Marshall Electronics

VS-547-3GSDI

2 Megapixel IP Box Camera

X30 Zoom CMOS, 1080P @60fps

User Manual

Firmware Version v1.0

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Safety Precaution

We appreciate your IP camera purchase.
Before installing the product, please read the following with care.

- ✧ Make sure to turn off the power before installing IP camera.
- ✧ Do not install under direct sunlight or in dusty areas.
- ✧ Make sure to use the product within the temperature and humidity specified.
- ✧ Do not operate the product in presence of vibrations or strong magnetic fields.
- ✧ Do not put electrically conducting materials in the ventilation hole.
- ✧ Do not open the top cover of the products. It may cause a failure or electric shock on the components.
- ✧ Make sure to leave a space of at least 10 cm from the ventilation hole in order to prevent overheating.
- ✧ Check voltage and current requirements before connecting a power supply.

1. Introduction

1.1 About this Manual

This User Manual provides information on installation setup, operation of the IP Camera, as well as troubleshooting tips.

1.2 Features

This product is a network-based box camera with live remote monitoring, audio monitoring and control via an IP network such as LAN, ADSL/VDSL, and wireless LAN.

Video

- Highly Efficient Compression Algorithm; H.264 & MJPEG support
- Wide range of Transmission Rates: 32kbps - 16mbps
- Various Transmission Modes: CBR, VBR, Hybrid
- Motion Detection

Audio

- Multi-Transmission Mode: Simplex (IP Camera to Client PC or Decoder/ Client PC or Decoder to IP Camera), Full Duplex

Network

- Fixed IP & Dynamic IP (DHCP) support
- 1:1, 1:N support
- Multicasting
- Various types of Protocol support : TCP/IP, UDP, Multicast, DHCP, SMTP, HTTP, SNMP, RTP, RTSP
- OnVIF, PSIA compliant

Serial Data

- RS-485 support
- Data Pass-Through Mode: Serial Data Communication between IP Camera and Decoder

Sensor and Alarm

- Supports direct connections of External Sensor and Alarm Devices
- Event Alarm
- If an external sensor is activated, camera can be set to move to the corresponding preset position

User Interface

- Diagnose and upgrade through dedicated program called VS Manager

High Reliability

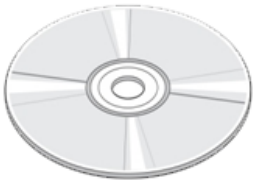
- Reliable Embedded System

1. Introduction

1.3 Products and Accessories

VS-547-SGSDI

Quick Manual



SW and User Manual CD

Part Names and Functions

Rear View

Connector	Function
1. Ethernet/802.3af	Ethernet port/802.3af LED : Booting and system check
2. RESET Button	Initialization of network setting
3. AUDIO IN	Audio input
4. AUDIO OUT	Audio output
5. POWER IN	DC 12V
6. SENSOR/ALARM	Sensor input/ Alarm output
7. RS-485	RS-485 port
8. VIDEO OUT	Composite / HD-SDI / HDMI Video output (Depending on models)
9. SD CARD	SD memory card slot

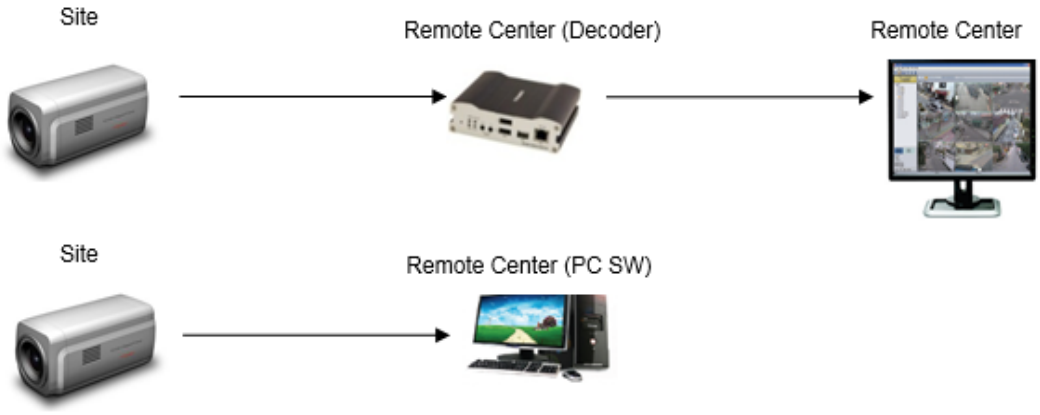
1. Introduction

1.4 System Connections

The IP Camera can be connected in one of two ways:
1) 1 to 1 connection where one camera is connected to one PC client or a decoder system, or 2) 1 to many connections where one system can be connected to several PCs and decoder systems (the video server can work as a video decoder which takes the data from a video server or IP camera, decodes and outputs analog video).

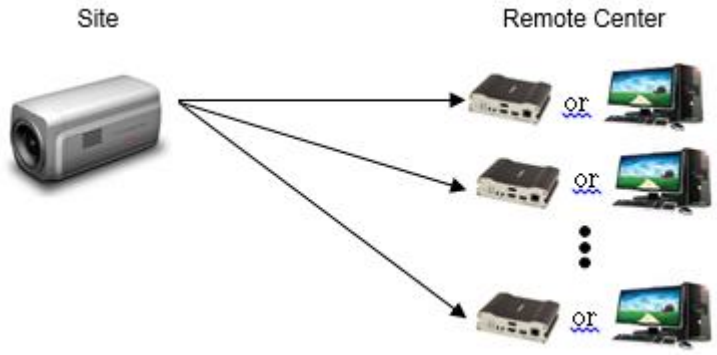
Topology
Generally, the IP Camera and PC or a Decoder is connected in a 1-to-1 mode or a 1-to many configuration:

- **1:1 Connection**



One camera is installed at a site where video images are transmitted. A PC or a decoder is installed at a central location to receive and view the video images on an analog monitor. Audio and serial data are transferred in either direction.

- **1:N Connection**



In this configuration, a site can be monitored from many remote central locations. Although up to 64 PCs or Decoders can be connected to one IP Camera, the maximum connections would be limited by network bandwidth connection. Functionally, the VMS (Video Management System) software provided can replace the decoder.

1. Introduction

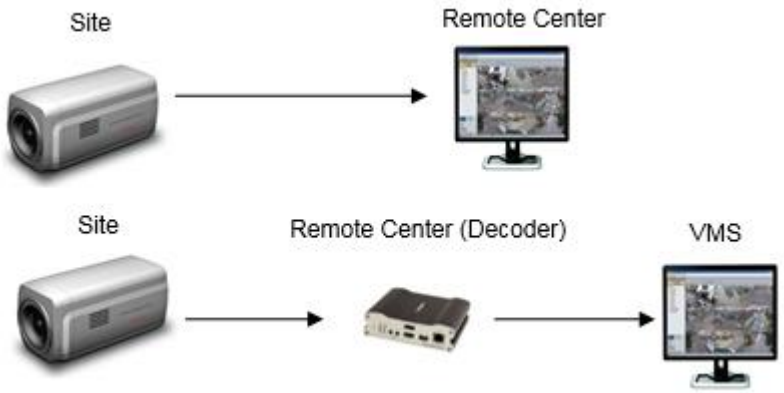
Multicast Mode

If the network supports **Multicasting**, a large number of decoders can be used to receive video effectively using a single video and audio streaming. However, Multicast Mode is possible only when the network environment supports Multicast.

- **Relaying**

In this arrangement, video and audio can be re-transmitted from one center to another center. The arrangement is useful when the network bandwidth at the site is limited while there is more than one center wanting to monitor the site.

- **VMS (Video Management System)**



VMS (Video Management System) is a Windows based remote monitoring program to access multiple servers for real-time monitoring or control of the servers and connected cameras. Please refer to the VMS User Manual for more information on VMS.

2. Installation

2.1 Connecting Power

After confirming the Power Source, connect Power Adaptor and connect the 12VDC Connector to the System.

2.2 Connecting Network

Plug the Network Cable into the Ethernet port (RJ-45 network port).

2.3 Connecting Video

1) To display video through the composite or HD-SDI port, connect each port to a monitor using BNC coaxial cable. To display video through the HDMI port, connect the port to a monitor using the HDMI cable**.**

2) On the Video tab, the **Enable Preview** option should be set to **"ON".** (Please refer to the Video Configuration section for more details):

- Video cannot be viewed if the BNC coaxial cable is not connected when using HD-SDI.
- If the video transmission distance is too far away, the video data may not be transmitted due to a reduction in the video signal. In order to prevent this, install a repeater in the middle.
- When using HD-SDI, the video can be viewed on the HD-SDI monitor.
- When using HDMI, the video can be viewed on the monitor supporting HDMI.

2.4 Connecting Audio

Audio is **Full-Duplex**. It is possible to set the mode as **Tx-only**, **Rx-only,** or **Tx-Rx**.

- Connect audio input and output ports to audio devices accordingly.
- The Audio signal required is line level, so audio equipment with an amp, mixer or other amplifier should be used.

2.5 Connecting Serial Port (RS-485 Communication)

This IP Box Camera can be connected to external equipment such as a PT receiver, etc. The camera can send PT commands via the Serial Ports.

When a Decoder System is used to connect the IP Box Camera to the Serial Port, the Decoder System works in Pass-Through Mode (data from one port is delivered to the other port.

2.6 Connecting Sensor and Alarm

Connect Sensor and Alarm Devices to corresponding terminals accordingly.

2.7 Check If It Works

Once the power is supplied to the camera, it will start booting. The system will boot up to operation mode after approximately 40-60 seconds. The green LED on the Ethernet Port will flash indicating the system is ready.

Software provided on the disc called **VS Manager** allows you to check the IP address and other network details of the camera. Please refer to the VS Manager manual for instructions on how to find the IP address of the camera and to make necessary changes.

3. System Operation

3.1 Remote Video Monitoring

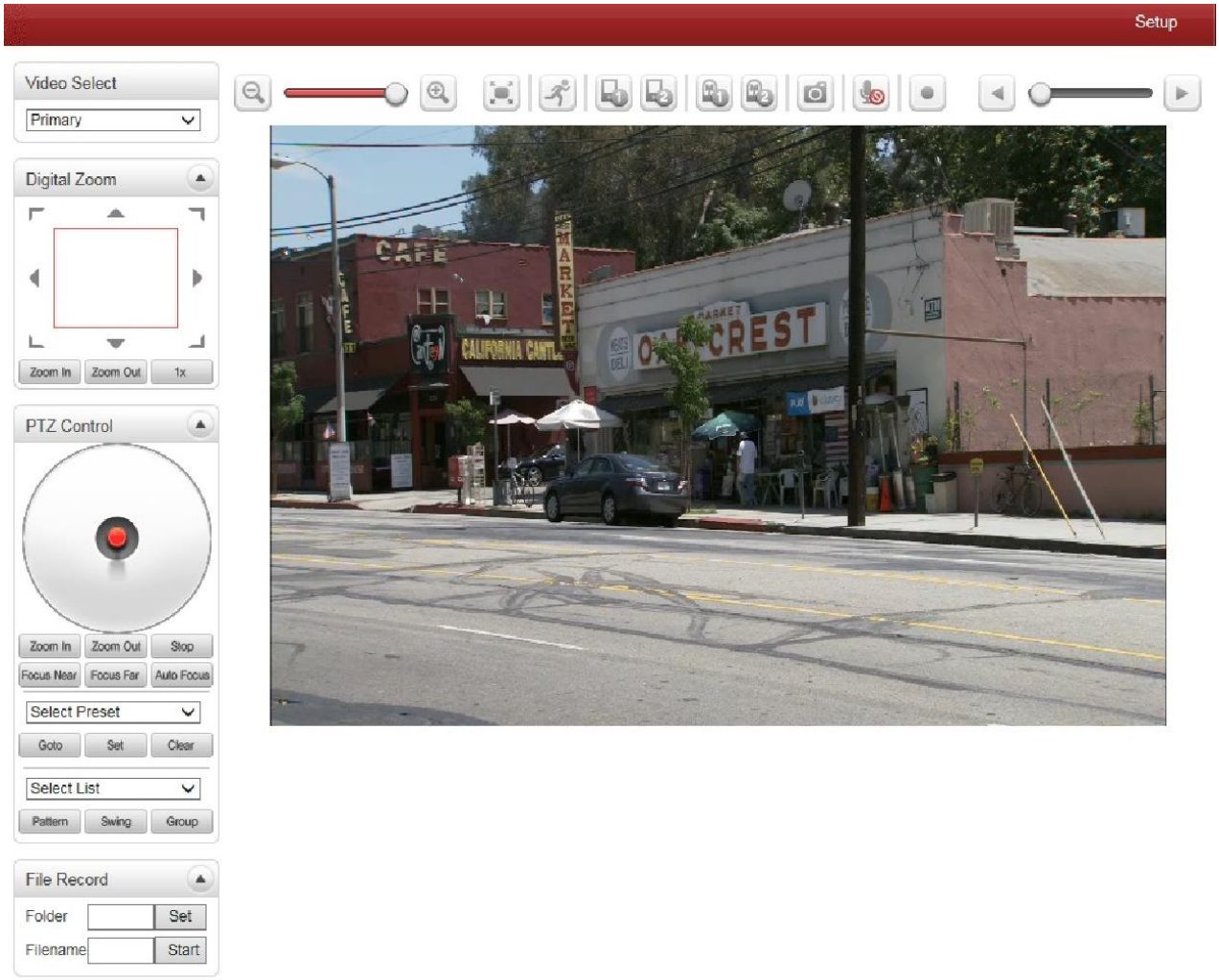
There are two ways to monitor video when the VMS (Video Management System) and IP Camera are connected. In order for a proper operation, an IP Address must be set accordingly. Please refer to the **VS Manager Manual** enclosed with product for further details.

Default ID: admin	Default Password: 1234

Video Monitoring using Internet Explorer

Open Internet Explorer and enter the Camera's IP Address. The system will ask for confirmation to install Active-X Control. Once authorized, Internet Explorer will begin to display video images from the Camera as shown below:

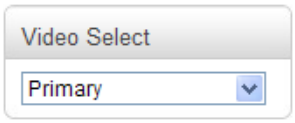
Default IP Address : http://192.168.10.100



3. System Operation

- **Video Select**

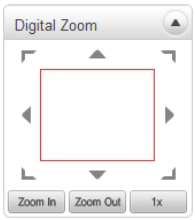
Select the Video Stream to be viewed: **Primary, Secondary, Tertiary** or **Quartic Streaming**
This camera is capable of **Dual Streaming**; Primary Streaming and Secondary Streaming. Video will be displayed according to the resolution set on video configuration. If Dual Streaming (**"Use Dual Encode" Menu in Video page**) is not activated, Secondary Videos are not available.



- **View Size**

Adjust the Screen Size. Screen size is initially adjusted according to the **Compression Resolution.** If you click 50% icon, the whole screen size will be reduced to half size.

- **Digital Zoom**



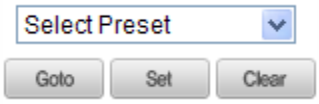
Control the Digital Zoom on the screen. The more the camera zooms in, the smaller the square of control panel is. Position of the image can be changed by moving position of the square. If you press "**1x"**, the screen will return to the normal size.

- **PTZ Control (Optical Zoom & Digital Zoom Built-In Camera)**

PTZ Control Panel is used for controlling External PTZ devices when the External PTZ devices are connected through a special Serial Port. It is possible to control zooming by using the **Zoom In/Out** buttons of PTZ Control Panel. In order to use Digital Zoom, select **Digital Zoom "ON"** in the **Camera Tab**)

- **"Stop"**
  Stop on-going action.
- **"Focus Near", "Focus Far", "Auto Focus"**
  Adjust the focus of the lens.

- **Select Preset**



Set preset position and move to the specific preset position.
- **GoTo**: After set up, move to the selected preset entry.
- **Set**: Set the current position to the selected preset entry.
- **Clear**: Delete the selected preset entry.

- **Sensor Input and Alarm Input**

Displays the status of the sensor in real time. This camera supports **One Sensor Input**. When the sensor of the camera is working, the sensor light turns red. Operate the Alarm Device by pressing the number icon. This camera supports **One Alarm Output**. A number icon indicates the status of the alarm device.

3. System Operation

- **Snapshot**

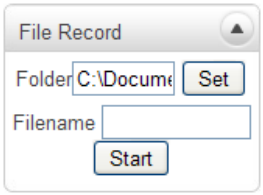
Capture video images and save them as BMP or JPEG files. 

- **Talk**

Transfer audio from the PC microphone to the camera. 

- **File Record**

Recording to an AVI file on Live View page is available. AVI files are generated in the specified folder or in specified file name on the PC where the web browser is running.



1. Press "**Set**" button to select folder or create a new folder. Enter the file name on Filename field.
2. Press **"Start"** button to start recording.
3. Press **"Stop"** button to end recording.
4. AVI file named "**IP address_hh_mm_ss"** or "**File name_IP address_hh_mm_ss"** will be generated in the specified folder depending on whether the path specified a folder or a prefix of the file name.

- **Display Buffer**

Set the number of video frames to be buffered before being displayed on web browser. Larger values result in smoother video by sacrificing the latency. A setting of 10 ~ 15 frames can be generally used for most situations.

Video Monitoring with Decoder System

When the Camera's IP Address is set in the Remote IP Address section of the Decoder, the Decoder System will connect to the camera and start receiving the video images. Normally, a monitor connected to the decoder will display video images.

3.2 Initialization of IP address

If a System IP Address is lost, the system can be reset to the System Default IP Address using the Reset Button to the left of the LED lights.

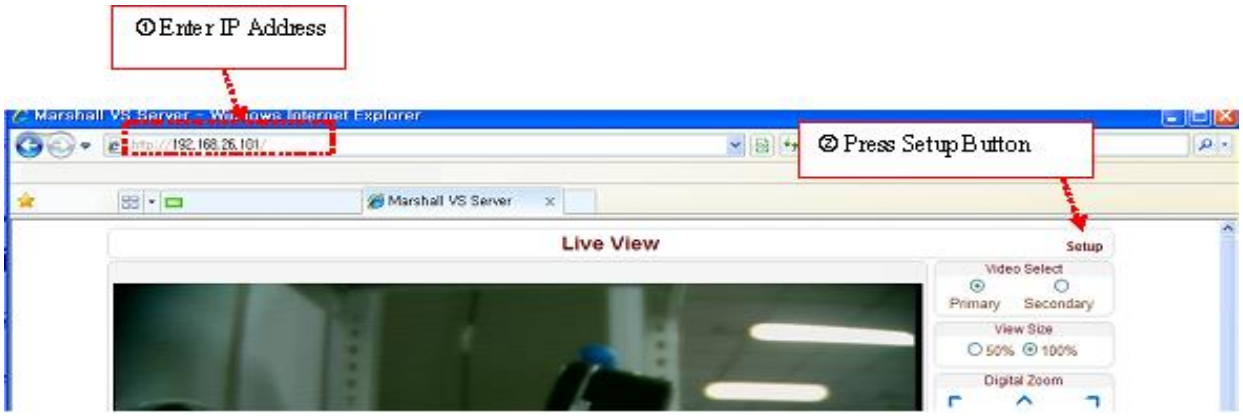
1. While system is in operation, press the reset button for more than 5 seconds.
2. The system will reboot automatically.
3. Once the system reboots, IP Address will be set to the System Default as below:

• **IP Mode**	**Fixed IP**	• **IP Address**	**192.168.10.100**
• **Subnet Mask**	**255.255.255.0**	• **Gateway**	**192.168.10.1**
• **Base Port**	**2222**	• **HTTP Port**	**80**

4. Remote Configuration

4.1 System Configuration

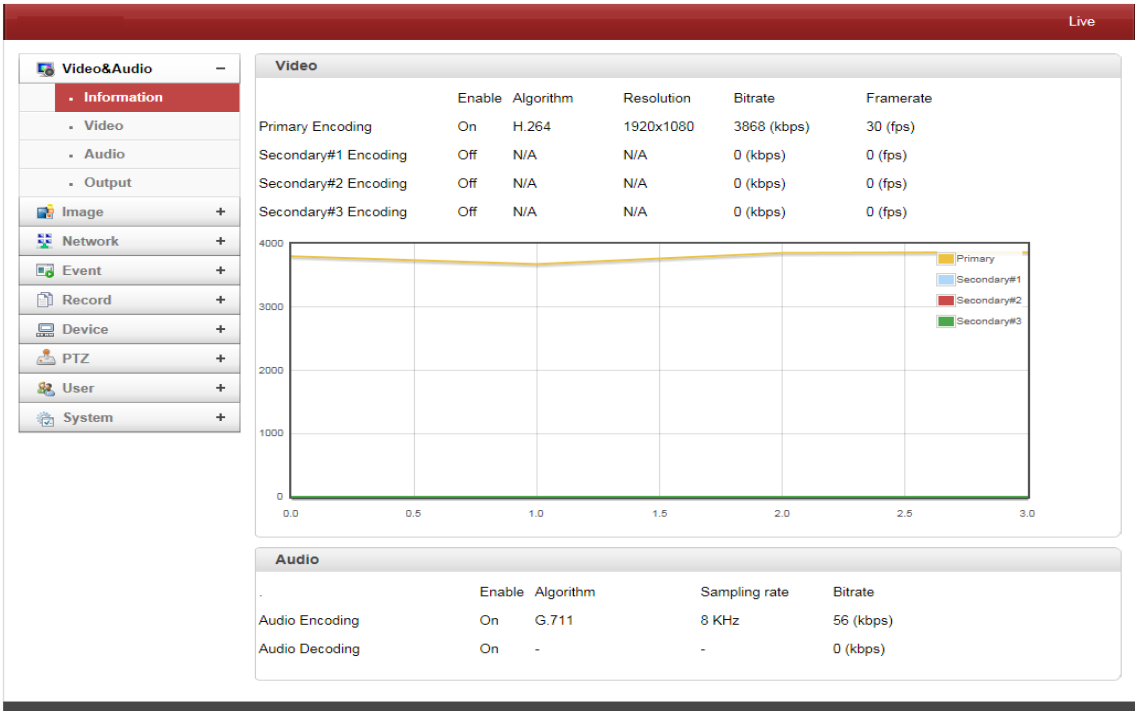
Remote Setting is available by using web browser. Enter IP Address of the Camera and a Live View screen appears (see below). Press the **Setup** button located in the upper right area of the monitoring screen for Server Setup. For Remote Setting, the user should have manager-level authority or higher.



The configurations are grouped into 9 categories: **Video & Audio, Image, Network, Event, Record, Device, PTZ, System, and User.** To save configuration changes, click "**Apply"**. Leaving the page without clicking "**Apply"** will discard any new changes.

4.2 Video & Audio Configuration

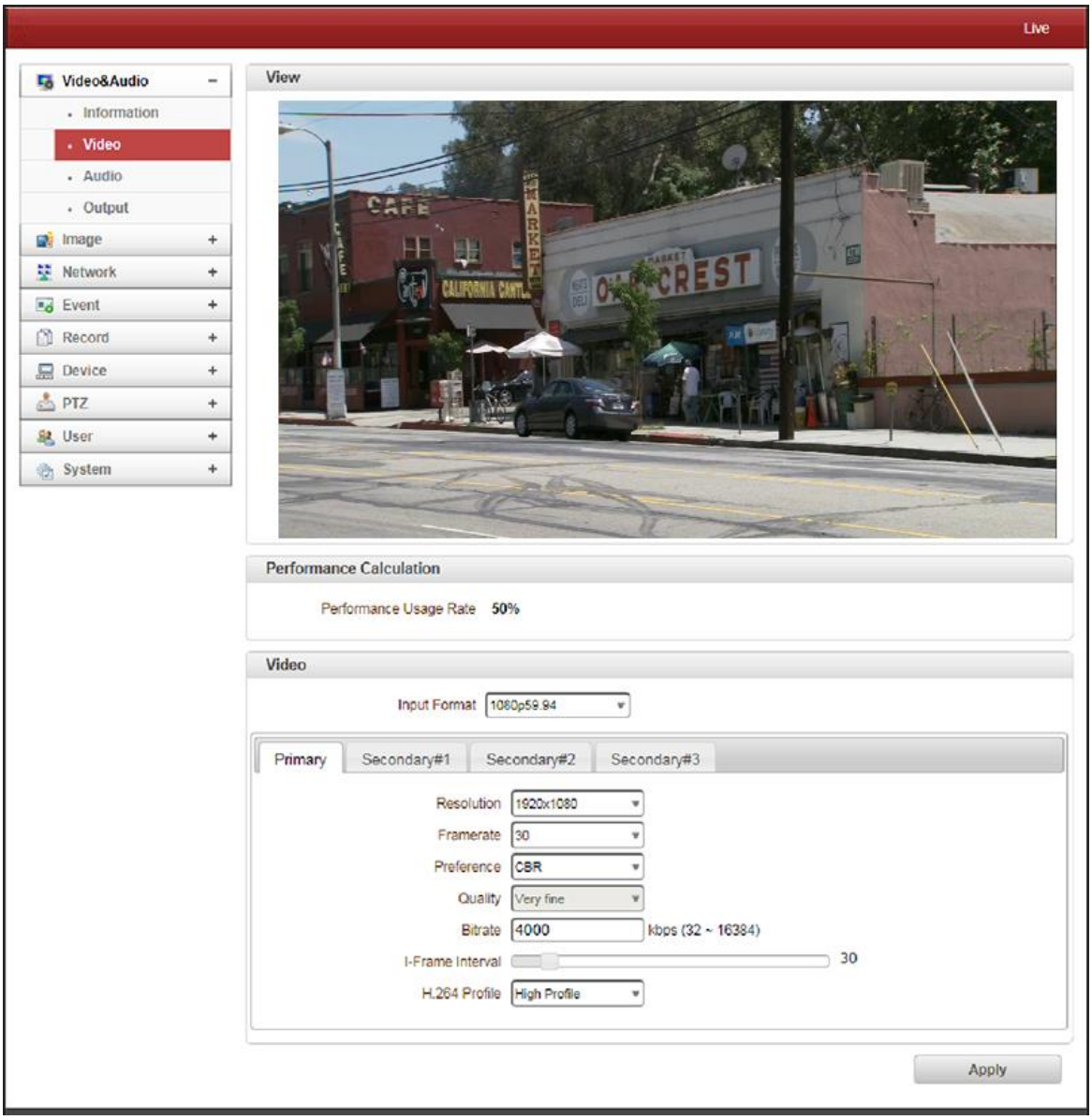
Information



The information provides current information for Video and Audio Settings.

