Manual

Internal Administration Website

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Notice to Reader

While every effort has been made to be thorough and complete in the writing of this manual Netcam Central Inc. is not responsible for any errors or omissions contained here in.

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Introduction

This document describes the functions of the NetCamPro cameras' internal admin website and is intended for readers who have advanced technical skills.

For typical day to day use, the NetCamProLive App for iOS and Android provide a streamlined set of camera management functions. For advanced applications, the internal admin website provides access to additional configuration options.

NetCamPro cameras are embedded computer systems. While there is no keyboard and screen, each NetCamPro camera hosts its own internal administration website that can be accessed from any device (phone, tablet, Windows, or MAC) that is connected to the same LAN (Local Area Network) as the camera or is using the same WiFi network as the camera.

The admin website is password protected and provides the video stream (with sound) on the main page. The setup page provides functions for retrieving recorded pictures/videos and making configuration changes.

How to determine the URL of the camera, as well as the full details of all the configuration function set, is described in the following sections.

Connecting to the Camera with a Browser

In order to connect to the camera's internal admin website with a web browser (Chrome, Firefox, Safari, or Internet Explorer) the LAN IP address is required. Only devices on the same LAN as the camera (Ethernet or Wi-Fi) can connect to the camera. The LAN IP address of the camera can be discovered in a number of ways:

NetCamProLive Advanced Settings/About Device

Connect to the camera using the NetCamProLive App on a smart phone. Navigate to “Advanced Settings/About Device” page and make note of the “local” value. Remove the “:80” suffix and the LAN IP address remains.

Fing Smart Phone App

Install the “Fing” (Domotz Ltd) smartphone App on a tablet or smart phone that is connected to the same LAN as the camera. Scan the network and look for the camera's name. From the factory the camera name will be the model number.

Router

Login to the local router's admin website and view a list of connected devices with the same name as the camera. From the factory the camera name will be the model number.

Camera URL

The URL of the camera is made up from the LAN IP address. If, for example, the LAN IP address of the camera is 192.168.0.31 then the url is **http://192.168.0.31**

Type the url into the browser URL box (usually on the left if there are two boxes). If this URL is entered into a browser search (eg. google, yahoo, bing, etc) then it will not be found as search engines cannot access the camera and do not know that it exists.

Login

When initial contact is made with the camera the user is shown a splash screen:

The **Enter** button leads to the home page where the live view video is displayed. The **Settings** button provides a shortcut to the settings functions.

The first time the **Enter** or **Settings** button is clicked the user is prompted for credentials. The master “user name” is “admin”. From the factory the admin password is “admin”. Otherwise it is the same password used for the NetCamProLive App.

Lost Password

If the admin password is lost then there is no way to recover it. The only option under these circumstances is to factory reset the camera which will set the admin user's password to “admin” and erase all configuration changes (including Wi-Fi settings).

NCP2255I and NCP2255SI Factory Reset

After the camera has been powered up for one minute or more, gently insert an unfolded paper clip into the hole on the back of the camera labelled “reset”. Push the paper click in until a click is felt and then hold for 10 seconds. Release and give the camera 60 seconds to reboot.

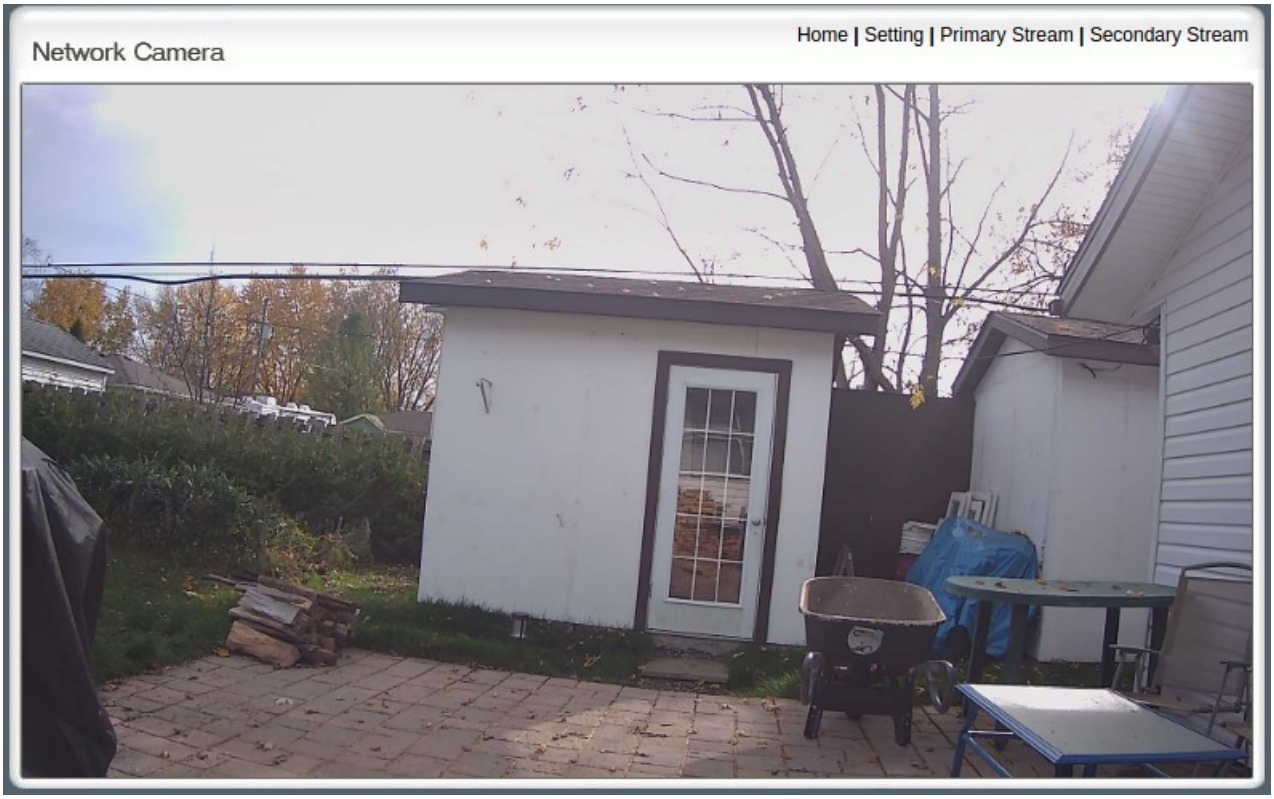
As the Wi-Fi settings will have been reset to SSID “wirelessnc” with no security it will likely be necessary to connect an Ethernet cable to regain access.

NCP2475E and NCP2475SE Factory Reset

After the camera has been powered up for one minute or more, press and hold the white button at the bottom back of the camera for 10 seconds. Release and give the camera 60 seconds to reboot.

As the Wi-Fi settings will have been reset to SSID “wirelessnc” with no security it will likely be necessary to connect an Ethernet cable to regain access.

Home Page (Live View)

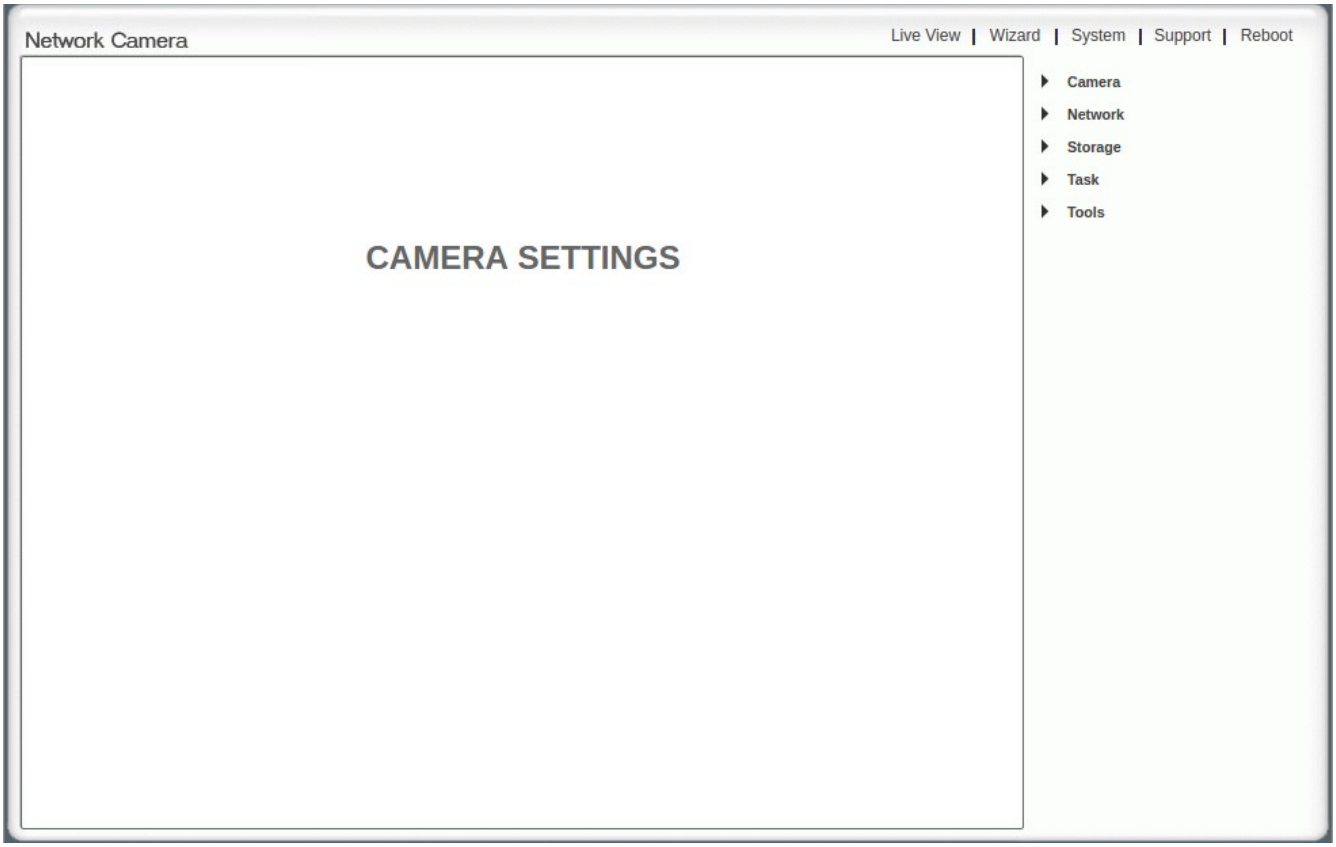


The home page of the camera's internal admin website shows the live video feed and plays the sound – depending on the browser's capabilities. If no video is displayed then it is recommended to install VLC from Video Lan Corporation (http://videolan.org).

Along the top are links as follows:

Home	Leads to the Login page
Setting	Leads to the Settings page
Primary Stream	Displays the primary HD stream (about 20MB/minute)
Secondary Stream	Displays the secondary SD stream (about 1MB/minute)

Settings Page



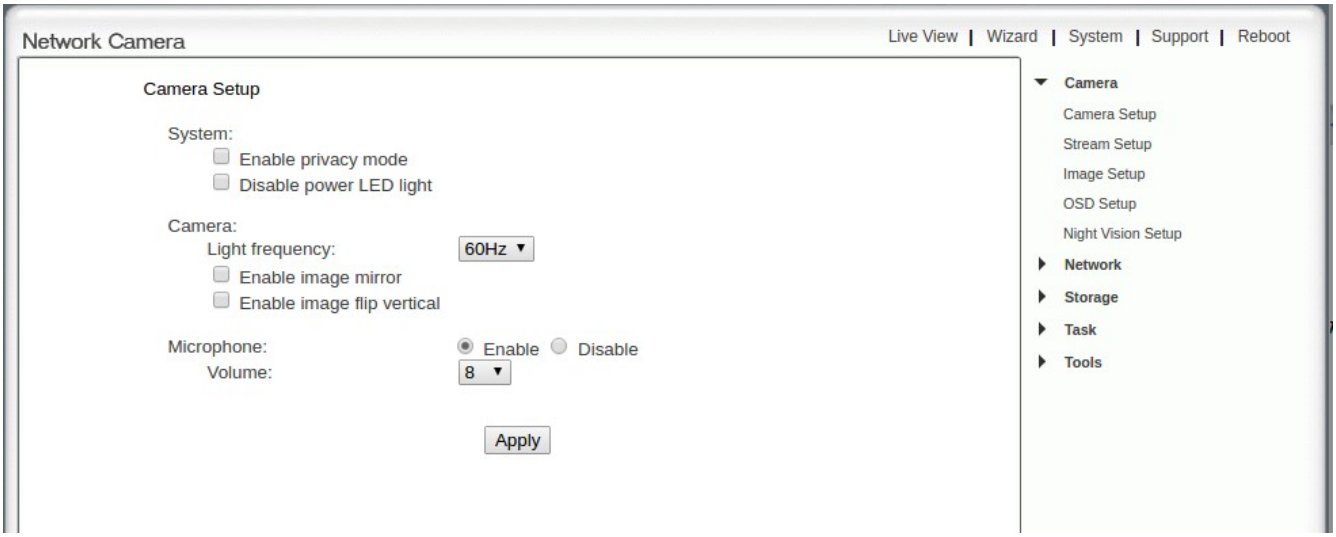
Five links are provided at the top of the Settings page as follows:

Live View	Leads to the *Live View* page
Wizard	Leads to a *Setup Wizard* that will configure the camera for local operation
System	Leads to a camera *Status* page. A screen shot of this page helps our support team troubleshoot problems.
Support	Lists www.netcampro.com website and support email (support@netcampro.com)
Reboot	Reboot the camera – always good practice after making changes.

Links Along the right edge of the Settings page open collapsing menus that lead to the configuration functions as follows:

Camera	Camera Setup Stream Setup Image Setup OSD Setup (On Screen Display) Night Vision Setup
Network	Wireless Setup TCP/IP Setup DDNS Setup UPNP Setup P2P Setup
Storage	Storage Setup Browse Storage Format SD Card
Task	Global On/Off Motion Detection Schedule Setup Task Management
Tools	System Identity User Management Date & Time Backup or Reset Watchdog Setup Firmware Upgrade

Camera/Camera Setup



Enable Privacy Mode

This function provides support for a privacy button that stops the camera from streaming or recording. NetCamPro cameras do not have this button so this function is not operational.

Disable power LED light

This function will turn off the LED on the front of the NCP2255i and NCP2255si cameras as well as the green LED that can be seen in the lens of the NCP2475e and NCP2475se cameras.

Light Frequency

This value should match the frequency of the AC power. It enables the camera to deal with the flicker of fluorescent lights. 60Hz is appropriate for North America. 50Hz is appropriate for Europe. If the camera is used in sunlight or incandescent lighting, this setting has no effect.

Enable image mirror

This check box will mirror the image and is appropriate if the camera is pointed at a mirror.

Enable image flip vertical

This check box will flip the image and is appropriate if the camera is mounted upside down. The image will be flipped upside right.

