FlexWATCH® Web Admin
User's Manual

Version 4.12

October 10, 2011

Seyeon Technology Co., Ltd
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Index

FlexWATCH® Admin User's Manual

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About This Document

This document is prepared for users of FlexWATCH products supplied by Seyeon Tech Co., Ltd. It is assumed that the users are familiar with network equipment such as LAN, Hub, router, and having basic knowledge of network terminologies. If you have any questions regarding network installations, please contact your network equipment vendor or network administrator or Internet service providers.

For updated contents, detailed features and other applications from Seyeon Tech, please refer to the user's manual in CD-ROM provided with the product you purchased, or visit Seyeon Tech's Internet homepage at http://www.flexwatch.com/.

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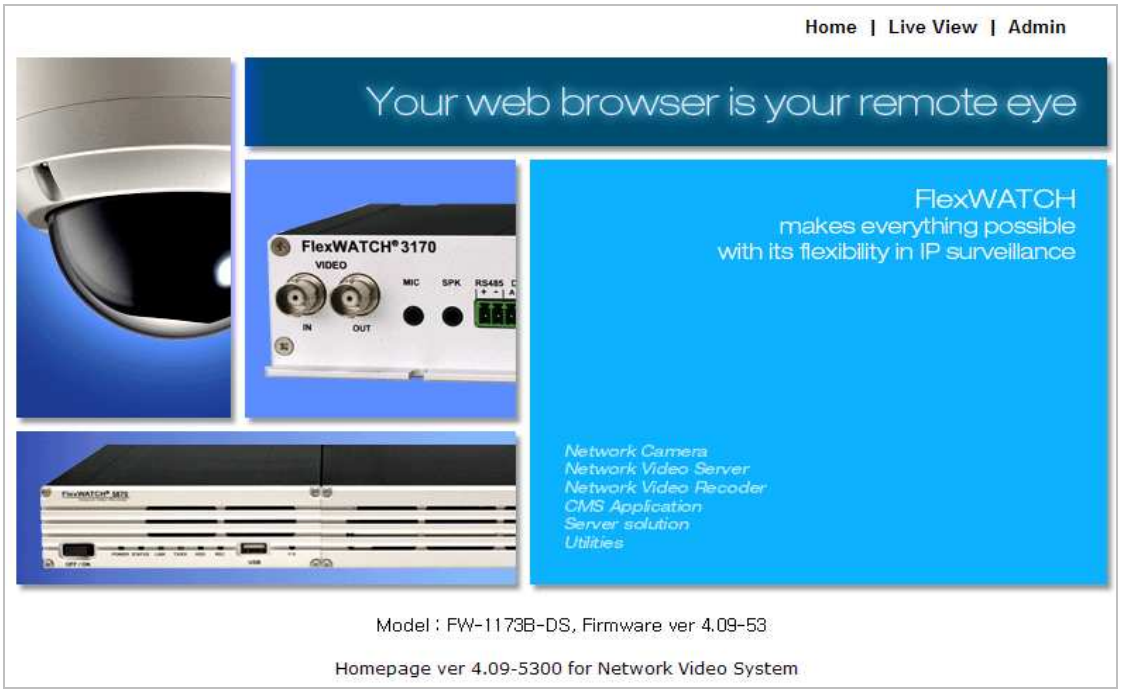
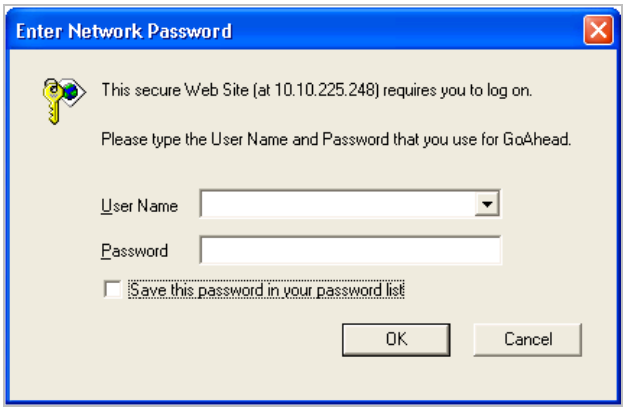
1. Admin Menu of FLEXWATCH Servers

After connecting to a FlexWATCH server on the web browser, you'll find the web page as shown below. The rightmost item of the menu is Admin, where you can set up the most of features in the FlexWATCH Server you're connecting to.

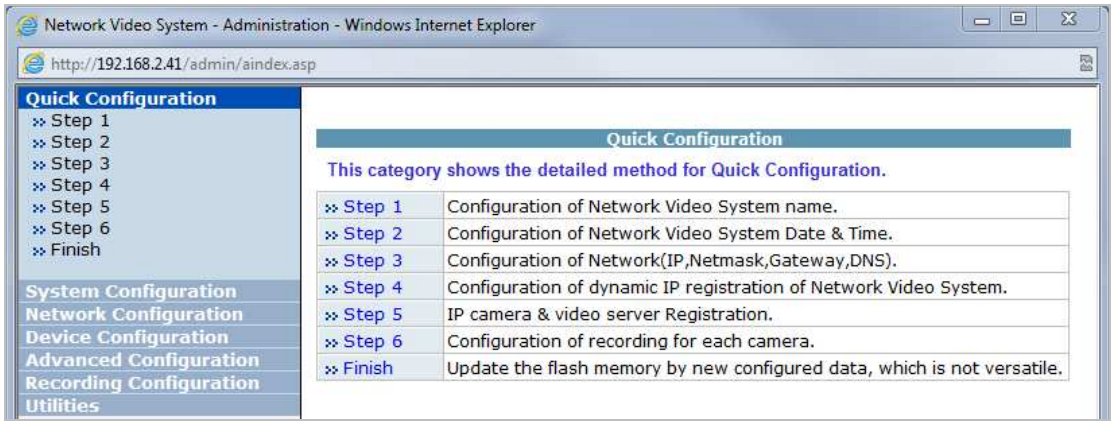


1.1. Entering Admin Menu

Click **Admin** item of the menu, then you'll see a login window. In the login window, enter **root** for both ID and password as they are the factory defaults. Press **Enter** key or click **OK** button. Once logged in, you can change the password to a new one.



Now the **Admin Menu** will be displayed as shown below. This will guide you to the top level menu items, which are Quick, System, Network, Device, Advanced, Recording, and Utilities. Clicking any of these top level menu items will display submenu items and brief descriptions.



1.2. Admin Menu Structure

The following table shows the hierarchy of the Admin menu structure that we're going to deal with in this manual.

Category	Main Menu	Level 1 Sub-Menu	Level 2 Sub-Menu
Quick configuration	Step 1	n/a	n/a
	Step 2		
	Step 3		
	Step 4		
	Step 5		
	Step 6		
	Finish		
System Configuration	Server Name Setup	n/a	n/a
	Date & Time		
	Admin. Password		
	Access Control		
	User Registration		
	IP Devices Registration	IP Device 0 ~ 15	
Network Configuration	Network Configuration	n/a	n/a
	Network Ports		
	Bandwidth Control		
	View Network Status		
	Network Status Notify		
	IP-CCTV DNS™		
	Port Forwarding & UPnP		
Device Configuration	Serial ports	Serial Input Mode Serial Output Mode Transparent Mode	n/a
		PTZ Mode	Built-in module 0 Built-in module 1

	Built-in module 0 (FW-3450/5470)	Camera & Motion	Camera 1 Camera 2 Camera 3 Camera 4
		DI/DO	n/a
		DI Status / DO Control	
	Built-in module 1 (FW-3850/5850/5870)	Camera & Motion	Camera 1 Camera 2 Camera 3 Camera 4
		DI/DO	n/a
		DI Status / DO Control	
Advanced Configuration	Advanced Services (Network cameras)	E-mail FTP(Buffered) FTP(Periodic) Sensor Notification Alarm Output	Camera 1 Camera 2
	Built-in module 0 (FW-3450/5470)	E-mail FTP(Buffered) FTP(Periodic) Sensor Notification Alarm Output	Camera 1 Camera 2 Camera 3 Camera 4
	Built-in module 1 (FW-3850/5850/5870)	E-mail FTP(Buffered) FTP(Periodic) Sensor Notification Alarm Output	Camera 1 Camera 2 Camera 3 Camera 4
Recording Configuration	HDD Configuration	HDD Status & Format HDD Information	n/a
	Recording Configuration	Built-in Module 0 Built-in Module 1 (registered cam)	Camera 1 Camera 2 Camera 3 Camera 4
	Recording Profile	Server Module 0 Recording configuration	Camera 1 Camera 2 Camera 3 Camera 4
	Recording Mode	n/a	n/a
	HDD Status Report		
	Clear Recording Config.		
	Delete Recorded Data		
Utilities	System Log	n/a	n/a
	Save Configuration		
	Reboot		
	Factory Default		
	System Update		

2. Quick Configuration

In Quick Configuration, you will be able to set up many of the essential parts of the configuration in a simple manner without going into details. Selecting Quick Configuration gives you the menu as below. You can perform each setup by clicking the one you would like to configure.

2.1. Step 1: Changing Server Name

Click Server Name on System Configuration menu, then Server Name Setup windows will be displayed. See the section **3.1 Server Name Setup** in page **10** to see how to change the server name.

2.2. Step 2: Time Setup

Click Date & Time on System Configuration menu, then Local Date & Time Configuration window will be displayed. See the section **3.2 Date & Time** in page **10** to see how to set up.

2.3. Step 3: Network Setup

To make a connection to the Internet, it is required to figure out the type of the Internet service you're using. See the section **4.1 Network Configuration** in page **17** to see how to set up.

2.4. Step 4: IP-CCTV DNS

When FlexWATCH Server is used in a Dynamic IP environment, it is required to utilize **IP-CCTV DNS** feature. See the section **4.7 IP-CCTV DNS Setup** in page **23** to see how to set up.

2.5. Step 5: IP Devices Registration for FW-NVR series

You can add any of NVS (Network Video Server) and NCS (Network Camera Server) to NVR (Network Video Recorder) devices as a remote server device. See the section **3.6 IP Devices Registration** in page **14** to see how to set up.

2.6. Step 6: Recording Configuration for FW-NVR series

Each camera can be configured for recording option in this section.

See the section **7.3 Recording Configuration for FW-5050/5071/5450**/5850**/5870 NVR series** in page **78** for detail.

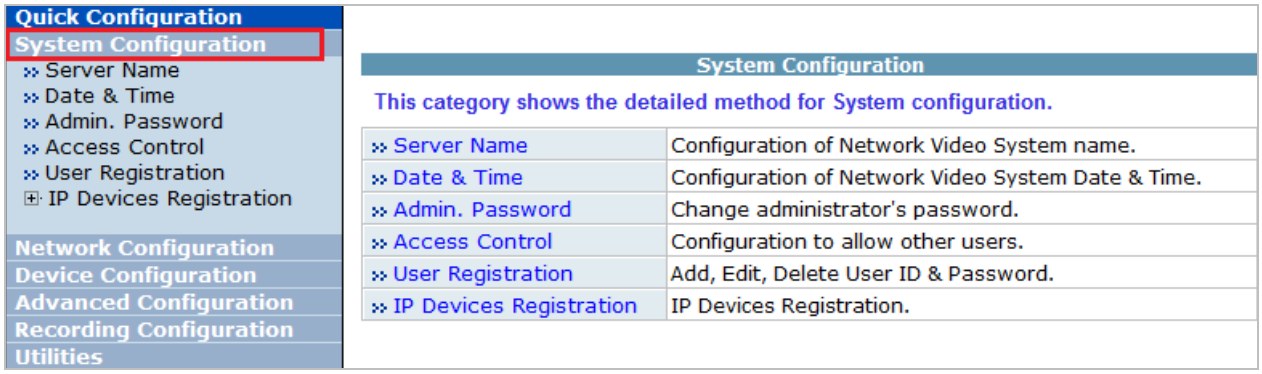
2.7. Finish

You need to save all the changes to the Flash Memory after finishing the configuration. The changes made to FlexWATCH Server will be permanent by this step. Click **Finish** on **Quick Configuration** menu.

Click **Save Configuration** button. This will write the new settings to the system's flash memory. If you don't want to save them, click **Back** button.

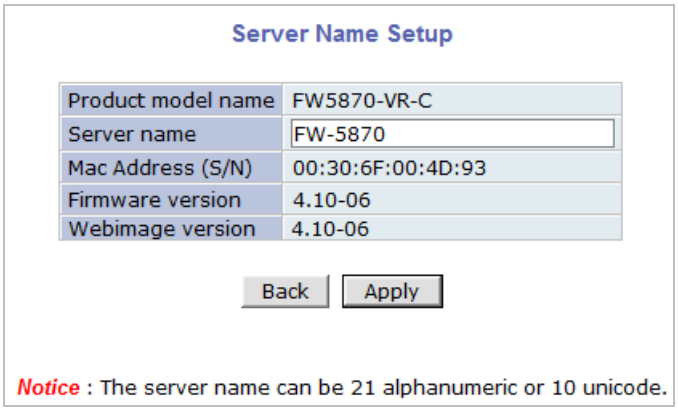
3. System Configuration Menu

When you click on **System Configuration** item on Admin Menu, the following sub menu will be displayed.



3.1. Server Name Setup

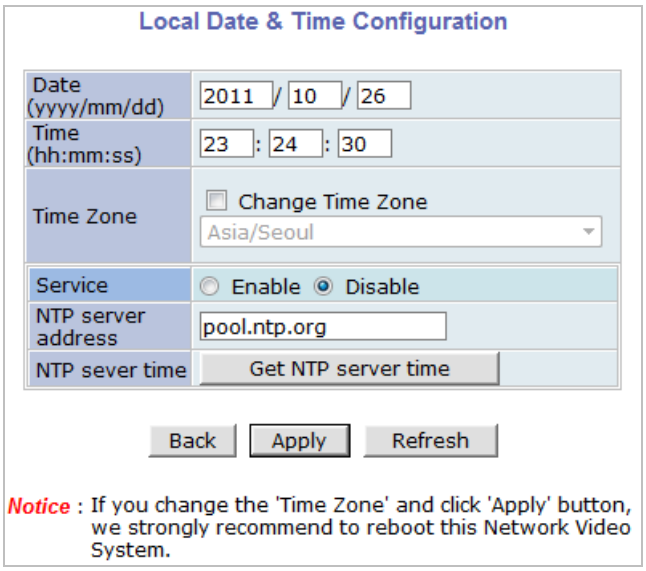
Click **Step 1** on **Quick Configuration**, then the following will be displayed and you will find out the system information such as model number of the FlexWATCH Server, server name, MAC address (serial number), firmware version, and Webimage version.



As an administrator, you can change the name of the server name, but other values are not allowed to change. To change the server name, enter a new server name in the **Server Name** filed. You may use up to 21 alphanumeric or up to 10 Unicode characters. Tab or any other special characters are not allowed. Click **Apply** button to save the setting and it will take effect immediately.

3.2. Date & Time

Click **Step 2** on **Quick Configuration**. Fill the **Date** and **Time** fields with your local time and date information. If you're in a different time zone, put a checkmark on **Change Time Zone**, then select the correct region from the list box. To take the time zone change in effect, you need to click **Apply** button and reboot the system.



If you only changed **Date** and **Time** setting, simply click **Apply** button to take it into effect immediately. If you want to retrieve the exact current time from NTP server on the network, click **Get NTP Server Time** button. Clicking **Refresh** button will display the date and time retrieved from FlexWATCH® Server. Then click **Apply** button to save it.