4. Remote Configuration

Video



- **Performance Calculation**

Shows the performance usage rate according to the value set at for **Encode** mode.

- **Input Format**

Choose the appropriate Input Format from the list provided.

- **Resolution**

Select the appropriate **Video Encoding Resolution**. The **Scaling** option is used when the Encoding Resolution is different from Input Resolution. Without Scaling, the input video will be cut according to the encoding resolution. If Scaling is selected, the input video will be adjusted according to encoding resolution.

- **Framerate**

Determine the maximum number of frames per second for the video stream. 1,2,3,4,5,6,8,10,15,20,25,30 and 60 frame rate can be selected. The actual frame rate of the video can be less than the maximum frame rate set due to the network bandwidth limitation.

- **Preference**

Select Encoding Mode to control the video quality or bitrate: **Quality (VBR)** or **Bit Rate (CBR)**. If Bitrate is selected, the video encoding will be prompted by the Bitrate value entered. Therefore, the Bitrate mode corresponds to CBR (Constant Bit Rate) encoding. If Quality is selected, the video encoding will be prompted by the quality of image selected. Therefore, Quality mode corresponds to VBR (Variable Bit Rate) encoding.

- **Quality**

Select Quality Level: 7 Levels of Quality are available. **Quality Mode (VBR Encoding)** encodes every frame in a constant quality. Therefore, resulting bitrate may vary a lot depending on the complexity or activity changes in the input video. Quality Mode is preferred when constant video quality is required and the network bandwidth is enough for delivering the stream of highly varying bitrate.

- **Bitrate**

Bitrate value ranges between 32 and 16Mbps. **Bitrate Mode (CBR Encoding)** allows you to set a fixed target bitrate that consumes a predictable amount of bandwidth. In order to stay within the bitrate limit, video quality is controlled dynamically according to the complexity or activity changes in the input video.

- **I-Frame Interval**

I-Frame Interval ranges between 1 and 255.

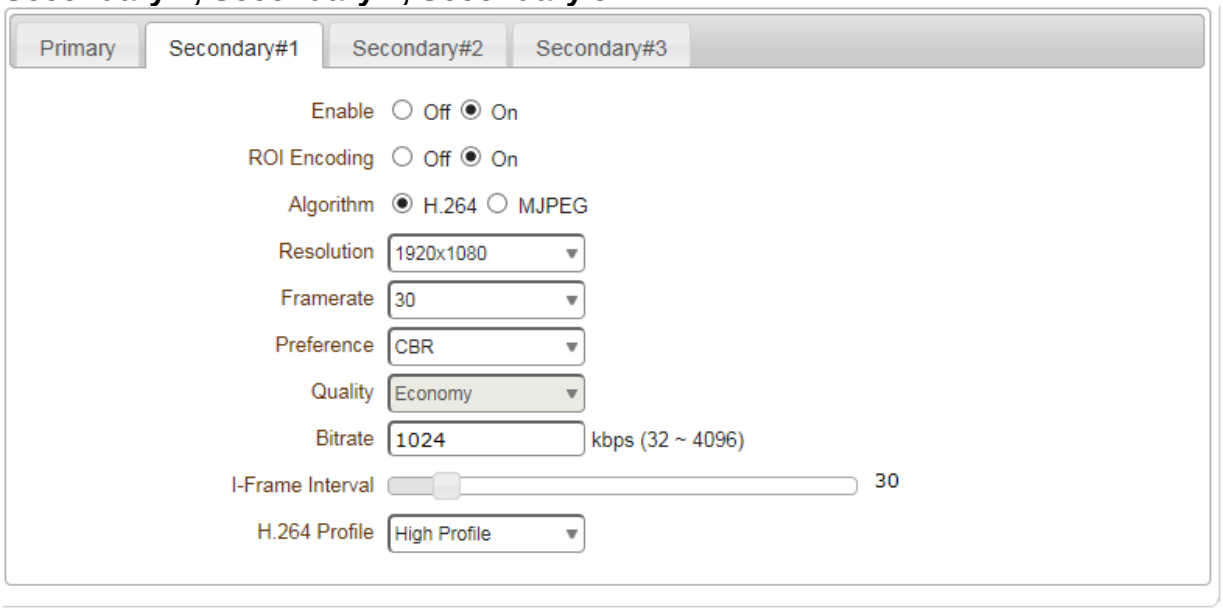
- **H.264 Profile**

Select the H.264 Profile: **High Profile** or **Baseline Profile**
A profile defines the various capabilities which target specific applications.

1. **High Profile**
   High Profile is the primary profile for broadcast and disc storage applications; particularly for high-definition television application.
2. **Baseline Profile**
   Baseline Profile is for low-cost applications that require additional data loss robustness used in some videoconferencing and mobile application. This profile includes all the features that are supported in the constrained baseline profile, plus three additional features that can be used for loss robustness.

4. Remote Configuration

Secondary 1, Secondary 2, Secondary 3



- **Use Dual Encode**

Select **ON** to Enable and use **Secondary 1-3**.
The Secondary 1-3 video can be viewed on **Live View** window by selecting **Stream Number** on the Video Selection

- **ROI Encoding (Region of Interest)**

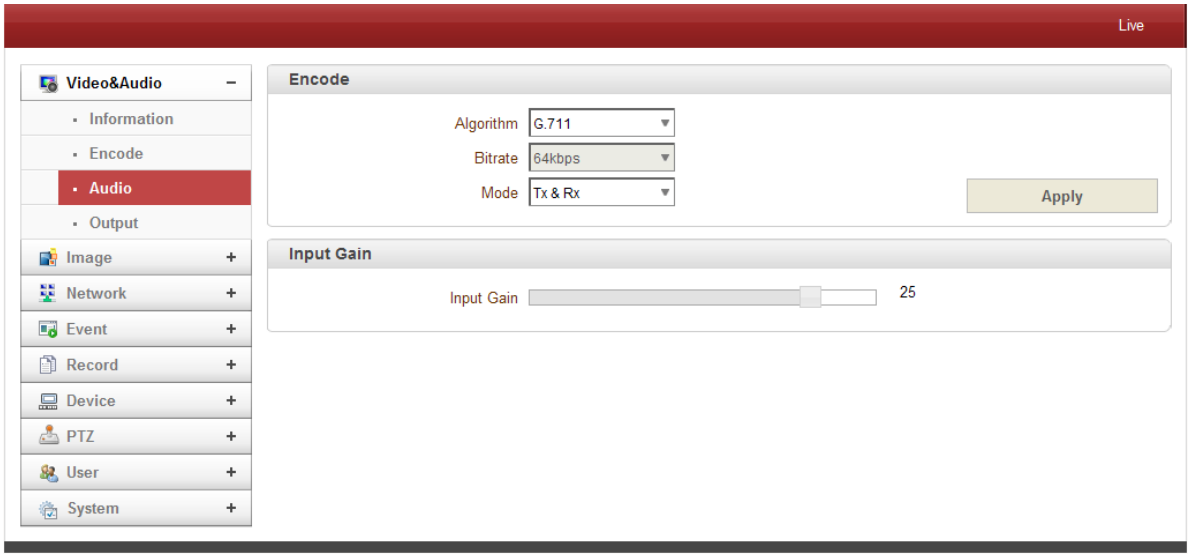
Select **ON** to enable ROI. This can be selected on the secondary stream.

- **Algorithm**

Select **H.264** or **MJPEG** for the Secondary, Tertiary or Quartic Streaming.
With **H.264**, Bitrate Mode or Quality Mode can be selected for the Preference.
MJPEG supports the Quality Mode only.

4. Remote Configuration

Audio



- **Algorithm**

Select the Audio Algorithm: **G.711** or **AAC.** G.711 and AAC is supported from client to camera direction. However, bi-directional audio communication is supported.

- **Bitrate**

Bitrate ranges from 64Kbps and 128kbps when AAC is selected. The sample rate is fixed to 8KHz and 32KHz for G.711 and AAC respectively. Note: when the camera is connected to a decoder, the decoder's audio algorithm should be set identically to transmit the audio properly.

- **Mode**

Select the Audio Operation Mode:

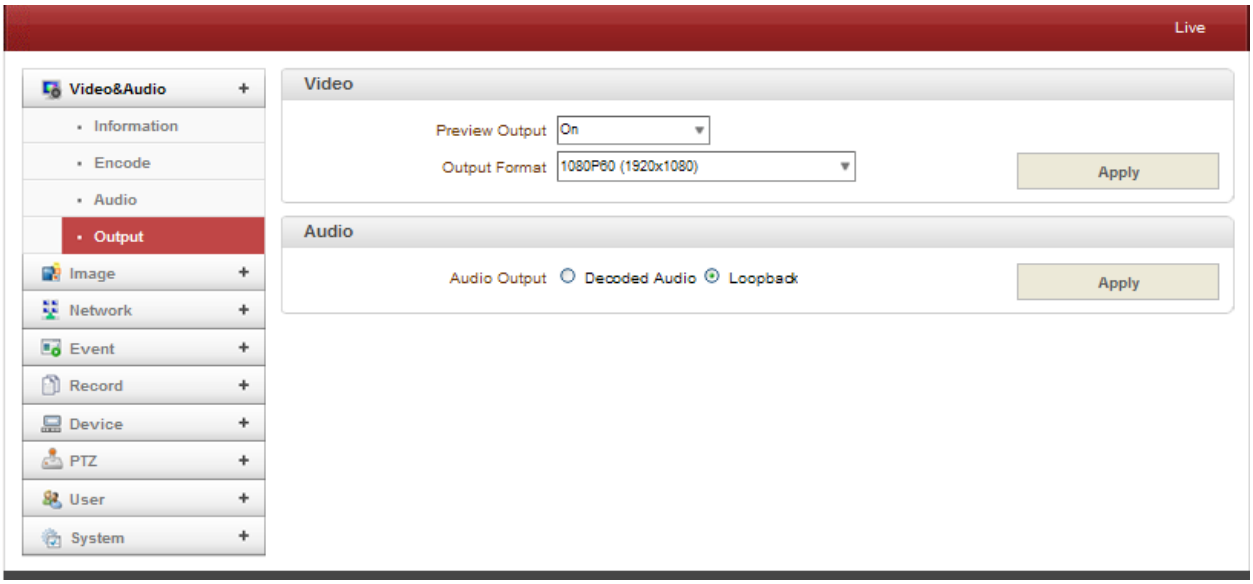
Mode	Action
Off	No Operation
Tx-Only	Transmit Only
Rx-Only	Receive Only
Tx & Rx	Transmit and Receive

- **Input Gain**

Audio Input Gain ranges from 0 to 31.

4. Remote Configuration

Output



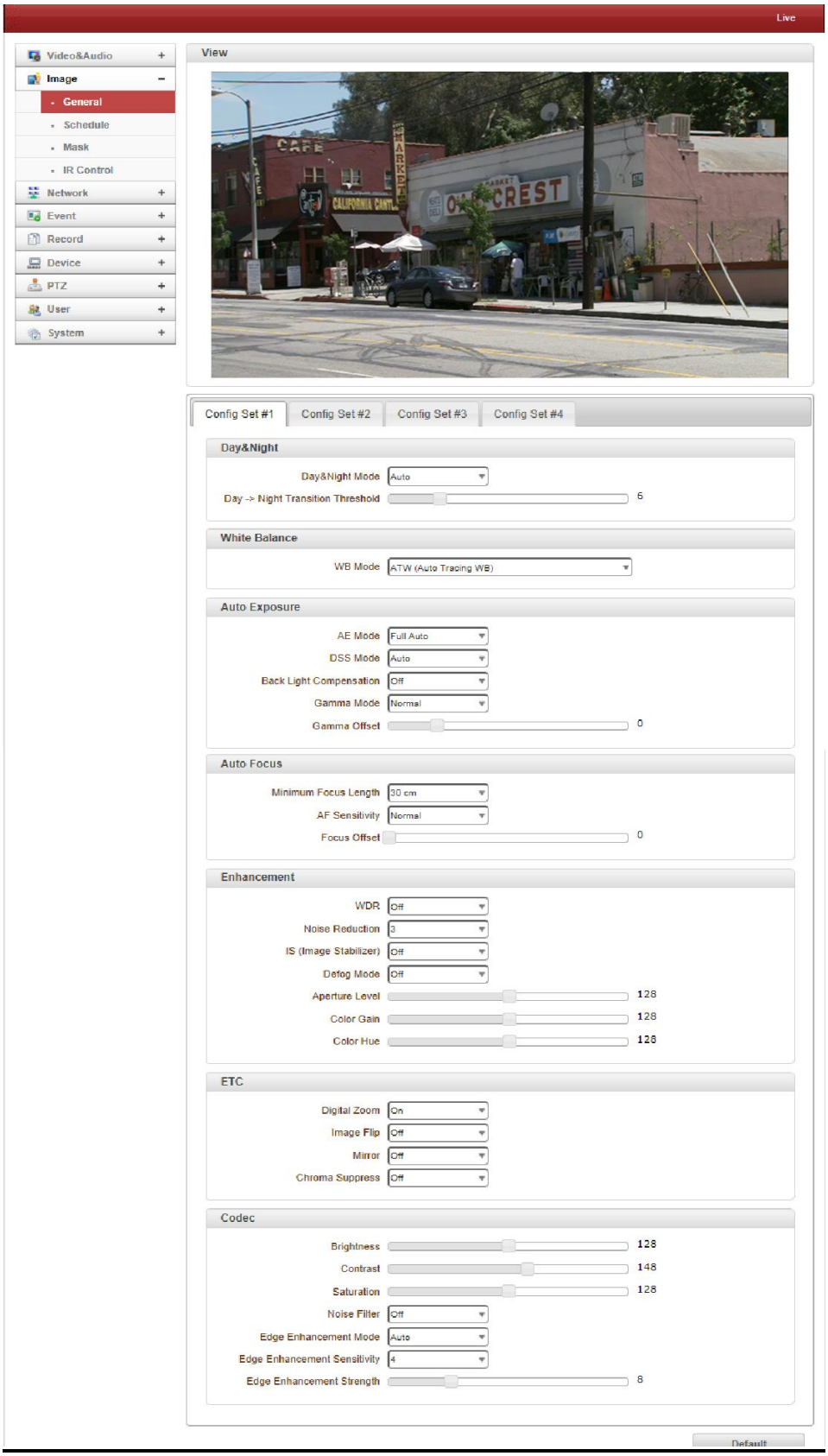
- **Output Format**

Chose Output Format when Enable Preview is selected.

- **Audio**
  - **Audio Output:** The input audio is transmitted to the encoder.
  - **Loopback:** Does not transmit the audio to the encoder. Audio input and output to the camera.

4. Remote Configuration

4.3 Image Configuration



4. Remote Configuration

Day & Night

The IP Camera provides color images during the day. However, as light diminishes below a certain level, the camera can be set to automatically switch to night mode (black & white mode) for better image quality.

- **Day & Night Mode:** Selectable based on environment.
- **Auto:** Automatically switches to/from Day (color) or Night (B&W) Mode based on the lighting conditions using ICR (Infrared Cut Removal).
- **Day (Color):** Provides color image regardless of light.
- **Night (B/W):** Provides B/W image regardless of light.

White Balance

- **White Balance Mode:**

  - **Auto:** This mode adjusts the white balance output using color information from the entire screen. It uses the color temperature radiating from a black subject based on a 3000K to 7500K range.

  - **Manual:** Manual control of R and B gain, 256 steps each.

  - **Indoor:** 3200K Base Mode.

  - **Outdoor:** 5800 K Base Mode.

  - **Outdoor Auto:** Provides automatic white balance output, especially for outdoors. Captures images with natural white balance in both the mornings and evenings.

  - **ATW (Auto Tracking WB):** Auto Tracking White Balance (2000K to 10000K).

Auto Exposure

- **AE Mode:**

  - **Full Auto:** Auto Iris and Gain, Fixed Shutter Speed (59.94/NTSC:1/60 sec, 50/PAL: 1/50 sec).

  - **Manual:** 21 Shutter Speed, 18 Iris and 8 Gain steps can be set manually.

  - **Shutter Priority:** 21 Shutter Speed steps (1/2 - 1/10,000) can be set manually. The Iris and Gain are set automatically based on the brightness of the subject.

  - **Iris Priority:** 18 Iris steps (F1.8 to close) can be set manually. The Shutter Speed and Gain are set automatically based on the brightness of the subject.

  - **Bright**: The Bright control function adjusts both the Gain and Iris using an internal algorithm based on the brightness level set by the user. Exposure is controlled by the Gain when subject is dark and controlled by the Iris when subject is bright. As both Gain and Iris are fixed, this mode is used when exposing at a fixed camera sensitivity.

- **DSS Mode**

Select **Auto** to operate DSS (Digital Sutter Speed)

- **Back Light Compensation**

The camera can balance the lighting in a scene with an extremely bright background such as sunlight. Adjusting the lighting contrast will show a clear image.

- **Gamma Mode**

Gamma correction can be changed in this mode.

Auto Focus

- **Minimum Focus Length**

Automatically uses Digital Zoom (12x) supported by the camera zoom lens.
x10 Optical Zoom and x12 Digital Zoom lens (f=5.1 - 5.1mm) is built in camera.

- **AF Sensitivity**

- Normal: Focuses at the quickest speed. Use this mode when shooting a fast moving subject. Usually, this is the most appropriate mode.
- Low: Improves the focus stability. When the lighting level is low, the AF function does not work well to show a stable image.

- **Focus Offset**

Placing a dome cover in front of the camera may cause the focal distance of the camera to change. Although the camera responds to changes in this mode, this effect exceeds the AF range so it cannot track.

Enhancement

- **WDR**

The Wide Dynamic Range mode is a function for dividing an image into a grid and correcting shadows and blown-out highlights in accordance with the intensity difference. It enables you to obtain images with a dark to light range, even when capturing a subject with a high intensity difference that is backlight or includes extremely light portions.

- **Noise Reduction**

The NR Function removes noise (both random and non-random) to provide a clear image. This function has six options: levels 1 to 5, plus OFF. The NR effect is applied in levels based on the gain and this value determines the limits of the effect. In bright conditions, changing the NR level will not have any effect.

- **Stabilizer Mode**

Turning on the image stabilizer function reduces image blurring caused by vibration, for example, which allows you to obtain images without much blurring.

- **Defog Mode**

When the surrounding area of the subject is foggy and low contrast, the defog mode will make the subject appear clearer.

- **Aperture Control**

Aperture Control is a function which adjusts the edge enhancement of objects in the picture. There are 16 levels of adjustment, starting with “no enhancement”. When shooting text, this control may help by making the text sharper.

- **Color Gain**

Color Gain can be configured in this mode. Use this setting when bright colors are important. The settings range from 60% to 2000% with 15 stages total with 1000% being the standard.

- **High Sensitivity**

In this mode, the maximum gain increases enabling a brighter output even in a darker environment. However, if the gain reaches a high level (up to 4x), the image will have a large amount of noise.

Other

- **Digital Zoom**

Digital Zoom (12x) is supported by the camera zoom lens. x10 Optical Zoom and x12 Digital Zoom lens (f=5.1 ~ 5.1mm) is built-in the camera.

- **Image Flip**

Select **On** to enable a flipped image to be shown.

- **Mirror**

Select **On** to enable a mirrored image to be shown.

- **Chroma Suppress**

User can configure a Chroma suppress mode for low-illumination conditions. This can be useful when color noise is particularly noticeable in such conditions. Four levels (3 levels plus disable) are available for the Chroma Suppress mode.

Codec

- **Brightness**

Controls video input brightness by selecting values between 0 and 255.

- **Contrast**

Controls video input contrast by selecting values between 0 and 255.

- **Saturation**

Controls video input saturation by selecting values between 0 and 255.

- **Noise Filter**

Noise Filter (NR) is used to obtain a high quality output image and enhance compression efficiency. This camera offers Edge Preserving 2D NR and Motion Adaptive 3D NR.

2D: use 2D NR at night mode with TDN (use 2D NR)
3D #1: use 3D#1 NR (refer to 1 on 3D NR)
3D #2: use 3D#2 NR (refer to 2 on 3D NR)
Strong: use 3D NR (refer to 2 on 3D NR). Effects are increased by 3 times more than normal 3D NR.
Blend: use 3D NR & 2D NR

- **Edge Enhancement**

Edge Enhancement is an image processing filter that enhances the edge contrast of an image or video in an attempt to improve its acutance (apparent sharpness).

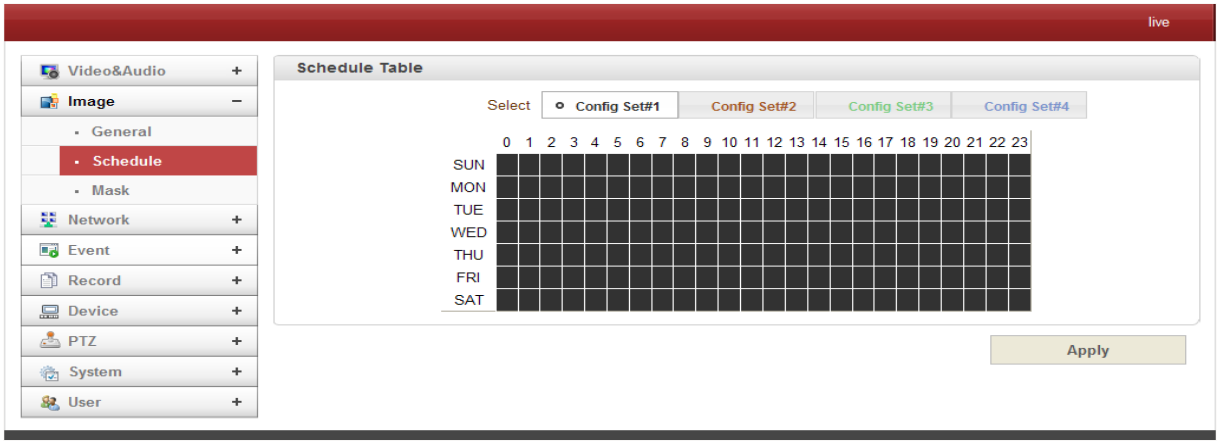
- **Edge Enhancement Sensitivity**

User can adjust Edge Enhancement Sensitivity from 0 to 7 (with 7 being the highest sensitivity level).

- **Edge Enhancement Strength**

User can adjust Edge Enhancement Strength from 0 to 31 (with 31 being the highest strength level).

Schedule



To allow different camera configurations according to time of a day, the scheduling feature of the camera allows user to define these configurations.

4. Remote Configuration

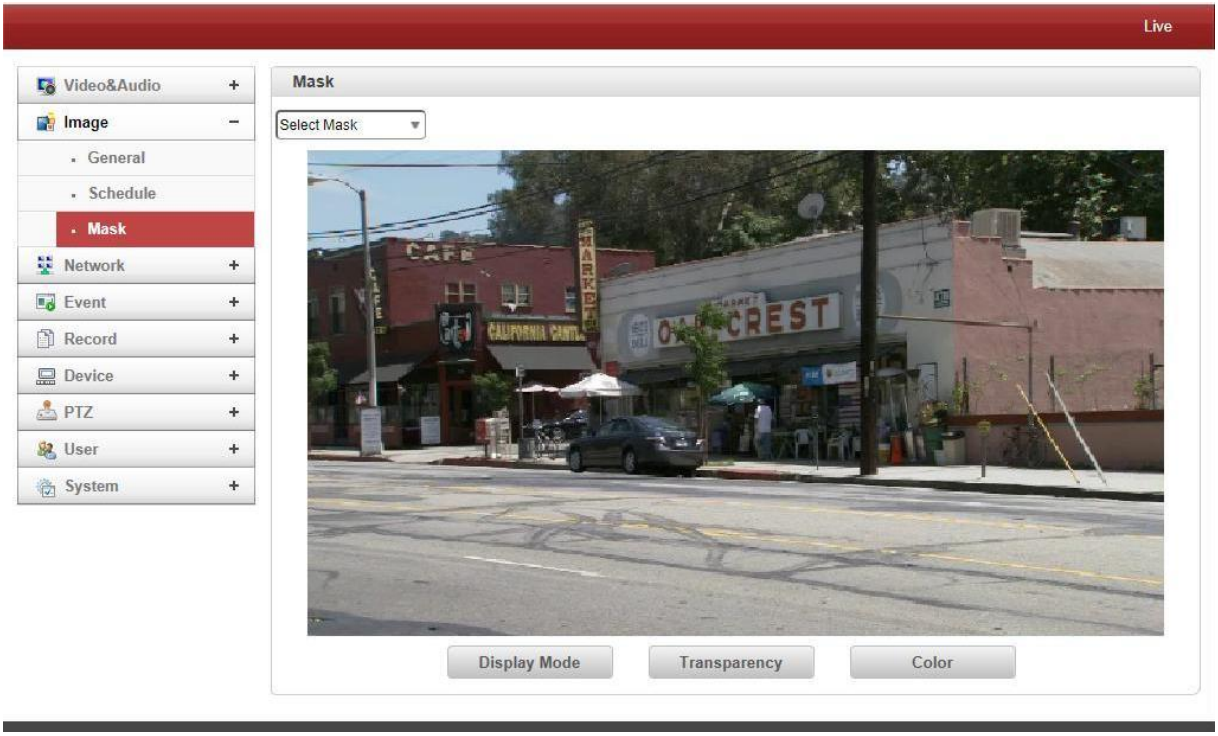
- **Configuration Set**

4 different Configuration Sets can be programmed by opening “Config Set #1-4”. For example, Config Set#1 can be configured for day mode and Config Set#2 can be configured for night mode.

