EN

User Manual

1/2.8” Network Dome, Fixed, 1920x1080, Day&Night, DOL-WDR, 2.8mm, Infrared, IP66

IPD-52F0028MAA

Safety Precaution

- To prevent electric shocks and risk of fire hazards, do NOT use other than specific power source.

CAUTION

RISK OF ELECTRIC SHOCK .
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The symbol is intended to alert the user to the presence of important operating and maintenance(servicing) instructions in the literature accompanying the unit.

- **Warning** :
  This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

- **Caution** :
  Any changes or modifications in construction of this device which are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
  Mains power quality should be that of a typical commercial environment. If the user of the model requires continued operation during power mains interruptions, it is recommended that the model be powered from an uninterruptible power supply (UPS) or a battery.

Safety Precaution

NOTICE

- The image used in this instruction manual are processed to help comprehension and may differ from actual video of the camera.
- Avoid installing areas where has shock or vibration which results in the problems.
- Pay attention to safety when laying the connection cable and observe that the cable is not subjected to heavy loads, kinks or damage and no moisture can get in.
- Never open the device such as boards or lens.
  The warranty becomes void if repairs are undertaken by unauthorized persons.
- Maintenance and repair have to be carried out only by authorized service centers.
- Use only a mild detergent to clean the housing body.
- The camera should never be operated beyond the technical specifications.
  This can lead to destruction.
- The camera should never be operated in water.

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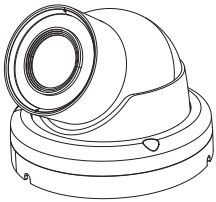
Features

- Full-HD 2.16Mega Pixel, NETWORK CAMERA, 1920x1080(30/25p)
- The best low light performance with SONY's STARVIS sensor
- ONVIF Conformance
- ONVIF Event Mapping
- Zero configuration
- Cross Web Browsing (IE, Edge, Safari, Firefox, Chrome)
- Adaptive web resizing depending on layout & resolution of display device by RESPONSIVE WEB
- Increased usability for all PC, tablet and mobile
- Simultaneously H.264, H.264+ (Smart Stream), H.265, H.265+ (Smart Stream), MJPEG (Multi streaming)
- f= 2.8mm, Fixed lens
- True Day&Night by ICR
- DOL HDR (Digital Overlap High Dynamic Range)
- D-WDR (Digital Wide Dynamic Range)
- Improved noise figure with the enhanced 3DNR
- LDC(Lens Distortion Compensation)
- Smart Video Stream, ROI(Region of Interest)
  - Enables to process video data smartly according to users demand.
  - Lowering overall bandwidth and reduce the storage burden
- Privacy Mask, Motion Detection, HLC/ BLC, Digital Zoom(~x8), Mirror/Flip, Contrast, Brightness, Hue, Saturation, Sharpness
- Circuit protection against faulty connection in power polarity
- PoE(IEEE Std. 802.3af), DC12V
- Built-in 4pcs High power SMD LEDs
- Cooling Fan & Optimized Heat sink System

Composition

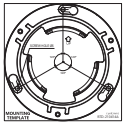


Dome Camera

Plastic Anchor:
6 x 30mm (3pcs)

Mounting Screw:
4 x 35mm (3pcs)

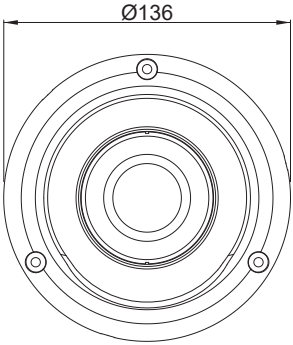
Operating Instruction

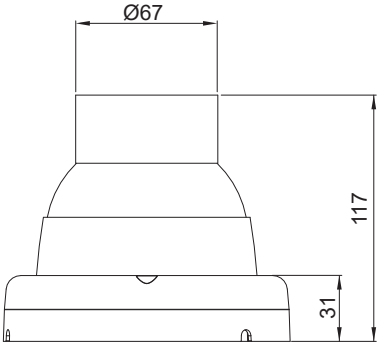


Mounting Template

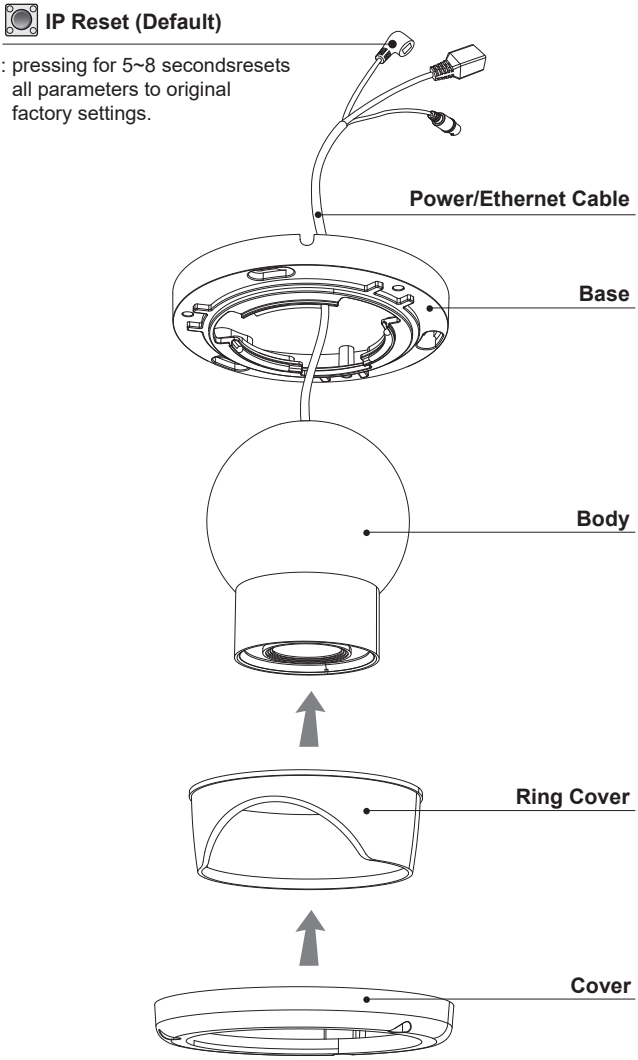
Dimensions

(unit : mm)



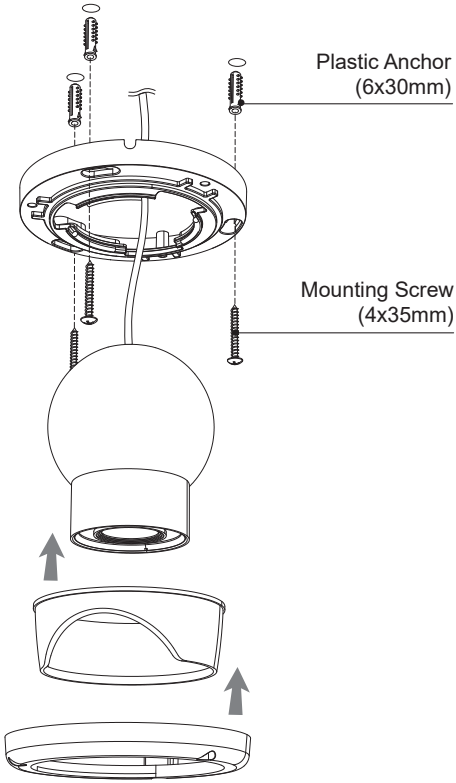


Part Names


IP Reset (Default)
: pressing for 5~8 secondsresets all parameters to original factory settings.
Power/Ethernet Cable
Base
Body
Ring Cover
Cover

Installation Instructions

1. Drill three holes for mounting on the ceiling or wall.
2. Place the camera base at the pre-drilled installation position and fix it by using mounting screws.
3. Route the power & ethernet cable to the connecting place.
4. Adjust the camera's viewing angle (Pan, Tilt, Rotation)
5. Assemble the camera body, ring cover and cover.



CAUTION

- Extreme care should be taken NOT to scratch the window surface while the camera installing or adjusting.
- Care should be taken the cable is NOT to be damaged, kinked or exposed in the hazardous area.
- Do not expose the camera directly to a strong light source such as the sun or spot light.

Installation Instructions

Installation and commissioning Instructions

- Make sure the power is removed before the installation.
- After all connections are finished properly, follow the order for applying power.
  a) Plug the network cable into RJ-45 Ethernet Port.
  If PoE is the unique power, there will be no need to connect Power jack.
  b) When DC12V Local power is necessary, connect the low voltage (DC12V) first, then plug the DC adapter to DC outlets to avoid an improper reset from power jitter and a damage from the surge voltage when no load.

  ► When PoE and Local DC power are connected at the same time, Local power has priority.

Power Supply Connections

Camera can work with either DC12V or PoE(IEEE Std. 802.3af).
Primary and secondary grounds are completely isolated to avoid the possible ground loop problems.

Specifications

ITEM	NTSC	PAL
Imaging Sensor	1/2.8" Sony 2.16 Mega pixel RGB STARVIS CMOS Sensor	
Effective Pixels	1945(H) x 1097(V) approx. 2.13M pixels	
Sensitivity	TBD	
Scanning mode	Progressive Scan	
S/N Ratio	50dB	
Shutter Speed Control	Automatic: Min. 1/25,000 sec ~ Max. 1/25 sec Manual: Min. 1/25,000 sec ~ Max. 1/25 sec	
Gain Control	Automatic: ~ Max. 69dB / Manual: ~ Max. 69dB	
Auto White Balance mode	Automatic, Outdoor, Light bulb, Fluorescent light, Clear sky, Shade, Manual	
Day & Night mode	Automatic, Day, Night, External	
Lens	f=2.8mm, Fixed lens	
LED	4pcs High power SMD LEDs	
HDR	DOL HDR (Digital Overlap High Dynamic Range)	
DNR	2D-NR, 3D-NR	
Functions	Privacy Mask, Motion Detection, HLC/ BLC, Digital Zoom(~x8) Mirror/Flip, Contrast, Brightness, Hue, Saturation, Sharpness, LDC (Lens Distortion Correction)	
Installation Temp.	-20ºC ~ +50 ºC (Humidity : 20%RH ~ 80%RH, Non-condensing)	
Operating Temp.	-50ºC ~ +50 ºC (Humidity : 20%RH ~ 80%RH, Non-condensing)	
Dimension	136mm(Ø)x117mm(H) / About 730g	
Housing	Aluminum Cast, Cooling Fan & Optimized Heat sink System	
Power Source	PoE(IEEE Std. 802.3af), DC12V Circuit protection against faulty connection in power polarity.	
NETWORK SPECIFICATION		
Video Compression	H.264, H.264+ (Smart Stream), H.265, H.265+ (Smart Stream), MJPEG	
Video Resolution	1920x1080, 1280x720,1024x576, 768x432, 704x392, 640x360, 384x216	
Video Frame Rate	Up to 30fps@1920x1080p	
Video Streaming	Simultaneously H.264, H.264+ (Smart Stream), H.265, H.265+ (Smart Stream), MJPEG (Multi streaming) Independent Frame Rate and Bandwidth Control, VBR/CBR	
FTP Uploading	MJPEG Still Image	
Login Authority	Administrator, Operator, Guest	

Specifications

Security	Multi User Authority, IP Filtering, HTTPS, Video Stream, Export/Import
Network Time Sync.	Synchronize Computer/NTP Server, Manual
Software Reset	Restart, Reset, Factory Default
Auto Recovery	Backup, Restore
Remote Upgrade	Using Web Browser
Protocol	TCP/IP, UDP, IPv4/v6, HTTP, HTTPS, FTP, UPnP, RTP, RTSP, RTCP, DHCP, ARP, Zeroconf, Bonjour, SNMP
Client Software	Built-In Web, ONVIF Compatible 3rd Party VMS
SDK Support	API, ONVIF Profile S/T Compliant
SD memory card	Not Available
Audio & Alarm	Not Available

(*) Design and specifications are subject to change for product improvements without prior notice.

Operating Instructions

Setup Menu table

Category	Menu	Configuration		
LIVE VIEW	Player Control	Pause, Snapshot		
		Display (Window Fit, Full Screen, Custom)		
	Video Stream	Stream1, Stream2, Stream3		
	Protocol	HTTPS, HTTP, TCP, UDP		
SETUP	Information	General, System Information, Open source Information		
	Video & Image	Source		
		Stream1/2/3		
		Smart Video Stream	ROI(Region Of Interest), Dynamic GOP	
		Image	Basic	Brightness, Contrast, Saturation, Hue, Sharpness, Enable flip image, Enable mirror image
			OSD	Enable text OSD, Enable date&time OSD
			AE	Mode, Slow shutter, Luminance compensation, Auto Iris, Auto Flickerless, Shutter, Max. Shutter, Gain, Max. Gain
			AWB	Mode, R Gain, G Gain, B Gain
			Day&Night	Mode, Switching time, Threshold (D->N), Threshold (N->D), Threshold(Current)
			WDR	WDR(Mode, Level), DWDR(Mode, Level)
			BLC	BLC(Mode, Level), HLC(Mode, Level)
			DNR	3DNR(Mode, Level)
			LDC	Mode
			VerticalView	Mode, Rotation
		Privacy Mask	Color, Name	
		Digital Zoom	Level	

Operating Instructions

SETUP	Event	Triggers	Motion, Tamper, System, Manual, Network, Timer, Day/Night
		Actions	E-Mail, FTP, Video Boost, Notification Server
		Rules	Event Processing, ONVIF Mapping
	System	Security	User, HTTPS, IP Filter, ONVIF, Video Stream, Export/Import
		Date & Time	Current Time, New Time, Time Zone, Date & Time Display
		Network	TCP/IP, DDNS, RTP, UPnP, Zeroconf, Bonjour
		Language	English, Deutsch, Français, 한국어
		Maintenance	Maintain (Restart, Reset, Default), Upgrade, Setup Export, Setup Import
		Logs & Report	Logs (Database Capacity, Search Condition, Log List), Log Sever, Report
4 EYES PRINCIPLE	Approval #1/2		
LOG OUT			

Network Menu Control

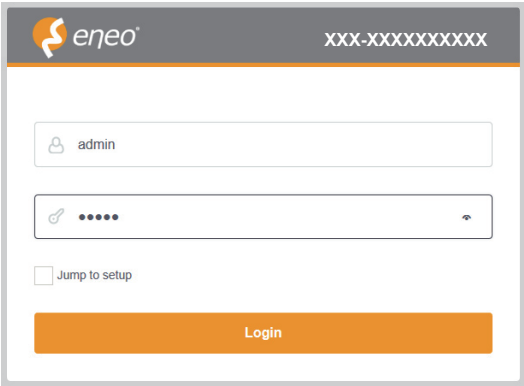
Quick Network Setup

■ Log in the web viewer

1. After the camera is connected to the network, start ***'eneo Site Manager'*** tool. (downloadable from www.eneo-security.com).
2. You will get a list of cameras connected to the local network. Highlight your camera in the list and open a context menu with a click of the right mouse button.
3. Select the „Set IP Address [dhcp / static]“ option to open a window for setting the cameras IP properties. When you are done click the „OK“ button to update the camera settings.
4. By default the camera is set to DHCP. If there is no DHCP server present in the network the camera will fall back to a default IP address after a while. In this scenario please only add one camera at a time to the network to avoid conflicts due to identical IP addresses. The network camera‘s default IP address is: ***192.168.1.10.***
5. Right clicking the device name in the eneo Scan Device tool will bring up the context menu. Use the ***'Open Device Web Site'*** option to access the camera.
6. The web viewer login page will open up in your default web browser. In case of Microsoft Internet Explorer install Active-X named VIDEOR E. Hartig GmbH according to the instruction at the bottom of the browser.
7. Use the default user name and password to log in.