Note: In order to retrieve Time and Date information from a NTP server, you need to put NTP server address in advance of setting up, such as pool.ntp.org.

3.3. Admin Password

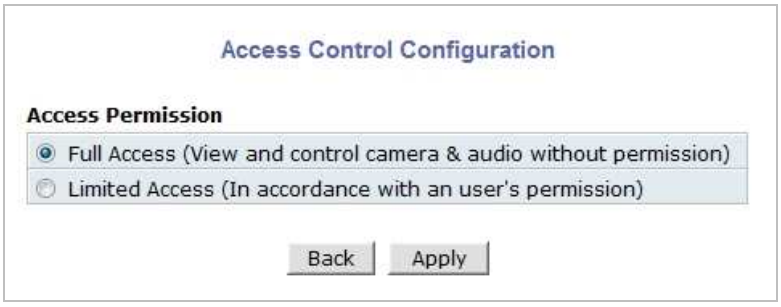
To change the password for the administrator, click **Admin Password** on System Configuration menu.

Default ID for admin account is fixed as "**root**" and not allowed to change. In **Old Password** field, enter the current password. In both **New Password** and **Confirm Password** fields, enter the same new password. The password must be between 4 and 23 alphanumeric letters. Click **Apply** button to put it into effect.

Because you have replaced the password with a new one, the existing network connection made with old password to FlexWATCH Server is lost now. You will have to reconnect to the FlexWATCH server using new password.

3.4. Access Control

Click **Access Control** on System Configuration menu. The following windows will be displayed.



From the **Access Permission** window, select either one you would like to use. Click **Apply** button to save the change.

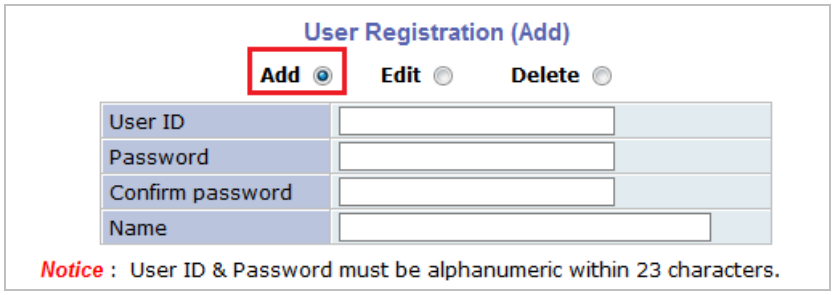
- **Full Access**: Any user can access the server and use all the features without limit.
- **Limited Access**: Only registered users can access the server and have limited privileges.

3.5. User Registration

You can add, modify, or delete users for your FlexWATCH Server here. Once registered as **Limited Access** setting, the user can access the FlexWATCH Server with some limited privileges.

3.5.1. Add

When **Add** is selected, you can add users and define their passwords, names, and access permission levels respectively. To add a user, click **User Registration** on **System Configuration** menu. Next, select **Add**, then the **User Registration (Add)** selection screen will be displayed.



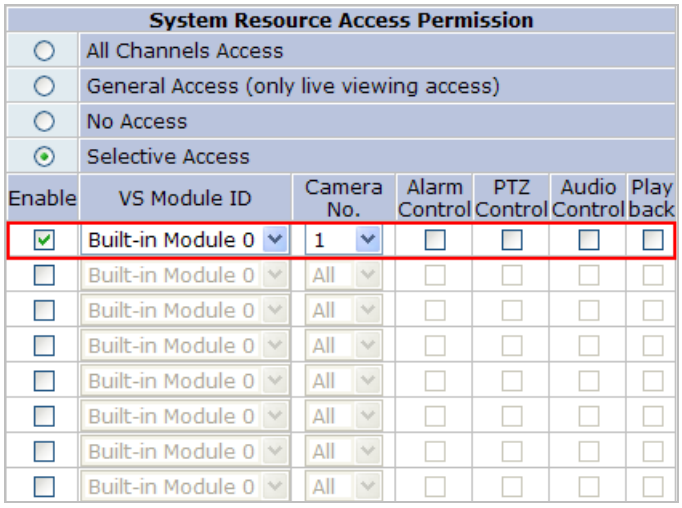
Enter a user ID, which must consist of up to 23 alphanumeric characters. In both **Password** and **Confirm Password** fields, enter the identical password respectively. The password must be between 4 and 23 alphanumeric characters. In **Name** filed, enter the user's name that must be up to 31 alphanumeric or 15 Unicode characters.

Now select one of the four items from **System Resource Access Permission**, which defines the permission level for registered users to the FlexWATCH server.

- **All Channels Access**: User can use all the features except for Configuration in Admin Page.
- **General Access (only live viewing access)**: User can use only use Live View feature.
- **No Access**: User is not permitted of any of the features.

- **Selective Access**: User is allowed to use only the selected features. With this item selected, user can now configure the details under the menu.

FlexWATCH Server can have multiple VS modules registered in it. When user ticks on any of **Enable** checkboxes, other fields in that row are enabled to select.

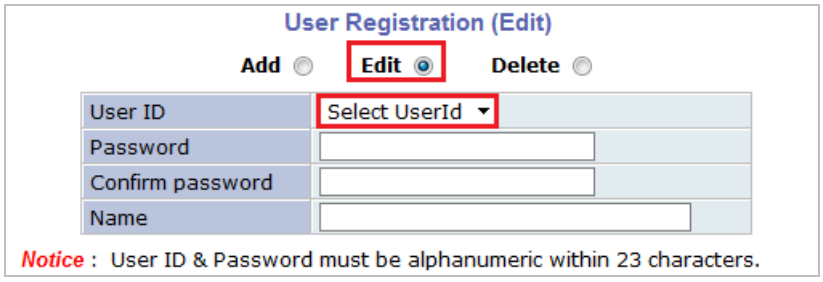


- **VS Module ID**: The registered user can select VS Modules that are available. (VS Module is a network device that has been registered in FlexWATCH® Server)
- **Camera No.**: Among the cameras of VS Module, select one to set up. (between 1 and 4)
- **Alarm Control**: Determine if Alarm control is to be allowed.
- **PTZ Control**: Determine if PTZ Control is to be allowed.
- **Audio Control**: Determine if Audio Control is to be allowed.
- **Playback**: Determine if searching can be done by recording conditions.

After finishing the registration process, click **Apply** button to add the user.

3.5.2. Edit

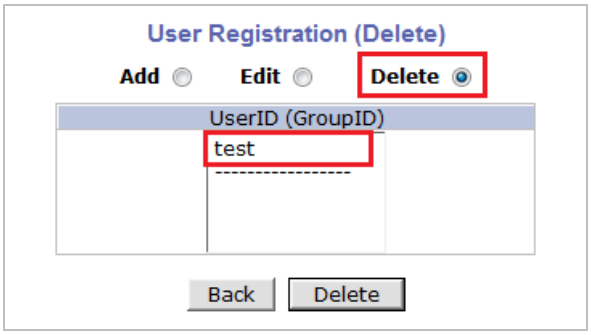
To edit a user account, select **Edit**. In this part, you can modify the existing user's name, password, and access permission. User ID is not allowed to change. Once selecting a user ID for edit, the usage is the same as in **Add** section.



To see existing users, click **Select UserId**, and select a user to be edited. Then change the password, name, or access permission, and click **Apply** button to save the setting. Setup of Access Permission can be done the same way as in **Add** section.

3.5.3. Delete

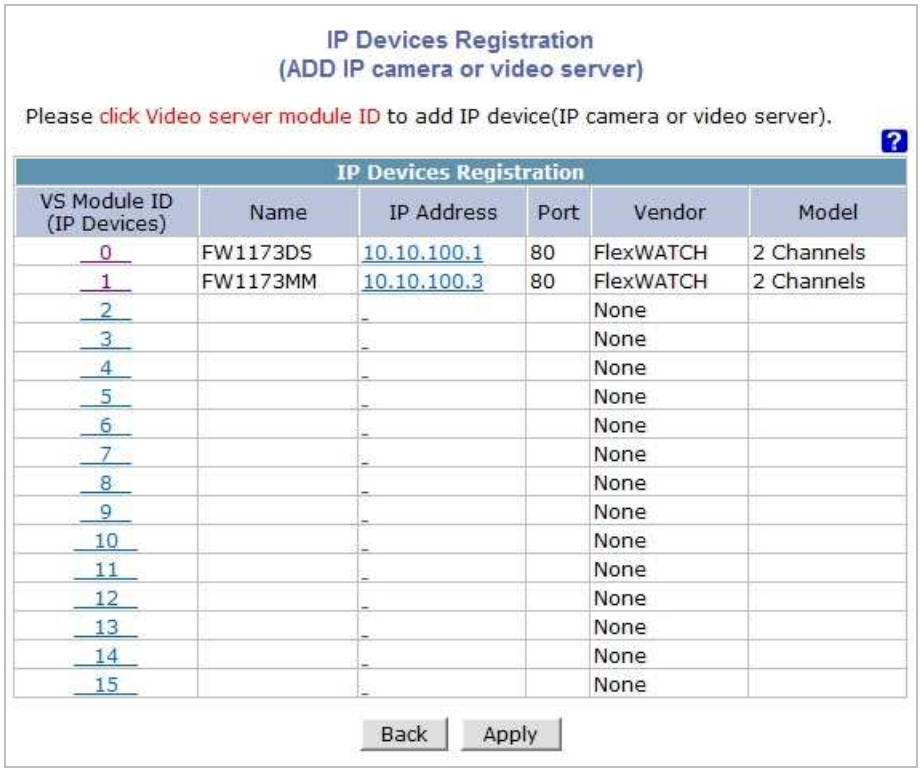
To delete an existing user, select **Delete**.



From the list of the users, select a user to delete. Click **Delete** button to confirm the deletion.

3.6. IP Devices Registration

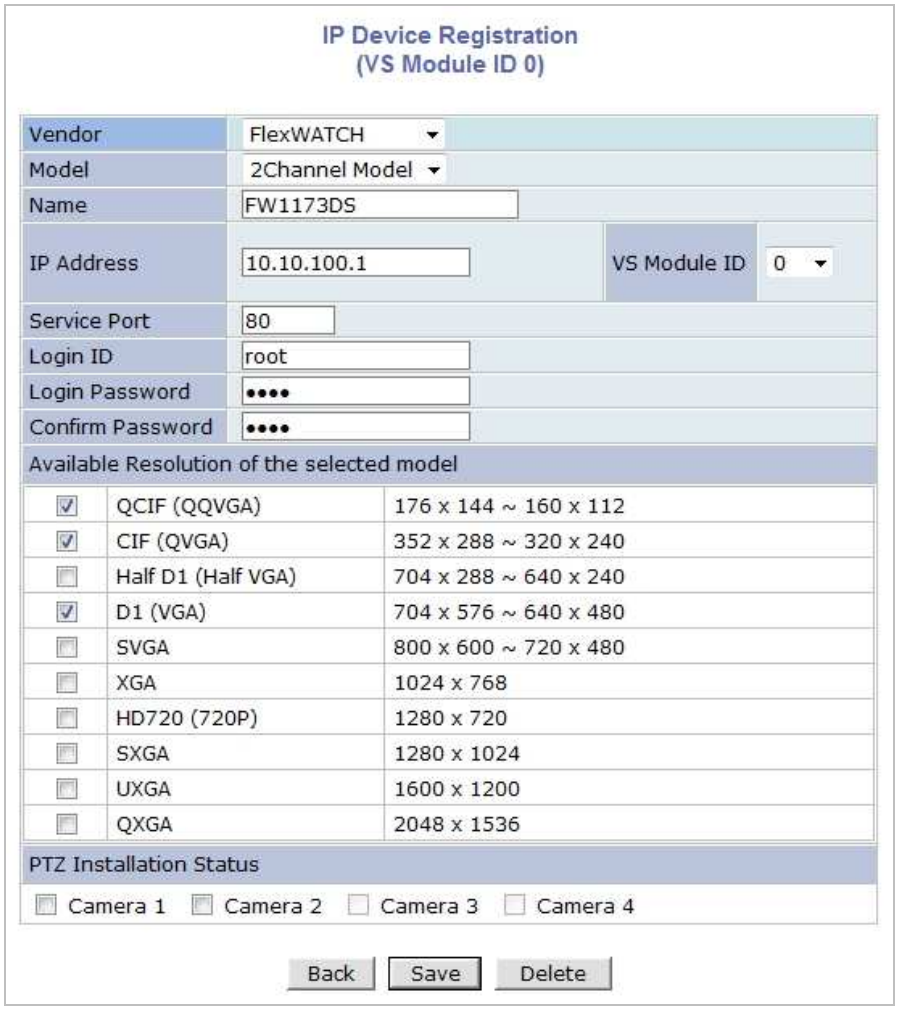
In this section, you can add NVS (Network Video Server) and NCS (Network Camera Server) to the NVR (Network Video Recorder) as remote server devices. You can delete them from the server as well.



After each addition of VS Module ID (IP Devices), make sure to click **Apply** button to save settings.

3.6.1. Adding VS Module ID (IP Devices)

Select an item from **VS Module ID (ID Devices)**, then the device configuration screen will be displayed. Fill in each field as described in the following table.



Item	Description
Vendor	Vendor's name of the server
Model	Number of the channels to be added
Name	Name of the server
IP Address	IP Address of the server
VS Module ID	Applicable to FlexWATCH only. Enter 0 for other vendor's models. For FW-3850, FW-5071, FW-5450, FW-5470,FW-5850, or FW-5870, you can enter the value from 0 to 16.
Service Port	Web port number of the server
Login ID	User's ID
Password / Confirm Password	User ID and Password of the server

Now select the video resolution of the server to add. Put check marks on the resolutions supported by the server you're adding here. If PTZ functionality is provided by the server, put check marks on Camera 1 to 4 on **PTZ Installation Status**. Then you will be able to control each camera's PTZ in Live Viewer.

After setup is finished, click **Save** button to add the server. If **Delete** button is pressed, the added server is removed from the setup and Live Viewer doesn't provide you the video.

> *Note: After you're back to the **IP Device Registration** menu by clicking **Save** button, make sure to click **Apply** button to take the changes into effect.*

FlexWATCH Server supports vendors such as Axis, Panasonic, Vivotek and more than 10 others as well as FlexWATCH products. When multiple servers are added, the maximum number of total channels from the servers can't exceed 16. Each FlexWATCH NVR model has different number of supported channels which can be added.

