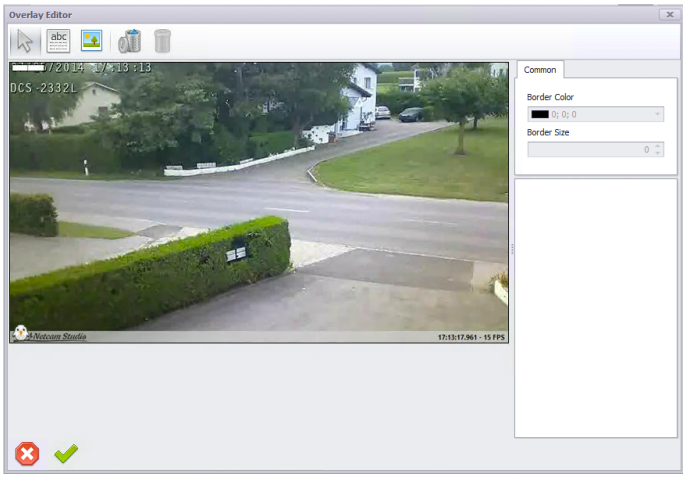
2.10 Overlay / Watermark

The function of Overlay / Watermark allows you to put visual overlay (e.g. dynamic or static text, image or emoticon) on the output of the camera.

In order to enter Overlay Editor view, right-click on the view box and select Overlay:



The following window will appear on the screen:



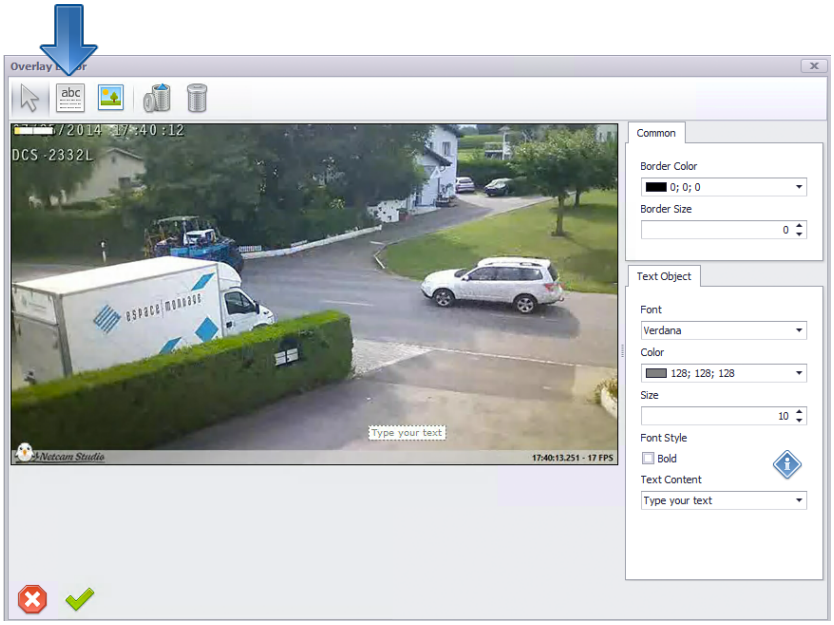
There are five icons that indicate particular functions of Overlay in functional bar:

ICON	NAME	FUNCTION
	Cursor	To move text or image on the screen.

	Text	To enter static or dynamic text.
	Image	To put watermark, image or emoticon.
	Clear All Object	To clear all objects on the screen.
	Clear Selected Object	To clear selected object.

2.10.1 Adding text

To add text, click **Text icon** in the functional bar. Next, click somewhere on the screen. The text: **Type your text** will appear on the screen. Click once on this inscription to highlight it. It is possible to move it to target place by dragging it with the cursor and edit the object with the use of **Text Object box** that appears on the right side of the window:



You can select font, colour, size or boldness of the text. In **Text Content line** type your text (static view) or select one of the variables (dynamic view).

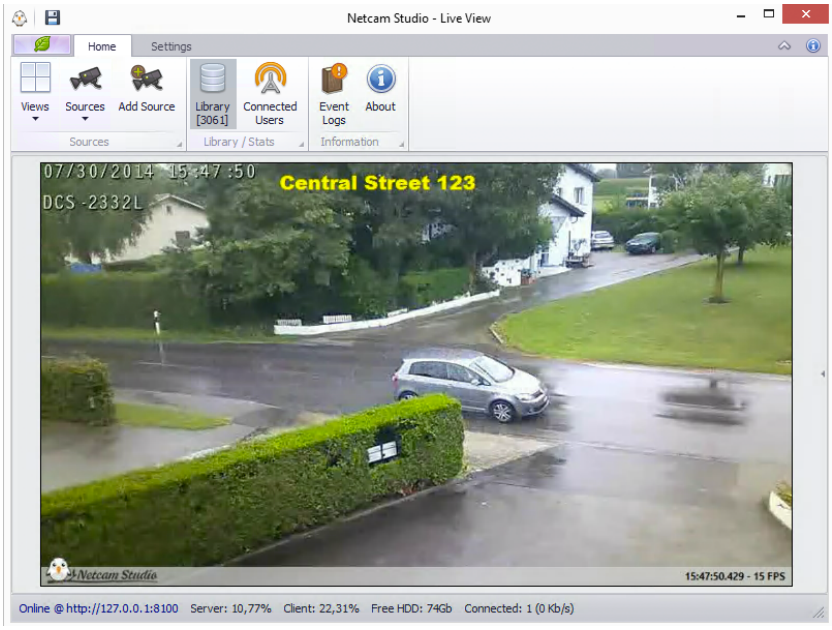
2.10.1.1 Adding static text

In order to add static text object on the screen, follow the instructions from the previous **Chapter 3.10.1** Adding Text and then enter the specific text in the line Text Content.

Finally, confirm the text by clicking on **Check icon** in the lower left corner.

This text will appear permanently in camera display box in each view and also in recorded videos and captured images in the Library.

Shown below is the screenshot of the exemplary static text object:



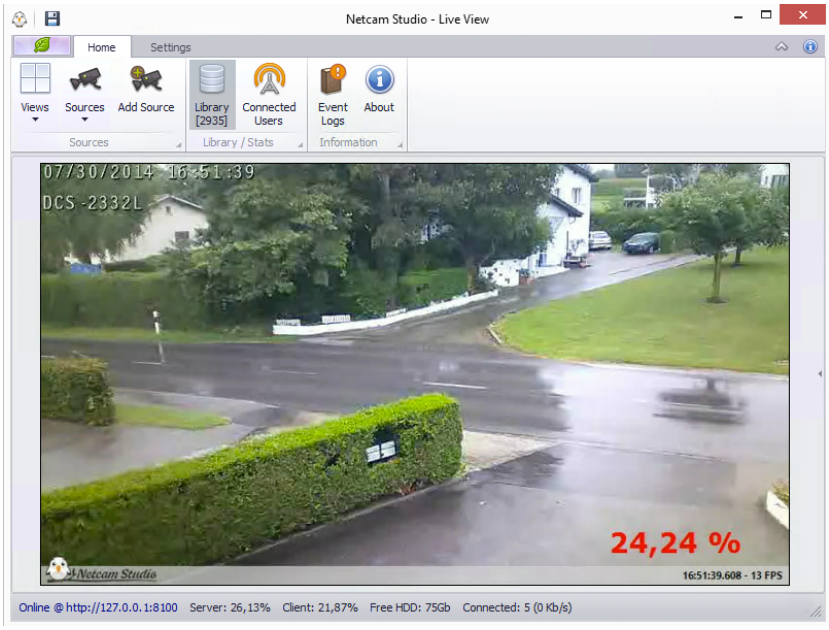
2.10.1.2 Adding dynamic text

The content of dynamic text changes with the variables. There are several available variables in the **Text Content drop-down box**: the usage of computer resources ($global.cpuUsage), the amount of free space on the disc ($global.freeDiskSpace), the value of motion ($current.motionValue), the number of detected objects ($current.detectedObjects), direction ($current.direction), duration of motion or audio alert ($current.duration) and the value of speed of detected object ($current.speed). **Speed variable overlay** is discussed in details in the **Chapter 2.3.4** **Speed Detection** due to its complex character.

In order to add dynamic text object on the screen, follow the instructions from the **Chapter 2.10.1** **Adding Text** and then go to **Text Content drop-down box** and select variable that you want to use.

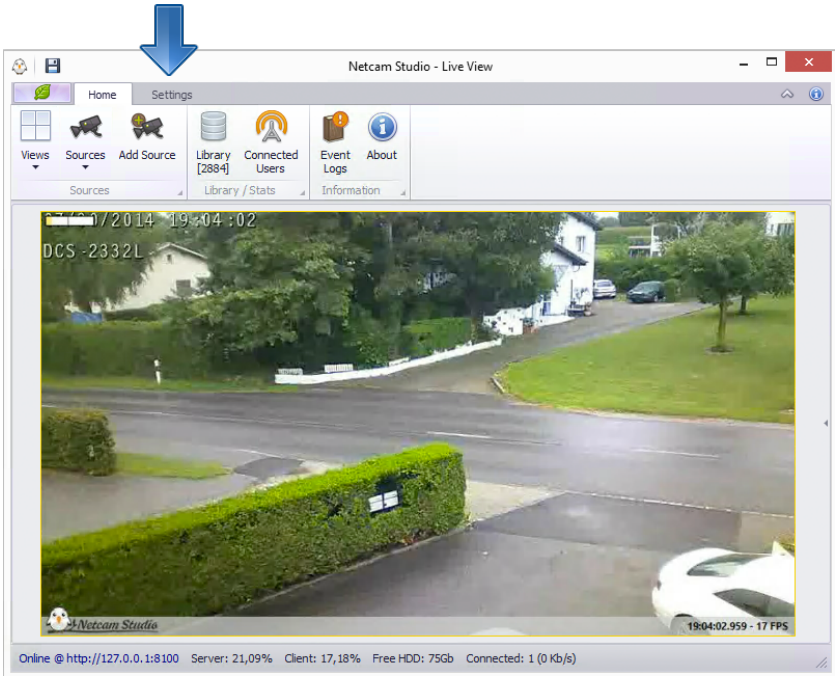
Finally, confirm the text by clicking on **Check icon** in the lower left corner.

Shown below is the screenshot of the exemplary view with dynamic text with CPU Usage.

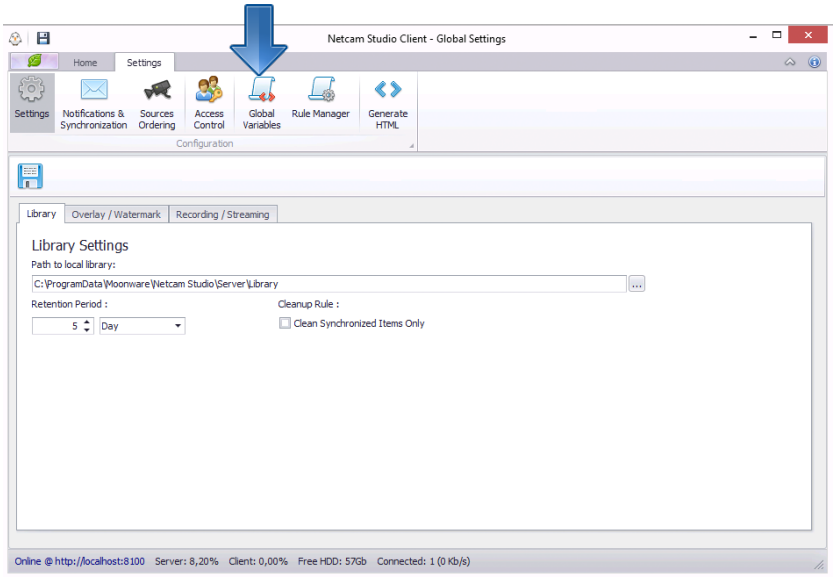


2.10.2 Creating new variable

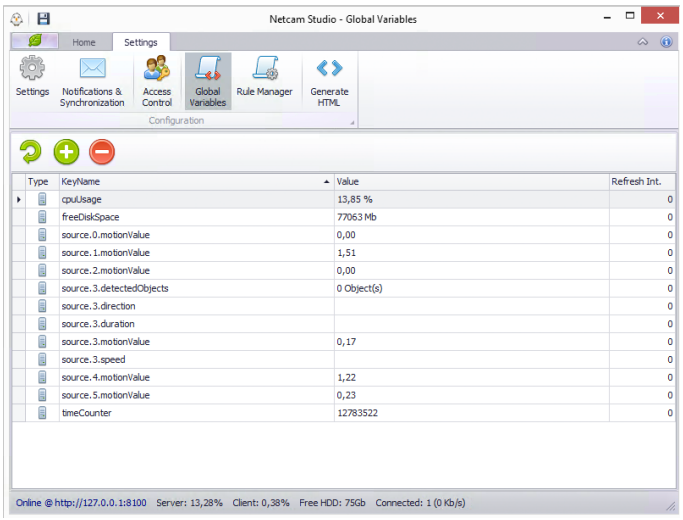
It is possible to create new variable overlay. For this purpose go to **Settings tab**:



Shown below is the screenshot of **Settings tab**. **Select Global Variables icon:**



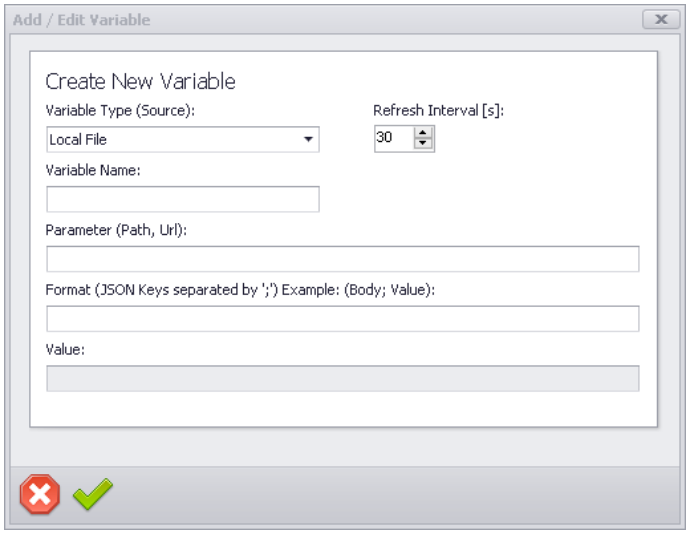
Shown below is the screenshot of Global Variables view. There is the functional bar with three icons and a list of available variables, their value and refresh intervals:



Shown below is the table with description of three functional icons:

ICON	**NAME**	**FUNCTION**
	Refresh	To refresh the list of existing variables.
	Add variable	To add new variable.
	Delete variable	To delete selected variable.

In order to add new variable, click on **Add Variable** icon. Then you will enter **Add / Edit Variable** window:

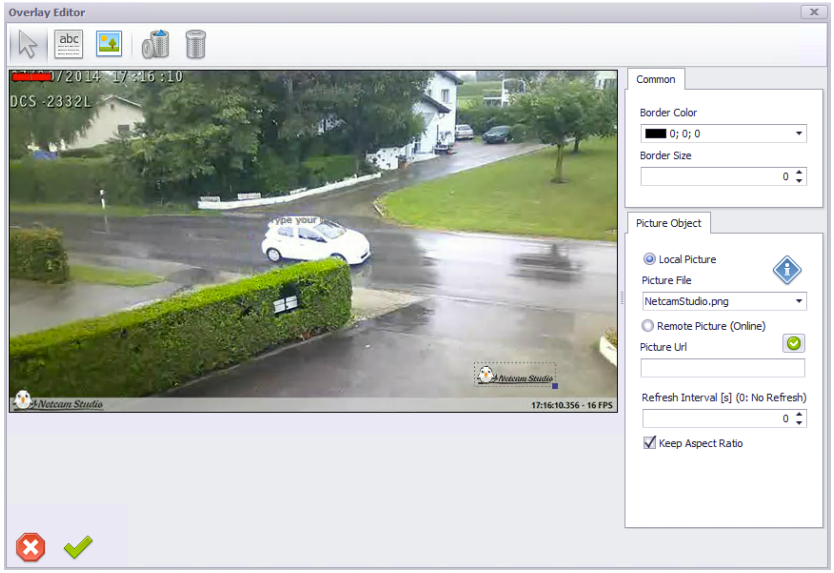


Select local file or JSON server, enter variable name, path or URL and format and select refresh interval.

Next, confirm your selection by clicking **Check** button.

2.10.2 Adding image

To add text, click **Image icon** in the functional bar (**in Overlay Editor window**). Next, click somewhere on the screen. The default image will appear on the screen – the logo of Netcam Studio. **Click once on this inscription to highlight it**. It is possible to **move it to target place** by dragging it with the cursor and **edit the object** with the use of **Picture Object box** that appears on the right side of the window. You can also **extend and minimize the picture** by dragging little square in the lower left corner of the picture frame.



You can **add online picture** by checking Remote Picture checkbox and entering the URL of the picture.

It is also possible to add your custom picture. For this purpose add the selected picture to the folder: **/Netcam Studio/WebServer/OverlayPictures** in order to put it on server. Then, **check Local**

Pictures and find selected picture. There are also several emoticons, weather icons and other images available in Local Pictures drop-down box. Finally, confirm the text by clicking on **Check icon** in the lower left corner.

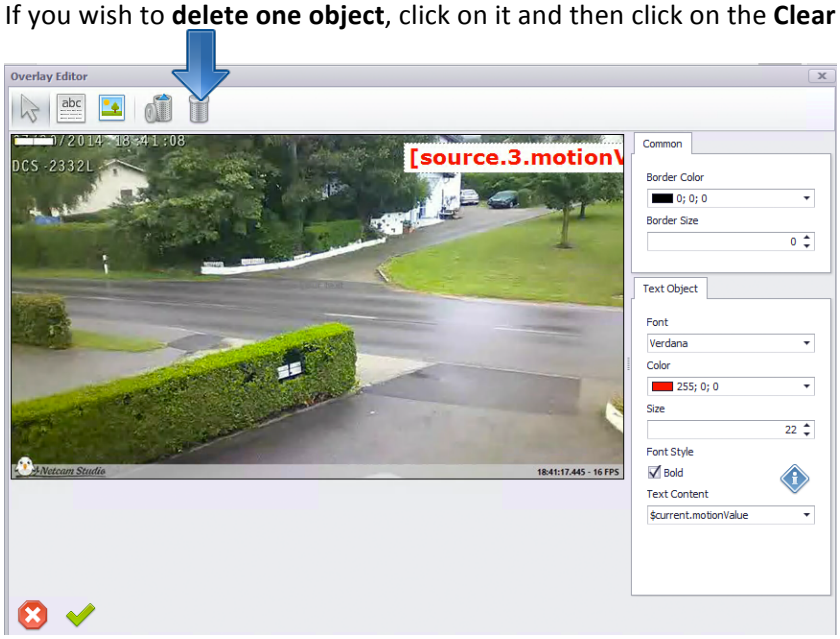
This image will appear permanently in camera display box in each view and also in recorded videos and captured images in the Library.

2.10.3 Editing / deleting an object

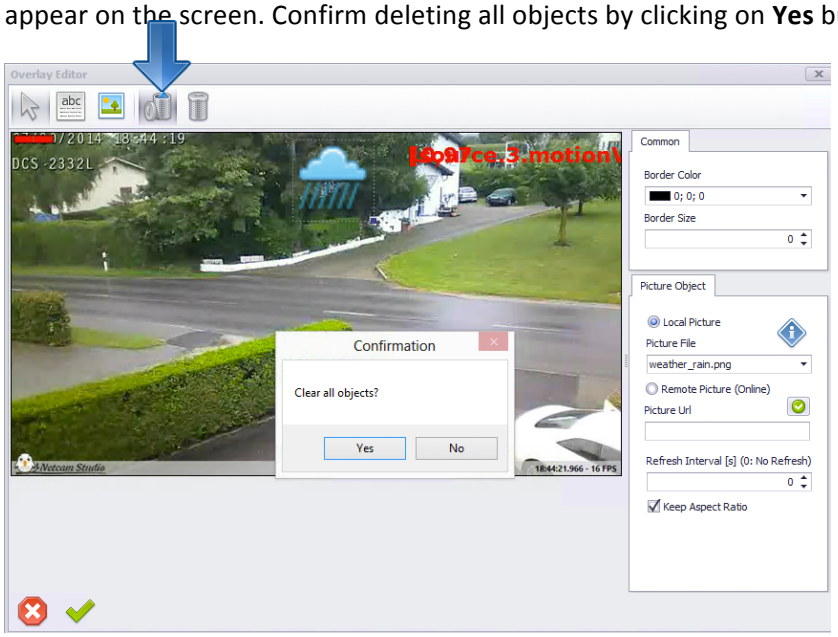
In order to edit / delete a text or an image, go to **Overlay Editor View**.

If you wish to **edit an object**, click on it once and edit it in the box that will appear on the right side of the screen.

If you wish to **delete one object**, click on it and then click on the **Clear Selected Object icon**.



If you wish to delete all objects, click on the **Clear All Objects** icon. Then the **Confirmation box** will appear on the screen. Confirm deleting all objects by clicking on **Yes** button:



Confirm your selection by clicking on Check icon.

3 Description of the functionalities

Netcam Studio Client provides you the tools to monitor remotely all your surveillance needs and to detect motion, speed and sound.

Below there is general description of the application with screenshots of Netcam Studio Client. However, Netcam Studio X has the same functions and icons.