Default user name: admin

Default password: admin



Full Menu Setup

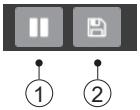
1. LIVE VIEW

Enter the live view menu on the Web Viewer.

■ Web Viewer description

A) Menu button : Click the button to show or hide the setup menu bar.
B) Model name : Show a camera model name connected.
C) Select Language : Set the web viewer language English, Deutsch or French.
D) Main setup menu bar : Set the camera or network functions.
E) Camera monitoring window: Display the currently connected camera view or function.
F) Log out and exit the web viewer

■ Player Control

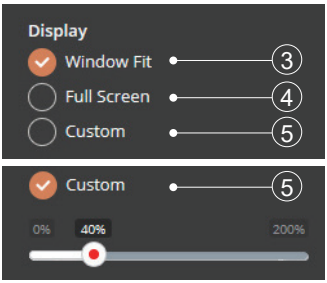


① Pause : Pauses the live view.

② Snapshot : Captures the image in .jpg format with the current stream resolution.

Full Menu Setup

■ Display



③ Window Fit : Resizes the live view display to fit along with the display window size.

④ Full Screen: Resizes the live view display to fit to the monitor resolution. ESC key returns to the previous view.

⑤ Custom : Selects the live view display scale, 0%~200%, by the control bar.
100% is original size.

■ Video Stream

Selects the video source stream to display the live view only.

■ Protocol

Selects the network protocol out of HTTPS, HTTP, TCP or UDP.

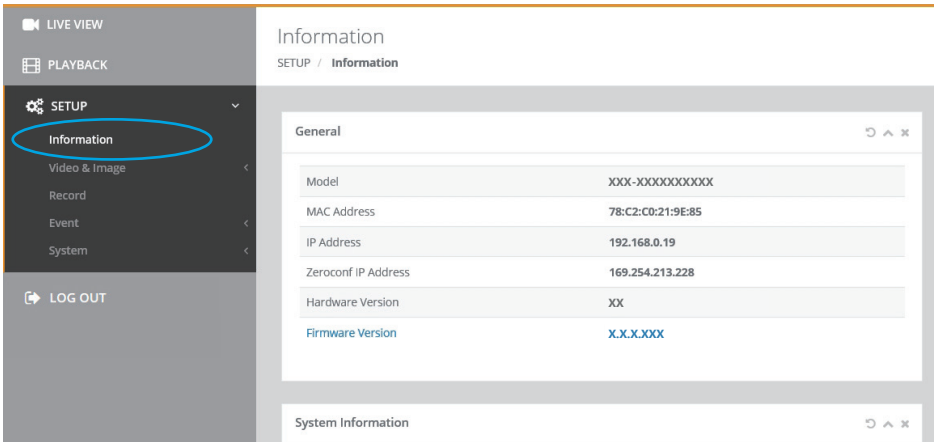
Full Menu Setup

2. SETUP

Enter the setup menu on the Web Viewer.

2-1. Information

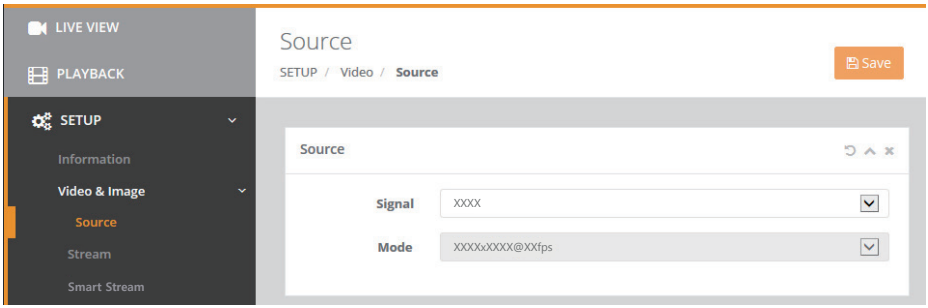
Shows the overall information about the system such as Model name, MAC address, IP address, Zeroconf, IP address, Hardware version, Firmware version, Server time, Running time, CPU usage, Inbound/Outbound Bandwidth and Open source list.



2-2. Video & Image

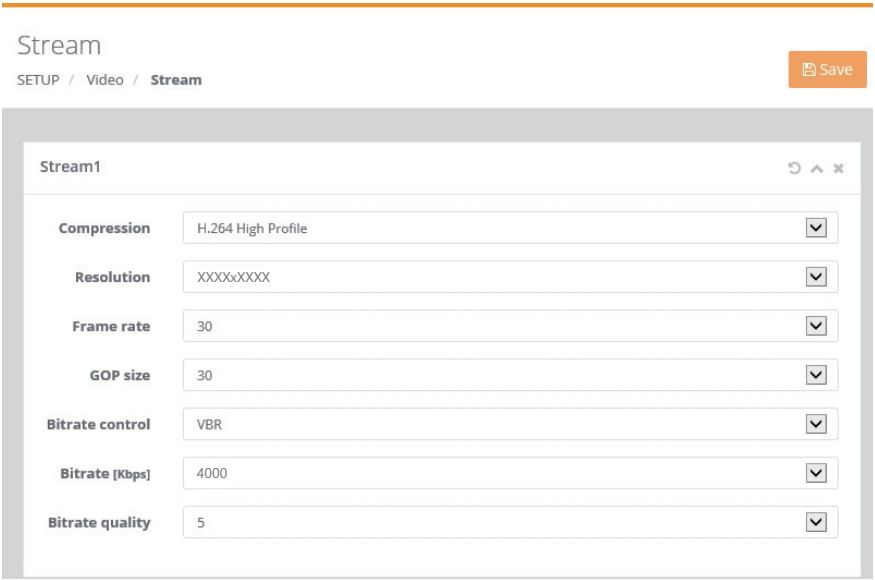
2-2-1. Source

• SIGNAL : Set NTSC/PAL mode depending on TV system. Generally set to NTSC in 60Hz area and PAL in 50Hz area for the electrical power system of your country. Changes will restart the camera.



Full Menu Setup

2-2-2. Stream



• *Stream1, 2, 3*

> COMPRESSION : H.265(+) and H.264(+) are available in all stream but MJPEG is available in Stream 3 only.

• H.265+, H.264+ : Enables to process video data smartly according to users demand and lowering overallbandwidth, and reduce the storage burden.
If H.265+ or H.264+ is selected, Smart Video Stream and Dynamic GOP are switched ON automatically.
Accordingly, ROI(Region of Interest) and Dynamic GOP should be set in Smart Video Stream menu to use H.265+ and H.264+.

> RESOLUTION : Each stream can have its individual resolution selected from its list.
> FRAME RATE : Each stream can have its individual frame rate in fps selected from its list.

Full Menu Setup

> GOP SIZE: GOP (Group of Picture) defines the number of Intra-coded pictures (I frame) & Predictive-coded pictures(P frame) in H.264. I frame is a complete image while P frame is the predictive image data which can lower the image data dramatically between frames. GOP SIZE stands for the number of P frames between I frames. Too small GOP SIZE (too frequent I frames) can degrade the picture quality because the codec compresses the data strongly to maintain the bitrate. On the contrary, a little bigger GOP SIZE can improve the picture quality with the better quality for P frames if the network is in good condition. Too big GOP SIZE can make the longer black out or the broken image if the network quality is not good enough.

> BITRATE CONTROL : Selects how to manage the bitrate.

- VBR (Variable Bit Rate):
  Provides the higher image quality with the optimal variable bitrate for the scene which has more moving elements in the image. It is not recommended when network is in heavy duty.
- CBR (Constant Bitrate) :
  Tends to keep the bitrate steady at the assigned bitrate within a very small variation. It is useful when the network is in very heavy use.

> BITRATE : Indicates the transmission speed through the network and defines the overall picture quality along with the image resolution, frame rate, GOP size and the compression codec for H.265, H.264. A high value provides the higher image quality but the total sum of bitrates for the streams has to be considered in calculating the network duty.

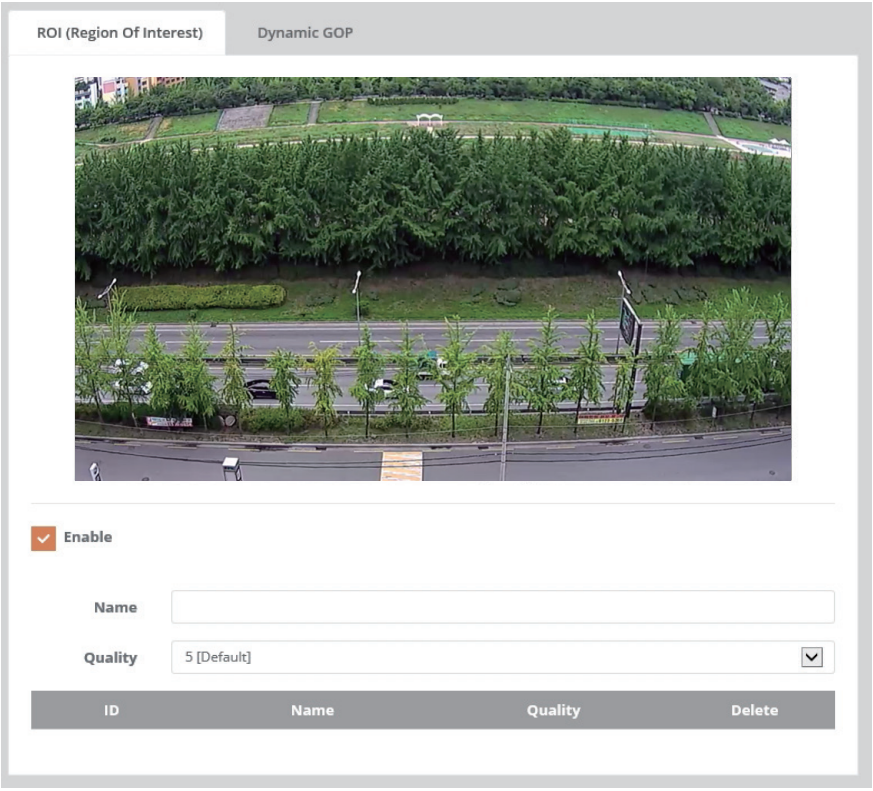
> BITRATE Quality : Enables to set the quality.

Full Menu Setup

2-2-3. Smart Video Stream

● *ROI(Region Of Interest)*

> Enables to process video data smartly according to users demand.
> Available to deliver high quality and frame rate on interested region while less quality and frame rate video on non-interested region.
> Lowering overall bandwidth and reduce the storage burden.



Full Menu Setup

> How to set Region of Interest:

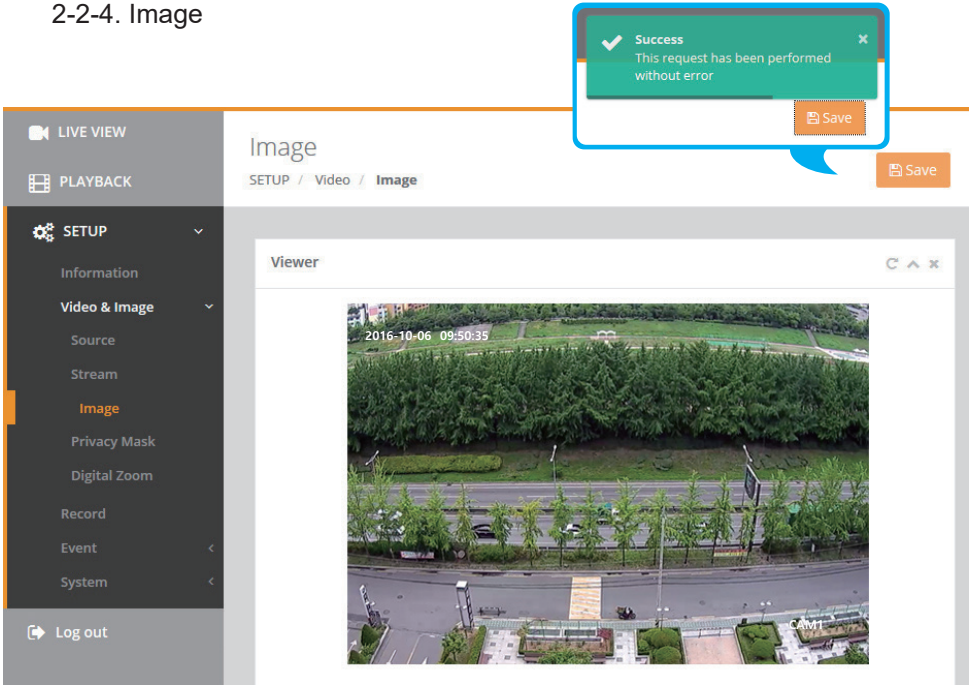
1) Mark ENABLE checkbox to enable ROI function.
2) Click the mouse right button on the video viewer, select "Create ROI area" menu and Drag the ROI area.
3) After drag, enter a Name, select Quality and save.
4) ROI frame rate is available to set in Settings> Video & Image> Video Stream.
5) To delete the selected area, Click the mouse right button on the video viewer, select "Create ROI area" or click “Delete” button.
6) After setting the mode, press the SAVE.