Microphone

Enable/disable will turn the built in condenser microphone on or off. The Volume list box adjusts the microphone sensitivity. 1 is the least sensitive and 10 is the most sensitive.

Speaker

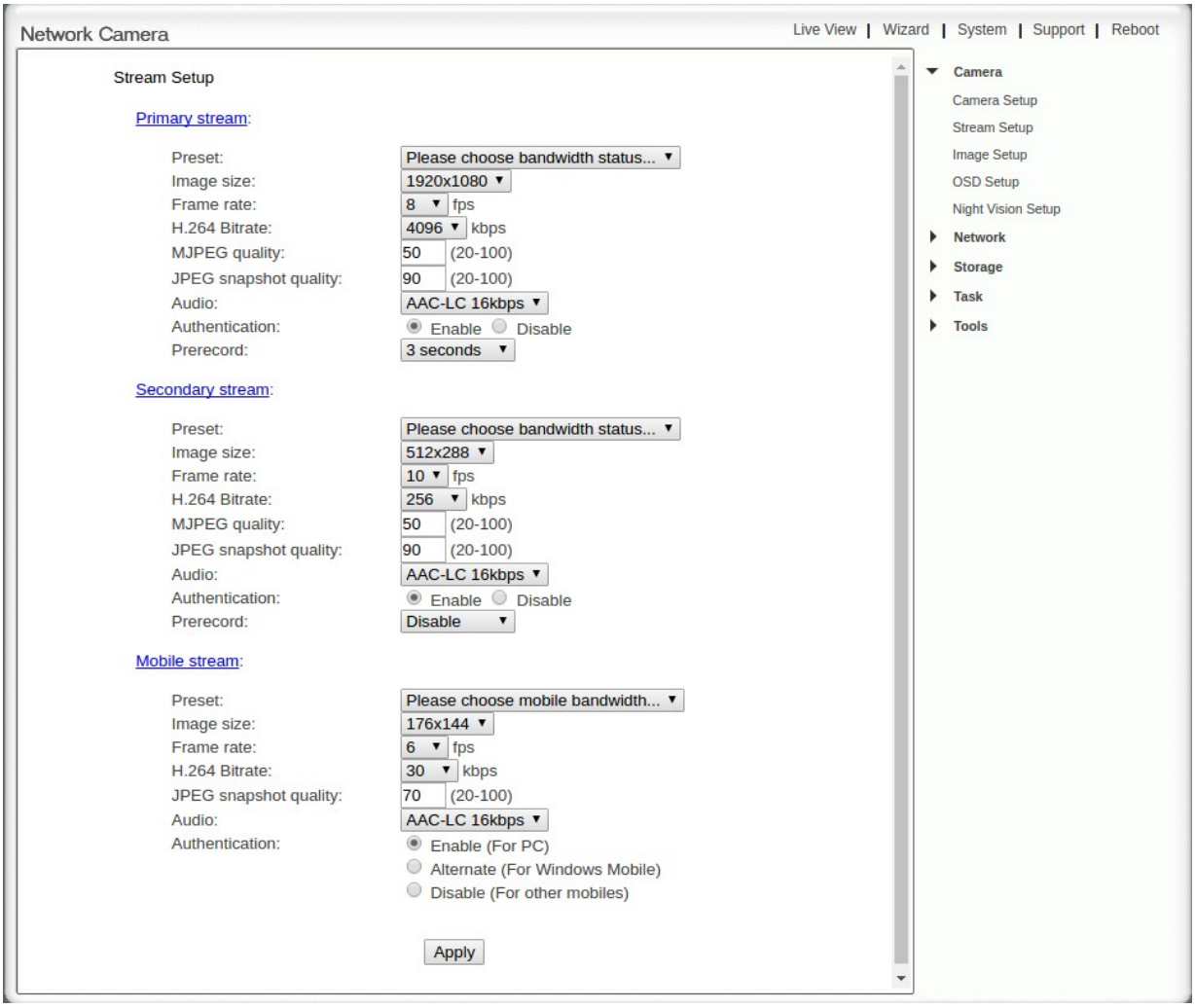
On the NCP2255i and NCP2255si cameras there is 3.5mm audio output jack that will feed a set of powered speakers such as would be used for a computer. On the NetCamProLive App click the microphone icon when live viewing, talk into the phone's microphone and the sound is routed to the speakers connected to the camera.

The drop down box adjusts the volume. 1 is the softest and 10 is the loudest.

Do not have listening and speaking on at the same time. Just one or the other. The camera does not have a VOX and thus a feedback loop will be created.

This feature is not available on the NCP2475e and NCP2475se cameras.

Camera/Stream Setup



The camera has three streams that operate simultaneously. The Primary Stream provides the highest resolution and bandwidth consumption (~20MB/minute). The Secondary Stream provides a good quality resolution that uses much less bandwidth (~1MB/minute). The user can choose between the Primary and Secondary stream using the NetCamProLive App **Advanced Settings/ Video Quality** function.

The Mobile Stream provides a low quality stream that is not accessible from the NetCamProLive App. See the *URL Streams* section for more info.

Stream Parameters

Each stream has a set of parameters as listed below:

Preset	The preset drop down provides a set of predefined Image Size, Frame Rate, H.264 Bitrate parameters sets from Low Bandwidth to Perfect Bandwidth (highest quality)
Image Size	Drop down of predefined pixel width and height values that give a 16:9 aspect ratio
Frame Rate	Target number of frames per second. Sometimes the camera may exceed this value if the scene is rapidly changing.
H.264 Bitrate	Target bitrate for the H.264 encoder. Sometimes the camera may exceed this value if the scene is rapidly changing.
MJPEG quality	MJPEG stream quality (See *URL Streams* section). 20 is the lowest and smallest file size. 100 is the highest and largest file size.
JPEG snapshot quality	JPEG snapshot quality. 20 is the lowest and smallest file size. 100 is the highest quality and largest file size.
Audio	Drop down of ACC-LC audio codec bit rates from 16kbps to 40kbps. The higher the bit rate the better the audio quality and larger the files.
Authentication	Determines if the Live View main page and the URL Streams (see the URL Streams section) requires a userID and password
Prerecord	Prerecord tells the camera the number of seconds to buffer the stream. This is used with motion detection so that when an event is detected the activity before the event (i.e. prerecord time) is written to the video file. This parameters introduces a delay (of the prerecord time) in live view stream.

URL Streams (rtsp, http, rtmp)

The camera provides 21 different URLs for direct access to a video feed using **rtsp**, **http**, and **rtmp** protocols. The http protocols are understood by browsers. The rtsp and rtmp protocols are understood by video application programs and recording devices.

The HTTP MJPEG stream is the most compatible video stream and can be directly accessed by most browsers and applications like VLC.

The HTTP snapshot stream takes a picture and returns a JPEG image every time it is accessed. Use this URL in an HTML <img> tag on your website to fetch a fresh image from the camera every time the page is loaded.

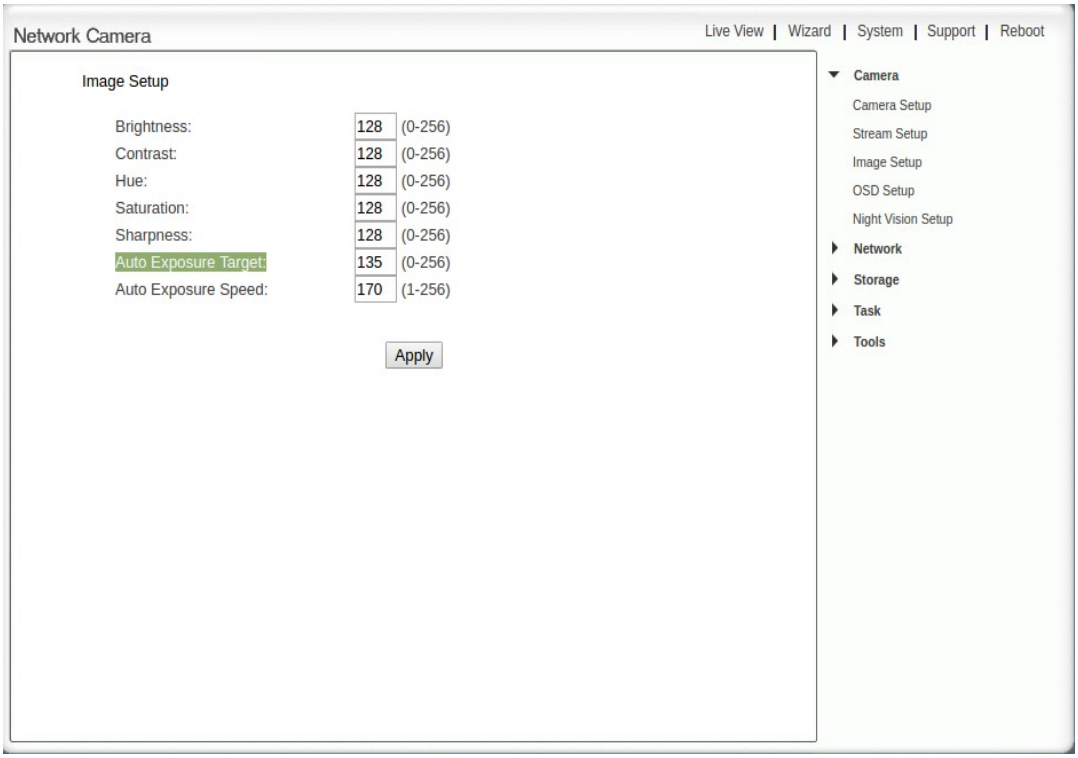
Example: `<img src='http://192.168.0.77:80/live/0/jpeg.jpg' />`

Once an RTSP stream starts it does not shut down if the connection is broken and keeps trying indefinitely. The camera may have to be rebooted in order to use the RTSP service if a previous connection was not terminated properly.

In the list below the example URLs assume that the IP address of the camera is 192.168.0.77 and that the HTTP port is 80.

RTSP H.264 (primary stream)	rtsp://192.168.0.77/live/0/h264.sdp
RTSP MJPEG (primary stream)	rtsp://192.168.0.77/live/0/mjpeg.sdp
RTSP audio (primary stream)	rtsp://192.168.0.77/live/0/audio.sdp
HTTP M3U8 (primary stream)	http://192.168.0.77/live/0/h264.m3u8
HTTP MJPEG (primary stream)	http://192.168.0.77/live/0/mjpeg.jpg
HTTP snapshot image (primary stream)	http://192.168.0.77/live/0/jpeg.jpg
RTMP H.264 (primary stream)	rtmp://192.168.0.77/live/0/h264.flv
RTSP H.264 (secondary stream)	rtsp://192.168.0.77/live/1/h264.sdp
RTSP MJPEG (secondary stream)	rtsp://192.168.0.77/live/1/mjpeg.sdp
RTSP audio (secondary stream)	rtsp://192.168.0.77/live/1/audio.sdp
HTTP M3U8 (secondary stream)	http://192.168.0.77/live/1/h264.m3u8
HTTP MJPEG (secondary stream)	http://192.168.0.77/live/1/mjpeg.jpg
HTTP snapshot image (secondary stream)	http://192.168.0.77/live/1/jpeg.jpg
RTMP H.264 (secondary stream)	rtmp://192.168.0.77/live/1/h264.flv
RTSP H.264 (mobile stream)	rtsp://192.168.0.77/live/2/h264.sdp
RTSP MJPEG (mobile stream)	rtsp://192.168.0.77/live/2/mjpeg.sdp
RTSP audio (mobile stream)	rtsp://192.168.0.77/live/2/audio.sdp
HTTP M3U8 (mobile stream)	http://192.168.0.77/live/2/h264.m3u8
HTTP MJPEG (mobile stream)	http://192.168.0.77/live/2/mjpeg.jpg
HTTP snapshot image (mobile stream)	http://192.168.0.77/live/2/jpeg.jpg
RTMP H.264 (mobile stream)	rtmp://192.168.0.77/live/2/h264.flv

Camera/Image Setup



The Image Setup is used to tune the operation of the image sensor with 7 parameters that take values from from 0 to 255 as follows:

Parameter	*Factory Setting*	*Description*
Brightness	128	Increase to boost overall picture brightness
Contrast	128	Increase to boost picture contrast
Hue	128	Increase/Decrease to change the colour pallet (0:purplish to 128:normal to 255:greenish)
Saturation	128	Decrease to 0 to remove all colour
Sharpness	128	Increase to remove blur
Auto Exposure Target	135	Target average histogram brightness level
Auto Exposure Speed	170	Increase to influence a faster shutter speed

Users very rarely need to change these parameters.

OSD Setup (On Screen Display)

The OSD (On Screen Display) function allows the overlaying of text information in the upper left of all videos and pictures.

Display Date and Time

The date and time is displayed in one of 3 formats:

yy/mm/dd hh:mm:ss	
mm/dd/yy hh:mm:ss	
dd/mm/yy hh:mm:ss	Factory setting

Date/time format is selected using the **Tools / Date & Time** menu option.

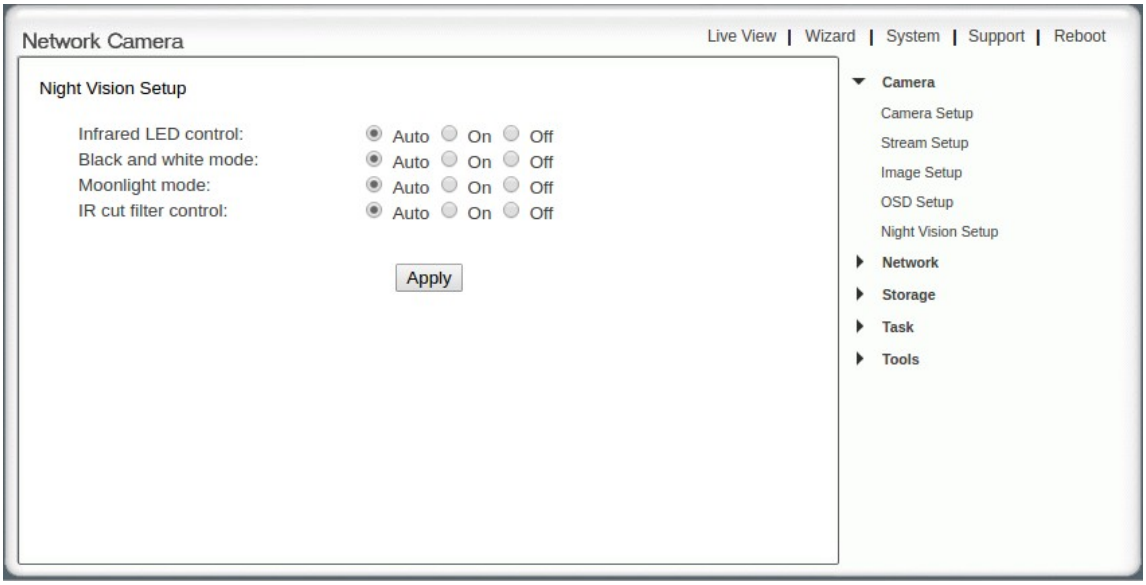
Display System Name

The **System Name** is set using the **Tools / System Identity** menu option.

