

VD-21IR Compact Vandal Dome IP Camera



User Manual



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Overview

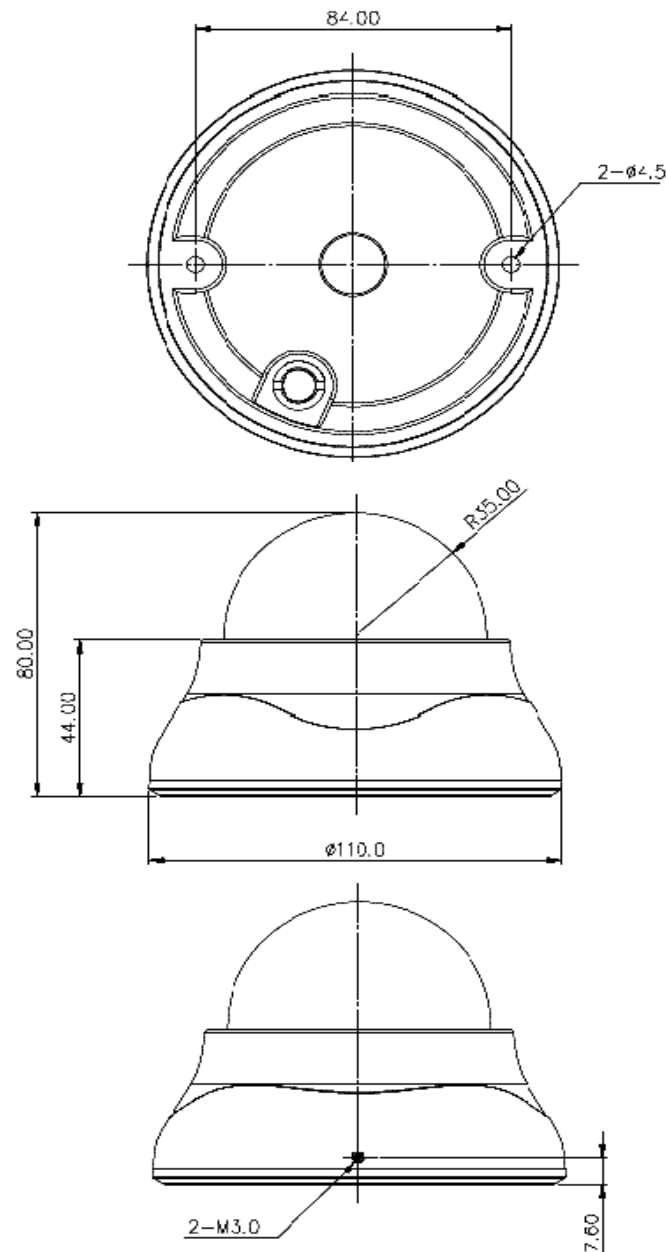
1.1. Read Before Use

This network camera is a professional equipment for surveillance purpose. Please comply with each national laws to prevent from any relevant privacy violations before use.

In order to operate this network camera, it require a basic knowledge of network structure. For further use of project application, it requests an advance level of knowledge in lens optics selection, network structure design, storage planning and software capability.

This product service may be different since the diversity of distributors. We suggest to purchase SMAX product from SMAX direct distributors or system integrators to get the most complete after service.

Please first check the package contents are complete with nothing missing. Then, carefully read through all attentions and instructions before use.



1.2. Physical Description

1.2.1. Mechanical and hardware interface

AV1 is an internal built fixed lens network camera. It can be placed on the wall or ceiling. With its IP66/IK8 design, it is suitable to locate in a both indoor and outdoor environment where it needs to have vandal proof function.

AV1 accepts both POE or DC 12V as power supply. Please noted that the DC 12V adapter is an extra accessory which does not include in this package.

AV1 supports two ways audio function which can connect with an external speaker and microphone.

AV1 has micro SD/SDHC card slot built in for recording storage function.



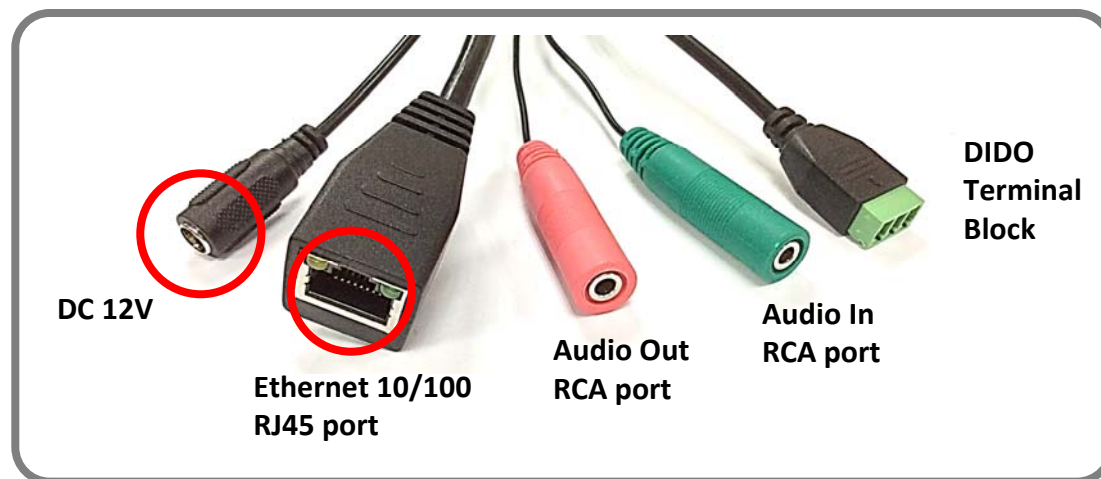
MicroSD/SDHC Card Slot



Light Sensor



IR LED



DC 12V

Ethernet 10/100
RJ45 port

Audio Out
RCA port

Audio In
RCA port

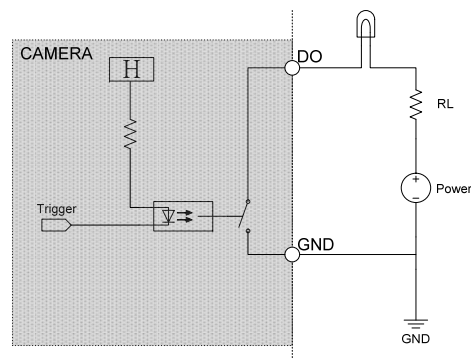
DIDO
Terminal
Block

1.2. Physical Description

1.2.2. Digital Input (DI)

Item	Description
1	DI
2	GND

Digital Input		
Pin	Notes	Specifications
	Trigger is "Off", DO connect to GND	Max load:
	Trigger is "On", DO is floating	30mA,30VDC



1.3. Safety Instructions

Carefully read through the safety instruction below.

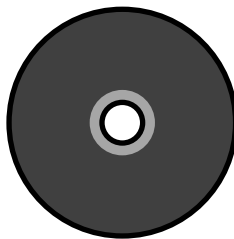
- Network cameras are delicate. Handle with care.
- Do not store the camera in a high temperature or high humidity location. Avoid direct sun light.
- Keep away from children.
- Do not disassemble the camera. No serviceable components inside.
- When placing a camera in a high humidity or wet environment, select a product with an IP66/67 level weather proofing rating.
- Cameras will generate heat during normal operation. Avoid direct contact with hot camera components during or after operations.
- Do not attach DC/AC power directly to the camera's DI/DO port.
- Check the correct direction when inserting the Micro SDHC card into camera's Micro SDHC card slot.
- Contact your sales channel or find a regional Comtrend distributor for any warranty issues.

1.4. Package Contents

Description	Qty
Network Camera	1
Tools package (Screw Kit...etc.)	1
CD: A. Software: Comtrend Finder x 1 B. Doc: Datasheet, User Manual, Quick Installation Guide	1



Network Camera



CD

1.5. EMC (Electromagnetic Compatibility)

FCC Statement

This device complies with FCC Rules Part 15. Operation is subject to the following two conditions.

- (1.) This device may not cause harmful interference, and
- (2.) This device must accept any interference received, including interference that may cause undesired operation.

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 installation 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.

CE Mark Warning

This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.



Installation

2.1. Installation

Follow the instructions below to setup your network camera.

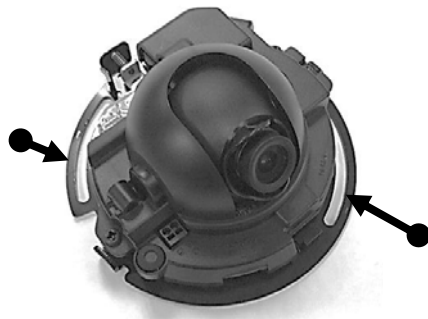
Setup 1.

Push the housing release tab and remove the cover. Insert a Micro SD card (Optional) for on device storage.



Setup 2.

Fix the camera on the wall or ceiling with supplied screws and twist the camera to the desired viewing angle.



Setup 3.

Adjust the tilt angle and focus as necessary.



Setup 4.

Connect the camera to a *PoE switch or *PoE injector. Make sure the network connection is stable.

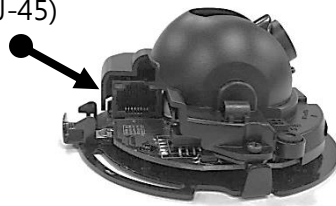


*. This network camera can only use PoE power.

Setup 5.

Connect the network cable to the camera.

PoE (RJ-45)



Setup 6.

Re-mount the cover.



Setup 7.

Make sure to keep the camera cover closed and the network cable output fed through the desired path.



Chapter 2.

Chapter 2. Installation

2.2. Comtrend IPFinder Installation

A basic camera setup diagram is shown on the right:

(In a normal application, the camera only needs to be within a local LAN structure to meet the surveillance requirement.)

Comtrend Finder Installation :

Read the CD from the package content. Then copy

IPFinder.exe file to your personal PC. Run the program until the Finder windows display as shown on the right picture.

Comtrend Finder procedure :

Step 1.

Press the **“Discover”** button so the program will search for all Comtrend IP cameras within the local network.

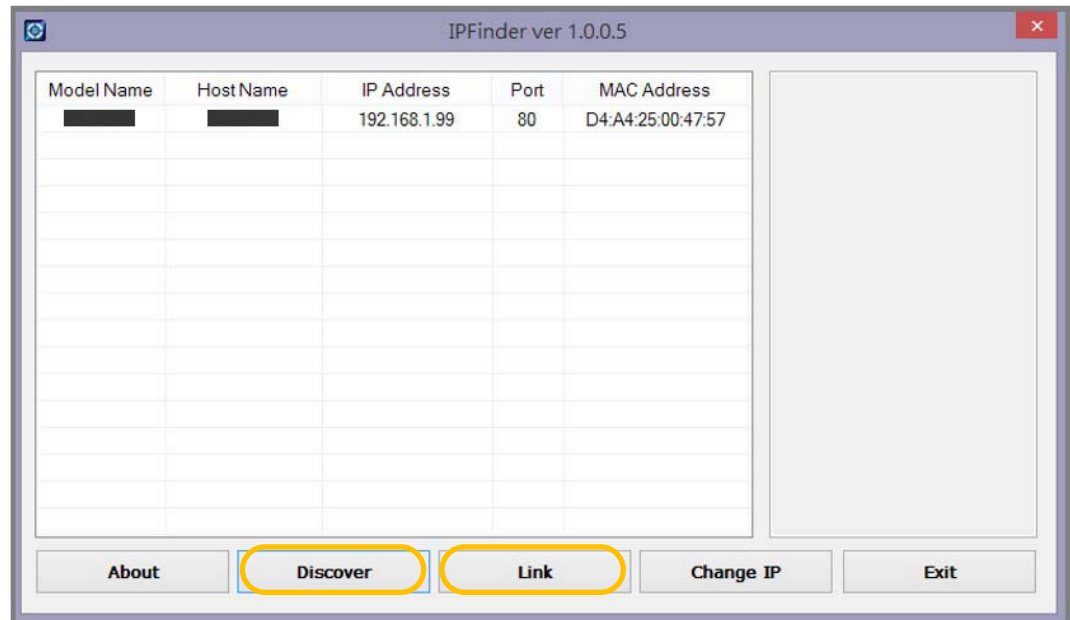
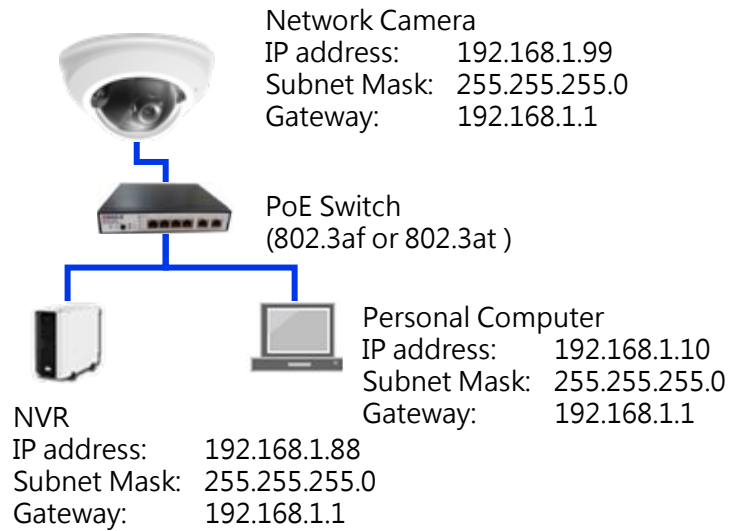
Step 2.

Choose a specific camera, then press the “**Link**” button. The program will launch the default browser and initiate connection to the camera’s web UI access page.

Notification:

Comtrend camera default IP setting is DHCP mode.
Default IP address is **192.168.1.99**. (if No DHCP Service)

Default username and password is both **admin**.



Chapter 2. Installation

2.3. Ready to Use

Access procedure:

Step 1.

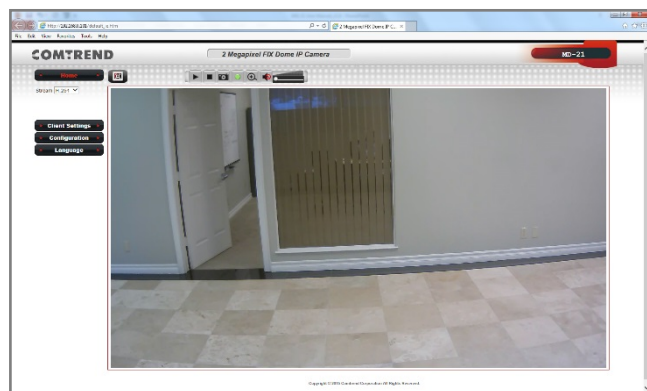
When linked from Comtrend's Finder to the camera's web UI access page, enter the default username and password (ID: admin / PW: admin) for further access.

Step 2.

When first connecting to a Comtrend camera, some plugin need to be installed on to your computer. Follow the instruction and press allowed to allow the installation to proceed.

Step 3.

After installation of ActiveX plugin, you should be able to see the video stream from camera as shown on the below picture.



Accessing

3.1. Network Deployment

Comtrend cameras support both intranet and internet structures.

- A. True IP address setting
- B. Transfer from UPnP router
- C. PPPoE connection setting

Structure as shown on the right

Step 1.

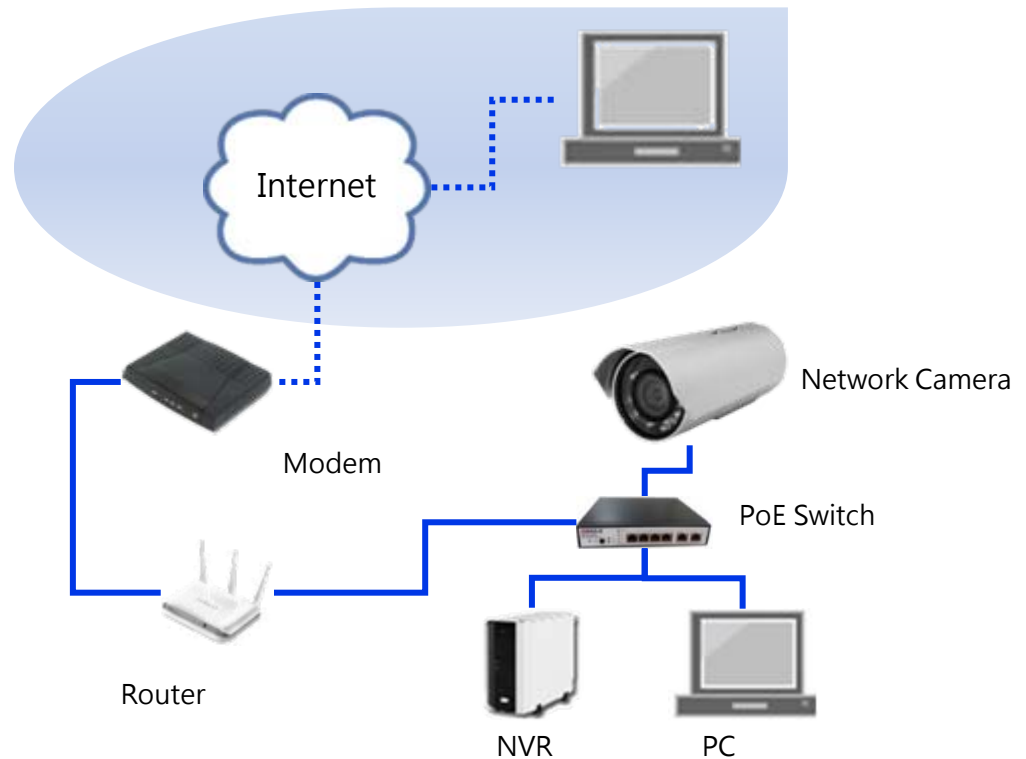
Run the IPFinder and search the local network for Comtrend cameras.

Step 2.

Enter your static true IP address which was provided by your ISP. Then press enter.

Notification :

Please contact your ISP vendor for further static true IP address setting or service.



Notification :

When you have a true IP address, you may need set your camera to a static IP address. Then you may use an internet browser by entering this static true IP address to access your network camera.

If your true IP address is going to your router, you may need to use port forwarding. This is the solution that solves the problem when a surveillance project lacks a true IP address for management. The performance of the camera will be strongly dependent on the performance of the router. It may cause an abnormal connection.
<refer to 3.1. B. setting >

Internet and Intranet setting structure illustration

Chapter 3. Accessing

3.1. Network Environment Setting

A. True IP address setting

Step 1.

Run the Comtrend IPFinder and search for the camera within the local network.

Step 2.