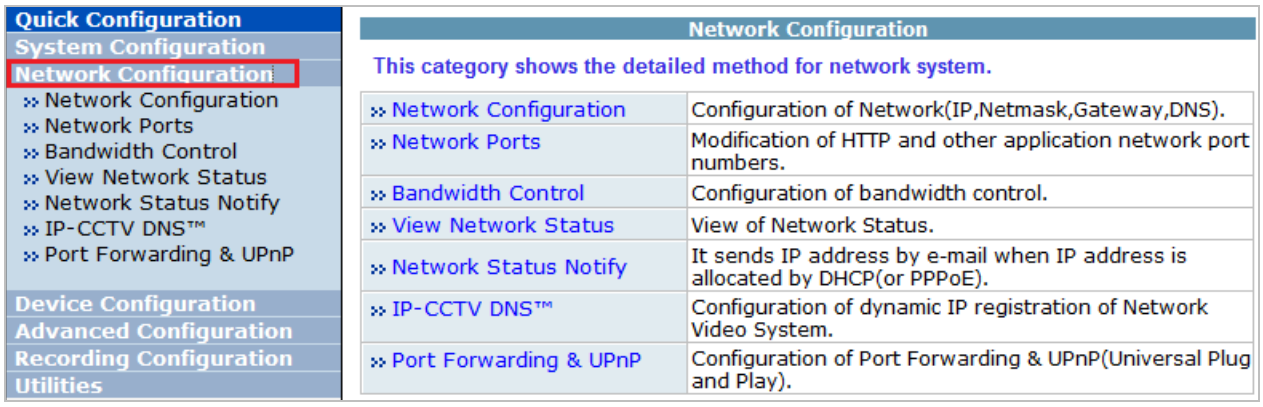
- **FW-5071**: Up to 16 channels including other vendor's model (3M pixel supported)
- **FW-5450**: Up to 16 channels including other vendor's model and analog (D1 supported)
- **FW-5470**: Up to 16 channels including other vendor's model and analog (D1 supported)
- **FW-5850**: Up to 16 channels including other vendor's model and analog (D1 supported)
- **FW-5870**: Up to 16 channels including other vendor's model and analog (D1 supported)

> *Note: Please refer to the User's Manual of each product to find out the supported resolutions.*

4. Network Configuration

Configuration the network is dependent on how an IP address is assigned in Ethernet-based environment, which is static IP, dynamic IP (DHCP), or PPPoE. For wireless LAN, additional configuration is necessary to have a connection with wireless AP.

In the case of wireless models, users have to choose between wired or wireless connection. In other words, both connections can't be used at the same time. The way how to choose one of them is whether wired LAN cable is plugged into the product. When LAN cable is plugged in for longer than 5 seconds, the wired LAN is activated for data transmission. If LAN cable is unplugged more than 5secconds, wireless LAN is activated instead. If PPPoE is selected by user, wired LAN will be activated regardless of condition of LAN cable. For network configuration, select **Network configuration** from Admin page.

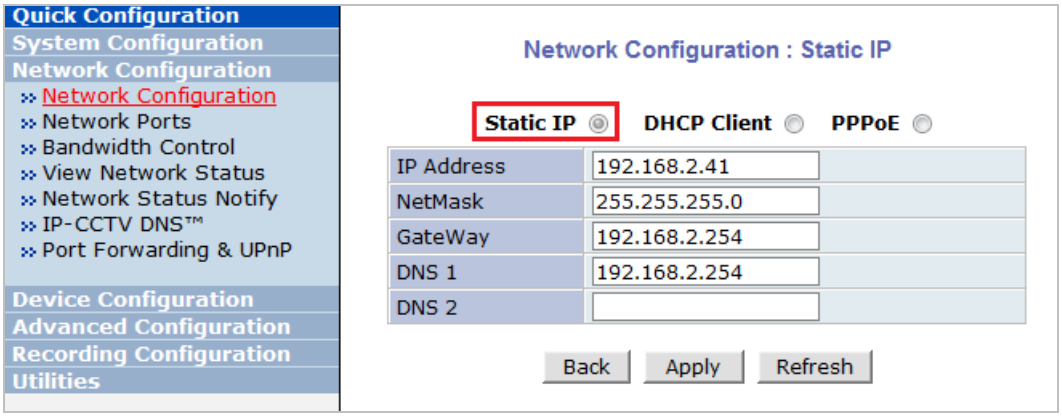


To make a connection to the Internet, it is required to figure out the type of the Internet service you're using. Depending on the service type, the network configuration can be in any of **Static IP**, **DHCP Client**, or **PPPoE**. You need to set up the FlexWATCH Server according to your network type.

4.1. Network Configuration

4.1.1. Static IP Configuration

Selecting Network Configuration under Network configuration will show variables. Below picture is for products without wireless LAN.

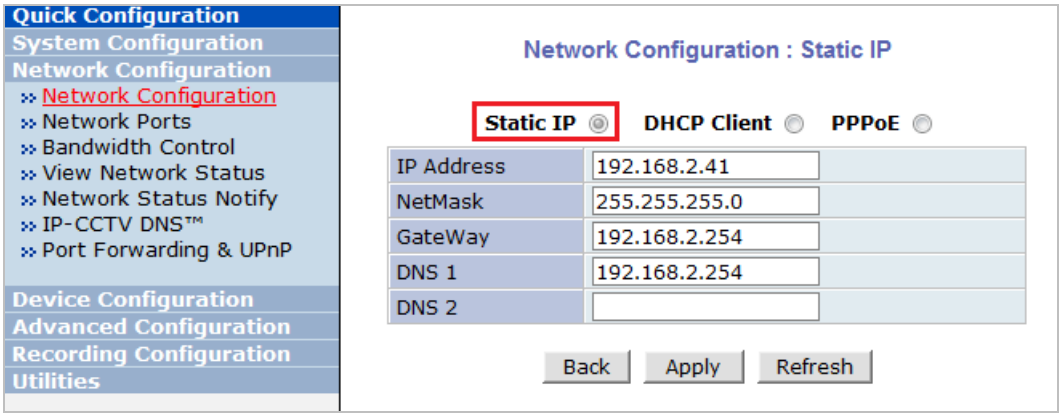


Note: For wireless models, additional options will be shown. Please refer to 오류! 참조 원본을 찾을 수 없습니다.오류! 참조 원본을 찾을 수 없습니다..

For static IP, select static IP and input values for IP address, NetMask, Gateway, DNS1, DNS2 and click apply for saving settings. After **apply**, program will ask closing web brower for updates, which will take 20~30 seconds. If **Back** button is pushed while configuration, all values will be discarded. If **Refresh** button is pushed, the program will load previous values.

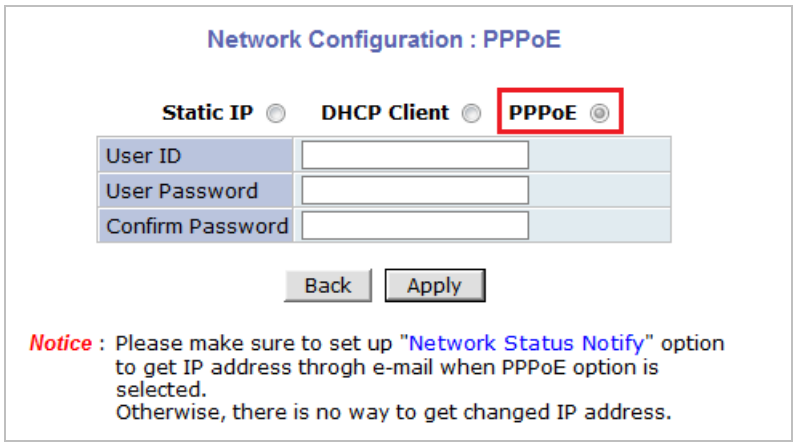
4.1.2. DHCP Client Configuration

For DHCP, DHCP server must exist in the network environment. Select **DHCP Client** from Network Configuration, click **Apply**.



4.1.3. PPPoE Configuration

PPPoE is used to connect FlexWATCH products to PPPoE modem provided by ISP. Since PPPoE needs verification, ID and password are necessary to access network. Type ID and PW.

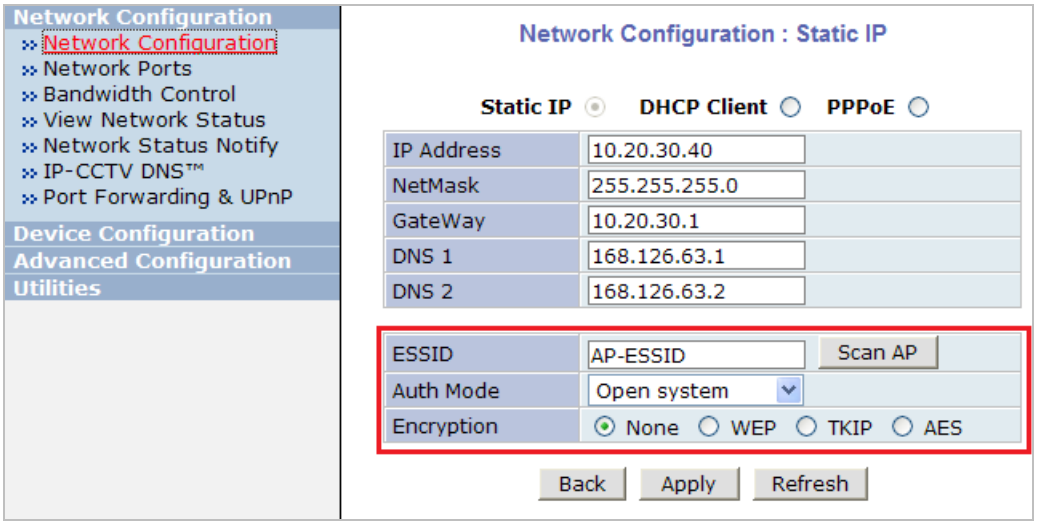


4.2. Wireless LAN Configuration

To use wireless LAN function, detailed information of AP (Access Point) such as ESSID, Auth Mode, Encryption, etc should be exactly provided. Please make sure that wired LAN and wireless LAN will work exclusively.

Static IP and DHCP client will be available for wireless LAN. When PPPoE is selected, wireless LAN is disabled. Even though LAN cable is unplugged, wireless LAN won't be enabled.

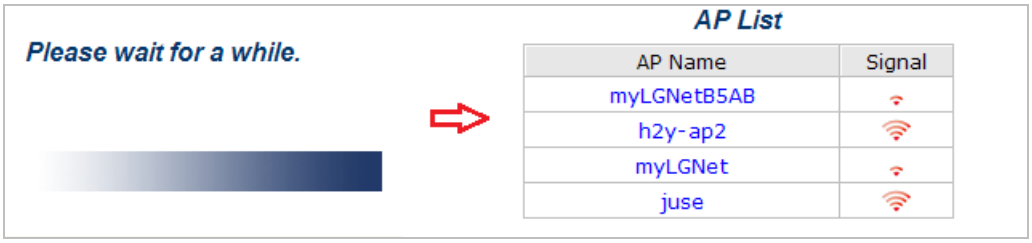
Wireless LAN models will show additional options under Network Configuration menu.



4.2.1. ESSID

ESSID(or SSID) stands for an dedicated name of AP(Access Point). Whether typing name of AP manually or select from results after scanning nearby AP.

To scan nearby AP, click **Scan IP**, which will pop up a new window. After a few seconds, results will be shown. Click desired AP from list.



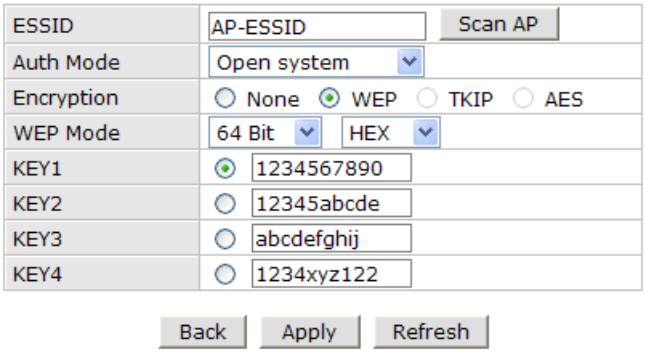
Note: Access points that are set to hide ESSID information for security won't be scanned by this method.

4.2.2. Authentication Mode & Encryption

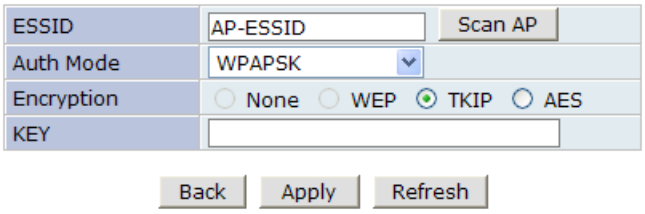
Every AP has authentication process for security reasons. FW products support "Open, Shared, WPAPSK, WPA2PSK" authentication modes. Per each modes, encryptions such as WEP, TKIP, AES can be set. Relationships between authentication and encryption are listed below.

Authentication Mode	Supported encryption
Open, Shared	N.A or WEP
WPAPSK, WPA2PSK	TKIP, AES

For WEP, 64bit or 128bit mode can be selected and length of encryption key will be different. For WEP 64bit, 5 digits of ASCII or 10 digits of hex characters will be required. For WEP 128bit, 13 digits of ASCII or 26 digits of hex characters. Among 4 keys, appropriate key should be chosen according to key of AP.



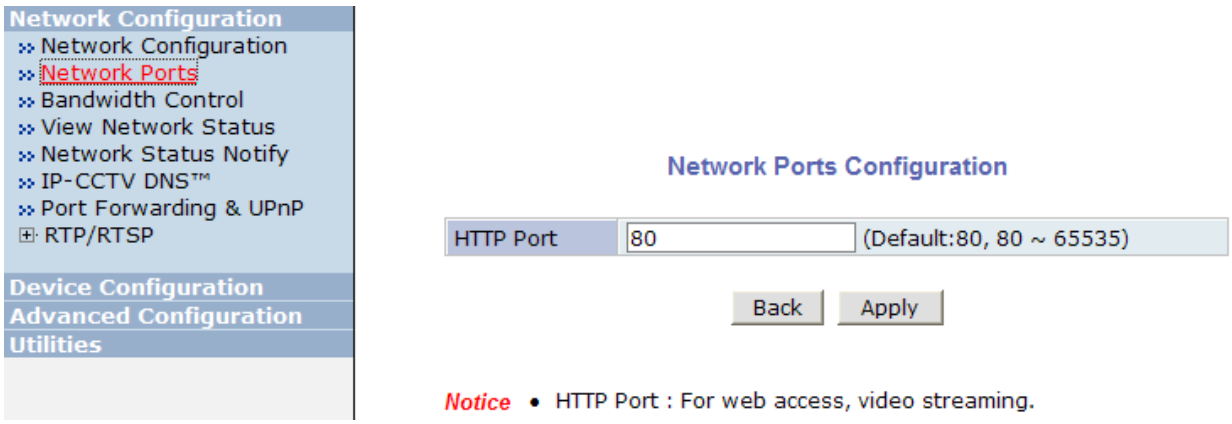
For WPASK or WPA2PSK, TKIP and AES can be available and the max length of encryption key is 63 digits of ASCII.



4.3. Network Ports

In this configuration, you set up the HTTP port for FlexWATCH Server to communicate with the Client PC. HTTP Port is the network port that is used when a Client PC connects to the FlexWATCH Server's Web page. It can be assigned between 80 and 65535 and the default value is 80.

> *Note: If the HTTP port number is changed to other value than default (80), make sure the new HTTP port number goes together with the FlexWATCH Server's Internet address. For example, when FlexWATCH's IP address is 192.168.1.00 and set the HTTP port to 8080, you will have to enter http://192.168.1.100:8080 to connect to the server.*

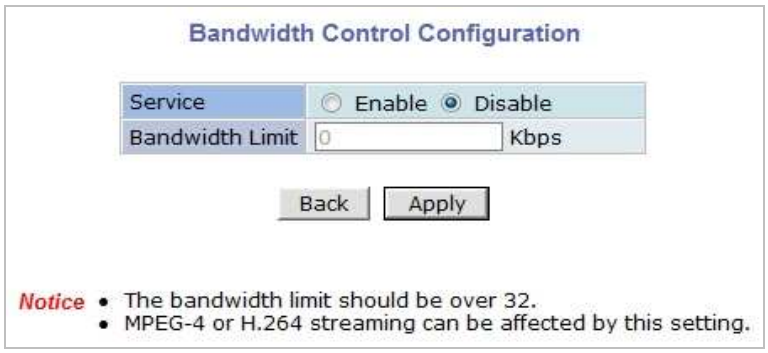


4.4. Bandwidth Control Configuration

Bandwidth control is for limiting maximum network traffic. If it is enabled with certain limit, maximum

data size transferred from FlexWATCH products won't exceed bandwidth limit set by users. If transferred data is exceeded, part of data will be randomly lost

If multiple users try to access a FW product which bandwidth control is enabled, users connected to the FW product will share network bandwidth limit.