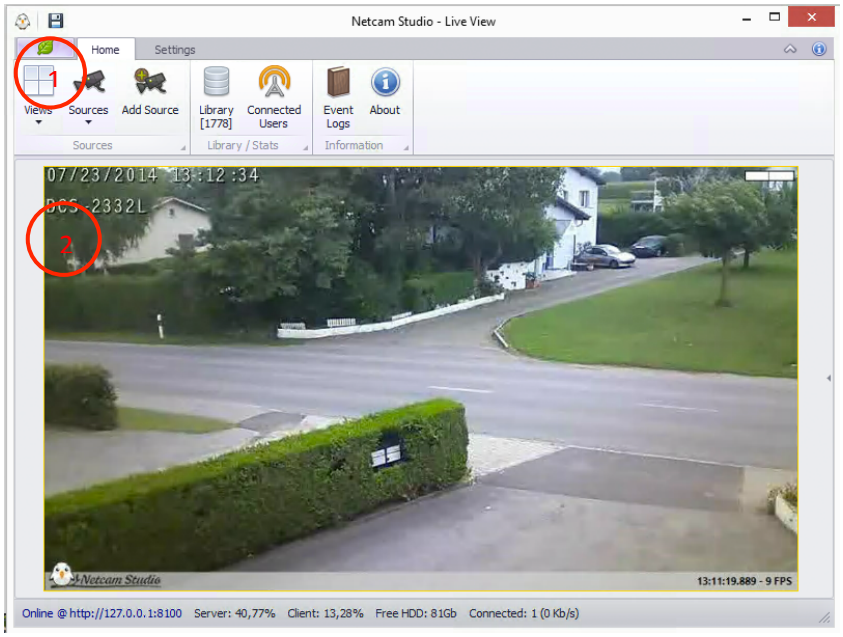
3.1 Sources

Netcam Studio allows you extensive control over their surveillance needs. The default tab – **Sources** allows you to add and remove cameras (sources), view the data streaming live from their connected sources in single and multiply view, and edit connected sources (by panning, zooming and tilting).

Also, the **Sources** tab allows you to keep records of data streaming from connected sources in the form of .JPG stills and recorded movies.

3.1.1 Single source

Shown below is a screenshot of the Sources window viewing single **Source**:



1. Home tab contains three areas: **Sources**, **Library / Stats** and **Information.**

2. **Camera display box** showing the live capture from the currently selected camera. From the normal view or multisource view you can use multiple functionalities. In order to do so, simply move the cursor on the screen. As a result, **camera control buttons (pan, tilt and zoom)** will appear. If you need more information about these buttons, refer to **Chapter 2.3.4 Camera display buttons**.

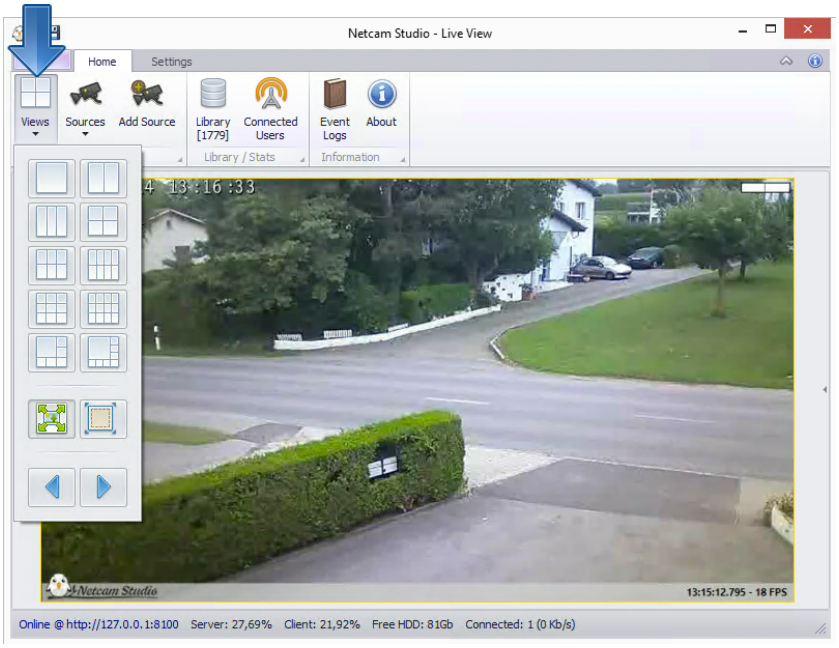
3.1.2 Single and Multiview

It is possible to connect and control simultaneously multiple video sources. In order to add subsequent video source, proceed according to the instructions included in the Chapter 3.2.2 Connecting a new video source.

In order to view a source, select the target source. For this purpose, click on **Sources** icon in the middle of **Sources** group. You will see the views from all the connected devices. Select one that you want to monitor clicking once on its view.

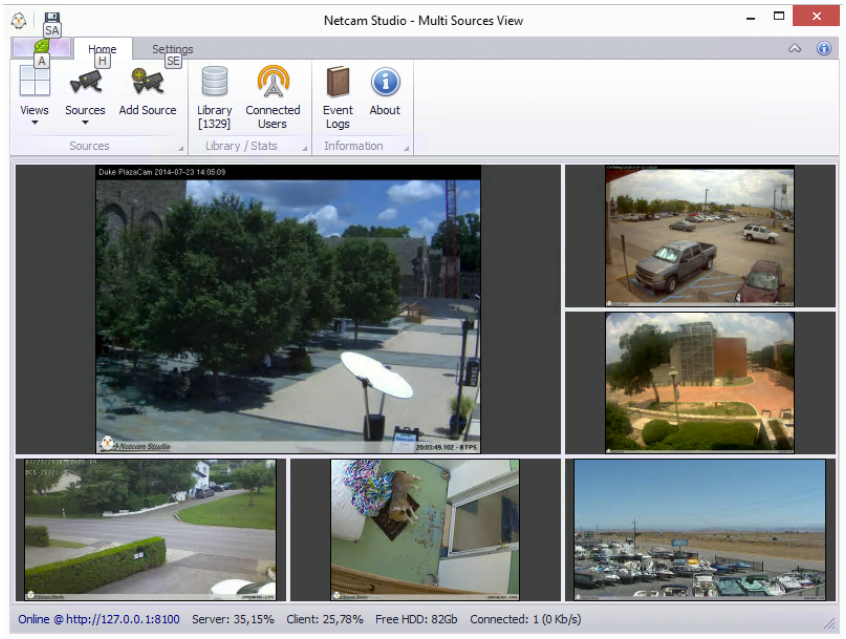
It is possible to display images from selected connected cameras side-by-side by selecting **Views** in **Sources** area.

Shown below is the Views drop-down box:

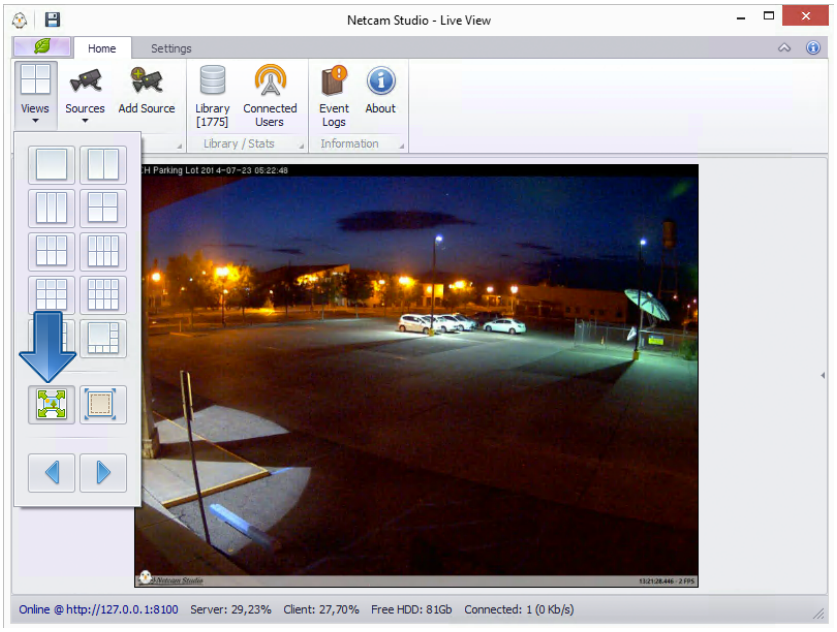


Multiview allows us to display up to 12 windows side-by-side. If you want to select main window for **6-windows view or 8-windows view** (two icons in the fifth row), click on **Sources** drop-down box and select the camera view that you want to display in the main window. Then, click on **Views** drop-down box and select the view mode.

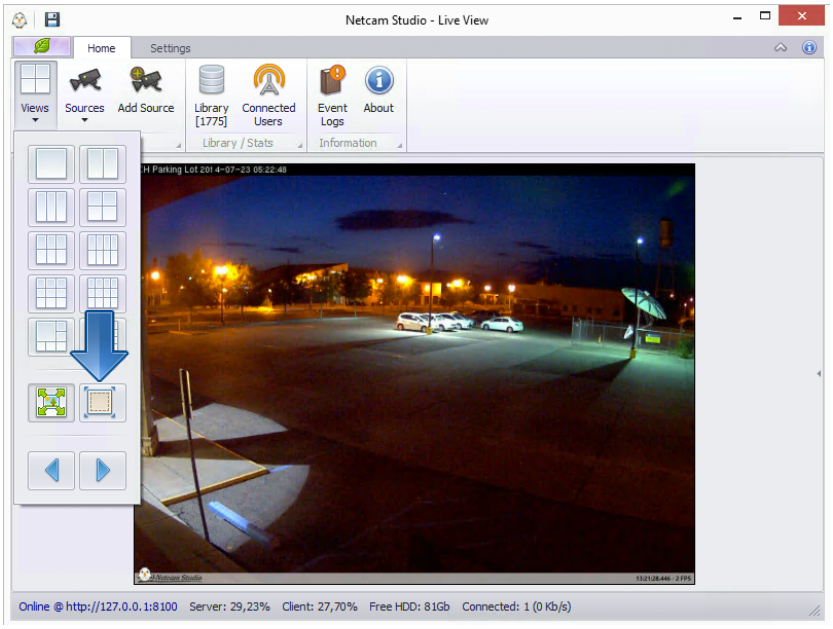
Show below is the screenshot of 6-windows view with main window:



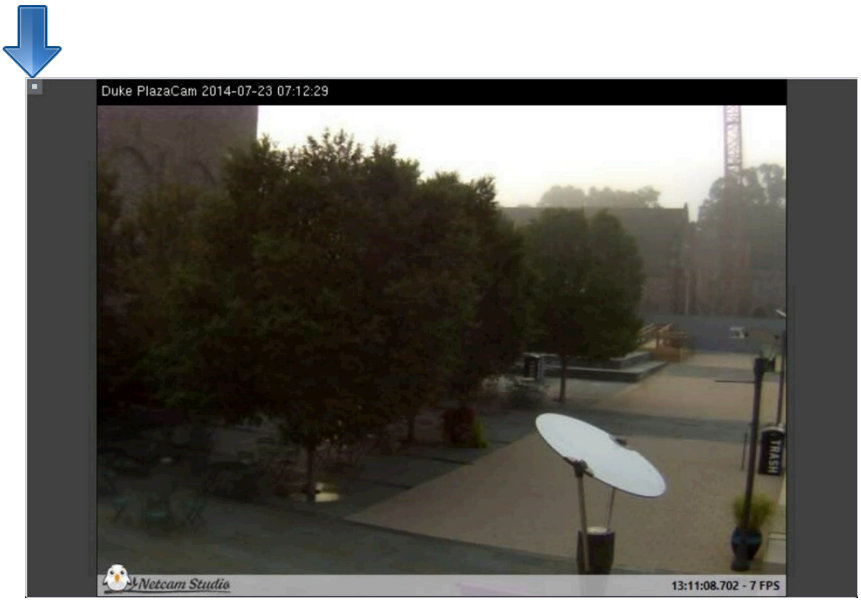
In order to conform the camera view to the full size of the window, click on the **Aspect** icon in the **View** drop-down box:



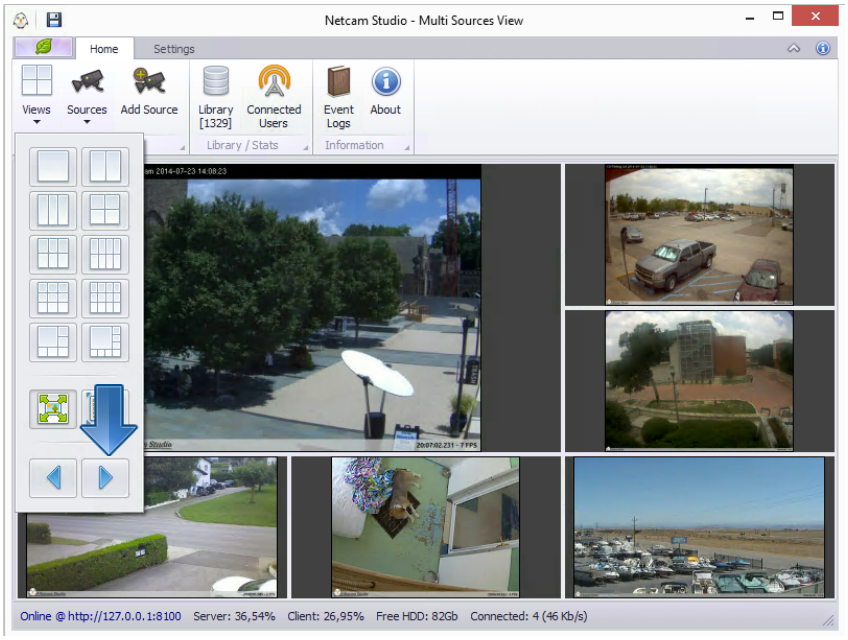
In order to display selected source in fullscreen view, select desired source from Sources drop-down box and click on Fullscreen icon in Views drop-down box:



Shown below is the screenshot of the camera window in fullscreen view. If you want to return to normal multi sources view, click the icon in the upper left corner of the screen:



You can also change main view in mutiview mode, by clicking on arrows in Views drop-down box:

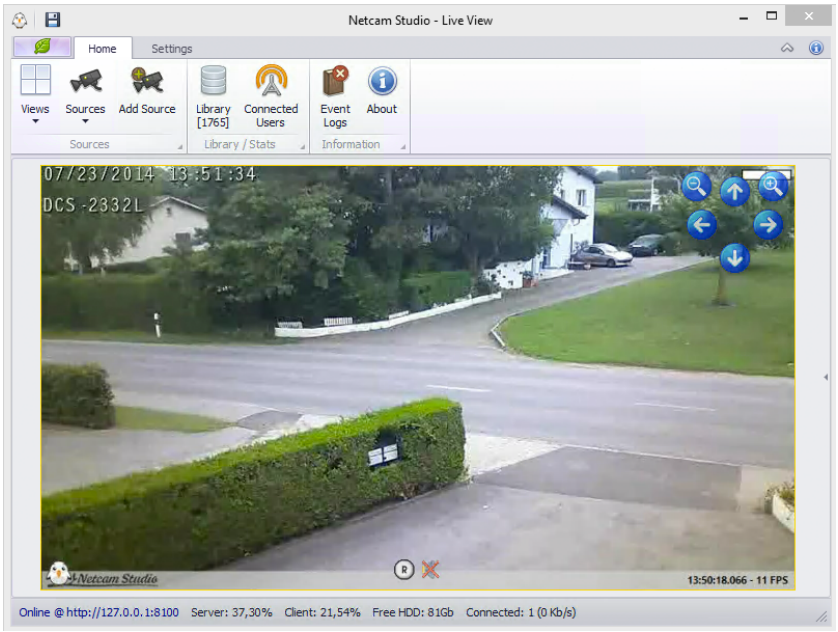


From each view mode, a user can utilize most of the functionalities on many different source views. If you put the cursor on a cameras' image, the functionality buttons will appear in the lower part of the image. In order to get information about this possibility, refer to the instructions in the next Chapter.

3.2 Camera display box

From the normal view or multisource view you can use multiple functionalities. In order to do so, simply move the cursor on the screen. As a result, two sets of buttons will appear. The set of blue buttons in the upper right corner of the screen are **Pan, Tilt and Zoom Buttons** which provide movement controls for the selected camera (depending on the camera model and capabilities). Whereas, there are Functionality Buttons – Record and Audio in the lower middle part of the window.

Shown below is the screenshot of the camera view with **Pan, Tilt and Zoom Buttons**.



The function of each button is presented in the Chart below:

PAN, TILT AND ZOOM BUTTONS

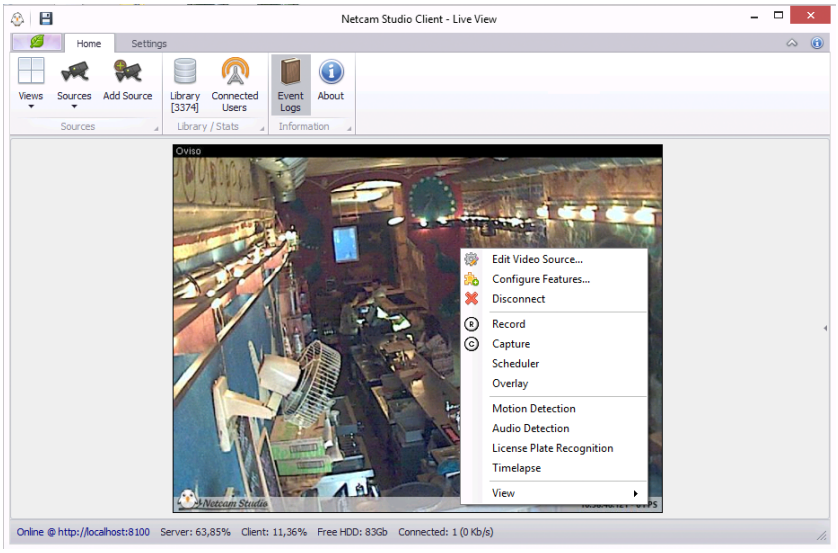
ICON	NAME	FUNCTION
	Zoom in	To zoom in the camera view.
	Zoom out	To zoom out the camera view.
	Pan right	To move the camera right.
	Pan left	To move the camera left.
	Tilt up	To move the camera up.
	Tilt down	To move the camera down.

FUNCTIONALITY BUTTONS

ICON	NAME	FUNCTION
	Record	To record a snippet of the selected camera's output. If you use this function, **the button and the frame of the window turns red**.
	Play Audio	To switch on and off sound. If the sound is off, the icon of soundspeaker is crossed out.

3.3 Quick access to configuration and functionalities

If you right-click on the window of the selected source, you will get quick access to the majority of the functions: settings (Edit Video Source, Configure Features or Disconnect), enabling and disabling of numerous functionalities (Record, Capture, Scheduler, Overlay, Motion Detection, Audio Detection, License Plate Recognition, Timelapse) and changing view.



In order to get quick access to edit your video source, configure features and disconnect a selected video source, right-click on the window of a selected source. The above drop-down box will appear. First three features allow you to access the configuration of the cameras and functionalities of the application.

In the chapters below, first three features of the application are described. Other functionalities accessible through drop-down box are described in relevant chapters:

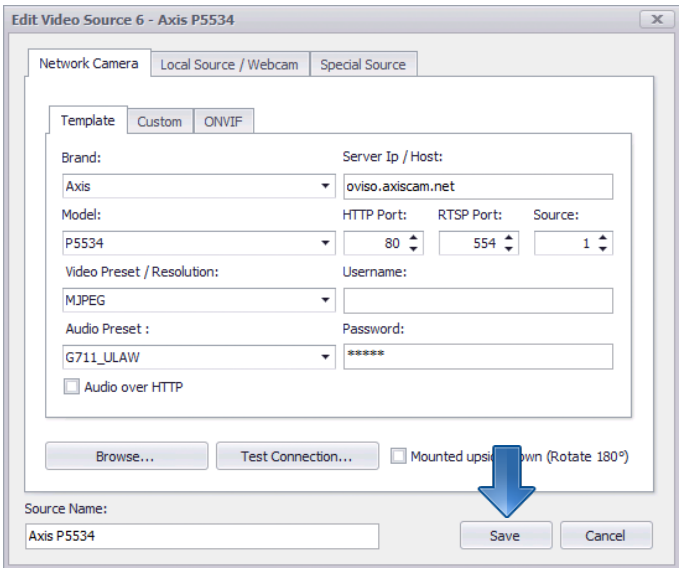
FUNCTION	ROLE	DESCRIPTION
Edit Video Source…	To edit a selected video source.	Chapter 3.3.1 Editing of video source
Configure Features…	To customize the functionalities of the application.	Chapter 3.3.2 Configuration of the features
Disconnect	To disconnect a selected source.	Chapter 2.2.4 Disconnecting of the source
R - Record	To record a video of a selected source.	Chapter 2.5 Recording
C - Capture	To capture a still image (take a picture) of a selected source.	Chapter 2.6 Capture (Still Image)
Schedule	To schedule motion and/or audio detection for a specific date and time.	Chapter 2.8 Scheduler

Overlay	To put visual overlay (e.g. dynamic or static text, image or emoticon) on the output of the camera.	Chapter 2.9 Overlay/Watermark
Motion Detection	To enable / disable motion detection.	Chapter 2.3 Motion Detection
Audio Detection	To enable / disable audio detection.	Chapter 3.4 Audio Detection
License Plate Recognition	To read and save a licence plate of vehicles captured by a camera.	Chapter 2.3.5 License Plate Recognition
Timelapse	To capture a sequence of images of the same scenery with a given time interval.	Chapter 2.7 Timelapse
View	To change between live view and motion detection view.	Chapter 2.3.2 Motion detection view

3.3.1 Editing of video source

Right-click on the window of a selected source, which you want to edit to open the drop-down box with quick access to configuration and fuctionalities.