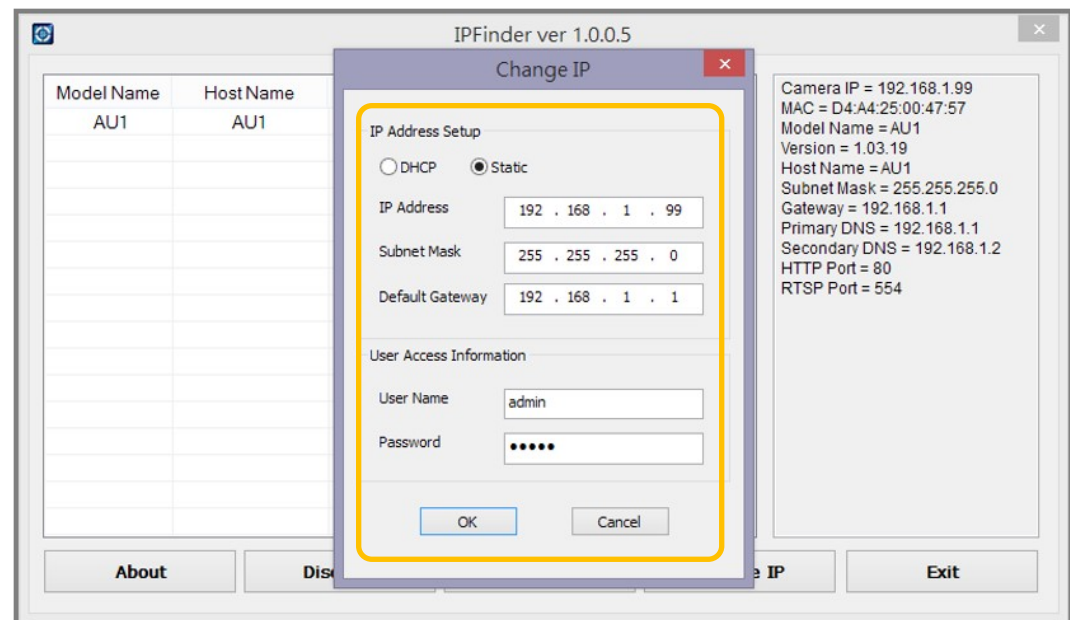
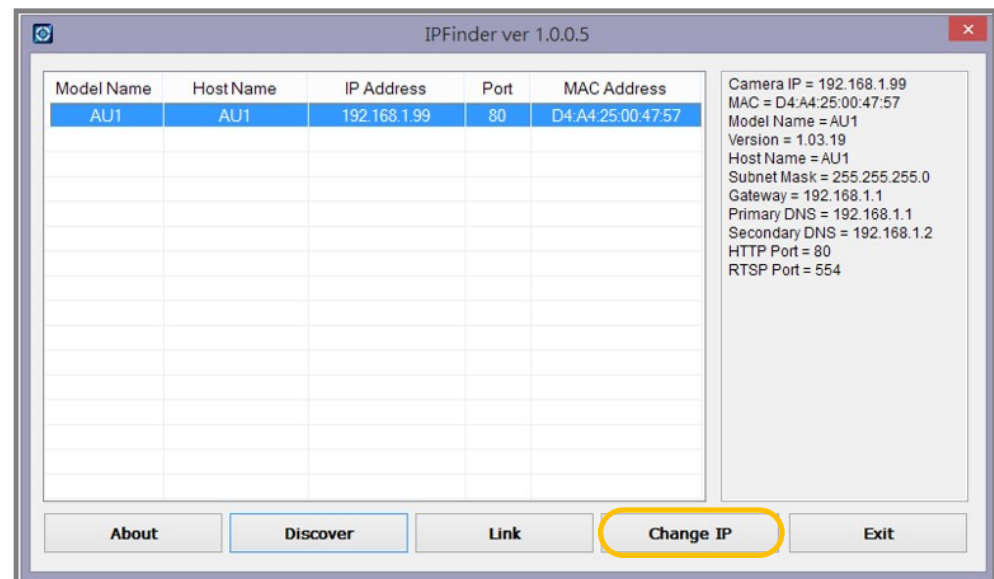
Select the camera and click “Change IP” button.

Step 3.

Select static mode and enter your true IP address, Subnet mask, Default gateway, and the username and password of the camera. Then press “OK” to finish. Once complete, the “Change IP Success!” message will display.

Notification :

Please contact your ISP vender for further static true IP address setting or service.



Chapter 3. Accessing

3.1. Network Environment Setting

A. Transfer from UPnP router

Step 1.

Access to the camera's web UI page and select the "Configuration" option.

Step 2.

Select the "Network" option.

Step 3.

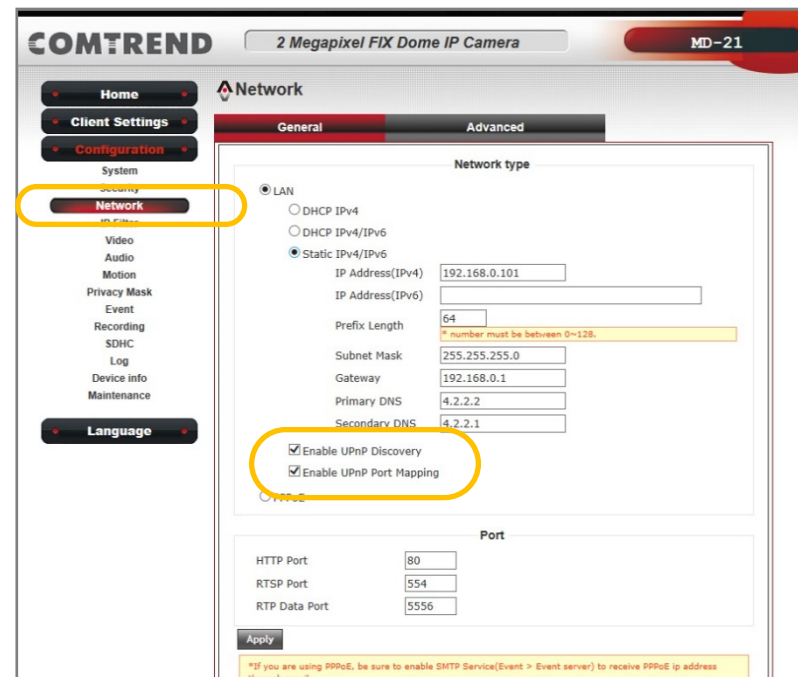
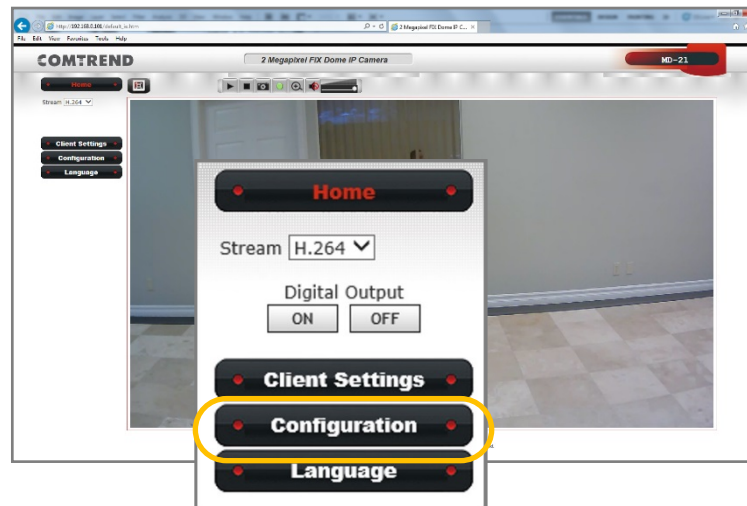
Assign a static IP address the fits your local network, then enter your gateway address and DNS information.

Step 4.

Select "Enable UPnP Discovery" and "Enable UPnP Port Mapping". Then press the "Apply" button to apply the setting.

Notification :

Network camera's UPnP function may have some compatible issue with certain routers. For your specific router refer to your router's instruction manual about Port Forwarding and other UPnP setting.



Chapter 3. Accessing

3.1. Network Environment Setting

A. PPPoE connection setting

Step 1.

Access to the camera's web UI page and select the "Configuration" option.

Step 2.

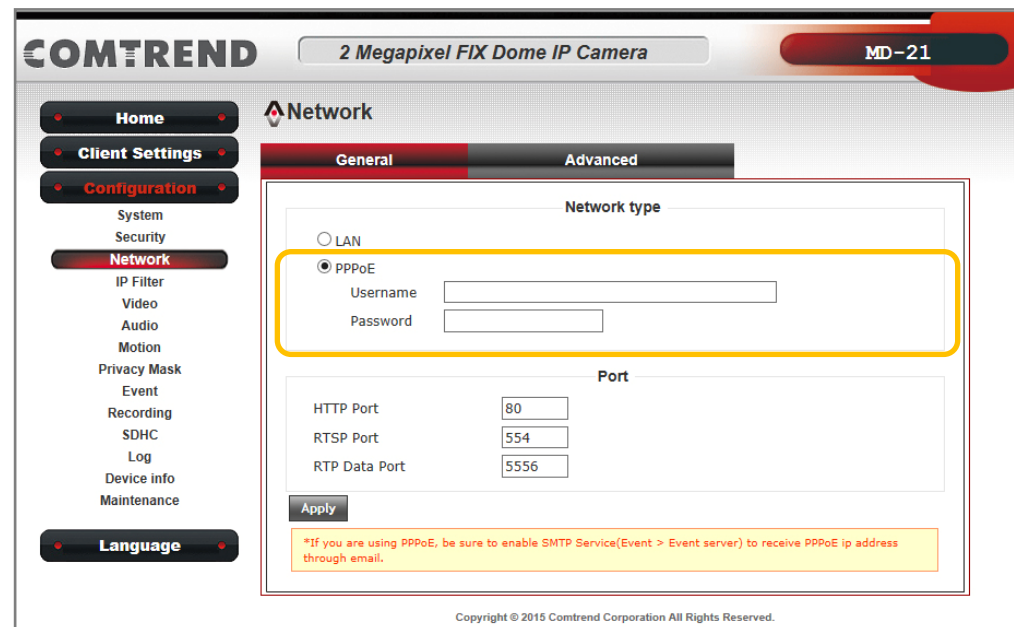
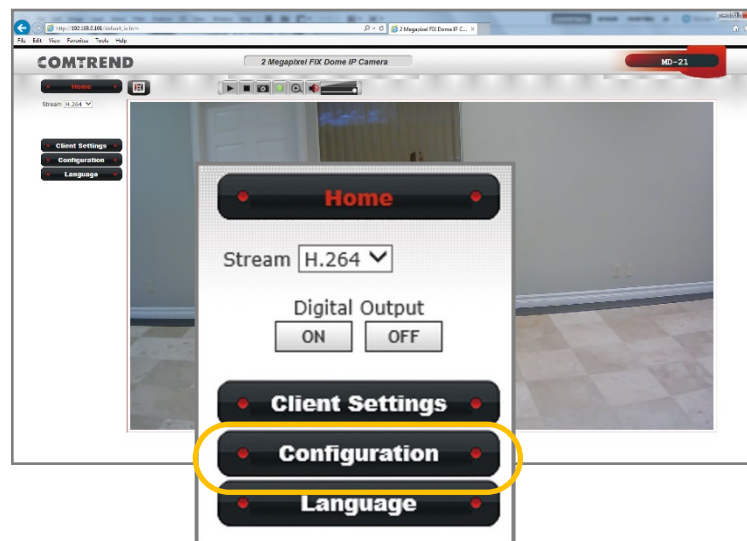
Select the "Network" option.

Step 3.

Select "PPPoE" and enter your username and password. Then press the "Apply" button to finish.

Notification :

When select PPPoE connection, make sure your network camera is equipped with a true static IP address. If so, you can access to the camera by entering the IP address via internet. If not, refer to our DDNS setting.



Chapter 3. Accessing

Comtrend Network Camera connection :

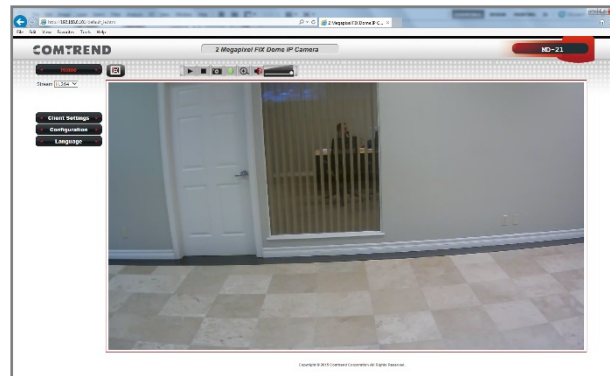
Comtrend's network cameras support multiple connections for accessing. Including multiple browsers connection, video player connection that supports RTSP, and NVR access. Each connection fulfill different surveillance application for different purposes.

3.2. Accessing via Web UI

You can choose to view the Comtrend camera UI with a web browser to view live video, SD card recording and searching, local computer recording, audio functions and other advanced features.

Notification :

- 1)We suggest to use IE 9/10/11 and above version to access the Comtrend network camera.
- 2)Other than IE browser, Comtrend network cameras also support both Google Chrome and Mozilla Firefox browsers for accessing.
- 3)If using Google Chrome and Mozilla Firefox to access, those browsers will need Quick Time to play the live video. If your computer has not install Quick Time software, download and install it prior to viewing the Comtrend camera UI.



Chapter 3. Accessing

3.3. Accessing via RTSP Player

Comtrend network cameras support accessing via RTSP player. Below using VLC player as a reference instruction:

Step 1.

Run the VLC player and select the “Media(M)” button. Then select “Open network stream(N)”. It will pop out the settings window.

Step 2.

Enter the RTSP address “ex. rtsp://Camera’s IP/stream1” and press the “Play” button. It should link to the camera for the live video as shown in below picture.

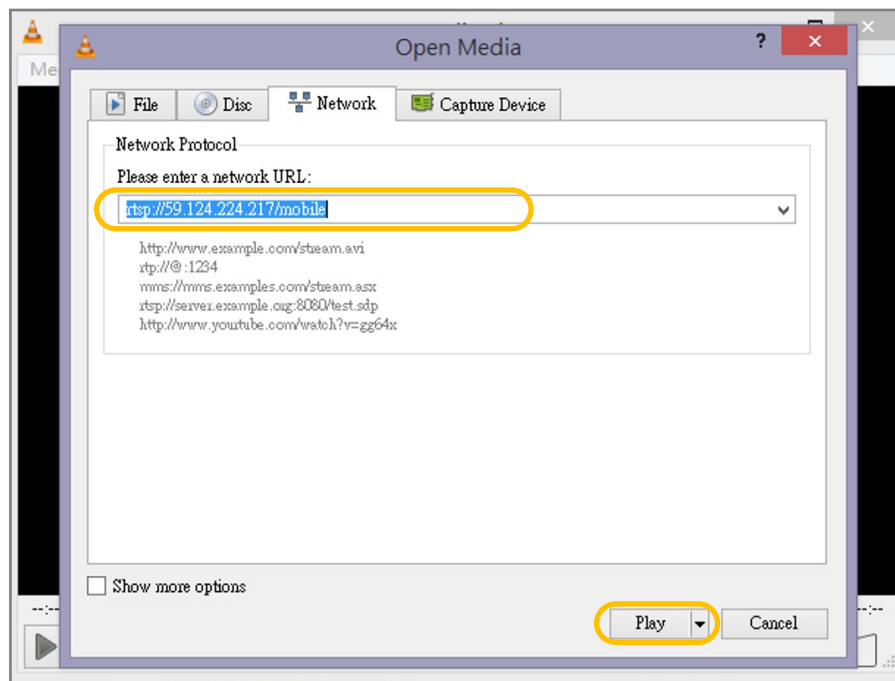
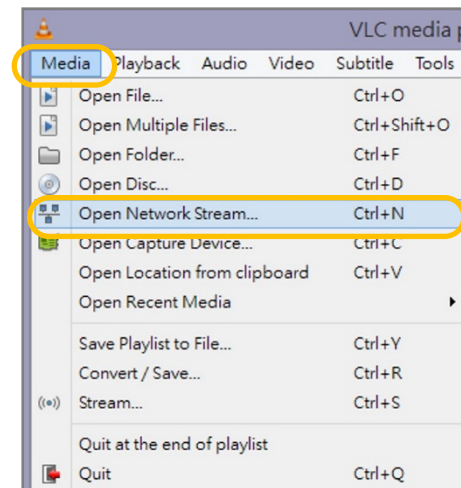
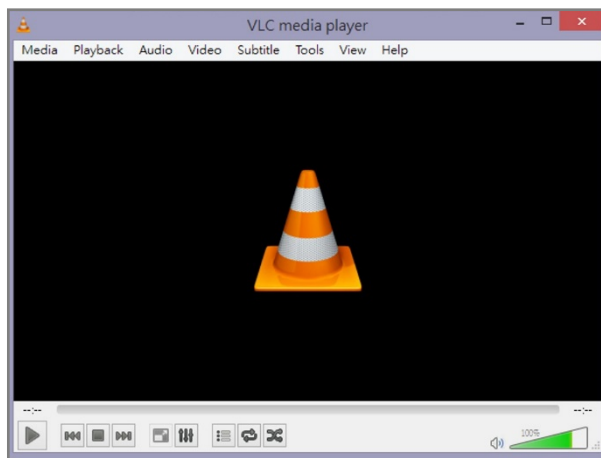
Notification :

Comtrend network cameras provide three RTSP stream:

Main stream address: rtsp://Camera’s IP/stream1

Second stream address: rtsp://Camera’s IP/stream2

Mobile stream address: rtsp://Camera’s IP/mobile



WEB UI

4.1. Home page

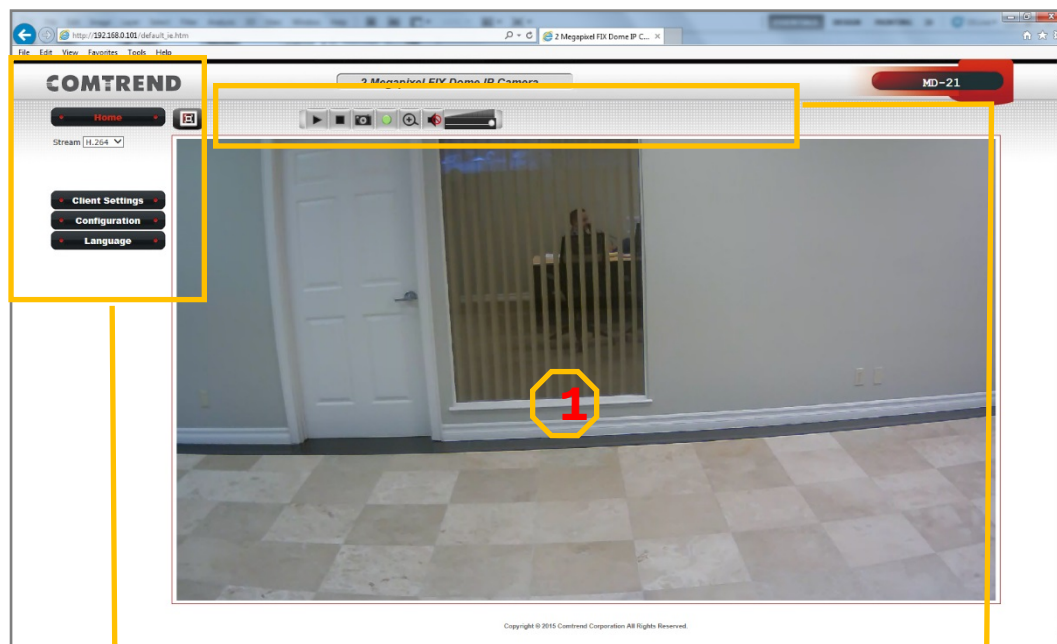
You can access the Comtrend network camera via a web browser to monitor live view, manage setting, SD card recording...etc. There is a complete introduction procedure of all function in the following chapters.

Homepage function list:

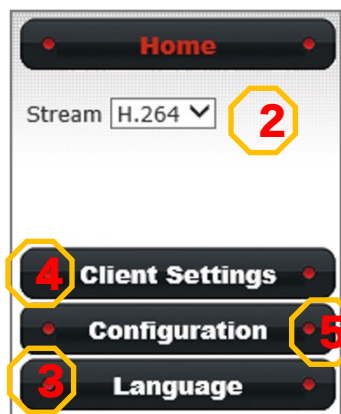
- 1)Live view screen
- 2)Select stream format
- 3)Select language
- 4)Client settings
- 5)System configuration
- 6)Live view operation control list

Notification :

Function list of icons is shown on the picture to the right.