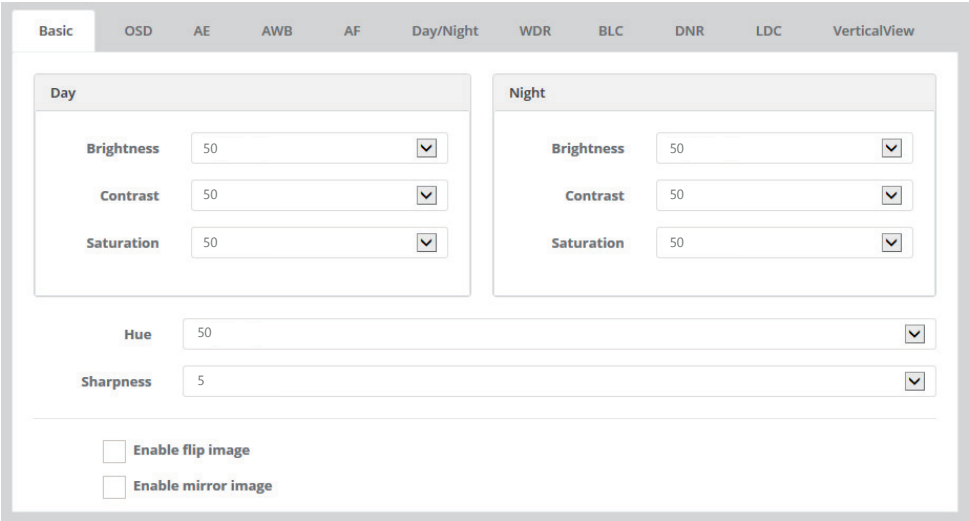
● *Dynamic GOP:*

> Outputs Intra-coded pictures(I frame : Complete Image)
When there is motion or change in picture only to save bitrate.

Full Menu Setup

2-2-4. Image





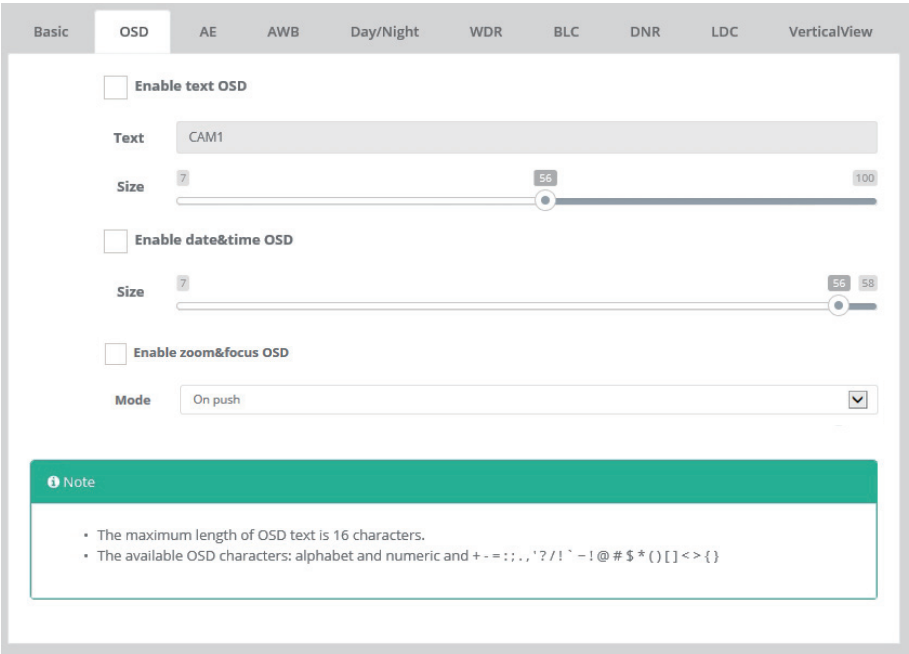
Full Menu Setup

• *Basic*

> BRIGHTNESS: Adjusts the overall brightness of the scene. Increasing the value increases the brightness.
> CONTRAST: Adjusts the contrast of the scene. Increasing the value increases the contrast.
> SATURATION: Adjusts the color richness of the scene. Increasing the value increases the color richness.
> HUE: Adjusts the color hue (NTSC only). Decreasing the value produces a greenish hue and increasing the value produces a pinkish hue.
> SHARPNESS: Adjusts the sharpness of the scene. Increasing the value increases the sharpness.
> ENABLE FLIP IMAGE : Flips the image on horizontal axis (up and down).
> EABLE MIRROR IMAGE : Mirrors the image on vertical axis (left and right).

• *OSD*

> ENABLE TEXT OSD : Enables display of the Text typed in the TEXT field (displays bottom-right).
> ENABLE DATE&TIME OSD : Enables display of the Date & Time (displays top-left).



Full Menu Setup

> ENABLE ZOOM&FOCUS OSD : Applies to Built-in Motor driven V/F lens or AF models only Enables display of the Zoom Ratio & Focusing Mode (displays top-right).

> MODE : Allows you to select when the ZOOM&FOCUS OSD is displayed.

- ON PUSH: Displays on the OSD for a few seconds whilst lens is adjusting.
- ALWAYS: Displays on the OSD at all times.

• *AE*

> MODE : Selects how to control the exposure, AUTOMATIC or MANUAL.

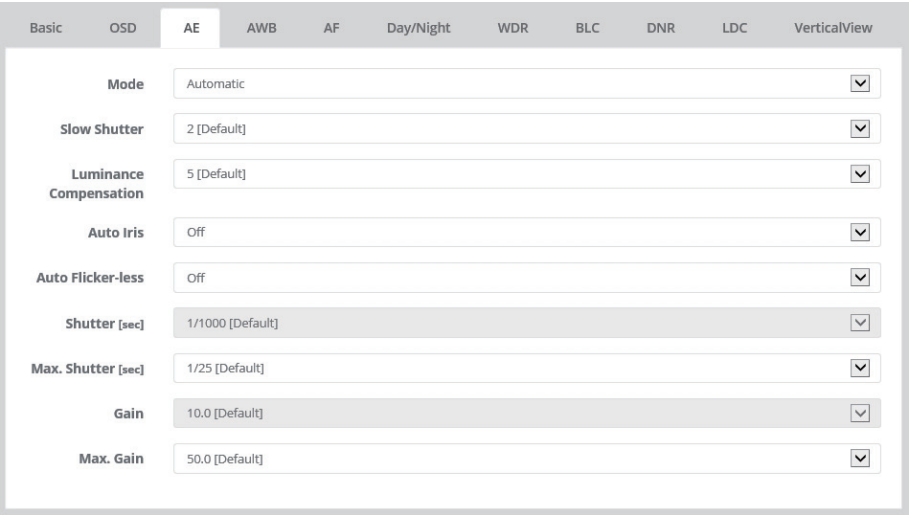
> SLOW SHUTTER : Extends the shutter time over the maximum shutter at multiple times of value in SLOW SHUTTER. Increasing the values increases brightness but also increases blurriness

> LUMIINANCE COMPENSATION : It compensates the brightness of video and adjusts brightness by weighting in automatic light intensity processing stage.

> AUTO IRIS : Engages the mechanical iris of lens to control the amount of incoming light to the sensor.

- OFF : Iris opens and the shutter is engaged to control the video level.

> AUTO FLICKERLESS : Automatically detects and fixes the flickering image under fluorescent lighting caused by the mismatch between NTSC/PAL and 50Hz/60Hz electric power frequency.

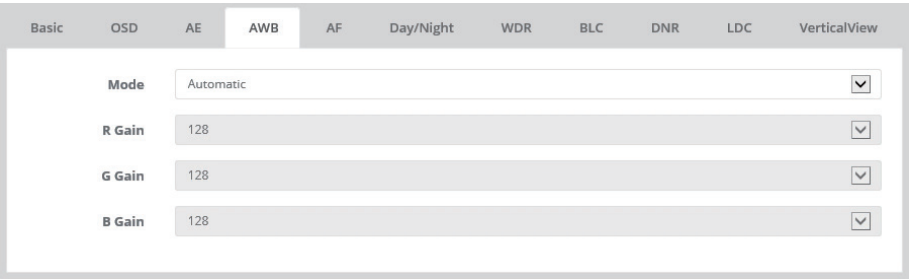


Full Menu Setup

> SHUTTER : (Available only in MANUAL mode) Sets the shutter to a fixed value.
> MAX. SHUTTER : (Available only in AUTOMATIC mode) Sets the maximum exposure time to limit long exposure at night or in low-light scenes.
> GAIN : (Available only in MANUAL mode) Sets the overall video gain.
> MAX. GAIN : (Available only in AUTOMATIC mode) Sets the maximum gain that can be automatically reached at night or in low-light scenes.

• *AWB*

> MODE : Provides White Balance presets. ATW or Manual is recommended for most applications.
> R GAIN / G GAIN / B GAIN : (Available only in MANUAL AWB mode)
Adjust the color temperature to a specific light. Not recommended for regular scenes.



Full Menu Setup

• *Day & Night*

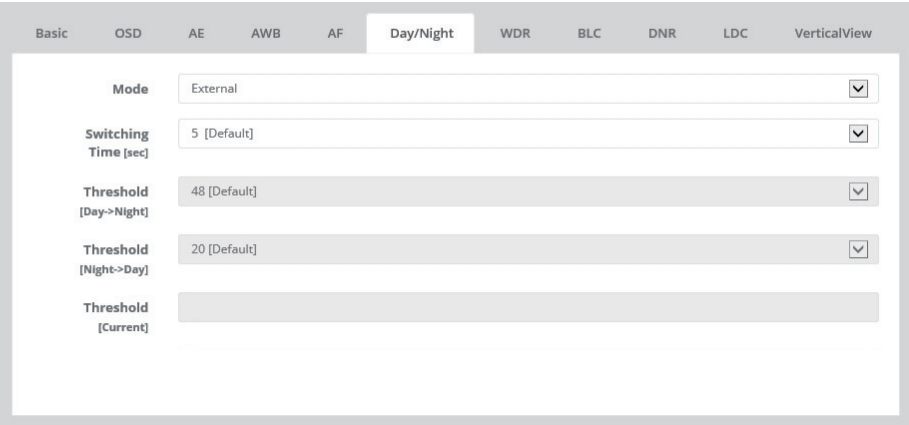
> MODE : Selects how to control the day/night feature.
- DAY : Disables the switching day/night filter and fixes it to DAY only.
- NIGHT : Disables the switching day/night filter and fixes it to NIGHT only.
- AUTOMATIC : Allows the day/night filter to switch via the amount of the incoming light through the lens only. Cameras without the built-in IR LED must select AUTOMATIC.
- EXTERNAL : Allows the day/night filter to switch via the built-in light sensor only, like a photo sensor. Cameras with the built-in IR LED must select EXTERNAL.

> SWITCHING TIME : Delays switching the day/night filter to prevent from an undesirable transition.

> THRESHOLD [D->N] : (Available in AUTOMATIC mode)
Sets the threshold level for day->night switching. Decrease the value to switch at low luminance.

> THRESHOLD [N->D] : (Available in AUTOMATIC mode)
Sets the threshold level for night->day switching. Increase the value to switch at high luminance.

> THRESHOLD [Current] : (Available in AUTOMATIC mode)
Shows current threshold level.

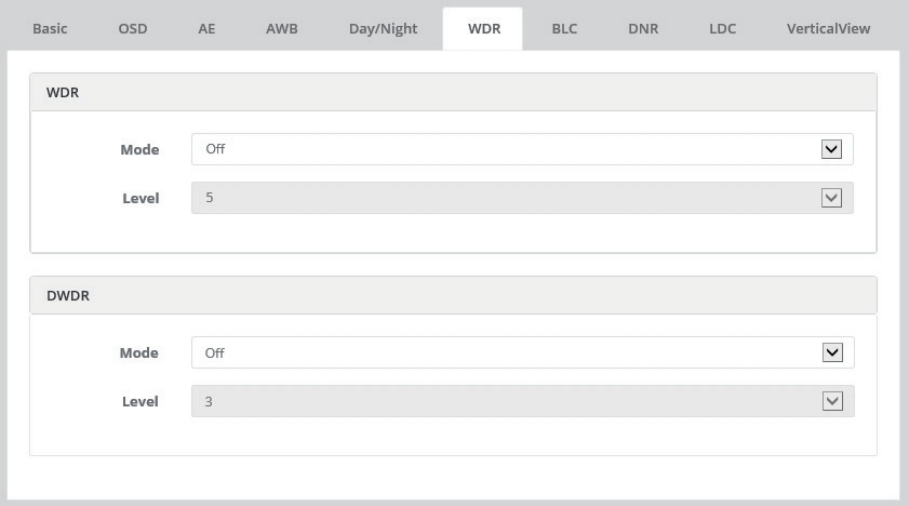


Full Menu Setup

- ***WDR*** (DOL HDR, Digital Overlap High Dynamic Range)

> WDR : Improves the visibility and the dynamic range for the high contrast scene temporally with multi scan images

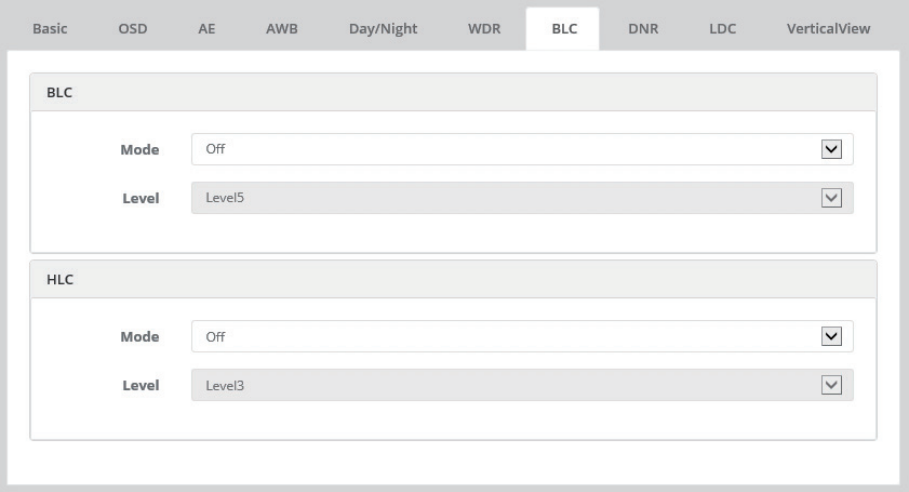
> DWDR: Improves the visibility by compensating dark area spatially.



- ***BLC***

> BLC (Back Light Compensation) : ON enhances the visibility of the back-lit object.

> HLC (High Light Compensation) : ON compensates whole image against High light area.