Display Text

Free form display text (up to 24 char) can be entered in the box provided.

Night Vision Setup



The camera sensor detects visible red, green, and blue light as well as IR. When the ambient light dims to the point where the camera can no longer take pictures without using really long shutter times (resulting in blurry images), night vision is turned on.

In night vision mode the camera turns on the built in LED IR lighting. This appears as a faint red glow to the human eye. However to the IR sensitive sensor in the camera it is very bright and illuminates the scene.

IR photography operates a bit differently since it also responds to heat. A person dressed in dark clothing appears to be wearing light grey in an IR image due to body heat. The same clothing laying on a chair will appear to be dark. The greater the difference in temperature between an object and the ambient temperature the brighter the glow. A person, for example, wearing a T-shirt outside when it is -20 appears to be “on fire”.

If the built in IR illumination is not sufficient to illuminate the scene then auxiliary IR lamps can be deployed. 850nm would be the best wavelength to use.

Infrared LED Control

Using these radio buttons the IR LEDs can be set to turn on **Automatically** (when in night mode), be always **On**, or be turned **Off**. In some cases, where auxiliary IR lamps are used, it is desirable to turn the built in IR LEDs off.

Black and White Mode

IR mode skews the visible light colours which is generally undesirable. Using this function Black and White mode can be **Automatic** (coming on in night mode), always **On** (Black and White images in the day), or always **Off** (skewed colours at night).

Moonlight Mode

Moonlight mode causes the camera to operate in daylight mode with a slower shutter speed when the light dims. Fast moving objects will be a bit blurry, but no IR lighting is used. For scenes illuminated with street lamps or other bright outdoor lighting, moonlight mode generally works well. Sometimes cameras are operated this way with the IR LEDs off to help hide them. The faint red glow of the built in IR lighting can be a tip-off.

With **Automatic** selected, moonlight mode will be used typically during dawn and dusk to extend the time of colour daylight images. Then when it gets too dark for moonlight mode, night vision is turned on.

When Moonlight Mode is **On** night vision is disabled. When Moonlight Mode is **Off** the camera will switch between daylight mode (high shutter speed) and night mode without a transitional through moonlight mode.

IR Cut Filter Control

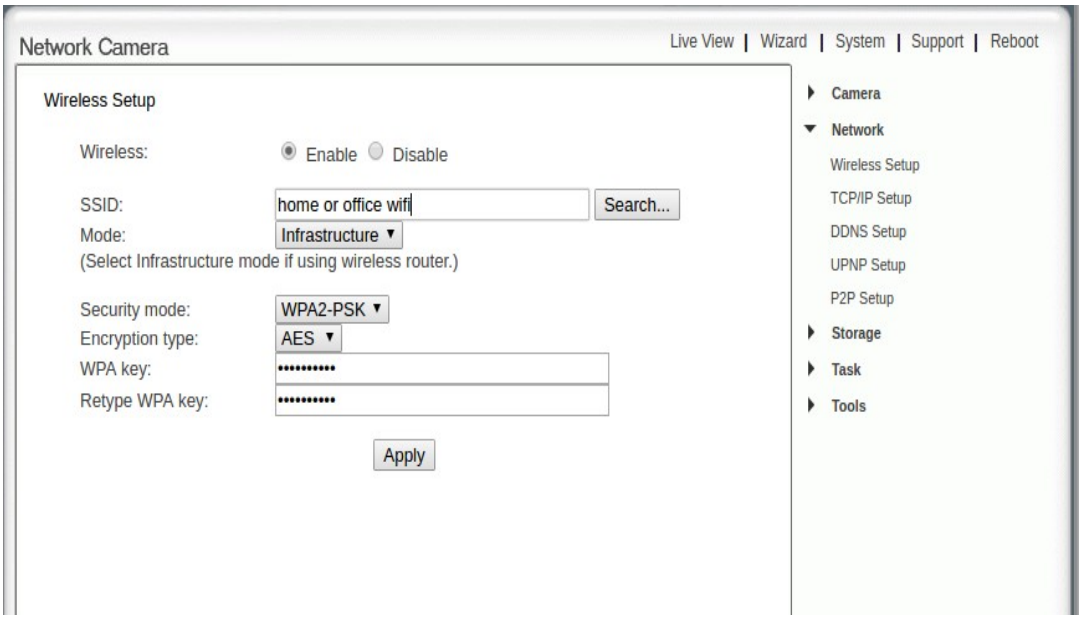
Since the IR light skews the colours, the camera has an IR cut filter - which is a physical optical device that is moved or removed between the lens and the sensor. The IR cut filter blocks all IR light. Thus the camera only “sees” visible light and renders colours properly in daylight mode. The camera makes a click sound when the IR cut filter is moved into place and switched to the side.

In **Automatic** the IR Cut Filter Control removes the IR cut filter in night vision mode and puts it back in place in daylight mode.

If the IR cut filter is set to **Off** the colours in the daylight images will have a purple tint to them.

Network

Wireless Setup

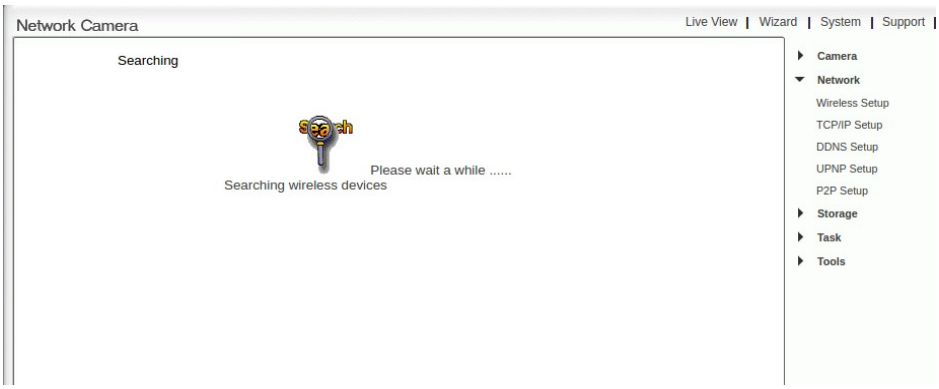


The **Wireless Setup** page is used to enable/disable the camera's Wi-Fi function and to connect a camera to a Wi-Fi network that operates at 2.4Ghz in the B, G, or N bands.

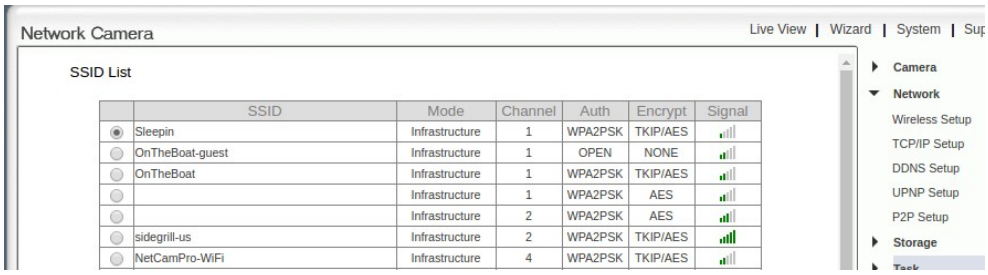
From the factory the Wi-Fi is enabled with an SSID of “wirelessnc” with no security. If you set the hot-spot on your phone in the same way, the NetCamProLive App and the camera will communicate entirely through your hot-spot phone and not use any cellular bandwidth.

Connect to a Wi-Fi Network

To connect to a Wi-Fi network you may enter all the parameters shown if you know what they are, or you can discover the available networks with the “Search” button.

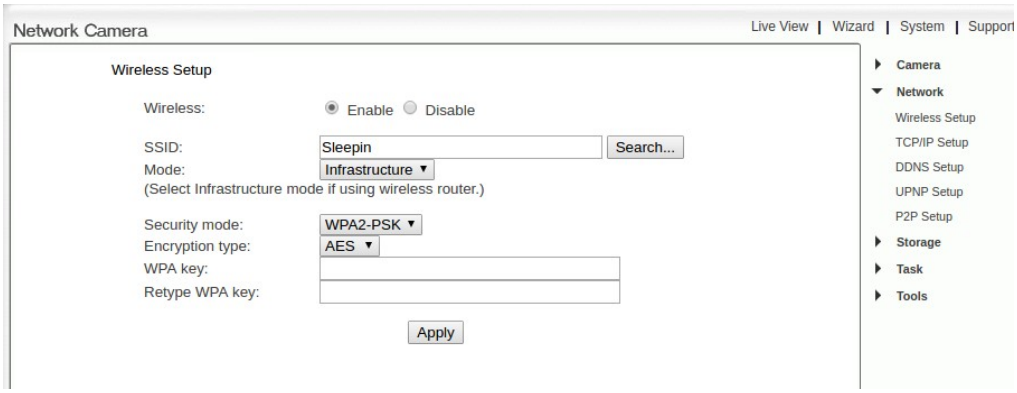


The magnifying glass will move back and forth while the camera scans the air waves for available networks and then will display a list such as this:



	SSID	Mode	Channel	Auth	Encrypt	Signal
◉	Sleepin	Infrastructure	1	WPA2PSK	TKIP/AES	
○	OnTheBoat-guest	Infrastructure	1	OPEN	NONE	
○	OnTheBoat	Infrastructure	1	WPA2PSK	TKIP/AES	
○		Infrastructure	1	WPA2PSK	AES	
○		Infrastructure	2	WPA2PSK	AES	
○	sidegrill-us	Infrastructure	2	WPA2PSK	TKIP/AES	
○	NetCamPro-WiFi	Infrastructure	4	WPA2PSK	TKIP/AES	

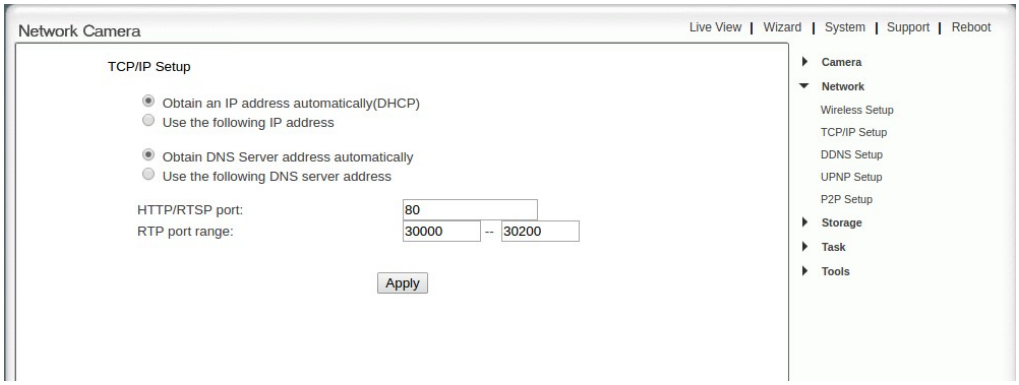
Click the radio button beside the subject network SSID and then click OK at the bottom of the page.



In general the **Mode, Security Mode**, and **Encryption Type** will be pre-set by the Wi-Fi discovery scan. Enter the key (aka: Wi-Fi password) and click **Apply**.

Remove the Ethernet cable from the camera and it should switch to WiFi in about 20 seconds.

TCP/IP Setup

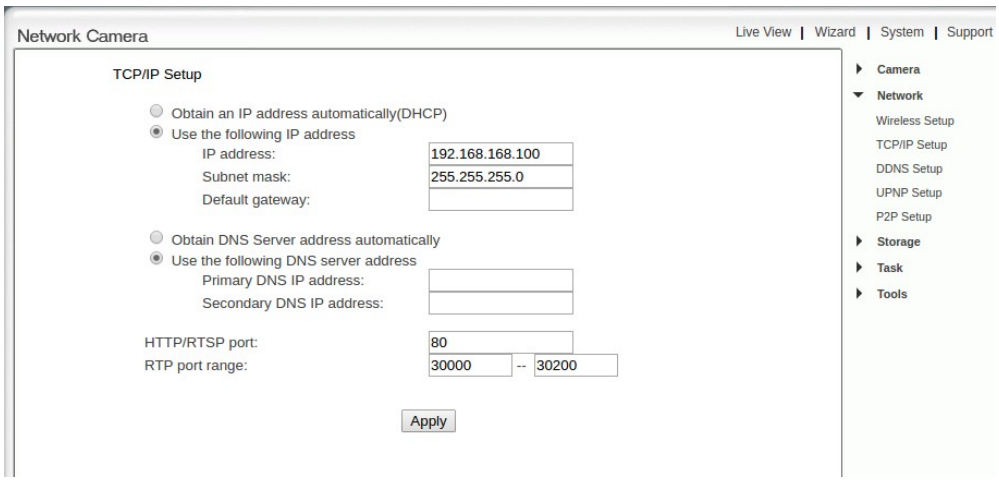


The TCP/IP Setup page is used to configure how the camera will communicate whether it is using Ethernet or Wi-Fi.

DHCP

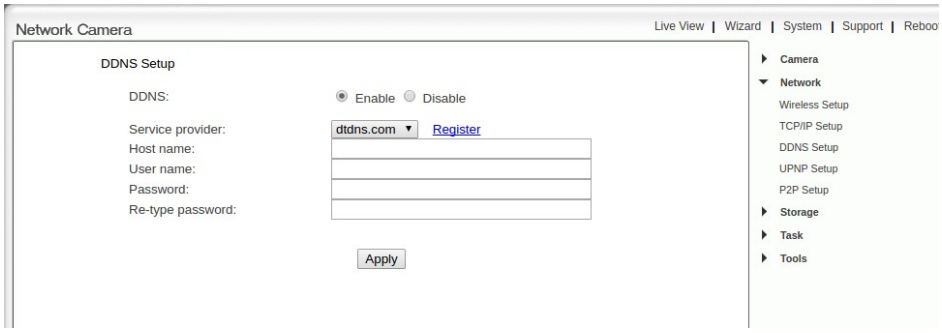
Automatically obtaining an IP address from the DCHP Server (typically the LAN router) is the recommended mode of operation.

If one chooses to use a static IP address then the following additional information is required. Note that if these values are not appropriate for the network environment that the camera is operating in, the camera will become inaccessible. Under these circumstances it will be necessary to factory reset the camera.



IP Address	Static IP address. Camera will configure itself with this LAN address on power up.
Subnet Mask	Bitmask used to filter network traffic IP addresses.
Default Gateway	IP address of Internet gateway. Usually the IP address of the router.
Primary DNS IP Address	Primary DNS server. This info is usually provided by the ISP. “8.8.8.8” is the Google DNS server.
Secondary DNS IP Address	Optional secondary DNS server should the primary be down.