- **Scheduling Configurations**

Cells in the weekly/hourly schedule table can be set to appropriate configurations by clicking a specific cell, an hourly cell, or a weekly cell.

Mask

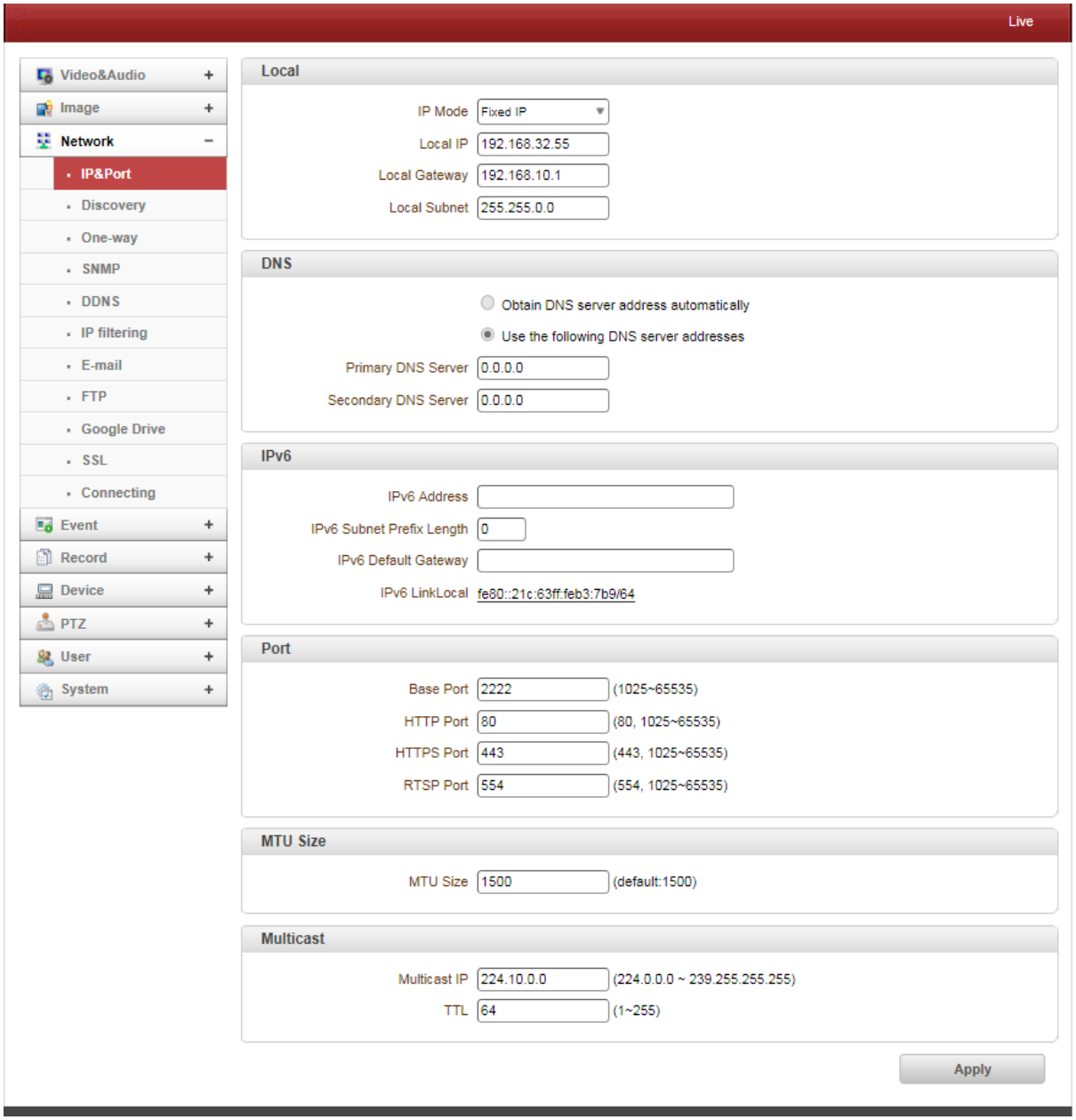


Masks can be displayed in the video.

1. Position camera and select a mask from the drop down menu.
2. Press the “New” button to get a new mask and adjust mask size.
3. The specified mark can be shown by selecting the “Search” button.

4. Remote Configuration

4.4 Network IP & Port Configuration



- **Local**

Select the IP Mode: **Fixed IP** or **DHCP**
Depending on the selected mode, the following configuration applies:

IP Mode	Selection	Description
Fixed IP	Local IP	Fixed IP Address
	Local Gateway	Gateway IP Address
	Local Subnet	Subnet Mask
DHCP	N/A	

Contact your ISP provider or network manager for IP address information.

DNS

- **Obtain DNS Server Address automatically**

Find DNS Server Address automatically when IP Mode is set to DHCP.

- **Use the following DNS Server Address**

Enter the DNS Server IP Address: **Primary** or **Secondary DNS Server**

> **Domain Name System** (**DNS**) is a database system that translates a computer's fully qualified domain name into an IP address. Networked computers use IP addresses to locate and connect to each other, but IP addresses can be difficult for people to remember. For example, on the web, it's much easier to remember the domain name www.amazon.com than it is to remember its corresponding IP address (207.171.166.48). Each organization that maintains a computer network will have at least one server handling DNS queries. That server, called a name server, will hold a list of all the IP addresses within its network, plus a cache of IP addresses for recently accessed computers outside the network.

IPv6

- **IPv6 Address:** Enter the designated Ipv6 address.
- **IPv6 Subnet Prefix Length:** Enter the bit number for the Ipv6 subnet.
- **IPv6 Default Gateway:** Enter the designated Ipv6 gateway.
- **IPv6 Link Local:** Display the Ipv6 link local.

Port

- **Base Port (1025 - 65535)**

Enter the Base Port Number: Network Base Port is used for communication with remote clients. In order for the IP Camera and remote systems to be connected, the port number must be identically configured for the IP Camera side and client side.

- **HTTP Port (80, 1025 - 65535)**

Enter HTTP port used for a web-based connection.

- **HTTPS Port (443, 1025 - 65535)**

Enter HTTPS port used for a secured HTTP connection.

- **RTSP Port (554, 1025 - 65535)**

Enter RTSP port used for RTSP-based connection. The default TRSP port is 554.

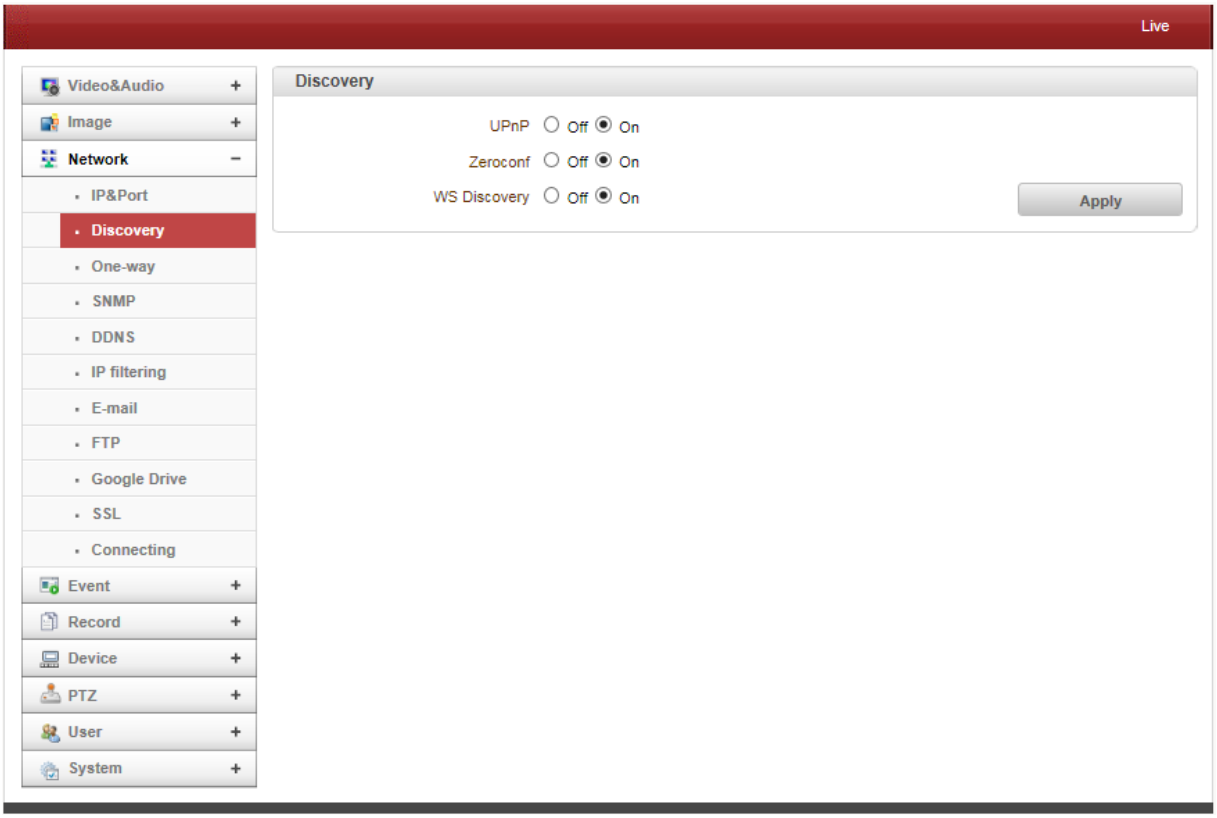
- **RTSP (Real Time Streaming Protocol)** is a standard for media streaming between server and client.

- **Multicast**

The Multicast menu is used for configuring the Multicast IP Address where the media stream is delivered when a Decoder, VMS or NVR software is connected in the Multicast Mode. The Multicast IP Address selection range is between 224.0.0.0 and 239.255.255.255. The selection can be used only when the media protocol is set to Multicast.

4. Remote Configuration

Discovery



- **UPNP**

When **UPNP** is ON, it allows the discovery of the client according to UPNP (Universal Plug and Play) Protocol.

- **Zeroconf**

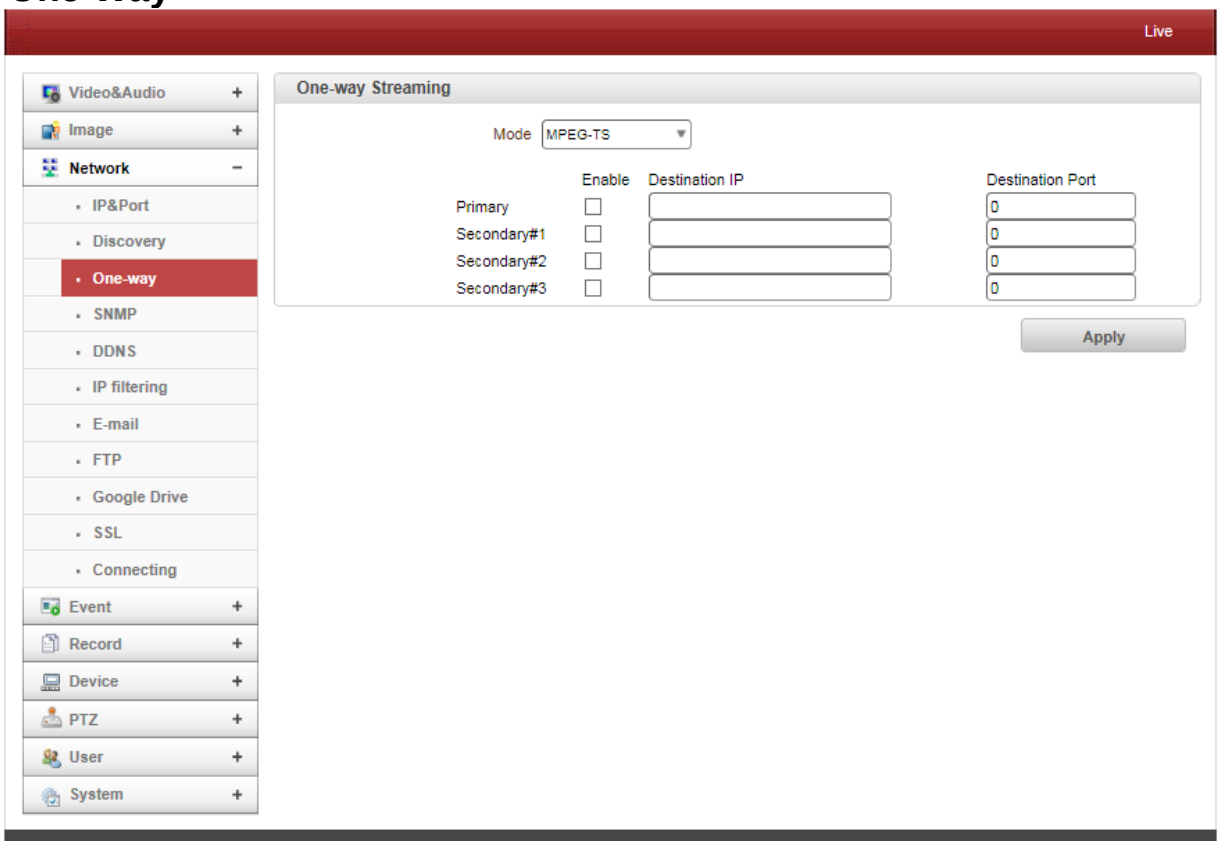
When **Zeroconf** is ON, it allows the discovery of the client according to Zeroconf Protocol.

- **WS Discovery**

Discovery function based on web service is enabled. It allows the discovery by the client SW which is supporting Onvif.

4. Remote Configuration

One-Way



• This IP Camera provides two kinds of one-way (unidirectional) streaming based on UTP to clients: **RTSP** and **MPEG-TS**. Both are types of broadcasting where traffic from clients to a server is not generated at all.

• **RTP (Real-Time Transport Protocol)** is an Internet Protocol used for transmitting single real-time multimedia data such as audio and video to a select group of connected clients. Normally RTSP uses RTP to format packets of multimedia content. The **RTP** menu is used when the RTP only is streaming without an RTSP connection. RTP stream will be transmitted to the destination set. The **SDP** (Session Description Protocol) file can be found in the server and a client can retrieve it using the http connection.

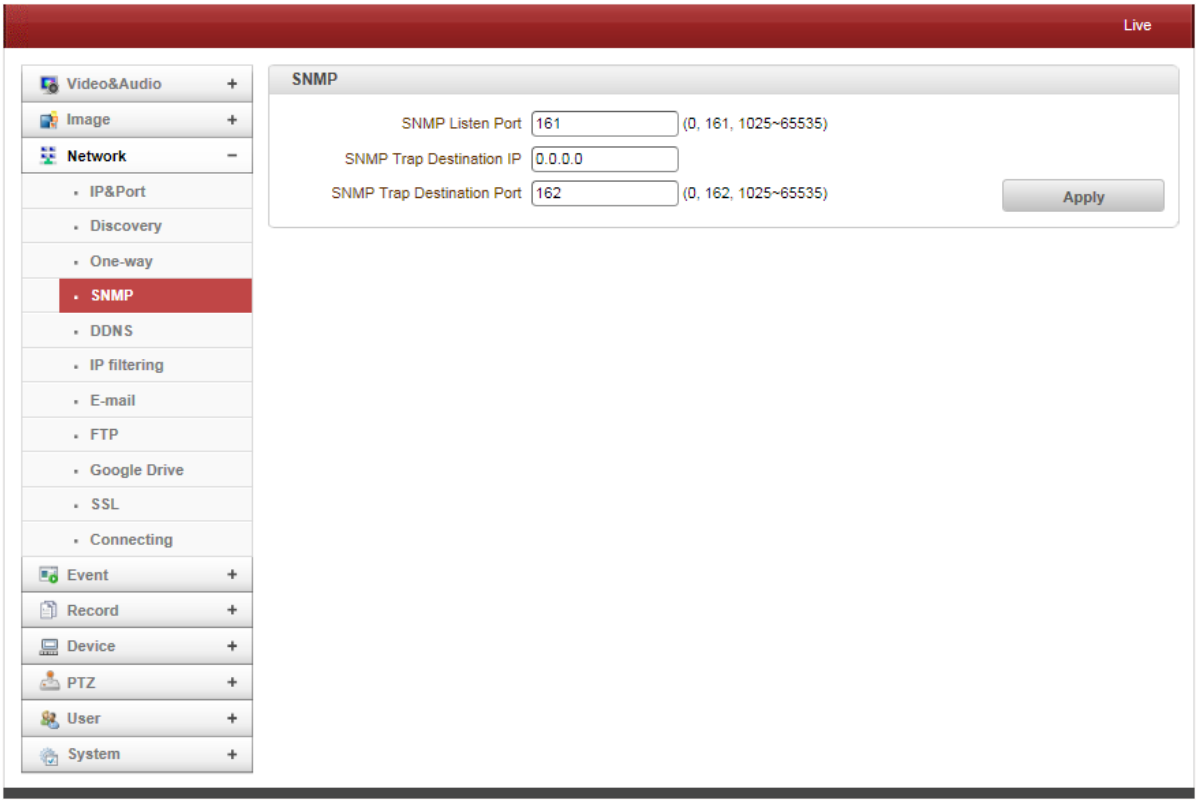
- **Destination IP:** Set the IP Address of the destination system receiving the RTP Stream. If the system is a decoder, RTSP authentication information can be found in the middle of the RTSP URL: rtsp://**admin:1234**@192.168.10.100:554/video1
- **Destination Port:** Set the port of the destination system receiving the TRP stream.
- **User Name:** Enter the user name that will be used as a session name in the SDP file.
- **File Name:** Enter the file name that will be used as the name of the SDP file. When this is entered, it can be accessed through **http://ServerAddress/filename**

4. Remote Configuration

• **MPEG-TS** is the standard format for the transmission and storage of audio, video, and data, and is used in broadcast systems such as DVB and ATSC. **Transport Stream** is specified in MPEG-2 Part 1 Systems (formally known as ISO/IEC standard 13818-1 or ITU-T Rec. H.222.0). Transport Stream specifies a container format encapsulating packetized elementary streams with error correction and stream synchronization features for maintaining transmission integrity when the signal is degraded. Although MPEG-TS supports AAC as the audio algorithm, only video is streamed when audio algorithm is set to G.711.

- **Destination IP:** Set the IP Address of the Destination System which will receive MPEG-TS stream.
- **Destination Port:** Set the Port of the Destination System which will receive MPEG-TS stream.

SNMP



SNMP (Simple Network Management Protocol) is compatible with both **SNMPv1** and **SNMPvec**. Settings for using SNMP are as follows:

- **SNMP Listen Port (0, 161, 1025 - 65535)**

This port is for connecting an external device as an SNMP client. SNMP is not used when the value is 0.

- **SNMP Trap Destination IP**

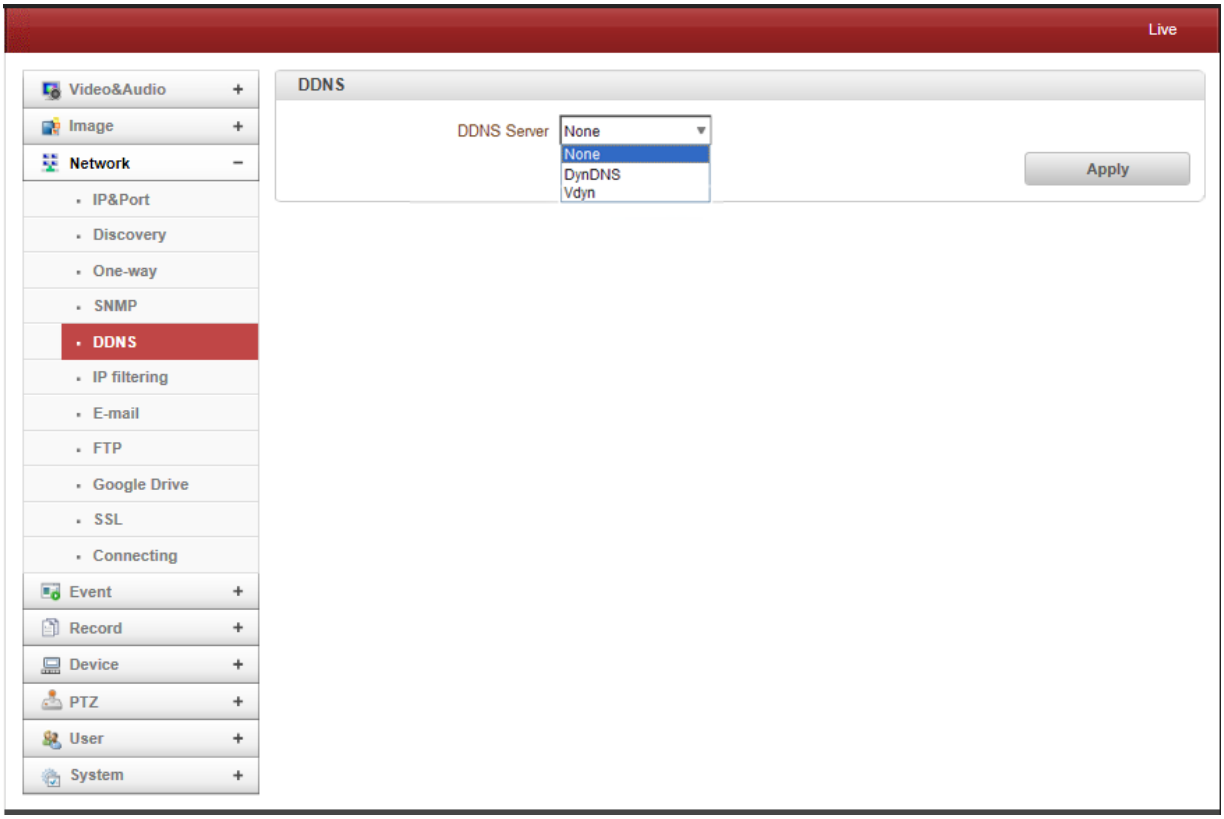
Set the SNMP Trap Destination IP.

- **SNMP Trap Destination Port (0, 162, 1025 - 65535)**

Set the SNMP Trap Destination Port. SNMP is not used when the value is 0.

> **Simple Network Management Protocol (SNMP)** is used by Network Management Systems to communicate with network elements. SNMP lets TCP/IP-Based Network Management clients use a TCP/IP-Based internetwork to exchange information about the configuration and status of nodes. SNMP can also generate trap messages used to report significant TCP/IP events asynchronously to interested clients. For Example: a router could send a message if one of its redundant power supplies fails or a printer could send an SNMP trap when it is out of paper.

DDNS



- **DynDNS**

DynDNS service is used in this mode. Refer to www.dyndns.org for details.
ID, Password and Domain name are needed when DynDNS is set.

> **Dynamic DNS** is a method, protocol, or network service that provides the capability for a networked device, such as a router or computer system using the Internet Protocol Suite, to notify a domain name server to change, in real time (ad-hoc) the active DNS configuration of its configured hostnames, addresses or other information stored in DNS.

4. Remote Configuration

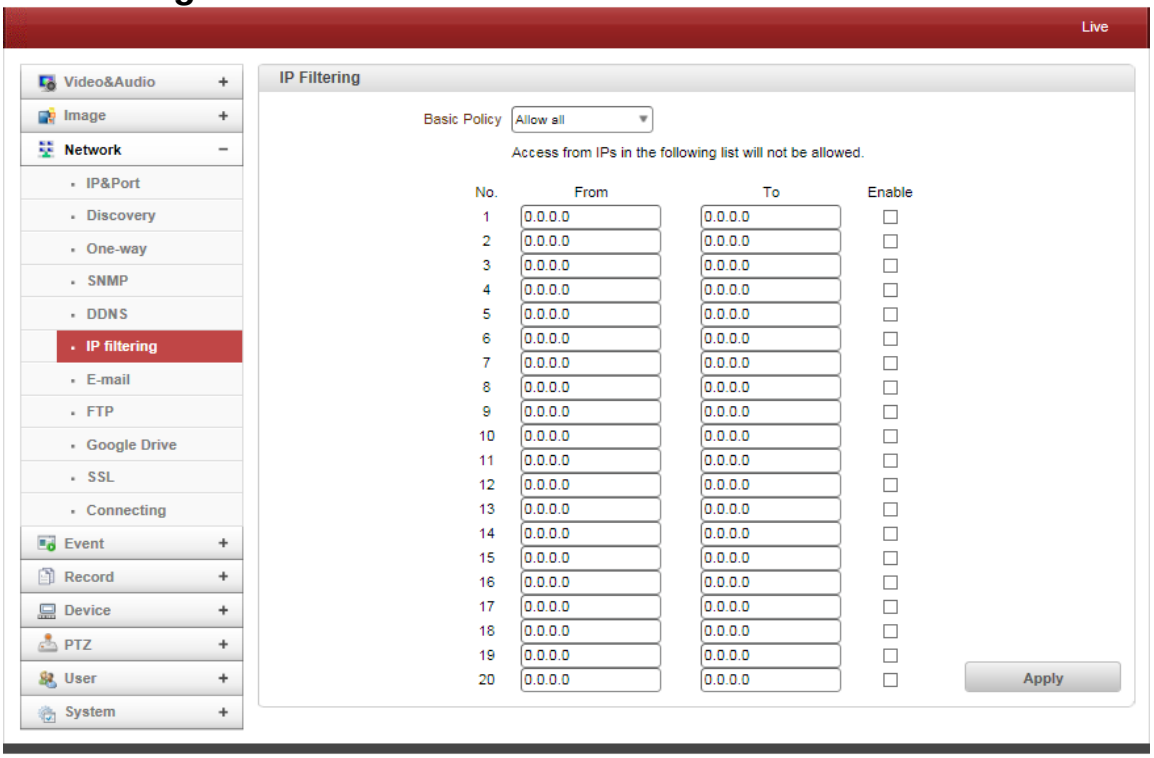
- **Vdyn**

Vdyn is a DDNS service provided by Visionica (http://visionica.com). No further configuration is required for using this service. It internally uses the MAC address for the registration. When it succeeds, the domain name of the form **001C63A607EC.visionica.info** is displayed on Current Domain entry of the Network page. Email setting is not mandatory.