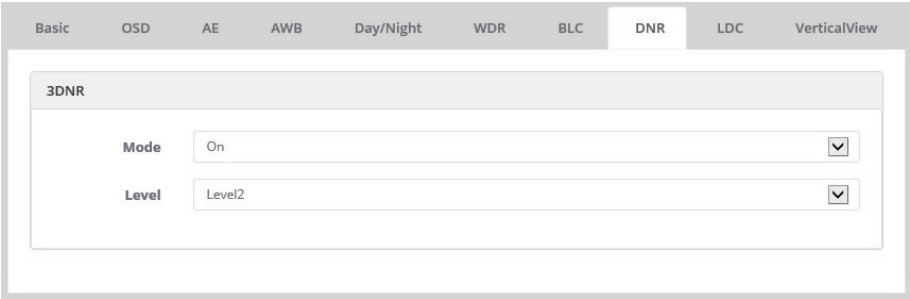


Full Menu Setup

● ***DNR*** (Dynamic Digital Noise Reduction)

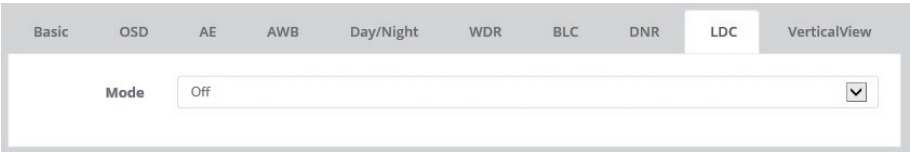
> 3DNR :

- MODE: ON reduces the noise by cancelling the spatial & temporal components in 3 dimensional a way.
- LEVEL: Determines the strength of the noise reduction. Higher values reduce more noise but can also lead to a ghosting effect.



● ***LDC*** (Lens Distortion Compensation)

> MODE : ON compensates for the barrel distortion caused by wide angles.

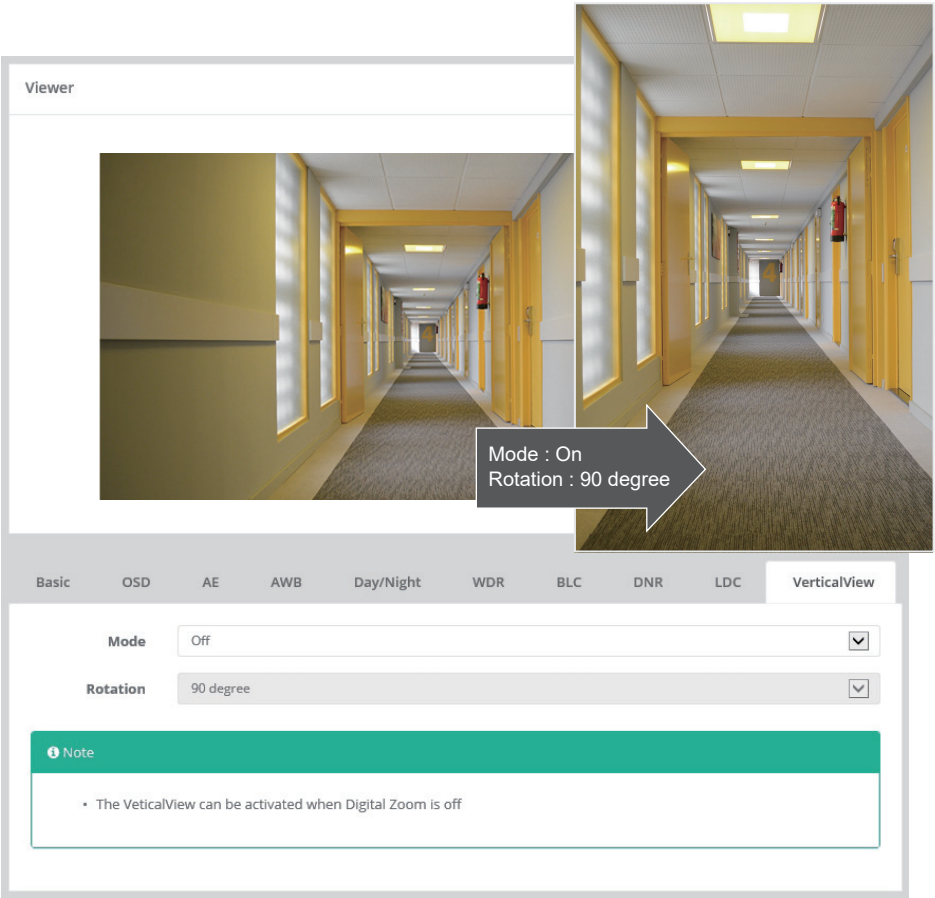


Full Menu Setup

• *VerticalView*

> MODE : ON displays the video in vertical view format, 16:9->9:16 for narrow streets, corridors or hallways.

> ROTATION : Determines the orientation to rotate.

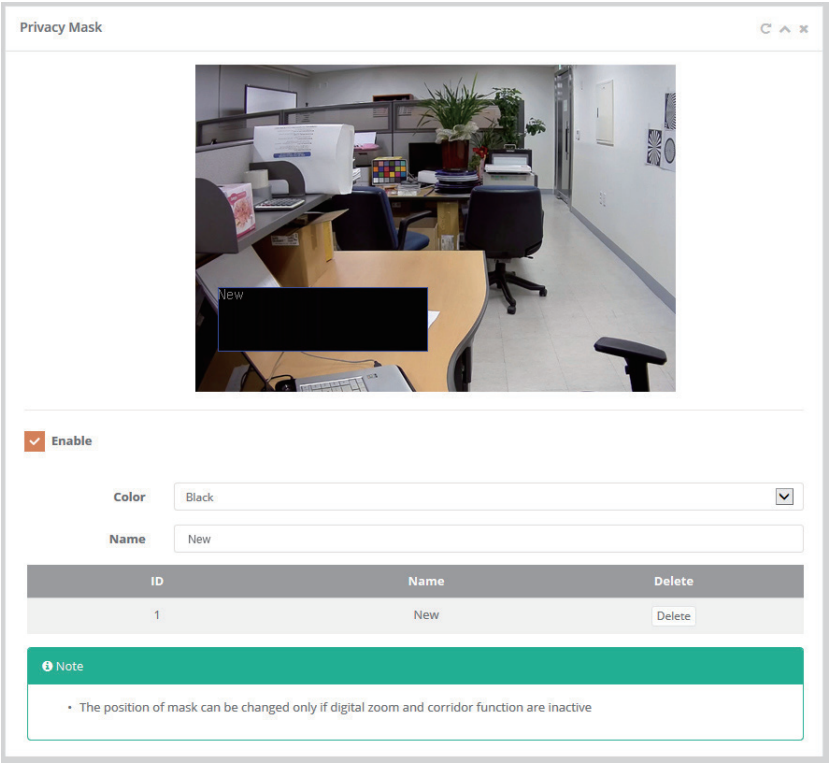


Full Menu Setup

2-2-5. Privacy Mask

Mark ENABLE checkbox to activate the privacy masks.

> COLOR : Select the color to mask at each privacy area.
> NAME : Input the individual name for each privacy mask.



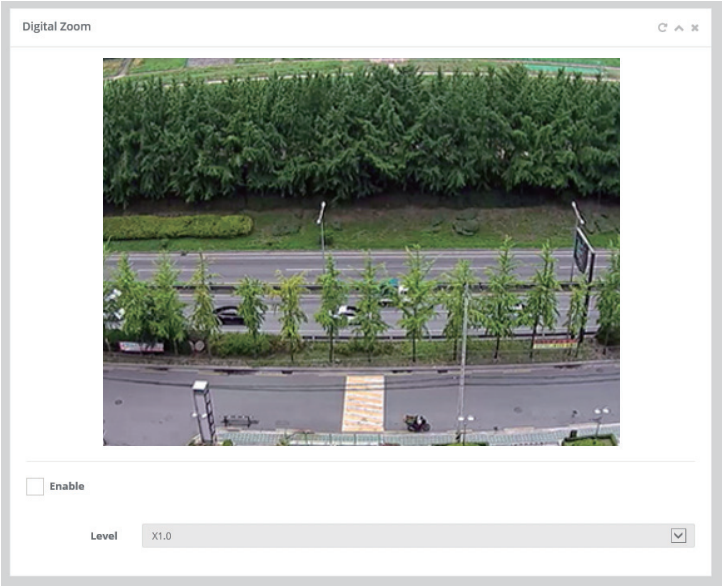
<u>To set the privacy mask (up to 8 privacy areas) :</u>

1) Mark ENABLE checkbox.
2) In the video window, place the mouse cursor anywhere and click the right mouse button. A mini pop up appears.
   Select CREATE MASK AREA / DELETE MASK AREA.
3) In the video window, place the mouse cursor where you would like to create a mask. Click the left-mouse button to create (or delete) a mask. The mask window can be moved or resized with the mouse.
4) Enter the name in the list and then click SAVE.

Full Menu Setup

2-2-6. Digital Zoom

> Mark ENABLE checkbox to activate the digital zoom.
> LEVEL selects the fixed digital zoom ratio. X1.0 is not digital zoomed.



Full Menu Setup

2-3. Event

2-3-1. Triggers

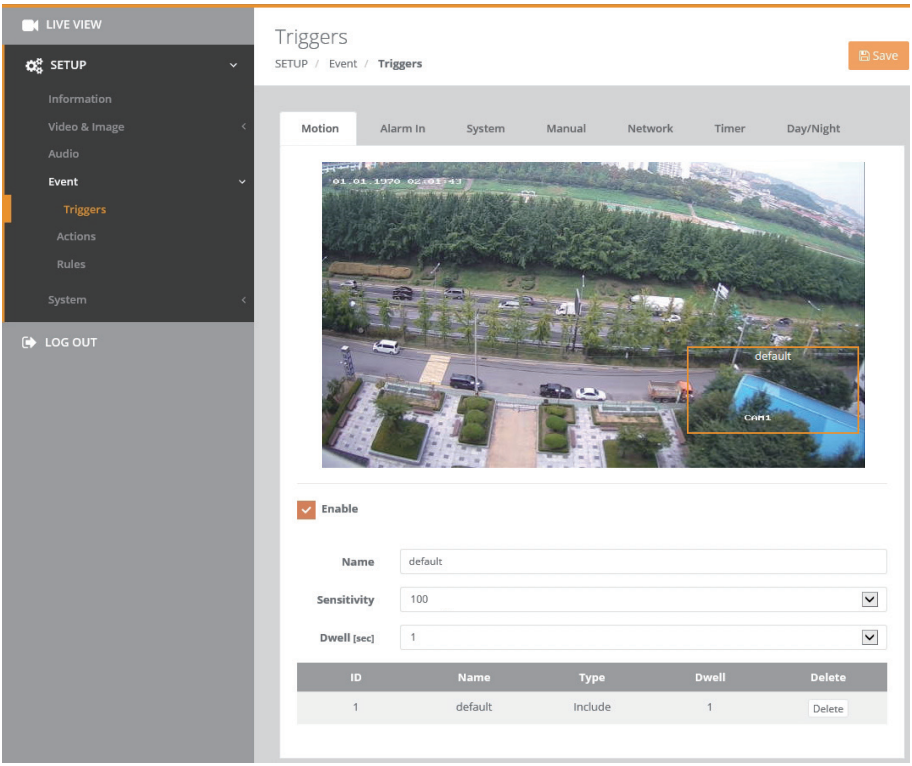
EVENT TRIGGERS menu defines and sets the parameters for the various event sources.

[Important NOTE]

Once the event is generated, the camera can record the video into the storage, output the alarm signal, email the event, send the video clip to FTP, boost the video frame rate, move to PTZ preset or send the event to the notification server. These post processes require the settings at SETUP>EVENT>ACTIONS first and then SETUP>EVENT>RULES.

• *Motion :*

> Mark ENABLE checkbox to create & activate up to 4 motion areas.
> NAME : Input the individual name for each motion detection area.
> SENSITIVITY: Sets the motion detection sensitivity for all areas. Higher values increase sensitivity
> DWELL : Sets the time for the motion event once detected.



Full Menu Setup

To set the motion detection area (up to 4 include-types and 4 exclude-types) :

1) Mark ENABLE checkbox.
2) In the video window, place the mouse cursor where you would like to make a detection window and click&drag the right button. The following window is then generated.
   • INCLUDE-Type : defines areas where motion should be detected.
   • EXCLUDE-Type : defines areas within a window that should be ignored.
3) Enter a name and then click SAVE.

[NOTE]

Motion detection and VCA cannot be used simultaneously. If either one is enabled, the other one is disabled automatically.

● *Tamper*

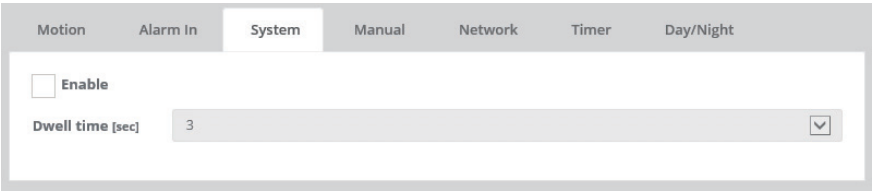
The camera can detect severe changes in the image caused by actions such as repositioning the camera or painting over of the lens and generates an alarm to alert.

> Mark ENABLE checkbox to activate the tamper alarm.
> DWELL TIME : Sets the time for the tamper alarm once detected.

● *System*

Used to trigger the event when the camera gets rebooted.

> Mark ENABLE checkbox to activate the system event.
> DWELL TIME : Sets the time for the alarm once the system event is detected.



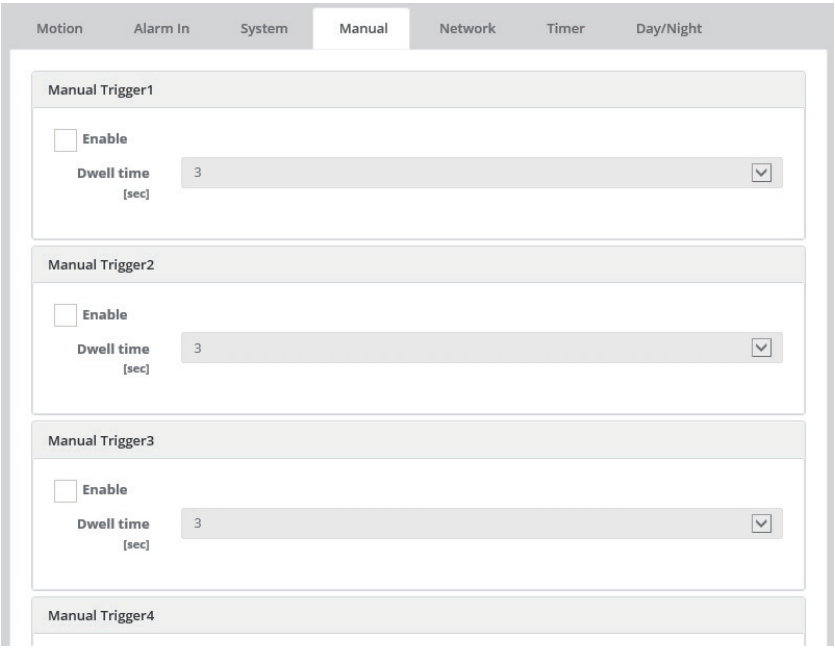
Full Menu Setup

● *Manual :*

Enables to user to set the event trigger optionally.