DDNS Setup



DDNS is not required to live view NetCamPro cameras. Cameras and the app find each other through P2P technology. Setting up DDNS and port forwards is only meant for advanced users and special setups.

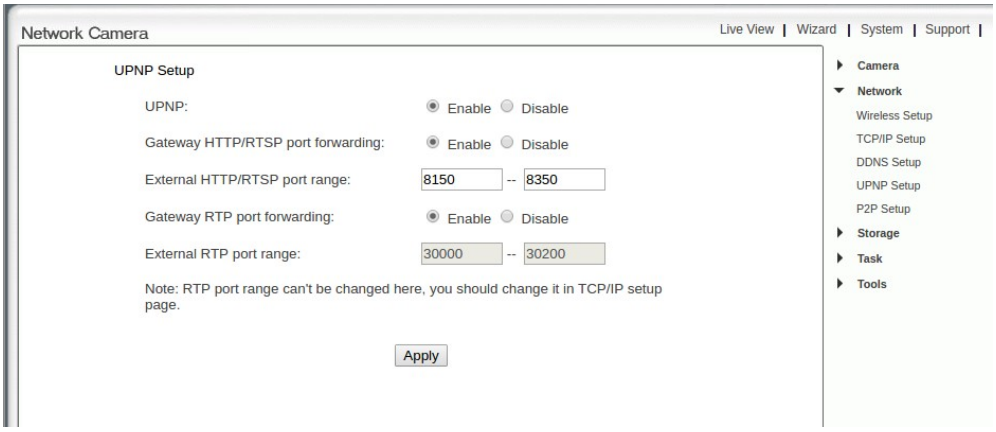
Unless you have been assigned your own static public IP address, your IP address will change from time to time. In order to still be able to access your network by name, DDNS will keep your hostname up to date with your current public IP address.

With your DDNS pointing to your router public IP address, you can create port forwards on your router pointing to your network devices. For example, pointing outside port 8150 to your camera's internal port 80 will let you access the camera's internal admin website from the Internet.

(ext) mydns.dyndns.info:8150 --> (int) 192.168.0.110:80

While this is not needed in standard setups, other more advanced setups might require DDNS and port forwards.

UPNP Setup



UPNP is not required to live view NetCAmPro cameras.

UPNP is a function that automatically negotiates port forwarding with the LAN router. If UPNP is enabled the camera will negotiate a port to the Internet with the router when it powers up. Details of this will be shown on the **UPNP Port Forwarding** section of the **System** page.

While UPNP is save in most cases we recommend turning UPNP off on your camera. To further increase security, UPNP can also be turned off on the router to prevent other network devices from negotiateing opening ports to the Internet.

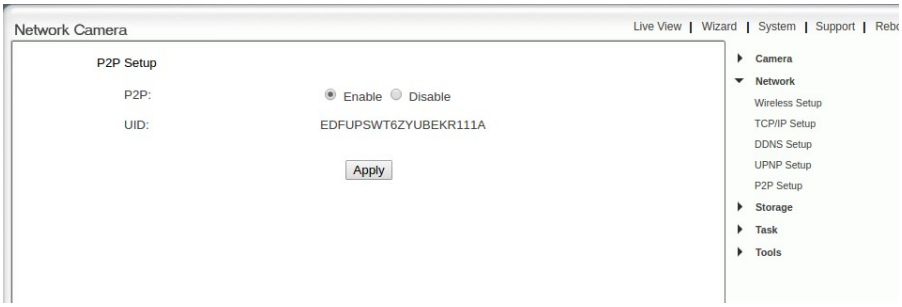
External HTTP/RTSP Port Range

This set of boxes specifies a range of port numbers that the camera will ask for and use for HTTPand RTSP requests. In the case above the camera will first ask the router for public port 8150. If the router refuses (port assigned to another device) then it will try 8151, 8152, ... up to 8350. The results are displayed on the **UPNP** section of the **System** page.

External RTP Port Range

Like the HTTP/RTSP port range, these boxes specify the ports that the camera will ask of the router to use for the RTP protocol. These boxes are read-only and reflect the RTP range specified in the **Network / TCP/IP Setup** page.

P2P Setup



The P2P function makes setting up UPNP, DDNS, and implementing router changes in order to remote view a camera completely unnecessary. When the camera is accessed using the **NetCamProLive App** for iOS and Android or the **NetCamProLive software** for Windows and Mac all routers and gateways are automatically negotiated.

Under the hood, both the camera and the NetCamProLive App connect to a NetCamPro P2P proprietary service at Amazon where, based on the UID, the two are connected. The connection is protected with symmetrical encryption that uses the camera's admin password as the key. The longer this password, the stronger the encryption.

The UID is a 20 digit upper case alphanumeric code that is unique to the camera and cannot be changed. Should the QR code on the camera be lost or become unusable - the UID can be manually entered in place of scanning.

If P2P is turned **Off** access by the NetCamProLive App and NetCamProLive software will be disabled.

Storage

The camera has built-in cyclic storage management functions. Cyclic means that when the media is full the camera automatically deletes the oldest files to make room for the new ones.

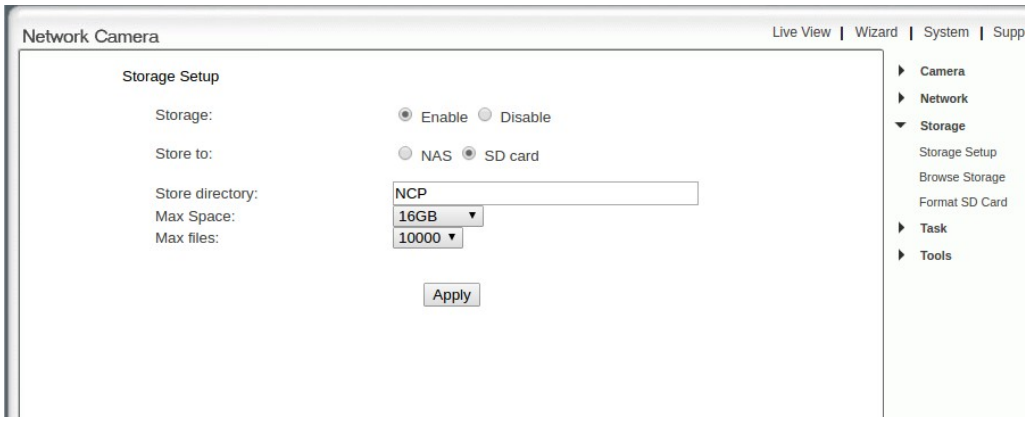
The storage media can be either the built-in micro SD drive **– OR -** an external storage device that uses the SAMBA (Windows File Sharing) protocol.

Media File Types

The camera writes the following file types when instructed to do so by the autonomous functions setup with the **Tasks** menu.

Type	*File Extension*	*Details*
Videos	.mov	Apple Quicktime container with H264 video encoding and AAC-LC audio encoding. 16:9 aspect ratio.
Pictures	.jpg	JPEG encoded still pictures with a 16:9 aspect ratio

Storage Setup (built-in SD)



The camera accepts micro SD chips up to 128GB. Since video is being written, a high speed **class 10** chip must be used. The camera comes with a 16GB chip installed.

Micro SD Capacity

The approximate capacity of a micro SD chip is as follows. The actual amount of data recorded is greatly influenced by the amount of activity. Quiet scenes generate less data. Busy scene generate more.

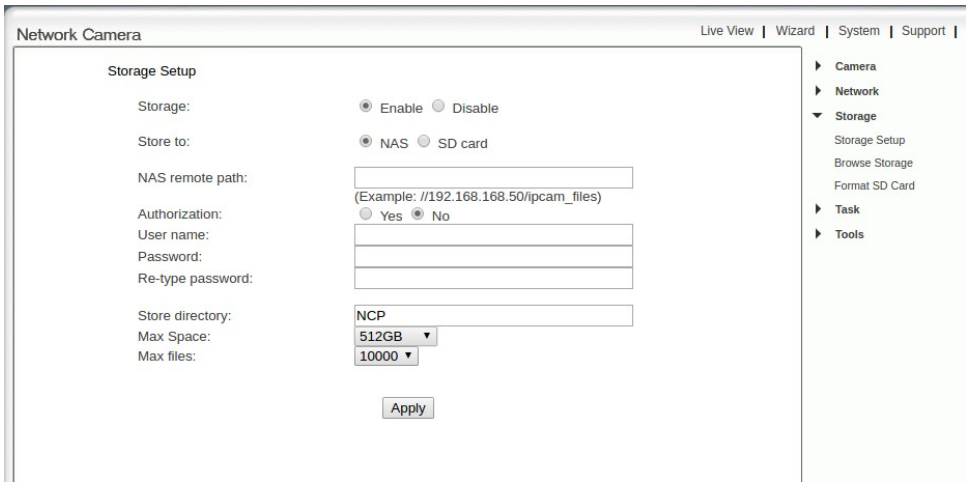
Micro SD Capacity	*HD video record (@20MB/min)*	*SD video record (@1MB/min)*
16GB	13 hours, 20 minutes	11 days, 2 hours, 40 minutes
128GB	4 days, 10 hours, 40 minutes	88 days, 21 hours, 20 minutes

Micro SD Storage Operation

The micro SD must be formatted using FAT32. The files (pictures and videos) are written to the **Store Directory** which is off the root directory of the chip. If the directory does not exist it is created. If **Max Space** or **Max Files** is exceeded the oldest files in the **Store Directory** are removed to make room for the new.

If the micro SD reports that it is full (there may be files in other directories) - even though the space used is less than **Max Space** - the oldest files are removed from the **Store Directory** to make room for the new.

Storage Setup (external NAS)



With the NAS selected the micro SD chip is ignored and the camera's media files are written to the specified SAMBA share.

For detailed instructions (with screen shots) of how to connect a camera to a *Dlink DNS-320L NAS* plewas visit our Documentation at https://www.netcampro.com.

SAMBA setup is pretty straight forward except users should be aware that the camera can only find the NAS using its IP address. The NAS should have a static IP address.

Connect to a Windows File Share

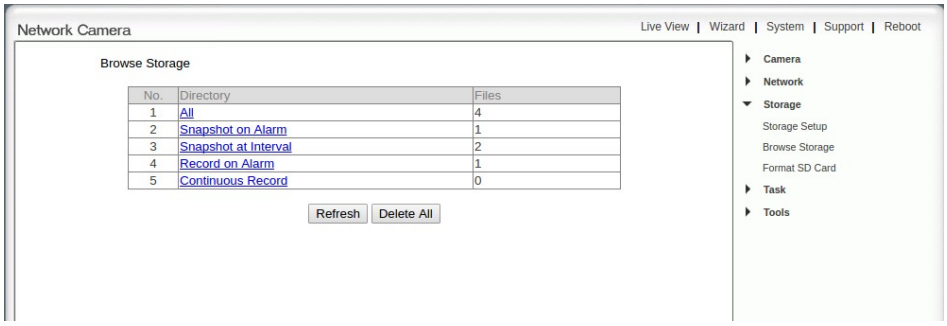
SAMBA is compatible with Windows file sharing. If there is a PC with the following settings:

LAN IP Address	192.168.0.50
Share Name	ipcam_files
Windows User	pat
Windows Screen Unlock Password	sunny99days

Then the **NAS Remote Path** would be **//192.168.0.50/ipcam_files**. (Please make sure to use a forward slash "/" in the sare name.) The **User Name** would be **pat a**nd the **Password** would be **sunny99days**. The camera would create an **NCP** folder and write media files to the file share on the Windows PC.

If **Max Space** or **Max Files** is exceeded the oldest files in the **Store Directory** are removed to make room for the new. If the NAS reports that it is full - even though the space used is less than **Max Space** - the oldest files are removed from the **Store Directory** to make room for the new.

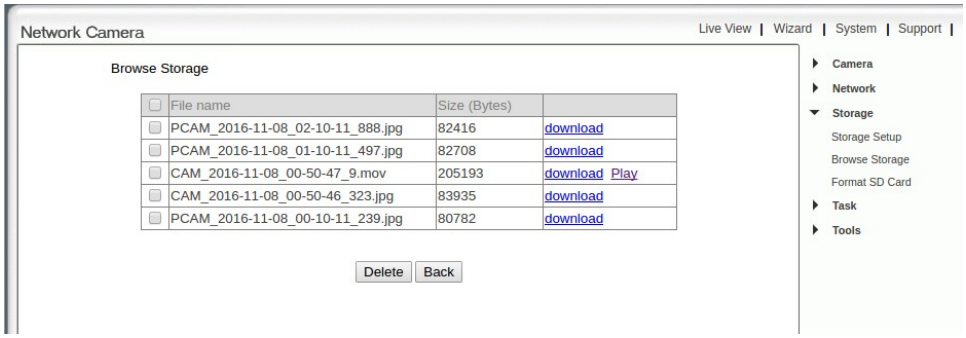
Browse Storage



The **Browse Storage** page is used to view, delete, or download the recorded pictures and videos. The files are managed directly on the built-in micro SD or external NAS depending on the **Storage Setup**. The recorded media is grouped into five categories:

All	Lists all JPG pictures and MOV videos
Snapshot on Alarm	Lists all JPG pictures recorded because of a motion detection event
Snapshot at Interval	Lists all JPG pictures recorded on a configured interval
Record on Alarm	Lists all MOV videos recorded because of a motion detection event
Continuous Record	Lists all MOV videos recorded continuously back-to-back

Files are listed in reverse chronological order.



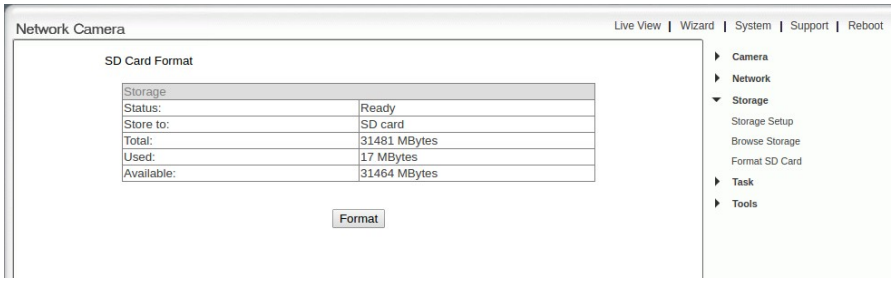
Delete Files

Click the check box beside the files to be deleted. Click the **Delete** button.

Download Files

Click the download link to transmit a copy of the file to your computer. Your browser should offer to save, view, or play the media.

Format SD Card



The **Format SD Card** page is used to erase and test the micro SD using **FAT32** format. After formatting, the page may show that the **SD card is not ready.** Wait 20 seconds and then click the **Browse Storage** menu. After formatting it can take some time for the camera to re-mount the micro SD file system.

Task

The **Task** menus are used to control and configure the local functions of the camera.