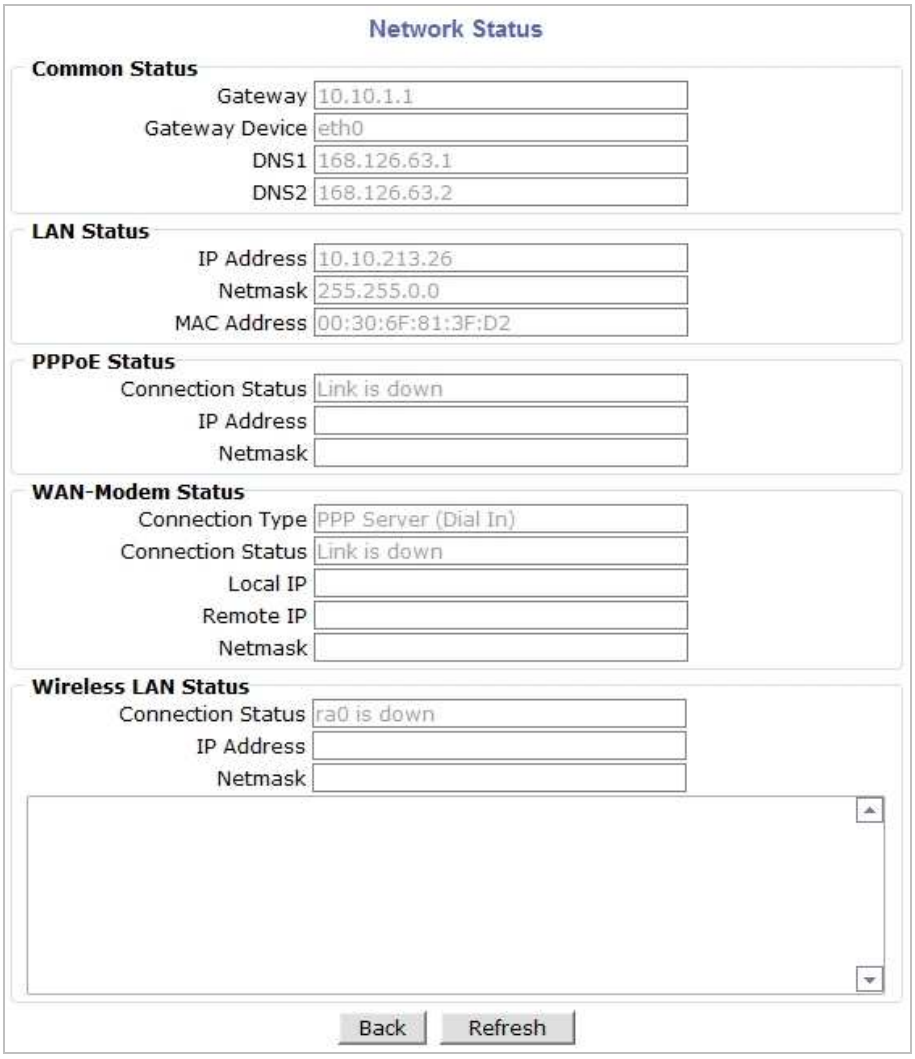


Note: This bandwidth control feature works fairly well in M-JPEG video transmission. But, for MPEG-4 and H.264, dropping data packets may cause low quality of video, so it is recommended to utilize CBR and frame rate control instead of bandwidth control for MPEG-4 and H.264 video.

Note: Network Bandwidth control is managed by FlexWATCH Server and it drops any data packets if required, thus you may experience slow connection to the server when the feature is enabled.

4.5. View Network Status

This menu shows network status of FW products. Wireless LAN status will be added for wireless models.



4.6. Network Status Notify

This feature helps to send updated network status information to registered email address if any changes happen. This function will work under DHCP or PPPoE.

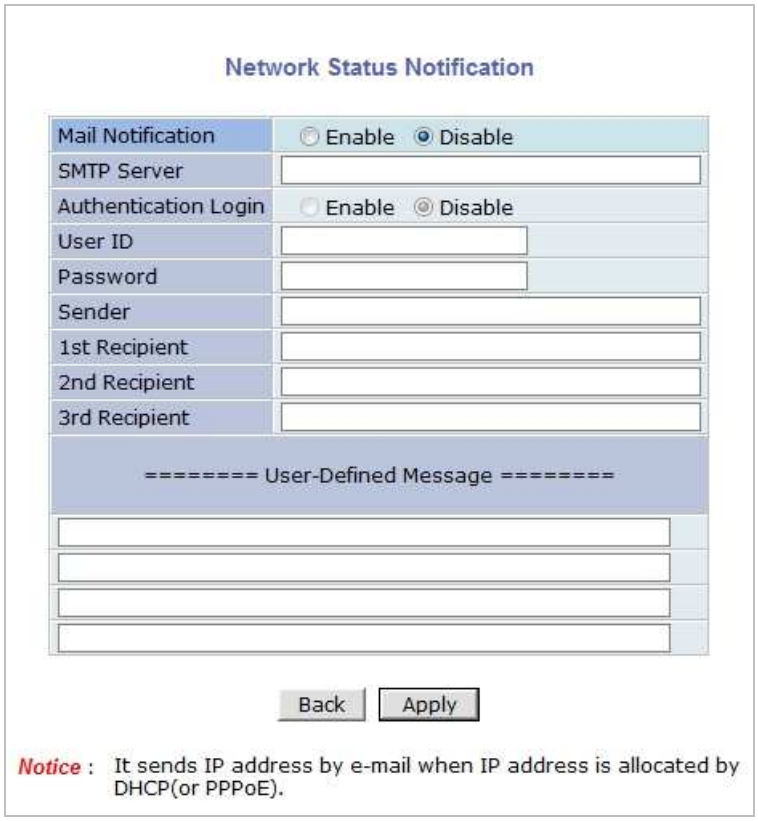
If **Network Status Notify** is set to **Enable**, FlexWATCH Server's network status will be emailed to a specific person in case of the following events:

- When it is set to Dynamic IP on Network Configuration menu, and the FlexWATCH server has been given a new dynamic IP address and connected to the network.

Or,

- When it is set to PPP Client on WAN-Modem menu, and the FlexWATCH server has been connected to the network with ISP or PPP server.

To configure, click **Network Status Notify** on Network Configuration menu. The following window will be shown.



First, select **Enable** to use the feature. Then enter the address of the SMTP server which is needed for email service. If your SMTP server requires a user ID and a password for authentication, you will have to get them from ISP or network admin. Enter the ID and password.

In **Sender** field, enter your email address or other meaningful words that will show the message was sent from the FlexWATCH server as a notification. Now enter the email addresses of the recipients in the **Recipient** fields, up to 3 persons. In the **User-Defined Message** box, you may put a message to explain why the message was sent. After finishing the setup, click **Apply** to save settings.

Mail Notification	**Enable**: Send email **Disable**: Do not send email
SMTP Server	SMTP Server address for email service
Authentication Login	**Enable**: user ID and password are required for SMTP server **Disable**: user ID and password are not required
User ID	User ID for SMTP server
Password	Password for SMTP server
Sender	Email address of Sender
1st / 2nd / 3rd Recipient	Email Addresses of the Recipients (up to 3 persons)
User Defined Message	Message to be included in the Notification email

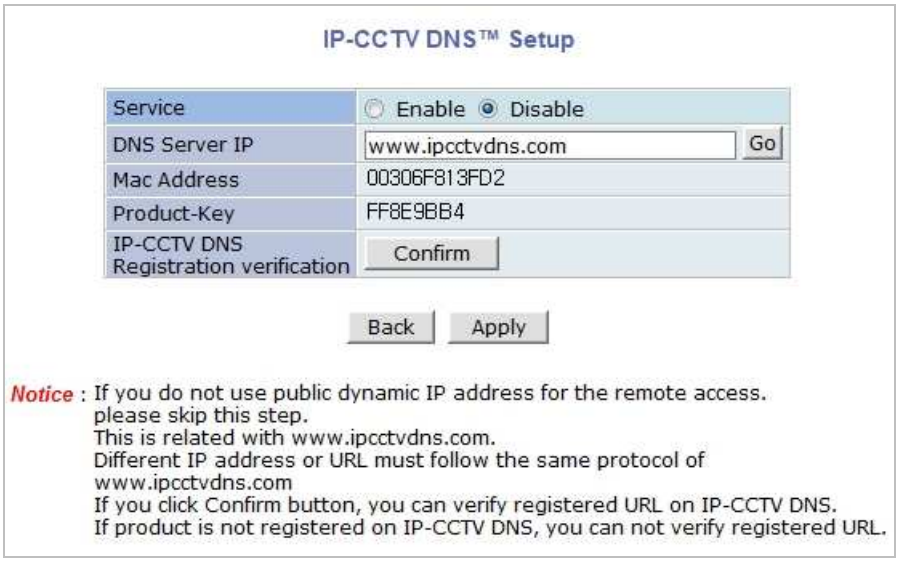
4.7. IP-CCTV DNS Setup

IP- CCTV DNS service provides a static & public domain name to help users access FlexWATCH products even though their IP address is changed or they are used in local network. For proper function of IP-CCTV DNS service, products should be accessible through internet.

To use IP-CCTV DNS, users have to create ID from IP-CCTV DNS server(http://www.ipcctvdns.com) and register FlexWATCH products with MAC address and Product Key. Those information can be

found from IP-CCTV DNS Setup menu. **Enable** service and click **Apply**. If it is configured properly, you can check the result by clicking **Confirm** button.

.



Note: Refer to IP-CCTV DNS™ User's Manual for further details of the configuration.

4.8. Port Forwarding & UPnP

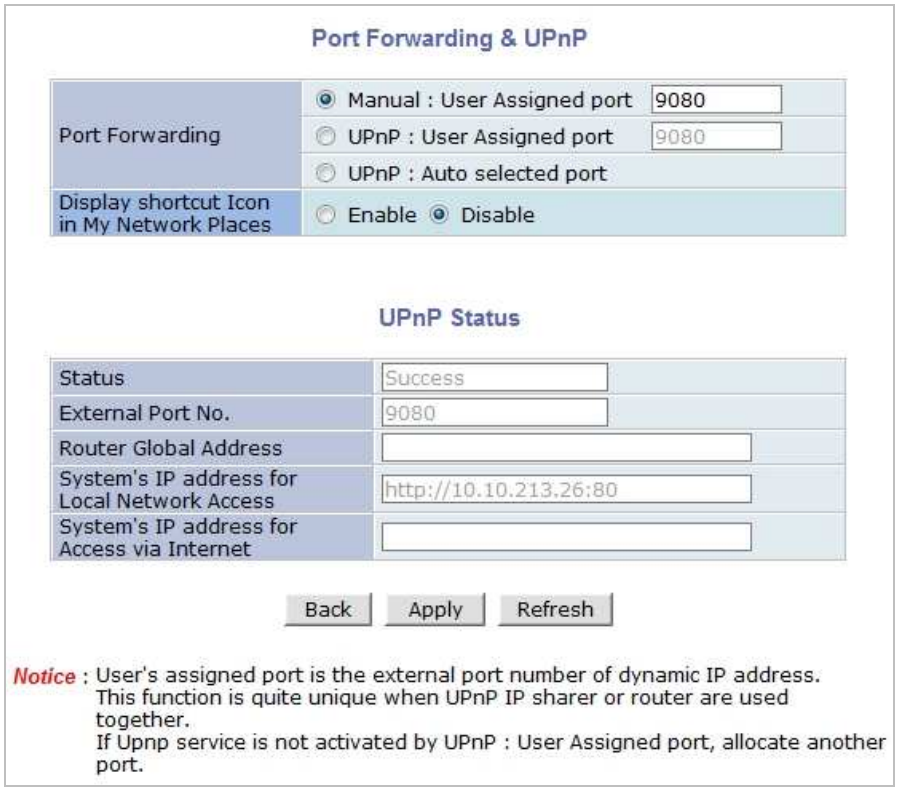
UPnP(Universal Plug and Play) is a kind of network protocol to help users to find and configure network products in same local network area. Port forwarding is to assign a certain network port to a network product Proper so as users can access it from outside of Local Area Network. Generally, port forwarding can be configured from network router.

UPnP port forwarding is made up with finding available network port, assigning it to a FlexWATCH product and reporting overall network configuration of a FlexWATCH product to IP-CCTV DNS server. Users have to register products to IPCCTVDNS server and IP-CCTV DNS service should be enabled.

There are 3 options in UPNP Port Forwarding.

- **Manual: User Assigned Port** is used when users can access network router(hub) and manually assign available network port to FlexWATCH products. In this case, users have to type already-assigned network port under **User Assigned port**
- **UPnP: User Assigned Port** is used when users want FlexWATCH products to configure port forwarding menu of network hub with user-assigned network port. If it fails, try to change user-assigned port
- **UPnP: Auto Selected Port** is used to let FlexWATCH products deal with all network configuration automatically..

Please notice that network router should support UPnP Port Forwarding and there is a limit for maximum UPnP devices. If it is properly configured, results will be appeared under **UPnP status**.



4.9. RTP/RTSP Setup

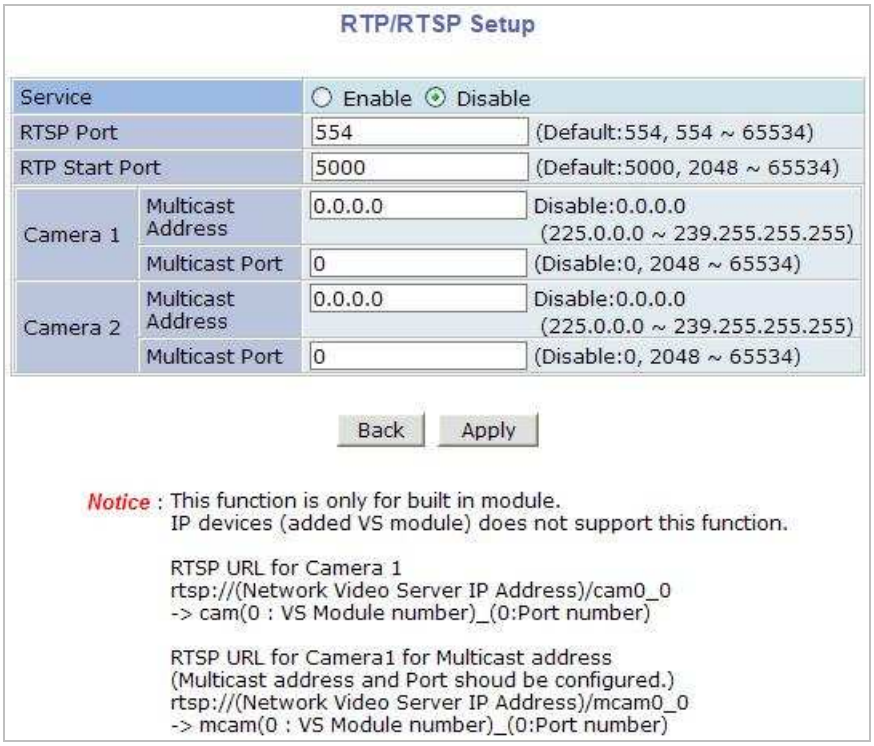
RTSP (Real-Time Streaming Protocol) is a protocol to transfer video and audio stream over the network. Any application supporting Standard RTSP can be used for FlexWATCH server. Quick Time Player or VLC program can be used for this, but it may not be supported in the environment within firewall. There are two types of usages, one for Unicast address condition and the other for Multicast address condition.