Main function List



Live view operation list



	Original size display
	Stream play/stop Snapshot Recording
	Digital zoom
	Audio operations

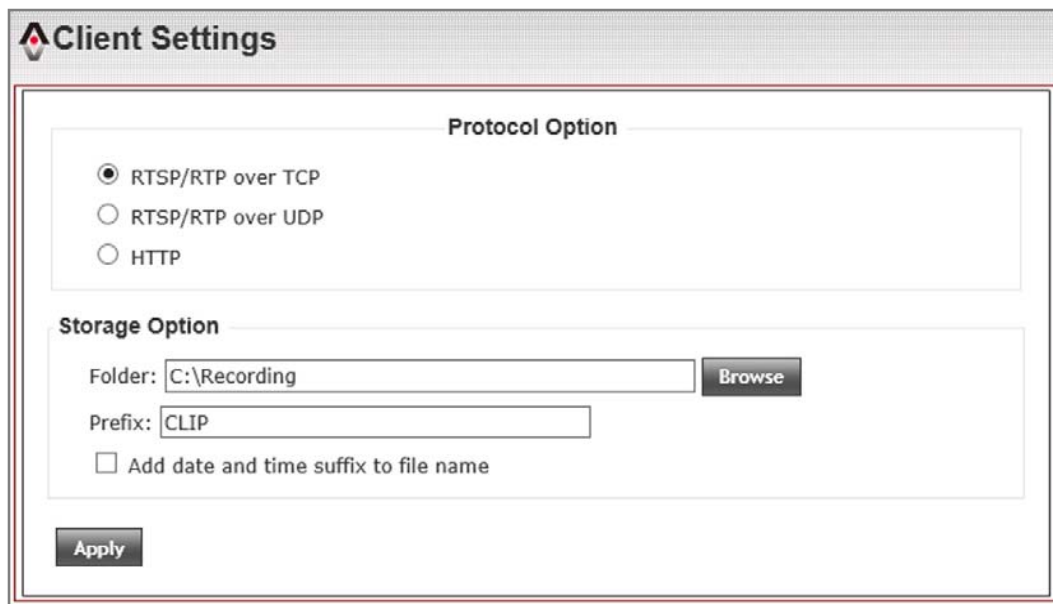
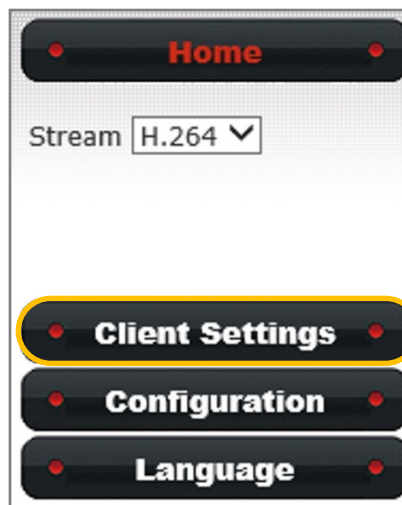
4.2. Client Settings

4.2.1. Protocol options

This setting is to define your protocol option. Default is set as **RTSP/RTP over TCP**. This protocol make sure that all image data must be transferred. But if you choose the image quality comes first, then you can change to **RTSP/RTP over UDP**. If your network environment only allows to connect with web page, then you can change to **HTTP** protocol.

4.2.2. Storage Options

This setting is to define your storage option. When doing a recording action, you can set where the recording file saves to. Press the **“Browse”** button to set your folder path. You can also name the **Prefix** of recording file and select to **“Add date and time suffix to file name”**. Press **“Apply”** to save.



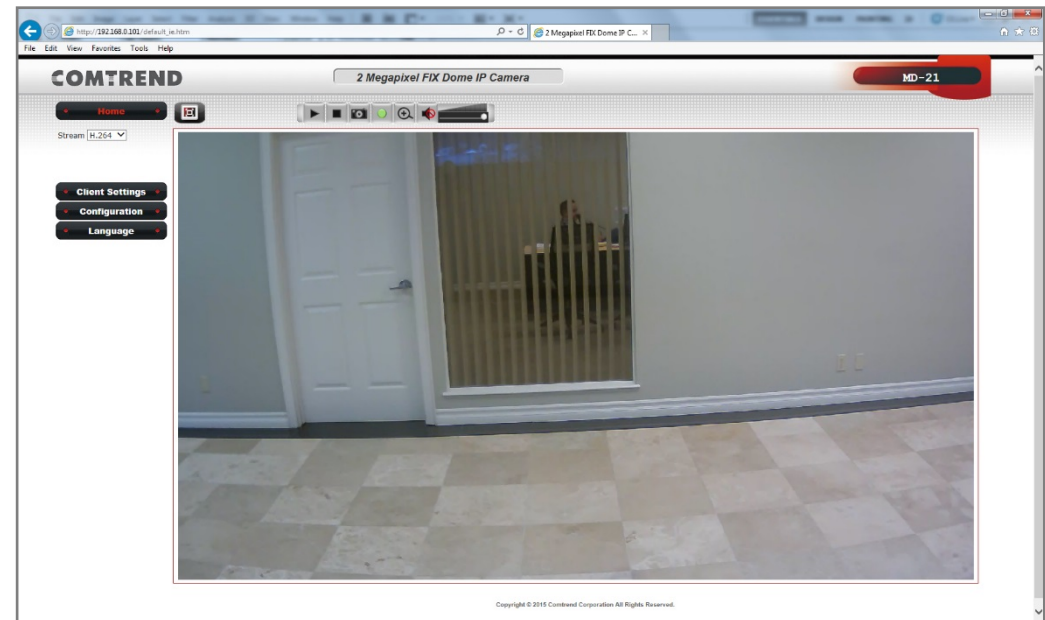
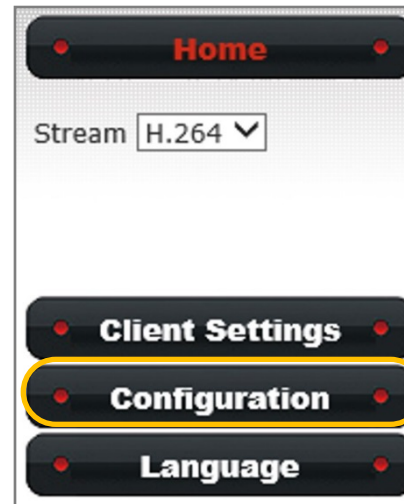
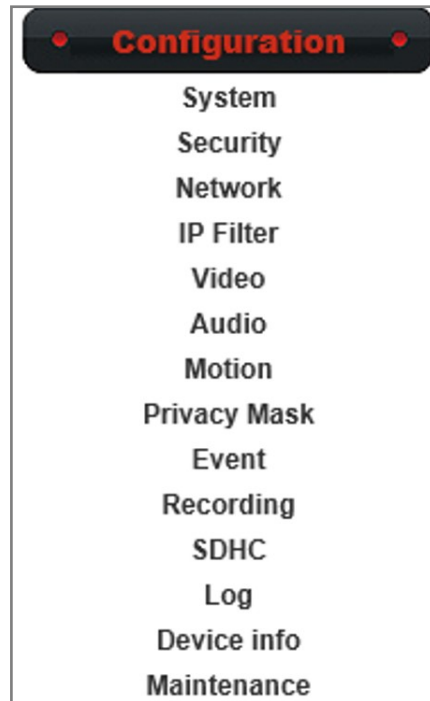
Configuration

5.1. Configuration Settings

In the configuration menu, it includes all operating functions for settings, maintenance, log and device information...etc.

Configuration menu as shown below :

- 1)System
- 2)Security
- 3)Network
- 4)IP Filter
- 5)Video
- 6)Audio
- 7)Motion
- 8)Privacy Mask
- 9)Event
- 10)Recording
- 11)SDHC
- 12)Log
- 13)Device Info
- 14)Maintenance



Chapter 5. Configuration

5.1. Configuration Settings

5.1.1. System

This system page displays your network camera's **Host Name**, **LED Indicator ON/OFF Switch** and set the **Date and Time**.

Date and Time Setting procedure :

Step 1.

Select your network camera's **Time Zone** and enable **Daylight Saving** if desired.

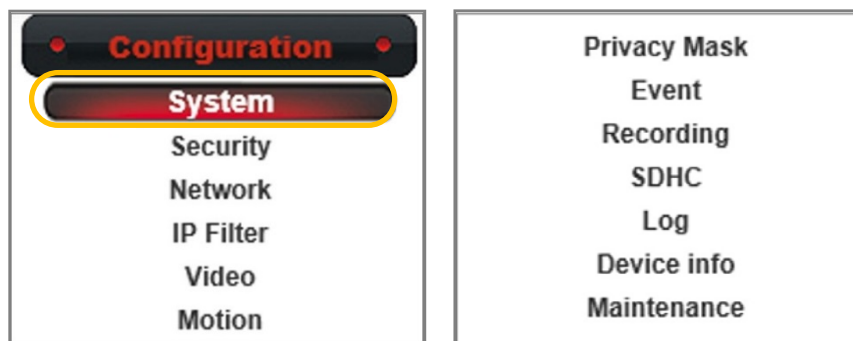
Step 2.

There are four ways to synchronize the camera's time: **Keep the current date and time**, **Synchronize with computer time**, **Synchronize with NTP Server** and **Set Manually**.

For a small surveillance system, we suggest **Synchronize with computer time**. Press the **"Apply"** button to save settings.

Step 3.

For a medium or larger surveillance system, we suggest to **Synchronize with NTP Server**. Enter your **NTP Server Address** and set the **Update Interval**. Then press **"Apply"** to save settings.



The image shows the 'System' configuration page. At the top, there is a header 'System' with a camera icon. Below it, there are two main sections. The first section, titled 'System', contains a 'Host Name' field with the value 'SU1' and an 'Indicator LED' section with radio buttons for 'On' (selected) and 'Off'. The second section, titled 'Date and Time', contains a 'Camera Date and Time' field with the value '10/22/2014 14:43:12', a 'TimeZone' dropdown menu showing '(GMT+08:00) Taipei', a 'Daylight Saving' checkbox, and three radio buttons for time synchronization: 'Keep the current date and time', 'Synchronize with computer time', and 'Synchronize with NTP Server' (selected). Below these are fields for 'NTP Server Address' (clock.stdtime.gov.tw) and 'Update Interval' (6 hours). At the bottom left, there is an 'Apply' button highlighted with a yellow border.

Chapter 5. Configuration

5.1. Configuration Settings

5.1.2. Security

Select the “**Security**” button under the “**Configuration**” menu. This function is to manage the Users of the camera by setting **Administrator** and **Account List**.

Administrator Setting Procedure :

Step 1.

Enter a new **Password** and **Retype Password**.

Notification :

Administrator password can be a composition of letters and numbers. But the length must kept between 4 and 8 characters. No special character are allowed. The password is case sensitive.

Step 2.

Press the “**Modify**” button to save the settings.

The screenshot displays the 'Security' configuration page. At the top, a navigation menu includes 'Configuration', 'System', 'Security' (highlighted), 'Network', 'IP Filter', and 'Video'. To the right, a sidebar lists 'Event Recording', 'SDHC', 'Log', 'Device info', and 'Maintenance'. The main content area is titled 'Security' and contains two sections: 'Administrator' and 'Account List'. The 'Administrator' section has input fields for 'Password' and 'Retype Password', a 'Modify' button, and a yellow warning box stating: '* Administrator password length must be between 4 and 8 characters.' The 'Account List' section features a table with one entry: 'john.tsai' with a 'Remove' button. Below the table, there are input fields for 'User Name', 'Password', and 'Retype Password', a dropdown for 'Authority' set to 'User', and a 'New' button. A yellow warning box at the bottom of this section contains two messages: '* User name length must be between 1 and 32 characters.' and '* Password length must be between 4 and 8 characters.'

Chapter 5. Configuration

5.1.2. Security

Account List Setting Procedure :

Step 1.

Enter a **Username**, **Password**, **Retype Password**.

Notification :

Username can be a composition of letters and numbers. The length must kept between **1 and 32** characters. No special character are allowed. The Username is case sensitive.

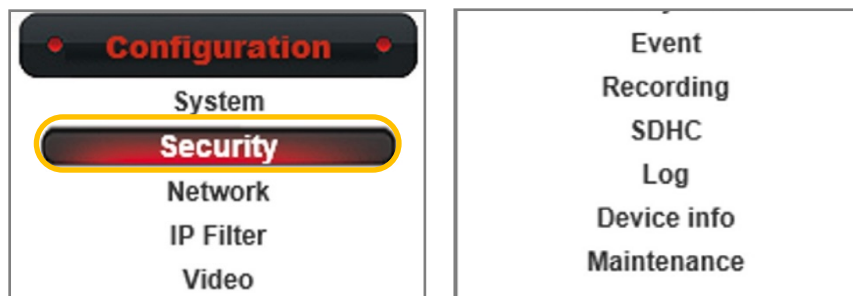
User password can be a composition of letters and numbers. The length must kept between **4 and 8** characters. No special characters are allow. The password is case sensitive.

Step 2.

Select **“Authority”** then press **“New”** to add an account.

Notification :

Authority has two types, **“User”** or **“Guest”**. The privilege of a guest is limited to watch the live view from the home page only. A **“User”** is allowed to operate all function within the home page and modify the client setting. Access to configuration menu is limited to **“LOG”** and **“Device Info”**.



The image shows the Security configuration page. At the top, there is a header 'Security' with a red icon. Below it, there is a section titled 'Administrator' with a 'Password' field and a 'Retype Password' field. A 'Modify' button is next to the 'Retype Password' field. Below these fields, there is a yellow notification box that says: '* Administrator password length must be between 4 and 8 characters.' Below this, there is a section titled 'Account List' with a table containing one row: 'Account List' with the value 'john.tsai' and a 'Remove' button. Below the table, there is a section for adding a new account, which is highlighted with a yellow border. It contains fields for 'User Name', 'Password', 'Retype Password', and 'Authority' (a dropdown menu set to 'User'). A 'New' button is next to the 'Authority' field. Below these fields, there is a yellow notification box that says: '* User name length must be between 1 and 32 characters.' and '* Password length must be between 4 and 8 characters.'

Chapter 5. Configuration

5.2. Network Settings

Default network settings of the camera are **LAN** type, **DHCP IPv4/IPv6** and **Enable UPnP Discovery**. When this network camera is introduced to Local network environment, the camera will get a dynamic IP from the local DHCP server each time the camera turns on.

5.2.1. General Network Settings

5.2.1.1. General Network Settings Recommendation

We suggest to use **Static IPv4/IPv6**.

Camera's port setting as shown below :

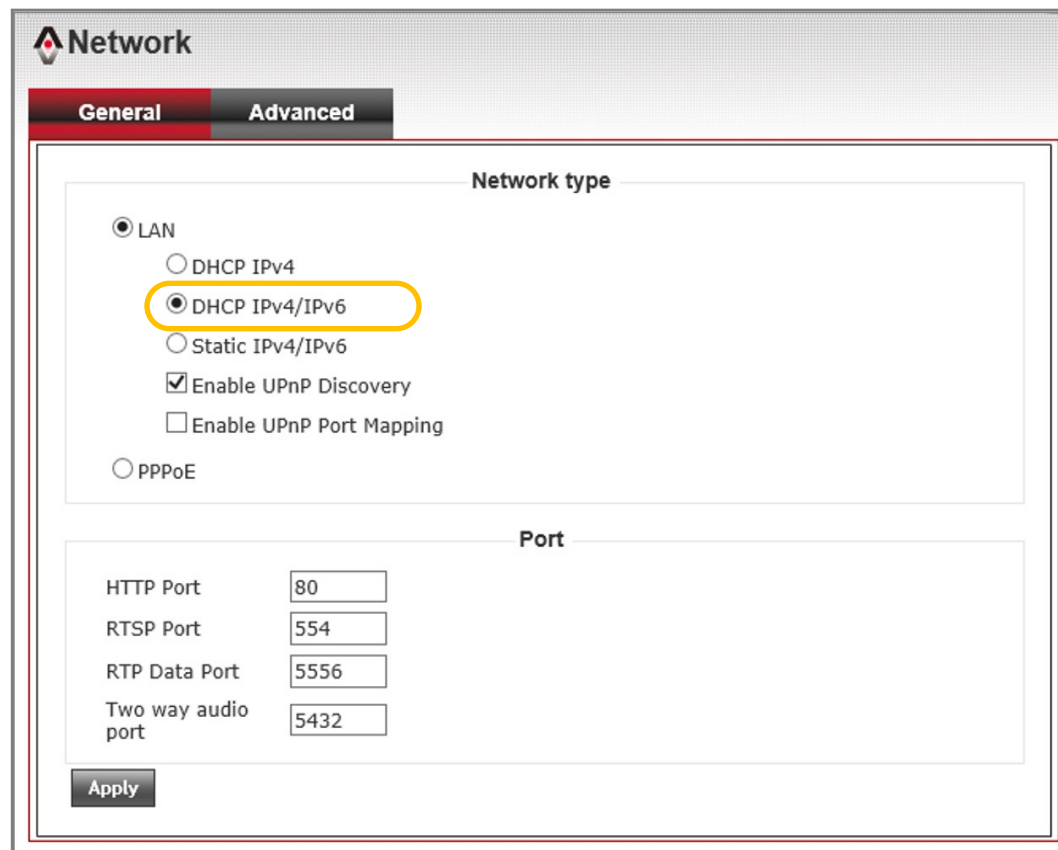
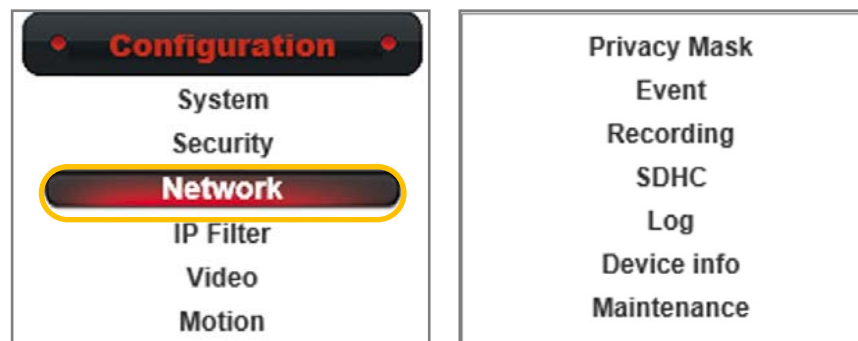
a) HTTP Port : 80

b) RTSP Port : 554

c) RTP Data Port : 5556

Notification :

If the default setting cannot connects to network camera properly, consult with you network administrator.



Chapter 5. Configuration

5.2.1.1. Intranet Static IPv4/IPv6 Setting

Static IPv4 Setting Procedure :

Step 1.

Select “Static IPv4/IPv6” under “Network Type”.

Step 2.

Enter an IP Address (IPv4), Subnet Mask, Gateway, Primary DNS and Secondary DNS settings.

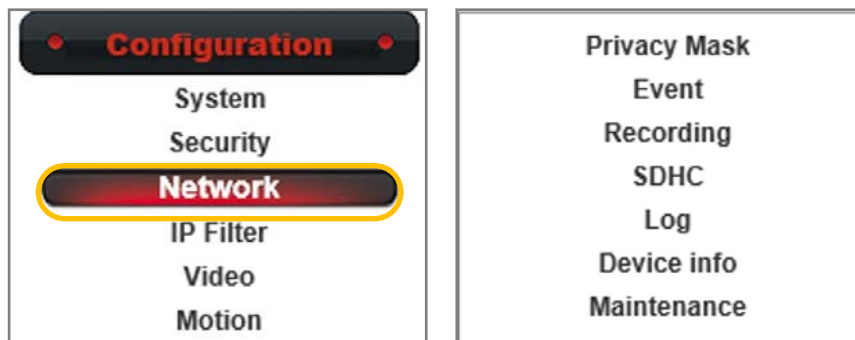
Step 3.

Then press “Apply” to save settings.

Notification :

For static IP setting, refer to the pictures as shown on bottom right. If the LAN IP segment is **192.168.1.xxx**.

Enter your router’s IP address for the **Gateway**.



The image shows the Network configuration page with the General tab selected. The Network type is set to LAN. Under LAN, Static IPv4/IPv6 is selected. The settings are as follows:

Network type	
☒ LAN	
☐ DHCP IPv4	
☐ DHCP IPv4/IPv6	
☒ Static IPv4/IPv6	
IP Address(IPv4)	192.168.1.99
IP Address(IPv6)	
Prefix Length	64
	* number must be between 0~128.
Subnet Mask	255.255.255.0
Gateway	192.168.1.1
Primary DNS	192.168.1.1
Secondary DNS	192.168.1.254 x
☒ Enable UPnP Discovery	
Apply	

Chapter 5. Configuration

5.2.1.2. Internet Static IPv4/IPv6 Setting

Static IPv4 Setting Procedure :

Step 1.

Select "Static IPv4/IPv6" under "Network Type".

Step 2.