- **Check IP Disable**

If “Check IP Disable” is selected, it will skip to check it’s own IP. In **Fixed IP Mode**, the set IP will be registered on the DDNS Server. In **DHCP Mode**, a dynamically assigned IP will be registered on the DDNS Server. Normally Check IP Disable should be unchecked in order to obtain the public IP in the network.

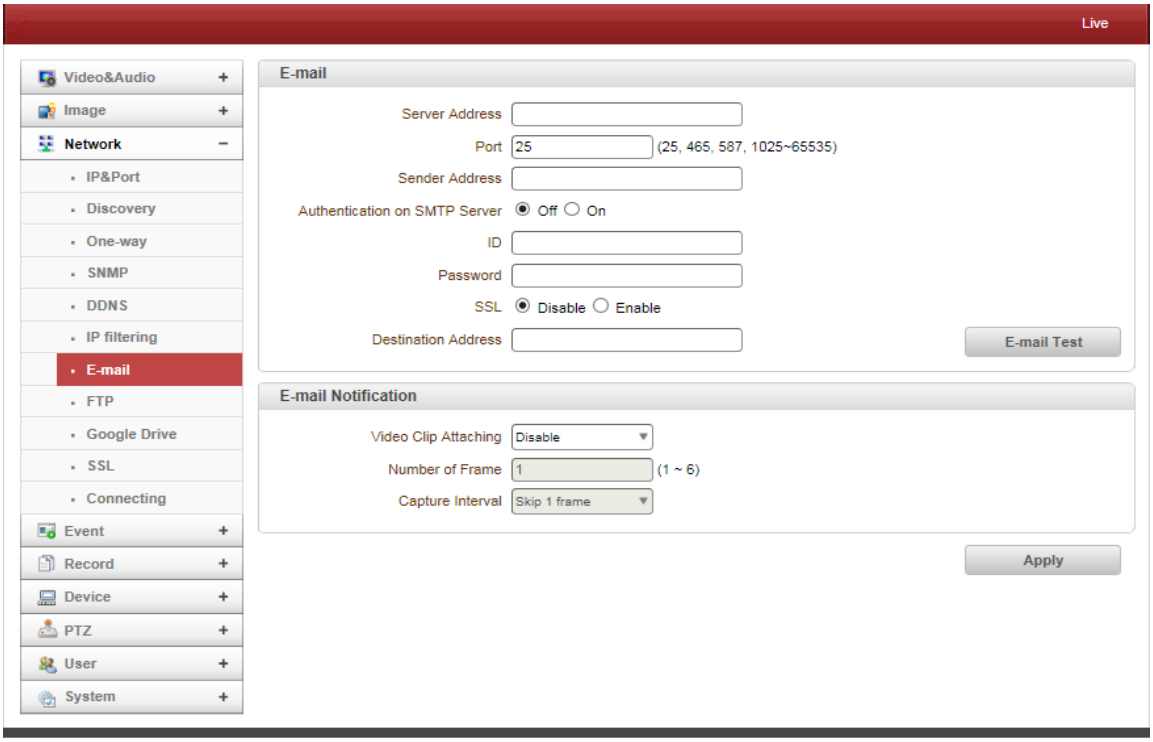
IP Filtering



IP Filtering is simply a mechanism that decides which types of IP datagrams will be processed normally and which will be discarded.

4. Remote Configuration

Email



Select the following when **Email** is selected as an Event Action:

- **Server Address**

Enter the address of the Server Mail (SMTP)

- **Port**

Specify a port for SMTP operation (**Port 25 is the default port in SMTP operation**). If a port other that the default is configured in the SMTP Server, this port needs to be changed accordingly.

- **Sender Address**

Enter an account registered the in SMTP Server.

- **Authentication on SMTP Server**

This function is applicable when the Email Server requires authentication for sending Email.

- **ID & Password**

When the server requires authentication, ID and Password of an email account need to be entered.

- **Destination Address**

Enter Destination address. More than one address can be entered by delimiting comma (,) or semi-colon (;). Destination addresses can take up to 63 characters.

- **Email Test**

Email sending can be tested with this button. Please note that configured settings should be saved first by pressing the **Apply** button before using the Email Test Function. One of the following messages will appear as a result of the test:

Message	Description
E-mail sent successfully	Test E-mail has been sent successfully. Reception in the client can be checked.
Failed to connect SMTP server	Connection to the SMTP server failed. It is necessary to check if the server is reachable and server address and port are correct.
Authentication failed	The server is reachable but authentication failed. ID and/or password need to be checked.
SMTP server rejected the mail	The server is reachable, but mail sending failed due to a reason other than authentication. This error happens often when the server authenticates according to its own rule. For example, IP addresses of a specific range or addressed of a specific suffix are allowed.

Email Notification

- **Video Clip Attaching**

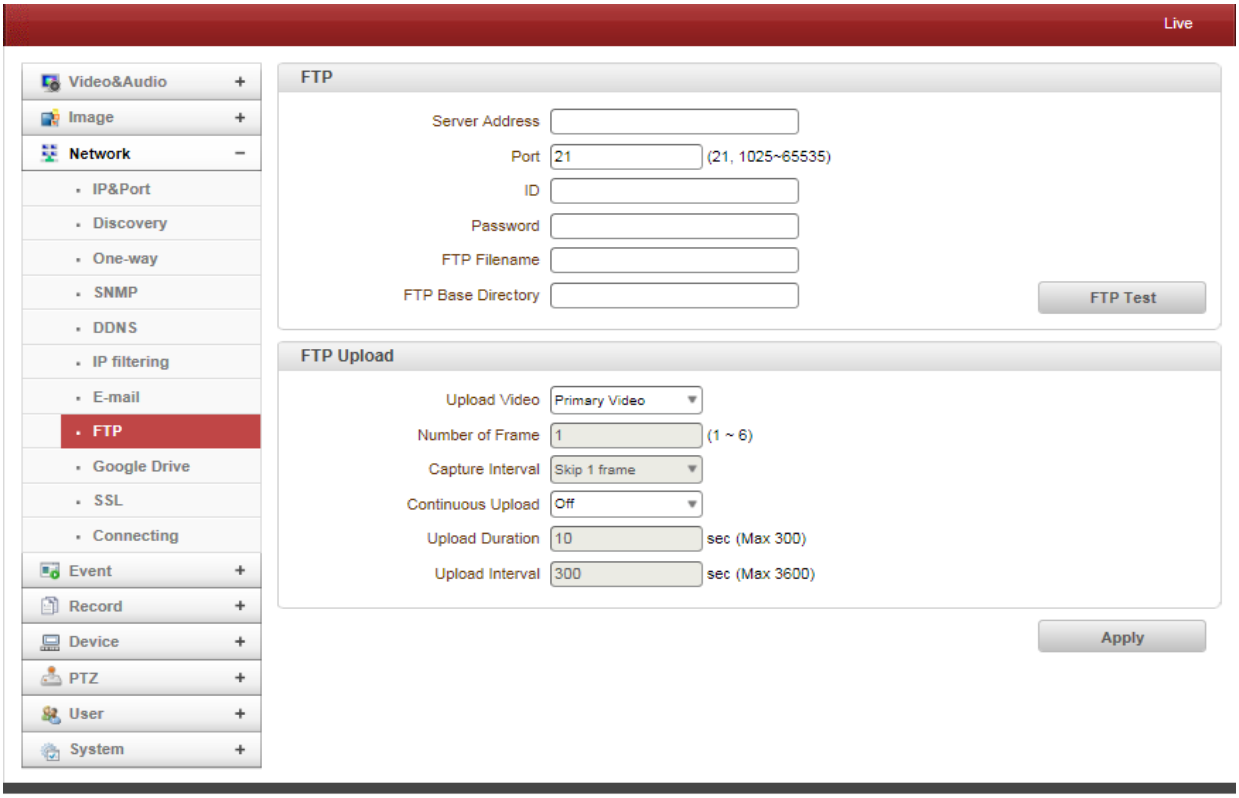
Video clips can be saved and attached as an AVI or JPEG file. When dual encoding is enabled, **Primary Video, Secondary Video** (H.264 only) or **JPEG Capture** can be selected. The number of JPEG frames is configured appropriately. This setting is applicable only when JPEG Capture is selected.

- **Capture Interval**

Select the interval of the captured frame.

4. Remote Configuration

FTP



When **FTP** is selected, specify the following:

- **Server Address**

Enter an RTP Server Address to receive video files.

- **Port**

Specify a Port for the FTP operation (Port 21 is the default port in the FTP operation). If a port other than the default is configured in the FTP Server, this port needs to be changed accordingly.

- **ID & Password**

Enter ID and Password to access the FTP Server

- **FTP File Name**

The File Names uploaded by FTP can be specified by the user. If a fixed name is specified, the file is overwritten repeatedly. Max length of a file name is 60 characters. If the name is left blank, file name is determined according to the internal rule implemented in the firmware. The following macros are supported to form variable parts of file names. These strings are case-sensitive.

- %YYYY: year
- %MM: month
- %DD: day
- %hh: hour
- %mm: minute
- %ss: second
- %EVENT: event type (Sensor1, Motion, ...)
- %ADDR: address of the server (Domain name when DDNS is used; otherwise IP address)
- ".avi" or ".jpg" will be added automatically to the filename depending on the video file type.

- **FTP Base Directory**

Specify the name of the directory to be created in the FTP Server. It is valid only when **Record** is set to **Use** on the Record Session.

- **FTP Test**

The FTP upload function can be tested with this button. Please note that the configuration settings should be saved first by pressing the **Apply** button before using the FTP Test Function. One of the following messages will appear after testing:

Message	Description
FTP connection tested successfully	The connection to the FTP server is successful.
Failed to connect FTP server	The connection to the FTP server failed. It is necessary to check if the server is reachable and server address and port are correct.
Authentication failed	The server is reachable but authentication failed. ID and/or password need to be checked.
Failed to upload file	File upload failed. The user of the ID is not allowed for writing into the directory or FTP server can be full.
Failed to erase file	Failed to delete the test file. The user of the ID doesn't have the privilege for file deletion.

FTP Upload

- **Upload Video**

When using Primary, Secondary, Tertiary or Quartic Video (H.264 only), JPEG capture can be selected for uploading.

- **Number of Frame**

Enter the frame number of the JPEG capture. (1 - 10)

- **Capture Interval**

Select the interval of captured frame.

- **Continuous Upload**

Continuous Upload **ON** allows video clips to be transmitted regularly regardless of the event occurrence. When this mode is activated, the FTP upload by event is suppressed.

- **Upload Duration**

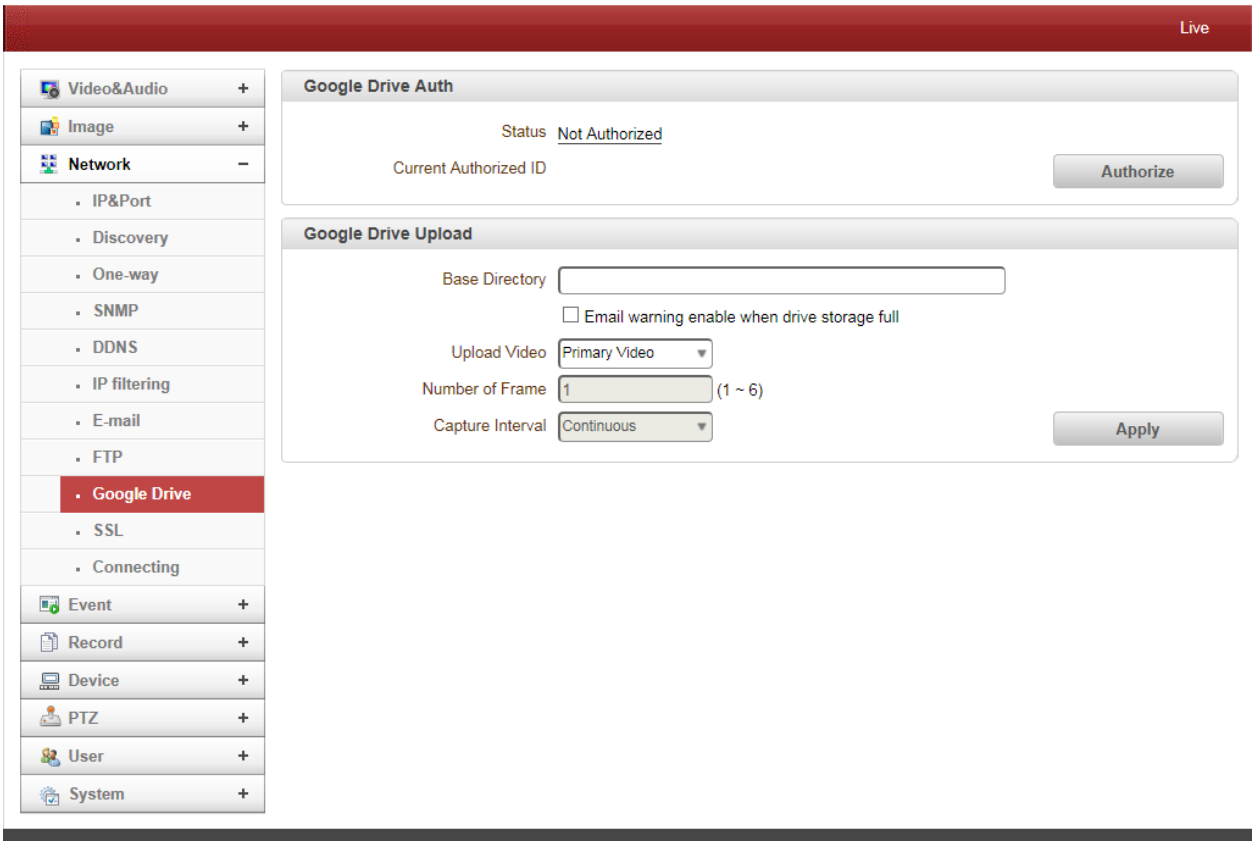
Specify the recording duration of the video clip to be transmitted (max 300 sec).

- **Upload Interval**

Specify the transmission interval (max 3600 sec). Upload duration is not included in the upload interval. For Example: if the upload interval is 60 sec and the upload duration is 20 sec, a video clip for 20 sec is transmitted every 80 sec.

4. Remote Configuration

Google Drive



- **Google Drive Auth**

First, create Google ID and Password. Authorize ID and Password for uploading recorded data.

- **Base Directory**

Specify the name of the directory to be created in the Google Drive. Valid only when “Use On Record” session is used.

- **Upload Video**

Primary, Secondary, Tertiary or Quartic video (H.264 only) can be selected. JPEG capture can be selected for uploading.

- **Number of Frames**

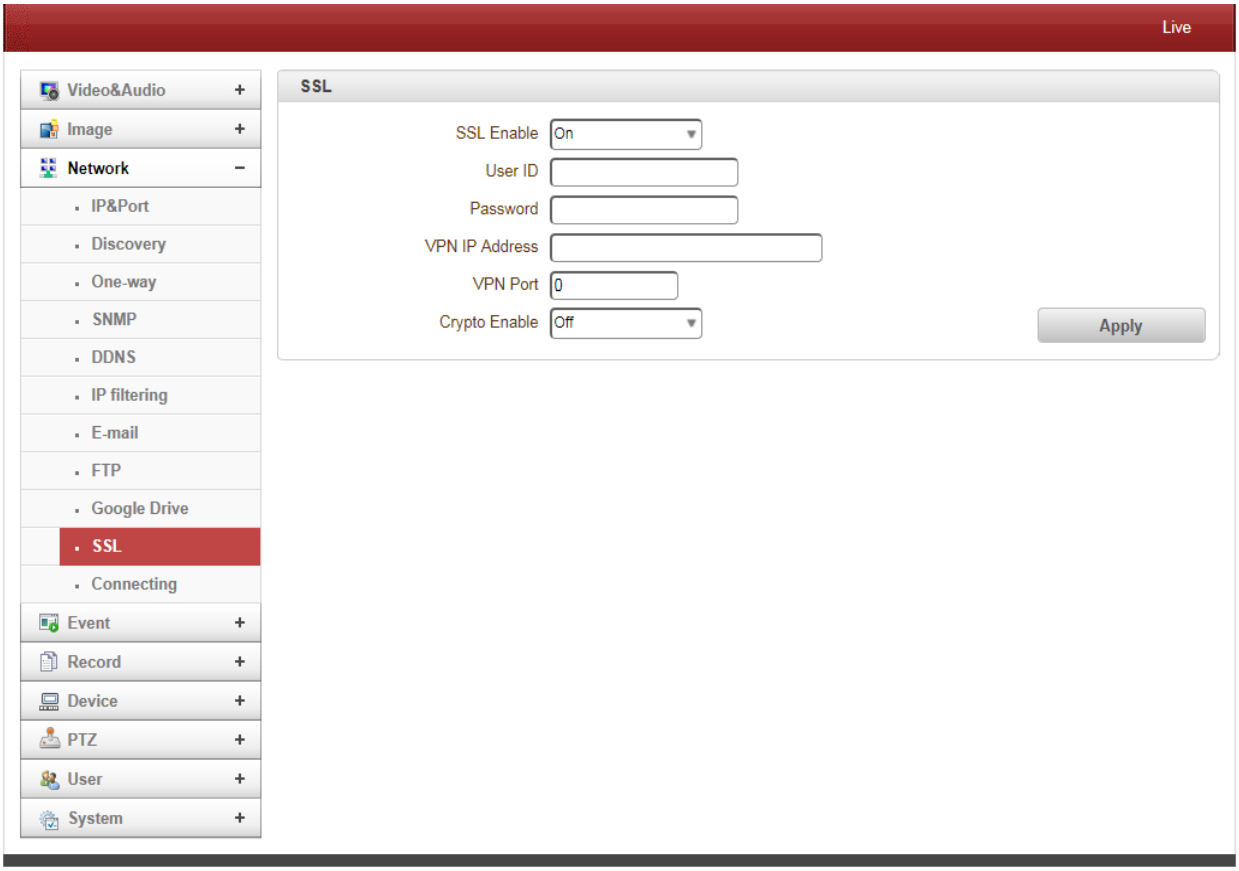
Enter JPEG frame number (1-10).

- **Capture Interval**

Select interval type of captured frames.

4. Remote Configuration

SSL



- **SSL Enabled**

SSL-VPN function will be enabled**.**

- **User ID**

Enter User ID for VPN Client.

- **Password**

Enter Password for VPN Client.

- **VPN IP Address**

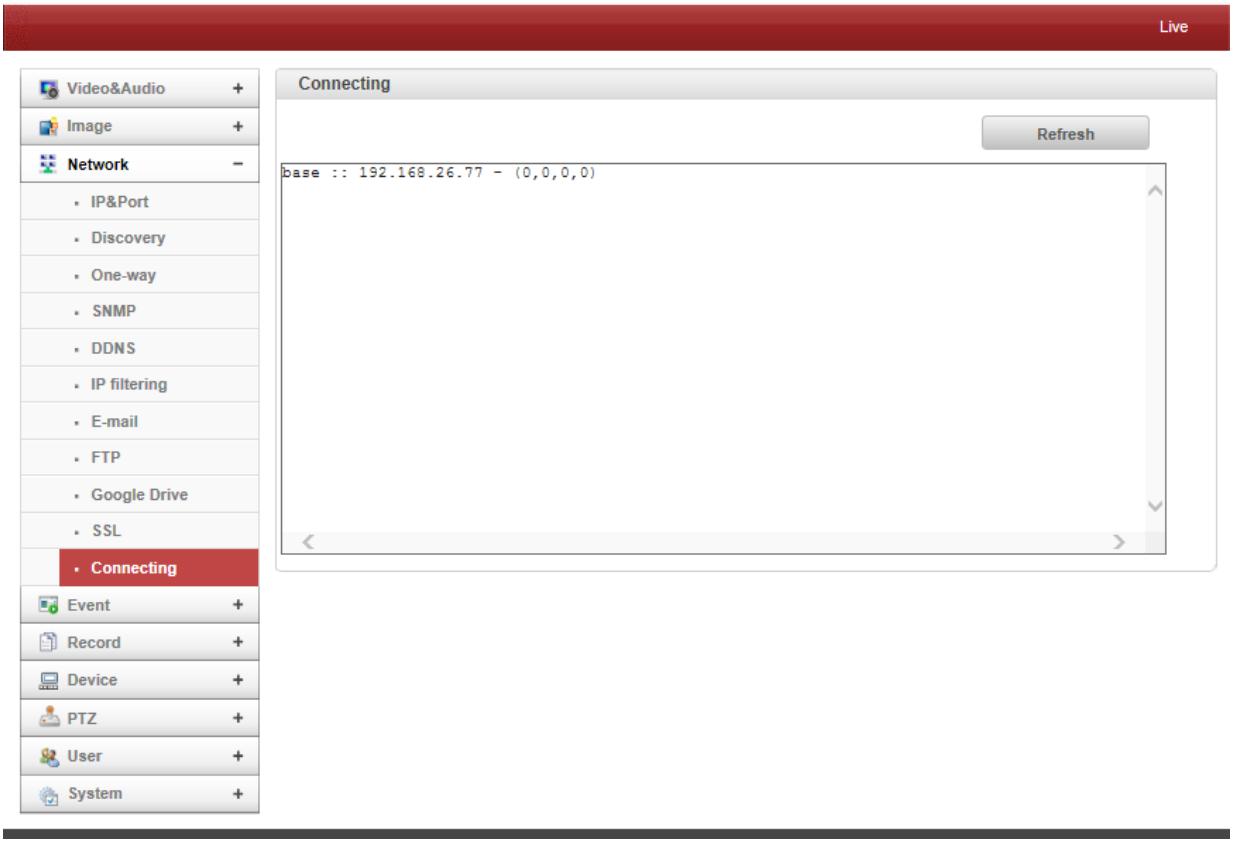
Set IP Address on VPN.

- **VPN Port**

Set the Port on VPN.

4. Remote Configuration

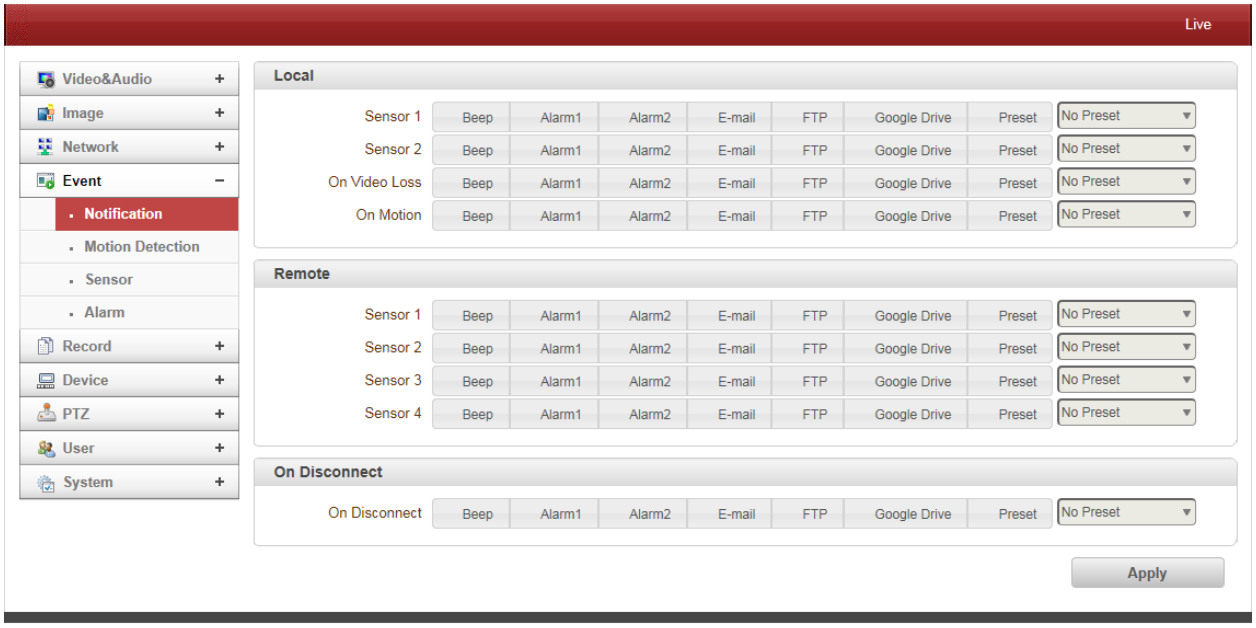
Connecting



IP Addresses that are currently connected are listed here.

4. Remote Configuration

4.5 Event Configuration



- **Local Event Configuration**

When a Decoder is connected to an IP Camera, one system becomes a Local System and the other a Remote System (generally a system which is being used by the user is called as Local System). Event Actions can be configured from the Remote System as well as the Local System. For Example: it is possible to turn on an alarm device in the Local (center) Decoder System when a sensor device in Remote (site) IP Camera is triggered. The Local section configures the actions for the events from the Local (self) System and the configuration activates the local devices and the Remote sections configure the actions for events from Remote (peer) System.

The following table lists the possible actions for the events:

Action	Description
Alarm out	Triggers Alarm (Relay) Port
Email	Sends Email to the specified Email Address; AVI File can be attached
FTP	Upload AVI File to a specified FTP Server
Google Drive	Upload Google Drive storing through network
Preset	Move to the Preset Position

- **Local & Remote Event Configuration**

- **Sensor1 / Sensor2**

Configure the actions when the sensor is activated. Multiple actions can be set for a single event.