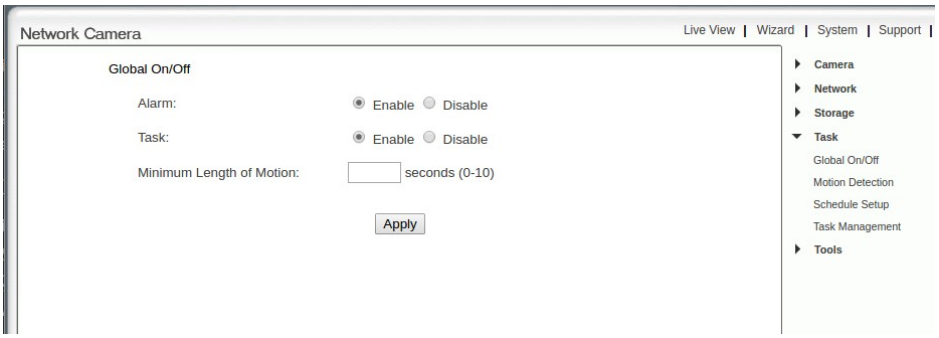
The camera can be set to snap pictures and record videos when motion is detected. Theses files can be sent via email, FTP, or http as well as stored on the micro SD or external NAS.

The camera can be set to snap pictures on an interval.

The camera can be set to record video continuously.

All tasks can be assigned to a schedule and operate at given hours of the day and days of the week.

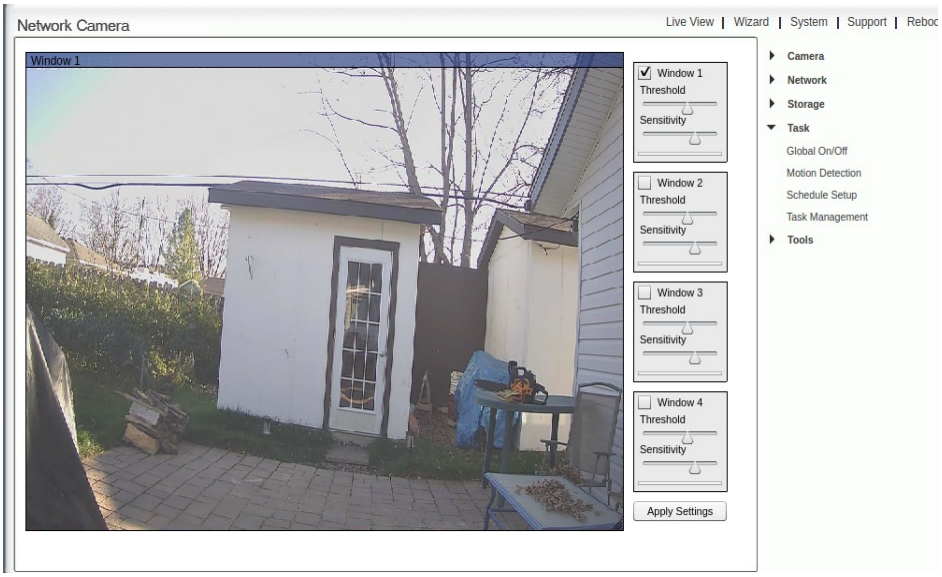
Global On/Off Page



The **Global On/Off** page has controls to turn the Alarm (motion detection) On or Off as well as Enable/Disable all the tasks.

The **Minimum Length of Motion** is an optional field that sets the minimum number of seconds for motion on all alarm functions.

Motion Detection



The **Motion Detection** page is used to tune the alarm function. The camera continuously analyzes the video stream looking for interesting motion and then triggers an alarm. What the camera actually does when an alarm is raised is determined in the **Task Management** section.

The motion detection algorithms used by the camera favour vector motion as opposed to wavering motion. An example of vector motion would be a person walking along a side walk. The camera would see an object moving along a straight line and react quickly. An example of wavering motion would be a tree bending in the wind. The camera will take much longer to raise an alarm.

Users are cautioned that the **Motion Detection** web page does not save properly when the **Apply Settings** button is clicked on all browsers and versions of Flash. Should you save and then upon page reload find that the motion windows and notion settings are messed up, try another browser or computer.

For best results it is recommended to set the motion windows with the NetCamProLive App on iOS or Android devices under **Advanced Setting / Alarm Actions / Alarm Window**.

Internet Explorer 10 and 11 will prompt for a permission to install a plug-in when this page is used. Please install the plugin to start configuring your camera.

Threshold

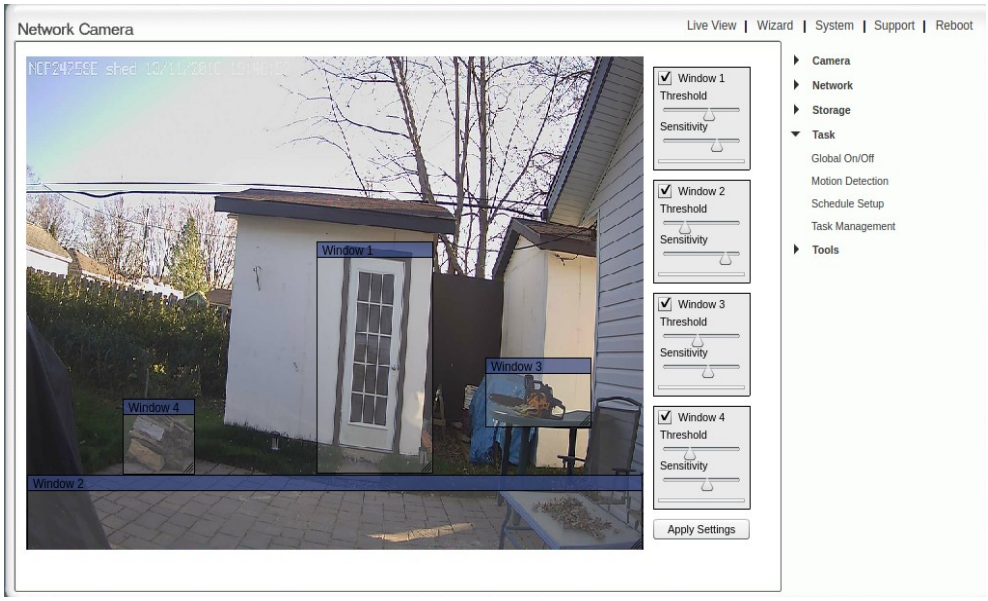
Two numeric parameters control the motion detection algorithm. The first is **Threshold** - which relates to the size of the object. When the threshold is high then only large objects (eg. a vehicle) will be detected. When the threshold is low then both large and small objects (eg. a vehicle or a cat) will be detected.

From the camera's point of view an object is large when it dominates the scene. So, for example, a truck driving down the highway from a long distance will not be considered large until it gets close to the camera and takes up the scene.

Sensitivity

The second motion detection control parameter is **Sensitivity**. This parameter determines the amount of activity needed to trigger a motion event. With the sensitivity set higher, smaller amounts of motion will trip an alarm. When the sensitivity is lowered, more activity is needed to detect motion.

Alarm Windows



There are four rectangular alarm windows that tell the camera where to look for motion and then raise an alarm. From the factory only **Window 1** is turned on and it covers the entire scene. If more than one alarm window is turned on, then motion detected in any of them will trigger an alarm event.

The camera favours vector motion. That is objects moving along a line. It is less reactive to wavering motion, such as a tree bending in the wind.

To re-size an alarm window click-and-drag on the cross-hatched triangle in the lower right of the alarm window.

To move an alarm window click-and-drag the blue bar at the top of the alarm window.

To increase the **Threshold** click-and-drag the slider to the right. Click-and-drag to the left to decrease the threshold.

To increase the **Sensitivity** click-and-drag the slider to the right. Click-and-drag to the left to decrease the sensitivity.

Use the check boxes **Window 1, Window 2, Window 3,** or **Window 4** to enable and disable an alarm window. When an alarm window is disabled the threshold and sensitivity settings are retained for when it is re-enabled.

When all the changes have been made click the **Apply Settings** button to save.

Motion Detection Tuning

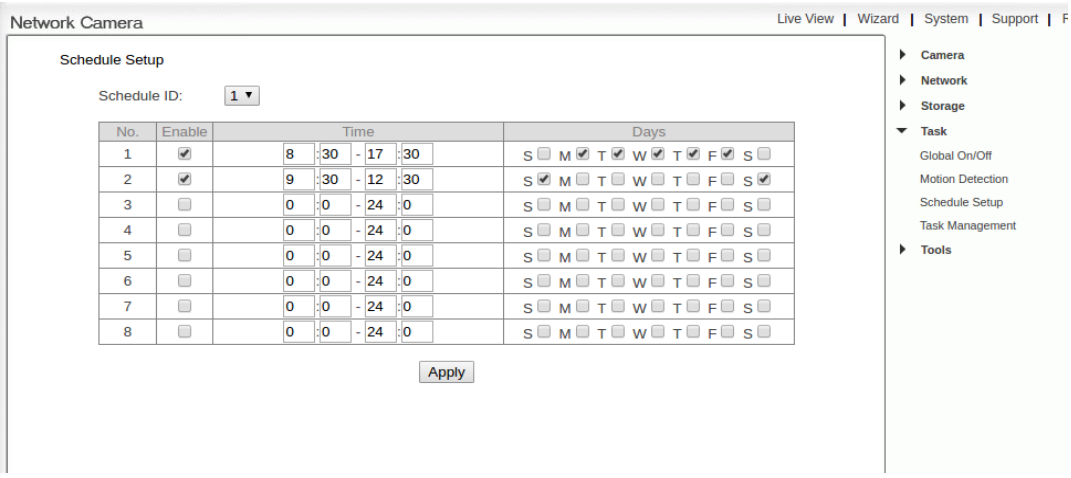
Getting motion detection to work involves small incremental changes done on a daily basis during the tuning period. The camera must be securely mounted since if it is moved after motion detection has been set-up the windows will not longer be trained on the desired portions of the scene.

While the **Motion Detection** page can only be accessed from the same LAN as the camera, remote adjustments can be easily accomplished using the NetCamProLive App.

Here is a guide to motion detection alarm tuning:

Too many motion events	1) if small objects (eg. small animals) are triggering motion then increase the threshold so that only larger objects will trigger 2) if wavering trees are triggering motion then decrease the sensitivity so that more activity is required 3) use motion windows to block off nuisance areas of the scene such as background traffic
Not enough motion events	1) increase sensitivity 2) decrease threshold
Missed events	Ensure alarm windows are covering areas of the scene that would be triggered by the missing event.

Schedule Setup



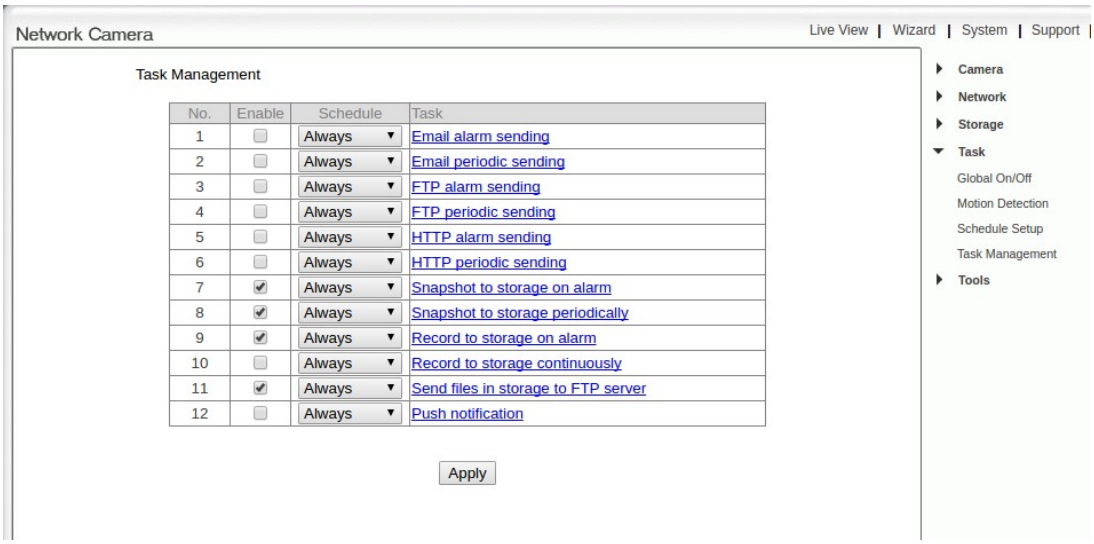
There are up to four schedules that can be applied to the tasks. The schedules have IDs 1, 2, 3, or 4 as selected by the drop down. Under the **Tasks Management** section a schedule (1, 2, 3, or 4) can be applied to a given task.

Each schedule has up to eight day parts. The start hour/minute and end hour/minute for each day part is entered in the boxes under **Time**. Click the days of the week that the day part applies to under **Days**.

In the above screen shot any task that is assigned to **Schedule 1** will operate Monday to Friday 830AM to 530PM as well as Saturday and Sunday from 930AM to 1230PM.

Click **Apply** to save.

Task Management



The **Task Management** page is the main control panel of the camera's autonomous functions. There are 12 different tasks that operate independently and concurrently as listed below.

For example, if there are 3 tasks enabled that are run when an alarm is raised (aka: motion detected), then all 3 tasks are started at the same time. Failure of one or more tasks does not effect the other tasks.

No.	*Name*	*Description*
1	Email alarm sending	Camera sends an email with picture(s) attached when an alarm (motion detection) is raised
2	Email periodic sending	Camera sends an email with picture(s) attached on a periodic basis
3	FTP alarm sending	Camera sends a picture, using FTP, when an alarm (motion detection) is raised
4	FTP periodic sending	Camera sends a picture, using FTP, on a periodic basis
5	HTTP alarm sending	Camera sends an HTTP or HTTPS message when an alarm (motion detection) is raised
6	HTTP periodic sending	Camera sends an HTTP or HTTPS message on a periodic basis

7	Snapshot to storage on alarm	Camera writes a picture to the built-in micro SD or attached NAS when an alarm (motion event) is raised
8	Snapshot to storage periodically	Camera writes a picture to the built-in micro SD or attached NAS on a periodic basis
9	Record to storage on alarm	Camera writes a video file (with sound) to the built-in micro SD or attached NAS when an alarm (motion event) is raised
10	Record to storage continuously	Camera writes back-to-back video files (with sound) to the built-in micro SD or attached NAS continuously
11	Send files in storage to FTP server	Camera sends picture and video files that are written to the built-in micro SD or attached NAS to an FTP server (local or remote). Once a file is successfully sent it is deleted from local storage. (aka: Store-and-Forward)
12	Push notification	Camera sends “push alerts” to devices that are running the NetCamProLive App.