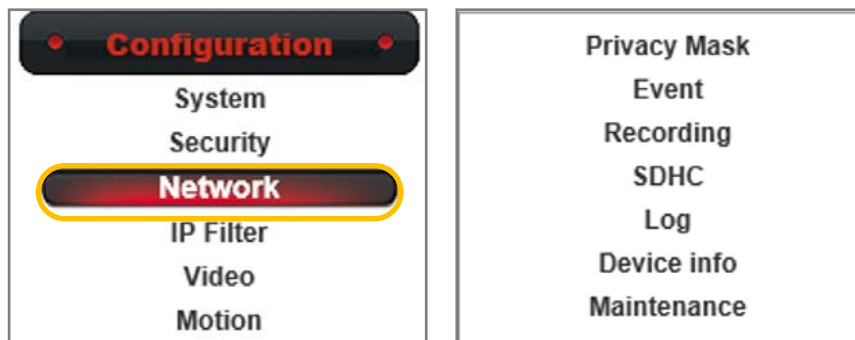
Enter the IP Address (IPv4), Subnet Mask, Gateway, Primary DNS and Secondary DNS settings.

Step 3.

Then press "Apply" to save settings.

Notification :

Please contact your ISP service vender for further internet static IP settings.



The image shows the Network configuration page with the General tab selected. The Network type is set to LAN. Under LAN, the Static IPv4/IPv6 option is selected. The IP Address (IPv4) is set to 59.124.224.217. The IP Address (IPv6) is empty. The Prefix Length is set to 64, with a warning message: * number must be between 0~128. The Subnet Mask is set to 255.255.255.0. The Gateway is set to 59.124.224.254. The Primary DNS is set to 139.175.252.23. The Secondary DNS is set to 139.175.55.247. The Enable UPnP Discovery checkbox is checked. An Apply button is at the bottom.

Chapter 5. Configuration

5.2.1.3. PPPoE Setting

PPPoE Setting Procedure :

Step 1.

Select “PPPoE” under the “Network Type” column.

Step 2.

Enter your PPPoE Username and Password.

Step 3.

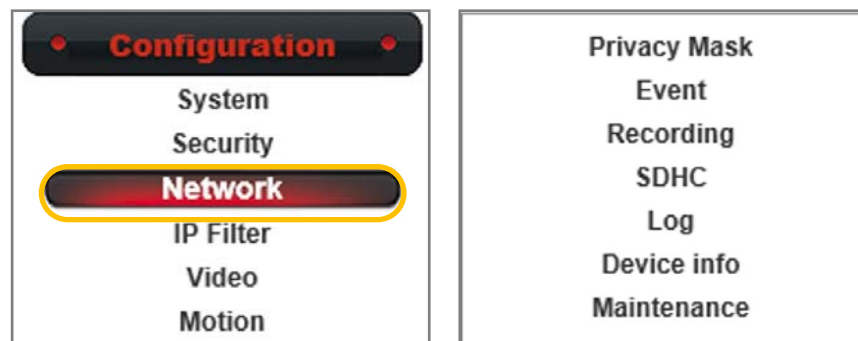
Press “Apply” to save settings.

Notification :

PPPoE is a type that supports xDSL network connections. Contact your ISP service vender for the username and password.

For PPPoE connections, the network camera will get an IP Address from the ISP. Some ISP venders may provide a static IP address. The User only needs to enter that IP in to their browser, then you will able connects to the network camera.

If your ISP vender does not supply PPPoE static IP addresses, refer to the DDNS setting in Advanced Network Setting.

A screenshot of the 'Network' configuration page, specifically the 'General' tab. The page has a header with the 'Network' title and a sub-header with 'General' and 'Advanced' tabs. Under the 'Network type' section, there are two radio buttons: 'LAN' and 'PPPoE' (which is selected). Below these are input fields for 'Username' and 'Password'. Under the 'Port' section, there are four input fields: 'HTTP Port' (80), 'RTSP Port' (554), 'RTP Data Port' (5556), and 'Two way audio port' (5432). At the bottom left of the form is an 'Apply' button.

Chapter 5. Configuration

5.2.2. Advanced Network Setting

Advanced network setting includes Multicast, Bonjour, QoS, DDNS, HTTPS function settings.

5.2.2.1. HTTPS Settings

HTTPS Settings Procedure :

Step 1.

Select “Advanced” page under “Network” page.

Step 2.

Select “Enable HTTPS”. Default HTTPS Port is 443.

Step 3.

Press “Apply” to save settings.

The image shows the Comtrend Network Configuration interface. At the top, there is a 'Configuration' menu with options: System, Security, **Network** (highlighted), IP Filter, Video, and Motion. To the right of this menu is a list of other settings: Privacy Mask, Event Recording, SDHC, Log, Device info, and Maintenance.

The main configuration area is titled 'Network' and has two tabs: 'General' and 'Advanced' (selected). Under the 'Advanced' tab, there are several settings sections:

- Multicast**: ☐ Enable Multicast
- Bonjour**: ☐ Enable Discovery
- Qos**: ☐ Enable Qos
- DDNS**: ☐ Enable DDNS
- HTTPS**: ☒ Enable HTTPS, HTTPS Port: 443

At the bottom left of the configuration area is an 'Apply' button.

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5.2.2.2. DDNS Settings

You must first get DDNS address settings from a DDNS service provider. That DDNS service provider should provide you with a **Host Name**, and let you know the **Username** and **Password**.

Notification :

Comtrend network cameras support two DDNS service providers: **DynDNS.org** and **No-ip**. You can choose either one of these services to host your **DDNS Host Name**.

DDNS Settings Procedure :

Step 1.

Select “**Advanced**” page under “**Network**” page.

Step 2.

Select “**Enable DDNS**”. Then enter the **Host Name**, **Username** and **Password**.

Step 3.

Press “**Apply**” to save settings.

The screenshot displays the Comtrend Network Configuration interface. At the top, there is a navigation menu with options: Configuration (highlighted), System, Security, Network (highlighted with a yellow border), IP Filter, Video, and Motion. To the right of this menu is a sidebar with options: Privacy Mask, Event Recording, SDHC, Log, Device info, and Maintenance. The main content area is titled 'Network' and has two tabs: 'General' and 'Advanced' (which is selected). Under the 'Advanced' tab, there are three sections: 'Multicast' with an 'Enable Multicast' checkbox; 'DDNS' with an 'Enable DDNS' checkbox, a 'Provider' dropdown menu set to 'DynDNS.org', and three input fields for 'Host Name', 'User Name', and 'Password', each with a character count indicator (1~30 Characters); and 'HTTPS' with an 'Enable HTTPS' checkbox and an 'HTTPS Port' input field set to '443'. At the bottom left of the main content area is an 'Apply' button.

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5.2.2.3. Multicast Setting

Multicast Description :

A normal connection between computer to network camera is a single point delivery. Which means sending a stream packet from camera to one computer only. A multicast function is to send the stream data to one point, but you can set multiple computer as the recipient.

Comtrend network cameras support multicast group addresses. It's IP address range is from **232.0.0.0 to 232.255.255.255** in a class D. A class D is a group address which the network camera will send the stream packet to. Then the recipient will inform the router to join this group.

Multicast Setting Procedure :

Step 1.

Select "**Advanced**" page under "**Network**" page.

Step 2.

Select "**Enable Multicast**". Then enter "**Multicast Group Address**" and all Multicast parameters. Suggest to keep the default setting.

Step 3.

Press "**Apply**" to save settings.

The screenshot displays the Comtrend Network Configuration interface. At the top, there is a navigation menu with options: Configuration, System, Security, Network (highlighted with a yellow border), IP Filter, Video, and Motion. To the right of this menu is a sidebar with options: Privacy Mask, Event Recording, SDHC, Log, Device info, and Maintenance. The main content area is titled 'Network' and has two tabs: 'General' and 'Advanced' (selected). Under the 'Advanced' tab, the 'Multicast' section is expanded. It contains the following settings:

- ☒ Enable Multicast
- Multicast Group Address: 232.128.1.99 (with a yellow warning bar below it stating '* 232.0.0.0~232.255.255.255')
- Multicast Video Port: 5560
- Multicast RTCP Video Port: 5561
- Multicast Audio Port: 5562
- Multicast RTCP Audio Port: 5563
- Multicast TTL: 15 (with a yellow warning bar below it stating '* number must be between 1~255.')
- ☒ Enable HTTPS
- HTTPS Port: 443

At the bottom of the 'Advanced' tab, there is an 'Apply' button.

Chapter 5. Configuration

5.2.2.4. QoS Setting

Via QoS settings, the camera can ensure the video image and audio stream comes first in bandwidth. So the transfer stability will not be effected by other network packets.

QoS Setting Procedure :

Step 1.

Select “Advanced” page under “Network” page.

Step 2.

Select “Enable QoS”. And select whether enable “Video”, “Audio” or “Both”, then enter its “DSCP value”.

Step 3.

Press “Apply” to save settings.

Notification :

DSCP (Differentiated Services Code Point). In Dec. 1998, IETF published a QoS classification standard of Diff-Sery (Differentiated Service). DSCP using six bits and its range from 0~63.

The screenshot displays the configuration interface of a Comtrend camera. At the top, there is a 'Configuration' menu with options: System, Security, **Network** (highlighted with a yellow border), IP Filter, Video, and Motion. To the right of this menu is a list of other settings: Privacy Mask, Event Recording, SDHC, Log, Device info, and Maintenance. Below the main menu, the 'Network' section is expanded, showing 'General' and 'Advanced' tabs, with 'Advanced' selected. Under the 'Advanced' tab, there are three sections: 'Multicast' with an 'Enable Multicast' checkbox; 'Bonjour' with an 'Enable Discovery' checkbox; and 'Qos' with an 'Enable Qos' checkbox. The 'Qos' section also includes radio buttons for 'Video' (selected), 'Audio', and 'Both'. A 'DSCP' input field contains the value '0', with a yellow warning message below it stating '* number must be between (0~63)'. At the bottom left of the 'Qos' section is an 'Apply' button.

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5.2.2.5. Bonjour Setting

Bonjour is called a Zero-configuration networking tool, which can automatically find devices within local network. Bonjour is a standardize protocol that allows for each device to find each other without an IP address or DNS server.

Bonjour Setting Procedure :

Step 1.

Select “**Advanced**” page under “**Network**” page.

Step 2.

Select “**Enable Bonjour**”.

Step 3.

Press “**Apply**” to save settings.

The screenshot displays the Comtrend configuration web interface. At the top, a navigation menu includes 'Configuration' (highlighted), 'System', 'Security', 'Network' (highlighted with a yellow border), 'IP Filter', 'Video', and 'Motion'. To the right, a secondary menu lists 'Privacy Mask', 'Event Recording', 'SDHC', 'Log', 'Device info', and 'Maintenance'. Below this, the 'Network' configuration page is shown with 'General' and 'Advanced' tabs. The 'Advanced' tab is active, revealing settings for Multicast, Bonjour, Qos, DDNS, and HTTPS. The 'Enable Bonjour' checkbox is checked, and the 'HTTPS Port' is set to 443. An 'Apply' button is located at the bottom left of the settings area.

Configuration	System	Security	Network	IP Filter	Video	Motion
Privacy Mask						
Event Recording						
SDHC						
Log						
Device info						
Maintenance						

Network

General Advanced

Multicast

☐ Enable Multicast

Bonjour

☒ Enable Discovery

Qos

☐ Enable Qos

DDNS

☐ Enable DDNS

HTTPS

☒ Enable HTTPS

HTTPS Port

Apply

Chapter 5. Configuration

5.2.3. IP Filter

Comtrend network cameras have an “IP Filter” function. It can manage to set a white list for “Accepted IP list” or black list for “Deny IP list”. It is recommended to use one rule only to keep the connection performance. The white list rule is the most common method used in a surveillance project.

IP Filter Setting Procedure :

Step 1.

Select “IP Filter” button under the “Configuration” menu. **Step 2.**

Select “Enable IP Filter”.

Step 3.

Enter the IP List under “Accepted IP list” column, then press “New” button to add into white list.

Step 4.

Press “Apply” to save settings.

Notification :

Setting black list for **Deny IP list** is same process as for Accepted IP List described above.

The screenshot displays the IP Filter configuration page. At the top, a navigation menu includes 'Configuration' (highlighted), 'System', 'Security', 'Network', 'IP Filter' (highlighted with a yellow border), and 'Video'. To the right, a sidebar lists 'Privacy Mask', 'Event Recording', 'SDHC', 'Log', 'Device info', and 'Maintenance'. The main content area is titled 'IP Filter' and contains an 'Enable Filter' checkbox (unchecked) and an 'Apply' button. Below this, there are two sections: 'Accepted IP list' and 'Deny IP list'. Each section features a large text input field, a 'Remove' button, and a 'New' button. The 'New' button is located next to a range input field labeled 'IP Address' with a tilde (~) separator. The interface is clean and uses a light gray color scheme.

Chapter 5. Configuration

5.3. Video & Audio Setting

This chapter includes all video setting, image adjusting, and audio setting.

5.3.1. Video Setting

5.3.1.1. Main Stream Setting

Main Stream Setting Procedure :

Step 1.

Select the “Video” button under the “Configuration” menu.

Step 2.

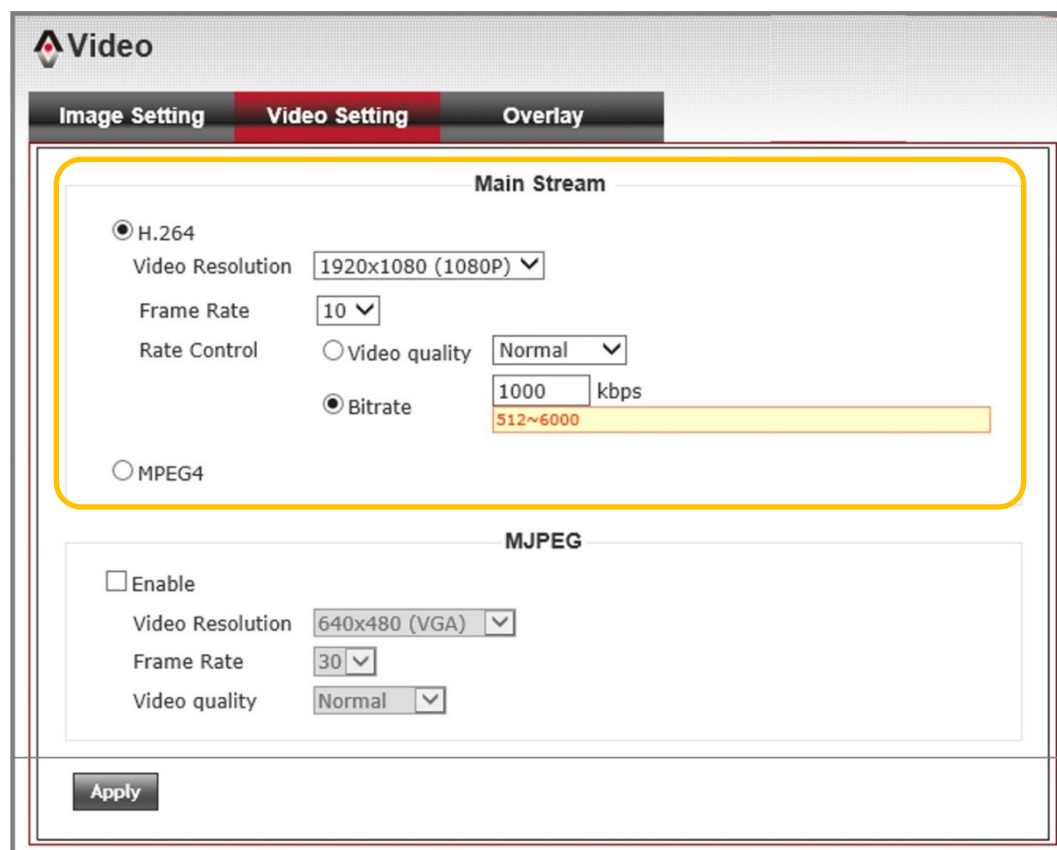
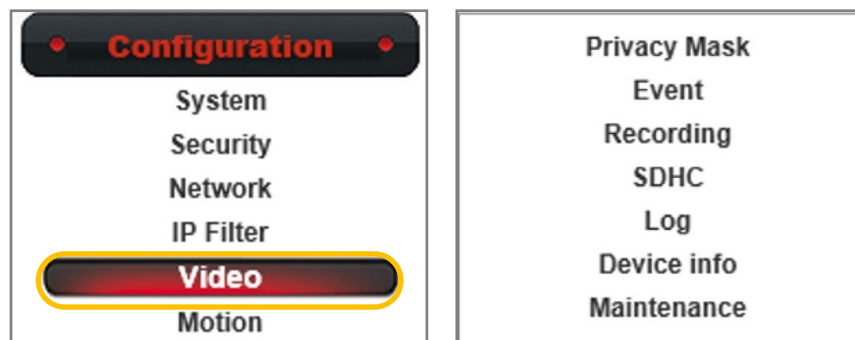
Select your desired format under the **Main Stream** column. Default is set as **H.264** format. It can be changed to **MPEG-4** format.

Step 3.

Define your **Resolution**, **Frame Rate(fps)**. Default is set as **1920x1080 (1080P) @ 30fps**.

Step 4.

Define your **Rate control** type. You can choose between **Video quality** or **Bitrate** comes first. Default is set as a constant Bitrate of **5000kbps**. Press “Apply” to save settings.



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5.3.1.1. Main Stream Setting

Rate Control Setting Description:

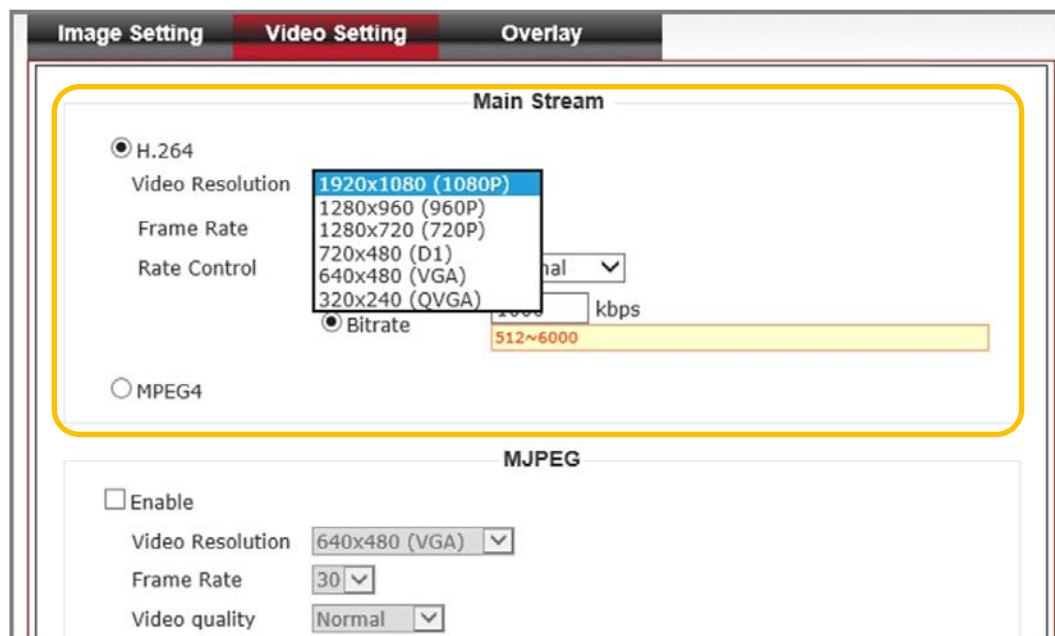
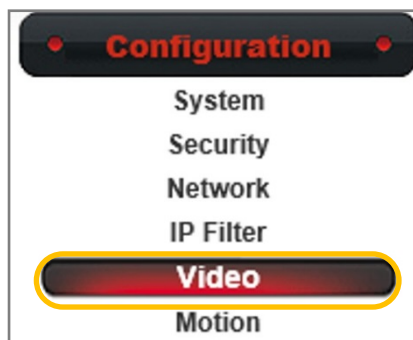
For a network camera only environment, we suggest setting the **Video quality to Normal**. If your surveillance environment is equipped with an NVR or NAS server for recording purposes, we suggest to set a constant **Bitrate** numbers.

Below is a suggestion chart for the video quality setting depending on your environment.

Notification :

When changing resolution settings will erase your privacy mask setting.