For Unicast Address:

Use "**rtsp://network video server ip address/cam0_0**". If there are multiple channels, use cam0_x, x (0~3) with each number applied. If there are multiple modules, use camx_0 x (0 ~ 3) with each module number applied.

For Multicast Address:

Use "**rtsp://network video server ip address/mcam0_0**". If there are multiple channels, use mcam0_x, x (0~3) with each channel number applied. If there are multiple modules, use mcamx_0 x (0 ~ 3) with each module number applied.



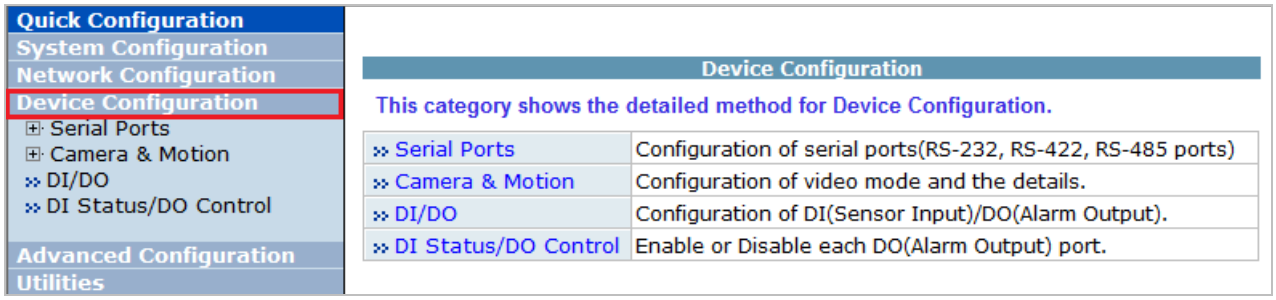
Service	**Enable**: Start RTSP service **Disable**: Stop RTSP service
RTSP Port	In normal case, use default port number 554 to connect to RTSP service. If not using port 554, enter the port number you want to use. e.g.) port number 445==> rtsp:// network video server ip address:445/cam0_0
RTP Start Port	The starting number of the port for video transfer. Each time video transfer connection is made, the port number also increases.
Multicast Address	Address for multicast video transfer. The multicast address 0.0.0.0 is for stopping multicast.
Multicast Port	Port number for viewing the video with a multicast address

5. Device Configuration

You set up the connection between FlexWATCH Server and the camera in this part of configuration. That includes Video data, external devices, Input / Output, Alarm control, and etc.

5.1. Serial Ports

There are two serial ports configurable in the system, COM and AUX. COM port is primarily used for console, and AUX is for PTZ control, but they both can be used for other purposes when necessary.

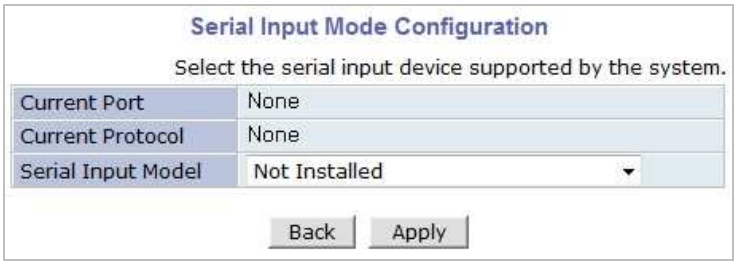


5.1.1. Serial Input Mode

When serial ports are in **Serial Input Mode**, FlexWATCH Server can be triggered by the external sensors to send images from the camera by email, or FTP. It can also activate **Alarm Output** by input from sensors inputs. For example in a real life, if a dam's water level comes to a pre-defined value, the server can send the images of the dam's water level meter from cameras. Another example is, when a car running on highway exceed the speed limit, it can send the picture of the car.

To configure, click **Serial Ports** on Device Configuration. In **COM Port** or **AUX Port**, select **Serial Input** and click **Apply** button to apply the change. The system will reboot then.

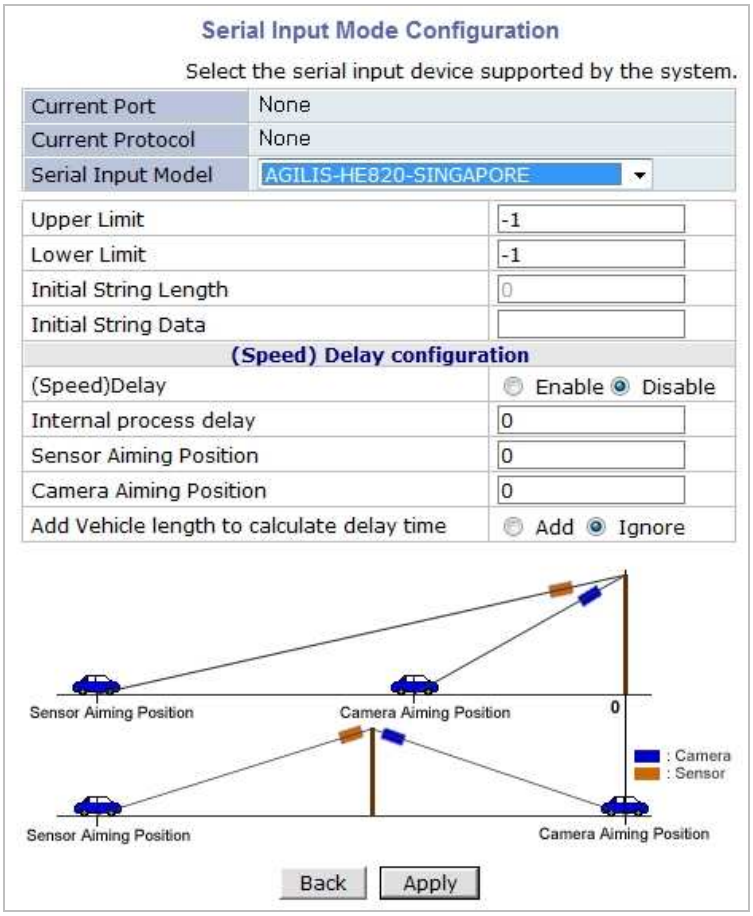
After rebooting, open the **Serial Ports** window in **Device Configuration** menu again. Select the **Serial Input Mode**, then the **Serial Input Mode Configuration** windows will be displayed as shown below.



- **Current Port**: This shows the name of the port currently configured.
- **Current Protocol**: This shows the protocol being used. (only RS-232 can be displayed)
- **Serial Input Model**: You can select the sensor's model number to use for Serial Input.

> *Note: If additional sensors need to be added, it will require installation of the device drivers.*

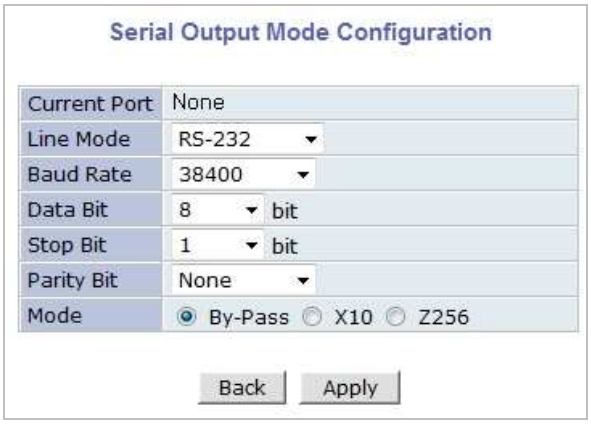
The following example is when a speed sensor, AGILIS-HE820-SINGAPORE, is selected.



- **Upper Limit**: The highest value in the range to assign
- **Lower Limit**: The lowest value in the range to assign
- **Initial String Length**: The length of initial string from sensor
- **Initial String Data**: The initial string from sensor
- **(Speed) Delay**: select **Enable** if sensor input needs delay
- **Internal process delay**: The amount of delay for sensor input
- **Sensor Aiming Position**: The position for sensor to aim
- **Camera Aiming Position**: The position for camera to aim
- **Add Vehicle length to calculate delay time**: The length of vehicle for applying delay time

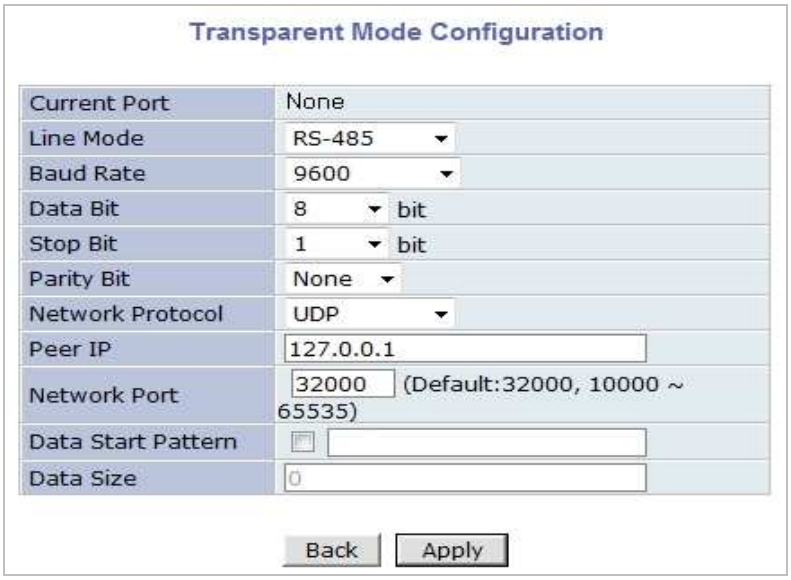
5.1.2. Serial Output Mode

Using Serial Output Mode, you can send UART device commands to FlexWATCH® Server in order to control PTZ devices, Multiplexer, Access control box, X10 Protocol, z256 protocol by RS-232 or RS-485/422 communication. In the picture below, serial output mode can be selected among By-Pass, X10, or Z256.



5.1.3. Transparent Mode

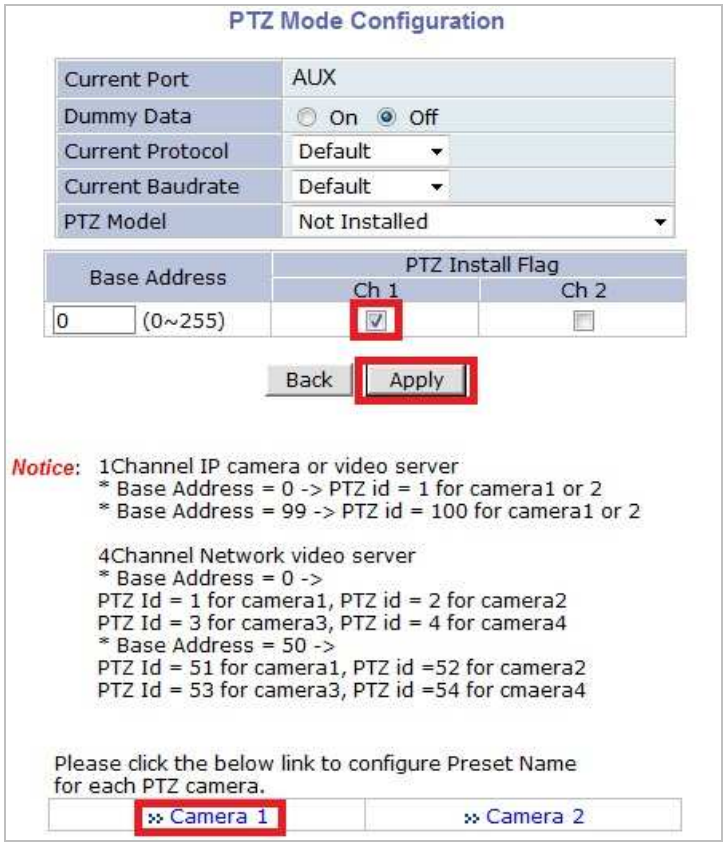
When there are two FlexWATCH Servers present on the network, they can act like a transparent interface between two different UART devices so that the communication between the UART devices can be made transparently without a flaw.



- **Line Mode**: The type of communication protocol
- **Baud Rate**: Data transfer rate
- **Data Bit**: The number of bits in data
- **Stop Bit**: The number of stop bit
- **Parity Bit**: Parity bit characteristic
- **Network Protocol**: The type of protocol used to send data
- **Peer IP**: IP address of other FlexWATCH server
- **Network Port**: Network port number of the server
- **Data Start Pattern**: Data start pattern (Not used if unchecked)
- **Data Size**: Data size in single transfer (Not used if unchecked)

5.1.4. PTZ Mode

With the PTZ camera's RS-485 cable wired to FlexWATCH Server's COM or AUX port, select the proper PTZ model in **PTZ Mode Configuration** screen, then click **Apply** button to save the change.



After selecting the proper PTZ model from the pull-down list, click **Module 0** to activate the camera channel and finish the configuration.

Note: Before pFlxwatchhasing receivers or PTZ cameras, please contact Seyeon Tech or distributor to find out if the product's protocol is supported by FlexWATCH server.

Note: When a PTZ model is selected from the list, Current Protocol and Current Baud rate will be set to the default values. You can change them if required.

Note: The table below shows the PTZ protocols supported by FlexWATCH. (Currently 43 types of PTZ models are supported and subject to change in the future.)

Pelco-D : Spectra Dome	RNK : RNK-DOME
Pelco-P : Spectra Dome	ERNITEC : BDR-510
Seyeon Tech : SRX-500/SPT-102	Inter-M : VSD-640/625L
Seyeon Tech : FSD-230/270	KODICOM : KRE-301
Seyeon Tech : FSD-301	FINE : CRR-1600I
ELMO : ELDOME	Dongyang : DY-XXXX
SANTEC : Santec Dome	Bosch : Auto Dome
Honeywell : HSDN-230/251(H)	Sungjin : SJ2000/3000RX
Honeywell : HSDN-251(P)	Honeywell : HRX-2000
SAMSUNG : SCC641/643A	Inter-M : VRX-2201
SAMSUNG : SCC641/643A(RS422)	LG : Speed Dome
SAMSUNG : MRX-1000	Lilin PIH-7000 Dome
VICON : V-1311RB	Yujin YRX-5000S(Pelco-D)
VICON : Surveyor-1000/2000	INTPLUS : Pelco-P PTZ 1
SAMSUNG Techwin : SPD1600	VICON : V-1311RB-600
SAMSUNG Techwin : SRX-100B	Pelco-D : SK-D106
SAMSUNG Techwin : SRX-100R	Pelco-D : YuJin
American Dynamics : DELTA DOME	Pelco-D-AUX : HUVIRON
KALATEL : CYBER DOME(KTA-xxxx)	Pelco-P-AUX : ONE KING
Panasonic : WV-CS854	Pelco-D-AUX : Probe
SONY : EVI-D30	Honeywell : HSDN-P 251(H)
CANON : VC-C4	

Base Address should be matched to the address of the PTZ camera or the receiver used here. (Base Address = PTZ Camera's Base Address – 1). For example, if PTZ camera's address is 1, then the base address becomes 0. You can find out the PTZ camera's address from its user's manual.