If you click on the first line: **Edit Video Source**, the following window will appear on the screen:



The window includes three tabs: **Network Camera, Local Source / Webcam** and **Special Source**. Depending on the type of the source, it is possible to edit its settings.

The window of Network Camera contains all information about the camera – its manufacturer, model, Select Video Preset / Resolution, Audio Preset, HTTP URL or IP address, Port box and username and password. It is possible to test connection with the source by clicking **Test Connection** button.

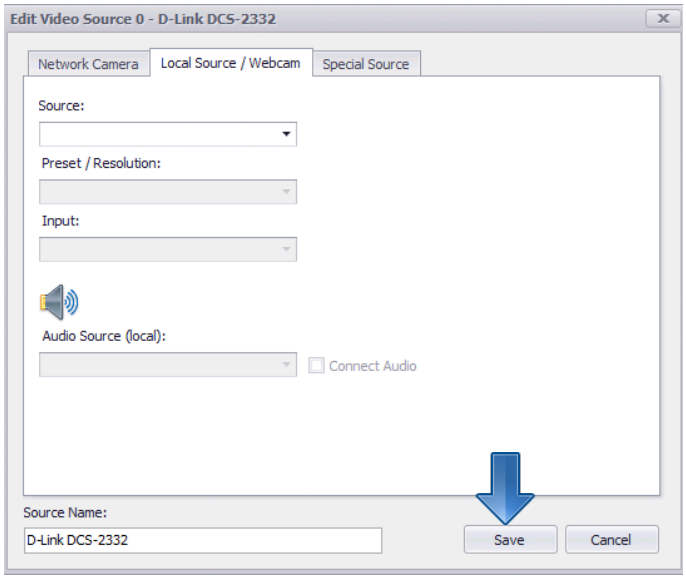
It is also possible to rotate the view 180^0 by checking **Mounted upside-down (Rotate 180^0)** box.

In case if you want to rename the source, put the new name in the line in the lower left corner of the window.

Confirm all changes by clicking **Save**.

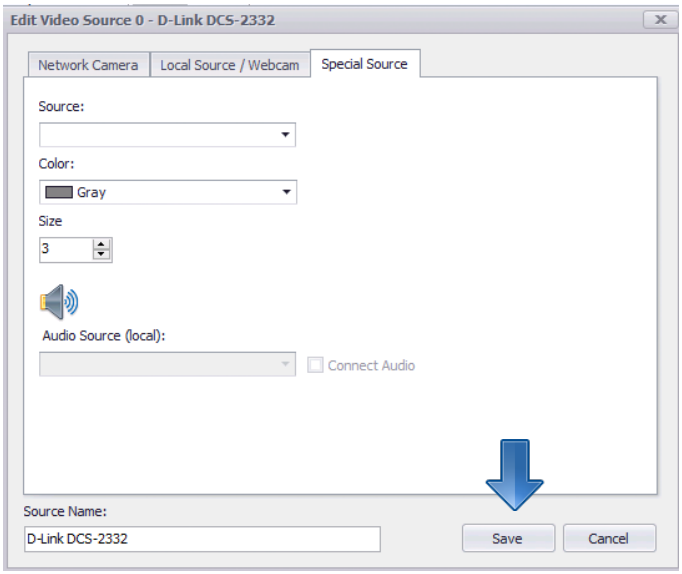
The window of Local Source / Webcam contains all detains concerning a local camera: Source name, Preset / Resolution, Input and Audio Source. It is also possible to rename the source; for this purpose, put the new name in the line in the lower left corner of the window.

Confirm all changes by clicking **Save**.



The window of Special Source contains all detains concerning a local camera: Source name, Color, Size and Audio Source. It is also possible to rename the source; for this purpose, put the new name in the line in the lower left corner of the window.

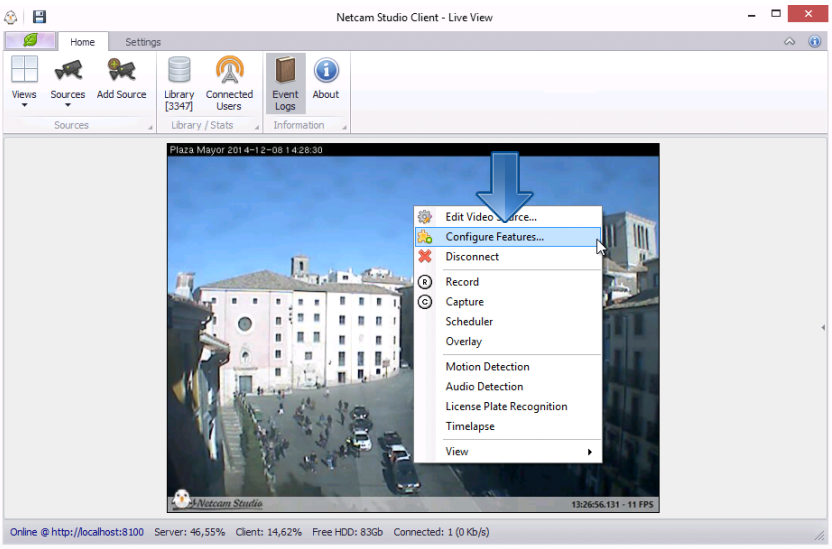
Confirm all changes by clicking **Save**.



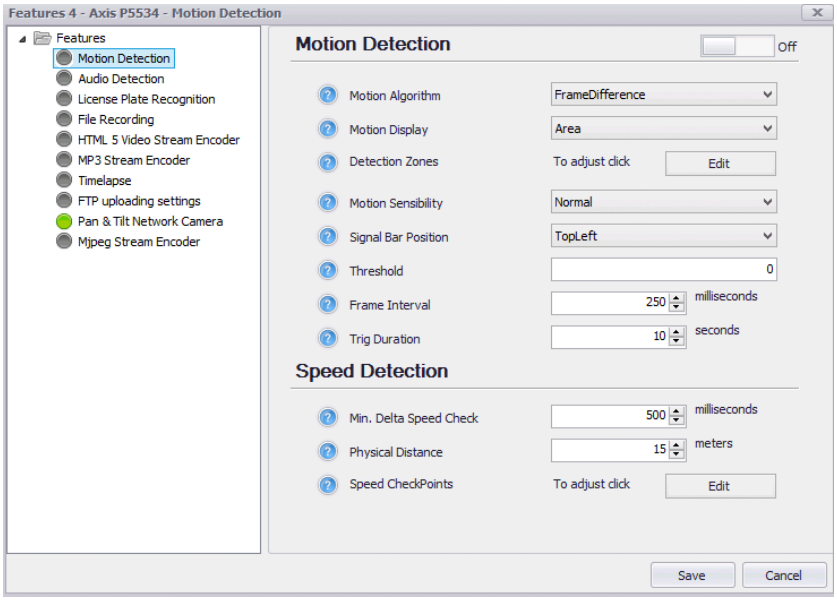
3.3.2 Configuration of the features

Right-click on the window of a selected source, which you want to edit to open the drop-down box with quick access to configuration and fuctionalities.

If you enter **Configure Features**, you can easily customize the functionalities of the application:



If you click on **Configure Features**, the following window will appear:



All of the features of a selected source are enlisted in the box on the left. If the circle on the left is green, it means that the feature is enabled; if the circle is grey, it means that it is disabled.

In order to customize selected feature, click on it in the left box.

Setting up all of the features are described in details in relevant chapters:

For customization of Motion Detection, go to Chapter 2.3.3 **Setting up motion detection**.

For customization of Audio Detection, go to Chapter 2.4.1 **Setting up audio detection**.

For customization of Licence Plate Recognition, go to Chapter 2.3.5.1 **Setting up licence place recognition**.

For customization of File Recording, go to Chapter 2.5.1 **Setting up recording**.

For customization of HTML 5 Video Stream Encoder go to Chapter 5.4.1 **Setting up HTML 5 Video Stream Encoder**.

MP3 Stream Encoder is used to stream audio over the network. It is activated on demand between parenthesis when the the audio is requested.

For customization of Timelapse, go to Chapter 2.7.1 **Setting up Timelapse**.

For customization of FTP Uploading Settings, go to **Chapter**.

For customization of Mjpeg Stream Encorder, go to Chapter 5.4.2 **Setting up Mjpeg Stream Encoder**.

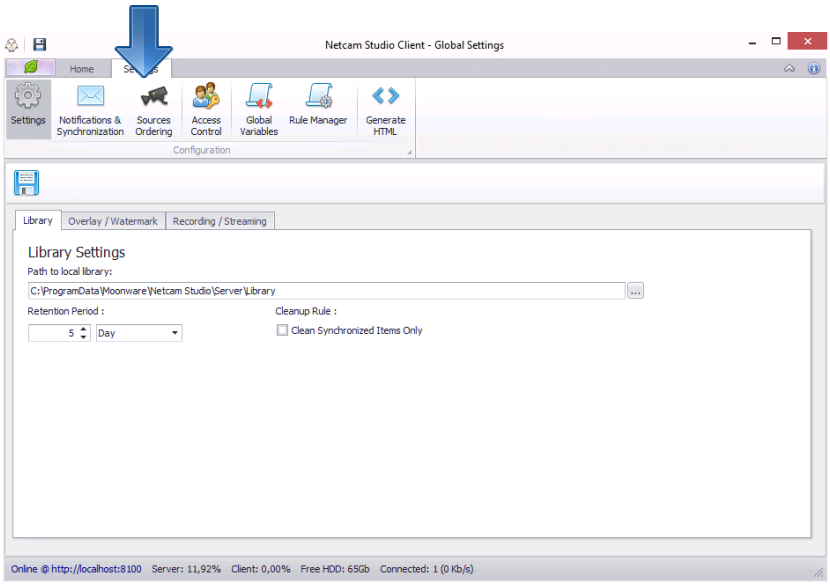
3.4 Connected Users

In order to view all connected users in the real time,

4 Settings

Netcam Studio provides the possibility to change some of the settings the application.

In order to enter Settings, click Settings in the functional bar:

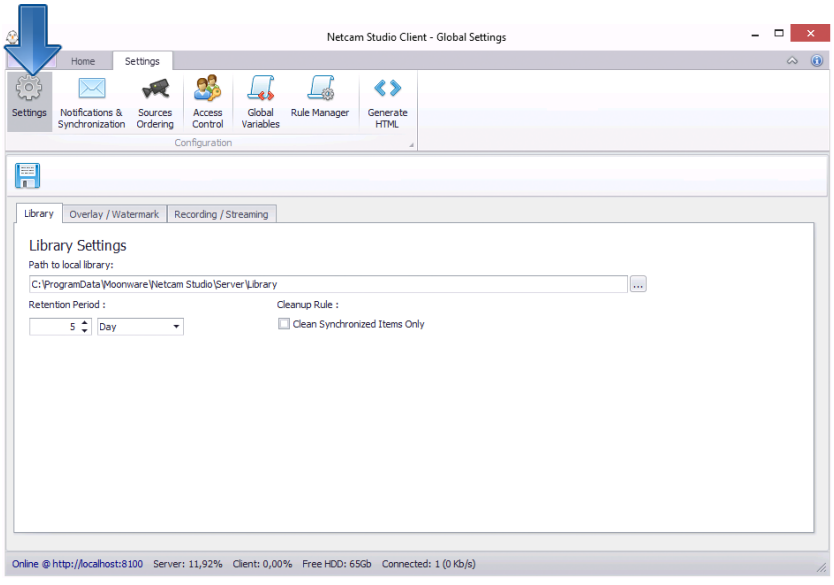


Netcam Studio X provides all of these settings directly on the main window.

Settings tab includes seven icons which allows you to change some settings: Settings (library, overlay/watermark and recording/streaming settings), Notification & Synchronization, Sources Ordering, Access Control (setting accounts and access restriction), Global Variables (creating of new variables), Rule Manager (selecting an action after an event) and Generate HTML (generating HTML output content to place an output on a website.

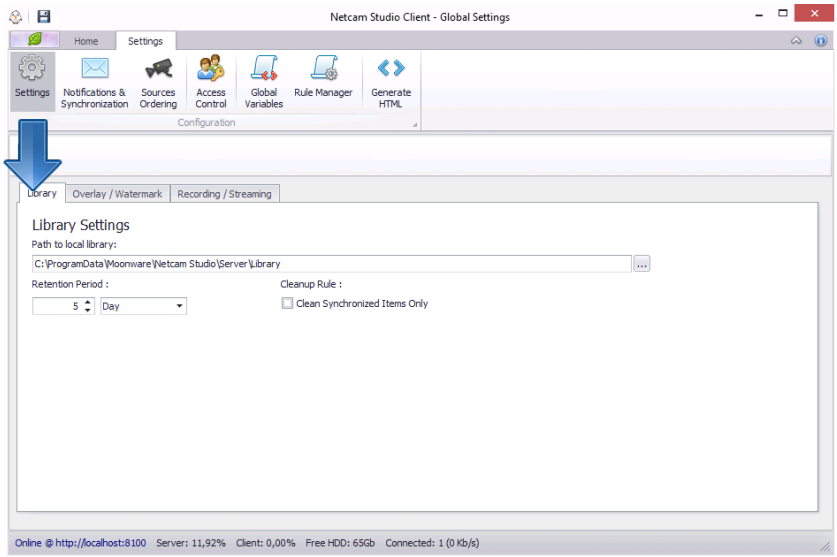
4.1 General Settings

General settings allow you to set up Library, Overlay / Watermark and Recording / Streaming process. In order to enter the settings of above-mentioned functions, click the relevant tab in functional bar.



4.1.1 Library Settings

If you click Library in functional bar of Settings window (in Settings Tab), you will enter Library Settings.

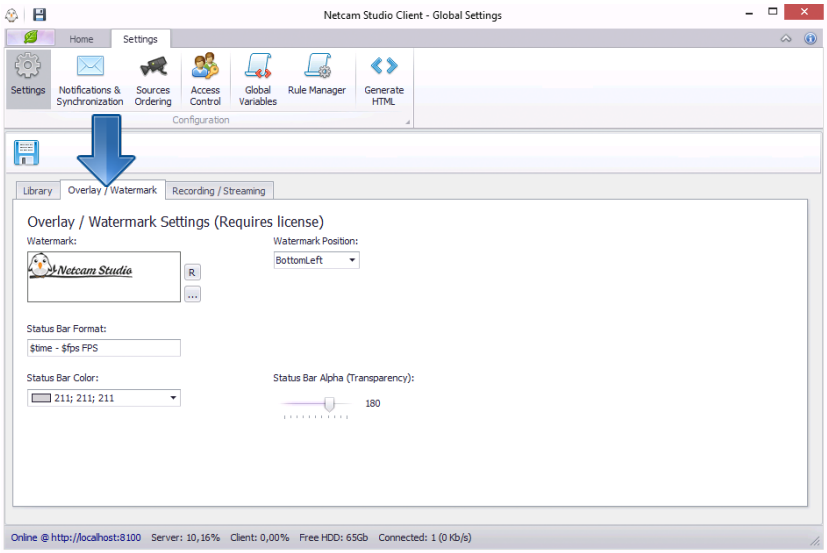


You can change the path to local library in your computer. Local library is the folder where all recordings and still images captured by the programme are stored.

Next, you can define Retention Period, which is how long you will keep captured movies and pictures and decide if you want to clean only these items that were synchronized.

4.1.2 Overlay / Watermark Settings

If you click Overlay/Watermark in functional bar of Settings window, you will enter Overlay / Watermark Settings.

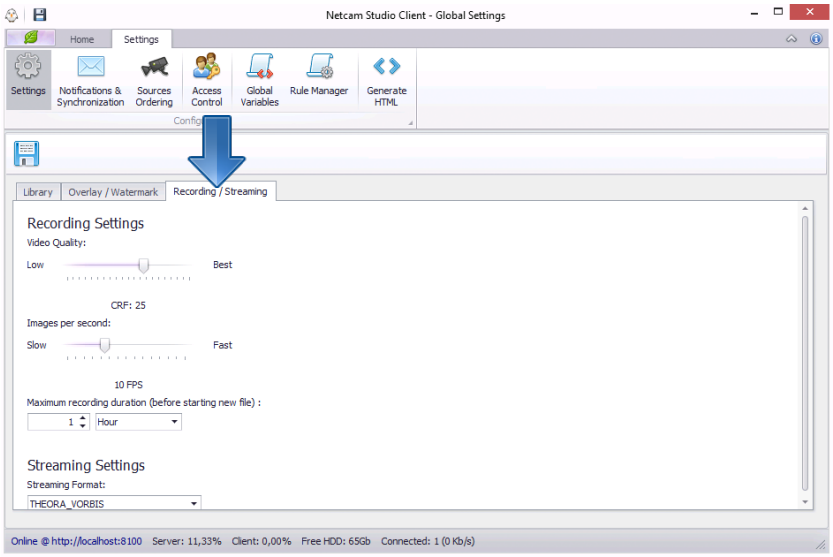


In order to change Overlay / Watermark Settings, you need to purchase programme licence.

It is possible to change / remove watermark and change its position.

4.1.3 Recording / Streaming Settings

If you click Recording / Streaming in functional bar of Settings window, you will enter Recording / Streaming Settings.



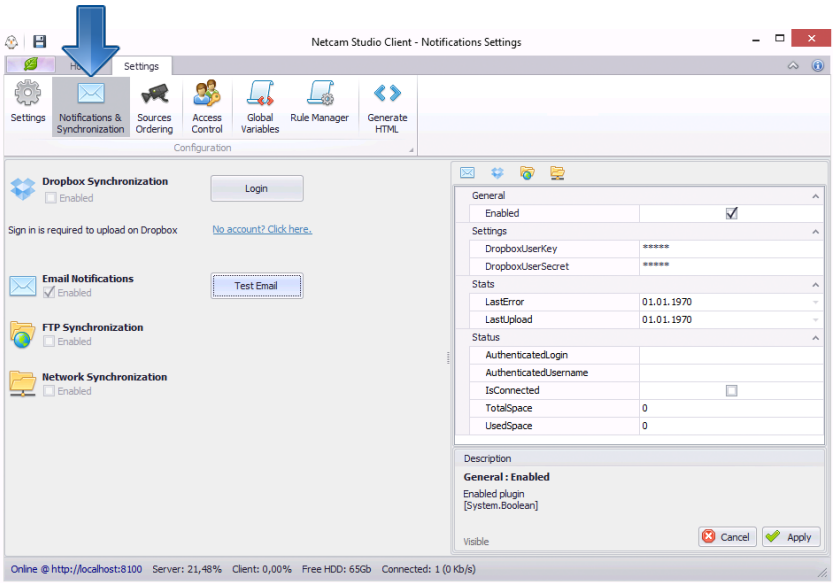
It is possible to set the quality of recording and the number of images per second. You may also set the maximum duration of recording before starting a new video.

It is possible to select the streaming format. For this purpose, open the drop-down box and select desired format.

4.2 Notification Settings

With the function of notifications via e-mail or sms you can be informed of all occurring alerts, whenever you are away of the place that you wish to monitor.

In order to enter the **Notification Settings view**, click on the indicated icon in the **Settings tab**:



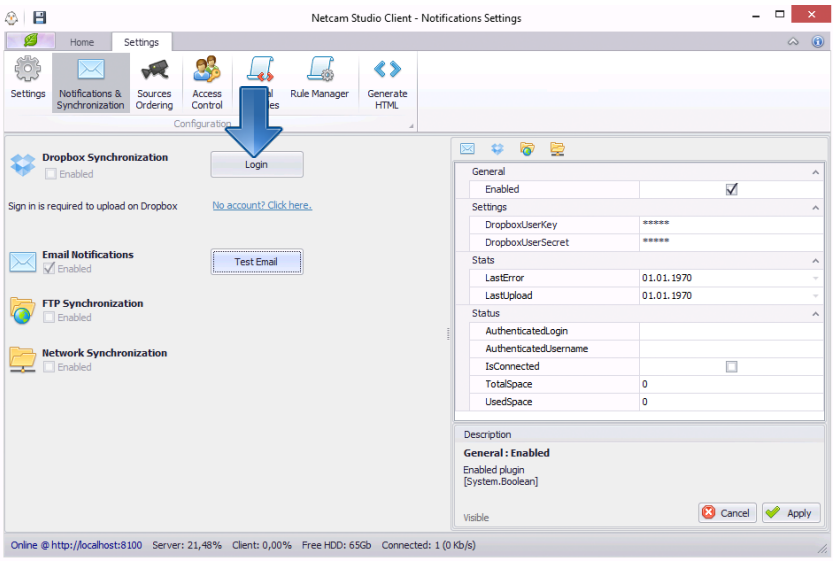
4.2.1 Dropbox Synchronization

It is possible to synchronize your Library with Dropbox in order to store and save regularly all your documents online. In this way, in case if your computer gots stolen, you will still have all the content of the Library in Dropbox.