Resolution	Fps	Bitrate suggestion
1920 x 1080	30	4000~6000 kbps
1920 x 1080	15	2000~3000 kbps
1920 x 1080	10	1000~2000 kbps
1280 x 960	30	2000~3500 kbps
1280 x 960	15	1000~2500 kbps
1280 x 720	15	800~2300 kbps
720 x 480	15	768~1500 kbps
640 x 480	15	512~1200 kbps
320 x 480	15	256~900 kbps



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5.3.1.1. Main Stream Setting

Main Stream and Storage Calculation:

It is best to set a constant **Bitrate** number to make calculating recording storage space easier.

Calculate the storage space as described below for each network camera recording for one hour.

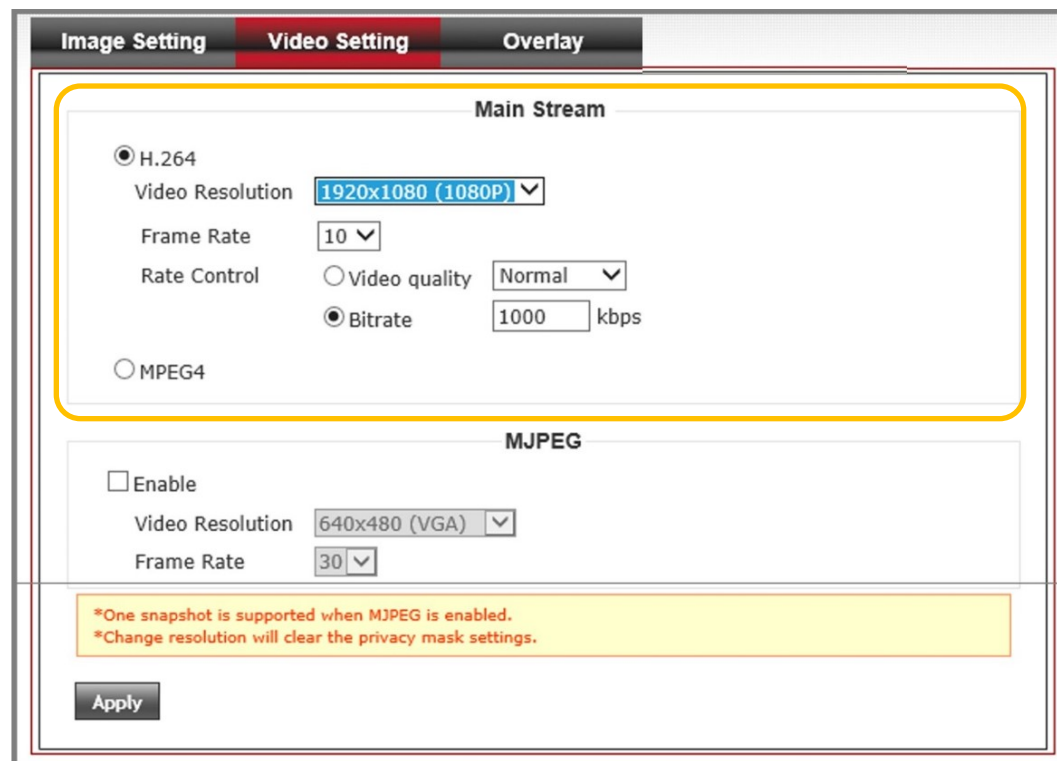
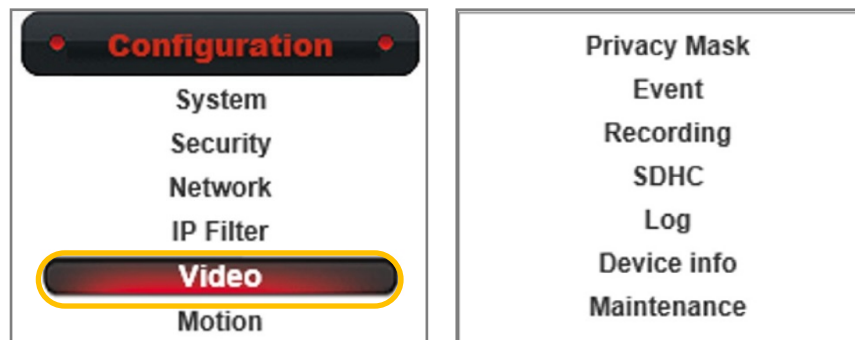
$$\text{Bitrate(kbps)} / 8 \times 60(\text{sec.}) \times 60(\text{min.}) / 1000 / 1000 \\ = \text{The storage space for each hour(GB)}$$

Example Question :

If a camera is set at 1920x1080 (1080P)@ 10fps, 1000kbps as a Bitrate setting, how much space does a storage device need to hold at least a month (30days) of recording files?

Answer :

$$1000(\text{kbps}) / 8 \times 60 \times 60 / 1000 / 1000 \times 24(\text{hrs}) \times 30(\text{days}) = 324(\text{GB}) / 1000 = 0.324(\text{TB})$$



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5.3.1.2. Secondary Stream(MJPEG) Setting

Secondary Stream(MJPEG) Setting Procedure :

Step 1.

Select “Video” button under the “Configuration” menu. Then goes to “Video Setting” page and select “Enable” under “MJPEG” column.

Step 2.

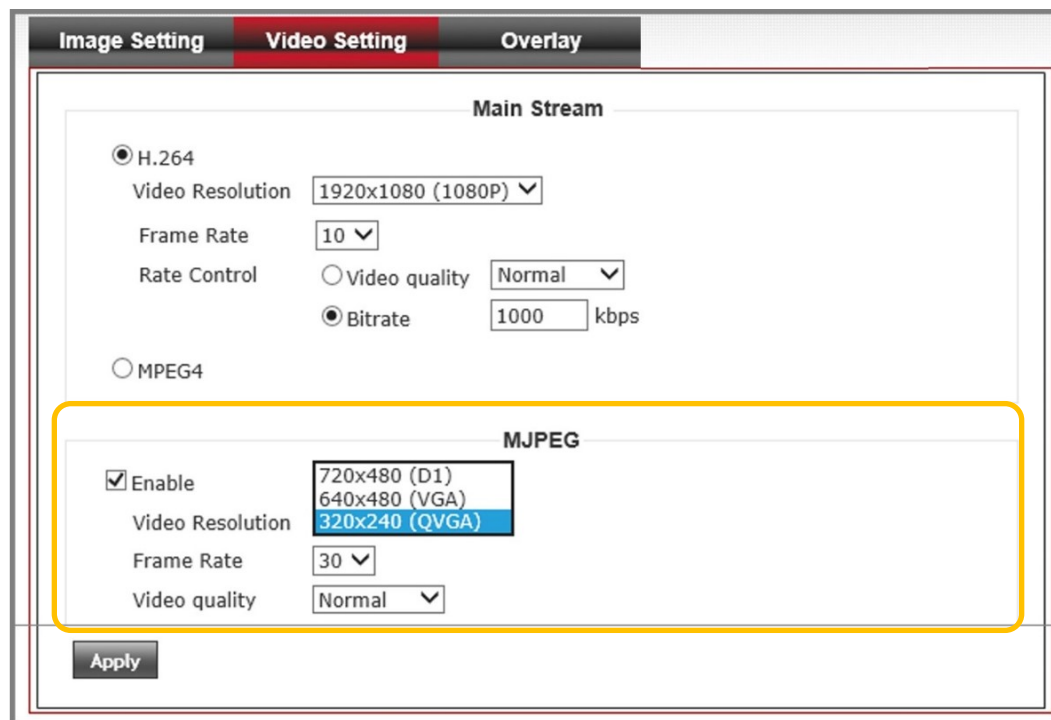
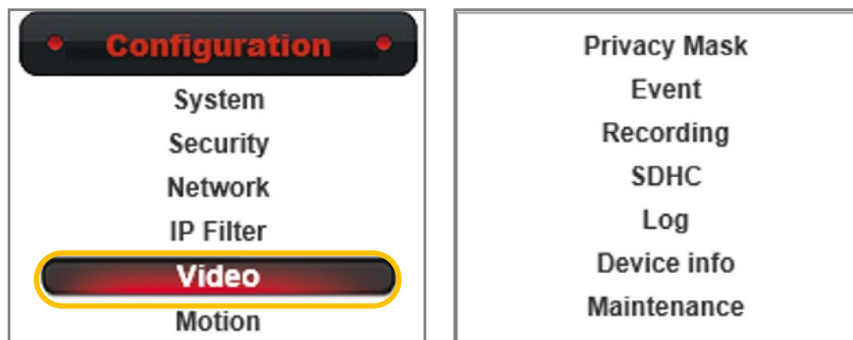
Define your “Video Resolution”. There are three resolutions to choose from 720x480(Full D1), 640x480(VGA) and 320x240(QVGA).

Step 3.

Define your “Frame Rate” and “Video Quality”. There are five segment of video quality from lowest to highest that you can choose from. Then press “Apply” to save setting.

Notification :

MJPEG compression rate is lower than H.264 and MPEG-4. But is best format for computer CPU performance when handling the image. The snapshot function only supports MJPEG format.



Resolution	Fps	Bitrate suggestion
720 x 480	5	Normal (1000~2000 kbps)
640 x 480	5	Normal (800~1800 kbps)
320 x 480	5	Normal (200~600 kbps)

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5.3.1.3. Mobile View Setting

Mobile View Setting Procedure :

Step 1.

Select the “Video” button under the “Configuration” menu. Select “Enable” under “Mobile View” column.

Step 2.

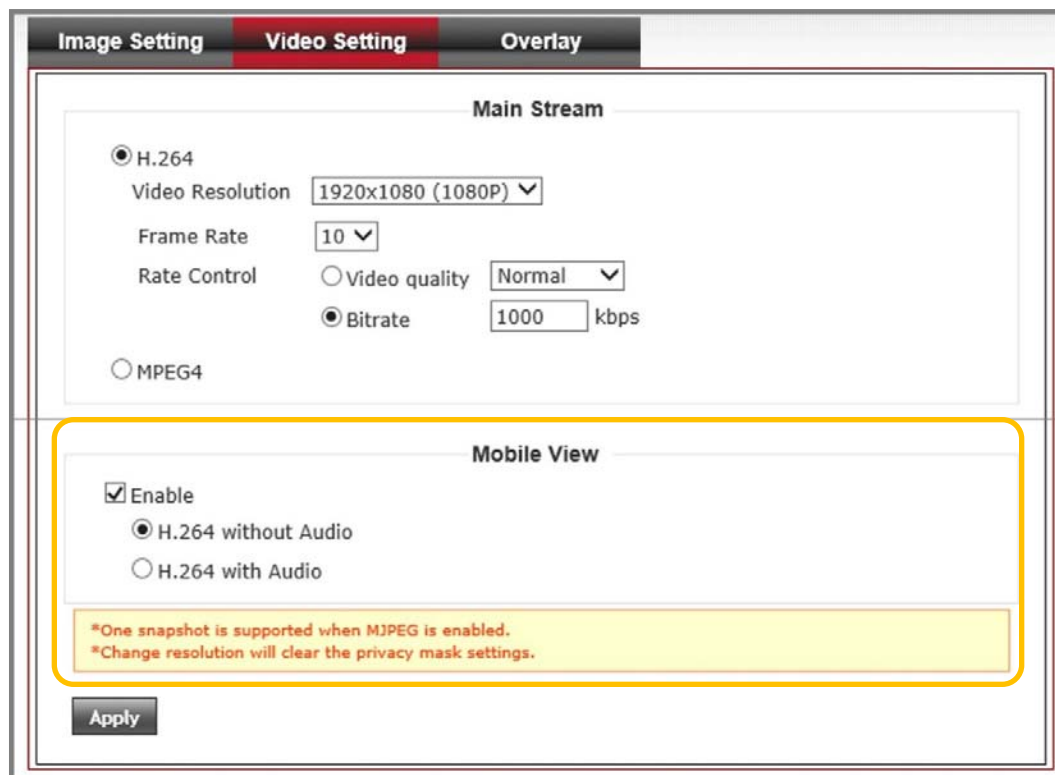
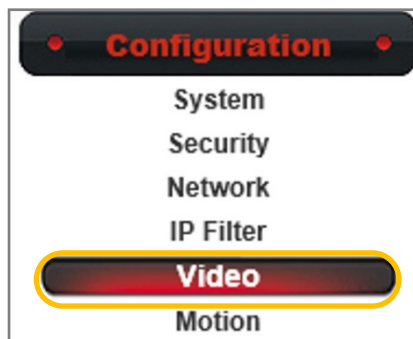
Select with or without audio depends on your application.

Step 3.

Press “Apply” to save changes.

Notification :

Mobile stream format is set to **H.264** for a better compression rate. Default resolution is set as **320x240, 30fps**. But the actual transfer speed is depends on your regional environment. Actual performance will vary depending on network performance factors.



Resolution	fps	Bitrate suggestion
320 x 240	Max. 30	Normal (500~1000 kbps)

Chapter 5. Configuration

5.3. 2 . Focus Setting

Comtrend MD-21 network cameras are equip with $f=3.6\text{mm}$ fixed Lens. In order to adjust the focus point, you will need to remove the top cover.

Focus Setting Procedure :

Step 1.

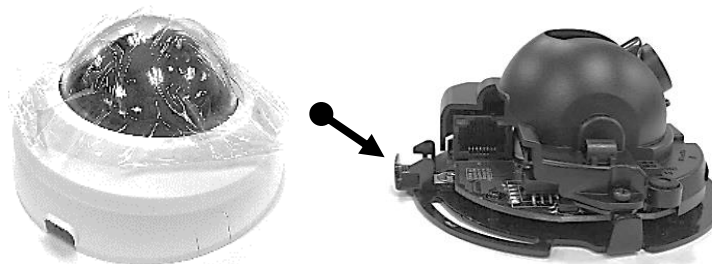
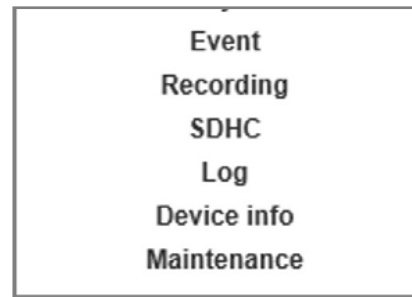
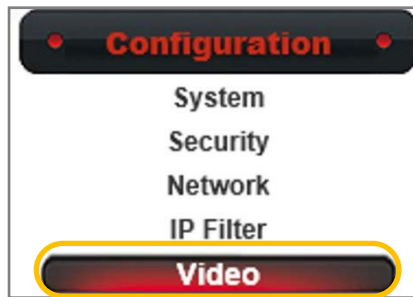
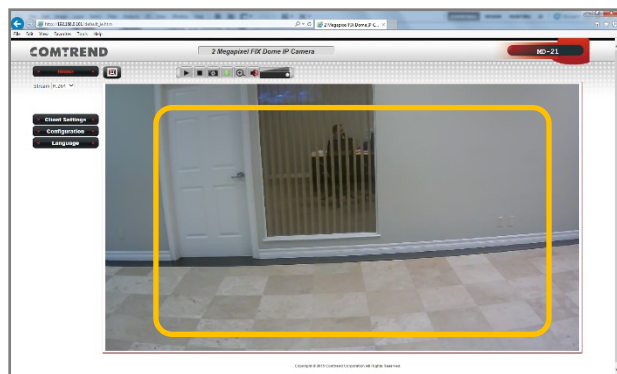
Please remove the top cover.

Step 2.

Set your browser to the main page and double click on the screen to the full screen mode.

Step 3.

Adjust the focus to get your desire clean view of your target by gently rotate the lens. Then put your top cover back on without touching the lens.



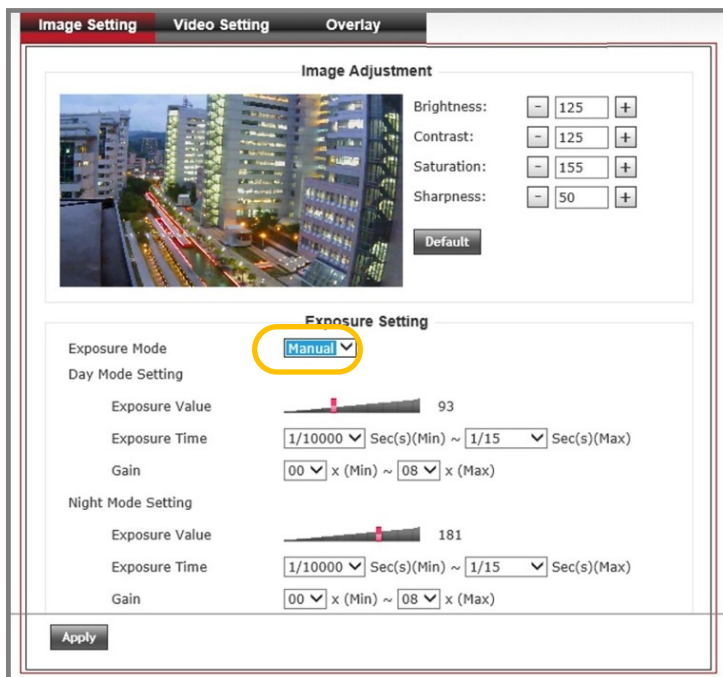
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5.3.3. Image Setting

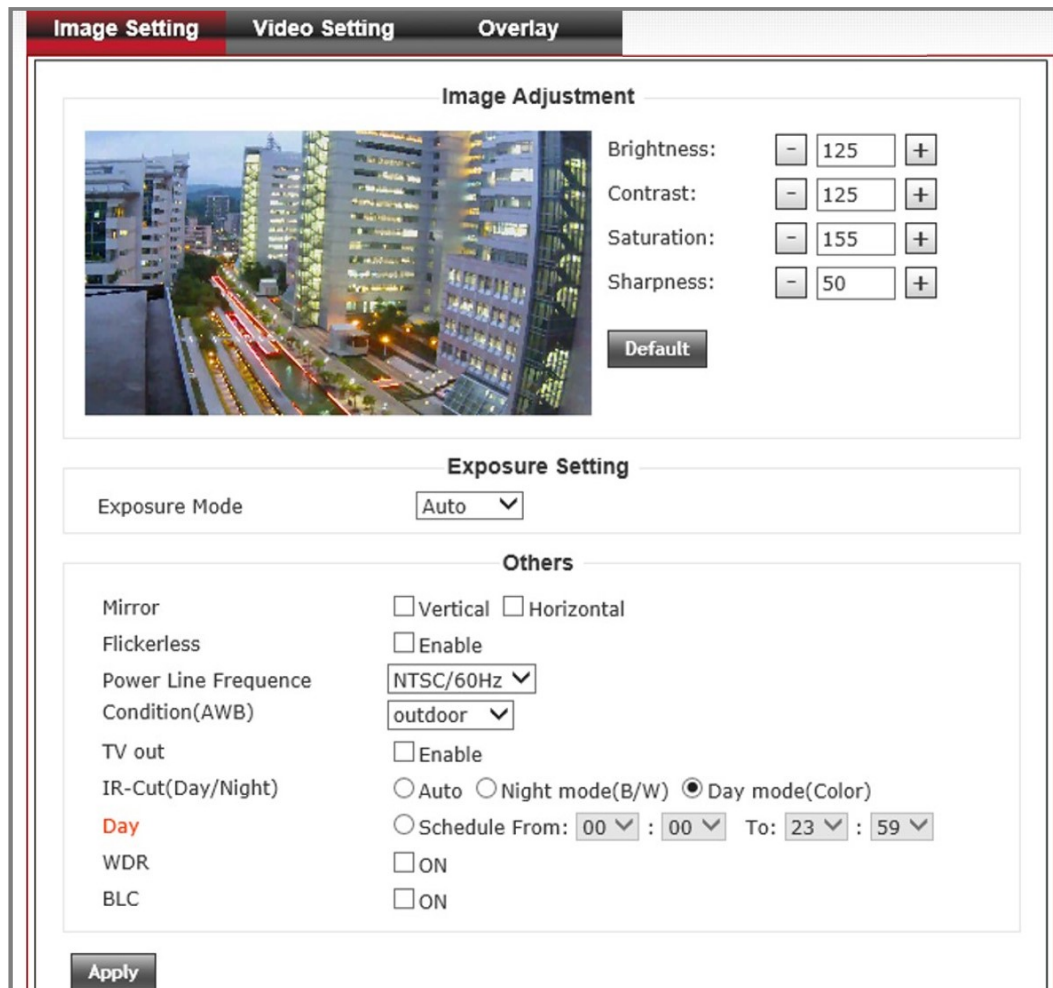
After completing your video setting, follow the instructions below to adjust your image settings.