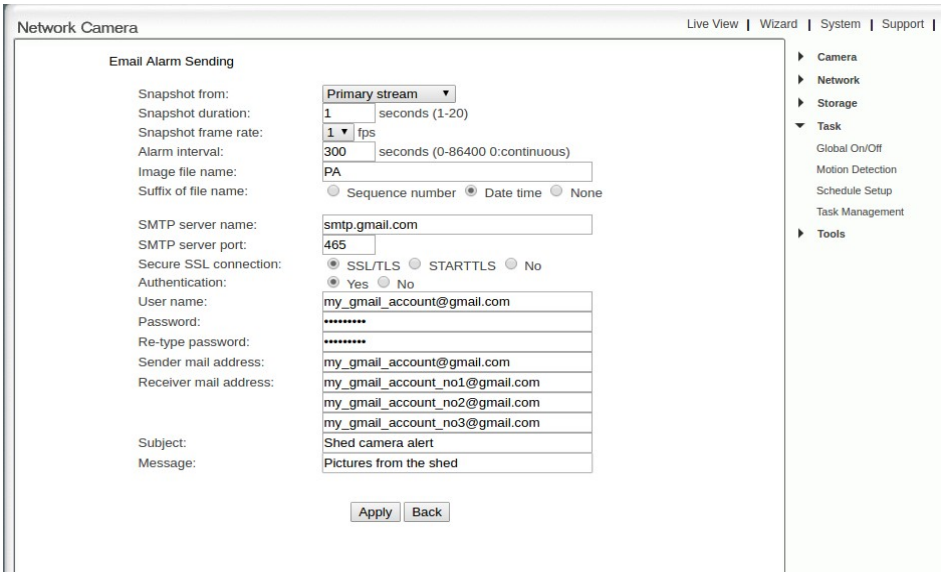
If a task is **Enabled** it will run during the times and days of the week specified in the selected **Schedule** (1, 2, 3, or 4). A schedule assignment of **Always** means the task runs 7x24.

When **Enable** is checked/unchecked or the **Schedule** is changed, the **Apply** button must be clicked to Save.

Each task has a link in the **Task** column to its respective setup page.

After saving a task setup and returning to the **Task Management** page, the **Enable** check-box must be checked and the **Apply** button clicked for the task to run.

Email alarm sending



The **Email Alarm Sending** page is used to configure the camera to send emails, with picture(s) attached, when an alarm motion event is raised. While this camera function does have its applications, users are urged to consider using the *cloud mode email alerts* instead. Cloud mode email alerts are more sophisticated than the camera's **Email Alarm Sending** function.

When the **Email Alarm Sending** function is activated the camera directly sends email alerts acting as an email client application like Outlook or Thunderbird. Users should consider that this function can be quite annoying. If there are a lot of unexpected motion events the receiver's in-box can overflow. The cloud email alert function, on the other hand, addresses this issue with a button to turn alerts on or off from within the email program.

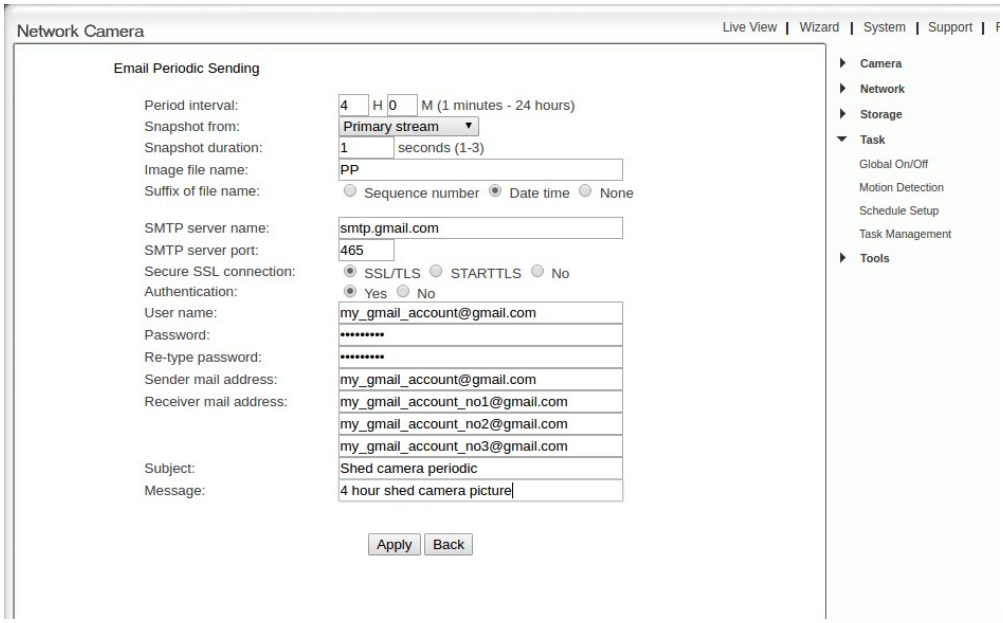
The parameters for Email Alarm Sending are as follows:

Snapshot from	**Primary Stream**: HD quality image (larger file size) **Secondary Stream**: standard quality image (smaller file size) see the **Camera / Stream Setup** page for details
Snapshot duration	When the alarm triggers, this is the amount of time during which pictures will be taken at the **Snapshot Frame Rate**
Snapshot frame rate	Number of pictures per second to snap for the given **Snapshot Duration**. For example if the **Snapshot Duration** is 3 seconds and the **Snapshot Frame Rate** is 4 frames per second then 12 pictures will be taken.

Alarm interval	This is the minimum amount of time between email alerts in seconds. 300 = 5 minutes, 3600 = 1 hour, 86400 = 1 day. If this is set to 0 then the camera can send a crazy number of emails if there is a lot of activity.
Image file name	The name of the image file which will be suffixed with .JPG
Suffix of file name	An optional suffix to the **Image File Name**. Including the date/time is recommended. In the screen shot above the files will be named: **PA**_*YYYY-MM-DD_HH-MM-SS_ms*.**JPG** *ms: milliseconds as 1, 2, or 3 digits*
SMTP server name	Outgoing email server name
SMTP server port	TCP/IP port that the email server listens on
Secure SSL connection	SSL/TLS, STARTTLS, or no encryption. This setting must match the SMTP server settings.
Authentication	Yes – authentication required (typical setting)
User name	Email account login user name. Usually the email address.
Password	Email account password. Case sensitive.
Sender mail address	Usually the same as the **User Name**
Receiver mail address	Up to 3 email addresses to receive the email alert
Subject	Email subject line
Message	Text in the body of the email

Note that the camera does not report any errors if the server credentials are not valid. Best to test the credentials out in an email application like Outlook or Thunderbird.

Email periodic sending

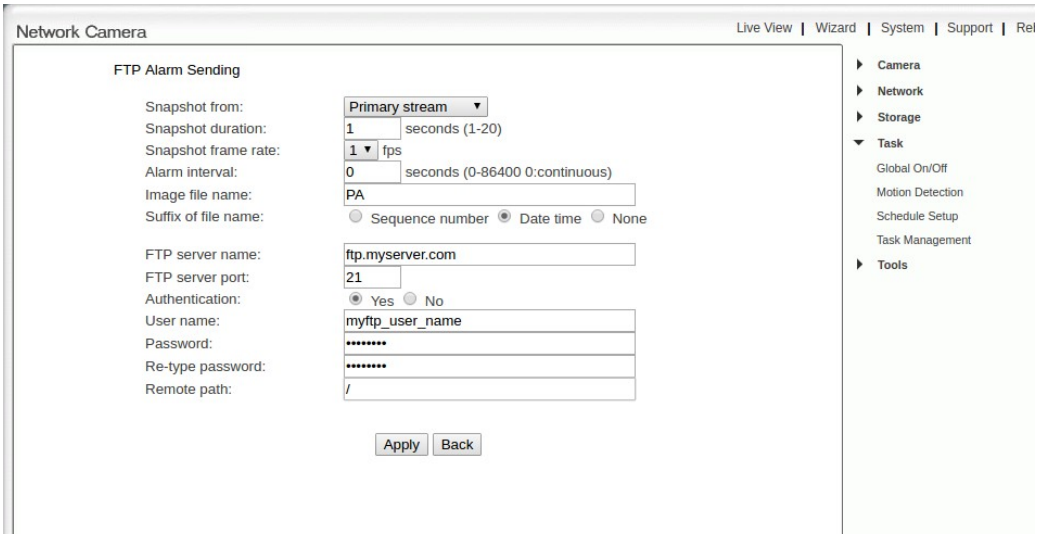


Email Periodic Sending is much like **Email Alarm Sending** except 1, 2, or 3 pictures are attached to an email and sent on the specified interval. In the above screen shot, one picture will be sent every four hours.

The **Snap Shot Duration** specifies the time, after the alarm is triggered, that pictures are snapped at a hard-coded one frame per second rate.

The email addresses and credentials can be completely different than **Email Alarm Sending**.

FTP alarm sending



The **FTP Alarm Sending** page is used to configure the camera to send picture(s) using FTP when motion detection is triggered.

The FTP server can be a local or remote device. The server name can be a domain name or IP address. The camera will automatically determine if active or passive mode needs to be used. If the FTP server is full or otherwise fails, the FTP operation fails silently.

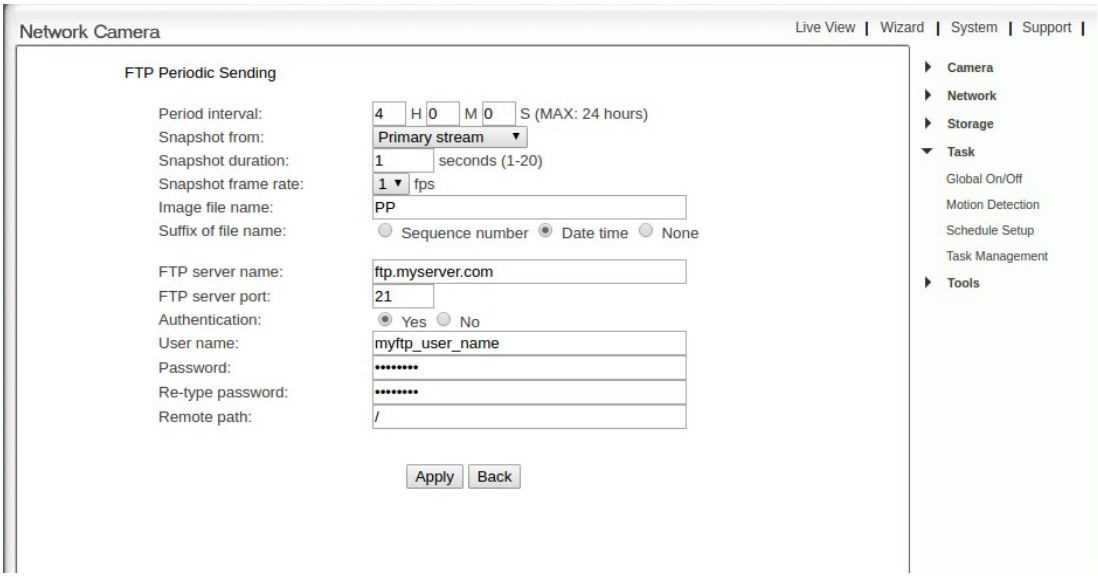
Tip: If you are setting up a remote FTP server that is behind a router/firewall be aware that there are special “IP address substitution rules” when port forwarding the FTP protocol. Many routers have this functionality built-in and silently activate it when port 21 is used. So if the camera is not able to connect to a server that is on port forward that is not port 21, switching to port 21 may fix the problem.

The parameters for **FTP Alarm Sending** are as follows:

Snapshot from	**Primary Stream**: HD quality image (larger file size) **Secondary Stream**: standard quality image (smaller file size) see the **Camera / Stream Setup** page for details
Snapshot duration	When the alarm triggers this is the amount of time during which pictures will be taken at the **Snapshot Frame Rate**
Snapshot frame rate	Number of pictures per second to snap for the given **Snapshot Duration**. For example if the **Snapshot Duration** is 5 seconds and the **Snapshot Frame Rate** is 2 frames per second then 10 pictures will be taken.

Alarm interval	This is the minimum amount of time between FTP sending in seconds. 300 = 5 minutes, 3600 = 1 hour, 86400 = 1 day. If this is set to 0 then the camera will send image(s) everytime a motion alarm is raised.
Image file name	The name of the image file which will be suffixed with .JPG
Suffix of file name	An optional suffix to the **Image File Name**. If **None** is chosen a single file will be repeatedly overwritten. Including the date/time is recommended. In the screen shot above the files will be named: **PA**_*YYYY-MM-DD_HH-MM-SS_ms*.**JPG** *ms: milliseconds as 1, 2, or 3 digits*
FTP server name	Domain name of the FTP server or an IP address
FTP server port	Normally port 21
Authentication	Normally Yes
User name	FTP account user name
Password	FTP account password
Remote path	Sub-directory, into which, to write files. This sub-directory must exist or the operation will silently fail. On some FTP NAS devices the **Remote Path** is a share name that the user can write files to.

FTP periodic sending

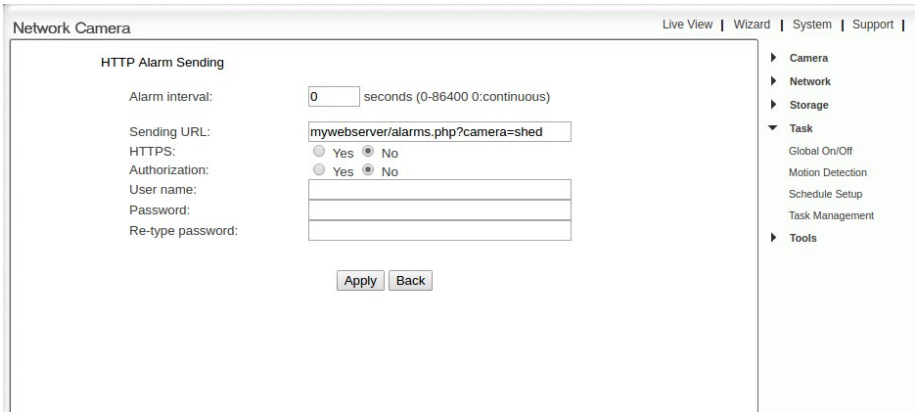


FTP Periodic Sending is much like **FTP Alarm Sending** except picture(s) are sent on a periodic basis from 1 second to 24 hours.

The **Snapshot Duration** specifies the number of seconds during which the camera will record still pictures at the **Snapshot Frame Rate**. The **Snapshot Frame Rate** specifies the number of pictures per second to take. So if the **Snapshot Duration** is 4 seconds and the **Snapshot Frame Rate** is 2 frames per second then 8 pictures will be taken on a periodic basis.

The FTP server parameters can be completely different than those used with **FTP Alarm Sending** and **Send Files in Storage to FTP Server**.