- **On Video Loss**

Configure the actions when video input signal is lost. Multiple actions can be set for a single event.

4. Remote Configuration

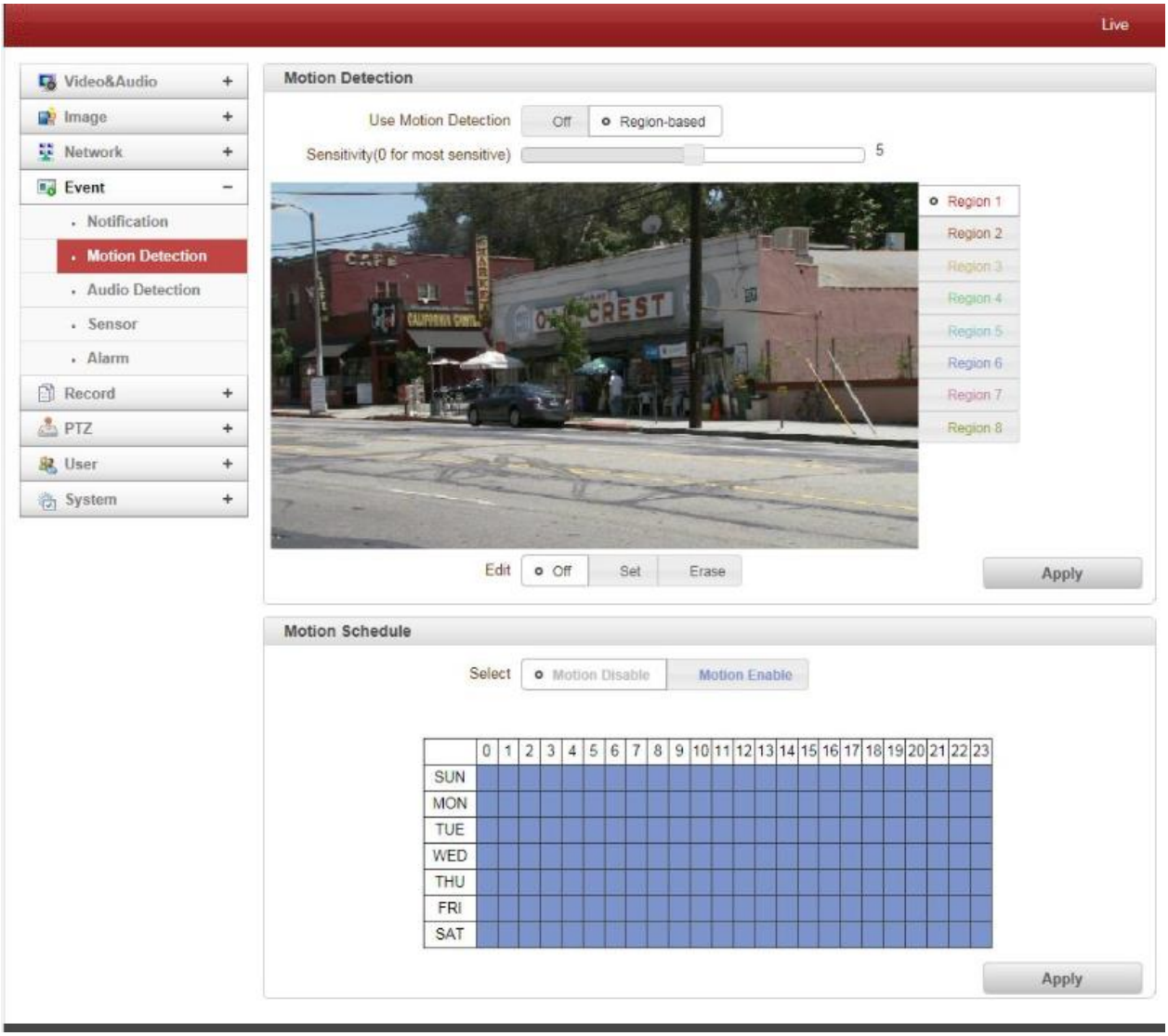
- **On Motion**

Configure the actions when motion is detected. Multiple actions can be set for a single event.

- **On Disconnect**

Configure the actions when the link (connection) with peer system is disconnected. Multiple actions can be set for a single event. This event happens when the last client which has been receiving video from the IP Camera loses the connection.

Motion Detection

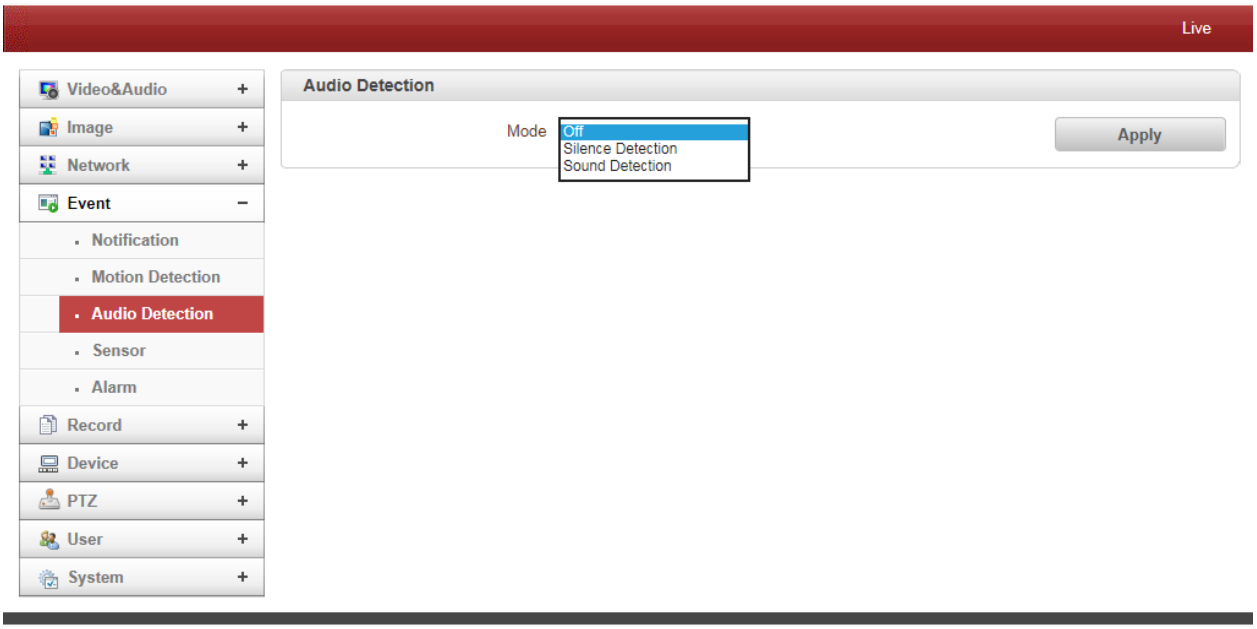


- Select the **Use Motion Detection** function

4. Remote Configuration

- **Motion Detection Area Editing**
  Configure the region for Motion Detection. Regions of arbitrary shapes can be configured by the following steps:
  1. Select **Enable** on Edit Tab.
  2. When selecting Editing Mode, **Set** includes the motion detection region cell and **Erase** is for excluding cells.
  3. Select cells by right clicking. Multiple cells can be selected by selecting and dragging.
  4. **Press Apply Edit Area** to save the selection.

Audio Detection

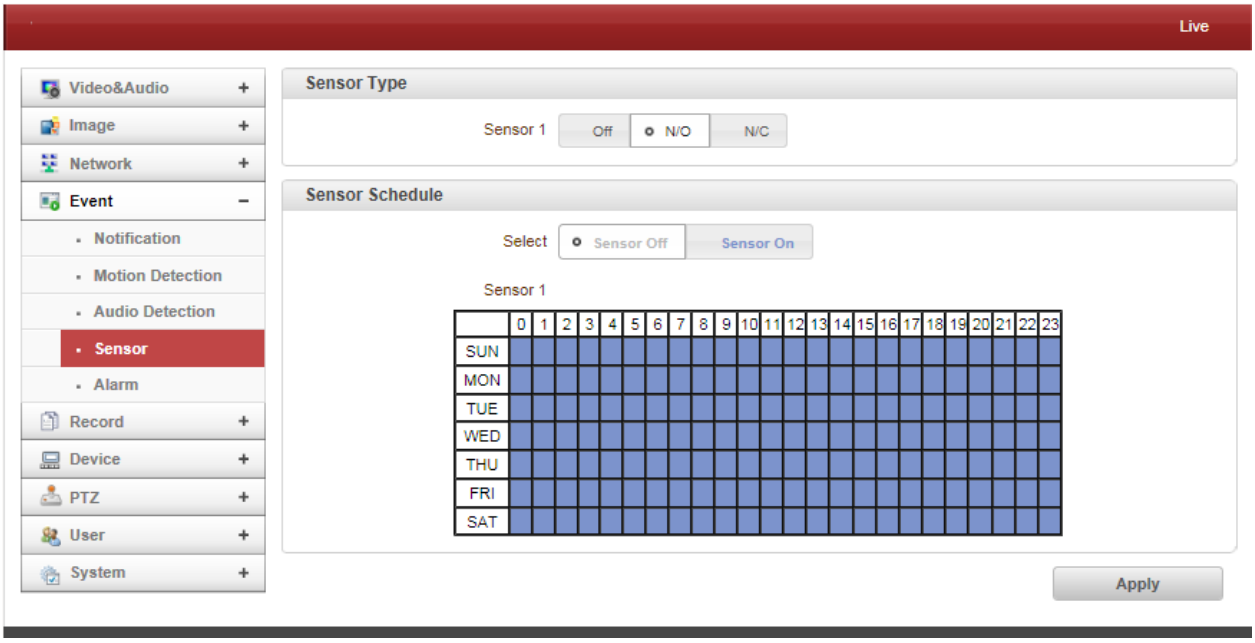


- **Silence Detection**
When silence is detected for a specific amount of time, an event is generated.

- **Sound Detection**
When sound is detected for a specific amount of time, an event is generated.

4. Remote Configuration

Sensor



- **Sensor Type**
  There are two **Sensor Input Ports** on the IP Camera. Each Sensor Port can be configured as follows:

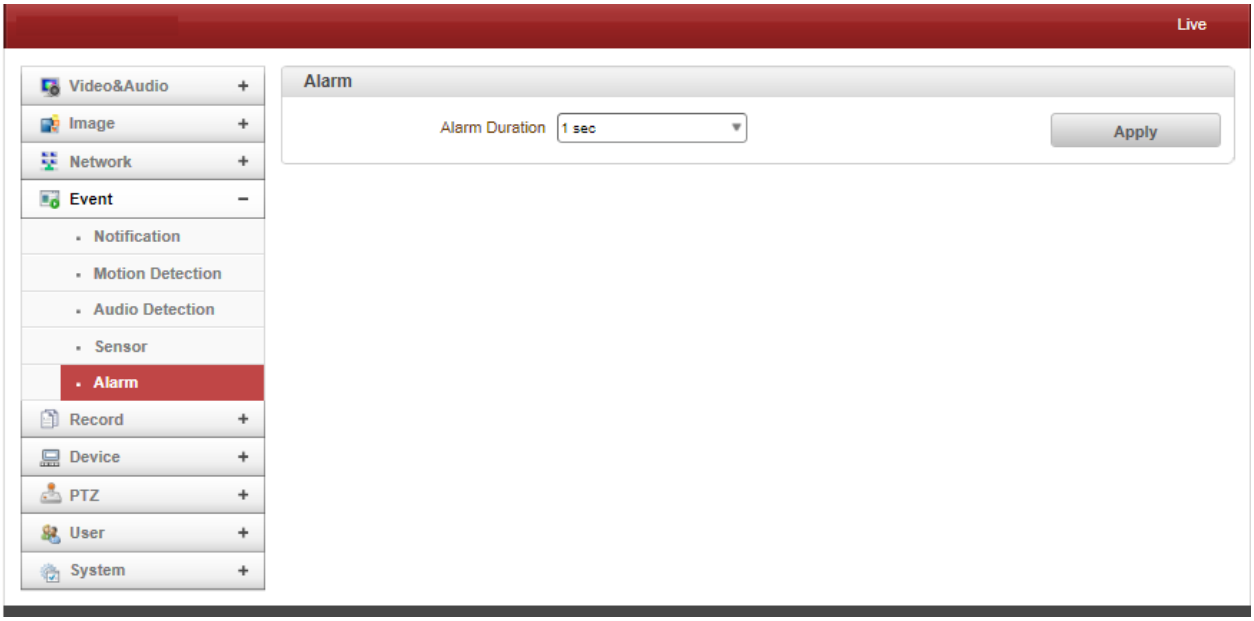
Function	Operation
OFF	Not used
NO (Normally Open)	The port is normally open and activated when closed
NC (Normally Closed)	The port is normally closed and activated when opened

The function of the sensor port is set based on the type of the sensor connected.

- **Sensor Schedule**
  Choose **Sensor OFF** or **Sensor ON** and make a selection on the Sensor Schedule Table to schedule according to day of the week and time.

4. Remote Configuration

Alarm

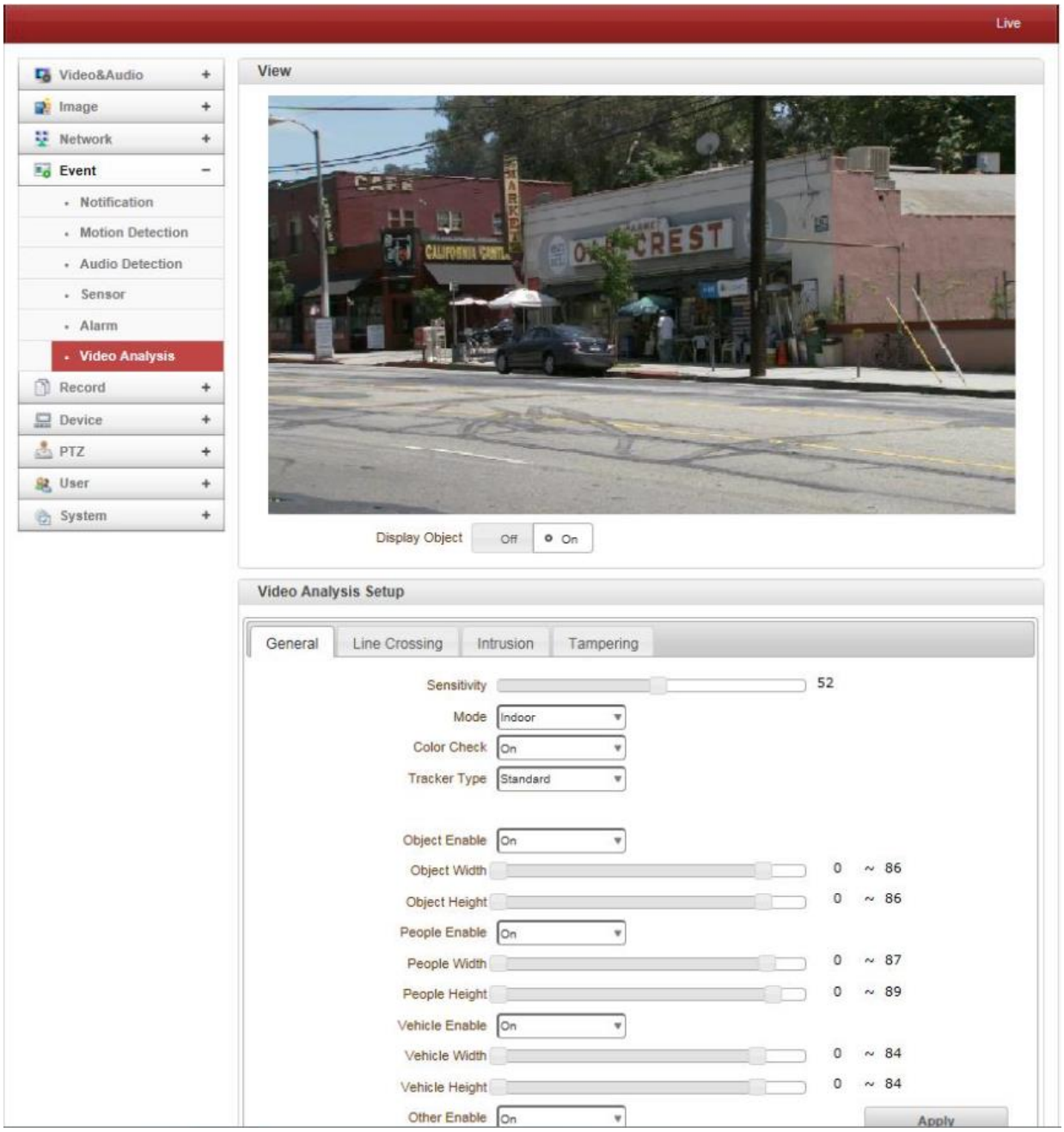


Set the duration of the Alarm or Beep Activation in case of an event. If **Continuous** is selected, the alarm will be in an active state until the operator resets it manually.

4. Remote Configuration

Video Analytics

3 Types of Video Analytics are supported: **Line Crossing Detection, Intrusion Detection and Camera Tampering Detection**. Maximum encoding performance is restricted when video analytics is enabled. This should only be used when the performance usage rate for video encoding is 50% or less.



General

The General setting configures the video analytics parameters which are applied to all functions: Line Crossing, Intrusion, and Tampering.

- **Sensitivity**

Configures the sensitivity in object detection: the larger, the more sensitive.

- **Mode**

Configures if the target scene will be indoor or outdoor.

- **Color Check**

Configures if the color property will be used in video analytics. “ON”’ is recommended.

- **Tracker Type**

Configures internal algorithm of object detection and tracking. Due to performance issues, “Simple” is recommended in most cases.

- **Object Enable / Object Width / Object Height**

“Object Enable” configures if any objects including people, vehicle and others are to be detected. “Object Width” and “Object Height” define minimum size of the object to be detected. When this setting is enabled, people detection and vehicle detection work regardless of the “People Enable” and “Vehicle Enable” setting.

- **People Enable / People Width / People Height**

“People Enable” configures if people are to be detected. “People Width” and “People Height” define the minimum size of the people to be detected.

- **Vehicle Enable / Vehicle Width / Vehicle Height**

“Vehicle Enable” configures if vehicles are to be detected. “Vehicle Width” and “Vehicle Height” define minimum size of the vehicle to be detected.

Line Crossing

A Line Segment is drawn in the configuration. When enabled, objects which cross the line are detected and events are generated accordingly.

- **Camera Height**

Configures the height of camera installation. This setting helps the internal operation of the object detection.

Intrusion

The region for Intrusion Detection is drawn in the configuration. When objects enter that region, events are generated accordingly.

- **Object Size**

Defines the size of the object to be detected. Object size is defined by the percentage it covers in the total video size.

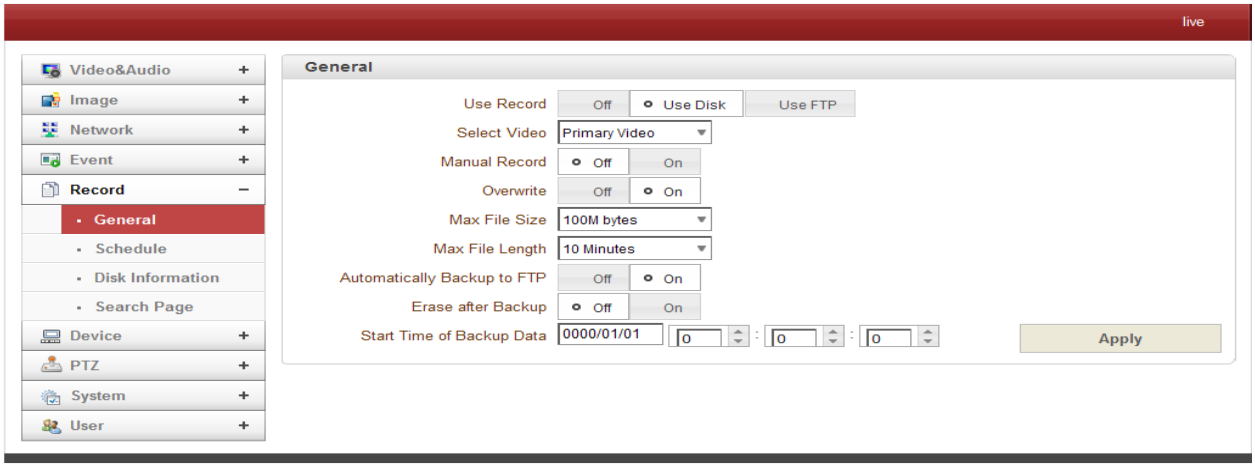
Tampering

When enabled, Camera Tampering, such as covering the lens with a towel, is detected and events are generated accordingly.

4. Remote Configuration

4.6 Record Configuration

General



- **Use Record**
  - **Off:** Recording function will not be used when **OFF** is selected.
  - **Use Disk:** When the Use Disk function is on, the default setting for the **Schedule**
  - **Table** is **Record Off**.
  - **Use FTP:** Recording will be enabled and data will be **uploaded to an FTP Server**. In this mode, the FTP Upload by Event is automatically disabled.

- **Select Video**
  Select the **Video Stream** to record.

- **Manual Record**
  When **ON** is selected, record is initiated regardless of Schedule.

- **Overwrite**
  When the disk becomes full, the oldest data files are deleted automatically. This is valid only when **Use Record** is set to **Use Disk**.

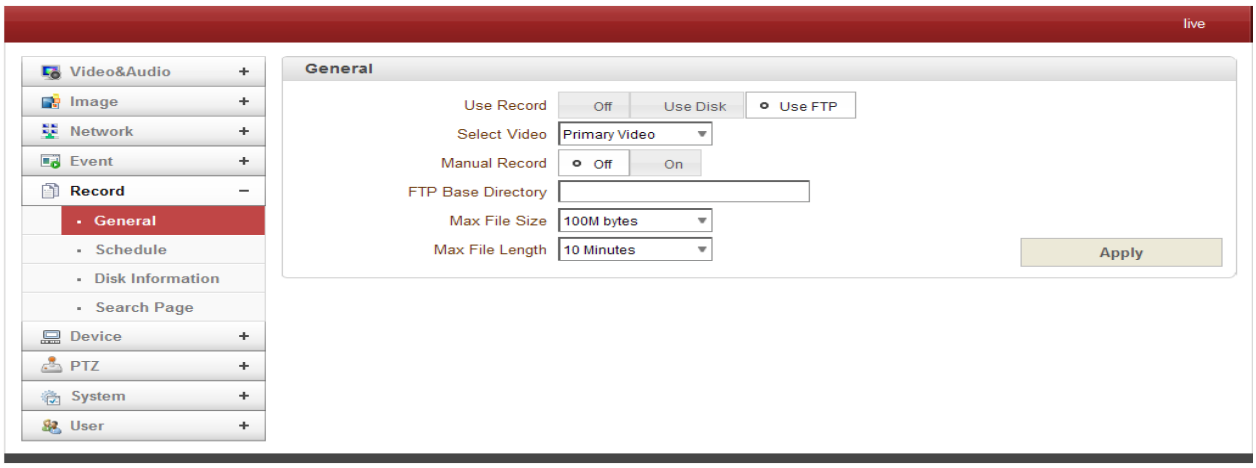
- **Max File Size / Max File Length**
  Max File Size option is for limiting the size of the AVI file. If **Small File Size** is selected, the file is generated but the number of small files will be increased. When limiting the time length of the AVI file, the **Max File Length** option is used. If the file size becomes the Max File Size or the duration of the recording reaches Max File Length, a new file is created.

- **Automatically Backup to FTP**
  Data recorded in the disk can be uploaded to an **FTP Server** automatically for backup. FTP Server is configured on the **Event** page. This is valid only when **Use Record** is set to **Use Disk**.

4. Remote Configuration

- **Erase After Backup**
  Data is deleted automatically after being uploaded to the FTP Server. This is valid only when **Automatically Backup to FTP** is selected.

- **Start Time of Backup Data**
  Specify the time when the data backup occurs. Select **Backup to FTP Disk**. This time is changed automatically with the **Backup to FTP Server**. Check current backup status on a regular basis. This is valid only when **Automatically Backup to FTP** is selected.



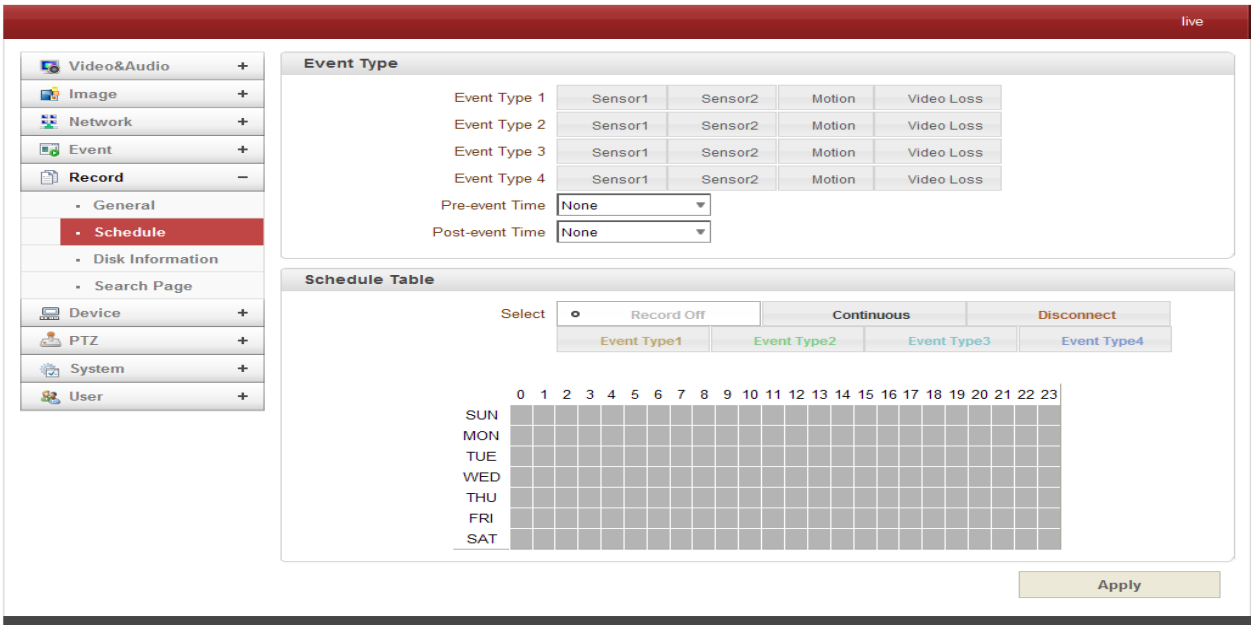
- **FTP Base Directory**
  Specify the name of the directory to be created in the FTP Server. This is valid only when **Use Record** is set to **Use FTP**.