5.3.3.1. Exposure Setting

Comtrend network cameras provide two **Exposure Modes**. Default setting as “**Auto**” mode. You can change to “**Manual**” mode for advanced exposure settings for day and night modes.



The screenshot shows the 'Image Setting' tab of a camera's web interface. The 'Image Adjustment' section includes sliders for Brightness (125), Contrast (125), Saturation (155), and Sharpness (50). The 'Exposure Setting' section has the 'Exposure Mode' dropdown set to 'Manual' (highlighted with a red circle). Below this, there are settings for 'Day Mode Setting' and 'Night Mode Setting', each with a slider for Exposure Value and dropdowns for Exposure Time (1/10000 to 1/15) and Gain (00 to 08). An 'Apply' button is at the bottom.



The screenshot shows the 'Image Setting' tab of a camera's web interface. The 'Image Adjustment' section includes sliders for Brightness (125), Contrast (125), Saturation (155), and Sharpness (50). The 'Exposure Setting' section has the 'Exposure Mode' dropdown set to 'Auto'. The 'Others' section includes checkboxes for Mirror (Vertical/Horizontal), Flickerless (Enable), TV out (Enable), and WDR/BLC (ON). It also has dropdowns for Power Line Frequency (NTSC/60Hz), Condition(AWB) (outdoor), and IR-Cut (Day/Night) (Auto/Night mode(B/W)/Day mode(Color)). A 'Schedule From' and 'To' time range is set from 00:00 to 23:59. An 'Apply' button is at the bottom.

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5.3.3.1. Exposure Setting

Exposure Setting Procedure :

Step 1.

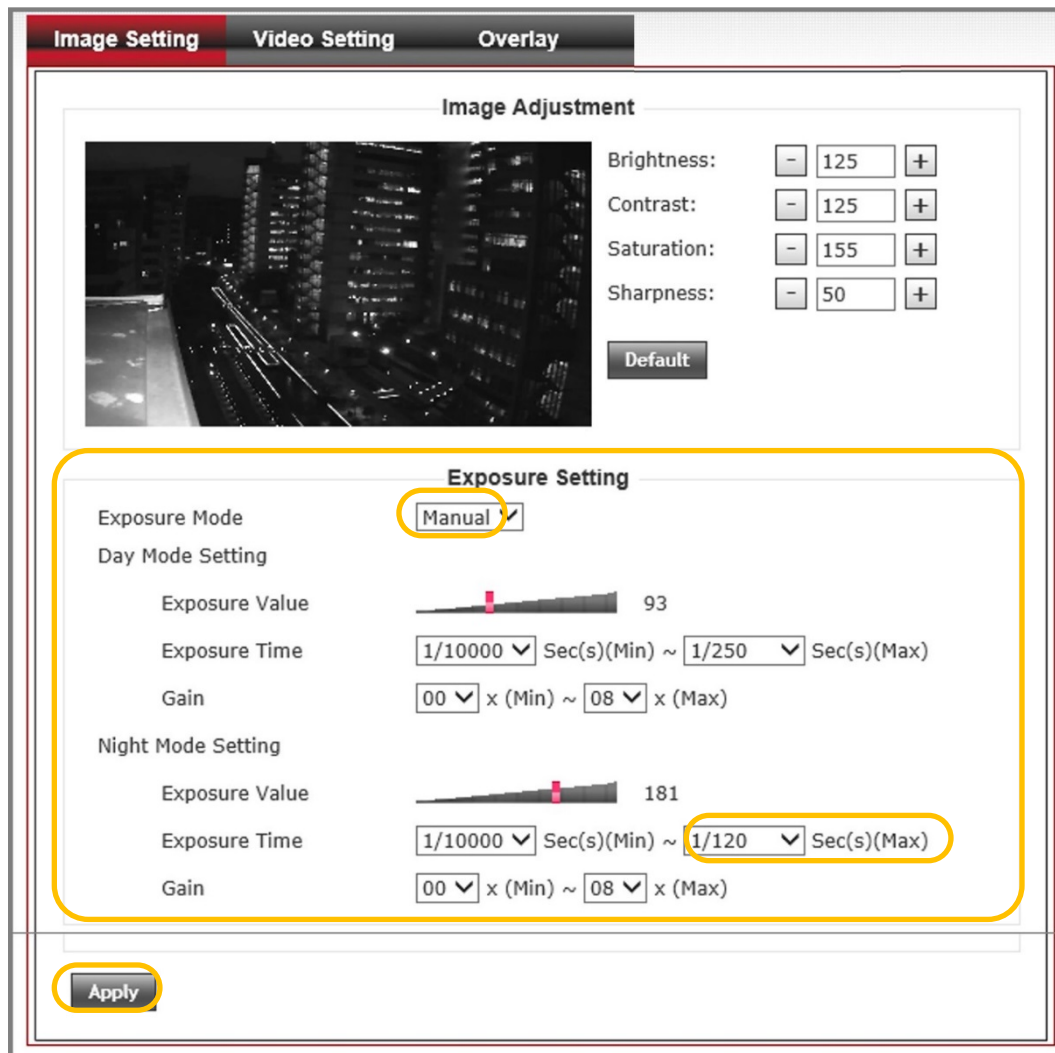
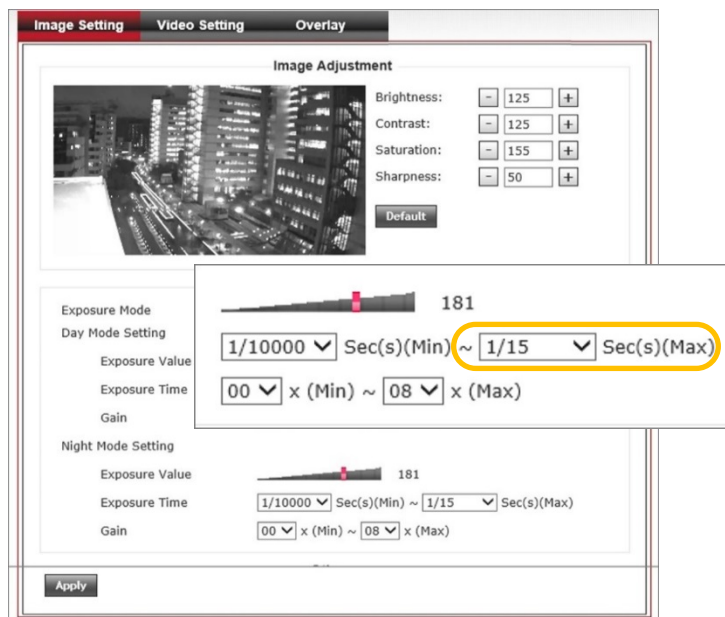
Select the “Video” button under the “Configuration” menu. Then go to “Image setting” and change the “Exposure Mode” from “Auto” to “Manual”.

Step 2.

As an example, the picture to the right has an image that is too dark during night mode operations. We can manually adjust the maximum **Exposure Time** to **1/15 Seconds** to improve the night time image.

Step 3.

Press the “Apply” button to save settings and get a better image quality as shown below.



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5.3.3.2. Image Setting

Image Setting Procedure :

Step 1.

Select the “Video” button under the “Configuration” menu. Then go to the “Image setting” tab.

Step 2.

Enter the desired **Brightness**, **Contrast**, **Saturation** and **Sharpness** numbers. Or use + and – button to do the adjusting incrementally.

Step 3.

Verify your changes with the image. Once you have gotten your ideal results, press the “Apply” button to save your settings.

Notification :

The range of **Brightness**, **Contrast**, **Saturation** and **Sharpness** numbers are from **0** to **255**. Press the “Default” button if you wish to go back to the original factory settings. Press the “Apply” button to save your settings.

The screenshot displays the 'Image Setting' tab of a configuration menu. At the top, there are three tabs: 'Image Setting' (selected), 'Video Setting', and 'Overlay'. The main content area is divided into two sections. The top section, titled 'Image Adjustment', features a color calibration chart on the left and four sliders on the right: 'Brightness' (set to 125), 'Contrast' (set to 125), 'Saturation' (set to 155), and 'Sharpness' (set to 50). Each slider has '-' and '+' buttons for incremental adjustments. A 'Default' button is located below the sliders. The bottom section, titled 'Exposure Setting', includes an 'Exposure Mode' dropdown menu set to 'Auto'. Below this is an 'Others' section with various settings: 'Mirror' (checkbox), 'Flickerless' (checkbox), 'Power Line Frequency' (dropdown set to 'NTSC/60Hz'), 'Condition(AWB)' (dropdown set to 'Auto'), 'TV out' (checkbox), 'IR-Cut(Day/Night)' (radio buttons with 'Day mode(Color)' selected), 'WDR' (checkbox), and 'BLC' (checkbox). A large 'Apply' button is positioned at the bottom left of the interface.

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5.3.2. Motion Detection

The **Motion Detection** function allows you to set up to three motion detection windows on the screen. So these selected areas can detect motion base on the **Percentage** and **Sensitivity** numbers that are set.

Motion Detection Setting Procedure :

Step 1.

Select the “**Motion Detection**” button under the “**Configuration**” menu.

Step 2.

Select “**Enable Privacy Mask**”, then select “**Enable**” under the “**Windows 1**” column and define a “**Title**” to this windows.

Step 3.

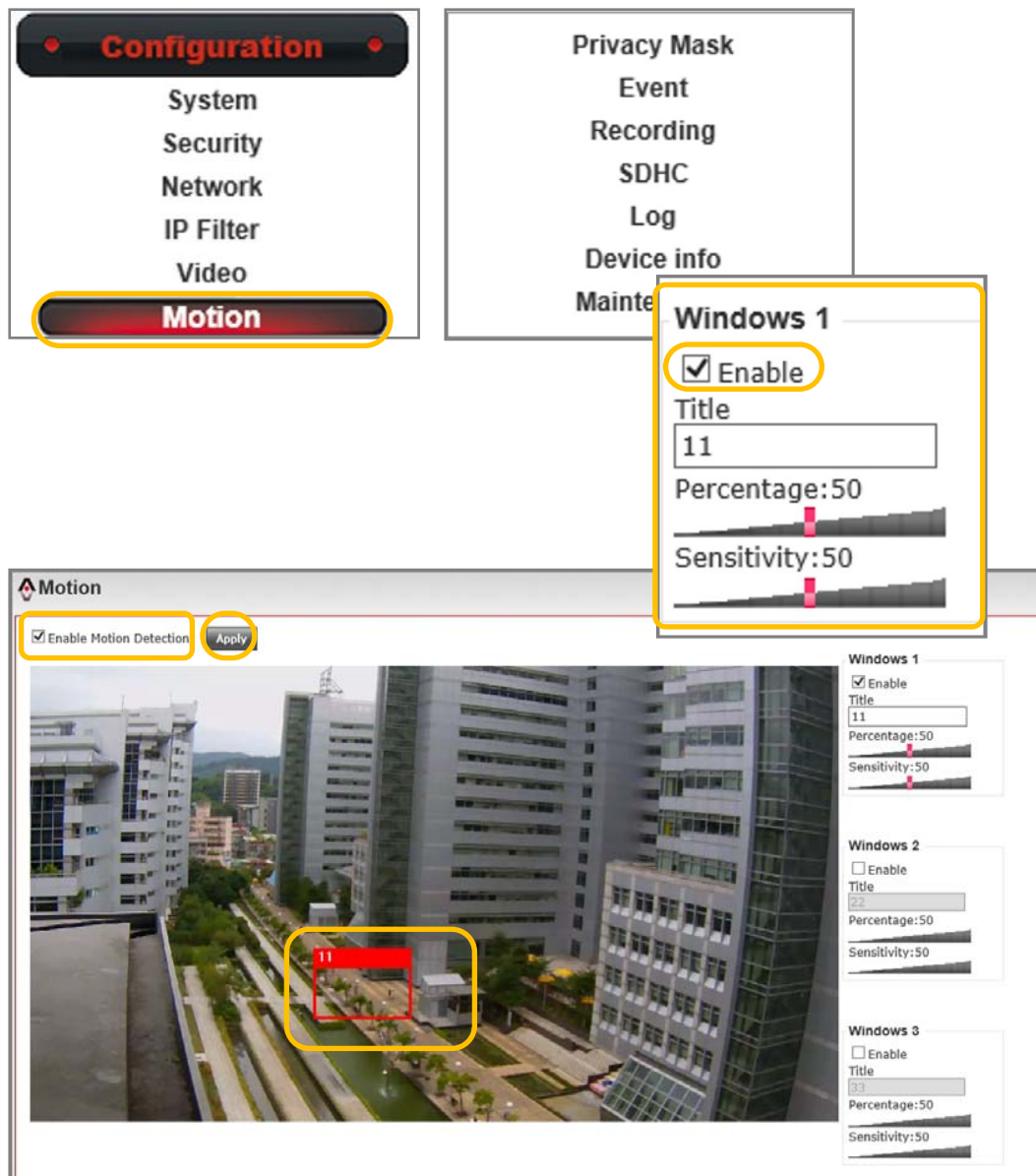
Resize the “**Windows 1**” frame and drag it to the area on the screen that you wish to monitor for motion.

Step 4.

Adjust the “**Percentage**” and “**Sensitivity**” settings to optimize your motion detection triggers.

Step 5.

Press the “**Apply**” button to save your settings.



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5.3.3. Privacy Mask

The “Privacy Mask” function allows you to set up to three privacy masks that cover on your live view screen. The color of the mask can be selected from one of the four available colors. Once the mask has been set, the live view screen will no longer display the masked area.

Privacy Mask Setting Procedure :

Step 1.

Select the “Privacy Mask” button under the “Configuration” menu.

Step 2.

Select the “Enable Privacy Mask”, then select “Enable” under “Mask 1” column.

Step 3.

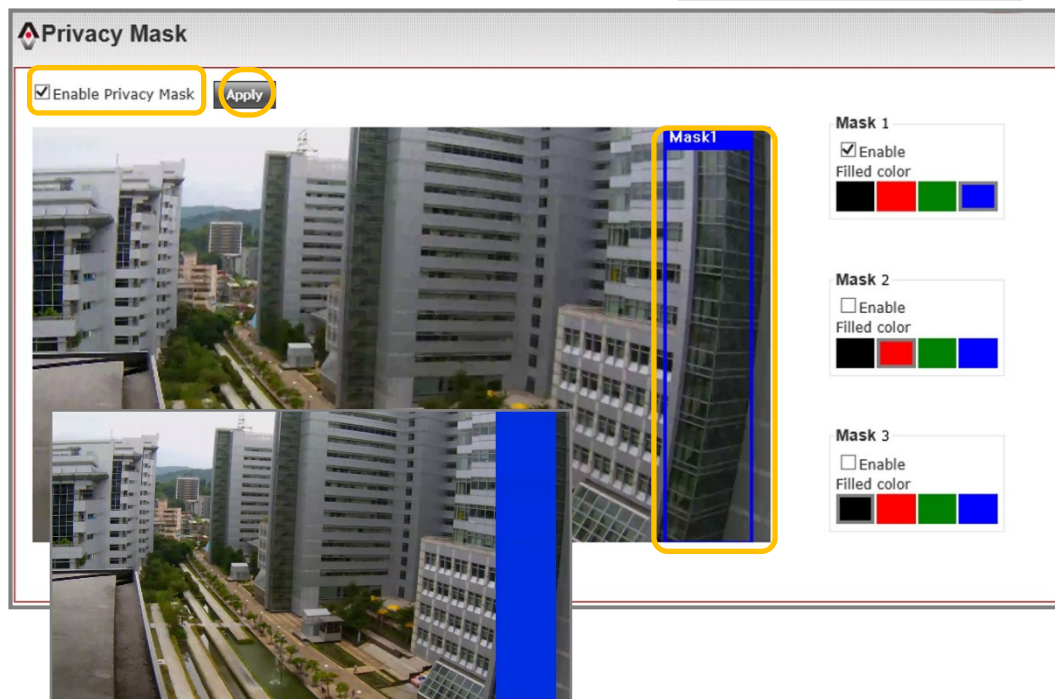
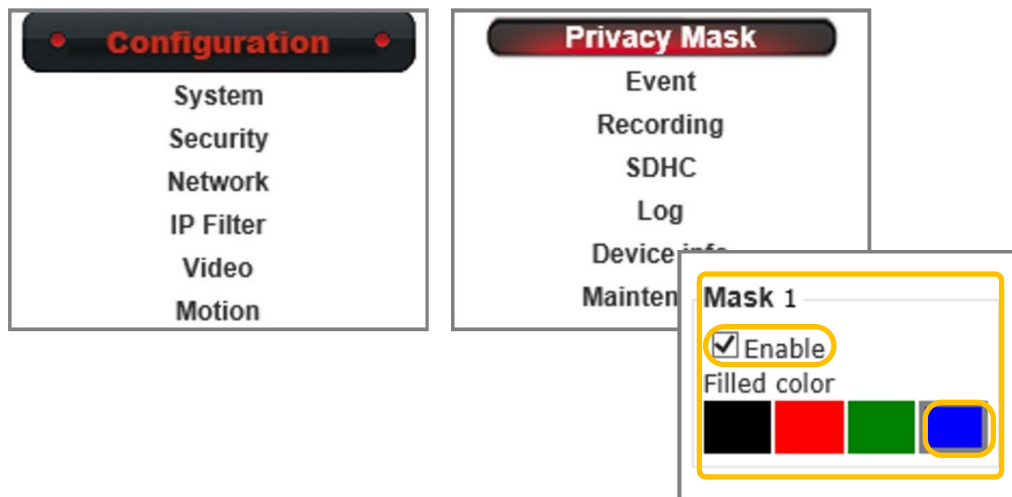
Resize the “Mask 1” frame and drag it to the place on the screen that you wish to cover.

Step 4.

Select the “Filled Color”.

Step 5.

Press the “Apply” button to save “Mask 1” settings. If wish to set up “Mask 2” and “Mask 3”, repeat the above procedure.



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5.3.5. Audio Settings

Comtrend MD-21 network cameras are equipped with an internal microphone. You may enable the microphone function within the web UI.

One ways audio setting procedure :

Step 1.

Select the “**Audio**” button under the “**Configuration**” menu.

Step 2.

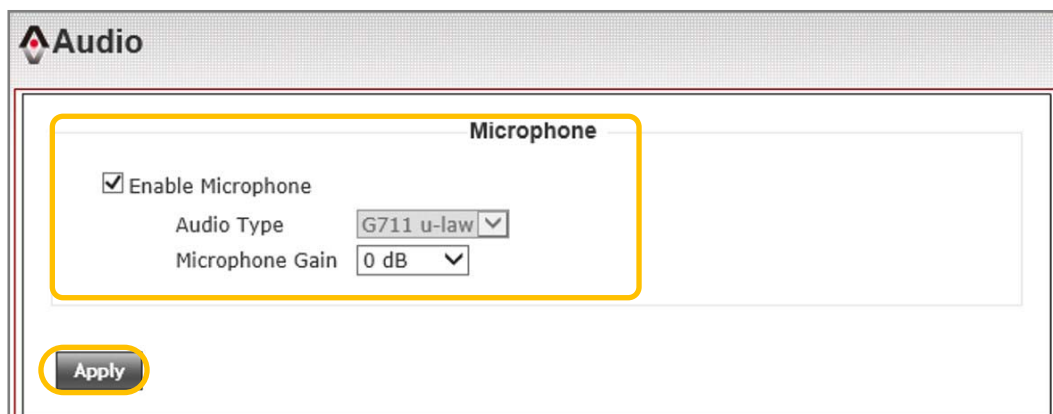
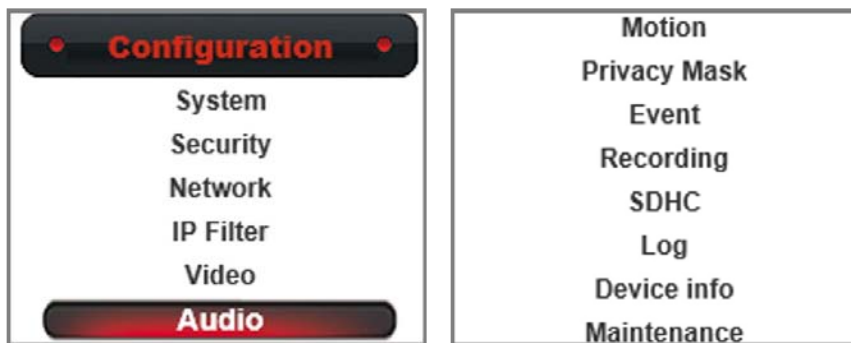
Select “**Enable Microphone**”. Select the “**Audio Type**” and set the “**Microphone Gain**”.