HTTP alarm sending

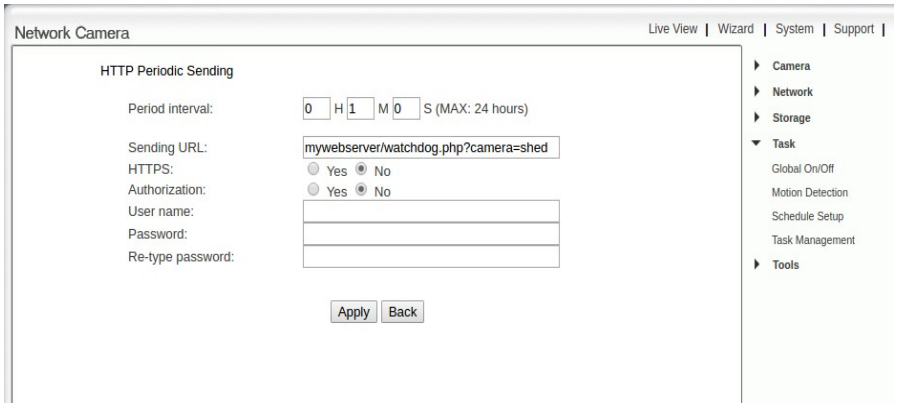


HTTP Alarm Sending is used to configure the camera to send an HTTP or HTTPS message whenever an alarm is raised. No media files are attached to the message which is purely intended to indicate that an alarm has been raised. This message would typically be used by the receiving web server to turn on lighting, send an email, or send a text message.

The parameters are as follows:

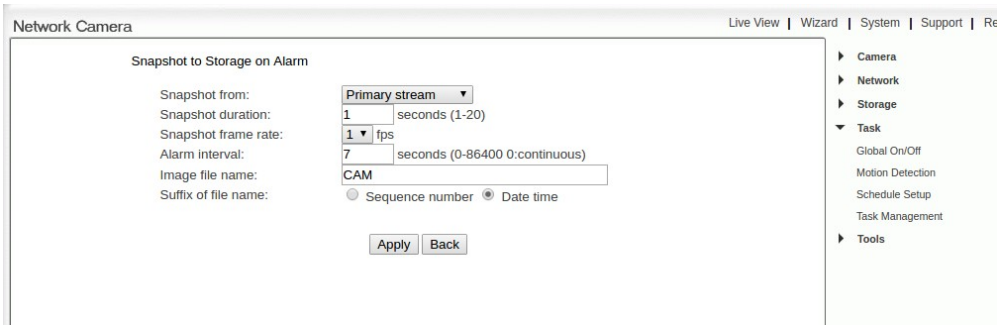
Alarm interval	Minimum seconds between messages
Sending URL	Domain name and parameters without the http:// or https:// prefix
HTTPS	Use HTTPS instead of HTTP
Authorization	If Yes then “HTTP Basic Authentication” is used. If the above URL is entered into a browser, the user should be prompted with a pop-up box for credentials.
User name	HTTP user name
Password	HTTP password

HTTP periodic sending



HTTP Periodic Sending is much like **HTTP Alarm Sending** except a message is sent on a periodic basis. This function is typically used as a watch-dog self test to indicate (in real time) that the camera is operational and has an Internet connection.

Snapshot to storage on alarm



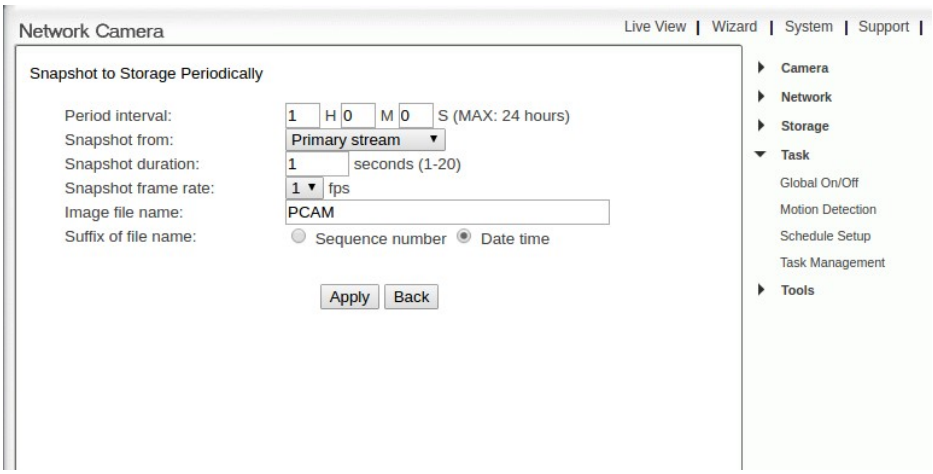
The **Snapshot to Storage on Alarm** task causes the camera to write picture(s) to storage, which is either the built in micro SD or an external NAS (as per **Storage / Storage Setup**).

Storage is managed automatically by the camera in a cyclic fashion. If the device is full then, the camera will automatically delete the oldest files to make room for the new files.

The parameters for **Snapshot to Storage on Alarm** are as follows:

Snapshot from	**Primary Stream**: HD quality image (larger file size) **Secondary Stream**: standard quality image (smaller file size) see the **Camera / Stream Setup** page for details
Snapshot duration	When the alarm triggers this is the amount of time during which pictures will be taken at the **Snapshot Frame Rate**
Snapshot frame rate	Number of pictures per second to snap for the given **Snapshot Duration**. For example if the **Snapshot Duration** is 3 seconds and the **Snapshot Frame Rate** is 1 frames per second then 3 pictures will be taken.
Alarm interval	This is the minimum amount of time between FTP sending in seconds. 300 = 5 minutes, 3600 = 1 hour, 86400 = 1 day. If this is set to 0 then the camera will send image(s) everytime a motion alarm is raised.
Image file name	The name of the image file which will be suffixed with .JPG
Suffix of the file name	An optional suffix to the **Image File Name**. If **None** is chosen a single file will be repeatedly overwritten. Including the date/time is recommended. In the screen shot above the files will be named: **CAM**_*YYYY-MM-DD_HH-MM-SS_ms*.**JPG** *ms: milliseconds as 1, 2, or 3 digits*

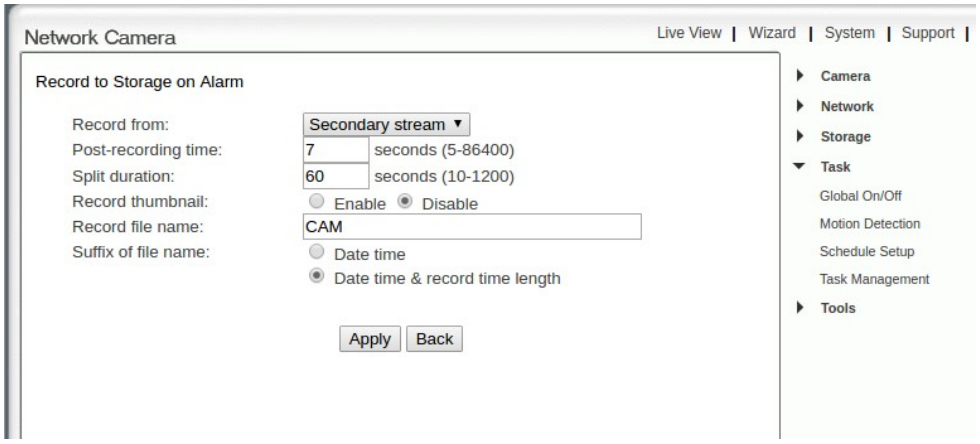
Snapshot to storage periodically



Snapshot to Storage Periodically is much like **Snapshot to Storage on Alarm** except picture(s) are written to storage on the given interval from 1 second to 24 hours. Storage is either the built in micro SD or an external NAS (as per **Storage / Storage Setup**).

Storage is managed automatically by the camera in a cyclic fashion. If the device is full then, the camera will automatically delete the oldest files to make room for the new files.

Record to storage on alarm



Record to Storage on Alarm writes video clips (with sound) to storage, which is either the built in micro SD or an external NAS (as per **Storage / Storage Setup**).

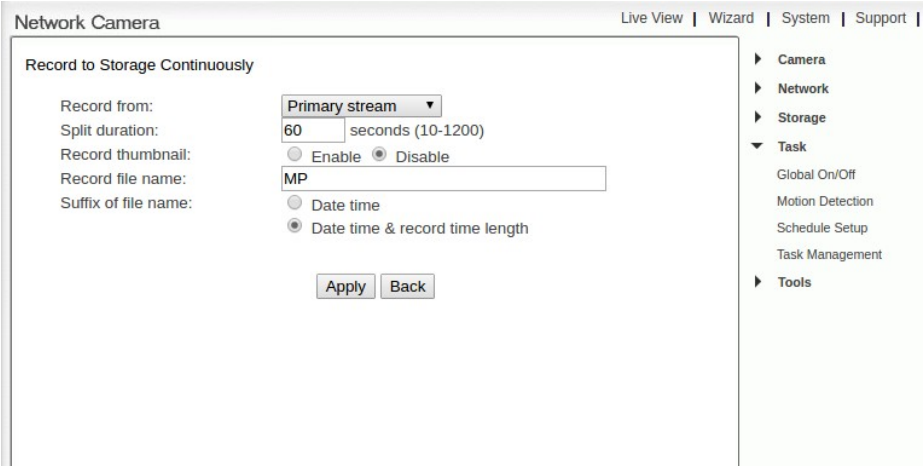
Storage is managed automatically by the camera in a cyclic fashion. If the device is full then, the camera will automatically delete the oldest files to make room for the new files.

Video files are written using the **Apple Quick-time** container with the **H264 codec** and have a file extension of **.MOV**

The **Record to Storage on Alarm** parameters are as follows:

Record from	**Primary Stream**: HD quality image (~20MB/min) **Secondary Stream**: standard quality image (~1MB/min) see the **Camera / Stream Setup** page for details
Post-recording time	Minimum recording time - even if the alarm fires just once
Split duration	Maximum recording time. If the alarm keeps signalling that there is motion, the camera will keep recording up to the **Split Duration**. At this point the camera will start a new file.
Record thumbnail	If enabled the camera will also write a thumbnail file.
Record file name	The name of the video file which will be suffixed with .MOV
Suffix of file name	Select date/time or date/time/duration. In the screen shot above the video file name will be: **CAM**_*YYYY-MM-DD_HH-MM-SS_s*.**MOV** Where "*s*" is 1, 2, 3, or 4 digits that represents the length of the video file in seconds.

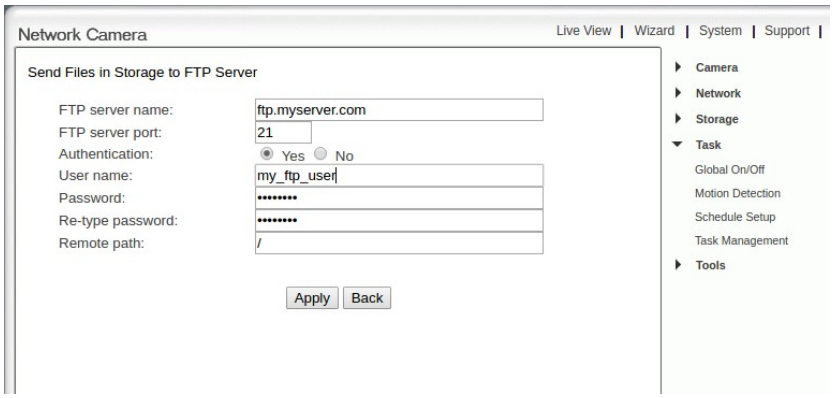
Record to storage continuously



Record to Storage Continuously is much like **Record to Storage on Alarm** except the camera writes video files back to back, regardless if there is motion or not.

Recording from the **Primary Stream** will use about **30GB/day** and the **Secondary Stream** usage is about **1.5GB/day**.

Send files in storage to FTP server



The **Send Files in Storage to FTP Server** task is used to transfer pictures and videos from storage (built-in mico SD or attached NAS) to an FTP server. Once a file is successfully copied to the FTP server it is then deleted from storage. In effect this task acts as a store and forward function.

Unlike the **FTP alarm sending** and **FTP periodic sending** tasks that will drop files if there is no connectivity, the **Send Files in Storage to FTP Server** task will retry indefinitely to transfer files.

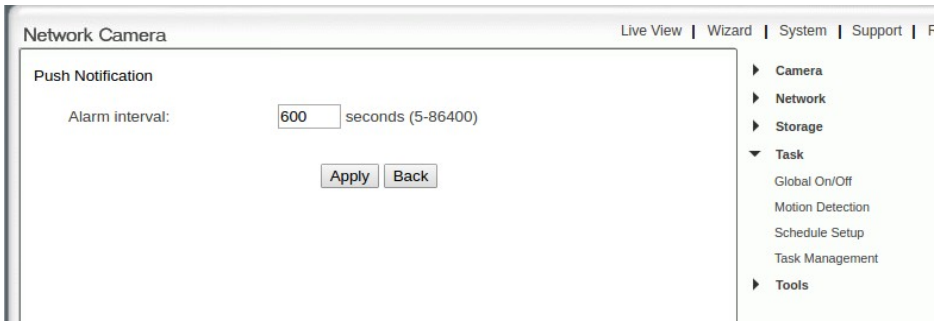
If the camera cannot connect to the FTP server it will sleep between retries to prevent thrashing the network. Once connectivity is restored, the resumption of file transferring starts right away.

The FTP server parameters can be completely different than those used with **FTP Alarm Sending** and **FTP Periodic Sending**.

The parameters for the **Send Files in Storage to FTP Server** task are as follows:

FTP server name	Domain name of the FTP server or an IP address
FTP server port	Normally port 21
Authentication	Normally Yes
User name	FTP account user name
Password	FTP account password
Remote path	Sub-directory, into which, to write files. This sub-directory must exist or the operation will fail. On some FTP NAS devices the **Remote Path** is a share name that the user can write files to.

Push notification



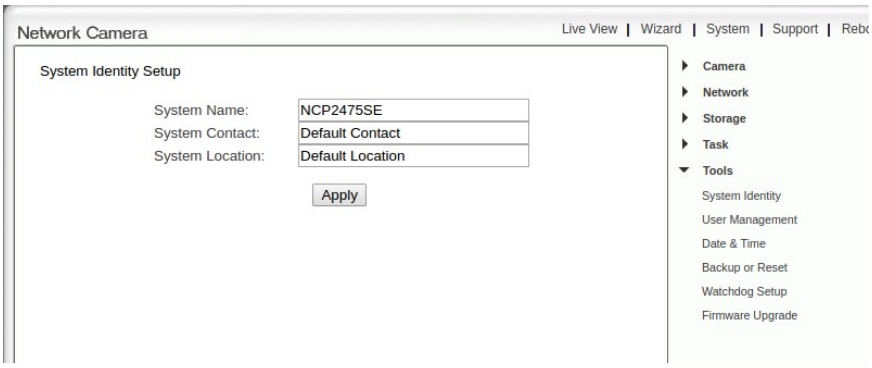
Push Notification is a service for devices that are running the **NetCamProLive App** on an iOS or Android device. When **Push Notifications** are enabled on both ends then the device will make a sound similar to receiving a text message when a motion alarm is raised.