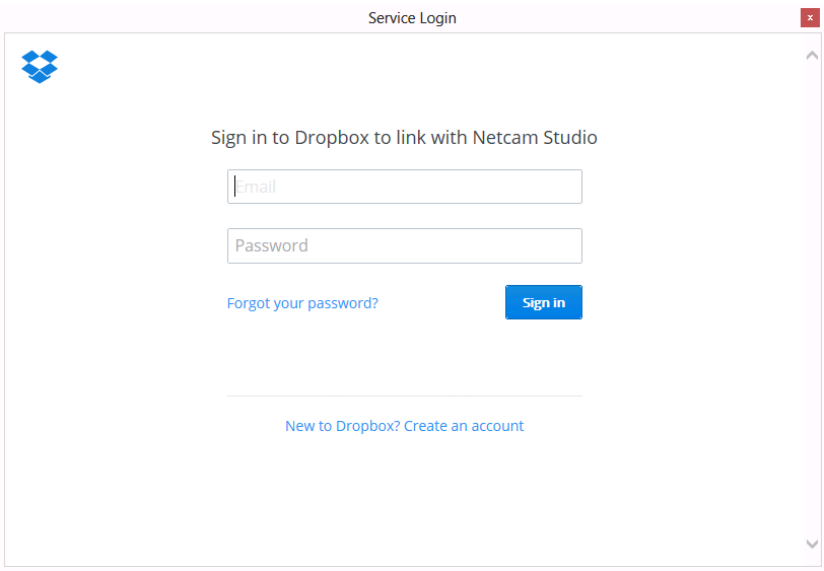
In order to synchronize your Library with Dropbox, go to **Settings** tab and select the icon of **Notifications & Sychronization**.

If you already have your account on Dropbox, follow these instructions:

1) Click on **Login** button on the right side of Dropbox Synchronization:

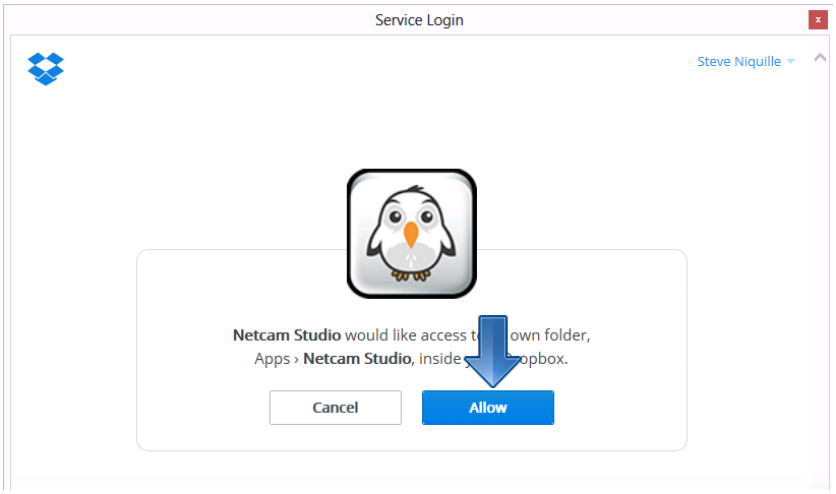


2) The following window will appear on the screen.



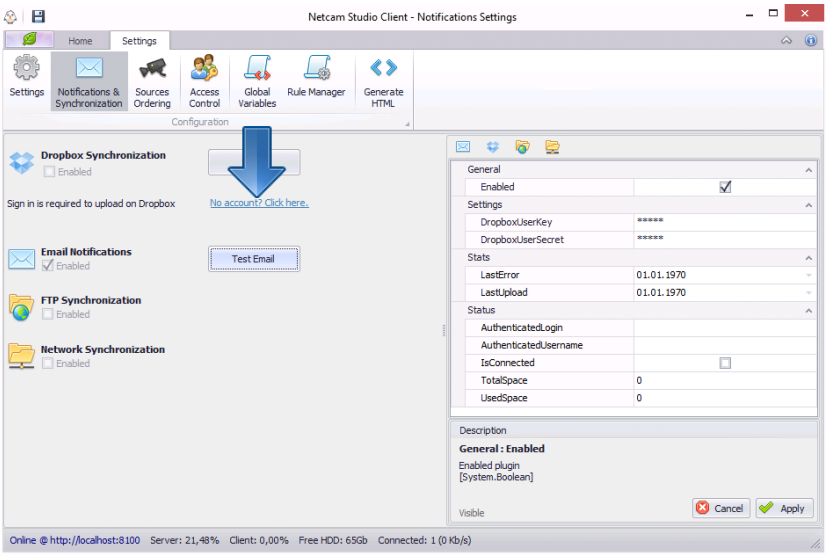
Log in by filling the relevant lines with your **email and password of Dropbox**. Then, confirm by clicking on **Sign in** button.

Click on Allow button, in order to give Netcam Studio access to the NS folder inside your Dropbox:



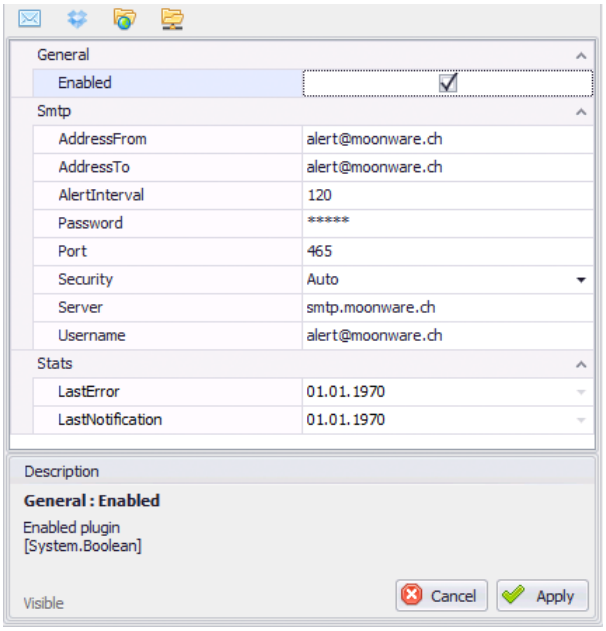
If you don't have your account on Dropbox, follow these instructions:

1) Click on **No account? Click here** link on the right side of Dropbox Synchronization:



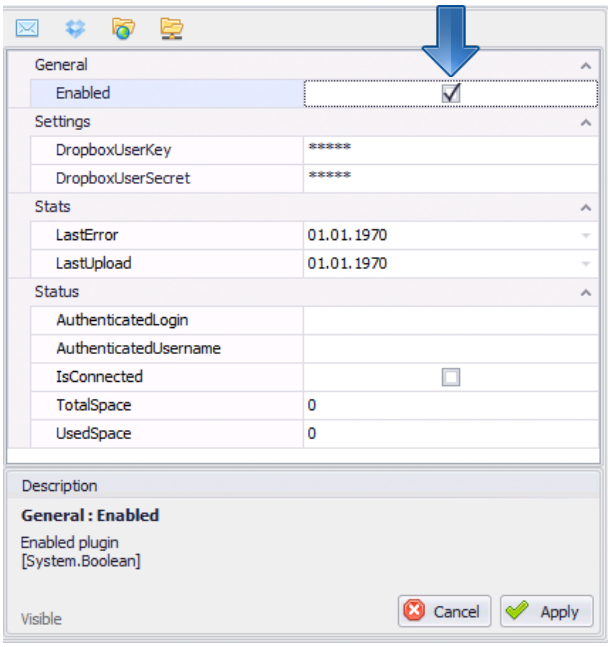
The link will lead you to Dropbox webpage, where it is possible to sign in to Dropbox. Then, synchronize your library with your Dopbox account (instructions to do it are above).

If you want to access the settings of Dropbox account, click on the **Dropbox icon** in the box on the right side of the window:



Then, the window of Dropbox settings will appear.

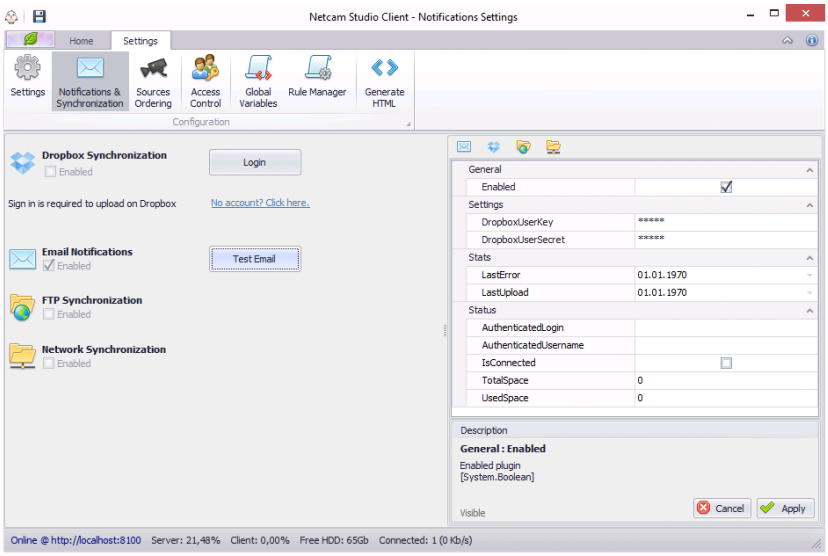
If you want to **enable synchronization with Dropbox**, check the following box and then confirm by clicking **Apply**:



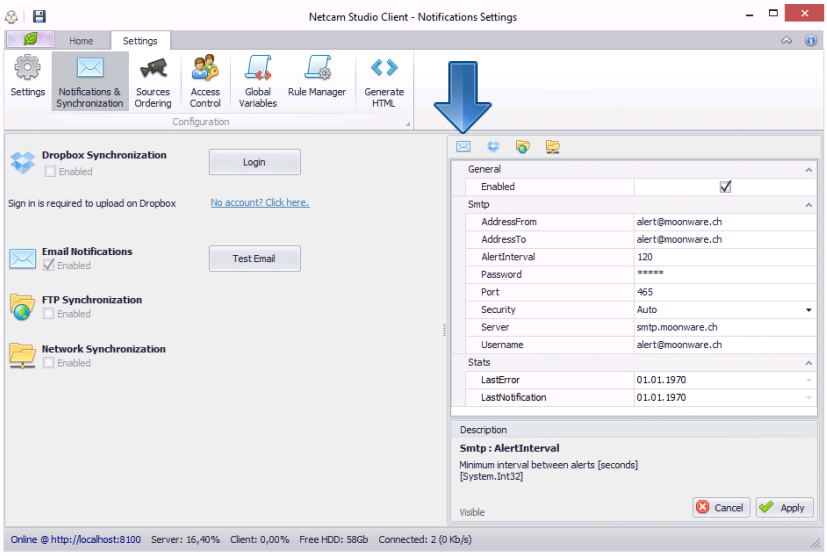
In order to **disable synchronization with your Dropbox account**, uncheck this box and click on Apply button.

4.2.2 E-mail synchronization

If you wish to set or edit e-mail notifications, go to Settings Tab and go to Notification & Sychronization window:

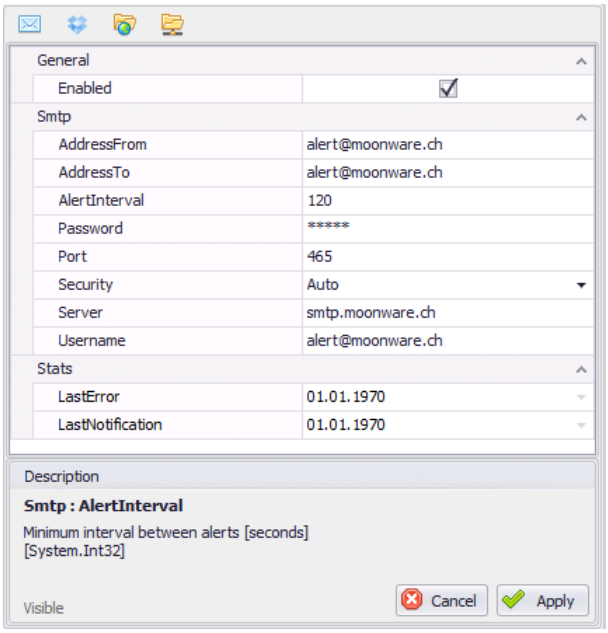


Click once on the following icon to enter email-notification settings:

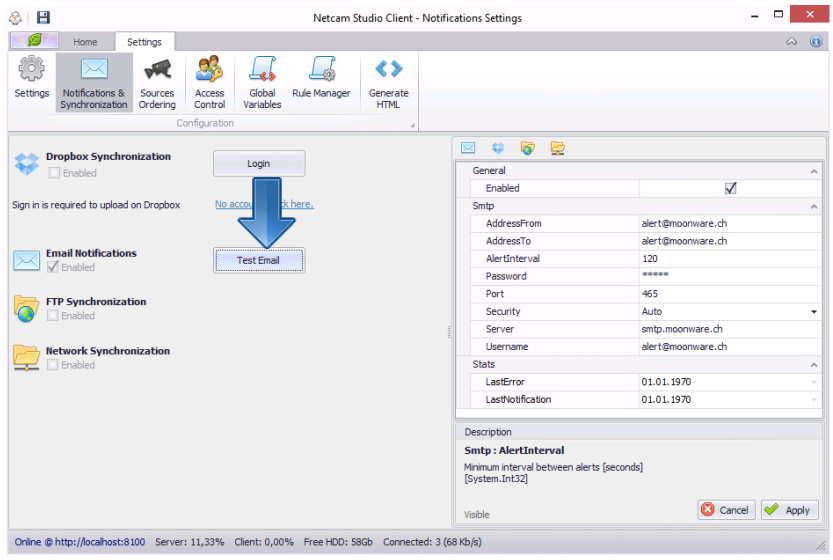


In order to enable e-mail notifications, you have to check the **Enabled checkbox**. Then, you have to enter all details about **sender's and receiver's e-mail account**. First, put the e-mail address of the sender. Then – the e-mail address of the receiver of notifications. It may be the same e-mail address as the sender's. **Alert Interval** is the minimum interval between subsequent notifications in seconds. It helps to limit unwanted messages. Default alert interval value is 120 seconds (2 minutes). It means that in case of many alerts in short time, you will receive e-mail message every 2 minutes with all alerts triggered since the last notification message.

Then, enter the password of your e-mail account and the number of port. Confirm the settings by clicking on Apply button:

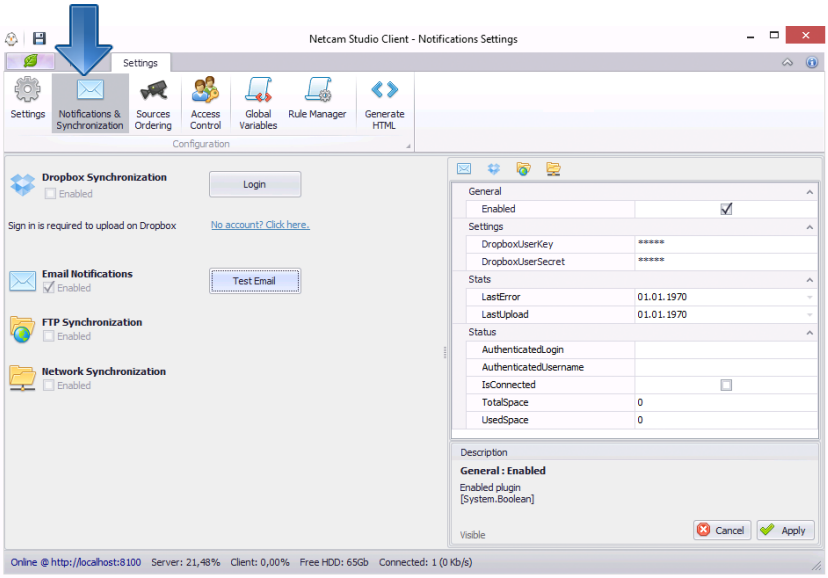


In order to check if e-mail notification works, click on the Test Email button. The application will send you test email message to check the settings.

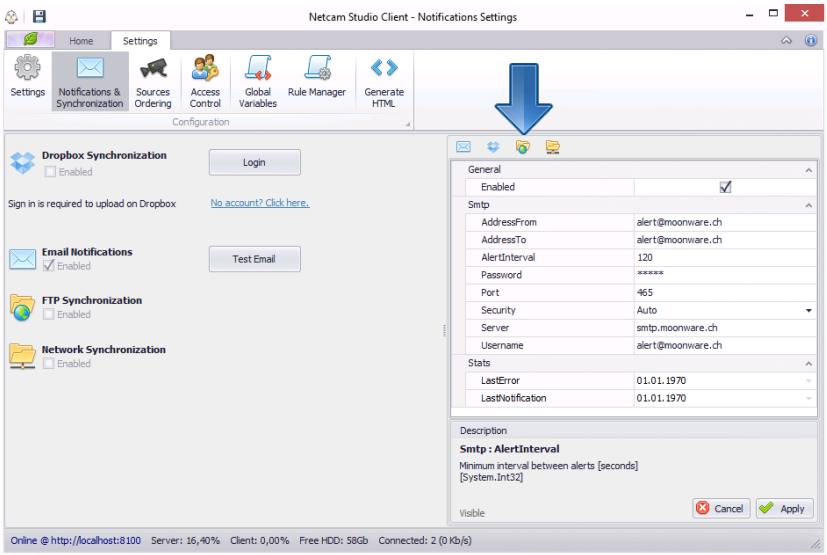


4.2.3 Ftp synchronization

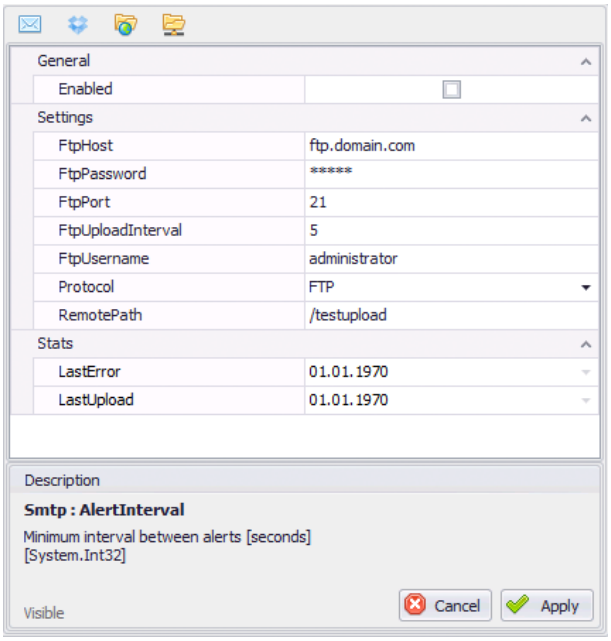
If you wish to set or edit synchronization with Ftp server, go to Settings Tab and go to Notification & Sychronization window:



In order to enable FTP synchronization, click once on the following icon to enter FTP synchronization settings:



Then, the following box will appear on the right side of the window:

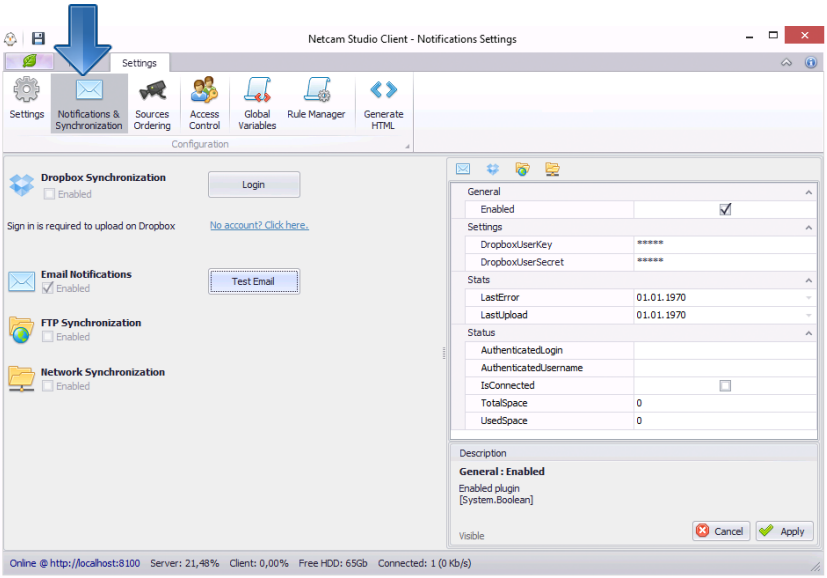


In order to enable Ftp synchronization, it is necessary to check the **Enabled checkbox**. Then, you have to enter all details of the Ftp server:

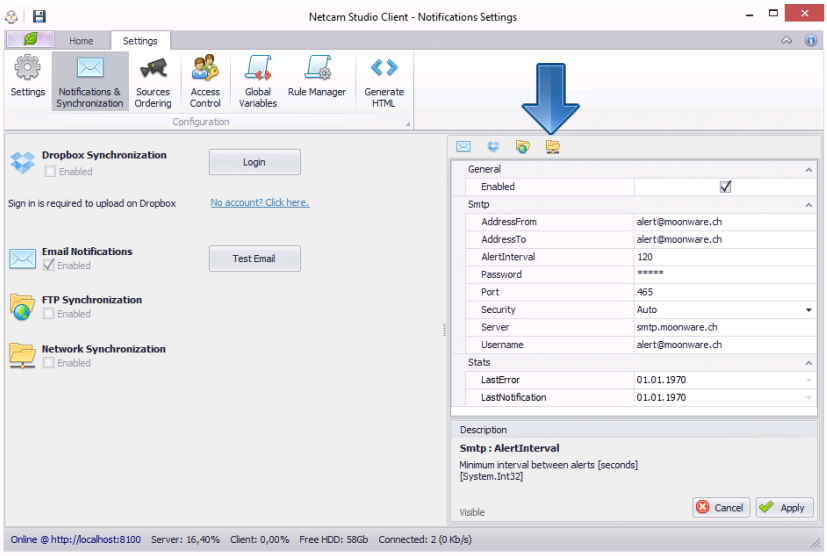
Confirm the settings by clicking on Apply button.