Step 3.

Press the “**Apply**” button to save the setting.

Notification :

Available audio features vary by camera models. Some models have a built-in microphone, speaker outputs or both.



5.4. SD Card Settings

The Comtrend MD-21 Camera has a built-in micro SD card slot for on camera recording. Micro SDHC cards up to 32GBs in capacity are supported.

5.4.1. SDHC

Setting new SD card procedure :

Step 1.

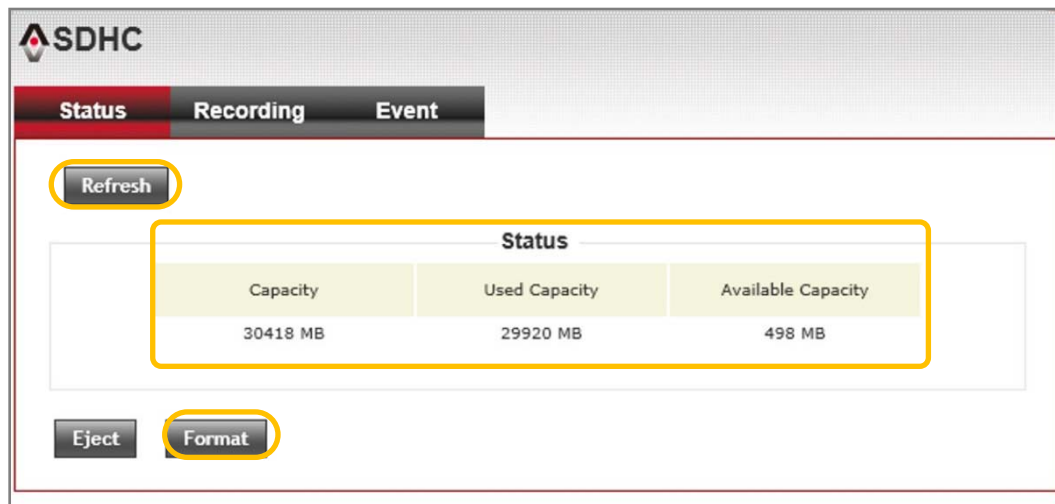
Select the “SDHC” button under the “Configuration” menu.

Step 2.

Select the “Status” page. If no SD card information is displayed, check that the SD card is properly inserted. Press the “Refresh” button to see SD card information.

Step 3.

When using an SD card for the first time, it is necessary to format the card. Press the “Format” button to start the format process. Once complete, your SD card will be ready for use.



Chapter 5. Configuration

5.4.2. Recording

Recording to SD card procedure :

Step 1.

Select the “Recording” button under the “Configuration” menu.

Step 2.

Select “Enable External storage Recording” function and set the maximum size of each recording file. The maximum file size must be set between 1MB and 50MBs in size.

Step 3.

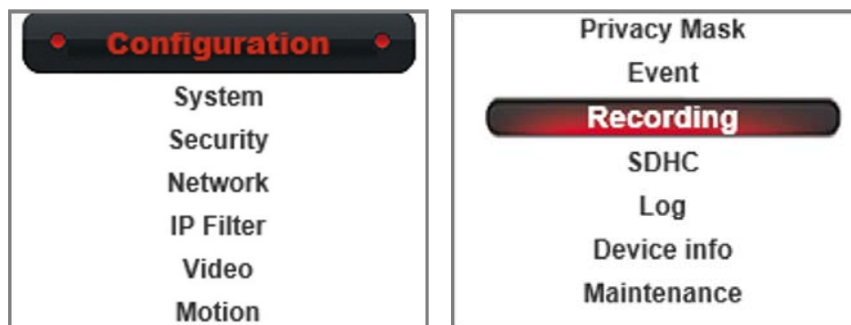
Set your recording schedule in the “Recording Schedule” section.

Step 4.

Select “Memory card” under the “Storage Option” section. Then press the “Apply” button to save setting.

Notification :

Under the “Storage Option” section, You can also choose to save your recording files to a **Samba Server**. For the limitation of each recording file size is from 1~50MB. Each recording file length will depends on the setting of your recording stream.



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5.4.3. SD Card Recoding Search

SD card recoding search procedure :

Step 1.

Select the “Recording” button under the “SDHC” page.

Step 2.

Press the “All file” button to see all recording files from the SD memory card. You can search a specific period of recording by setting a desired **Start Time** and **End Time**. Then press the “Search” button to sort the recording files within the specified period.

Step 3.

You can choose to download the recording files to your computer or to delete file from memory card.

SDHC

Status Recording Event

All file

Search

Start Time 2014 / 10 / 23 14 : 39 : 29

End Time 2014 / 10 / 23 14 : 49 : 29

Search

SDHC

Status Recording Event

All file

Search

Start Time 2014 / 10 / 23 14 : 46 : 47

End Time 2014 / 10 / 23 14 : 56 : 47

Search

Search Result

Page 1 / 1 Size : KB

	File Name	Size	Date
 	GP1-10232014-145436.avi	51287	Thu Oct 23 14:54:36 2014
 	GP1-10232014-145252.avi	51285	Thu Oct 23 14:52:52 2014
 	GP1-08092012-133045.avi	38123	Thu Aug 9 13:30:45 2012
 	GP1-08092012-132902.avi	51282	Thu Aug 9 13:29:02 2012

First page Previous Next Final page

Chapter 5. Configuration

5.4.3. SD Card Event Recoding Search

When event recording is triggered and saves to SD memory card, You can search all event files within the “Event” page.

SD card event recoding search procedure :

Step 1.

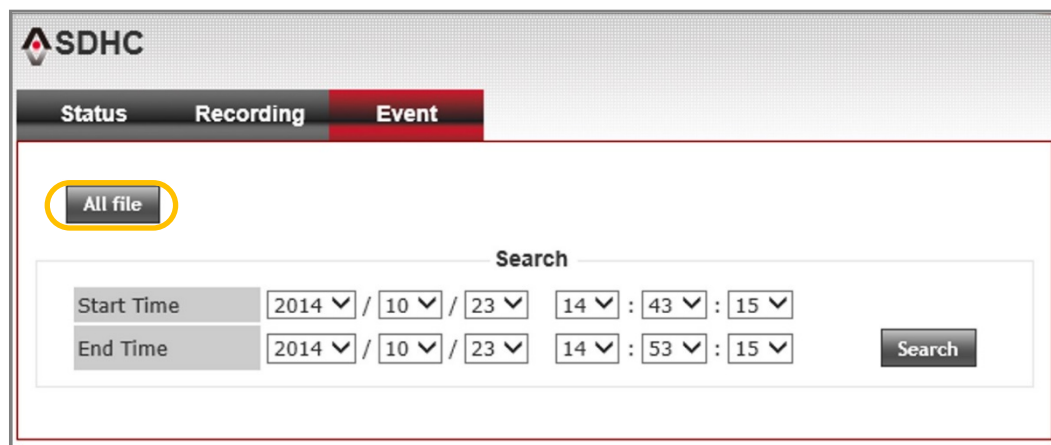
Select the “Event” button under the “SDHC” page.

Step 2.

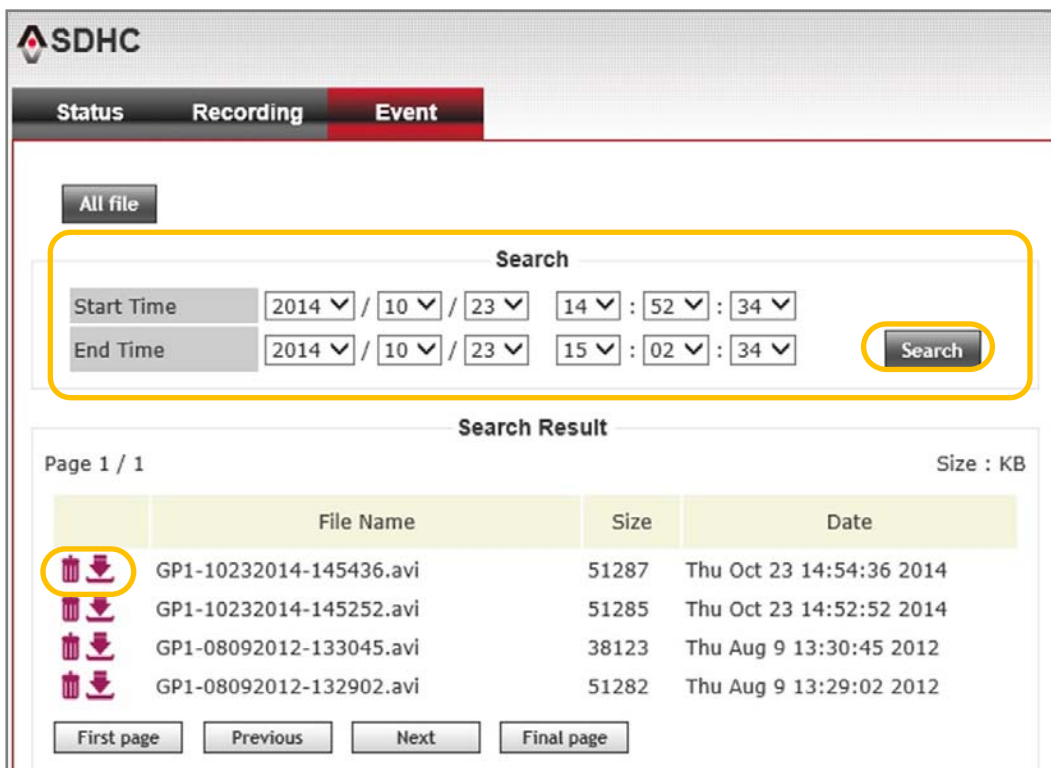
Press the “All file” button to see all event recording files on the SD memory card. You can search a specific period of recording by setting a desired **Start Time** and **End Time**. Then press the “Search” button to sort the recording files within the specified period.

Step 3.

You can choose to download the recording files to your computer or to delete file from memory card.



The screenshot shows the SDHC interface with the 'Event' tab selected. A yellow circle highlights the 'All file' button. Below it, the 'Search' section contains two rows of time selection: 'Start Time' and 'End Time'. Each row has dropdown menus for year (2014), month (10), day (23), hour (14), minute (43), and second (15). A 'Search' button is located to the right of the 'End Time' row.



The screenshot shows the SDHC interface with the 'Event' tab selected. A yellow circle highlights the 'All file' button. Below it, the 'Search' section contains two rows of time selection: 'Start Time' and 'End Time'. Each row has dropdown menus for year (2014), month (10), day (23), hour (14), minute (52), and second (34). A 'Search' button is located to the right of the 'End Time' row. Below the search section, the 'Search Result' section shows 'Page 1 / 1' and 'Size : KB'. A table lists the search results:

	File Name	Size	Date
 	GP1-10232014-145436.avi	51287	Thu Oct 23 14:54:36 2014
 	GP1-10232014-145252.avi	51285	Thu Oct 23 14:52:52 2014
 	GP1-08092012-133045.avi	38123	Thu Aug 9 13:30:45 2012
 	GP1-08092012-132902.avi	51282	Thu Aug 9 13:29:02 2012

At the bottom of the table, there are four buttons: 'First page', 'Previous', 'Next', and 'Final page'.

Chapter 5. Configuration

5.5. Event Settings

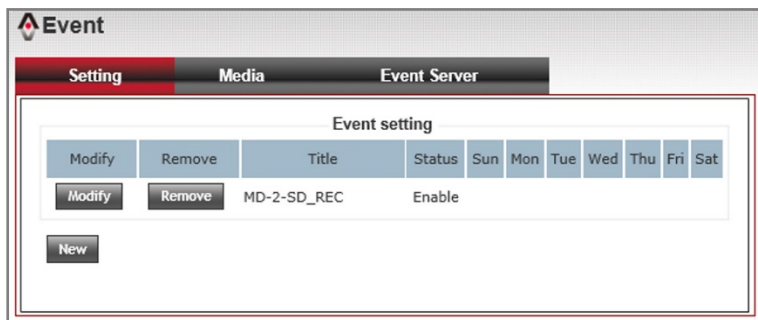
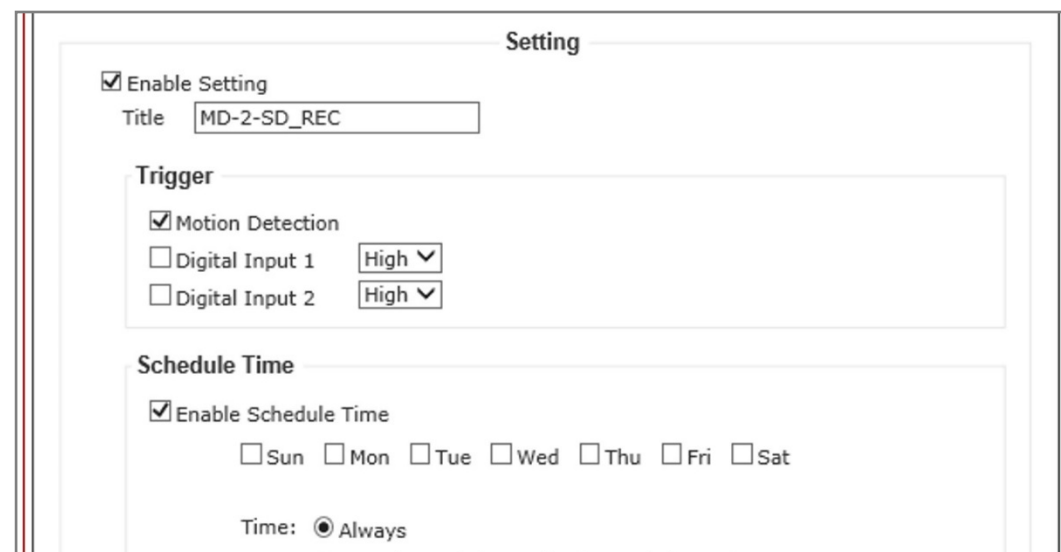
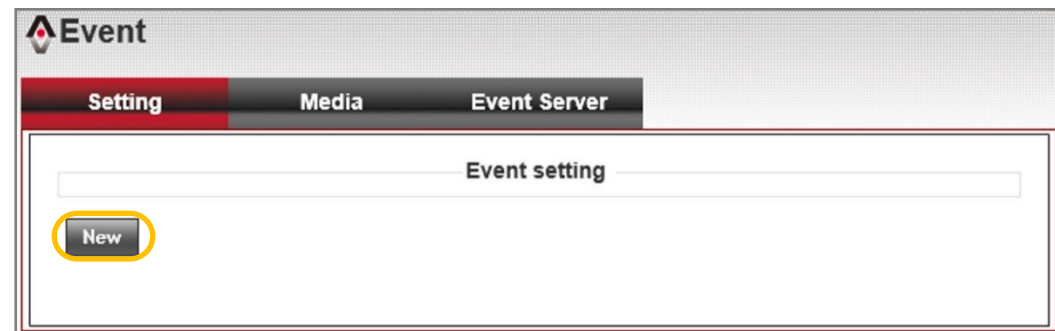
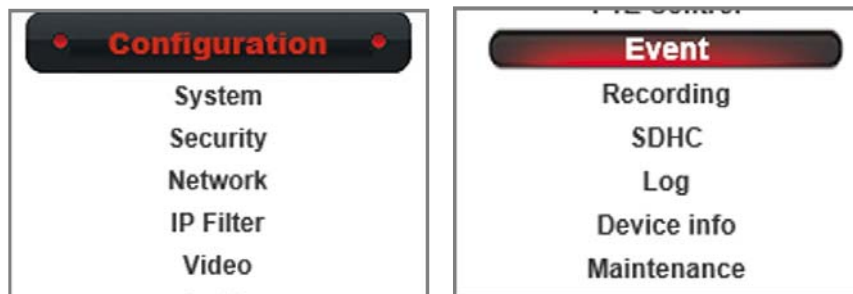
The Event Setting page allows you to define event triggers to cause the camera to perform an action. You can set multiple event based on your application.

Comtrend network cameras have two event triggers and 5 possible actions:

- 1) Motion Detection
- 2) Digital Input signal

Actions includes :

- 1) Send to FTP
- 2) Send to Email
- 3) Record to Samba
- 4) Record to SD Card
- 5) Trigger Digital Output



Chapter 5. Configuration

5.5.1. Event Server

The “**Event Server**” tab is used to setup the media server that will support the “**Action**” from a “**Triggered Event**”. FTP, SMTP and Samba are the three media server types that are supported.

5.5.1.1. FTP Server

FTP Server setting procedure :

Step 1.

Select the “**Event**” button under the “**Configuration**” menu. Then select “**Event server**” tab.

Step 2.

Select “**Enable FTP server**”. Enter your FTP server’s **IP address**, **Port**, **Username**, **Password** and **File path Name**. You may select “**Enable Passive Mode**” depending on your FTP server configuration.

Notification :

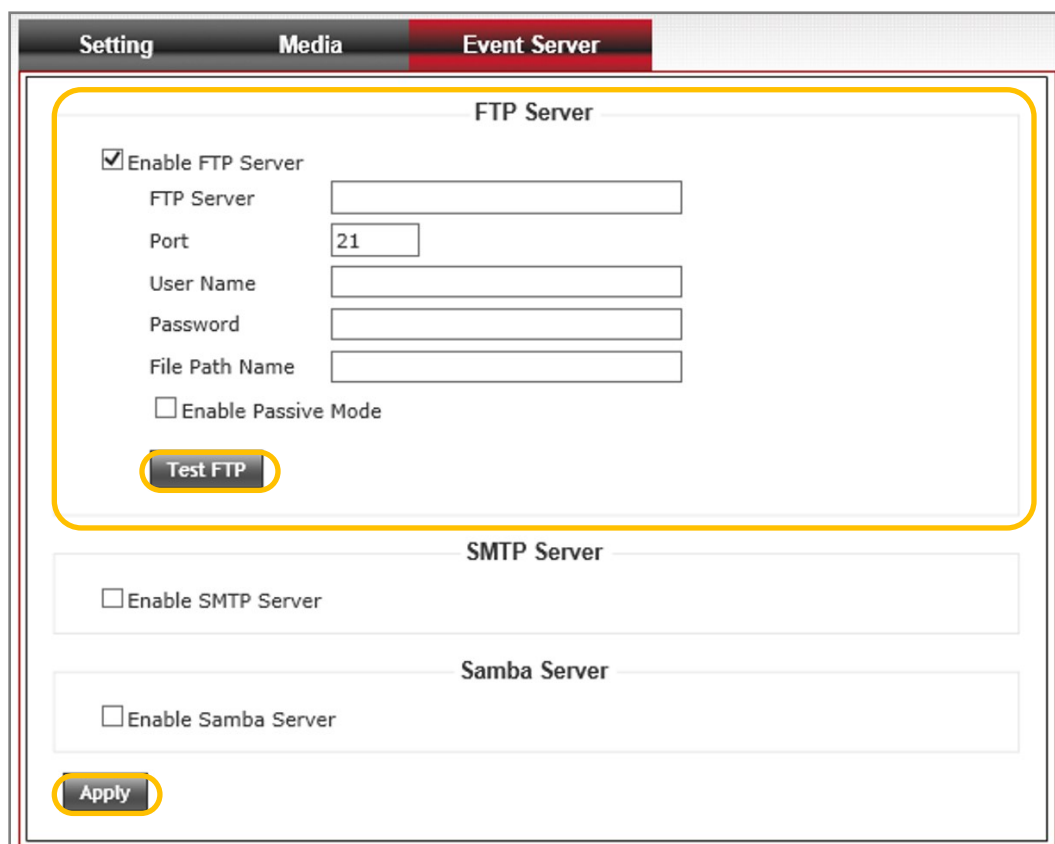
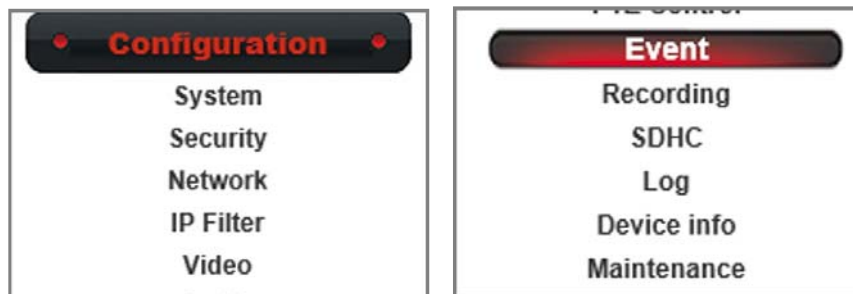
Default **FTP Port** is set to **21**.