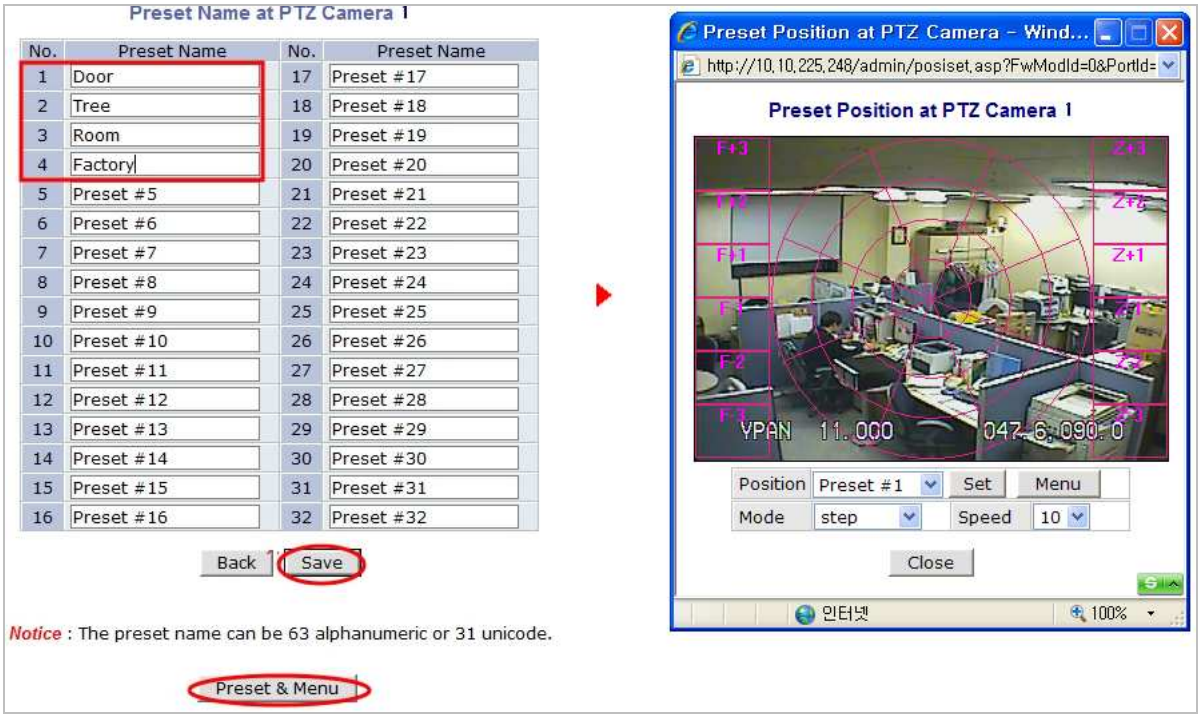
After put a checkmark on the channel that is connected to PTZ camera or receiver, click **Save** button to apply the change. The picture above is the example of PTZ camera wired to **Channel 1** only.

If the PTZ camera or receiver has a Preset function, click **Camera 1** to configure the Preset Name and the camera location. With Preset function, you can move the camera directly to previously configured position promptly.

Up to 32 different Preset can be configured and saved. The picture above shows the example of four different Presets made. After configuring Preset is done, click **Save** button to take effect.

To preset the camera position, click **Preset & Menu**, then the video monitoring screen will appear as shown below. Control the camera's position as you desire, and click **Set** button.

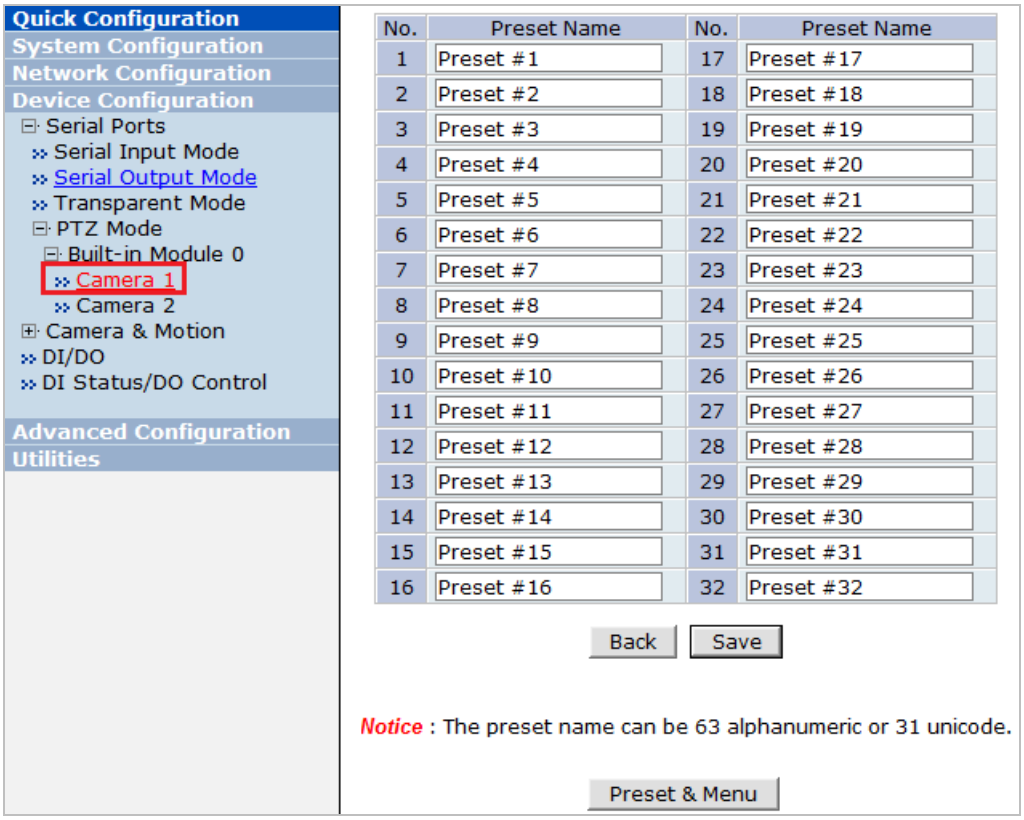
After all the Preset items are set up, click **Close** button to exit the configuration.



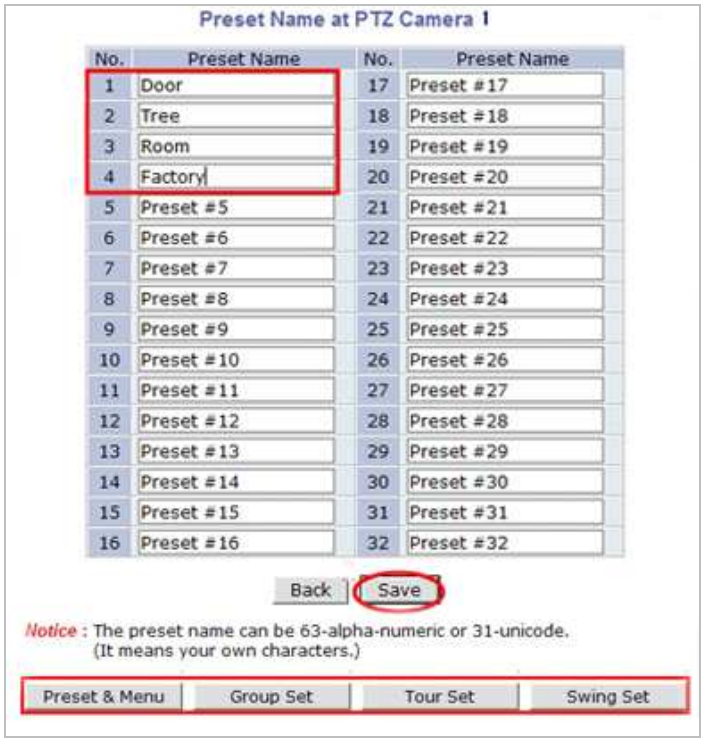
5.1.5. PTZ Mode for FW-1160/1161/1177/1178

These FlexWATCH Servers are Speed Dome models, which are all-in-one type network cameras and have PTZ configuration part. It's possible to set Preset, Swing, Group, and Tour functionalities in those servers and further detailed parts can be configured by use of OSD. Below is steps for configuration.

Click **Devices Configuration** > **Serial Ports** > **PTZ Mode** > **Built-in Module 0** > **Camera 1.**



Enter the Preset names as required. You can make up to 32 Preset names. Below is the example of entering 4 different room names.



Use the buttons to configure Preset, OSD, Swing, Group, and Tour. (Swing, Group, and Tour are supported in FW-1177PE and FW-1178PE)

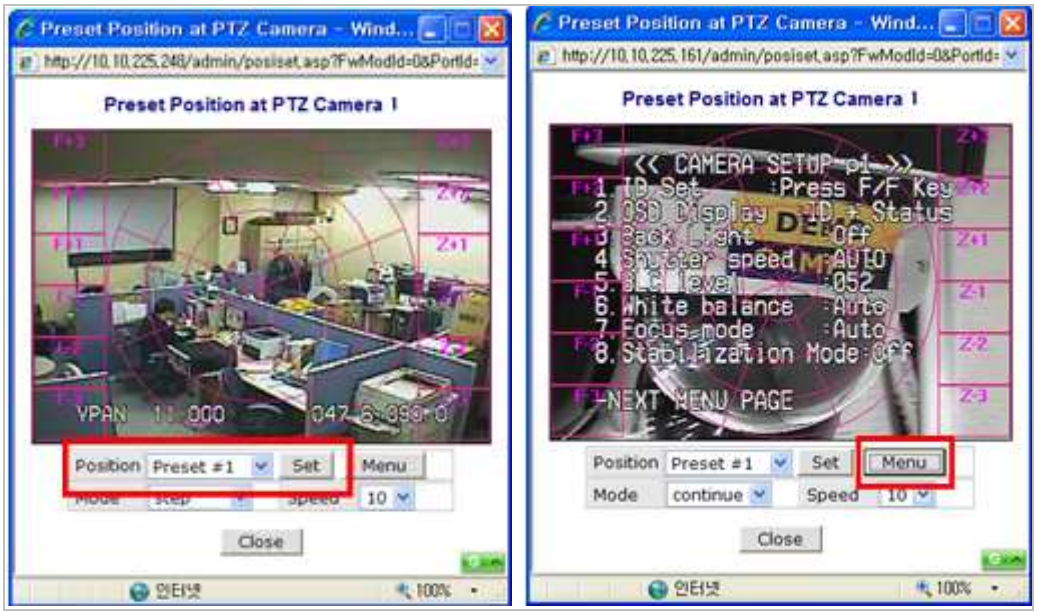
- **Preset & Menu**: You can pre-define the spot you want to see. Up to 32 settings can be stored. Click Menu button to configure the camera's attributes.
- **Swing**: Repeat moving between two positions in certain period.
- **Group**: Each group moves around up to 6 pre-defined positions in certain period.
- **Tour**: Move around up to 6 different groups in certain period.

Preset & Menu

Click on the button and it will display the video window as shown below. Use PTZ to control the camera to show the desired spot. Select the Preset number you'd like to assign to it. Click **Set** button to save the preset values in the Preset number.

- **Mode**: When **Step** is selected, it will move as much as pre-defined distance. When **Continuous** is selected, it will keep moving as long as the button is being pressed.
- **Speed**: In **Step** mode, different Speed value is different Step size. In Continuous mode, it is different moving speed.

Click on **Menu** button, and it will display an OSD window for adjusting camera attributes. OSD setting can be made by Up, Down, Left, Right arrow keys. After setting is finished, click **Menu** button.



Group Set

Click the button and it will display the Group setting window as shown below. Select a group number as you'd like, and click **Start Set** button. Preset numbers from 1 to 32 will become active for the group.

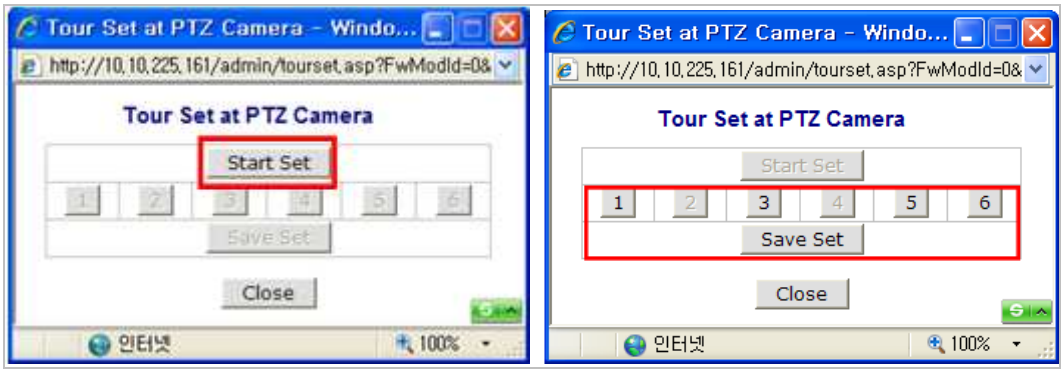
- **Speed**: How fast it will move between Preset items when Group function is executed.
- **Time**: How long it will stay at the Preset. Each Group can have up to 6 Presets.

After Preset is configured, click **Save Set** button. Group setup window will be displayed. You can configure up to 6 groups. The usage of Group can be controlled at PTZ Control window in Smart Viewer.

Tour Set

Click the button and it will display the Tour Set window. Up to 6 groups can be combined to run in

Tour mode.



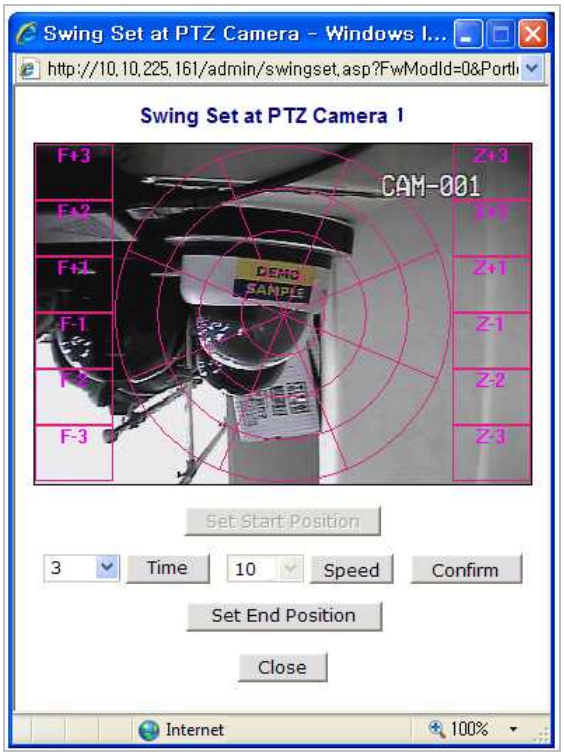
Select a Group number as desired, then click **Save Set** button to finish setup. The usage of Tour can be controlled at PTZ Control window in Smart Viewer.

Swing Set

Click the button and it will display the Swing Set window. Use PTZ to direct the camera to put the desired spot on the center of the camera viewing area, then click **Set Start Position** button.

Select the start position and the waiting period, then click **Time** button. Select the moving speed between the starting position and the ending position, then click **Speed** button. Click **Confirm** button. Now use PTZ to move to the ending position, and then click **Set End Position**.