4.2.4 Network synchronization

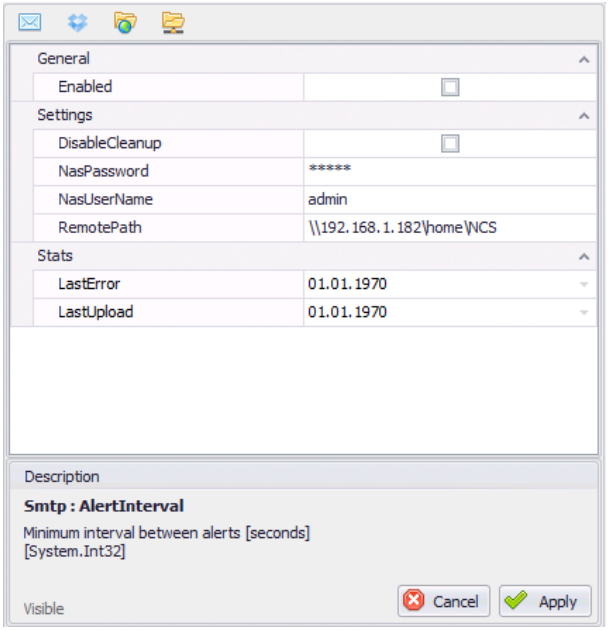
If you wish to set or edit synchronization with, go to Settings Tab and go to Notification & Sychronization window:



In order to enable FTP synchronization, click once on the following icon to enter FTP synchronization settings:



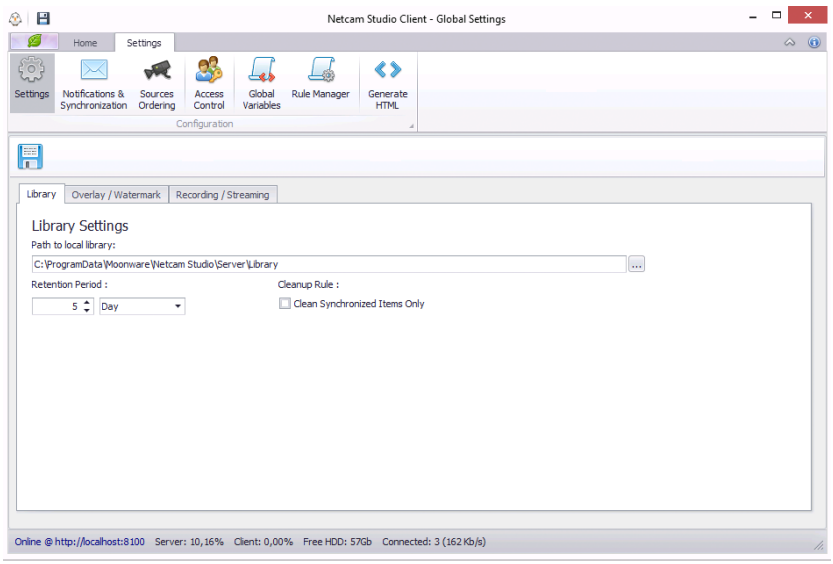
Then, the following box will appear on the right side of the window:



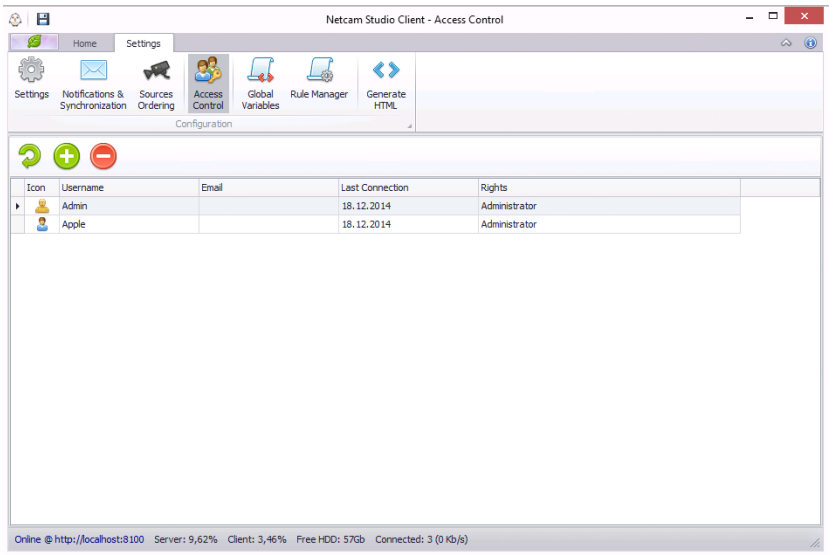
4.3 Access Restriction

Netcam Studio provides the possibility to create a set of user accounts allowing the user access to selected features of the application.

To view existing users and/or add new user of the application, click the **Access Control** icon in the **Settings** tab.



Then, the following window will appear on the screen:

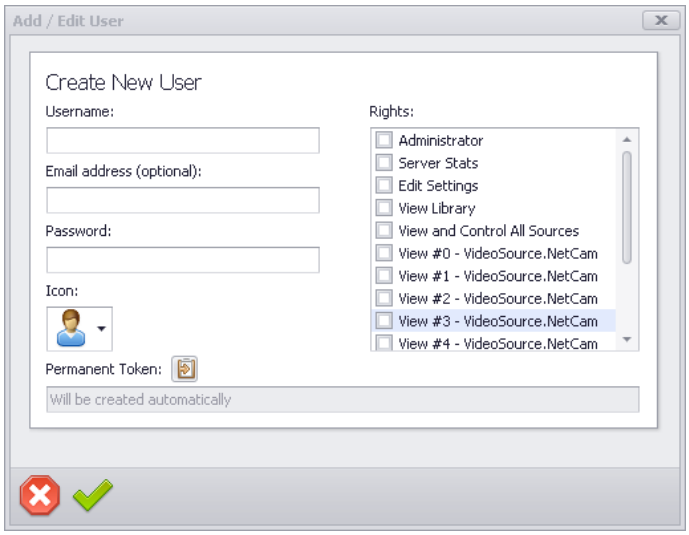


The window consists of the functional bar with the feature icons and the list of existing users, their e-mails (optionally), data of the last connection and their authorisations.

The functional bar consists of the following icons:

ICON	**NAME**	**FUNCTION**
	Refresh	To refresh the list of existing users.
	Add user	To add new user.
	Delete user	To delete selected user.

In order to add new user, click on the Add icon in the functional bar. The following window will appear on the screen:



Enter username, e-mail address (optionally) and password, and select the icon of a new user. Then, **assign the rights** for a new user by checking relevant checkboxes. If you wish the user to have administrative rights (e.g. the ability to add/remove cameras, add/remove users, set restriction rights), check the Administrator checkbox. You can also select the right to view server statistics, edit settings and view library by checking relevant checkboxes. If you wish the user to only have rights to view one specific camera, check this camera checkbox.

Click on **Save Changes** button in order to confirm adding new user.

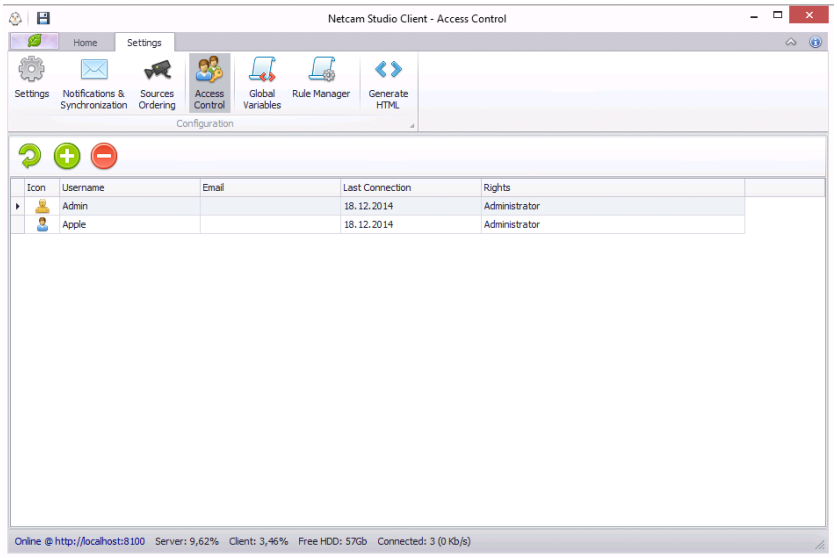
To **edit an existing user**, select the user's account from the list of existing users by double-clicking specific user. Edit the option values as you see fit. Once your changes are complete, click on **Save Changes** button to confirm your selection.

If you wish to **remove a user and delete his or her account**, simply select the user's account from the list of existing users and click the Remove button on the functional bar. Then the window with the request to confirm deletion of the user will appear on the screen. Confirm your choice by clicking on **OK** button.

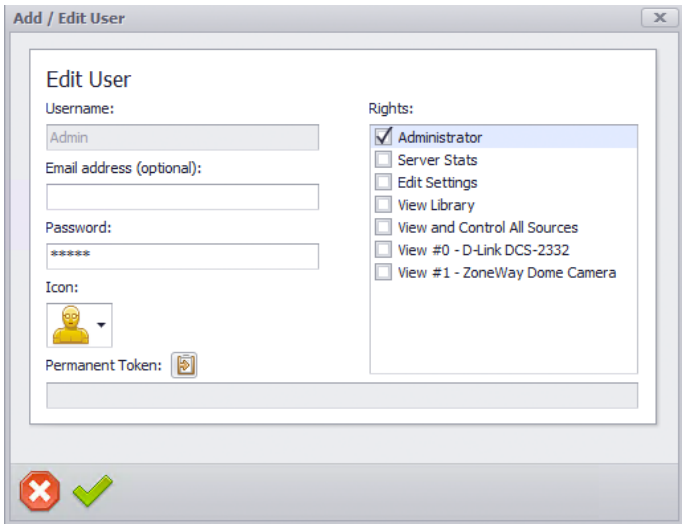
4.3.1 Changing the password

The first step after installing of the application is to change the password of administrator. For this purpose click the **Access Control** icon in the **Settings** tab.

Then, the following window will appear:



Double-click “Admin” line. The following window will appear:

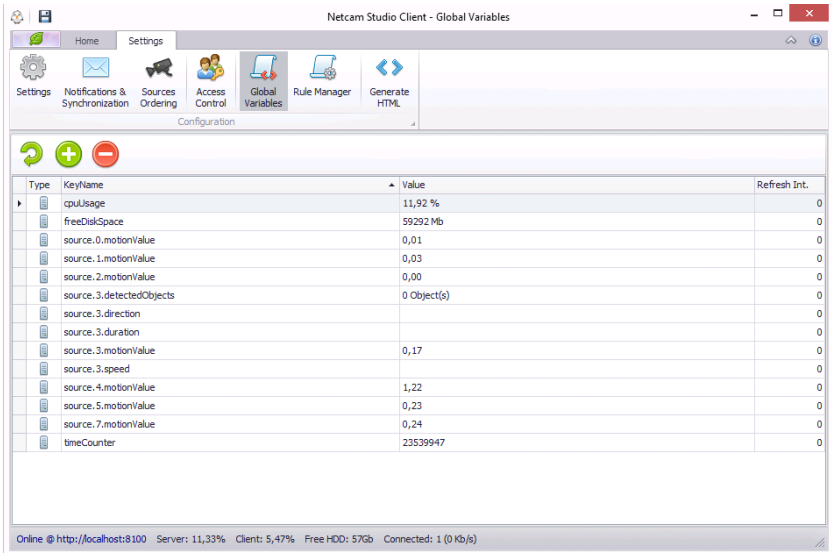


Enter new password in the appropriate line and save changes by clicking Check icon.

4.4 Global Variables

Global variables are any entities that can take on different values, e.g. the usage of computer resources, the value of motion or the number of detected objects. It is possible to add dynamic text object on the screen with relevant variable in order to see on the screen and in recordings the desired value. For instance, you can enable speed detection and set the value of speed of detected object on the screen.

In order to enter Global Variables view, click on Global Variables icon in Settings bar:



Detailed explanation how to add dynamic text you will find in Chapter 2.10.1.2 **Adding dynamic text**. It is possible to add new variable. With this end in view, follow insctructions included in Chapter 2.10.2 **Creating new variable**.

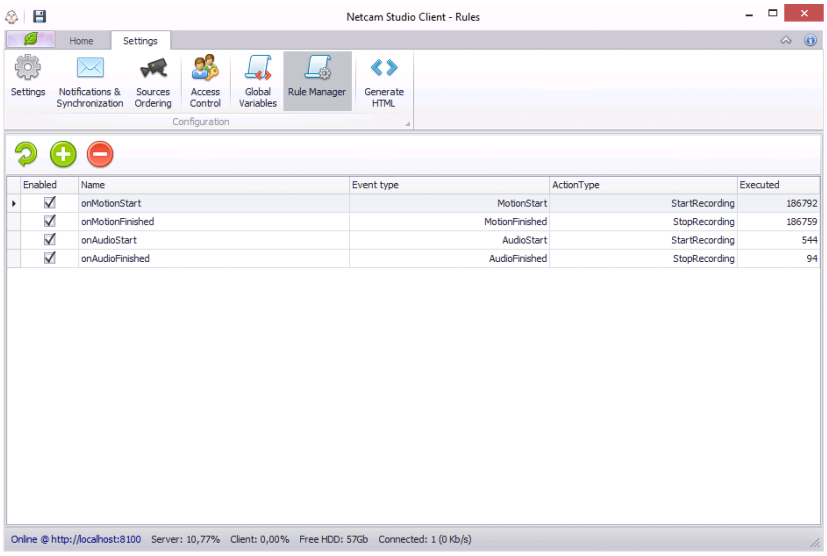
4.5 Rule Manager

If you click Rule Manager in Settings tab, you will enter Rule Manager View.

With this function it is possible to select relevant action that will be executed after specific event. In Rule Manager View there is a table with 4 events and subsequent actions:

1) Detected motion – recording starts
2) Finished motion – recording stops
3) Detected sound – recording starts
4) Finished sound – recording stops

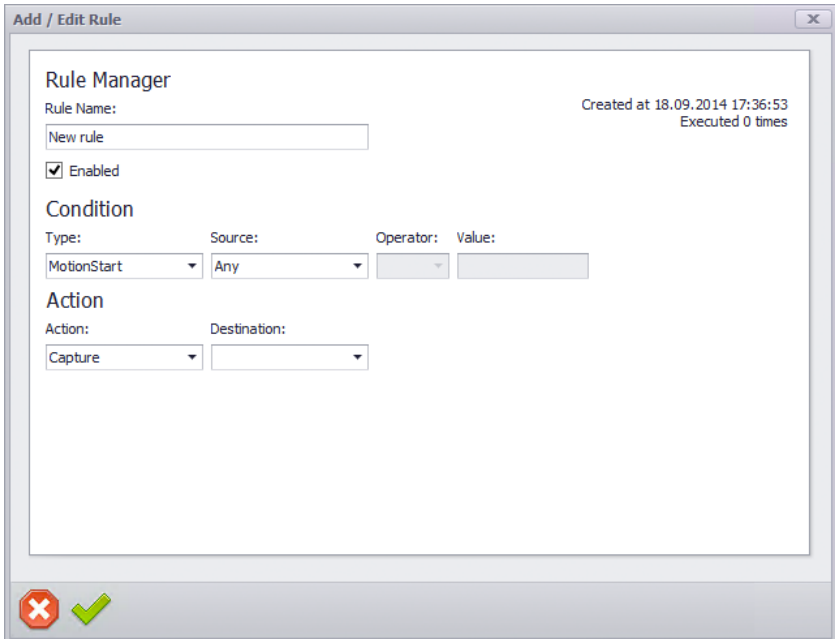
By default, all these 4 events and their actions are enabled. In order to disable it, uncheck the square on the left.



The functional bar consists of the following icons:

ICON	NAME	FUNCTION
	Refresh	To refresh the list of existing rules.
	Add new rule	To add new rule.
	Delete rule	To delete selected rule.

It is possible to add new rule. For this purpose, click on relevant icon. You will enter the following window:



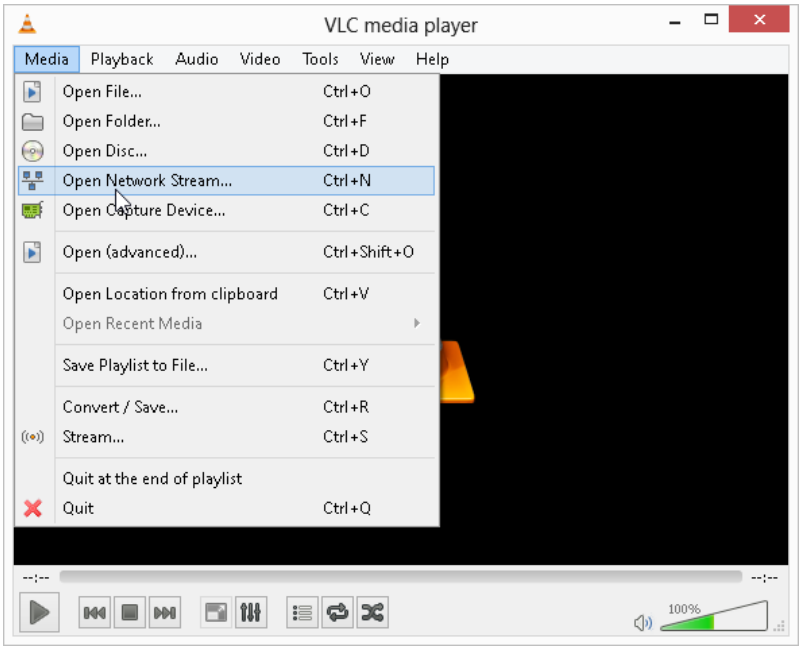
5 Streaming live video from Netcam Studio Server

It is possible to stream live video from Netcam Studio Server to VLC or web browsers (Chrome, Firefox, and Safari).

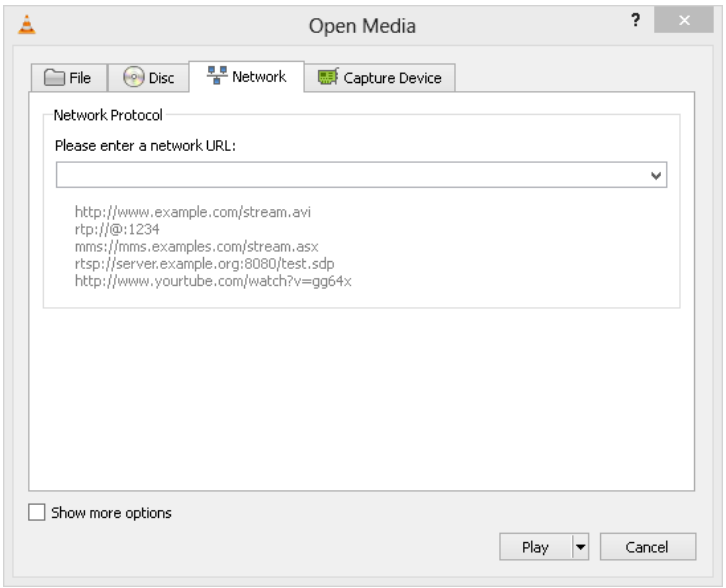
5.1 Streaming live video in VLC

It is possible to stream live video in Mjpeg and HTML 5 Video format. Only HTML 5 Video is equipped with audio support. However, Mjpeg is generally more compatible with other programs.

If you want to stream live video on VLC program, first open the program. Then, go to **Media drop-down box and select Open Network Stream**:



Then, the following window will appear:



Type target address of the live video in the following format:

http://**{IPADDRESS}**:8100/Live/**{SOURCENUMBER}** for HTML 5 Video

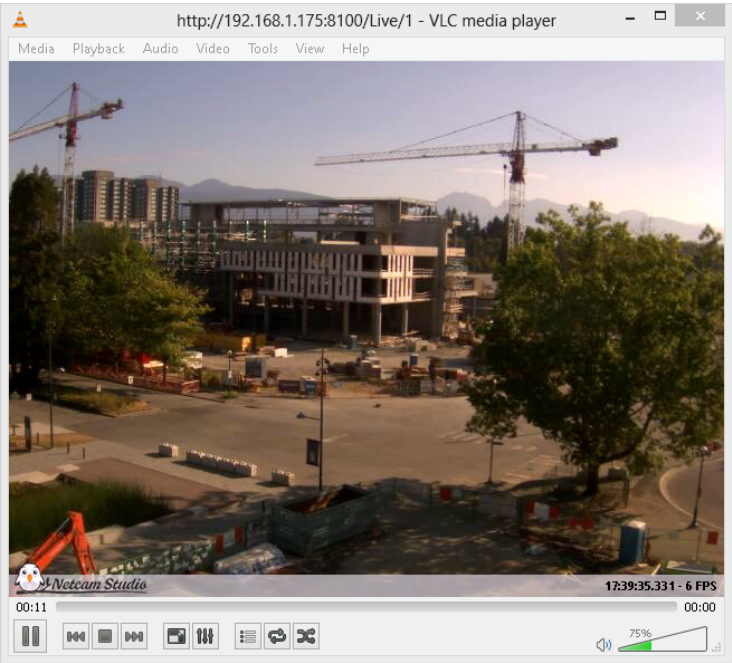
or

http:// **{IPADDRESS}**:8100/Mjpeg/**{SOURCENUMBER}** for Mjpeg.

Remember that source number starts from zero (0) i.e. the first source has number 0.

Then, confirm by clicking on **Play** button.