> Mark ENABLE checkbox to enable the manual trigger icons on the live view menu.

> DWELL TIME : Sets the time for the event once triggered by the manual trigger on the live view menu.

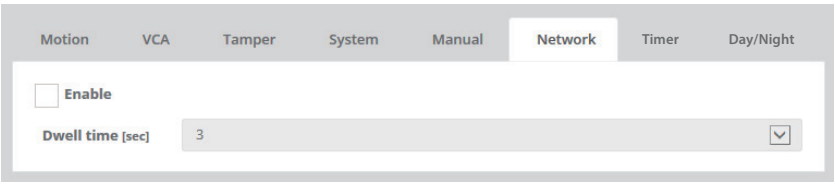


● *Network :*

Used to trigger the event when the network connection fails.

> Mark ENABLE checkbox to activate the network event.

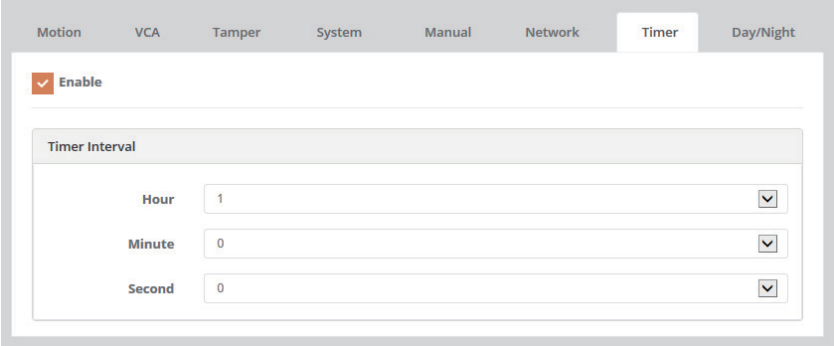
> DWELL TIME : Sets the time for the event once triggered by the network connection event.



Full Menu Setup

• *Timer*

Mark ENABLE checkbox to trigger the event as defined Timer Interval.
(Hour/Minute/Second)

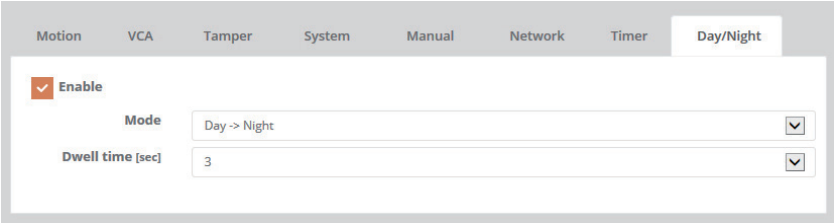


• *Day / Night*

Mark ENABLE checkbox to trigger the event when Day/Night is switched.

> MODE : Select the mode, Day->Night or Night->Day.

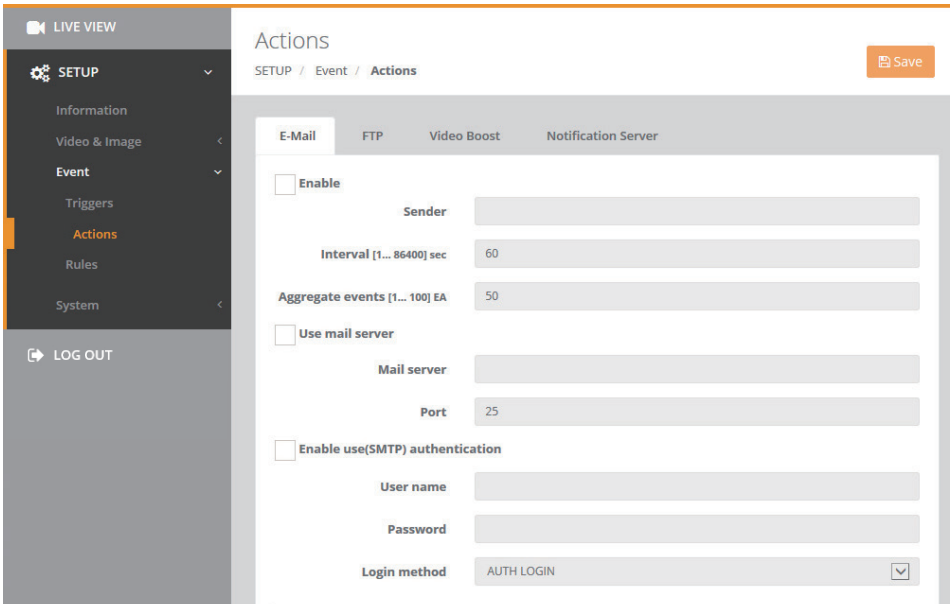
> DWELL TIME : Sets the interval duration for the alarm event.



Full Menu Setup

2-3-2. Actions

EVENT ACTIONS menu defines and sets the parameters for how to treat the various event sources.



• *E-mail*

The camera can send email messages generated by the events via SMTP (Simple Mail Transfer Protocol).

> Mark ENABLE checkbox to enable emailing.

- SENDER : Enter the email address as the sender. Any virtual email address like sample@sample.com can be used if the recipient can recognize it from the camera.
- INTERVAL : Sets the interval for emailing after the events occur.
- AGGREGATE EVENTS : Sets the number of events which will be sent in an email.

> Mark USE MAIL SERVER checkbox to set the mailing server.

- MAIL SERVER : Enter the host name or IP addresses for the mail servers. If a host name is used, a valid DNS server must be specified in the Network-Basic settings.
- PORT : Enter the port number of the mail server.

Full Menu Setup

> Mark ENABLE USE(SMTP) AUTHENTICATION checkbox if the mail server requires authentication.

- USER NAME : Enter the user name as provided by the network administrator.
- PASSWORD : Enter the password as provided by the network administrator.
- LOGIN METHOD : Select one for SMTP authentication method allowed.

[NOTE]

If a PLAIN or LOGIN mechanism is negotiated, the camera sends the user name and password to the SMTP server. The LOGIN mechanism is supported by Microsoft, as well as some other clients. Most other clients support the PLAIN authentication mechanism. Since the vast majority of Email clients support only PLAIN or LOGIN, mail server administrators will probably want to consider using STARTTLS to provide an encryption "tunnel" between the client and server to protect the user name and password.

> RECEIVER LIST : Enter the recipient’s email addresses as the receivers.

> E-MAIL(SMTP) TEST : Enter the recipient's email address in RECEIVER and click the TEST button to test if the mail servers are functioning and the email address is valid.

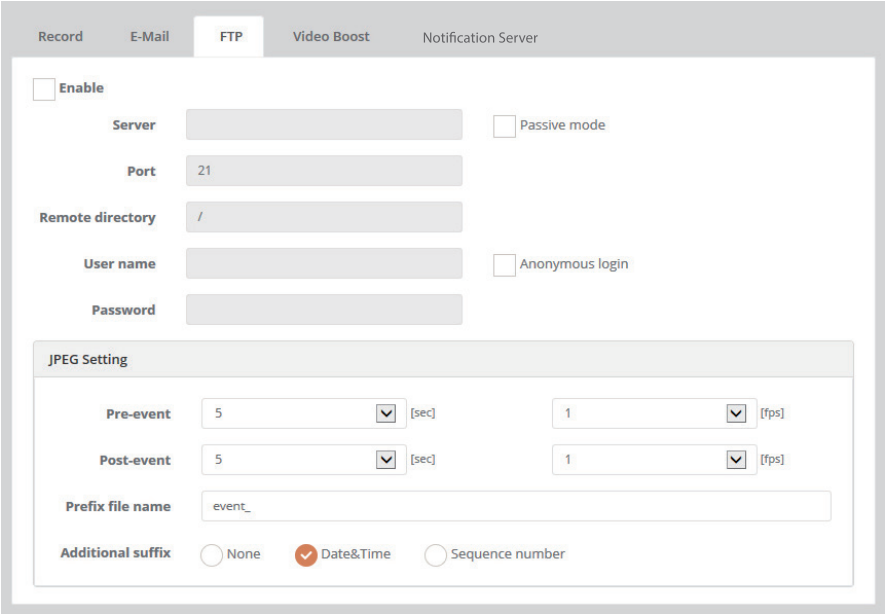
Full Menu Setup

• *FTP*

FTP notification will save files on the specified FTP server.

> Mark ENABLE checkbox to set the FTP server.

- SERVER : Enter the IP address or host name of the specific FTP server.
- PASSIVE MODE : Under normal circumstances the network camera simply requests the target FTP server to open the data connection. Checking this box issues a PASV command to the FTP server and establishes a passive FTP connection; whereby the network camera actively initiates both the FTP control and data connections to the target server. This is normally desirable if there is a firewall between the network camera and the target FTP server.
- PORT : Enter the port number used by the FTP server. The port number can be adjusted in the range 1-65535. The default setting is 21.
- REMOTE DIRECTORY: Specify the path to the directory where the uploaded images will be stored. If this directory doesn't already exist on the FTP server, an error message shows up when uploading.
- USER NAME: Enter the user name provided by the network administrator.
- ANONYMOUS LOGIN: Mark ANONYMOUS LOGIN checkbox if anyone is permitted to access the FTP server.
- PASSWORD: Enter the password provided by the network administrator.



Full Menu Setup

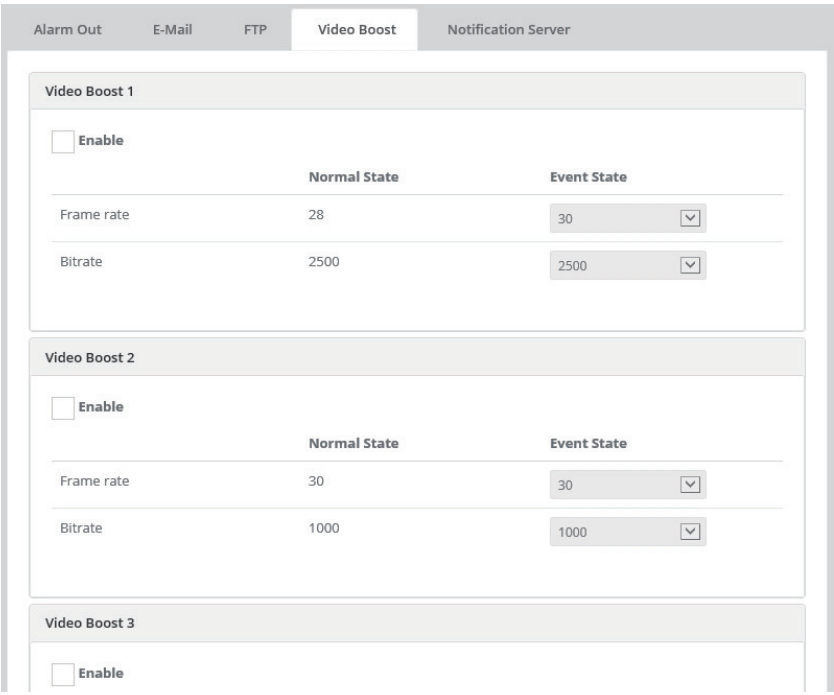
> JPEG SETTING : Configures JPEG for the FTP server.

- PRE-EVENT : Sets the time & the frame rate for JPEG images to be sent to FTP before the event.
- POST-EVENT : Sets the time & the frame rate for JPEG images to be sent to FTP after the event.
- PREFIX FILE NAME : Input the prefix for JPEG image file names to be sent to FTP.
- ADDITIONAL SUFFIX : Selects the suffix for JPEG image file names to be added after the file name. Selecting NONE will overwrite the previous file and thus DATE &TIME is most preferable.

• *Video Boost*

Sets the frame rate and bitrate for H.264 stream and the quality for JPEG stream at EVENT STATE when the event occurs.

[NOTE] Video boost is disabled during SD recording.



Full Menu Setup

• *Notification Server*

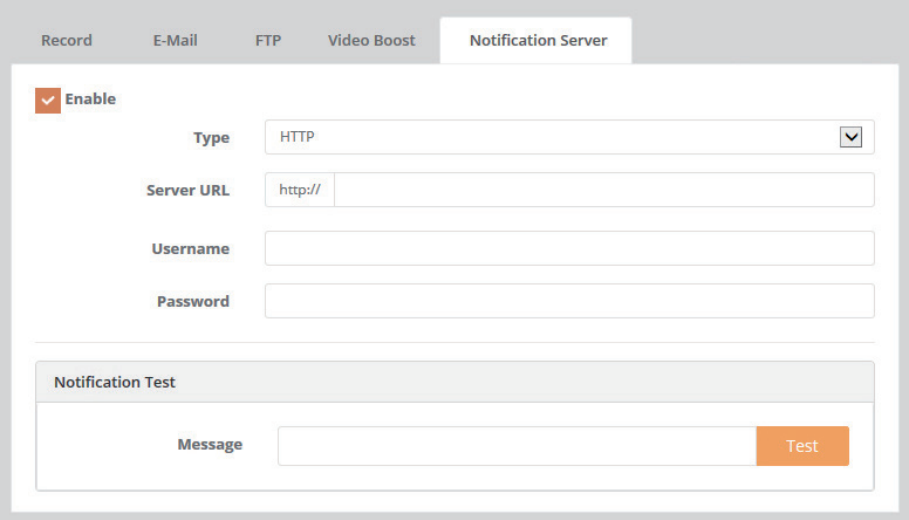
> Mark ENABLE checkbox to notify the event to the notification server when it occurs.

- TYPE : Selects the network protocol to connect the notification server.
- SERVER URL : Input the server URL of the notification sever. To enable the audio when the event occurs, copy the URL at SETUP>AUDIO and paste it on the server URL like http://x.x.x.x/setup/audio/audio.php
- USERNAME : Enter the username (default : admin)
- PASSWORD : Enter the password (default : admin)

> NOTIFICATION TEST: Input the test message and click TEST button.