Checking Status of Recording

Recording Status can be checked on the main view page.

4. Remote Configuration

Schedule



- **Event Type**
  Three recording modes are supported: **Continuous, Event,** and **Disconnect**. When using Event Recording, Event Types can be selected among several Events. **Selected Event Type** is used for configuring the Schedule Table. Up to 4 Event Types can be configured and each Event Type can be a combination of **Sensor, Video Loss** and **Motion Event**.
  - **Pre-Event Time**

  Specify the duration of recording before an Event happens.
  - **Post-Event Time**

  Specify the duration after the Event is cleared.

- **Schedule Table**
  Actual **Recording Mode** is determined by **Schedule Table**, where the Recording Mode is configured by Day and Hour. Recording Modes are configured as follows:
  - **Record Off**

  No Recording.
  - **Continuous**

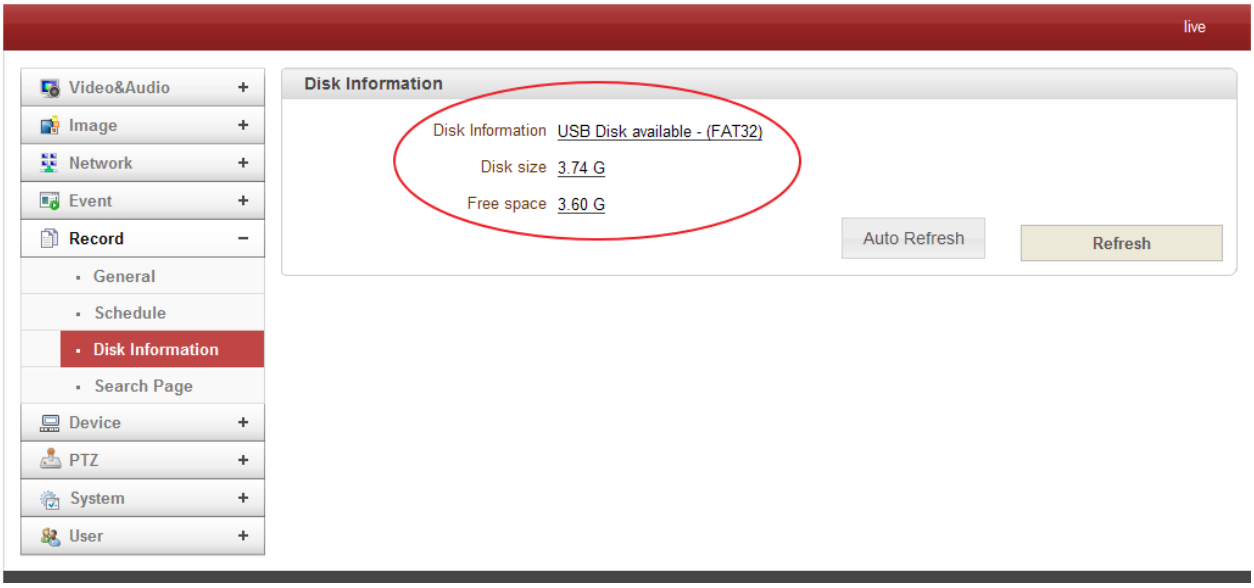
  Records continuously.
  - **Disconnect**

  Recording is started when the system loses connection to the last client (Decoder, VMS/NVR) etc. When there are multiple clients and only one is disconnected, the recording is not started.
  - **Event Type**

  A recording is started when an Event is configured in the Event Type.

4. Remote Configuration

Disk Information



When SD Memory is used, at least 1GB is recommended. An **EXT3** or **FAT32** File System can be used. EXT3 or FAT32 can be read in Linux PC. However, only disks with FAT32 file system can be read in Windows PC. Less than 4Mbps of video bit rate is recommended when you record and monitor video simultaneously since frame dropping may occur due to performance limitation.

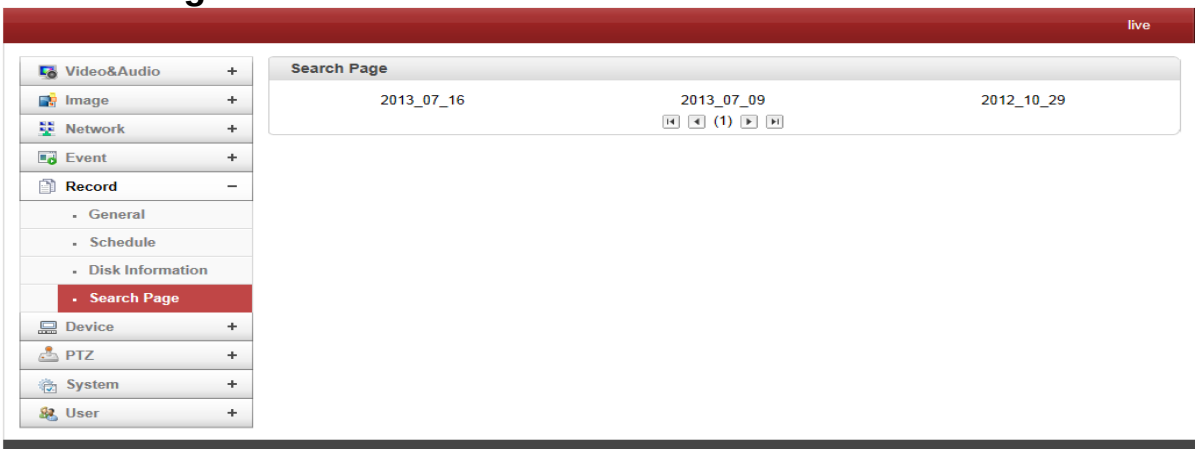
Restart the system after connecting an SD card. The system reads the disk status and initializes during reboot. Once the disk initialization is finished, the disk status is shown on the **Record** page of the web-based setup.

Refer to this chart for checking the disk status:

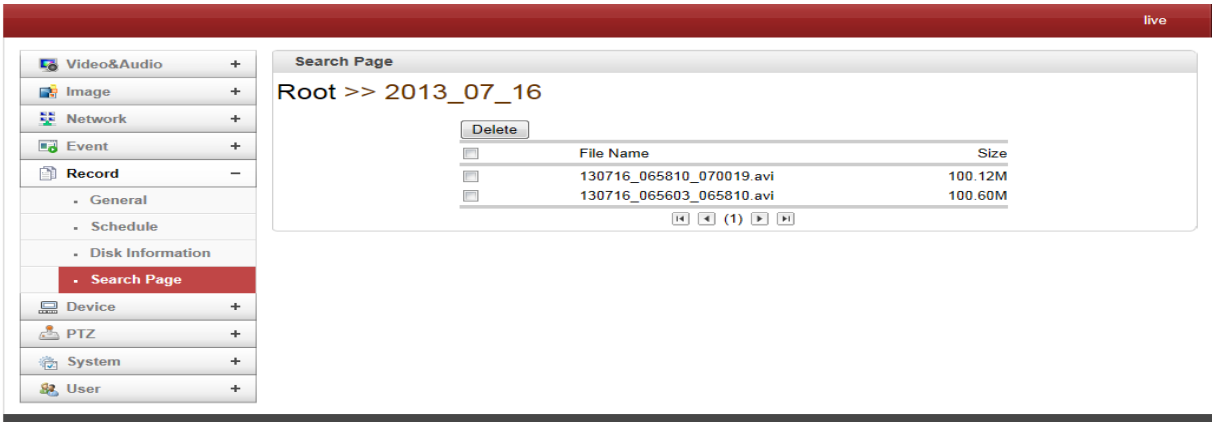
Disk status	Description
Disk error detected	Error
No disk	Disk is not connected to the system.
Searching Disk information	Checking the status of disk. Refresh the page and wait until the status is changed.
Mounting and Recovering Disk...	Performing recovery process when disk damage is found. It takes from seconds to minutes for recovering.
Disk format needed	Disk is attached, but the type of the file system is unknown or damaged.
Unknown disk type detected	
USB Disk available	Available to be used for recording
Disk removed or in abnormal state	Disk is detached during operation or there is damage on the file system. If it happens while disk is connected, it is recommended to format the disk.

4. Remote Configuration

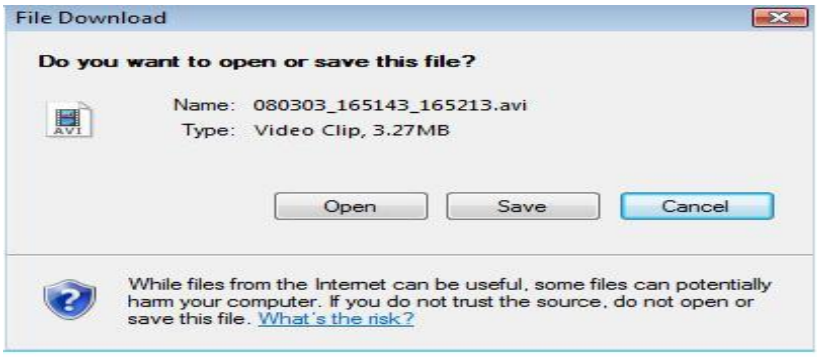
Search Page



Recorded Video and Audio Data can be saved in **AVI Format**. In general, one AVI file is created for an **Event-Based Recording**. However, it is possible that a **Series of Events** can be recorded continuously and merged into a single AVI file depending on **Pre/Post Event Time Setting**. The size of file is limited to 10-2GB. With **Continuous Recording**, AVI files are created in a series and each size is limited to 10-2GB.



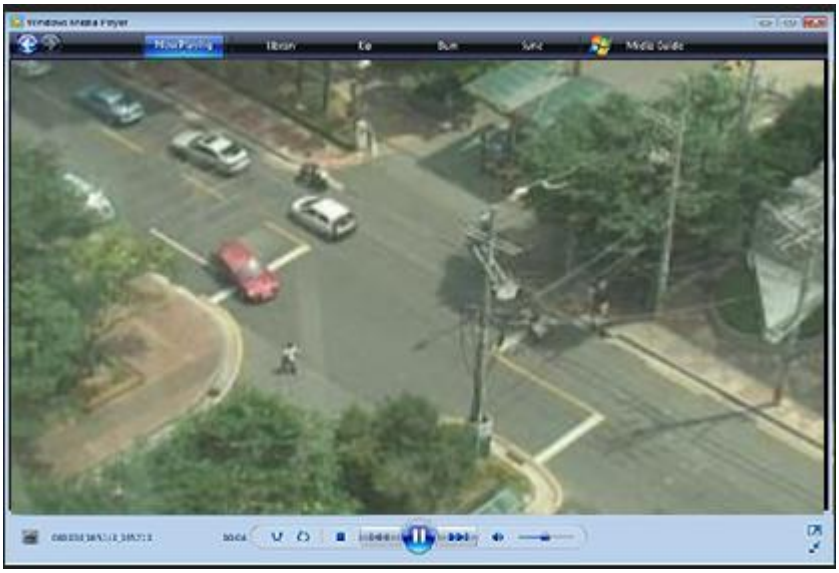
- **Playback**
  1. After selecting an AVI file, a window will appear for opening or saving the file.



4. Remote Configuration

2. The **Save** button will store the file in the PC. The AVI file can be played with Windows Media Player.

3. The **Open** button will download and automatically play with Windows Media Player.

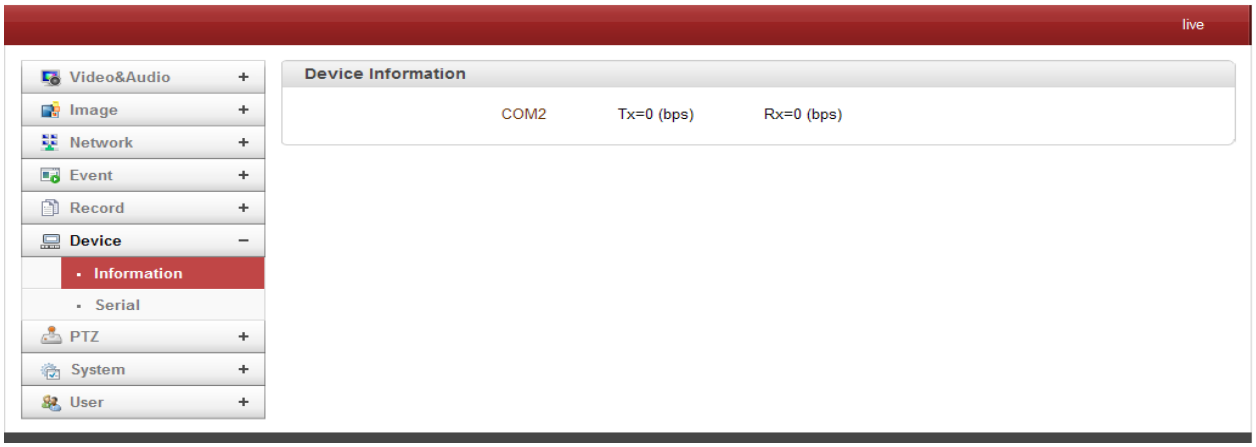


4. The internet connection is disabled during downloading. Two AVI files cannot be download at the same time.

4. Remote Configuration

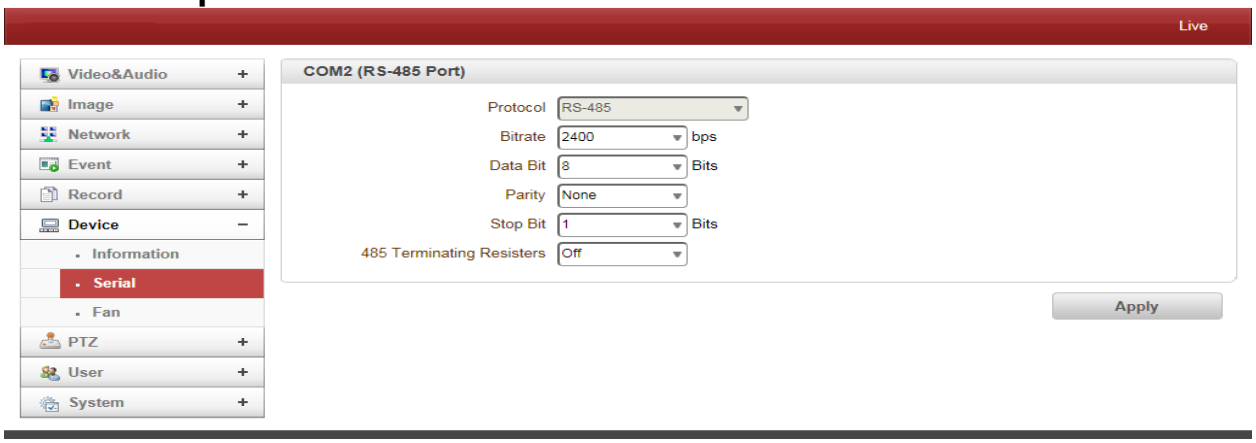
4.7 Device Configuration

Information



This information provides current serial communication status.

Serial Setup



- **Serial Protocol:**

This IP Camera supports one Serial Port: **RS-232.**

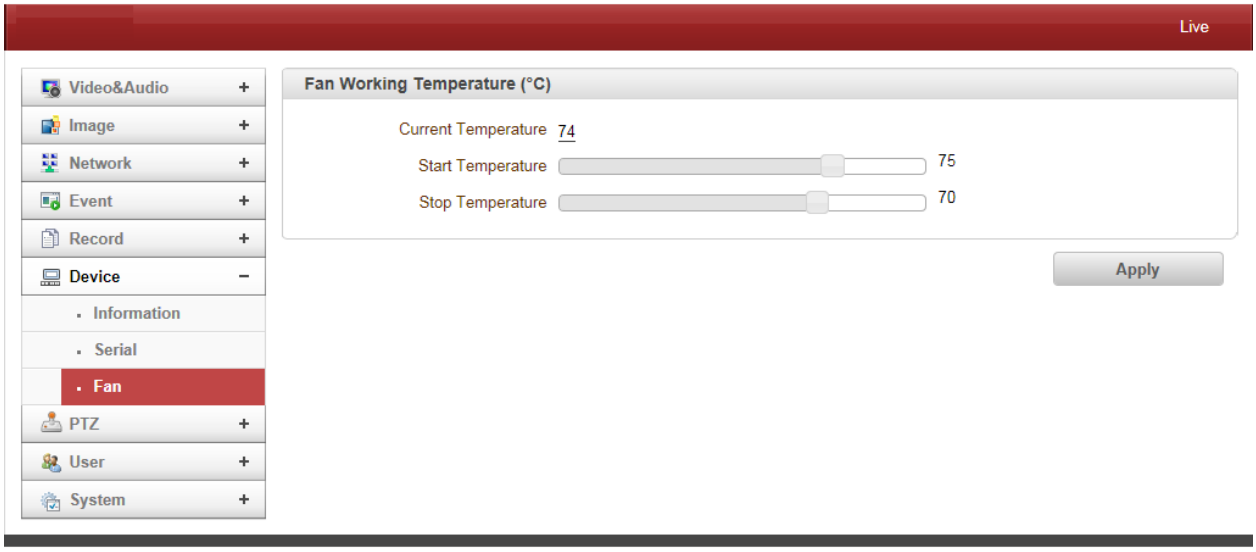
- **Serial Port Configuration:**

The serial ports can be configured as follows:

Mode	Selection
Bitrate	2400, 4800, 9600, 19200, 38400, 57600, 115200 bps
Data Bits	5, 6, 7, 8 bits
Parity	NONE, EVEN, ODD bit
Stop Bit	1, 2 bit

4. Remote Configuration

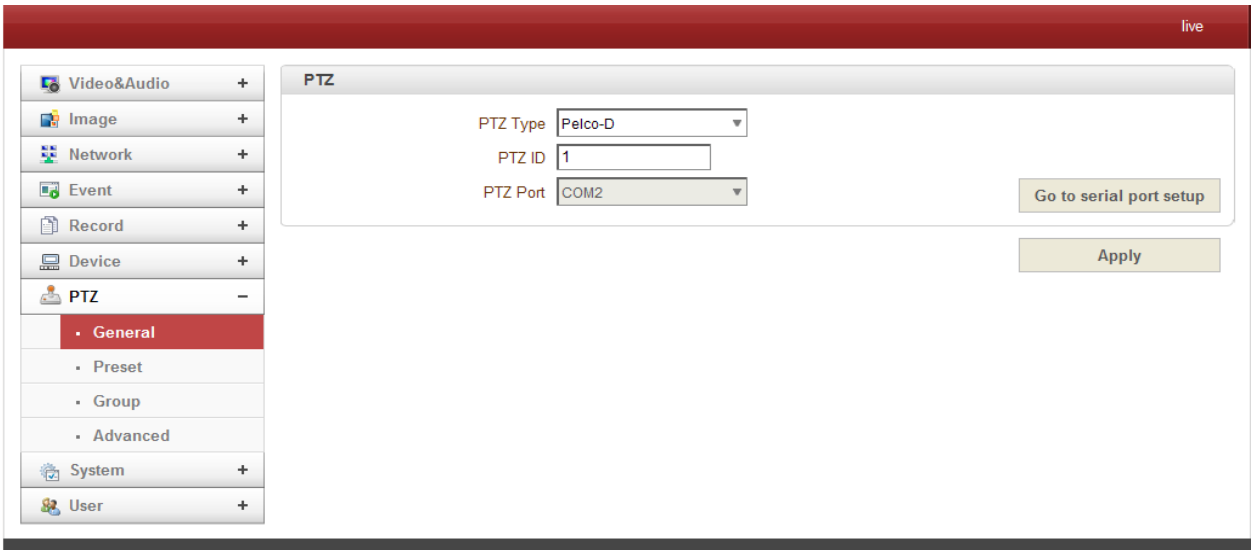
Fan



User can check current temperature and make fan working scenario

4.8 PTZ Configuration

General



- **PTZ Type**

Select the type of PTZ Camera or Receiver.

- **PTZ ID**

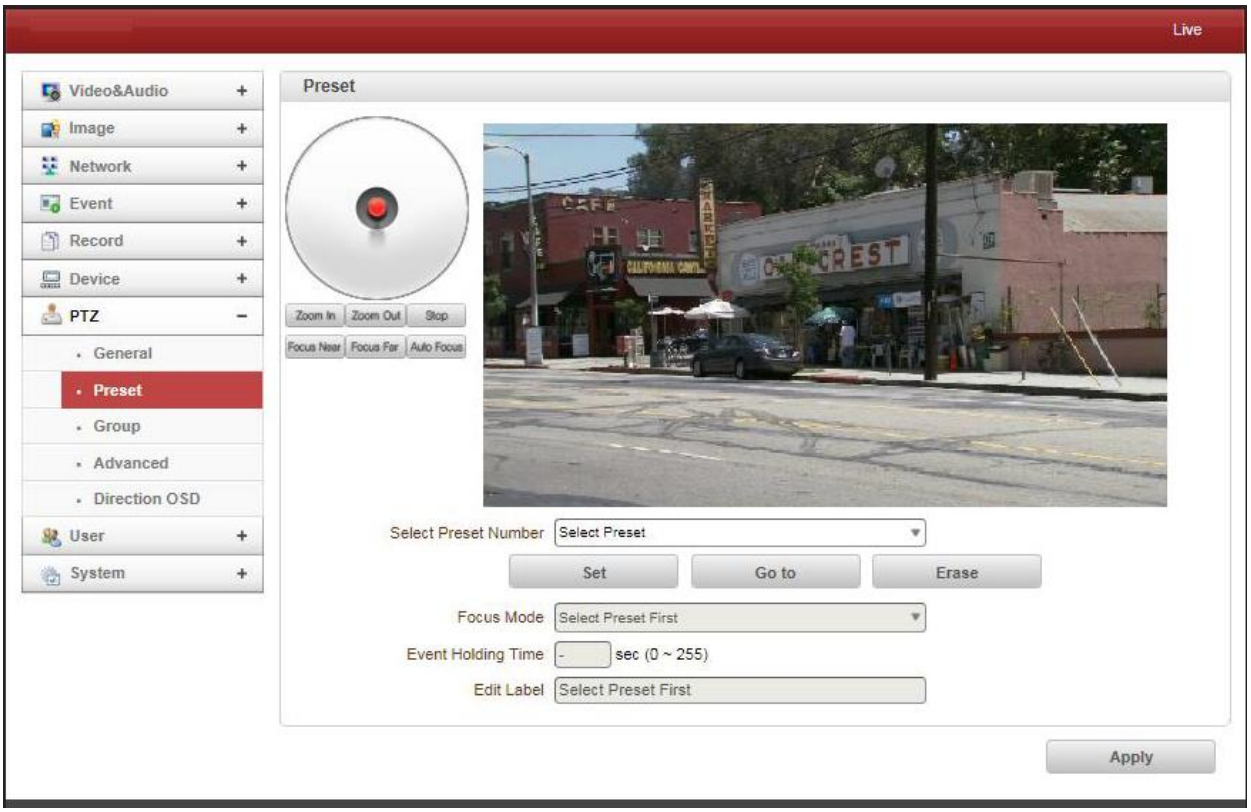
Since it is possible to control multiple PTZ Cameras or Receivers with a single control line, each Camera or Receiver will be assigned with a unique ID. Enter the PTZ ID for control. The ID value range can be between 0 and 255.

- **PTZ Port**

Select the Serial Port for PTZ Camera control.

4. Remote Configuration

Preset



- **Select Preset Number**: Select entry to be assigned to the current server position.