This feature is not officially supported as due to various versions of iOS and Android operating systems it is not compatible with all devices. It generally works with newer iOS devices.

On iOS, when the NetCamProLive App is installed, the user is asked for permission to allow push alerts. If you are not sure if this question was answered yes or no and push alerts are not working you will need to uninstalled and re-install the NetCamProLive App.

Tools

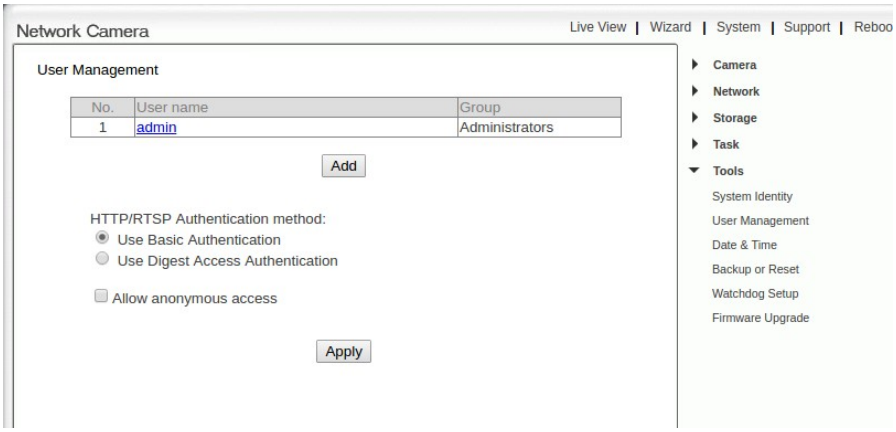
System Identity



The System Identity page allows users to change the camera's identity as follows:

System Name	Network name of the camera. This value can also be included in the OSD (see **Camera/OSD**)
System Contact	Info only displayed on this screen
System Location	Info only displayed on this screen

User Management

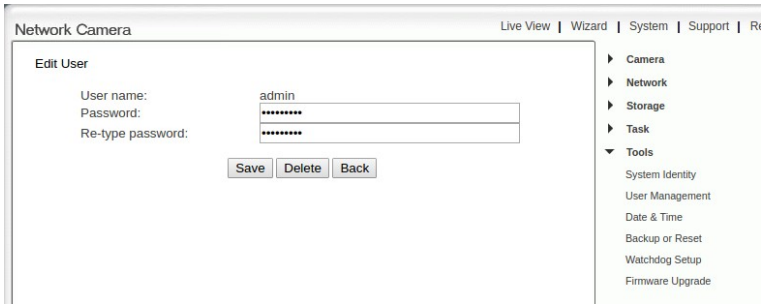


The **User Management** screens are used to manage the credentials for accessing the camera.

Add/remove users

The camera has one master user “admin” which is the only user that can make changes to the camera's configuration. All other users added will have view-only permission. User names and passwords can be used for the camera's internal Admin Website, the NetCamProLive App for iOS and Android, or the NetCamProLive software for Windows and Mac.

Change passwords



Click the user's name to navigate to the Edit User page. Enter a new password twice and click Save.

While the old password is neither required or revealed.

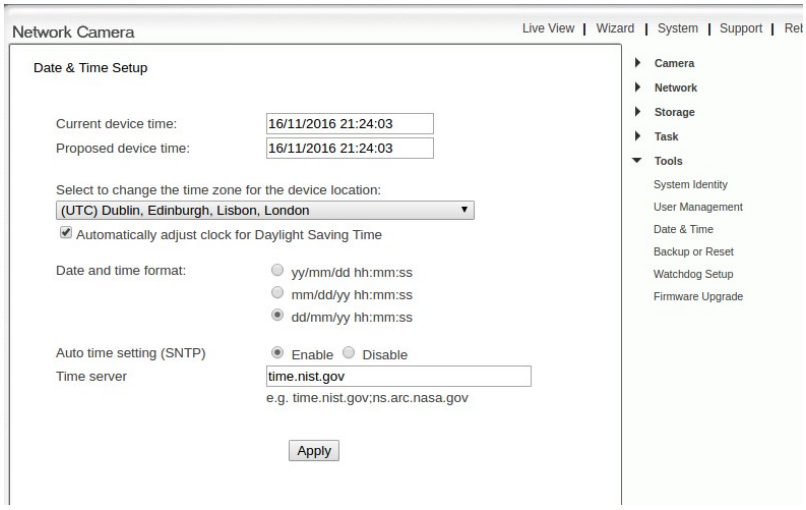
Set the Authentication Method

Basic Authentication is the factory default and compatible with the most browsers.

Allow Anonymous Access

Check the Anonymous access box to give read-only access to any device that connects to the camera. This is usually only appropriate if the camera is only accessible on a secure LAN and not accessible on the public Internet.

Date & Time



The camera has a built in calendar and clock, but there is no battery backup. When the camera is powered up the date is set to either December 31, 1969 or January 1, 1970 depending on the time zone. The clock is started at midnight.

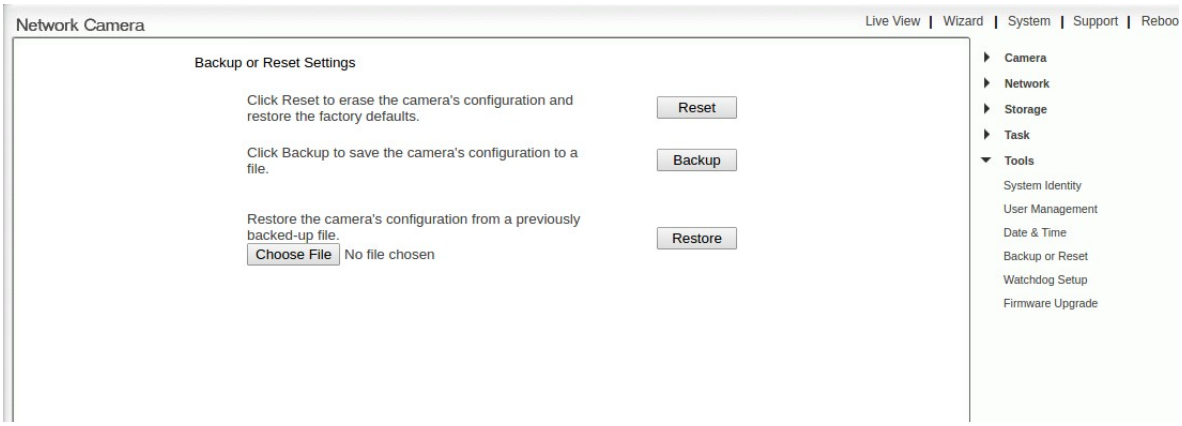
If **Auto Time Setting** is enabled (normal operation) the camera will connect to the specified T**ime Server** and get the correct time. There may be a brief time, after the camera is powered up, where it writes files with a 1969/1970 time stamp as it has not been able to connect to the **Time Server**.

If **Auto Time Setting** is disabled then the user can enter the date/time in the **Proposed Device Time** box and click **Apply** to update the clock. In this mode, if the power is lost, the camera will revert to 1969/1970.

The user can select the appropriate time zone and whether or not daylight savings time applies using the drop down box. The camera determines when to actually apply daylight savings time by querying the **Time Server**. The default timezone is UTC (England).

The **Date and Time Format** sets how the date and time are displayed on the camera's admin website. This settings does not change how the camera encodes the date and time into a file name suffix.

Backup or Reset



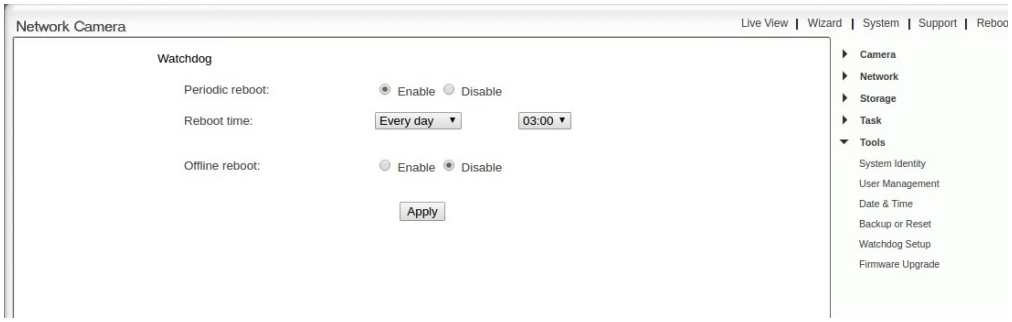
The Backup or Reset page is used to:

Reset	Erase all the camera's settings and replace them with the values used at the factory. Wi-Fi credentials and user names/passwords are all deleted.
Backup	Download a file named *config.cfg* that contains the camera's entire configuration.
Restore	Restore a *config.cfg* file from a previous camera **Backup**.

The *config.cfg* file is written in a proprietary binary format. It can be opened with many text editors and much of the information can be displayed. However users should be aware that saving changes with a text editor or other application usually corrupts the file and the camera will refuse to restore.

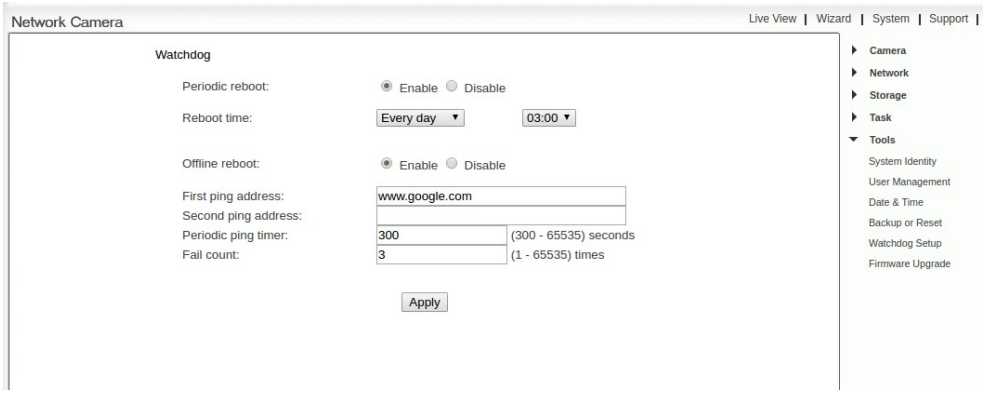
When downloading this file it must be saved as-is in the download folder. When downloading to an iOS device it is often necessary to have a third party storage App like DropBox or GoogleDrive installed so there is a place to save a binary file.

Watchdog Setup



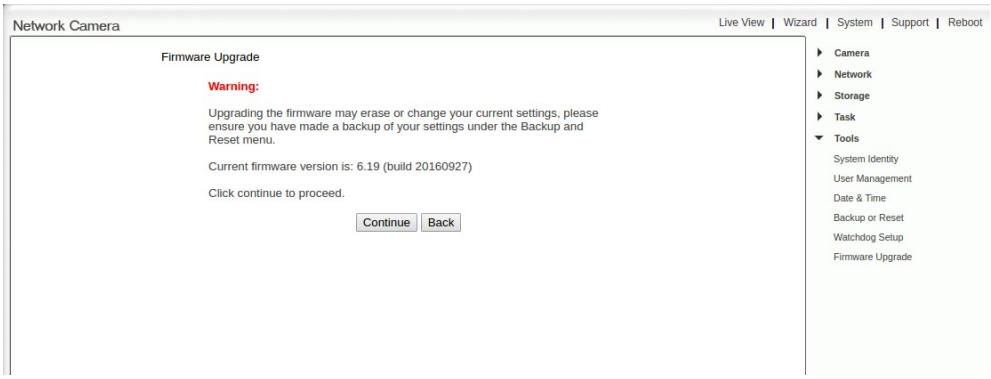
The **Watchdog** is a function for automatically rebooting the camera 1) on a periodic basis, and 2) when network connectivity fails.

The above screen shot shows the camera setup to reboot everyday at 3AM. The camera will be non-functional for 45 seconds during reboot.



When **Offline Reboot** is enabled the camera will ping the given addresses (domain name or IP address) on the specified **Periodic Ping Timer** interval seconds. If the ping fails more than **Fail Count** times the camera is automatically rebooted.

Firmware Upgrade



The **Firmware Upgrade** function is used to change the operating program in the camera which is stored in a non-volatile storage area and used to boot the camera.

New firmware is published on the camera section of the www.netcampro.com website. If the version number on the website is higher than the version number reported by your camera then the new firmware can be applied.

Please be aware that the firmware update function should only be used when the camera is connected using an Ethernet cable. Firmware updates over Wi-Fi can destroy your camera!

Glossary

ACC-LC – Advanced Audio Coding – Low Complexity audio codec

aka – “also known as”

B, G, and N – Wi-Fi channel bands

codec – COder / DECoder – specific method of encoding/decoding audio and video

DHCP – Dynamic Host Configuration Protocol (router assigns local IP addresses)

DDNS – Dynamic Domain Name System.

DNS – Domain Name Server. Converts domain names (like www.netcampro.com) into an IP address.

DVR – Digital Video Recorder (video recording appliance)

FAT32 – File Allocation Table 32 (older Windows format)

FTP – file transfer protocol

GB - gigabyte

GHz - gigahertz

HD – High Definition 1920x1080

HTML – Hyper-Text Markup Language (language of websites)

HTTP – hyper text transfer protocol

IR – infrared (light that cannot be seen by the human eye)

ISP – Internet Service Provider

JPEG – Joint Photographic Experts Group still picture file format

kbps – kilo bytes per second

LAN – Local Area Network

LED – Light Emitting Diode

MB – mega byte

min - minute

MJPEG – Motion JPEG is a video file format based on the JPEG still picture format

ms – MilliSecond (0.001 seconds)

NAS – Network Area Storage (dedicated file server appliance)

nm – NanoMeter (0.000000001 meters)

OSD – On Screen Display

P2P – Peer 2 Peer encrypted protocol used between NetCamProLive and a camera

ping – Internet Protocol to test if another computer is online by sending an empty message and receiving an empty acknowledgement

rtmp – real-time messaging protocol

rtsp – real-time streaming protocol

“S” series – Cameras with a Sony sensor that have “S” as the second last character in their model name.

SAMBA – SMB (Server Message Block) File Sharing (compatible with Windows File Sharing)

SD – Standard Definition 768x432 on “S” series cameras. 640x360 on all others.

SMTP – Simple Mail Transfer Protocol

SSL – Secure Socket Layer (encryption used by financial institutions)

TCP/IP – Transmission Control Protocol / Internet Protocol

VLC – Video Lan Corporation (http://videolan.org)

UPNP – Universal Plug and Play (devices directly negotiate port forwarding)

URL – Universal Resource Locator (aka: website address like https://www.netcampro.com)

VOX – Circuitry to prevent audio feedback when both audio send and listen are on at the same time.

Wi-Fi – Standards for electronic devices to exchange high speed data wirelessly using radio waves.