The window with the request to enter username and password will appear on the screen. Put this data and confirm with **OK**. Finally, the video will appear in VLC program:



5.2 Streaming live video in web browser

It is possible to stream video in web browser. For this purpose open the browser (preferably Chrome, Firefox or Safari) and enter the target address of the video that you want to stream:

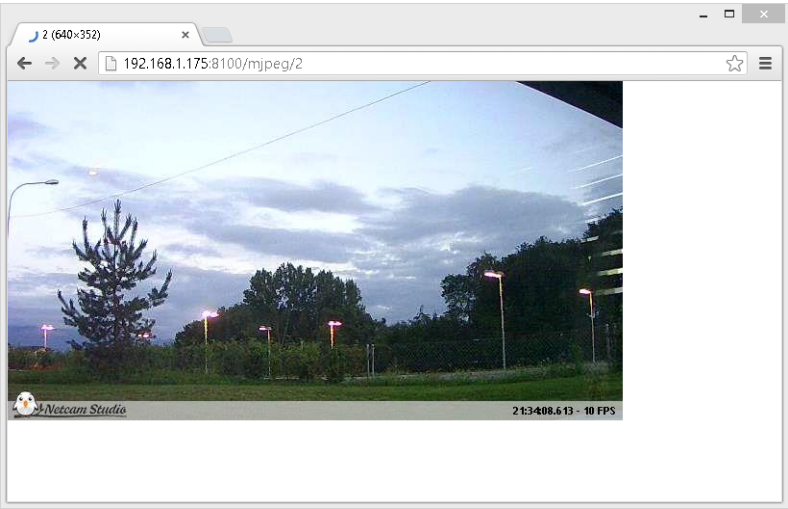
{IPADDRESS}:8100/Live/**{SOURCENUMBER}** for HTML 5 Video

or

{IPADDRESS}:8100/Mjpeg/**{SOURCENUMBER}** for Mjpeg.

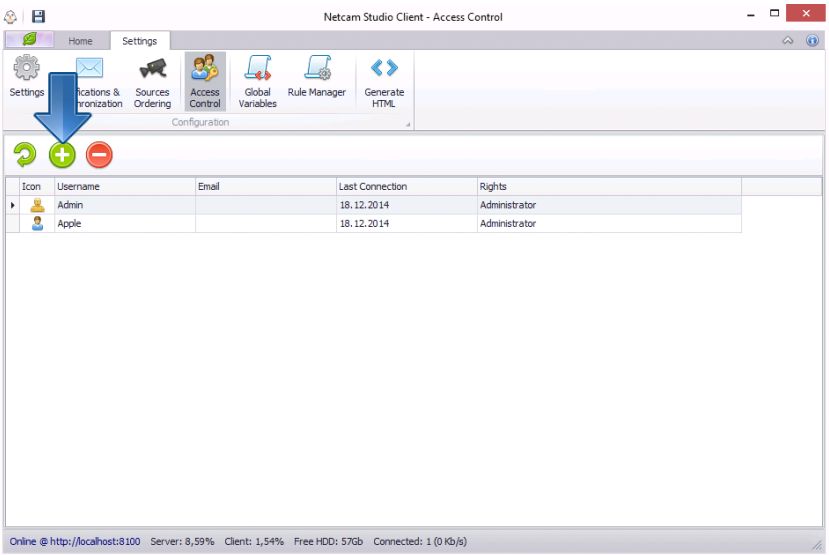
Remember that source number starts from zero (0) i.e. the first source has number 0.

The window with the request to enter username and password will appear on the screen. Put this data and confirm with **OK**. Finally, the video will appear in your web browser:

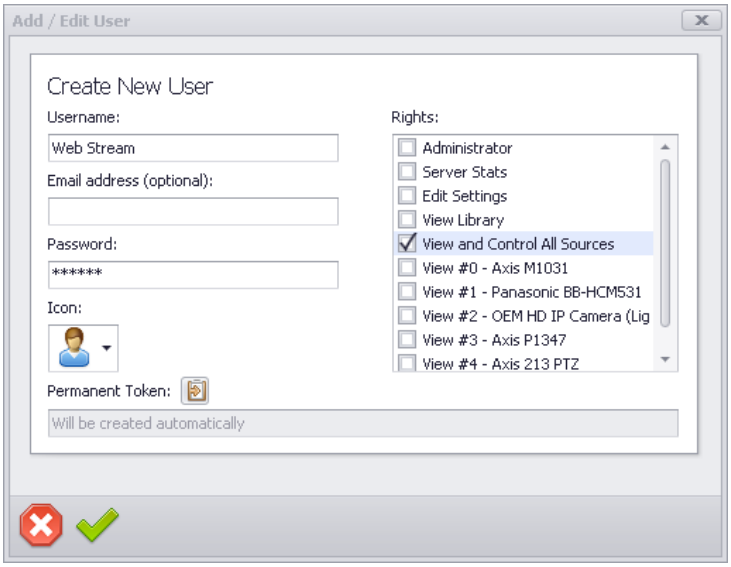


5.3 Placing a video on your website

In order to put a live video on your website, **first you need to create new user** to whom you will assign the **rights to view and control all sources**. Thus, you can get the token that will be used later to bypass authentication process. For this purpose, enter **Access Control** from **Settings tab** and click on **Add** icon in the functional bar:

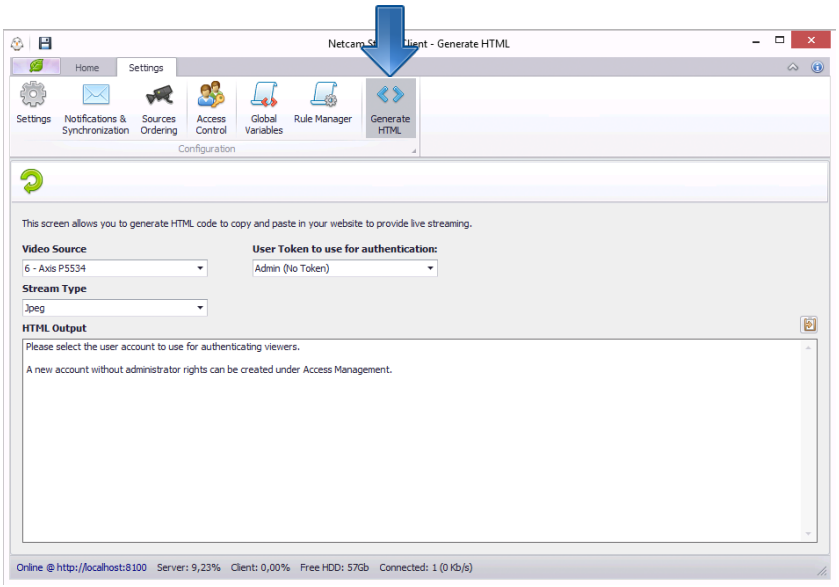


Next, the following window will appear on the screen. Enter the **name of the new user, password and check View and control all sources checkbox**:



Confirm by clicking on **Save Changes** button.

Next, go to **Advanced Settings tab** and click on **Generating HTML**:

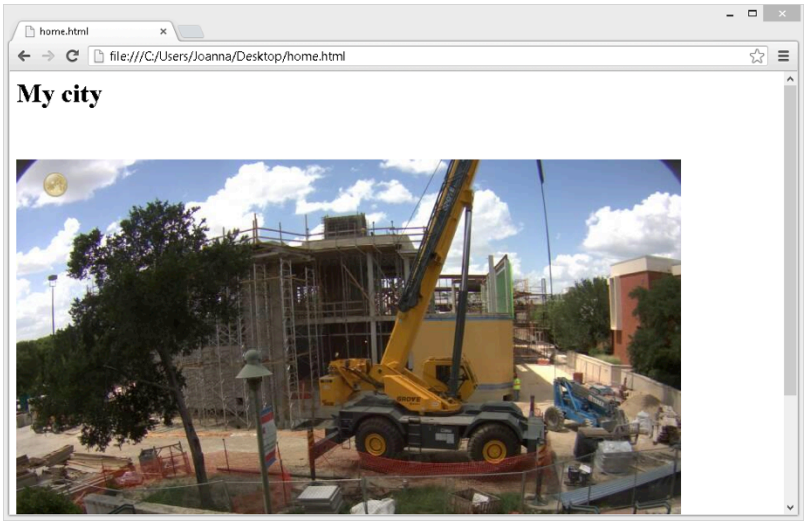


Next, **select video source,** which you want to connect. Select the **User Token to use for authentication**. Remember that it has to be an account different than admin, because it will be used to authenticate remote viewers. **Select the type of stream** – Jpeg, Mjpeg or OGG theora (HTML 5 Video).

Verify if IP address in the code is not local IP address, but internet IP address.

Then, copy the HTML Output content and paste it in website code.

Shown below is the screenshot of the exemple web page with live video streaming:

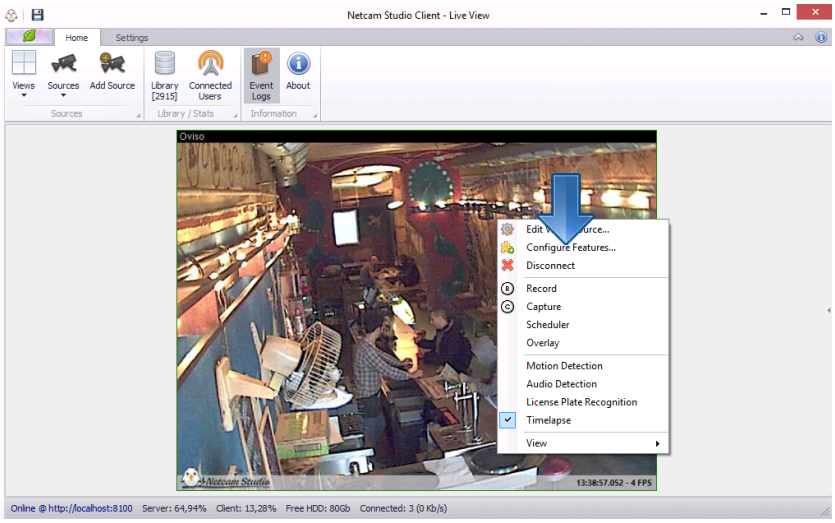


If you wish to enable remote viewers to see the video on the webpage, your firewall settings must allow remote connections on port 8100 and your rooter must forward this port to the computer running Netcam Studio Server.

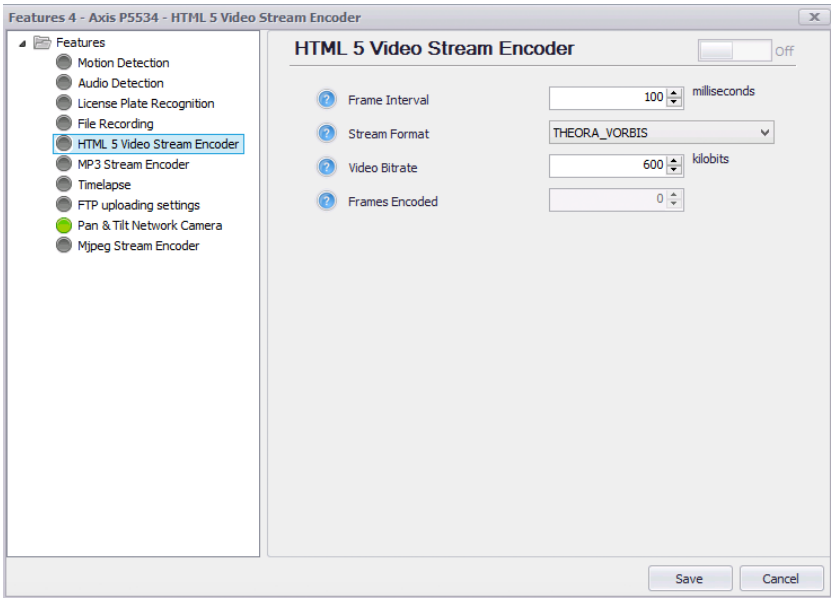
5.4 Setting up Stream Encoders

5.4.1 Setting Up HTML5 Stream Encoder

Right-click on the window of a selected source, which you want to edit to open the drop-down box with quick access to configuration and fuctionalities.



In you click on **Configure Features,** the following window will appear. Then, select HTML5 Video Stream Encoder from the box on the left in order to access the customization of this functionality.

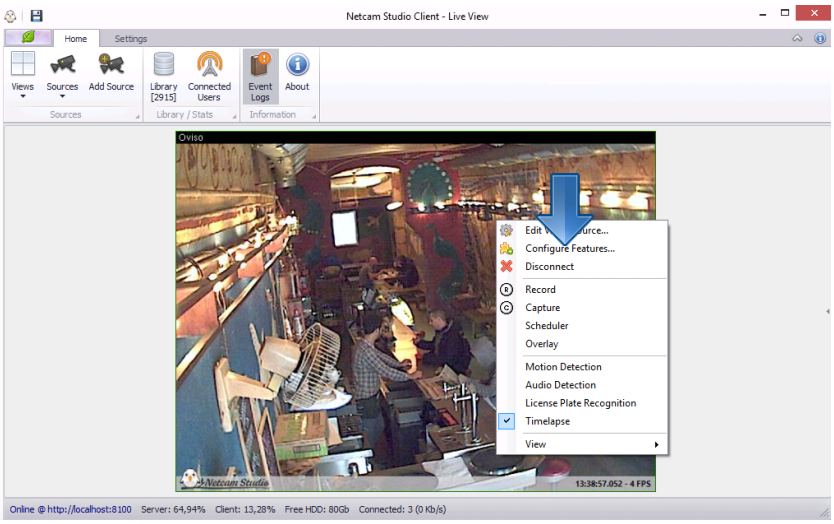


It is possible to change Frame Interval and Video Bitrate. For the details concerning these parameters put a cursor on a question mark beside the parameter.

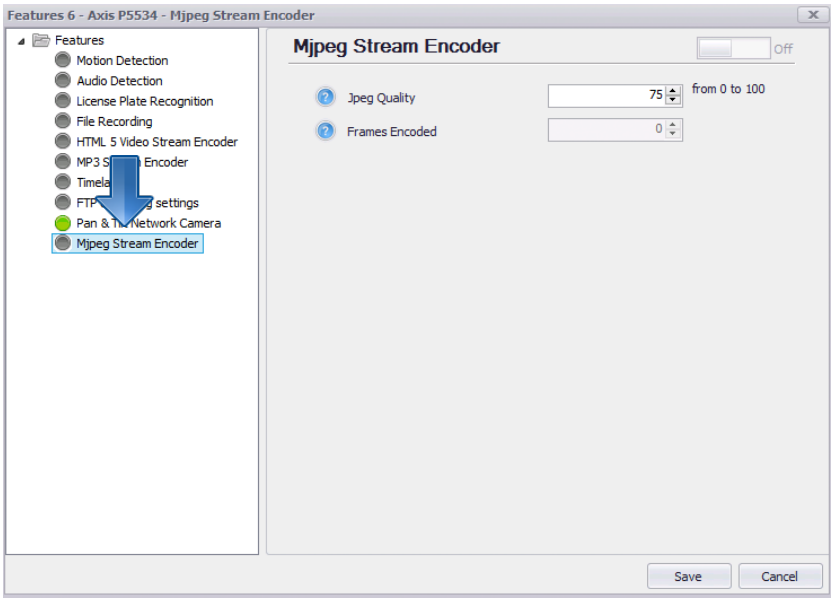
To confirm the changes, click on **Save**.

5.4.2 Setting Up Mjpeg Stream Encoder

Right-click on the window of a selected source, which you want to edit to open the drop-down box with quick access to configuration and fuctionalities.



In you click on **Configure Features,** the following window will appear. Then, select Mjpeg Stream Encoder from the box on the left in order to access the customization of this functionality.



It is possible to change Jpeg quality. For the details concerning this parameter put a cursor on a question mark beside it.

To confirm the changes, click on **Save**.

6 Remote monitoring

6.1 Remote monitoring on mobile devices

It is possible to view and edit sources, use Library and basic functions of the program from mobile devices like tablets or smartphones with Internet access (Android and iOS).

It's suggested to download the mobile application directly from the Store matching your device but it's also possible to connect using the device's web browser.

To do so, open the browser and put the IP address of the server in the browser followed by :8100.

The address should be in this format:

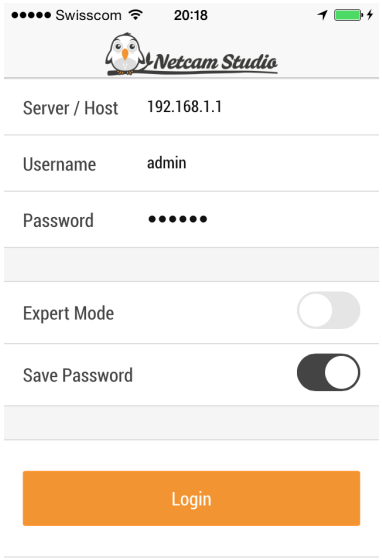
http://{IPADDRESS}:8100/mobile

Then, you can add this address to the Home Screen by clicking **Add to Home Screen** icon in the menu.

Using mobile device without being connected to wi-fi network on mobile internet connections (3G, LTE) can result in cost from your operator. The generated traffic for watching remote streams can be substantially high.

6.1.1 Connecting to Netcam Studio Mobile

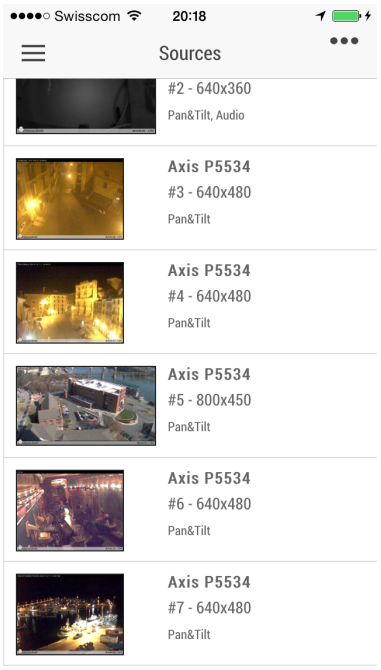
When you enter the program, the following window will appear:



In order to log in, enter Server IP, your username and password and confirm by clicking on **Login button**.

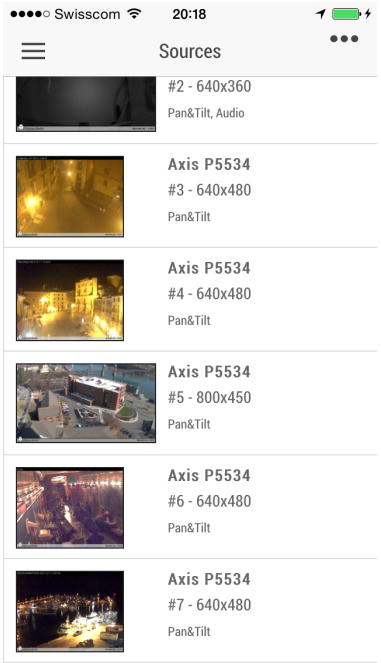
If your Netcam Studio Server is not running under default parenthesis 8100, then it is necessary to enable Expert Mode. This will allow you to enter your computer's port in the line, which will appear below Server/Host line.

Then, the main Sources window of the Netcam Studio Mobile will appear:



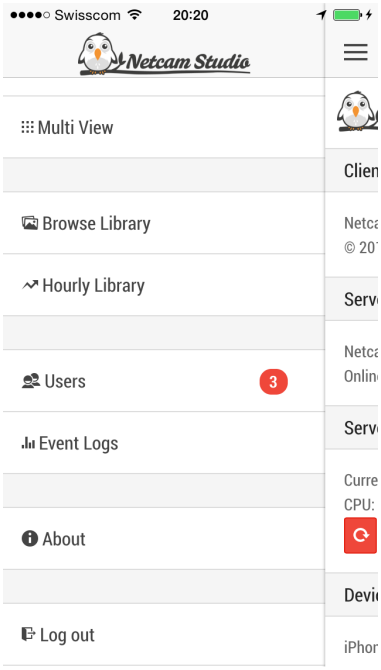
6.1.2 Description of Netcam Studio Mobile

The main view is **Sources screen**:



There is the list of sources with the full name of camera, its features (Pan & Tilt, Audio) and running plugins (e.g. Recording, Motion or Audio Detection). From this screen you can enter single source screen by clicking once on a selected screen.

In order to **enter Side Menu**, click on the icon of Menu in the upper left corner or slide right. The Side Menu looks as follows:

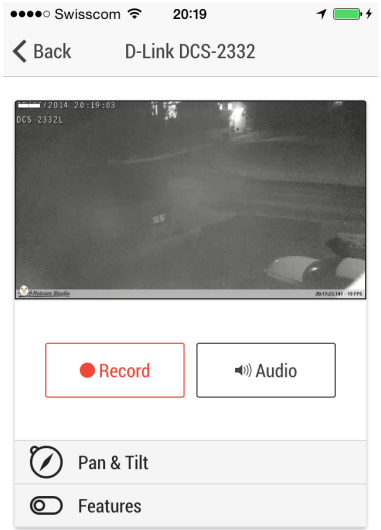


From Side Menu it is possibile to access Single- and Multiview, Library function, Users information and edition, Event Logs, Information on Netcam Studio Mobile and Log out function.

6.1.2.1 Single view

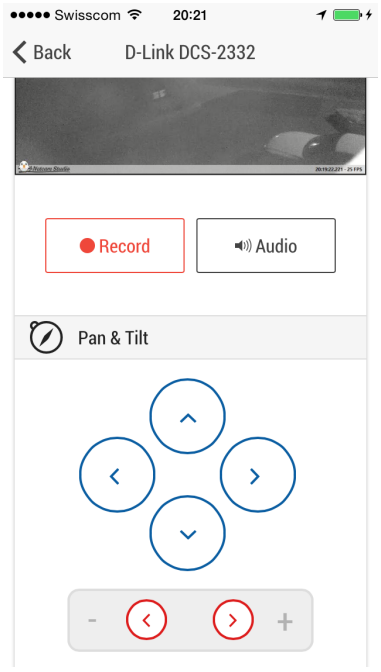
It is possible to change between single- and multiview. In single view it is possible to use all of the functionalities and features of the camera. In multiview it is possible to monitor all of the sources at once.