[NOTE]

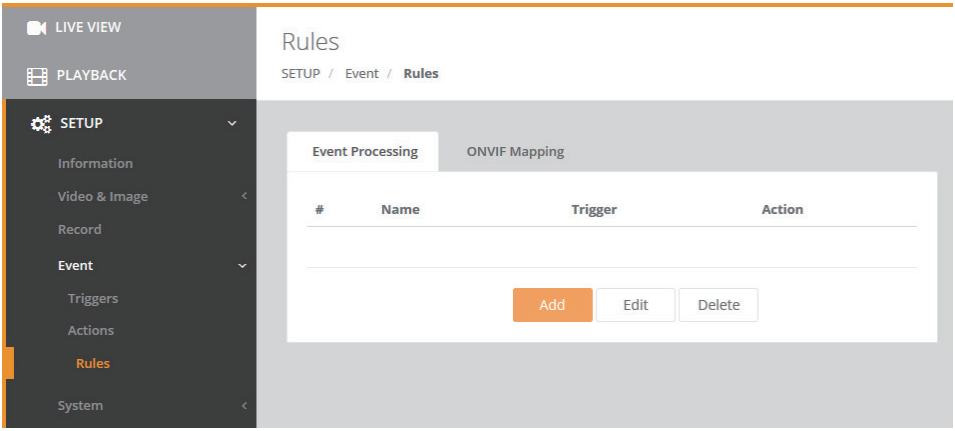
There could be several event actions like FTP, e-mail etc. For detailed URL per event actions, refer to API documents. In case Notification server is set as event rule, the same URL from Notification Test should be entered in RULE>ADD>NOTIFICATION SERVER.



Full Menu Setup

2-3-3. Rules

EVENT RULES menu defines and sets the parameters for what to do for the various event sources.



• *Event Processing*

Event process lists have to be generated and can be edited for what to do when the event occurs. List shows the rule name, trigger source and type of action for each event process. To edit or delete the rule in the list, click the listed line and then click EDIT or DELETE button.

ADDing & EDITing RULES

> NAME : Input the rule name which is descriptive to the rule.

EVENT TRIGGER

> TYPE : Select the type of the event trigger source.

EVENT ACTION

> E-MAIL :

- Input the email addresses to be emailed.
- Mark the checkbox for the email addresses to be emailed as set in SETUP>EVENT> ACTIONS>E-MAIL when the selected event occurs
- SUBJECT of email is a required field and ADDITIONAL INFO is optional to input.

> NOTIFICATION SERVER: Mark the checkbox to use the notification server as set in SETUP>EVENT> ACTIONS> NOTIFICATION SERVER when the selected event occurs.

- MESSAGE : Input the message to be sent to the notification server.

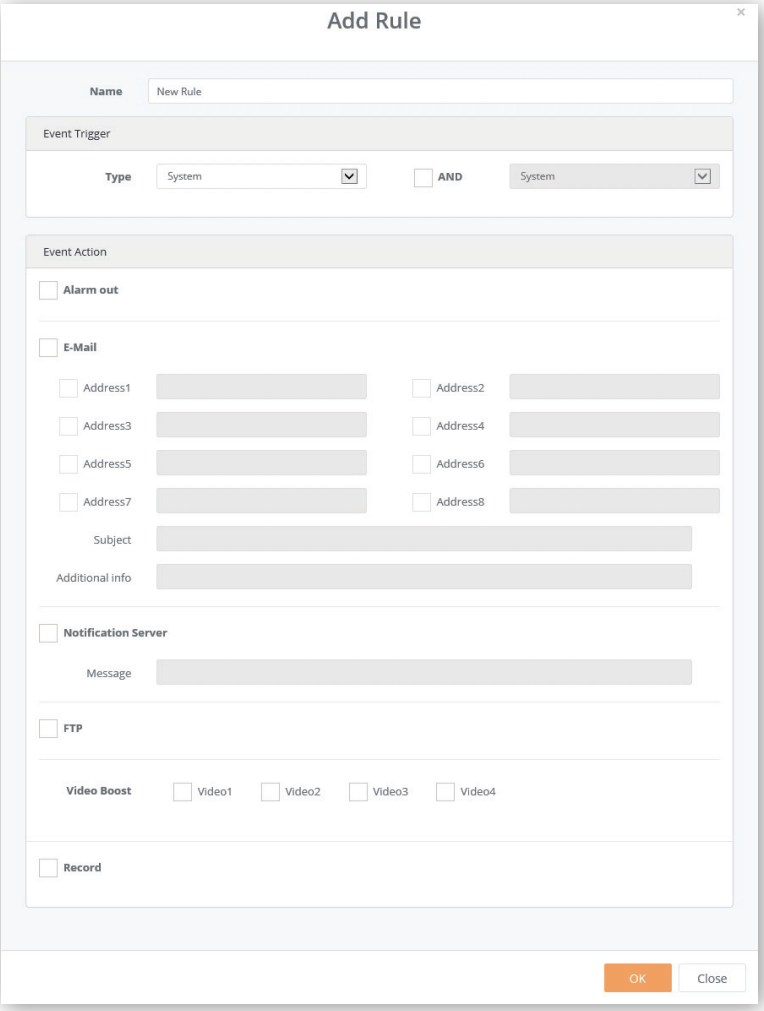
Full Menu Setup

> FTP : Mark the checkbox to use FTP as set in SETUP>EVENT>ACTIONS>FTP when the selected event occurs.

> VIDEO BOOST : Select the video stream to be boosted up.

[NOTE] Video boost is disabled if RECORD is enabled.

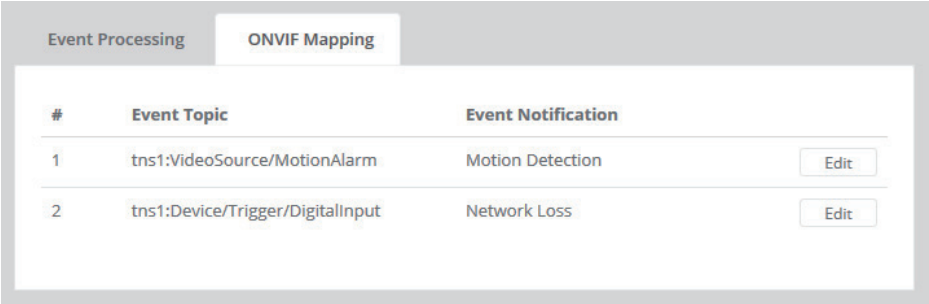
> RECORD : (Available only with the built-in Storage feature version)
Mark the checkbox to record the image into the built-in storage, if available, as set in SETUP>EVENT>ACTIONS>RECORD when the selected event occurs.



Full Menu Setup

• *ONVIF Mapping*

Onvif mapping is provided to map the various events generated by this camera, but not defined by Onvif, to assign them to Onvif events for the Onvif compatible VMSes or NVRs. Two mappings for Motion and Alarm In are provided to be mapped and can be used by editing them.
For example, any of the selected items in tns1:VideoSource/MotionAlarm will notify the Onvif compatible VMSes or NVRs as Motion Alarm. In the same way, any of the selected items in tns1: Device/Trigger/Digital Input will notify the Onvif compatible VMSes or NVRs as Alarm IN.



> Select which type of event notifications you want to send as motion alarm via ONVIF.
Event Notification: Motion Detection, VCA, Alarm IN(**), System Booting, Network loss, Manual Trigger, Timer, Day&Night, , Temperature(*)
(*) Not available with Fisheye dome model.
(**) Available only with Alarm supporting model.

Full Menu Setup

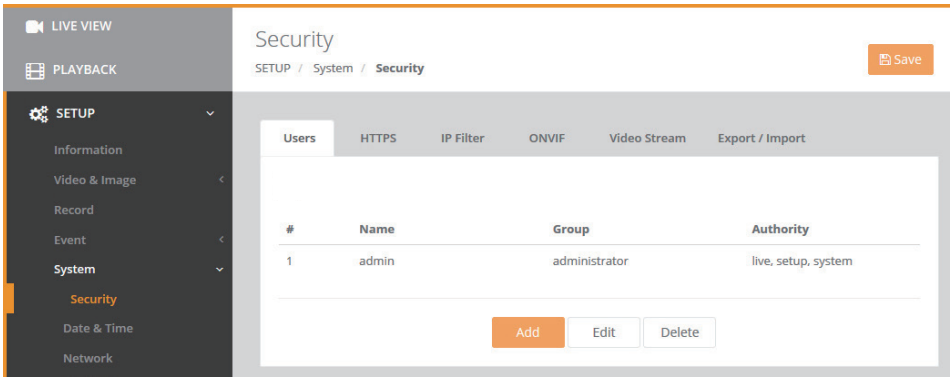
2-4. System

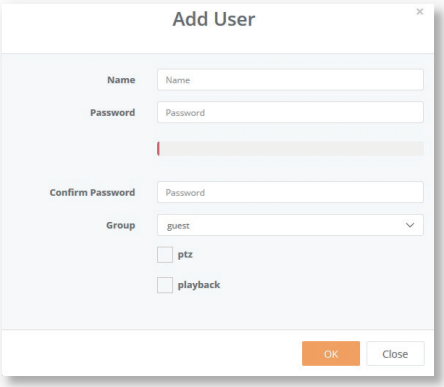
2-4-1. Security

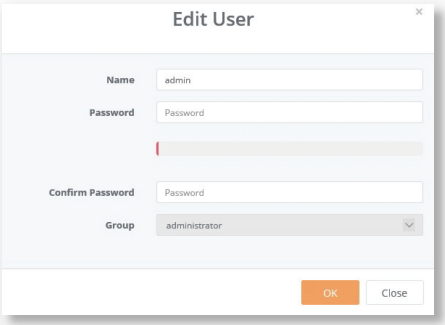
• *Users*

Manages the user accounts by names, groups and authorities.

> USERS : Can be added, edited or deleted.



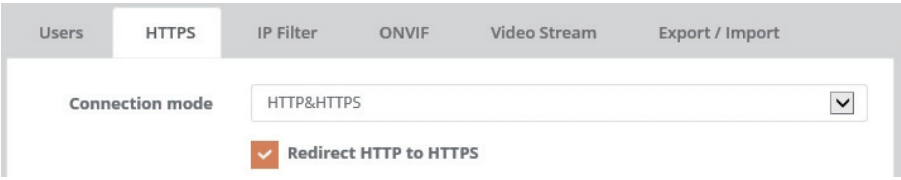




Full Menu Setup

• *HTTPS*

Selects the CONNECTION MODE.

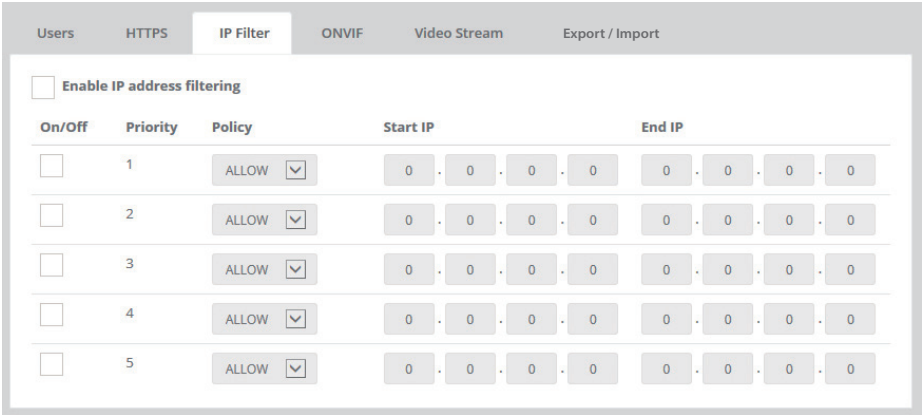


> HTTP : Transfers data without encryption. Supports a URL that only starts with "HTTP: "
> HTTPS : Transfer data with encryption by Hypertext Transfer Protocol over SSL protocol. Supports a URL that only starts with "HTTPS: "
> HTTP&HTTPS : Supports both HTTP and HTTPS protocols.
> Redirect HTTP to HTTPS : Enables to redirect HTTP to HTTPS.

[NOTE]
To ensure security on the internet, all web browsers provide several security levels that can be adjusted for sites that use SSL (Secure Socket Layer) technology to transfer data. SSL encrypts communications, making it difficult for unauthorized users to intercept and view user names and passwords. SSL requires signed certificates to determine if the web browser accessing the camera has the required authentication. This camera can generate a self-signed certificate using Open SSL.

• *IP Filter*

> Mark ENABLE IP ADRESS FILTERING to filter the IP addresses.
> Mark ON/OFF for the IP address range to use IP filtering.
> Select ALLOW or DENY to permit or filter out the IP address range.
> Input the IP address ranges with START IP and END IP.



Full Menu Setup

[NOTE] To add a subnet of network addresses, these must be added in CIDR (Classless Inter-Domain Routing) notation. For example: entering 192.168.1.0/24 will add all the addresses in the range 192.168.1.1 to 192.168.1.254. Contact your network administrator for more detail. If the network camera is accessed via a proxy server, the IP address for the proxy server must be added as an allowed address.

• *ONVIF*

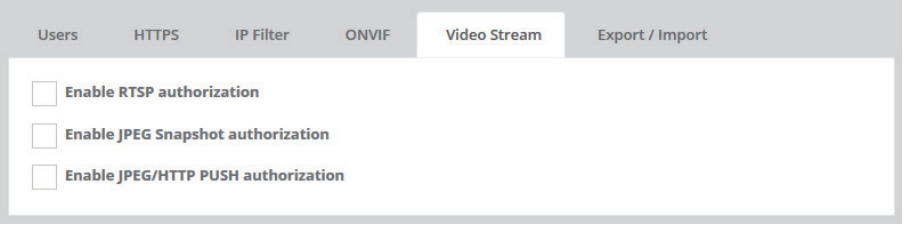
> Mark ENABLE WS SECURITY to provide the ONVIF compliance.

• *Video Stream*

> ENABLE RTSP AUTHORIZATION : If marked, the authorization is required when the RTSP is requested.

> ENABLE JPEG SNAPSHOT AUTHORIZATION : If marked, the authorization is required when the Jpeg snapshot image is requested.

> ENABLE JPEG/HTTP PUSH AUTHORIZATION : If marked, the authorization is required when the Jpeg/HTTP PUSH image is requested.