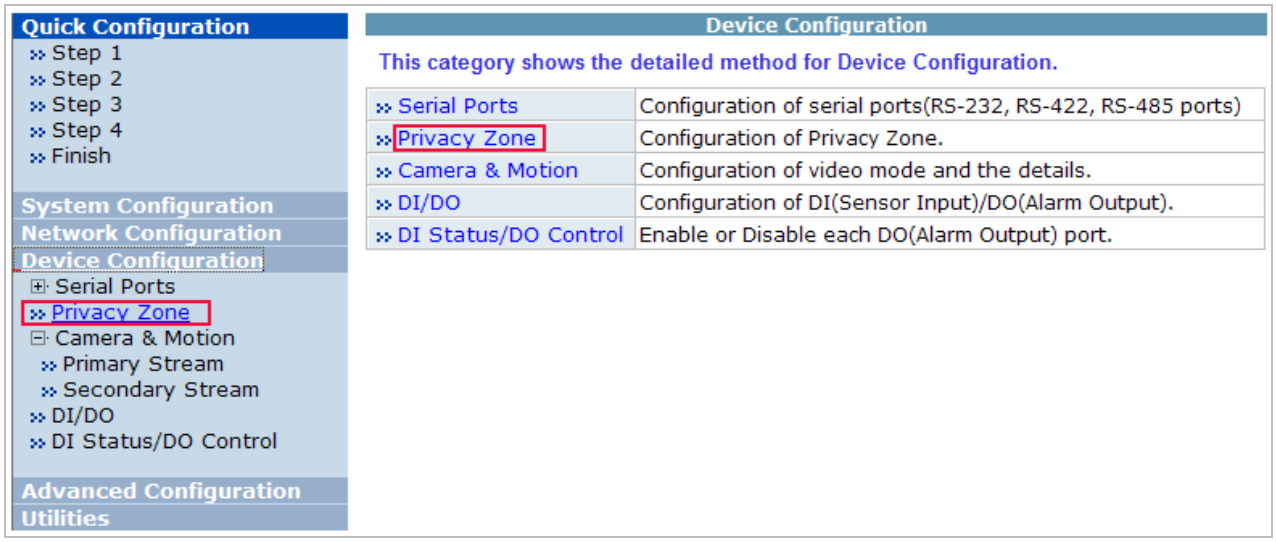
The control of Swing function can be made at PTZ Control window in Smart Viewer.



5.2. Privacy Zone

Users can set a privacy zone if a certain part of the screen needs to be unmonitored.

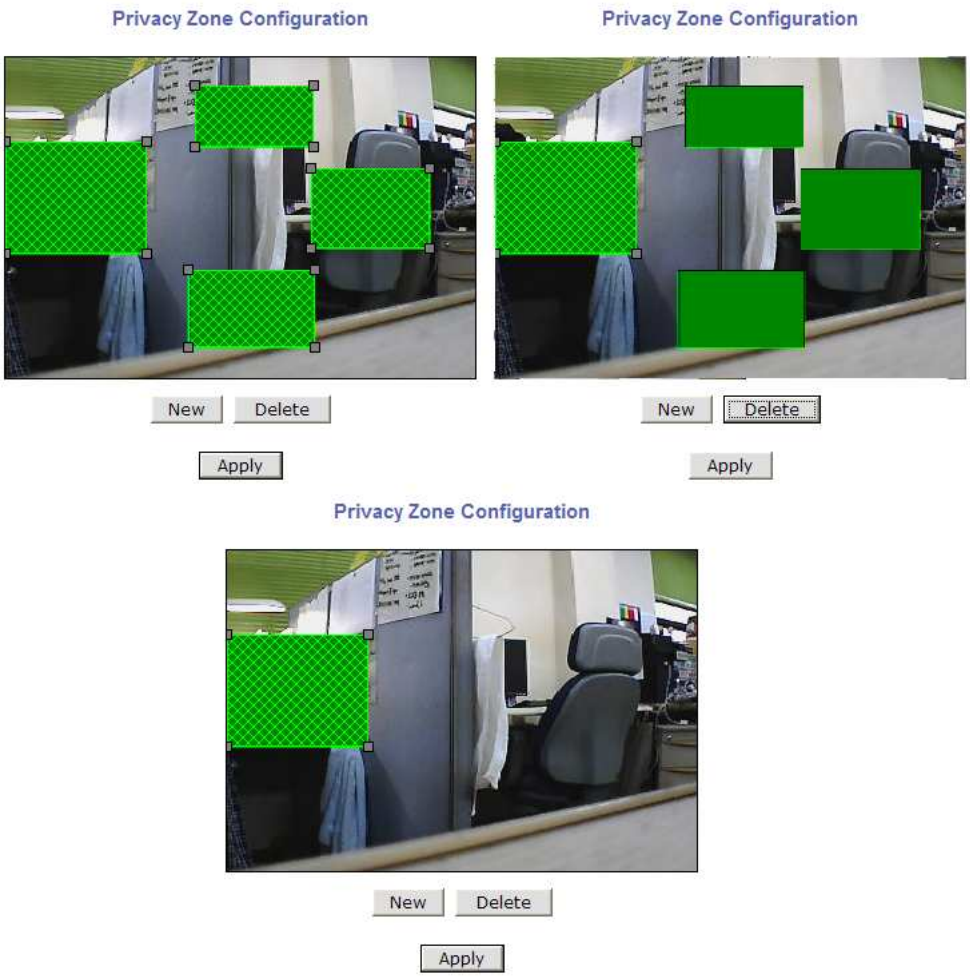
To set the region, click **Privacy Zone** from **Device Configuration** category.



Privacy zone is marked with a rectangular shape. When you click **New** button, red-colored box will pop up and users can change its size and location. After that, click **Apply** button which will make box to green-color and finish the configuration.

Users can define the Privacy zone as many as 8 parts of the screen. If you add more than 8, an error message will pop up on the screen.

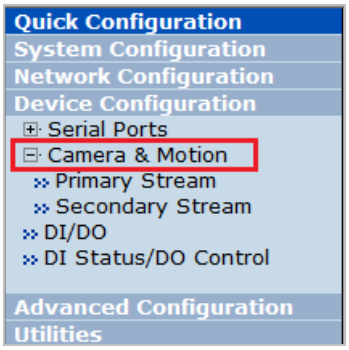
To delete a privacy zone, click the zone and click **Delete** button followed by **Apply** button.



5.3. Camera & Motion

This menu is used to set up the selection of video format, data added to video data, encoding speed, audio control, image resolution, video quality, motion detection, and etc.

Click **Camera & Motion** on Device Configuration menu. The configuration menu will be displayed, and it may be different between FlexWATCH models.



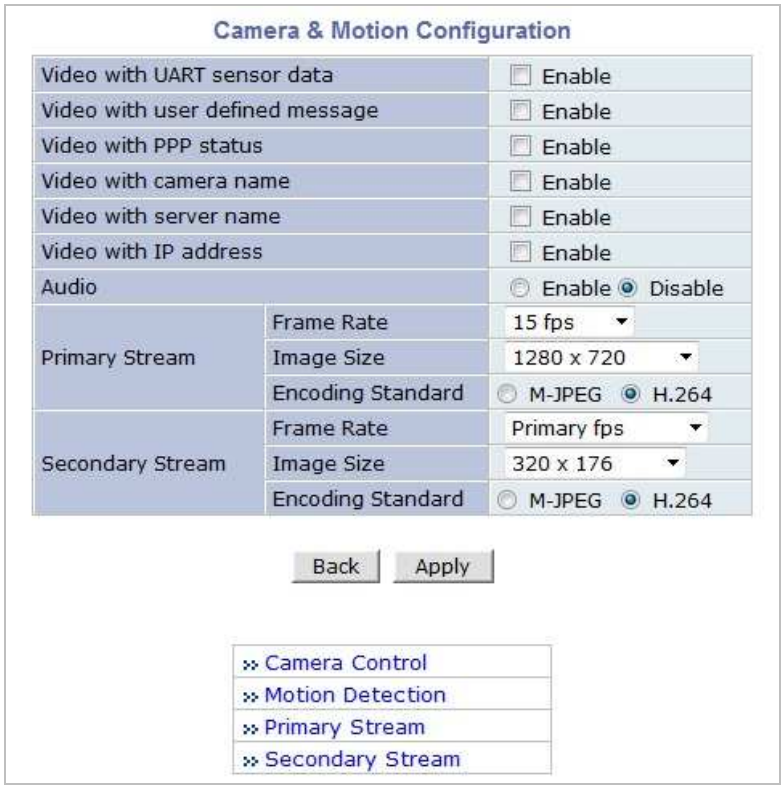
- **Watermark**: The technique that imposes a particular pattern or code into images. Watermarking is used for identifying counterfeit or illegal copy.
- **M-JPEG**: This format requires much higher network bandwidth than MPEG-4 compression. But because of its higher quality of still image, it is adequate for detailed reviewing of stored video.
- **MPEG-4**: In this format, each frame data is related to other nearby frames. For this reason, it

provides much higher compression ratio than M-JPEG and is adequate for video transfer. However, if network condition is not very good and having dropped frames in video data, the video quality can be relatively low. With FlexWATCH server, you can set the number of P-frames in the video which is independent still images between I-frames.

Note: For Dual Stream products, the most of parameters are dependent on primary stream value.

5.3.1. Camera & Motion for FW-1170/1173/1175/1176

You can configure the video data format and other information to be contained in it.



(Above is the example of FW1173-VO-B model)

- **Video with UART sensor Data**: If **Enabled**, video data will contain UART sensor data from COM port.
- **Video with user defined message: If Enabled, v**ideo **data wi**ll contain the user-defined data. (Reserved Field)
- **Video with PPP status**: If **Enabled**, video data will contain PPP connection status.
- **Video with camera name**: If **Enabled**, video data will contain the camera name.
- **Video with server name**: If **Enabled**, video data will contain the server name that you defined.
- **Video with IP address**: If **Enabled**, video data will contain the IP address of the video server.
- **Audio**: Select if Audio function is to be used (applies to Primary Stream only). FlexWATCH Server provides 2-way audio streaming by combining microphone input with video data. Users can listen to the streamed audio on PC speakers.
- **Light Frequency**: Used for Flickering Reduction. Select the electric power frequency used in the region, either 50 or 60Hz.

*Note: **Light Frequency parameter** is supported only in FW1170.*

- **Frame Rate**: For Primary Stream, this is the number of frames compressed in every second. You can control the network traffic with this parameter. For Secondary Stream, it can be set to manner of 1/2, 1/4, 1/8... of the primary stream.

> *Note: Frame Rate control for secondary stream is not supported by FW1173-MM, FW-1175-MM, and FW-1176-MM.*

- **Image Size**: Select the resolution of each channel's video
- **Encoding Standard**: Select the compression method of each video, either M-JPEG or H.264 format. It is not allowed to set both channels to M-JPEG.

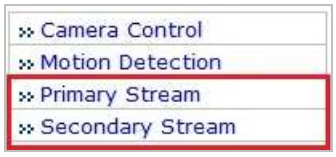
Below is the table of images sizes.

Video Format	SXGA	D1	CIF	QCIF
NTSC	-	704 x 480	352 x 240	160 x 112
PAL	-	704 x 576	352 x 288	160 x 144
VGA	-	640 x 480	320 x 240	160 x 112
1.3M Pixel	1280 x 1024	640 x 480	320 x 240	160 x 112

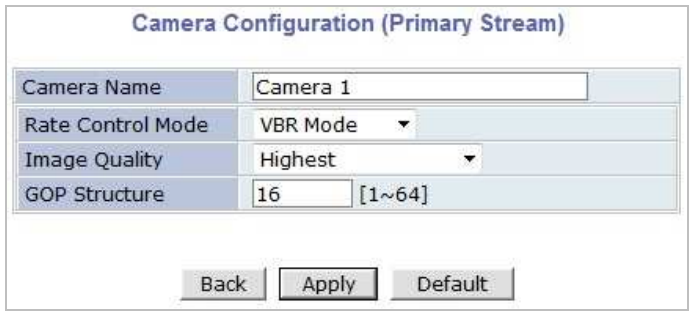
To save the setting, click **Apply** button.

Camera Configuration

On the lower part of **Camera & Motion Configuration** menu, select a channel to configure.



In the example shown below, Primary Stream is set to **M-JPEG**, and Secondary Stream set to **H.264** for compression format. Enter detailed parameters of the camera selected here.



Primary Stream of (H.264)

When the image sensor is VGA CMOS/CCD or 1.3M CMOS/CCD, there will be no Hue, Saturation, Contrast, or Brightness setting items shown. Only with NTSC or PAL will those parameters be configured.

- **Camera Name**: Enter the name of the channel in up to 21 alphanumeric or up to 10 Unicode letters.

Image Quality Setup

MPEG-4 / H.264	**Rate Control Mode**: VBR (Variable Bit Rate) Video frames are encoded with selected image quality and GOP. Encoded frames have different data size from each other.	**Image Quality**: one of 6 quality levels (Low Compression / Highest / High Normal / Low / Lowest)
		GOP Structure: Distance between I-Frames. That is filled with P-frames.
	Rate Control Mode: CBR (Constant Bit Rate) Video frames are encoded with selected image quality and GOP. Encoded frames have the same data size as other frames. Due to the constant bit rate, it has better stable transmission performance.	**Bit Rate Control:** Total number of Bits encoded per second. The higher Bit Rate, the better image quality. Can be set between 32kbps and 2Mbps.
		GOP: Distance between I-Frames. That is filled with P-frames.
M-JPEG	-	**Image Quality:** one of 6 quality levels (Low Compression / Highest / High Normal / Low / Lowest)

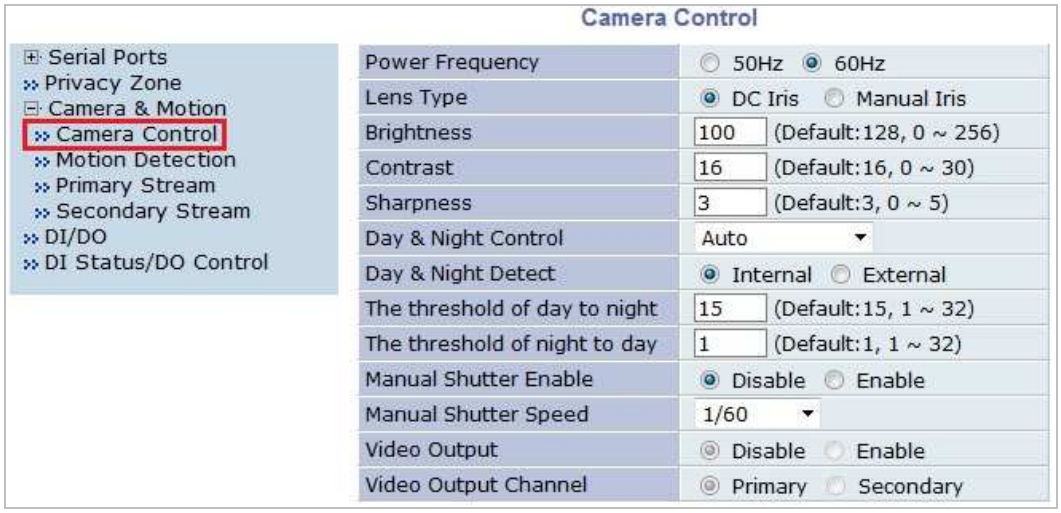
Low Compression	Highest	High	Normal	Low	Lowest

In **Image Quality** level setup, select the left for higher image quality, but it requires higher network bandwidth. Selecting the right requires lower network bandwidth, but gives decreased image quality.

After configuration is finished, click **Apply** button to save the setting. If you click **Default** button, the entire configuration will be reset to the original values.

Camera Control for FW-1173B-MS

Select **Camera Control** on the bottom of **Camera & Motion Configuration** menu.