In order to enable **single view**, click on a selected source on a main Sources screen:



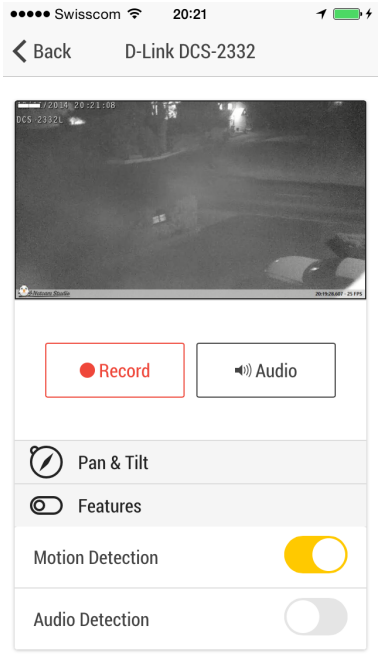
From this view you have access to multiple functionalities. From the main view, it is possible to enable and disable recording and audio detection.

In order to set your camera, you can click on Pan & Tilt function:



With this function it is possible to pan, tilt and zoom your camera (depending if your camera have this functionalities).

In single view screen, it is also possible to enable and disable motion and audio detection. To this end, click on Features in order to slide out Features menu:

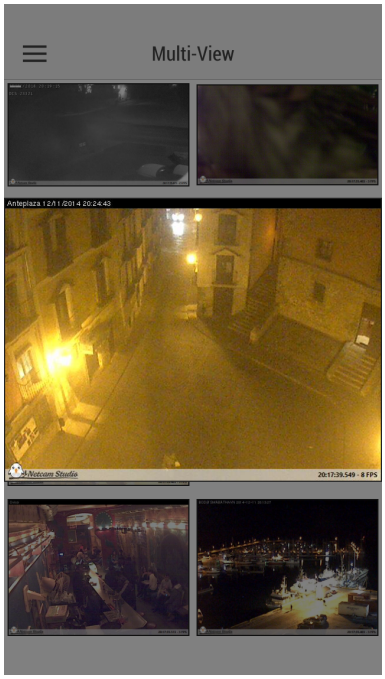


If you click on the screen, you will enable **fullscreen view** of the source. For the best results, put your phone or tablet horizontally.

6.1.2.2 Multiview

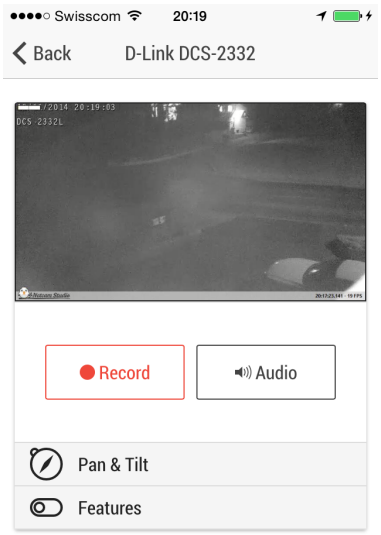
The function of multiview allows you to monitor all of the sources at the same time. In order to enable Multiview, go to Side Menu and select Mutiview. Then, Mutiview screen will appear:

It is possible to zoom in a selected source still monitoring the others. For this purpose, simply click twice on a selected source. Multiview with 1 selected source looks as follows:



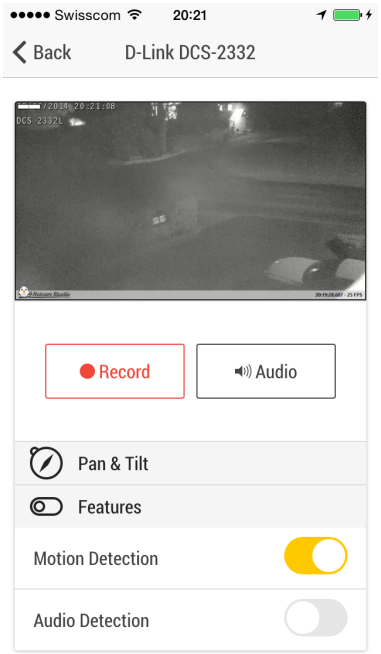
6.1.3 Enabling and disabling motion and audio detection, and recording.

In order to use any function of source edition, go to Sources screen. Next, **select a target source,** which you want to edit by clicking on it once. The Single View screen will appear:



From this screen it is possible to **enable and disable recording**. To this end, simply click on the Record button. If the button is red, it means that recording is enabled. The application starts to record the video. In order to disable the function of recording, click on this button again.

In order to **enable or disable Audio or Motion Detection**, select Features. Then, slide menu will open. To enable Audio or Motion Detection, slide the button right. To disable the functions, slide it left.



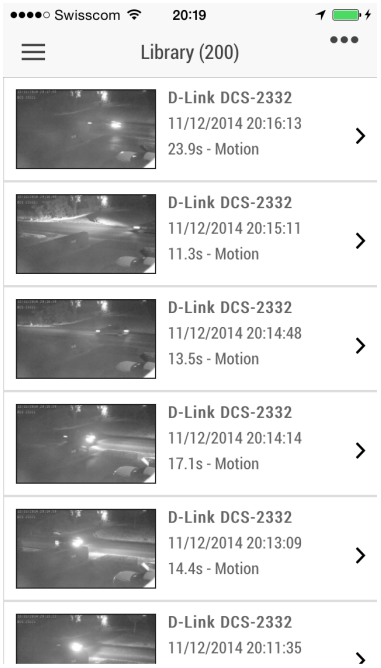
If motion detection is enabled, **Motion Lever Bar** will appear in the upper left corner. If the yellow bar will turn red, it means that the motion was detected and the recording has started.

6.1.4 Remote library

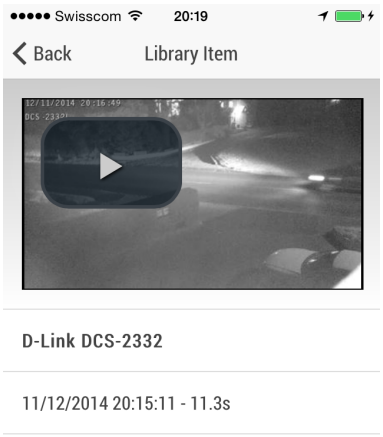
Library contains all recorded videos and still images. The number in the brackets means the amount of output in the Library. The list of the library is made from the latest to the earliest.

In order to enter Library, go to Side Menu and select **Browse Library** in order to get the complete list of the captured outcomes. It is also possible to go to **Hourly Library** in order to get the library segmented by the hour when the capture took place.

At first, the Library in the list mode will be discussed. After clicking on Browse Library, the following Library screen will appear:



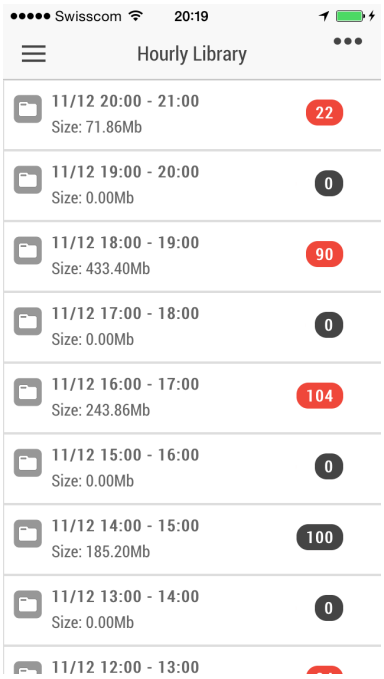
Next to the snapshot of every output there is the full name of a camera, the date and time, duration of the video and mode of capture. If you click on the snaphot, the following screen will appear:



It is possible to watch captured video by clicking on “ON” button on the screen.

The lower bar contains information of the recording / image: the camera with which it was taken as well as the date and time and duration of the capture.

If you click on Hourly Library in Side Menu, the following screen will appear:

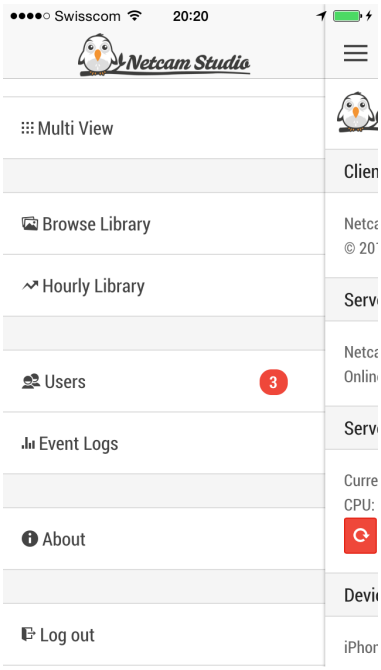


In this view the Library is organized by hour of capture. Each file is indicated with date and time of capture (in 24-hour view). On the right side there is the number of outputs captured during this hour.

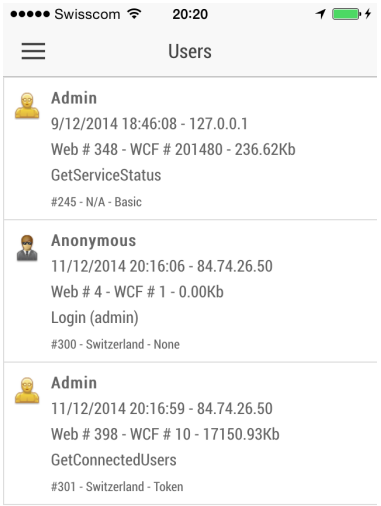
It is possible to access captured outputs by clicking on the specific file.

6.1.5 Administration

In order to verify, who is currently connected to your application, select Users in Side Menu:



Then, the Users screen will appear:



Every user is indicated in the following way:

1st line: a function of a user

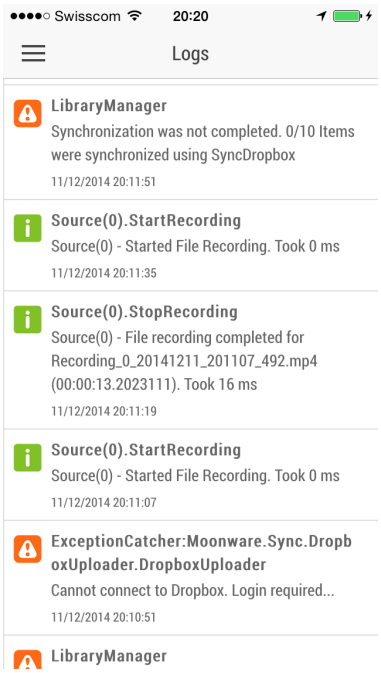
2nd line: the date and time from which a user is connected – IP address

3rd line: no. of Web requests – no. of Web services requests – total amount of data transfer

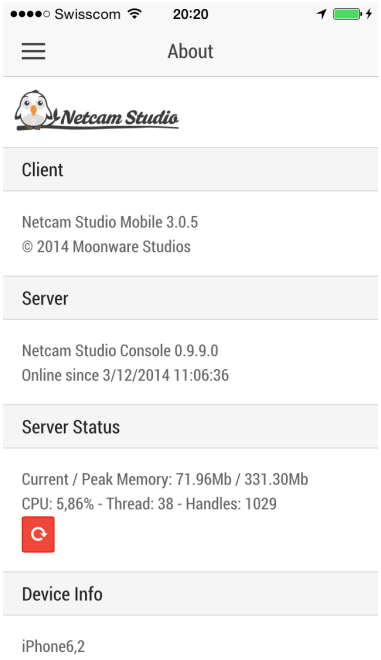
4th line: last command of a user

5th line: internal ID – country – authentication mode

In order to monitor Netcam Studio and verify that there are no errors, click on Event Logs in Side Menu. The following screen will appear:



In order to obtain information concerning your application, click on About in the Side Menu. The following screen will appear:



6.2 Remote monitoring using web browser

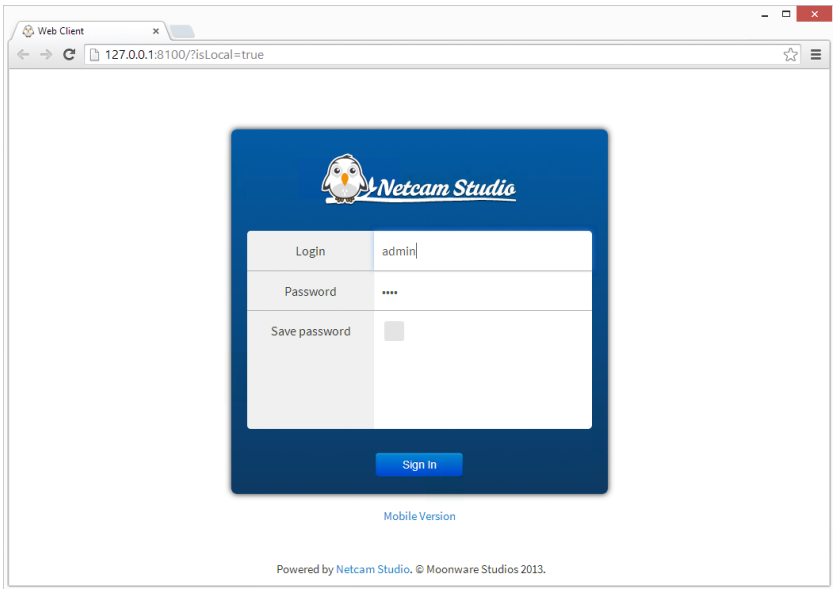
It is possible to view sources, use Library and basic functions of the program from other computers on the condition that they have connection with Internet and enabled browser.

For this purpose, first enter Netcam Studio Mobile on your device. In order to do so, open the browser and put the IP address of the server in the browser followed by :8100 and open page.

The address should be in this format:

http://{IPADDRESS}:8100

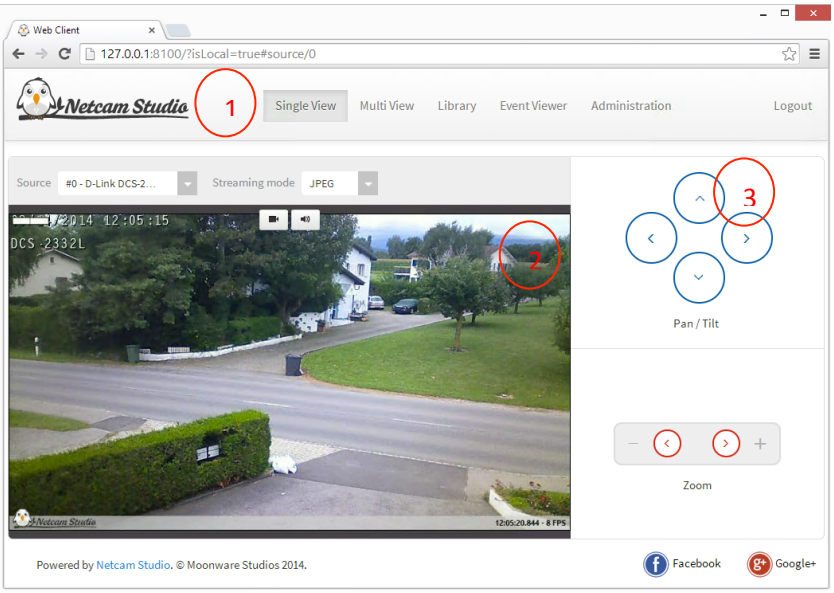
Then, the following window will appear:



In order to log in, enter your username and password and confirm by clicking on **Sign In button**.

6.2.1 Description of Web Client

Then, the main window of the Netcam Studio Mobile will appear:

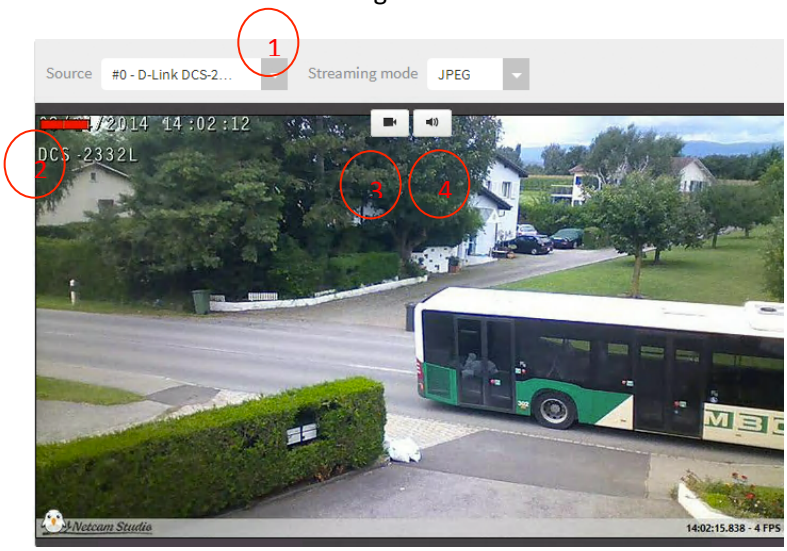


The main window (of single view) contains the following elements:

1. **Navigation** – you can select between Single and Muti view; you can enter Library, Event Viewer and Administration window.
2. **View box** – allows you to view a source online, enable and disable recording and sound.
3. **Pan / tilt and Zoom** – camera control buttons that allow you to move camera right, left, up or down (if applicable). In order to pan or tilt the camera, click on relevant arrows. In order to zoom-out, click left button; in order to zoom-in, click right one.

6.2.2 Description of the functionalities in Single View

The Web Client includes the following functionalities:



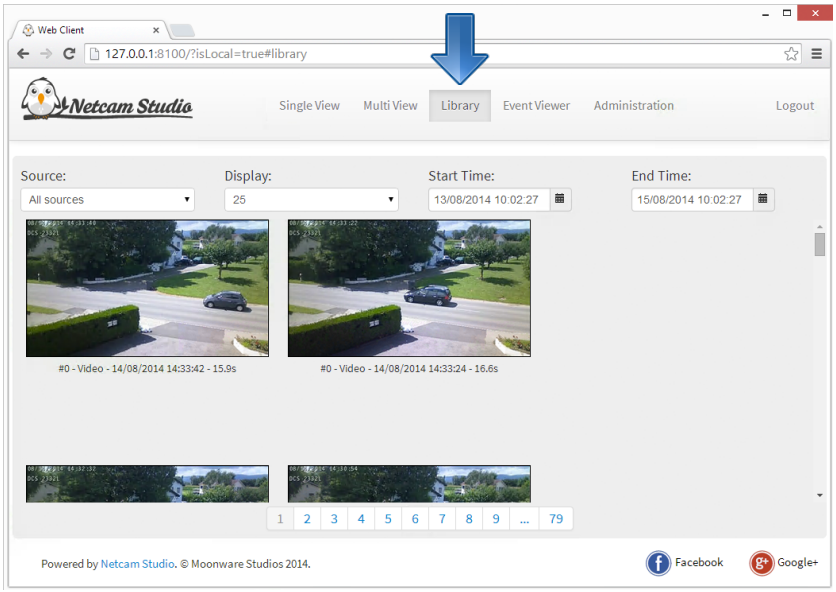
1. In order to select the source, go to **Source drop-down box** and select the source that you want to view. In order to change streaming mode, go to Streaming mode drop-down box and select JPEG, MJPEG or LIVE.
2. **Signal bar** – If the yellow bar will turn red, it means that the motion was detected.

3. **Recording** – click once on the button to **enable recording**. Then, **the button will turn red** and the application starts to record the video. In order to disable the function of recording, click on this button again.
4. **Sound** – click once on the button to disable sound. Then, the icon will change - a speaker will be crossed-out. In order to enable sound, click on this button again.

Note that in Web Client you cannot enable motion / audio detection, capture still image and use some of the advanced functionalities.

6.2.3 Remote library in Web Client

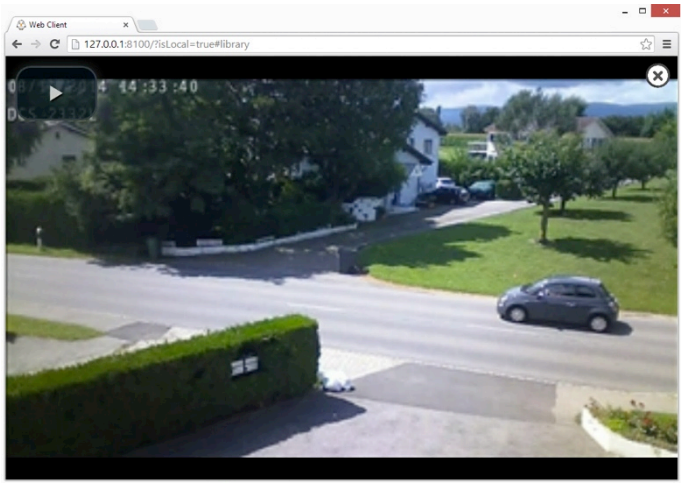
In order to enter Library, click appropriate icon in functionality line:



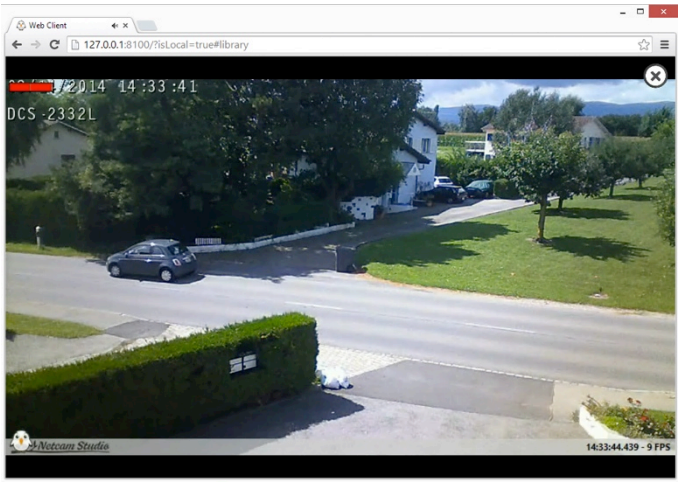
Library contains all recorded videos and captured images. The list of the library is made in the time sequence (the freshest recordings appear first).