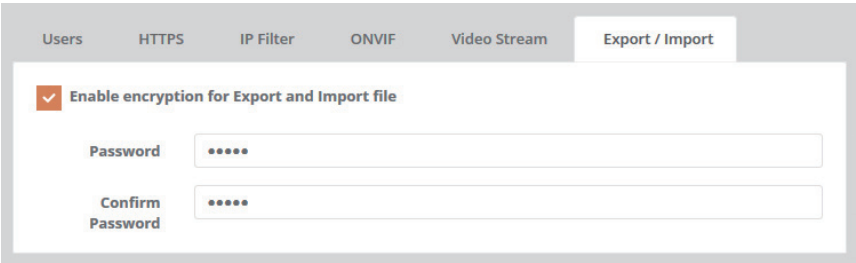


• *Export / Import*

> Mark ENABLE ENCRIPTION FOR EXPORT AND IMPORT FILE :
System configuration file, which is exported at SETUP>SYSTEM>MAINTENANCE> SETUP EXPORT, is encrypted with the password herein.

[NOTE] THIS PASSWORD MUST BE USED when System configuration file is imported by other cameras if the file was exported with the password.

> If the checkbox is not marked, system configuration file is exported without encryption.



Full Menu Setup

2-4-2. Date & Time

• *Current Time*

Shows the current date and time. Clicking SAVE tap updates and saves the date and time with the selected time in NEW TIME.

• *New Time*

Select one of the following server times.

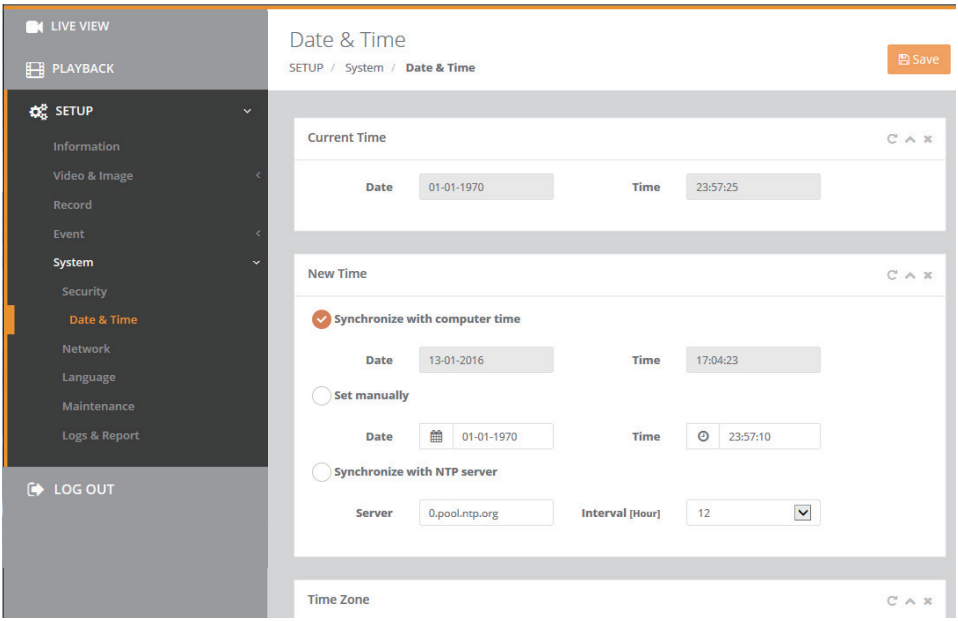
> SYNCHRONIZE WITH COMPUTER TIME : Obtains the time from the computer.
> SET MANUALLY : Sets the date and time manually.
> SYNCHRONIZE WITH NTP SERVER : Obtains the time from the assigned NTP server at every hour in INTERVAL. The NTP server's IP address or host name has to be specified in the time server.

• *Time Zone*

Select the time zone to be referenced to the NTP server where the camera is installed. Mark AUTOMATICALLY ADJUST FOR DAYLIGHT SAVING CHANGES check box to update the time automatically with daylight savings.

• *Date & Time Display*

Select the date & time formats to be displayed.



Full Menu Setup

2-4-3. Network

• *TCP/IP*

> IPv4 ADDRESS :

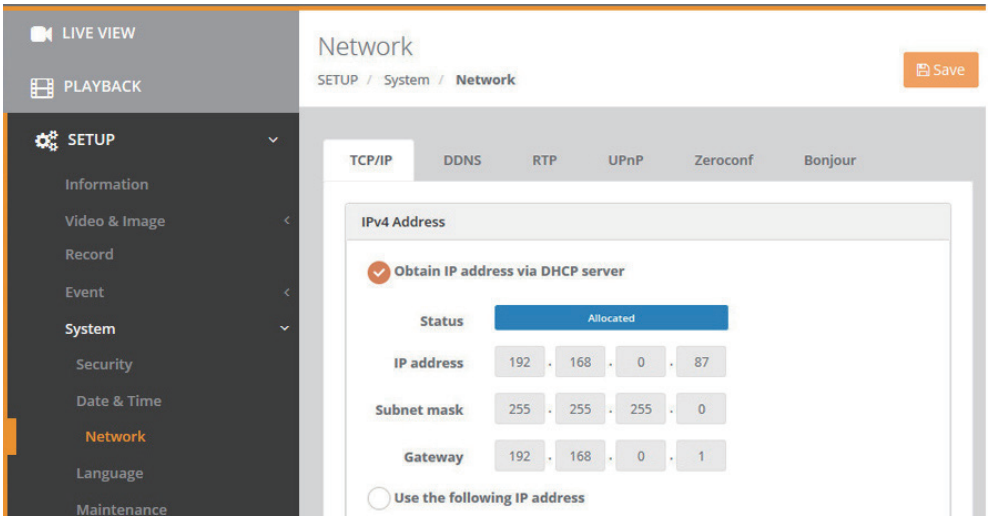
- OBTAIN IP ADRESS VIA DHCP : Gets the IP address assigned by the DHCP (Dynamic Host Configuration Protocol) server.
- STATUS : 'Allocated' shows that the IP address is obtained from the DHCP.
- IP ADDRESS, SUBNET MASK, GATEWAY : Displays the current IP address which is obtained from the DHCP.
- USE THE FOLLOWING ADDRESS : Requires the input of a static IP address manually.

> IPv6 ADDRESS : Mark ENABLE check box to use IPv6 address and click SAVE button, then new IPv6 address will be obtained.

> DNS :

- OBTAIN DNS ADDRESS VIA DHCP SERVER : Obtains the DNS address automatically assigned by DHCP server.
- USE THE FOLLOWING DNS ADDRESS : Requires manual input as per below.
  - DOMAIN NAME : Enter the domain for the host name
  - PRIMARY DNS SERVER : Enter the IP address of the primary DNS server.
  - SECONDARY DNS SERVER : Enter the IP address of the secondary DNS server.

> HOSTNAME : This camera can be accessed using a host name instead of an IP address. The host name is usually the same as the assigned DNS name.



Full Menu Setup

IPv6 Address

Enable

IPv6 address: fe80::211:22ff:fe33:4455/64

DNS

Obtain DNS address via DHCP server

Use the following DNS address

Domain name:

Primary DNS: 168 . 126 . 63 . 1

Secondary DNS: 0 . 0 . 0 . 0

Hostname

Hostname: RWS-H4MIPAF39-IR001122334455

Port

HTTP port: 80

HTTPS port: 443

RTSP port: 554

Ethernet Property

Speed & Duplex: Auto

Full Menu Setup

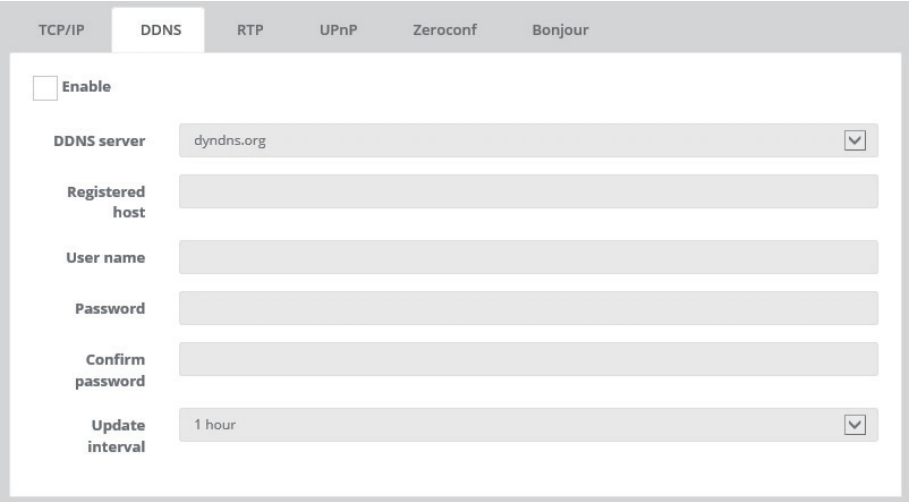
> PORT :
- HTTP PORT : Use a port number in the range 1024-65535. Default is 80.
- HTTPS PORT : Use a port number in the range 1024-65535. Default is 443.
- RTSP PORT : Use a port number in the range 1024-65535. Default is 554.

> Ethernet Property : Enable to set speed and duplex.

● *DDNS* (Dynamic Domain Naming Service)

> Mark ENABLE checkbox to use DDNS.
> DDNS server : Select the DDNS server to use.
> Input REGISTERED HOST name, USER NAME, PASSWORD and INTERVAL.

[NOTE]
If the camera has not been registered to the DDNS host previously, the registration is required. If the camera is already registered but its IP address changes, the DDNS must be updated with this new IP address. It will update at a regular interval.



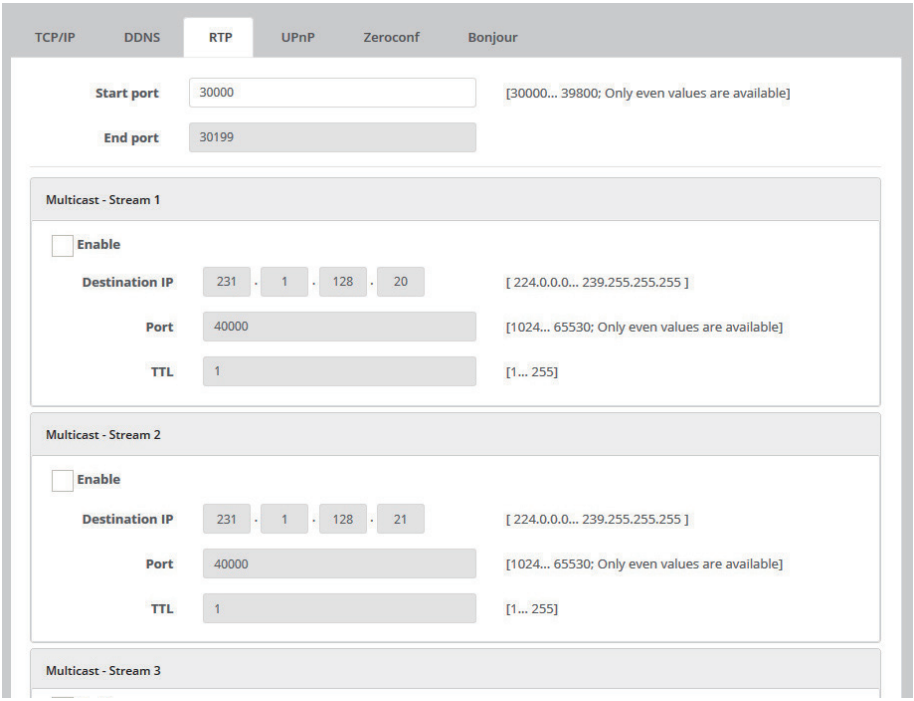
Full Menu Setup

• *RTP*

> START PORT & END PORT : RTP port range defines the range of the ports from which ports of the video/audio are automatically selected. This feature is useful if the camera is connected to a NAT router with manually configured port mapping. Limit the range of the ports permitted for RTP unicast/multicast by entering START PORT and END PORT.

> MULTICAST - STREAM1, 2, 3 : Only IP addresses within certain ranges can be used for multicasting. The camera has been pre-configured with addresses from these ranges and does not normally need to be reconfigured. If an address needs to be changed, please contact the network administrator.

- Mark ENABLE checkbox to use the multicast for each stream.
- DESTINATION IP: Type IP address in the range. Multicast addresses are allocated according to these IANA policies.
- PORT : Use the port number in the range 1024-65532. Default is 4000.
- TTL : When IP packets or data fails to be delivered to the destination within TTL (Time To Live), this setting tells the network router when to discard the packet. The value is usually measured in 'hops', i.e. the number of network routers that can be passed before the packet arrives at its destination or is dropped.



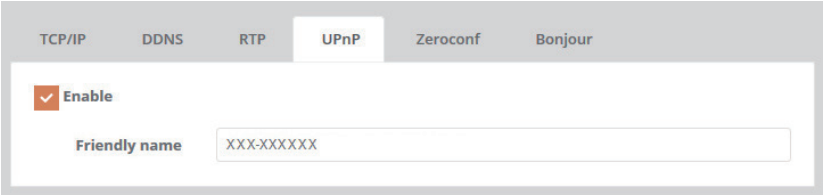
Full Menu Setup

• *UPnP*

UPnP is enabled by default so that the network camera can be automatically detected by operating systems and clients that support this protocol.

> FRIENDLY NAME : Enter the name up to 32 alphanumeric characters like Model Name-MAC address.

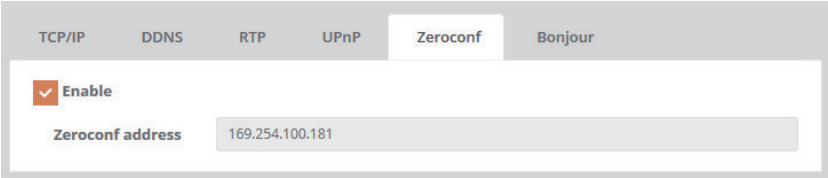
[NOTE]
UPnP must also be enabled on your Windows computer. To do this, open the Control Panel from the Start Menu and select Add/Rename programs. Select Add / Remove Windows Components and open the Networking Services section. Click Details and then select UPnP as the service to add.



• *Zeroconf*

ZeroConf (Zero configuration) networking enables the network to establish automatically with the automatic assignment of numeric network addresses (zeroconf IP addresses) without requiring manual operator intervention or special configuration servers when the DHCP server is not available in the network.

> Mark ENABLE to use ZeroConf networking.
> ZeroConf ADDRESS : 169.254.xxx.xxx as default.