Step 3.

Press the “**Test FTP**” button to check if the FTP connection was successfully established.

Step 4.

Press the “**Apply**” button to save settings.



Chapter 5. Configuration

5.5.1.2. SMTP Server

The main function of the SMTP server is to send an e-mail message when an event is triggered.

SMTP Server setting procedure :

Step 1.

Select the “**Event**” button under the “**Configuration**” menu. Then select the “**Event Server**” tab.

Step 2.

Select the “**Enable SMTP server**”. Enter your SMTP server’s **IP address**, **Port**, **Sender e-mail address**, **Receiver #1 and #2 e-mail address** and **Subject**. Indicate whether there is authentication required. Provide a **Username** and **Password** if necessary. You may select **Require SSL Encryption** and **StartTLS** if necessary for your server.

Notification :

Default **SMTP Port** is set to **25**.

Step 3.

Press the “**Test SMTP**” button to check if the SMTP connection was successfully established.

Step 4.

Press the “**Apply**” button to save setting.

The screenshot displays the 'Event Server' configuration tab within a web interface. The 'SMTP Server' section is highlighted with a yellow border. It includes a checkbox for 'Enable SMTP Server' which is checked. Below this are input fields for 'SMTP Server' (IP address), 'Port' (set to 25), 'Sender Email Address', 'Receiver #1 Email Address', 'Receiver #2 Email Address', and 'Subject' (set to GP1). There is also an 'Authentication' checkbox which is unchecked, with sub-fields for 'User Name' and 'Password'. Further down are checkboxes for 'Requires SSL Encryption' and 'STARTTLS', both of which are unchecked. A 'Test SMTP' button is located at the bottom of the SMTP section. Below the SMTP section is the 'Samba Server' section, which has an unchecked 'Enable Samba Server' checkbox. At the very bottom of the configuration area is an 'Apply' button.

Setting	Media	Event Server
FTP Server		
☐ Enable FTP Server		
SMTP Server		
☒ Enable SMTP Server		
SMTP Server		
Port	25	
Sender Email Address		
Receiver #1 Email Address		
Receiver #2 Email Address		
Subject	GP1	
☐ Authentication		
User Name		
Password		
☐ Requires SSL Encryption		
☐ STARTTLS		
Test SMTP		
Samba Server		
☐ Enable Samba Server		
Apply		

Chapter 5. Configuration

5.5.1.3. Samba Server

Samba Server setting procedure :

Step 1.

Select the “Event” button under the “Configuration” menu. Then select the “Event Server” tab.

Step 2.

Select “Enable Samba Server”. Enter your Samba server’s IP address, Storage Path, Username and Password.

Step 3.

Press the “Test Samba” button to check if the Samba connection was successfully established.

Step 4.

Press the “Apply” button to save setting.

The screenshot shows a web-based configuration interface with three tabs: "Setting", "Media", and "Event Server". The "Event Server" tab is selected and highlighted in red. Below the tabs, there are three sections: "FTP Server", "SMTP Server", and "Samba Server". The "FTP Server" section has a checkbox for "Enable FTP Server". The "SMTP Server" section has a checkbox for "Enable SMTP Server". The "Samba Server" section is highlighted with a yellow border and contains a checked checkbox for "Enable Samba Server", followed by four input fields for "Samba Server Address", "Path", "User Name", and "Password". Below these fields are two buttons: "Test SMB" and "Apply", both highlighted with yellow borders.

Chapter 5. Configuration

5.5.2. Media setting

Media settings are to define what kind of media files should be save when an event is triggered. You can send a snapshot or an event recording file to your event server.

Media setting procedure :

Step 1.

Select the “**Event**” button under the “**Configuration**” menu. Then select the “**Media**” tab.

Step 2.

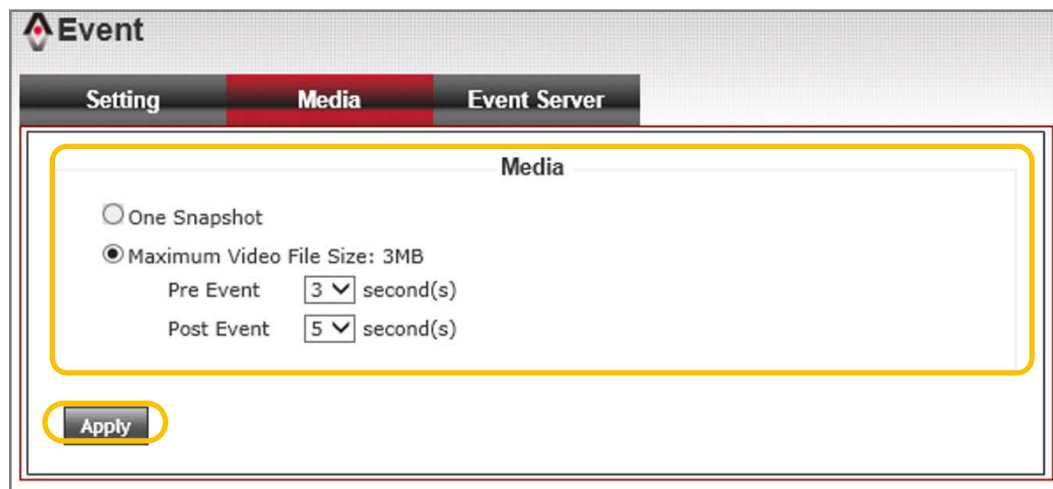
Select the “**Snapshot**” or “**Maximum Video File Size**”. You can set the pre and post event time when selecting video as the media format. The length of “**Pre Event**” and “**Post Event**” are both configurable from 1 to 5 seconds.

Notification :

The maximum event recording file size is 3MB. Recommended “**Pre Event**” as 2 seconds and “**Post Event**” as 3 seconds.

Step 3.

Press the “**Apply**” button to save setting.



The screenshot shows the 'Event' configuration window with the 'Media' tab selected. The 'Media' section contains two radio buttons: 'One Snapshot' and 'Maximum Video File Size: 3MB'. The 'Maximum Video File Size: 3MB' option is selected. Below this, there are two dropdown menus for 'Pre Event' and 'Post Event', both set to '3' and '5' seconds respectively. An 'Apply' button is located at the bottom left of the 'Media' section.

Chapter 5. Configuration

5.5.3. Adding New Event Settings

Event Settings will allow you to configure events that are triggered by either “**Motion Detection**” or “**Digital Input**”. You can establish a “**Schedule Time**” for when the event will be active. Five “**Action**” types are available for each triggered “**Event**”.

Example of adding new event procedure:

Step 1.

Select the “**Event**” button under the “**Configuration** menu”. Then select the “**New**” button to open the “**Settings**” page.

Step 2.

Select “**Enable Setting**” and provide the “**Event**” title.

Step 3.

Select “**Motion Detection**” as a trigger.

Step 4.

Select “**Enable Schedule Time**” and select all days from Sunday to Saturday. Then set the time as **Always**.

Step 5.

Select “**Enable SD Card**” and “**Enable Digital Output**” as your action. Also set your digital output time as 10 seconds.

Step 6.

Press the “**Apply**” button to save setting.

The screenshot shows the 'Event' configuration window with the 'Setting' tab selected. The 'Event setting' title is at the top. Below it is a 'New' button. The main configuration area is titled 'Setting' and contains several sections:

- Enable Setting:** A checkbox is checked. The 'Title' field contains 'MD-2-SD_REC'.
- Trigger:** A section with three options: 'Motion Detection' (checked), 'Digital Input 1' (unchecked), and 'Digital Input 2' (unchecked). Each digital input has a 'High' dropdown menu.
- Schedule Time:** A section with an 'Enable Schedule Time' checkbox (unchecked). Below it are checkboxes for days of the week (Sun, Mon, Tue, Wed, Thu, Fri, Sat). The 'Time' section has a radio button for 'Always' (selected) and a 'From' 'To' time range selector (From 00:00 To 23:59).
- Action:** A section with five options: 'Enable FTP' (unchecked), 'Enable EMAIL' (unchecked), 'Enable Samba(Net Storage)' (unchecked), 'Enable SD CARD' (checked), and 'Trigger digital output for' (checked) with a dropdown set to '01' second(s).

An 'Apply' button is located at the bottom of the configuration area.

Chapter 5. Configuration

5.6. Maintenance Settings

This maintenance page includes **Reboot**, **Factory Reset**, **Backup**, **Restore**, and **Upgrade** functions.

5.6.1. Reboot

Reboot procedure:

The “**Reboot**” feature is used to remotely reboot the camera.

5.6.2. Factory reset

There are two “**Factory Reset**” options. The first option will reset all camera parameters to factory default. The second option will reset all parameters, except for the IP address, time zone and daylight savings parameters.

Reboot and Reset procedures:

To “**Reboot**” or “**Reset**” the camera, press the “**Reboot**” or “**Reset**” buttons.

The screenshot shows the 'Maintenance' page of a web interface. The sidebar on the left contains a 'Configuration' tab and a 'Maintenance' tab. The 'Maintenance' tab is selected, displaying the following sections:

- Reboot**: A section with the text 'System will be rebooted.' and a 'Reboot' button.
- Factory Reset**: A section with the text 'Factory reset will restore all the settings to factory default.' and two 'Reset' buttons. The second 'Reset' button is highlighted with a yellow border. Below the buttons, it says 'Reset all parameters, except for the IP , time zone, and daylight saving parameters , to the original factory settings.'
- Backup**: A section with two buttons: 'Backup' and 'Backup to SD card device'.
- Restore**: A section with the text 'Select the configuration file to restore'. It includes a file selection area with a '浏览...' (Browse...) button and a 'Restore' button. Below this, there is a 'Restore from SD card device' button.

Chapter 5. Configuration

5.6.3. Backup

Comtrend cameras can back-up your camera settings to either local computer or on to an installed SD card.

Backup procedure:

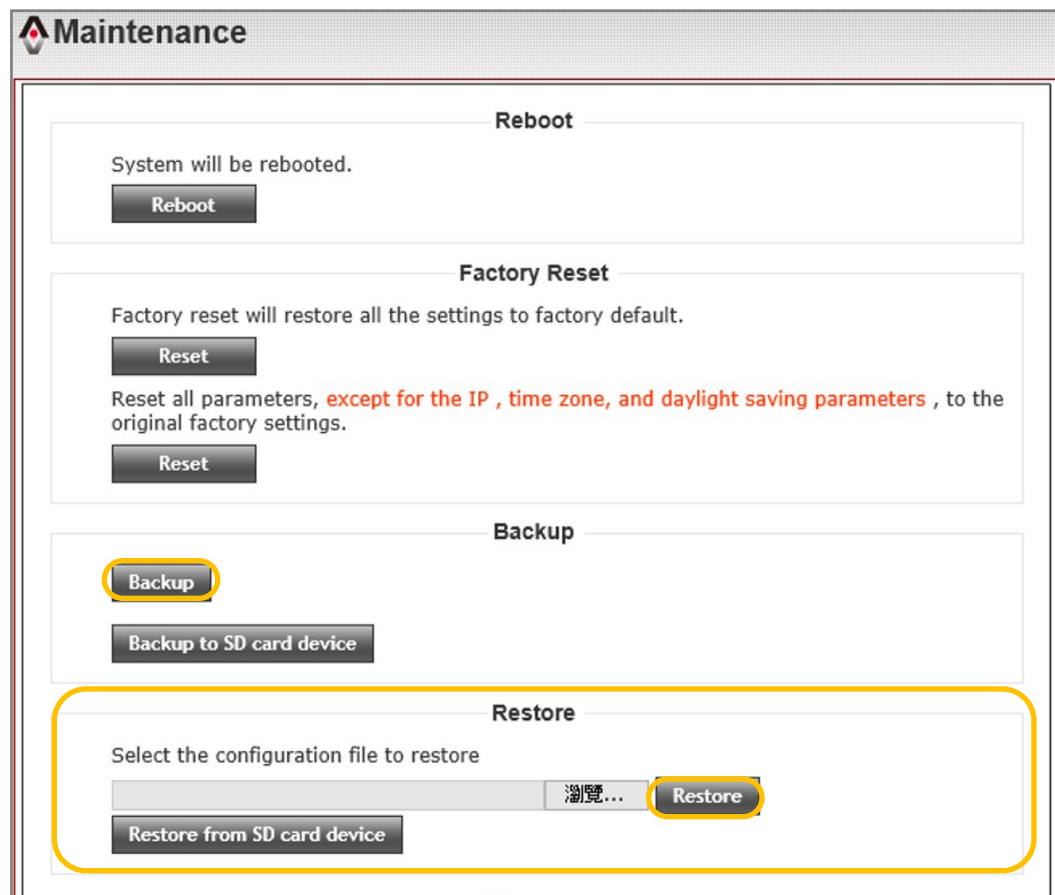
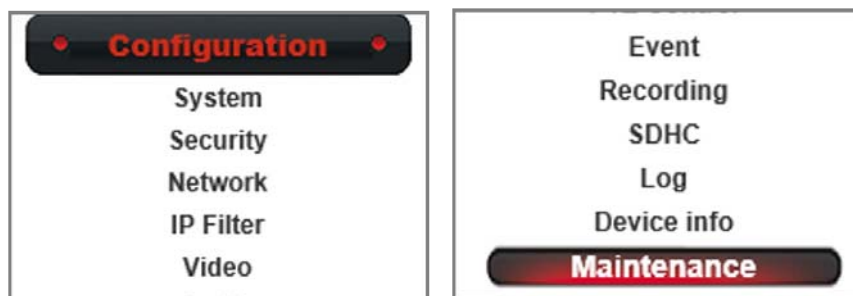
When you press the “**Backup**” button, the Comtrend camera will back-up its setting to your computer. When you press the “**Backup to SD card device**” button, the Comtrend camera will back-up its settings to the installed SD card.

5.6.4. Restore

Comtrend cameras can restore back-up files from the procedure above.

Restore procedure:

When restoring files from your computer, press the “**Browse**” button and select the backup file that you saved. Then press the “**Restore**” button. When restoring settings from the SD card, press “**Restore from SD card device**” button.



5.6.5. Upgrade

Comtrend cameras contain its original firmware version when they first leave the factory. Comtrend will have the latest firmware version on the Comtrend website.

Firmware upgrade procedure:

Download the latest firmware version to your computer. Click the “**Browse**” button and select the firmware you want to upload to the camera. Click the “**Upgrade**” button to begin the upgrade. Once the upgrade is complete, “**Reboot**” your camera.

The screenshot displays the 'Maintenance' section of a Comtrend camera's web interface. It contains several functional areas: 'Reboot' with a confirmation message and a button; 'Factory Reset' with a description, a warning about IP and time zone settings, and a button; 'Backup' with two buttons for local and SD card backup; 'Restore' with a file selection field, 'Browse...' and 'Restore' buttons, and an SD card restore option; and 'Firmware' which shows the current version (1.04.01), a file selection field, and a highlighted 'Upgrade' button. A yellow rectangle highlights the 'Firmware' section.

Maintenance

Reboot

System will be rebooted.

Reboot

Factory Reset

Factory reset will restore all the settings to factory default.

Reset

Reset all parameters, **except for the IP , time zone, and daylight saving parameters** , to the original factory settings.

Reset

Backup

Backup

Backup to SD card device

Restore

Select the configuration file to restore

Browse... Restore

Restore from SD card device

Firmware

Current Firmware Version 1.04.01

Browse... Upgrade

Chapter 5. Configuration

5.7. Camera Information

Comtrend network cameras provide two ways of checking information. One is from the device information, it includes the fundamental of network setting and basic function of the camera. The other one is in the system log, it records all the operation and event history.

5.7.1. Device information

Device info display procedure:

To access device info, click “**Configuration**” from the menu then click the “**Device Info**” button.

The screenshot displays the Comtrend camera web interface. At the top, there is a navigation menu with the following items: Configuration (highlighted in red), System, Security, Network, and IP Filter. To the right of this menu is a secondary menu with Recording, SDHC, Log, Device info (highlighted in red), and Maintenance. Below the navigation menu is the 'Device info' section, which is divided into four main tabs: Basic, H.264, Audio, and Network. The 'Basic' tab is currently selected and displays the following information:

Basic	
Camera Name	GP1
Firmware version	1.03.20
MAC	d4:a4:25:00:48:4b
Camera Date and Time	10/23/2014 16:19:19

The 'H.264' tab displays the following information:

H.264	
Video Resolution	1920x1080 (1080P)
Video Quality	Normal
Frame Rate	30 fps

The 'Audio' tab displays the following information:

Audio	
Microphone In	Disable
Microphone Gain	0 dB
Speaker Out	Disable

The 'Mobile View' tab displays the following information:

Mobile View	
H.264 Enable	Disable

The 'Network' tab displays the following information:

Network	
IP MODE	DHCP IPv4/IPv6
IP Address(IPv4)	192.168.1.99
IP Address(IPv6)	
Subnet Mask	255.255.255.0
Gateway	192.168.1.1
Primary DNS	192.168.1.1
Secondary DNS	192.168.1.2

Chapter 5. Configuration

5.7.2. System Log

System log display procedure:

To access system log, click **“Configuration”** from the menu then click the **“Log”** button.

The screenshot shows the Comtrend web interface. At the top, there are two main menu sections. The left section has a 'Configuration' button with a red dot, and below it are links for 'System', 'Security', and 'Network'. The right section has an 'SDHC' button with a red dot, and below it are links for 'Log', 'Device info', and 'Maintenance'. The 'Log' button is highlighted with a red bar.

Below the menu, there is a 'Log' section with a red icon. Inside this section, there is a 'System Log' table. The table has three columns: 'Item', 'Date and Time', and 'Event'. It contains 20 rows of log entries. At the bottom of the table, there are four buttons: 'First page', 'Previous', 'Next', and 'Final page'. Below these buttons, there is a 'Remove' button.

Item	Date and Time	Event
1.	10/23/2014 16:16:57	admin login on 192.168.1.11
2.	10/23/2014 15:46:55	[EVENT MGR]:Reload Config File
3.	10/23/2014 15:26:57	admin login on 192.168.1.11
4.	10/23/2014 15:18:17	[EVENT MGR]: reload config file
5.	10/23/2014 15:02:41	[SDCard]: List Fail !!!
6.	10/23/2014 14:52:52	[Recording]:SDCard Space=31058128 KB is enough
7.	10/23/2014 14:52:52	[Recording]:Recording Start
8.	10/23/2014 14:52:45	admin login on 192.168.1.11
9.	08/09/2012 13:32:02	[Recording]:Recording Stop
10.	08/09/2012 13:29:18	[SDCard]: List Fail !!!
11.	08/09/2012 13:29:02	[Recording]:SDCard Space=31147552 KB is enough
12.	08/09/2012 13:29:00	[Recording]:Recording Start
13.	08/09/2012 13:12:25	[SDCard]: Format Success !!!
14.	08/09/2012 13:07:32	admin login on 192.168.1.11
15.	08/09/2012 13:03:57	[NET]:UPnP AV Disable
16.	08/09/2012 13:03:13	[RTSP SERVER]:Start one session<192.168.1.99>
17.	08/09/2012 13:03:07	[NET]:UPnP AV Disable
18.	08/06/2012 15:44:01	[NET]:UPnP AV Disable
19.	08/06/2012 15:43:18	[RTSP SERVER]:Start one session<192.168.1.99>
20.	08/06/2012 15:43:11	[NET]:UPnP AV Disable

[illegible]

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