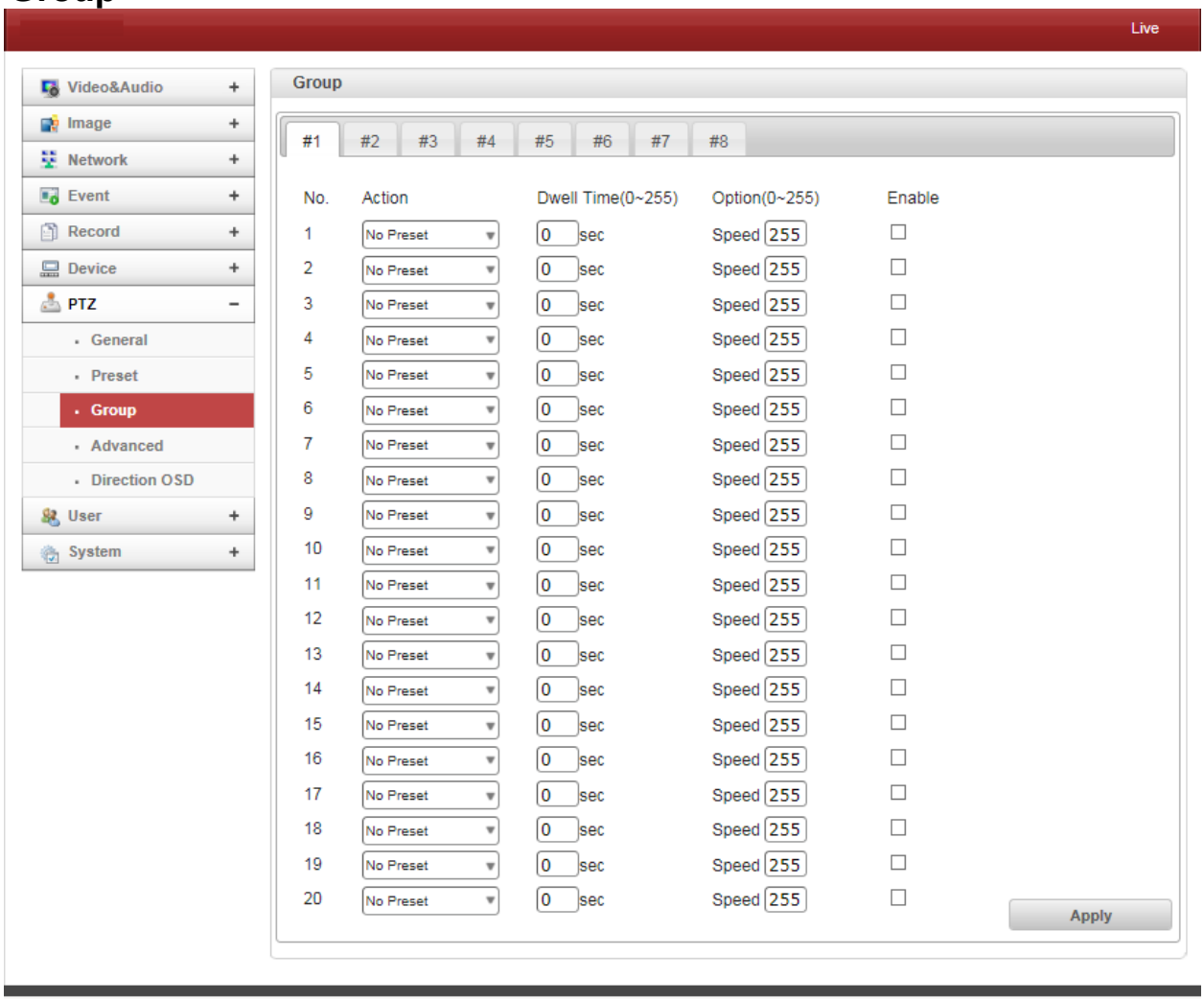
- **Focus Mode**: Select the Focus Mode after Preset Go To is selected.
  - **Do Not Change**: The current Focus Mode is not changed.
  - **Focus Auto**: Auto-focusing is selected after the Preset is moved.
  - **Focus Manual**: The current Focus Position is saved when Preset is set.

- **Event Holding Time**: Set the time to stay at the Preset Position when the Preset is moved by the Event. **If it is set to 0, the server doesn't return to the original position after moving to the Preset Position by Event.**

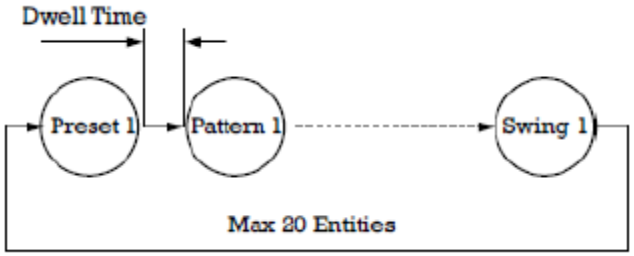
- **Edit Label**: Assign a Label to the Preset Position. Only the first 15 Preset Entries can have Assigned Labels (Preset-1 - Preset-15).

4. Remote Configuration

Group

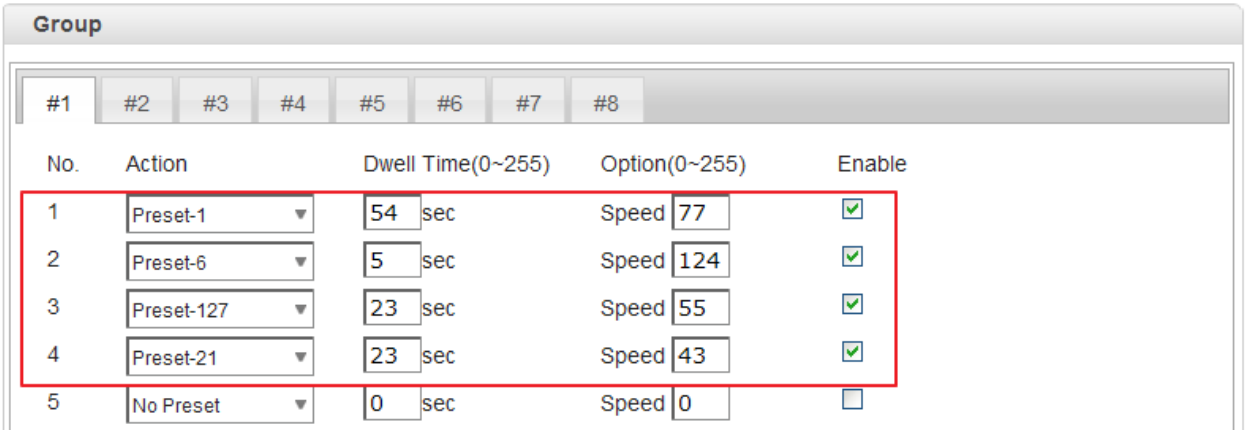


The IP Camera memorizes the combination of **Presets, Pattern** and/or **Swings** sequentially and runs **Presets, Pattern** and/or **Swings** repetitively on activation. A max of 8 Groups are programmable. Each Group can have a max of 20 actions which are the combinations of Preset, Pattern and Swing. The Option field is different for Preset and Pattern/Swing. For **Preset**, it configures the Preset Speed. For **Pattern/Swing**, it configures the number of repetitions. Dwell time between actions can be set up as well.



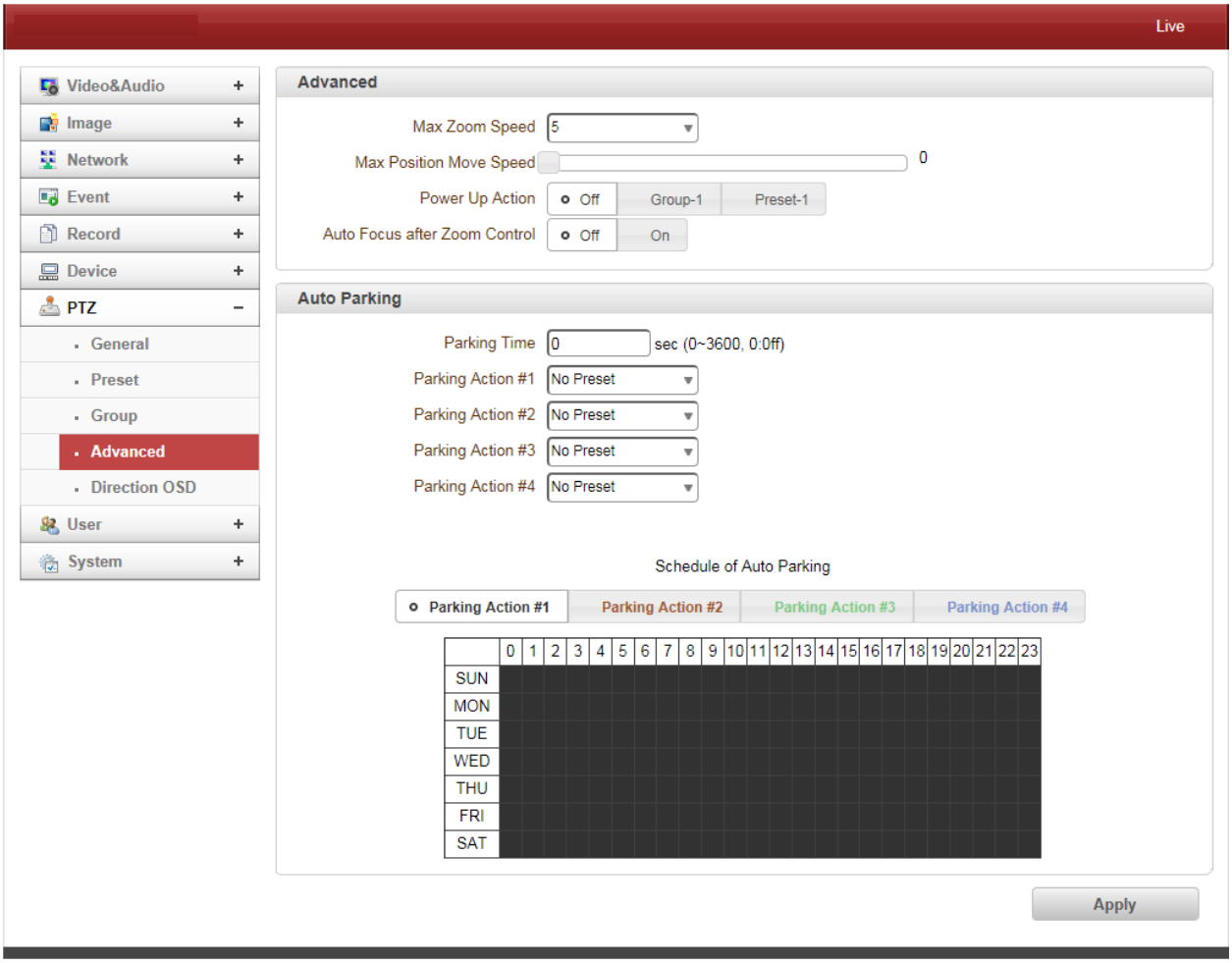
4. Remote Configuration

1. Select one Entry within **Group.**
2. Select the **Modify Group** button. The following window will appear.
3. Set **Action, Dwell Time** and **Option** and click **Enable**.
4. Press **Apply** button and the **Group** can be used on the **Live View Page.**



4. Remote Configuration

Advanced



Advanced

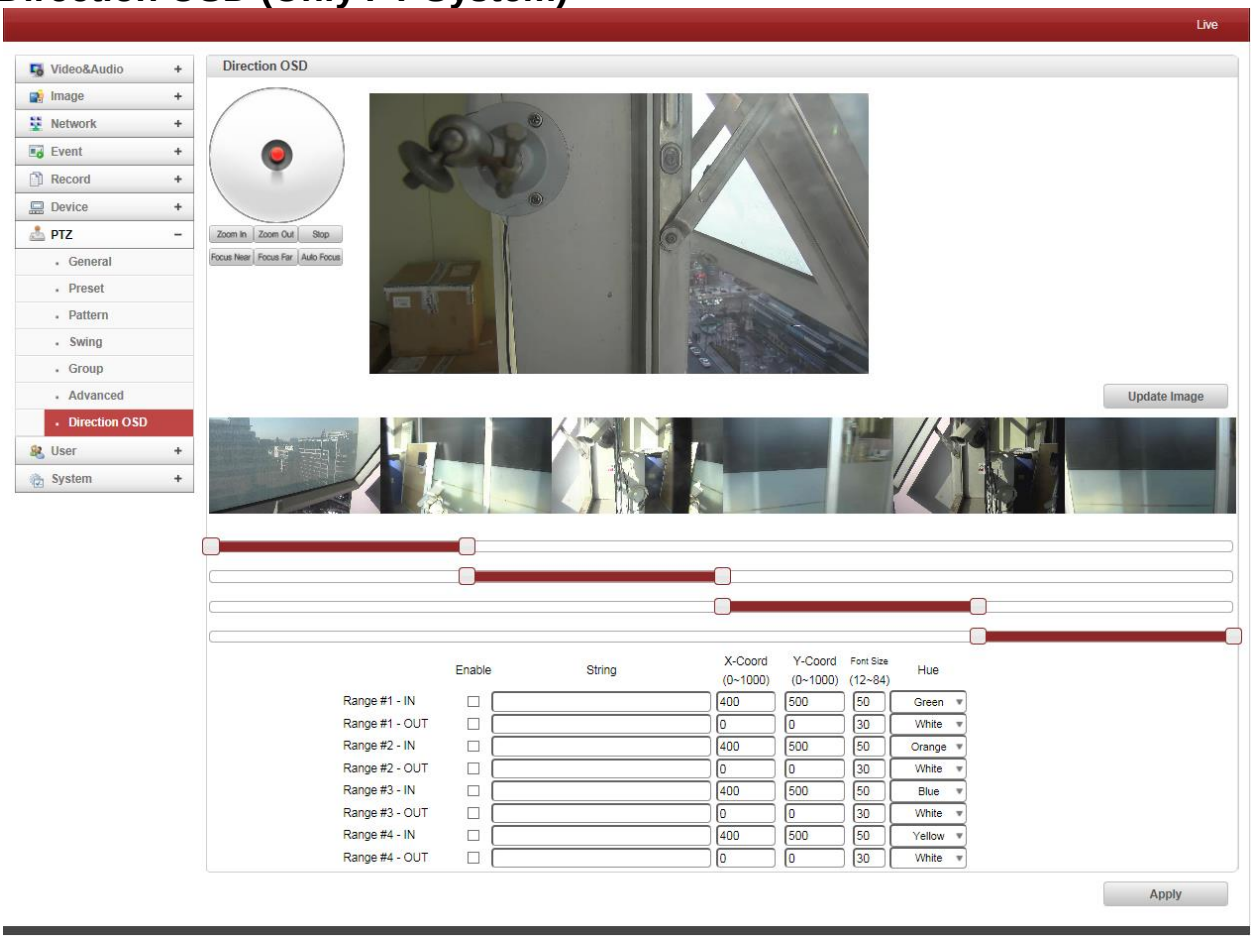
- **Max Zoom Speed:** Eight level options on zoom speed.
- **Max Position Move Speed:** Eight level options on position move speed.
- **Power Up Action:** Specify if the camera will continue the previous actions such as pattern, swing or group after it is rebooted.
  - **Group-1:** After reboot, start to Group-1.
  - **Preset-1:** After reboot, start to Preset-1.
  - **Off:** Moves to the initial position after rebooting.
- **Autofocus after zoom control** : When it works zoom in/out auto focus will be worked automatically

Auto Parking

Auto Parking returns to the previous Preset Position or resumes the operation such as Pattern, Swing or Group when a specified time expires after the PTZ control is stopped. Parking Time can be set from 0 to 3600 seconds and “0” means that the Auto Parking function is turned OFF.

4. Remote Configuration

Direction OSD (Only PT System)



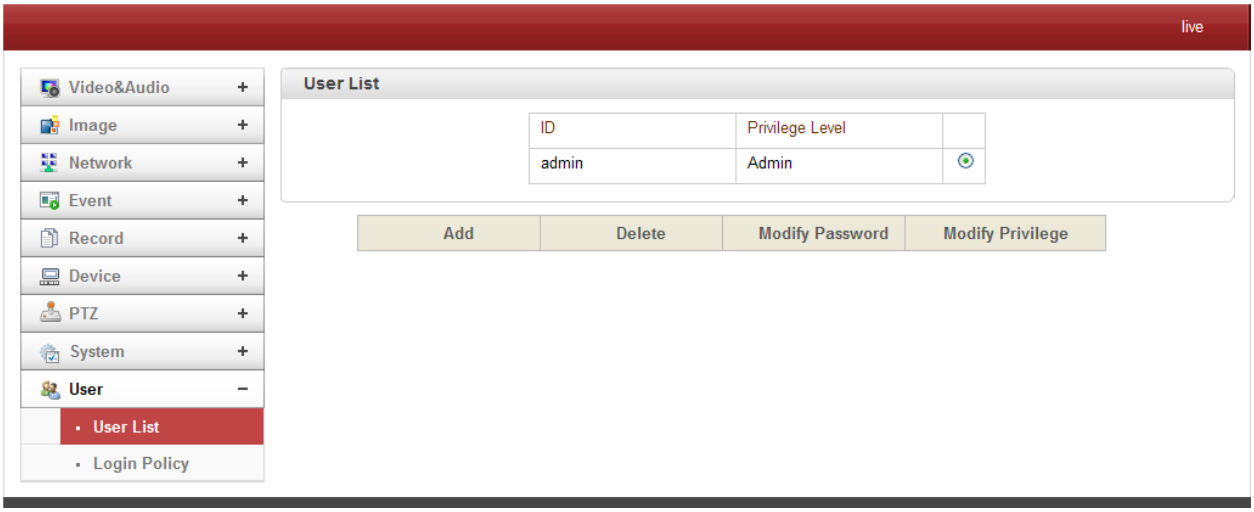
- 360 degrees panoramic shot.
- User can select areas for OSD.

- **Range # - IN:** Based on Coordinate Value, user can see specific OSD.
- **Range # - ON:** Regardless of Coordinate Value, user can see specific OSD.
- **X - Coord:** Position of Horizontal Coordinate.
- **Y - Coord:** Position of Vertical Coordinate.
- **Font size:** Select Font Size.
- **Hue:** Select Color.

4. Remote Configuration

4.9 User Configuration

User List

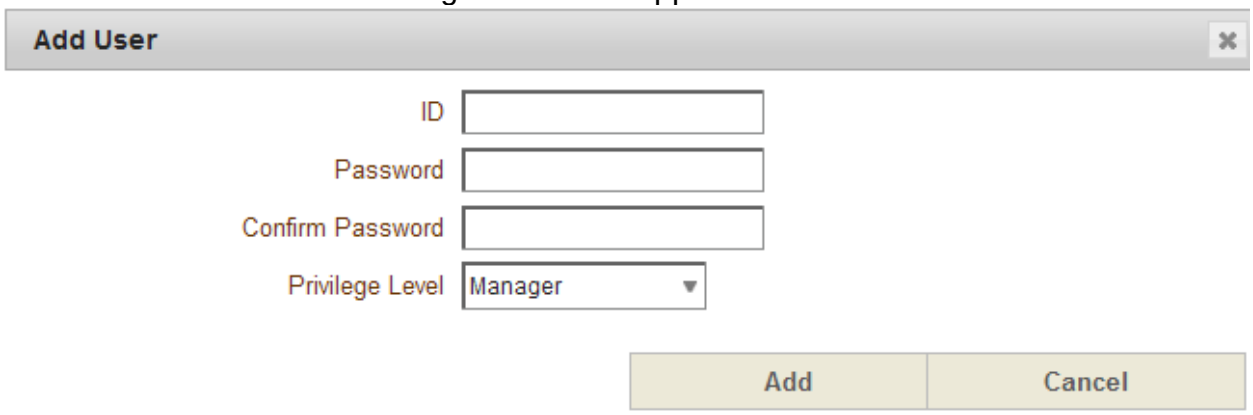


User can be registered and privilege level of a user can be specified. User configuration is allowed only to admin user. Max 16 users can be registered and each user can have one of four privileges.

Privilege	Allowed Operations	Remarks
Admin	All Operations	User ID = admin
Manager	All Operations except for User Configuration	
User	Live Viewing and PTZ Control	
Guest	Live Viewing Only	

- **Add User**

Press **Add** button. The following window will appear.

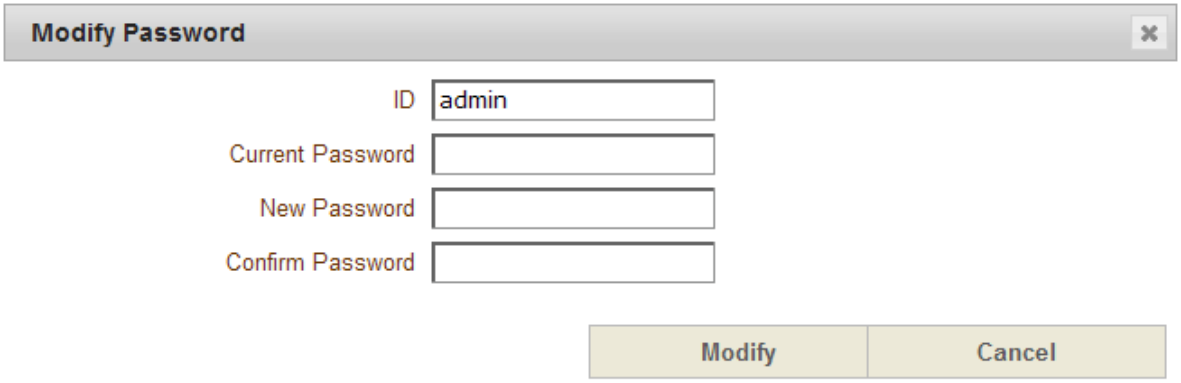


Enter User ID and password (Up to 15 characters) and select **Privilege Level.**

4. Remote Configuration

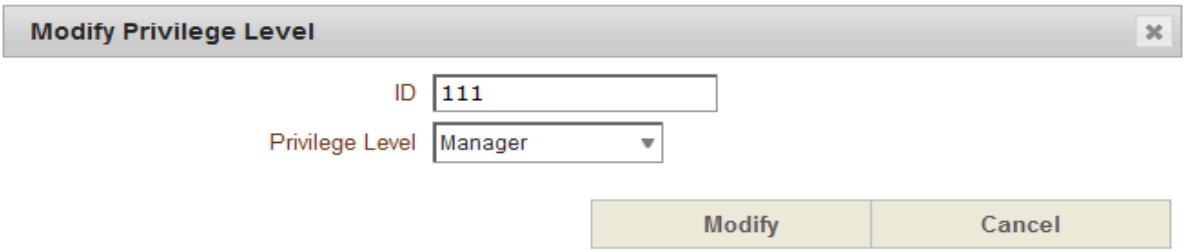
- **Delete User**
  Select the User to be deleted and press **Delete** button.

- **Change Password**
  Press **Modify Password** button. The following window will appear.



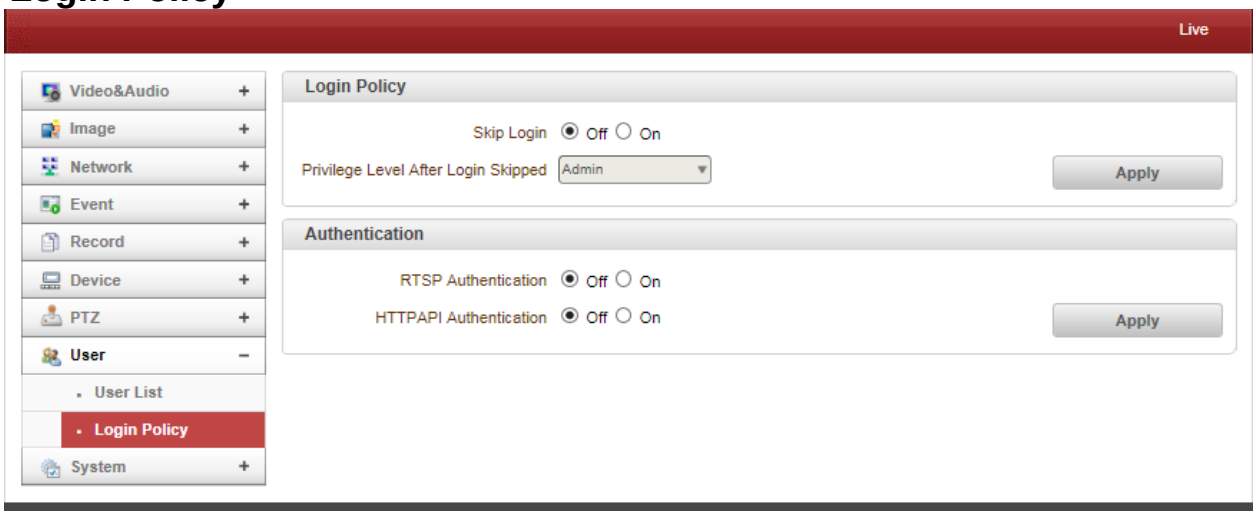
  Enter the current password and then set a new password.

- **Modify Privilege Level**
  Press **Modify Privilege** button to change User level. It is not allowed to change the privilege level of admin user.



4. Remote Configuration

Login Policy

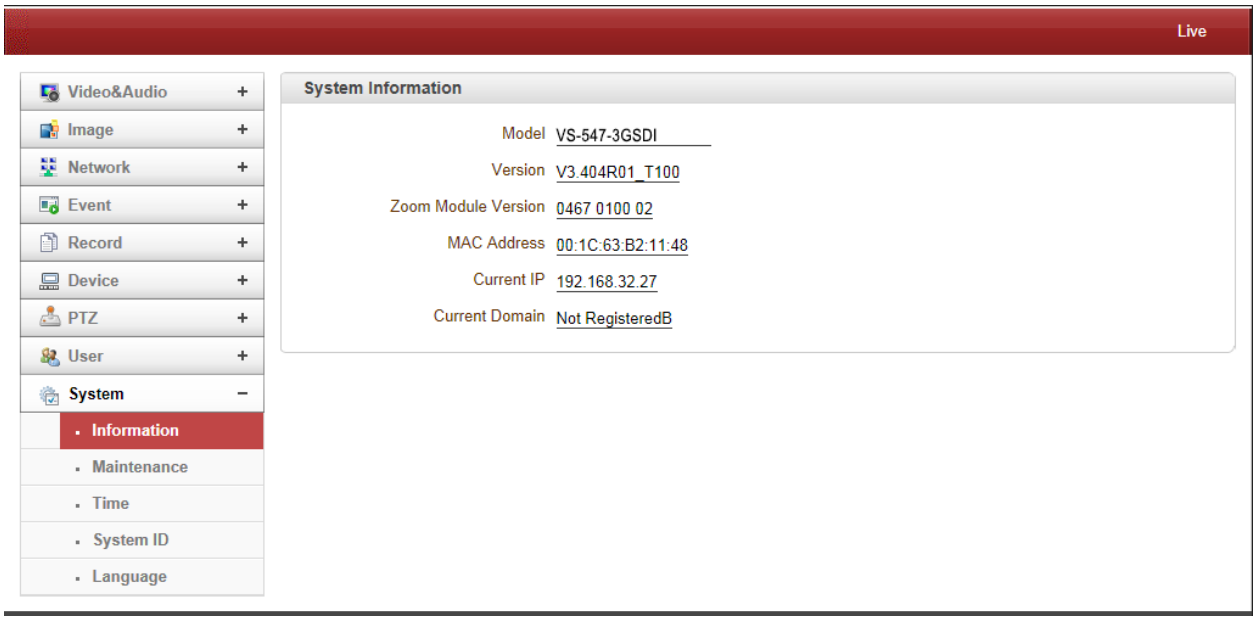


- **Login Policy**
  Skip Login provides for convenient access to the server when authentication is not required. When Skip Login is set to **Enable**, login step is skipped. The privilege level after login in this way is determined by the setting of **Privilege Level After Login Skipped**.