You can select source (or select “All sources”), the number of recordings displaying on one page and start and end time when the recordings were catured.

Below the snapshot of every output there is the source number, the date and time of capture and the duration of recording. If you click on the snaphot, the following screen will appear:



In order to play the recording, click ON button in the upper left corner:



To return to Library view, click OFF button in the upper right corner.

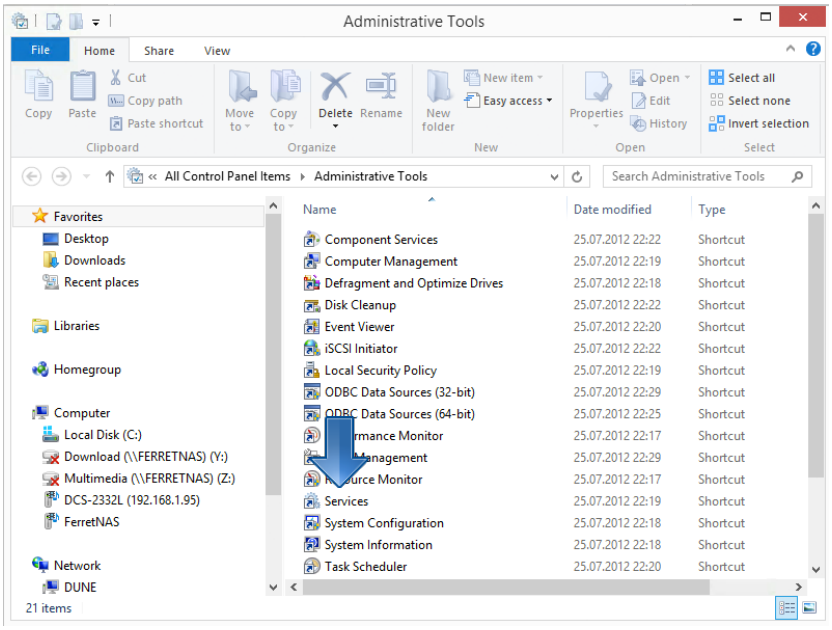
The upper bar contains information of the recording / image: the date and time of the capture.

Appendix A: Using Netcam Studio Service

A Windows service is a computer program that operates in the background. It is set by default to run as long as Windows is running. Netcam Studio Sever in the Service version gives you possibility to run constantly the application without the need to open Netcam Studio Server manually. Installed services can be managed by the Services snap-in (found under Administrative Tools in Windows Control Panel), where it is possible to start and stop service.

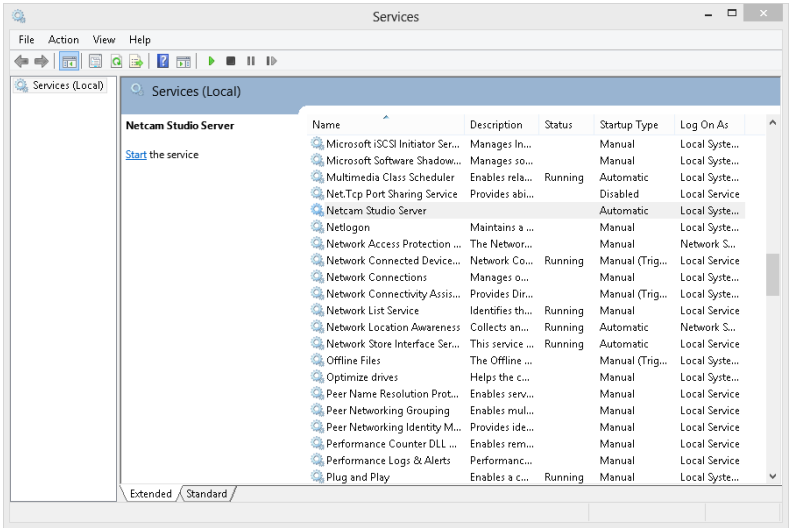
Starting the Service

In order to start Netcam Studio Server as a service in **Windows 8**, **click Control Panel** (in icon view). Then, go to **Administrative Tools:**



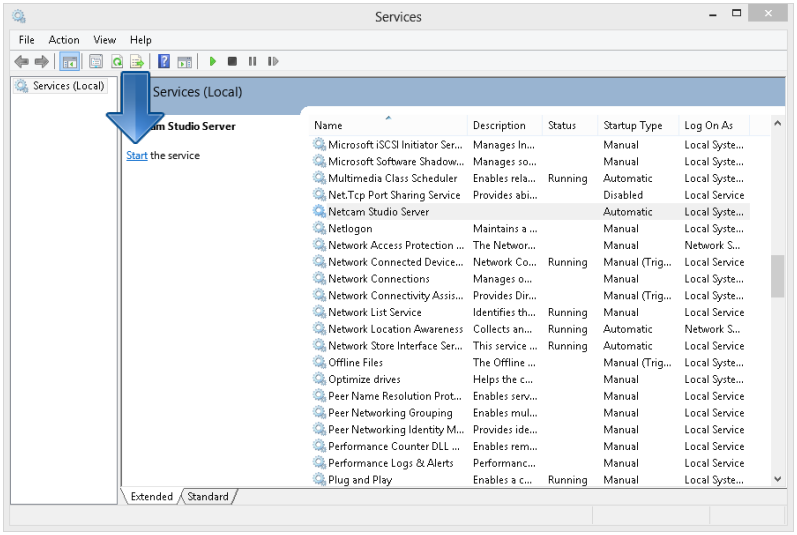
Next, click on **Services**.

Netcam Studio Server should be listed in the list of installed Services:

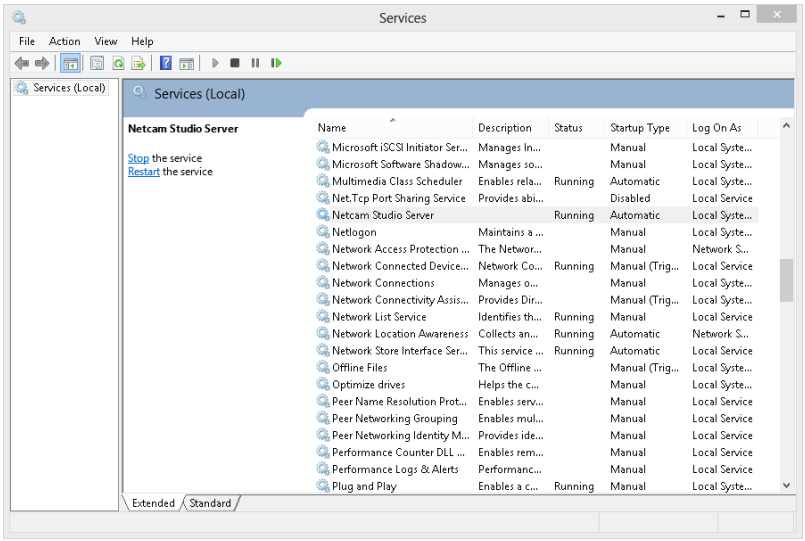


The Service version of Netcam Studio Server cannot be started if Netcam Studio X is running. In order to open Service version, you need to close Netcam Studio X first.

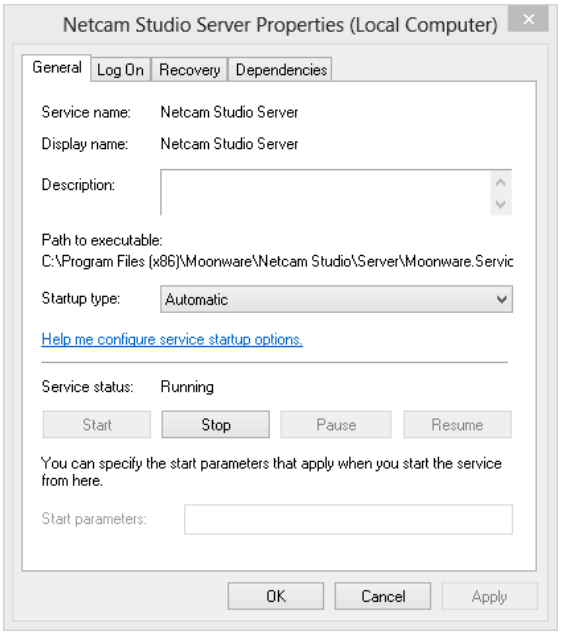
Netcam Studio Server in Service version can be started directly from Windows Services. In order to do that, you have to select **Netcam Studio Server** and click **Start the service**.



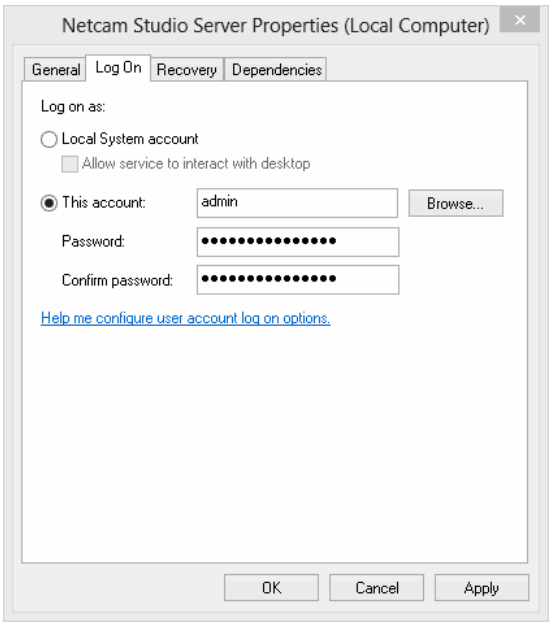
It will appear as running as shown below once started:



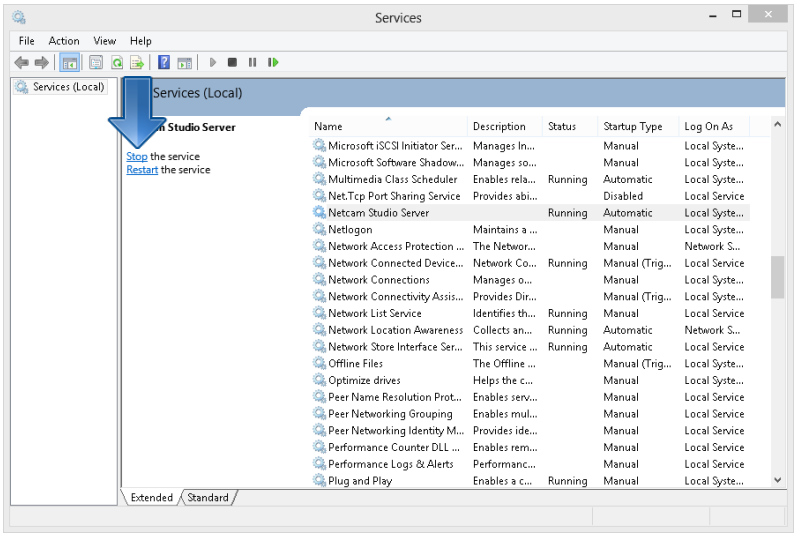
Netcam Studio Service does not starts automatically at system logon. In order to change this settings, you have to double-click on **Netcam Studio Server** to enter the **properties of the service**. In the tab **General properties** it is possible to change the **type of startup** for automatic:



Netcam Studio Service in Service mode runs by default on **local system account**. However, it is recommended to change it to run the service on **administrator's account**. In order to change this setting, click on the tab **Log On**, check **This account** and enter the data of selected account. Confirm with **OK**.



In order to stop the service, you have to open the following directory: **Control Panel – Administrative Tools –Services (local)** and click **Stop the service**:



Now we have the Service version running however since it has no user inteface, we need to use one of the Client to connect. All types of clients are compatible with Netcam Studio Service:

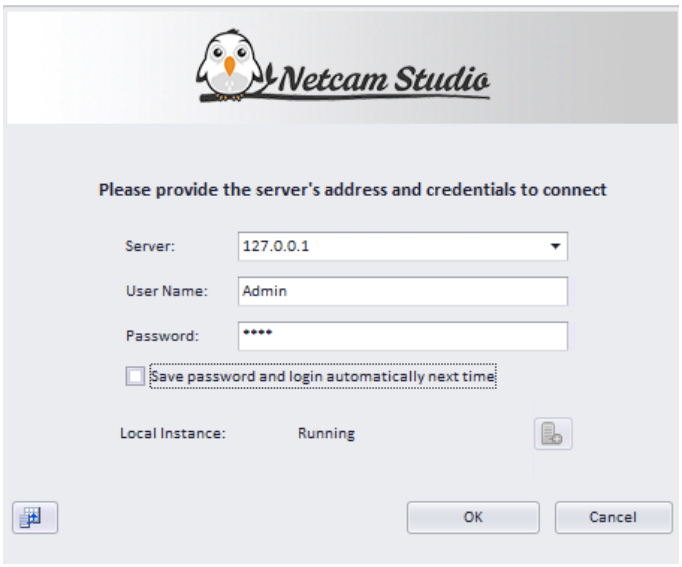
- Netcam Studio Client (Windows)
- Netcam Studio Web Client
- Netcam Studio Mobile

Starting Netcam Studio Client

If you want to monitor locally or make changes to the configuration, you need to use Netcam Studio Client.

Start Netcam Studio Client click Start – Programs – Netcam Studio - Netcam Studio Client.

The following window will appear on the screen:



Fill the fields with the following information: target server, username and password.

Since we are running the Client in this case from the same computer that runs the server, the host can remain 127.0.0.1 which corresponds to localhost and targets the local computer.

The default user name is admin and password: 1234. It is suggested to change this password as soon as installation is completed and to write down the new password in a secure place.

In order to find out how to change your password, go to **Chapter 4.3.1 Changing the password**.

You may save the settings by checking the appropriate square in order to longin automatically in the future.

Appendix B: Accessing Netcam Studio remotely from Smartphone and Web Client

In order to connect remotely from another computer, phone or tablet, there are a few important steps to perform after installing Netcam Studio.

Please read and follow below-mentioned steps. The first three of them are mandatory.

1. Setup a Static IP address
The computer on which Netcam Studio is running needs to be configured to use a static IP address. Most router will not accept port forwarding to computer that has a dynamic address (DHCP).

This operation is a bit different on every operating system. For the details regarding configuration of a static IP for all of the operating systems, go to this page:
http://portforward.com/networking/staticip.htm1

2. Configure portforward on port 8100 (TCP)
This step relates to forwarding all requests made to your internet connection on port 8100 to the computer that is running Netcam Studio.

There is a different IP address on Internet than the one reported by your computer: a unique address for all of the computers on your network. For each address one has to tell your router/modem where to forward calls made on a specific port.

Since Netcam Studio runs by default on port 8100, it is necessary to establish this forwarding. This operation is performed with the use of the router/modem administration panel and is different for every manufacturer.

The name may differ but it usually refers to "Port forwarding" or "Virtual Server*. It is necessary to create a rule, which forwards all incoming TCP requests on port 8100 to the port 8100 of the Static IP address obtained in Step 1.

3. Obtaining your External / Internet IP Address
Then, it is necessary to obtain your external IP address (also known as WAN Ip). There are several web pages which allows you to do this:

http://www.whatismyip.com/3
or
http://www.ipchicken.com/1

The address reported on this page is the address that you need to use in the Mobile application or in the browser of other computer connected to Internet outside of your own network.

For example: If the address reported on the page is **84.72.20.50** then your Netcam Studio server should be reachable at:
http://84.72.20.50:81003

4. Setting up a Dynamic Name Service (Optional)
Depending on your Internet Service Provider, your external address may change more or less often.

When it does, you may have to repeat step 3. If you are streaming to your website, it might stop working and you would have to update the page with the new IP address.

This can be avoided by using a dynamic name service mapped to your Internet IP. It is possible to register for a name and to keep it always up to date regarding the change of address.

There are several free or cheap services offering such redirection:
http://duckdns.org1
https://www.dtdns.com1
https://www.noip.com1
http://www.dhs.org1

Appendix C: Changing Netcam Studio Server's HTTP Port (default 8100)

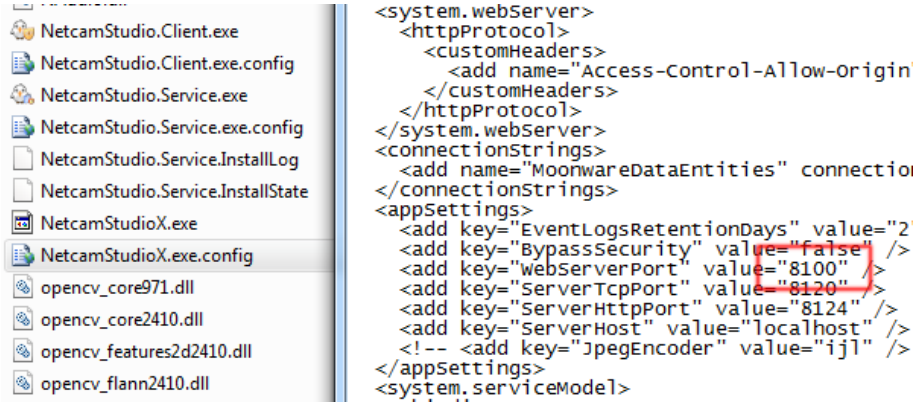
By default, Netcam Studio's Web Server and Web Services are available on the port 8100.

It is not possible to change this in User Interface, because it would break the connection and the server would have to be restarted. However, this option is available through configuration file.

1. Changing the port on Server Side

The files **NetcamStudioX.exe.config** (Netcam Studio X)
and **NetcamStudio.Service.exe.config** (Netcam Studio Service) need to be edited in the **Program Files\Netcam Studio** folder.

Under the **appSettings"" category, change the value for **WebServerPort** to the Port Number you want to use:



Save the file and restart Netcam Studio.

2. Changing the Port on Client Side
This change must also be reflected in each Client.

The operation is the same for Netcam Studio Client (Windows). For this purpose, modify the **WebServerPort** setting in**NetcamStudio.Client.exe.config**

For the Web Client, you can enter the port in the login screen. By default, it offers 8100. To this end, just enter the value matching your modifications on server side.

For the Phone application, you need to enable the **Expert mode** on the login screen: this will also allows you to enter a different port.

Appendix D: Running Netcam Studio Server on SSL / HTTPS

Another hidden feature of Netcam Studio is the possibility to run on HTTPS.

The server is ready but unfortunately the Web and Smartphone Clients are not, this is the first reason why this feature is not advertised yet.

In order to serve Video Streams, Web Content and Web Services over HTTPS, you need to perform the following steps:

1. Purchase or Generate your own SSL Certificates
The first step is about obtaining the certificates, if you want the certificates to be trusted and not displaying any warning to the user, they have to be issued by a trusted authority like www.verisign.com

Alternatively and if it's for testing or internal use, you can generate your own certificates. You will have to generate the following:

- CA Certificate
- SSL Certificate matching the CA

In order to help with this steps, here are scripts allowing to generate those certificates for testing: https://s3.eu-central-1.amazonaws.com/moonware/netcamstudio-makecert-ssl.zip

Modify them to reflect your company's information and change the password (you'll need it later) and run the 2 scripts to generate the CA certificate and the SSL certificate.

2. Configure Netcam Studio to Serve over SSL
Once the certificates have been generated you have to install them both on the computer running Netcam Studio. Double-click on the certificate and let Windows install them. For the SSL Certificate enter the password that you have chosen during generation.

Then you need to copy the SSL Certificate (default name server.pfx) into the folder where Netcam Studio is located (Program Files\Netcam Studio) and edit Netcam Studio (X and Service) configuration file:

- NetcamStudioX.exe.config
- NetcamStudio.Service.exe.config

Under the **appSettings** category, add new settings with the keys **WebServerCertificate** and **WebServerCertificatePass** as shown in the example.

The certificate's name and password must match the filename copied into the program's folder and the password you have chose during generation or received from the trusted authority.

```
<appSettings>    <add key="EventLogsRetentionDays" value="2" />    <add key="BypassSecurity" value="false" />    <add key="WebServerPort" value="8100" />    <add key="ServerTcpPort"
```

value="8120" /> <add key="ServerHttpPort" value="8124" /> <add key="ServerHost" value="localhost" /> <add key="WebServerCertificate" value="server.pfx" /> <add key="WebServerCertificatePass" value="test" /> </appSettings>

3. Enabling SSL in Netcam Studio Client (Windows)
There is only partial support for HTTPS on Client side yet, we will look forward to complete the support soon.

For Netcam Studio Client to accept connecting over HTTPS, you have to modify it's configuration file as well (NetcamStudio.Client.exe.config).

under **system.serviceModel**, **client*, modify the endpoint corresponding to http:// to https:// as shown below:

<system.serviceModel> <client> <endpoint address="https://localhost:8124/Soap" binding="customBinding" bindingConfiguration="soapEndpoint" contract="Moonware.Server.WCF.Interface.IMoonwareServerWCF" name="soapEndpoint" /> </client> </system.serviceModel>