• *Bonjour*

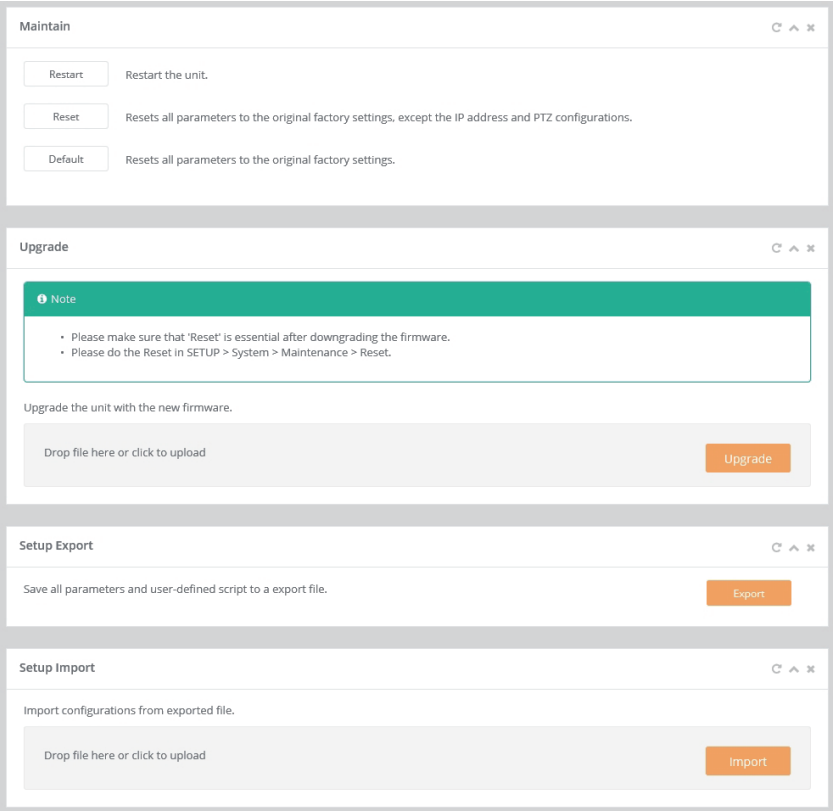
Bonjour is Apple's implementation of zero-configuration networking (zeroconf), a group of technologies that includes service discovery, address assignment, and hostname resolution.

Full Menu Setup

2-4-4. Language

4 languages are available to select from English, Deutsch (German), Français (French), and 한국어 (Korean).

2-4-5. Maintenance



- ***Maintain***

> RESTART : Restarts the camera without changing any settings.
> RESET : Restarts and loads the factory settings but does not change IP address and PTZ settings.
> DEFAULT : Loads and saves the factory defaults for all parameters including IP address and PTZ settings.

[CAUTION]
Do not disconnect the power or network cable during RESET or DEFAULT operations.

Full Menu Setup

● *Upgrade*

Bring the firmware file to the drop box or click the drop box to browse for the firmware file, and then click the UPGRADE button.

[CAUTION] Do not disconnect the power or network cable during firmware UPGRADE.

● *Setup Export*

Current configurations for the camera can be saved as a file by clicking the EXPORT button.

● *Setup Import*

The exported configuration file from a reference camera or a backup configuration can be imported and configured/reloaded onto other cameras.

[NOTE]

- SETUP EXPORT/SETUP IMPORT can only be used on the same camera models with the same firmware. This feature is not intended for the configuration of multiple units or for firmware upgrades.
- When the encrypted System configuration file with the password is imported, type the password at SETUP>SYSTEM>SECURITY>EXPORT/IMPORT with the SAME password which was used in exporting the system configuration file from the reference camera. Otherwise, 'INVALID FILE' error appears.

2-4-6. Logs & Report

● *Logs*

The log file records the story into the unit since the system restarts.

> DATABASE CAPACITY: Shows the useable system memory space for Log file.
> SEARCH CONDITION: Allows you to search the log as per the type. E.g. System, Access, Event and Media, Start-End date and Start-End time.
> LOG LIST: Shows the logs as per the search.

● *Logs Server*

Mark ENABLE checkbox to receive log data from camera to server.

> TLS Encryption: Mark checkbox to encrypt the communication data.
> Type: Selects the network protocol to connect the server.
> Format: Selects the log protocol.
> Server address: Inputs the server address.
> Server port: Inputs the server port.

● *Report*

Provides overall information about the server status.

Full Menu Setup

3. 4 EYES PRINCIPLE

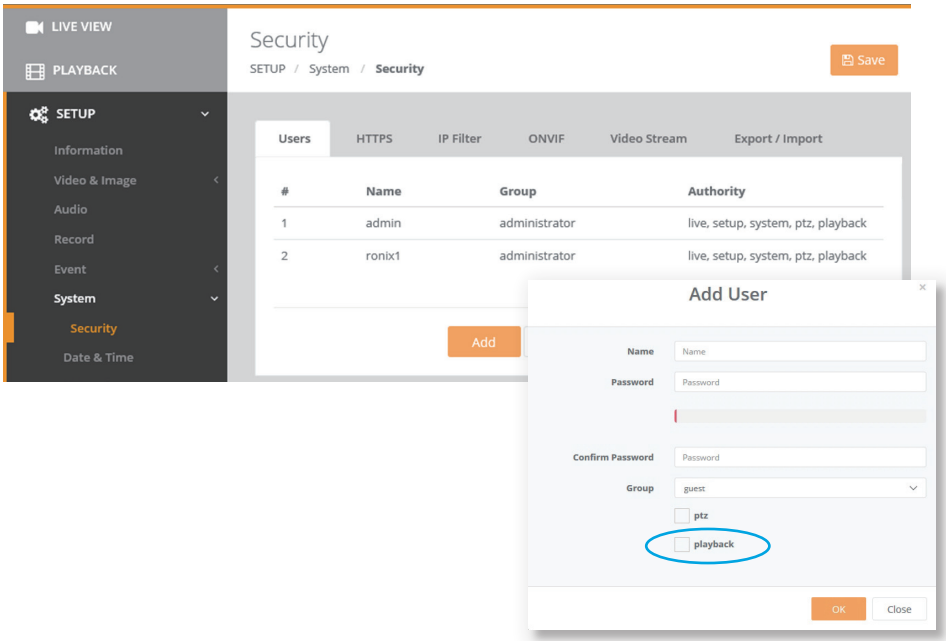
> Four Eyes Principle Setting :

- Mark ENABLE checkbox to enable 4 EYES PRINCIPLE function.
  Only Administrators(user authority) are authorized to ENABLE/DISABLE 4 EYES PRINCIPLE function.
  Two individual administrators who have Playback authority, should approve in order to playback recorded data on Micro SD card for data security.
  One administrator should click Approval #1 and the other administrator should click Approval #2.

- Mark DISABLE checkbox to disable 4 EYES PRINCIPLE function.
  Single administrator(user authority) can access PLAYBACK menu and replay recorded data on Micro SD.
  All users with Playback authority can access the PLAYBACK menu.

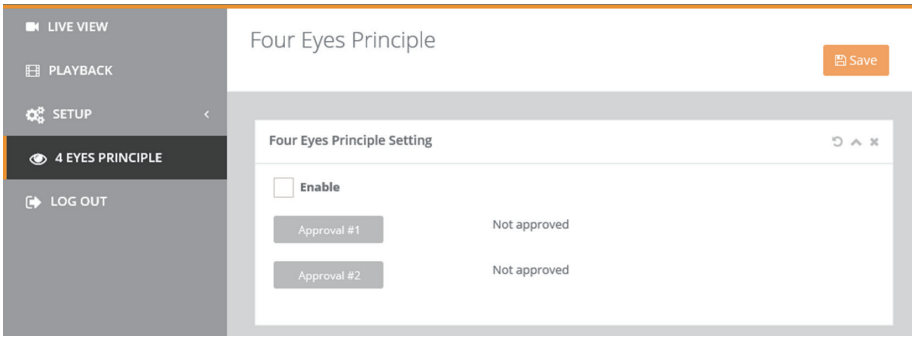
> How to set 4 EYES PRINCIPLE :

1) LOGIN with Administrator 1(admin) and add User in SETUP > System > Security > Users.
   Added User should be Administrator or Operator.
   Playback box should be marked when added User is Operator.

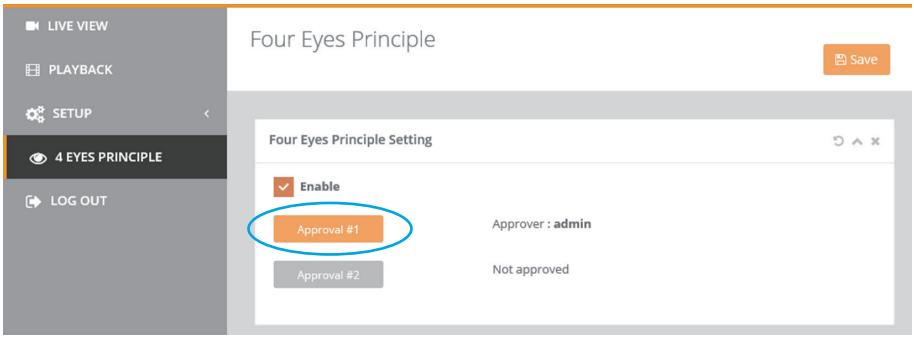


Full Menu Setup

2) Mark ENABLE/DISABLE checkbox to ON/OFF 4 EYES PRINCIPLE function(Default: OFF).
"Save" button should be pressed after ENABLE/DISABLE checkbox.
Only Administrators are authorized to ENABLE/DISABLE 4 EYES PRINCIPLE function.

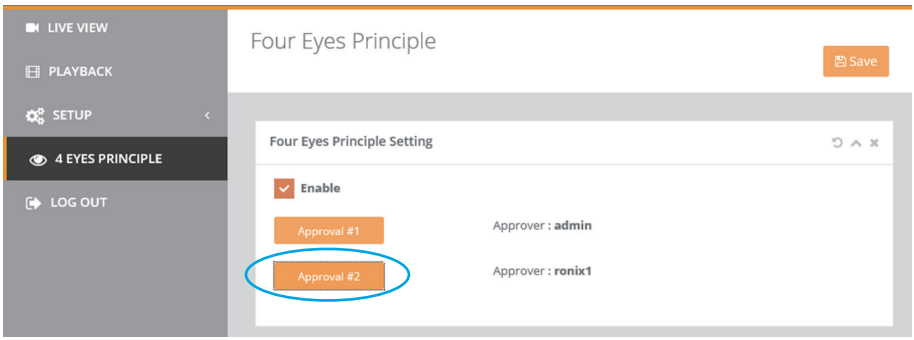


3) Press Approval #1 and activate(approval) in 4 EYES PRINCIPLE menu.
If it is LOG OUT, Approval #1(#2) becomes inactivated(disapproval) so it shouldn't be LOG OUT.

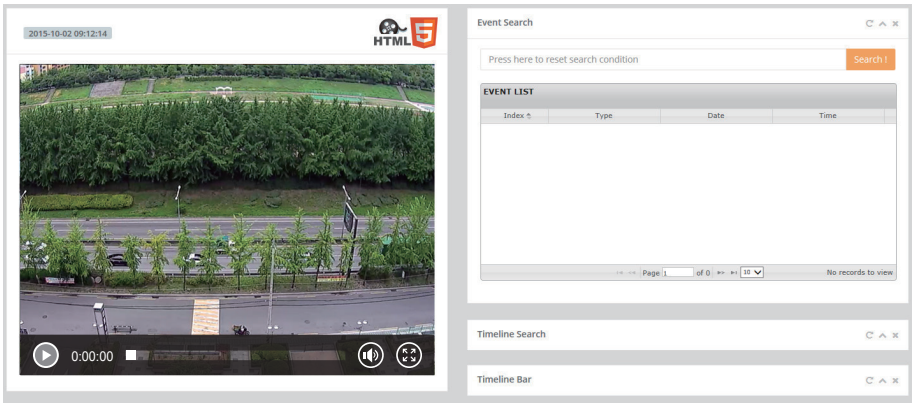


Full Menu Setup

4) Open NEW Web browser and LOGIN with newly added User account.
Press Approval #2 and activate(approval) in 4 EYES PRINCIPLE menu.



5) Once Approval #1(#2) is complete, check the recorded video in PLAYBACK menu.



Troubleshooting

If you suspect a problem is being caused by incorrect configuration or some other minor problem, consult the troubleshooting guide below.

Upgrading the Firmware

Firmware is software that determines the functionality of the network camera. One of your first actions when troubleshooting a problem should be to check the current firmware. The latest version may contain a correction that fixes your particular problem. The current firmware version in your camera is displayed on the Basic Configuration or About. For the latest firmware of the camera, please contact with your product administrator.
Detailed instructions on how to perform the upgrade process are provided with each new release.

General Troubleshooting

The following list covers some of the problems that may be encountered and suggests how to remedy them:

Symptom	Guide
The camera cannot be accessed by some clients.	If using a proxy server, try disabling the proxy setting in your browser. Check all cabling and connectors.
The camera works locally, but not externally	Check if there are firewall settings that need to be adjusted. Check if there are router settings that need to be configured.
Poor or intermittent network connection.	If using a network switch, check that the port on that device uses the same setting for the network connection type (speed/duplex).
The camera cannot be accessed via a host name.	Check that the host name and DNS server settings are correct.
Not possible to log in.	When HTTPS is enabled, ensure that the correct protocol (HTTP or HTTPS) is used. When attempting to log in, you may need to manually type in http or https in the browser's address bar.
No image using Refresh and/or slow updating of images.	If images are very complex, try limiting the number of clients accessing the camera.
Images only shown in black & white.	Check the Video & Image setting.
Blurred images.	Refocus the camera.

Troubleshooting

Poor image quality.	Increased lighting can often improve image quality. Check that there is sufficient lighting at the monitored location. Check all image and lighting settings.
Rolling dark bands or flickering in image.	Try adjusting the Exposure Control setting under AE and AWB part.
H.265, H.264 not displayed in the client.	Check that the correct network interface is selected in the Video & Image/Stream.
Multicast H.265, H.264 not displayed in the client.	Check with your network administrator that the multicast addresses used by the camera are valid for your network. Check that the Enable multicast checkbox are enabled in the System/Network/RTP tab. Checks with your network administrator to see if there is a firewall preventing viewing.
Multicast H.265, H.264 only accessible by local clients.	Check if your router supports multicasting, or if the router settings between the client and the server need to be configured. The TTL value may need to be increased.
Color saturation is different in H.265, H.264 and Motion JPEG.	Modify the settings for your graphics adapter. Please see the adapter's documentation for more information.
Poor audio quality.	Too many users/clients connected to the camera may affect the sound quality adversely. Try limiting the number of clients allowed to connect.
Distorted audio.	Check that the correct Audio Input source is selected. Select Microphone for a connected external microphone. Select Line for a connected line in source.

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