- **Authentication**
  HTTP authentication based on RFC 2617(HTTP Authentication: Basic and Digest Access Authentication) is supported.

4. Remote Configuration

4.10 System Configuration



- **System information**
  This following Network Information is displayed (Read Only):
  - **Model**

  Display the model name.
  - **Version**

  Display the current firmware version.
  - **Mac Address**

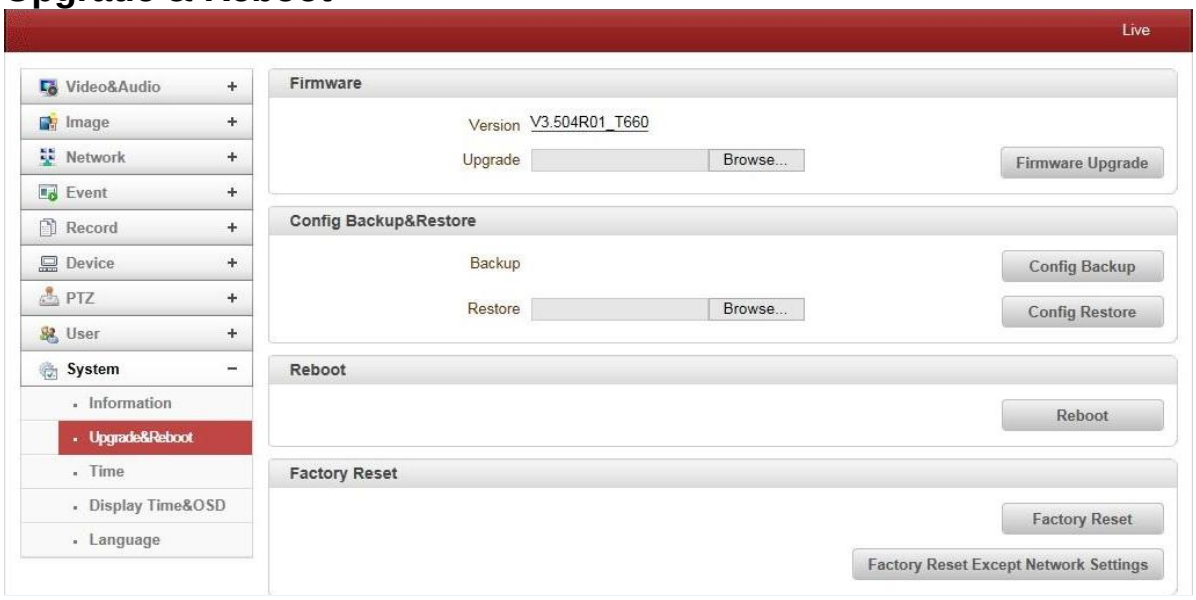
  Display the MAC address of the server. If the IP Camera is registered at DDNS Server, the MAC address is used in DDNS registration.
  - **Set Current Time**

  Display Current Date and Time
  - **Current Domain**

  In case the server is registered at DDNS Server, the registered domain name is displayed.

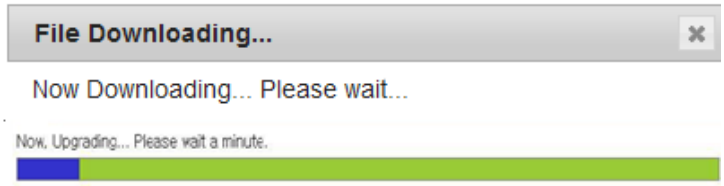
4. Remote Configuration

Upgrade & Reboot



- **Firmware**
  - **Version**: Displays the current firmware version.
  - **Upgrade**: Complete the following to upgrade the firmware:
    1. Press **Browse** button to select a firmware file from PC.
    2. Press **Firmware Upgrade** button to start upgrading.
    3. A message for showing status (downloading / upgrading) will be displayed.
    4. The IP Camera will reboot automatically after completing upgrade.

Do not turn off the server during upgrading.



- **Config Backup & Restore**
  - **Backup:** All the setting of configuration can be stored.
  - **Restore:** Stored configuration can be browsed and restored. The server is rebooted once the **Config Restore** button is selected.

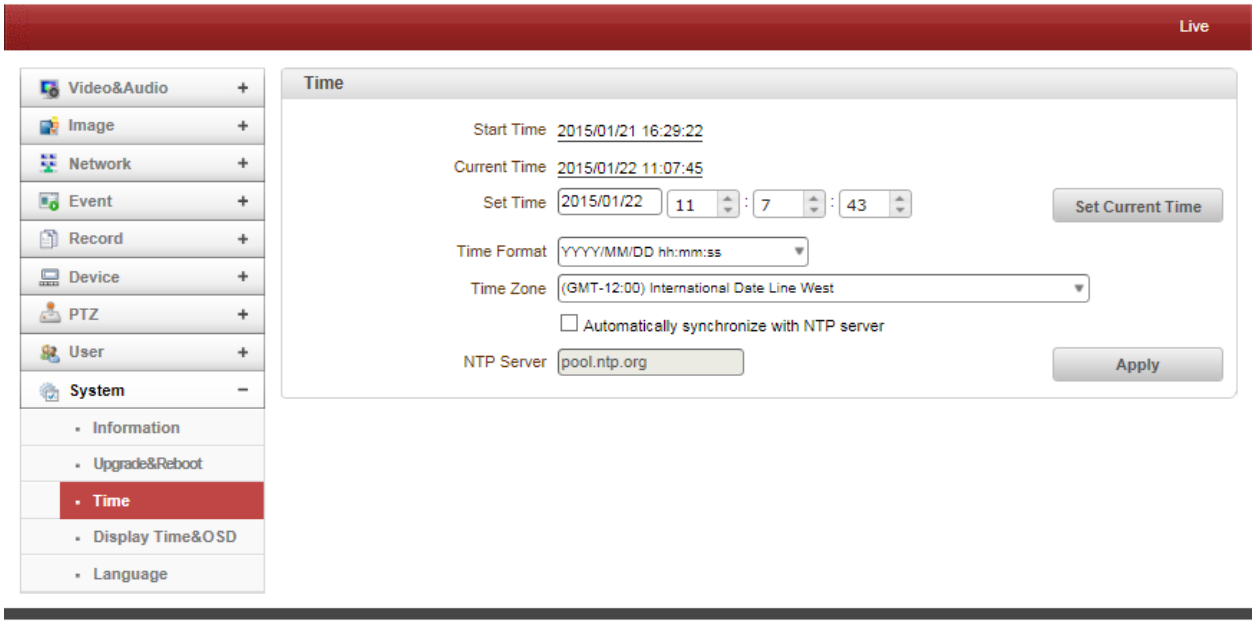
- **Reboot**
  - **Reboot the Camera.** Do not press the Reboot button unless the server needs a reboot.

- **Factory Reset**
  All settings including user accounts and logs are cleared.

- **Factory Reset Except Network Settings**
  All settings except for current network settings are changed to the default values.

4. Remote Configuration

Time



- **Start Time**

The latest server's booting date and time.

- **Current Time**

Current date and time.
Enter a new date and time then press **Set Current Time** button to update date & time.

- **Time Format**

Change the time format. The selectable time formats are as below;

1. YYYY/MM/DD hh:mm:ss (Eg. 2012/10.30 12:30:45)
2. DD/MM/YYYY hh:mm:ss (Eg. 10/30/2012 12:30:45)
3. MM/DD/YYYY hh:mm:ss (Eg. 30/10/2012 12:30:45)

- **Time Zone**

Select time zone of where the server is installed. Depending on the time zone, Daylight Saving Time will work automatically.

> A **Time Zone** is a region of the earth that has uniform standard time, usually referred to as the **Local Time**. By convention, time zones compute their local time as an offset from UTC (Coordinated Universal Time). In casual use, GMT (Greenwich Mean Time) can be considered equivalent to UTC. Local time is UTC plus the current time zone offset for the considered location

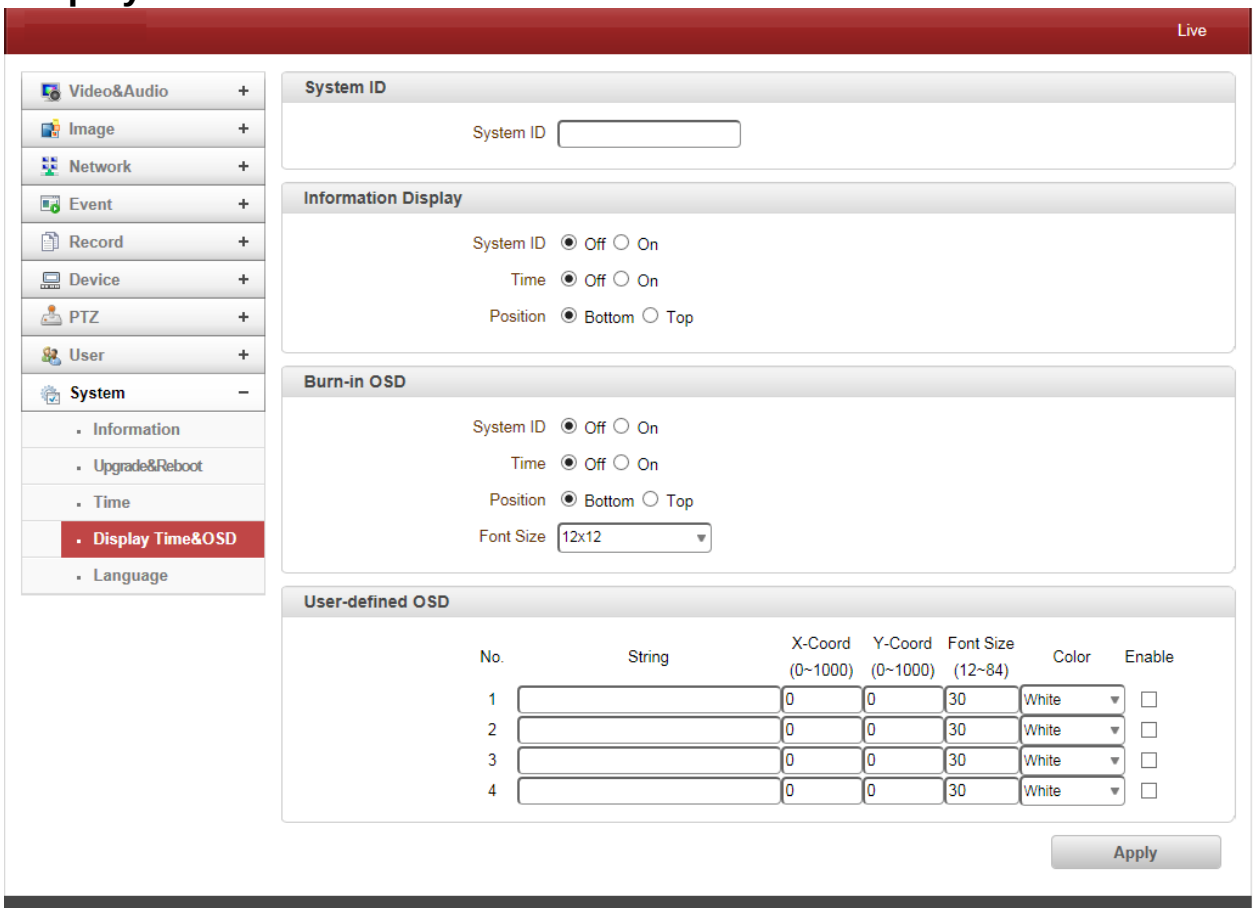
4. Remote Configuration

- **Automatic Synchronize with NTP Server**

Synchronize the server time with an NTP Server using NTP (Network Time Protocol). Name of the NTP Server should be registered on NTP Server Name.

The **Network Time Protocol** (**NTP**) is a protocol for synchronizing the clocks of computer systems over packet-switched, variable-latency data networks. It is designed particularly to resist the effects of variable latency by using a jitter buffer.

Display Time & OSD



- **System ID**

  Enter System ID that is used for this camera.
  The set System ID is displayed with video image on a Web Browser. The System ID is also transferred to remote software, such as VMS, and displayed on it.

- **Information Display**

  System ID and/or IP Camera time can be display over the video window in Internet Explorer. Each item can be turn on or off separately, and position also can be configured. This information is displayed **after the video is decompressed**.

4. Remote Configuration

- **Burn In OSD**
  Insert System ID and date/time **in the compressed video**. System ID and time respectively can be turned on or off in the video. Position and Font size can be configured also. System ID for BurnIn OSD exists independently from normal System ID.

  Note: the size of Burnin OSD display varies according to the encoding resolution setting. This is inevitable because Burnin OSD is inserted to the frames before encoding is performed. The following table describes the rule for BurnIn OSD display.

Resolution	Small (8x8)	Middle (16x16)	Large (32x32)
352x480 / 352x240 / 352x576 / 352x288	2	1	0
720x480 / 720x240 / 720x576 / 720x288 / 640x480 / 800x600	2	2	1
1024 x 768 / 1280x720 / 1280 x 960 / 1280x1024 / 1440x900 / 1600x900 / 1680x1050 / 1920x1056 / 1920x1080 / 2048x1536 / 2560x1600 / 2592x1936	2	2	2

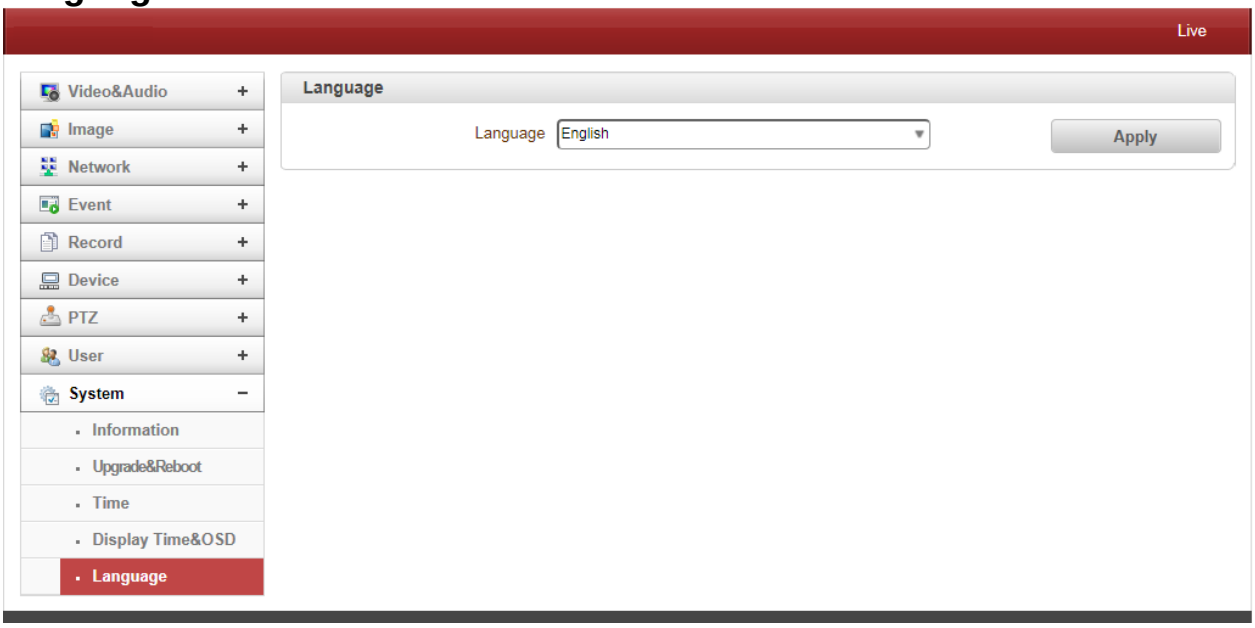
  - **2**: Both System ID and Time are displayed.
  - **1**: Either System ID or Time can be displayed. When both are enabled, System ID is displayed.
  - **0**: No items are displayed. This is because video area is too small to display OSD text in large text.

- **User Defined OSD**
  You can enter any text you like independent.
  - **X-Coordinate** or **Y-Coordinate**

  For example, if you enter 500, 500 values, OSD is placed in center of images.

4. Remote Configuration

Language



- **Language**
  Select the Language to be used for Web-Based Configuration.

5. VS Manager

VS Manager is a program used for basic configuration, diagnostics and firmware upgrade of video servers or IP servers. **VS Manager** provides the following features:

- Finding servers on the LAN and assigning IP Addresses.
- Monitoring Server Status: Encoding/Decoding, Serial, Sensor, etc.
- Diagnostic Function: PING, Network Bandwidth Measurement, Video/Audio Output, Port Check, Serial Port Check.
- Firmware Upgrade.

VS Manager Software Download:
http://www.lcdracks.com/servers-cameras/software/software.php

1. Create a folder on your 'C' drive and download the file into that folder using the link above.
2. Copy and paste the link above into an Internet Explorer address window.
3. Right mouse click on the file and make a shortcut on your desktop (using "send to command")
4. Launch the application by double clicking on the desktop icon.
5. Login = admin, Password = 1234.

For Windows 7, 64 bit <u>ONLY</u>:
Once VS Manager installed, select IP Discovery, create servers.
On main page go to Tools, Options and change to this path below.
In the address window, after the word "Files" type a space then (x86).

6. Data Sheet

VS-547-3GSDI
1080p/59.94 30x Zoom Hybrid Broadcast/ IPTV Box Camera

- 1/2.8-inch Progressive Scan CMOS
- 2.0 MP 30X Optical Zoom, 12X Digital Zoom
- Supports up to 1080p/59.94 or 1080i/59.94
- 1 x Video Out
- 3GSDI Model supports Low Latency Live Video Out
- Quad H.264 Streams Out
- Camera Matches Photometrically with the VS-577A
- Two Way Audio in Stereo
- Max Stream Out: 1920x1080 at 60FPS
- Adjustable Video Bitrate: 32Kbps ~ 16Mbps for Primary Video, 32Kbps ~ 4Mbps for Secondary Video Streams
- True Flickerlless WDR (Wide Dynamic Range)
- Dynamic Range is increased by up to 120dB, equivalent to 300 times traditional
- SD Card Recording
- RS-485 Serial Control supporting Pelco D or Pelco P Protocol
- Various protocols supported: TCP/IP, Multicast, UDP, HTTP, SMTP & FTP
- DHCP, DNS, Dynamic DNS, RTP, RTSP, SNMP
- Dual Power Options of 12V DC or PoE (802af)
- ONVIF, PSIA Compliant
- Models available for 3GSDI Output or HDMI Output

INCLUDES POWER SUPPLY*
*required for applications not utililizing PoE

6. Data Sheet

Specification Sheet

VS-547-3GSDI Specifications		
Network	**Network Interface**	Ethernet 10/100base-T (RJ-45)
	Network Protocol	IPv4/v6, TCP, UDP, IGMP (Multicast), DHCP, HTTP, HTTPS, RTP, RTSP, FTP, SNMP, SMTP, UPnP, WS-Discovery, Zero Configuration, DDNS
	Security	Password protection, IP address filtering, HTTPS encryption
	API	MEI Protocol, SDK, ONVIF, PSIA, MPEG-TS
Camera	**Image Sensor**	1/2.8" Exmor CMOS
	Focal Length	F=4.6 ~ 129mm
	Zoom	Optical x30, Digital x12
	Lens Type	AF, Auto iris
	Angle of View	Horizontal: 63.7°(wide) ~ 2.3°(tele) with 1080p60 mode
	Minimum Illuminance	Normal: 0.5Lux (color), 0.1Lux (B/W, ICR on) with 50IRE
	Maximum aperture ratio	F1.6 ~ F4.7
	Minimum illumination	Normal: 0.5Lux (color), 0.1Lux (B/W, ICR on) with 50IRE
	Electronic shutter speed	1/1 ~ 1/10,000 sec
	Privacy masking	4 regions
	Flip mode	Horizontal, Vertical
	Image enhancement	AE, AWB, AGC, TDN, DNR, BLC, ACCE, WDR, DSS, EIS, Defog
Video	Compression	H.264, MJPEG
	Bitrate	Primary: 32Kbps ~ 16Mbps, Secondary x3: 32Kbps ~ 4Mbps
	Resolutions	352x240 ~ 1920x1080
	Max Frame Rate	60fps @ 1920x1080
	Output	3GSDI Max Output (BNC) 1080p/60
	Streaming	Primary: H.264, Secondary x 3: H.264/MJPEG
	Burn-in OSD	Multi-lingual
Audio	**Compression**	G.711/AAC
	Sample Rate	G.711: 8 KHz, AAC: 32 kHz / 44.1 kHz / 48 kHz
	Bitrate	G.711: 64Kbps, AAC: 64Kbps/128Kbps
	Streaming	G.711: Full-duplex, AAC: Half-duplex
	Input	1 x Line-In (Mini Stereo)
	Output	1 x Line-Out (Mini Stereo)
Event	**Event sources**	Motion, Sensor input, Client disconnection
	Event actions	Notification (E-mail), FTP, PTZ preset, Alarm control, Recording
General	Certifications	CE, FCC, KC, RoHS
	External devices	1 x Sensor-In (dry contact, NO/NC) 1 x Alarm-Out (dry contact, NO) 1 x RS-485 port
	Edge storage	SD/SDHC slot
	Power supply	Min DC12V/1.5A, PoE (Power over Ethernet): 802.3af
	Power consumption	DC12V/PoE: Max DC12V/9.6W
	Operating Temperature	-10°C ~ 50°C (14°F ~ 122°F) / 20% ~ 80% RH
	Dimension	74 (W) x 188.1 (L) x 73 (H) [mm]
	Weight	920g

7. Appendix

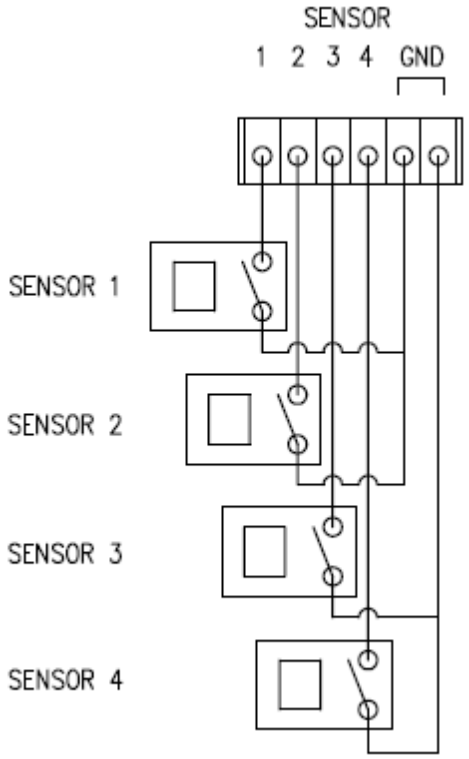
Appendix A: Sensor and Alarm Port

Sensor Port

- **Terminal Type**
- Voltage Rating: 150VAC
- Current Rating : 2A
- Color : Red

- **Sensor Signal Input Type**
- NO Contact Signals

- **Connection to External Device**



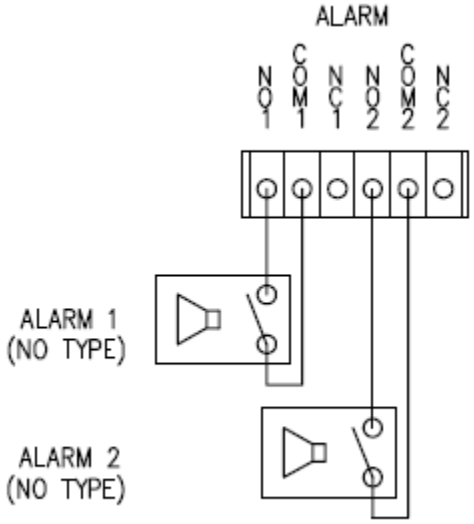
Alarm Port

- **Terminal Type**
- Voltage Rating: 150VAC
- Current Rating : 2A

- **Relay Type**
- Contact Rating : 1A 30VDC
- Switching Power : Max 30W 62.5VA
- Switching Voltage : Max 60VDC

- **Alarm Signal Output Type**
- NO/NC Contact Signals

- **Connection to External Device**

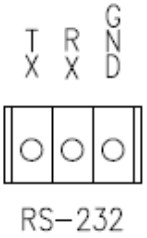


7. Appendix

Appendix B: Serial Port

RS-232 Port

- **Terminal Type**
- 3 PIN
- Pin Arrangement

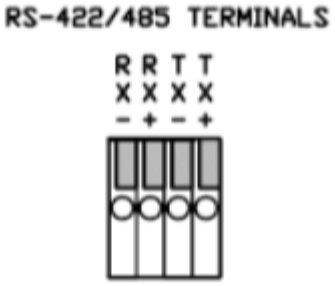


Pin Description:

Pin NO	Pin Name	Description
1	TX	RS232 TX(Transmit)
2	RX	RS232 RX(Receive)
3	GND	Ground

RS-422/485 Port

- **Port Type**
- 4 PIN
- Pin Diagram



Pin Description:

Pin No.	Pin Name	Description
1	RX-	RS422 RX-
2	RX+	RS422 RX+
3	TX-	RS422 TX- or RS485 TRX- It is selectable by S/W Setup
4	TX+	RS422 TX+ or RS485 TRX+ It is selectable by S/W Setup

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