- **Power Frequency**: Select NTSC (60Hz) or PAL (50Hz) according to the region.
- **Lens Type**:

Lens Type	Description
DC IRIS	Select when automatic iris is used on the camera.
Manual IRIS	Select when manual iris is used on the camera.

- **Brightness**: Select the brightness of image between 0 and 256.
- **Contrast**: Select the contrast of image between 0 and 30.
- **Sharpness**: select the sharpness of image between 0 and 5.
- **Day & Night Control**: If used, the image will be in Color mode during daytime and Black&

White mode during night time.

Day & Night Control	Description
Disable	(No Image Conversion)
Black & White	Black & White mode
Auto	Daytime: Color Mode Night time: Black & White mode

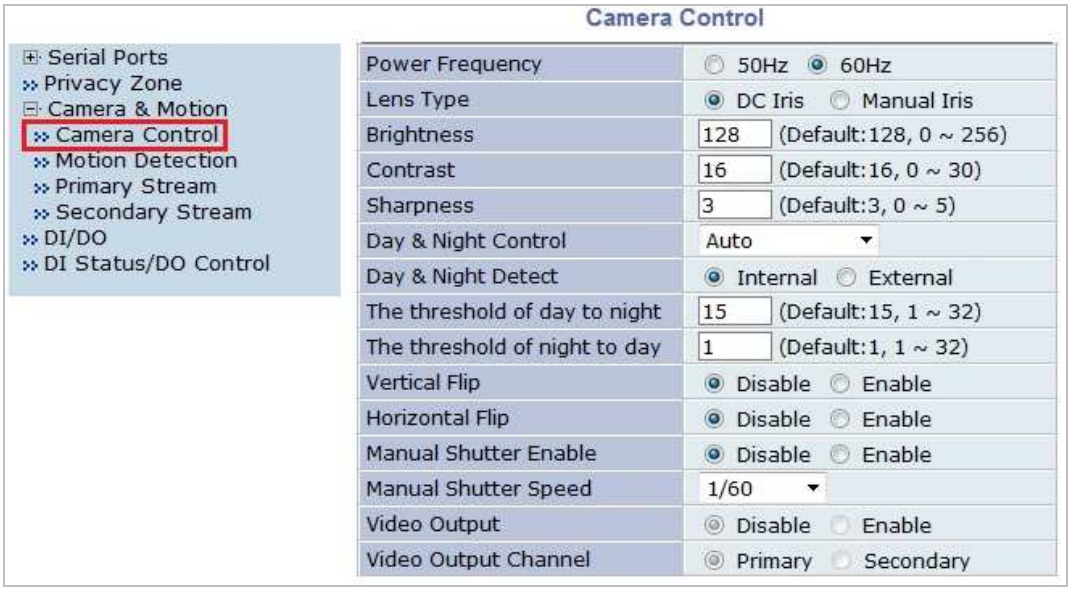
- **Day & Night Detect**:

Day & Night Detect	Description
Internal	Use Built-in Day & Night feature (Default)
External	Use IRED.

- **The threshold of day to night**: This is the point of transition from Day to Night mode. Select between 1 and 32, and lower the value the earlier the transition point.
- **The threshold of night to day**: This is the point of transition from night to day mode. Select between 1 and 32, and lower the value the earlier the transition point.
- **Manual Shutter Enable**: If enabled, the shutter speed will be selected manually. If disabled, it is controlled automatically.
- **Manual shutter Speed**: Select the shutter speed of camera between 1/30 and 1/24000.
- **Video Output**: Video output (NTSC/PAL) is enabled. (applies only on some models)

After all the setting is done, click **Apply** button to save it. If **Default** button is clicked, all the fields return back to original value.

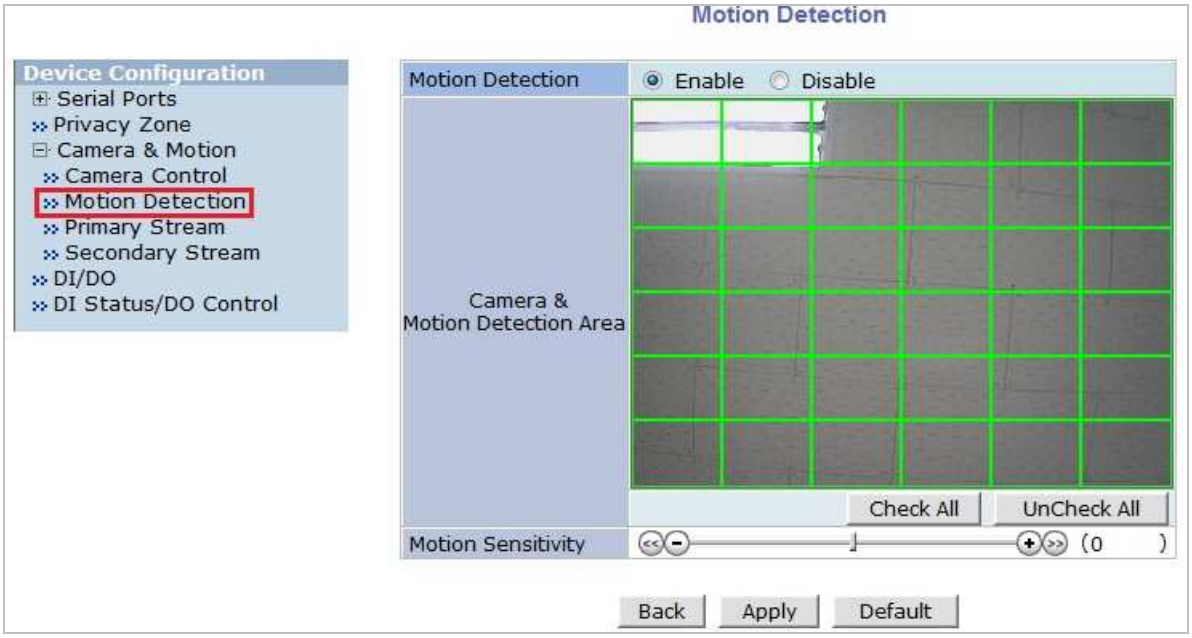
Camera Control for FW-1173E-MS



For FW-1173E-MS, the followings are added to settings on FW-1173B-MS.

- **Vertical flip**: If enabled, flip the image vertically.
- **Horizontal flip**: If enabled, flip the image horizontally.

Motion Detection



- **Motion Detection**: If enabled, Motion Detection feature is activated and user can configure the areas where motion detection function will work. (this is only available in Primary Stream)
- **Motion Sensitivity**: Set the sensitivity of motion defined in Motion Detection Area. Select between -100 and 100. 100 is the most sensitive.

After all the setting is done, click **Apply** button to save it. If **Default** button is clicked, all the fields return back to original value.

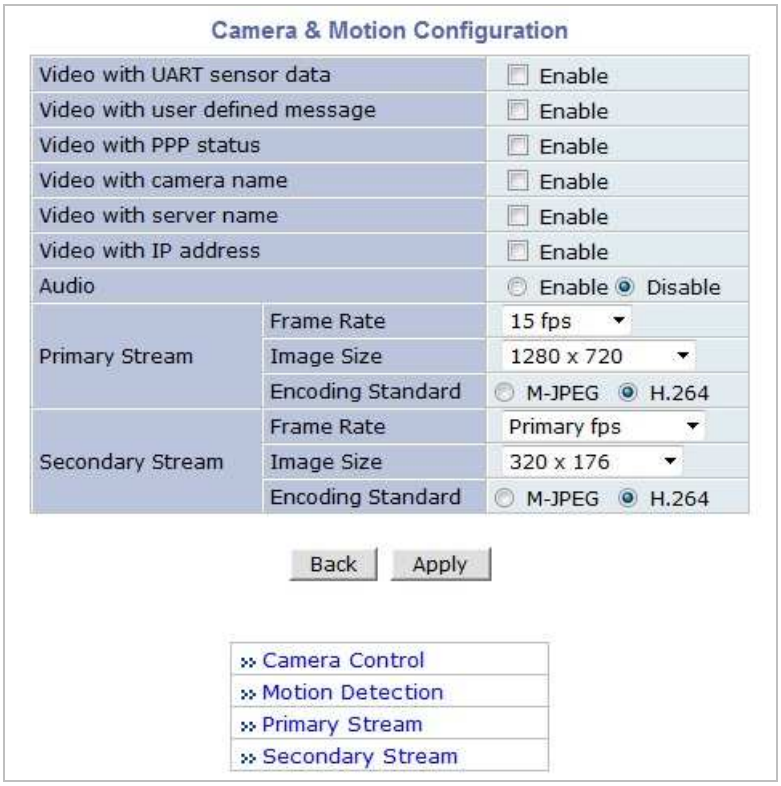
5.3.2. Camera & Motion for FW-3170/1161/1177/1178

This menu is used to set up the selection of video format, data added to video data, encoding speed, audio control, image resolution, video quality, motion detection, and etc.

Note: The image size of Primary Stream is the maximum size of the Secondary Stream, because Secondary Stream's video soFlxwatche is the output of the Primary Stream.

Note: For Dual Stream products, most of parameters are dependent on primary stream value.

Click **Camera & Motion** on Device Configuration menu, then the following window will be displayed. Configure the video data format and other information to be contained in it.



- **Default Video Format (FW-3170 only)**: Select the video transmission format of the camera attached to FlexWATCH Server. Select one from NTSC or PAL.
- **Video with UART sensor Data**: If **Enabled**, video data will contain UART sensor data from COM port.
- **Video with user defined message**: If **Enabled**, video data will contain the user-defined data. (Reserved Field)
- **Video with PPP status**: If **Enabled**, video data will contain PPP connection status.
- **Video with camera name**: If **Enabled**, video data will contain the camera name.
- **Video with server name**: If **Enabled**, video data will contain the server name that you defined.
- **Video with IP address**: If **Enabled**, video data will contain the IP address of the video server.
- **Audio**: Select if Audio function is to be used (applies to Primary Stream only). FlexWATCH Server provides 2-way audio streaming by combining microphone input with video data. Users can listen to the streamed audio on PC speakers.
- **Encoding Frame Rate (Per Channel)**: Compression speed every second. This attribute applies to all the channels. You can control the server's total traffic with this parameter.
- **Image Size**: Select the resolution of each channel's video data.
- **Encoding Standard**: Select the compression method of each video, either M-JPEG or H.264.
- **Watermark (MPEG-4 Only)**: If **Enabled**, video image will have water mark on it. This attribute applies to all the channels.

Below is the table of images sizes supported in this mode.

Video Format	D1	2CIF	CIF	QCIF
NTSC	704 x 480	704 x 240	352 x 240	176 x 112
PAL	704 x 576	704 x 288	352 x 288	176 x 144

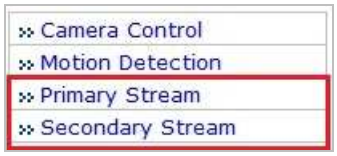
Click **Apply** button to save the changes.

<table>
<tr><td rowspan="4">MPEG-4 / H.264</td><td rowspan="2">Rate Control Mode: VBR (Variable Bit Rate) Video frames are encoded with selected image quality and GOP. Encoded frames have different data size from each other.</td><td>Image Quality: one of 6 quality levels (Low Compression / Highest / High Normal / Low / Lowest)</td></tr>
<tr><td>GOP Structure: Distance between I-Frames. That is filled with P-frames.</td></tr>
<tr><td rowspan="2">Rate Control Mode: CBR (Constant Bit Rate) Video frames are encoded with selected image quality and GOP. Encoded frames have the same data size as other frames. Due to the constant bit rate, it has better stable transmission performance.</td><td>Bit Rate Control: Total number of Bits encoded per second. The higher Bit Rate, the better image quality. Can be set between 32kbps and 2Mbps.</td></tr>
<tr><td>GOP: Distance between I-Frames. That is filled with P-frames.</td></tr>
<tr><td>M-JPEG</td><td>-</td><td>Image Quality: one of 6 quality levels (Low Compression / Highest / High Normal / Low / Lowest)</td></tr>
</table>

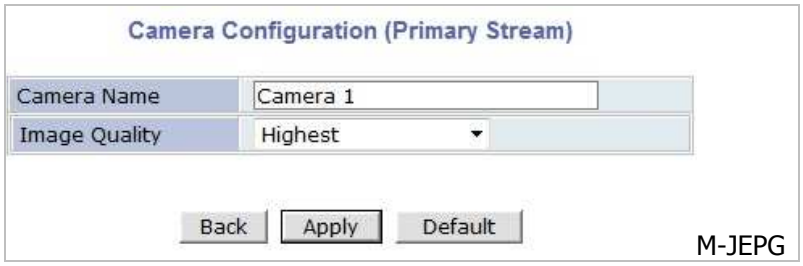
Low Compression	Highest	High	Normal	Low	Lowest

Camera Configuration

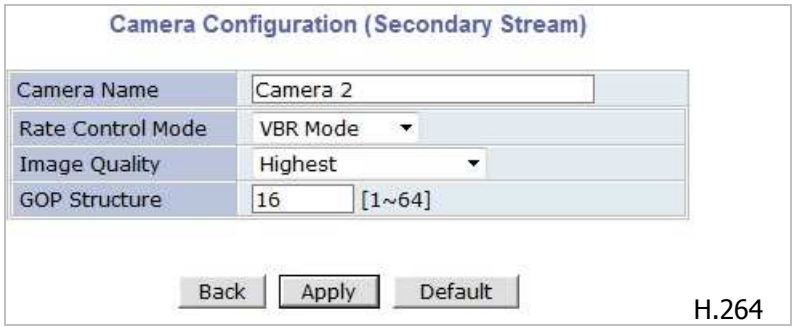
On the lower part of **Camera & Motion Configuration** menu, select a channel to configure.



Enter detailed parameters of the camera selected here.



M-JEPG



H.264

- **Camera Name**: Enter the name of the channel in up to 21 alphanumeric or up to 10 Unicode letters.

Image Quality Setup

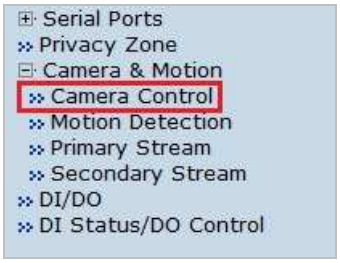
<table>
<tr><td rowspan="4">H.264</td><td rowspan="2">Rate Control Mode: VBR (Variable Bit Rate) Video frames are encoded with selected image quality and GOP. Encoded frames have different data size from each other.</td><td>Image Quality: one of 6 quality levels (Low Compression / Highest / High Normal / Low / Lowest)</td></tr>
<tr><td>GOP Structure: Distance between I-Frames. That is filled with P-frames.</td></tr>
<tr><td rowspan="2">Rate Control Mode: CBR (Constant Bit Rate) Video frames are encoded with selected image quality and GOP. Encoded frames have the same data size as other frames. Due to the constant bit rate, it has better stable transmission performance.</td><td>Bit Rate Control: Total number of Bits encoded per second. The higher Bit Rate, the better image quality. Can be set between 32kbps and 2Mbps.</td></tr>
<tr><td>GOP: Distance between I-Frames. That is filled with P-frames.</td></tr>
<tr><td>M-JPEG</td><td>-</td><td>Image Quality: one of 6 quality levels (Low Compression / Highest / High Normal / Low / Lowest)</td></tr>
</table>

Low Compression	**Highest**	**High**	**Normal**	**Low**	**Lowest**

In **Image Quality** level setup, selecting the left results in higher image quality, but requires higher network bandwidth. Selecting the right requires lower network bandwidth, but gives decreased image quality.

Camera Control

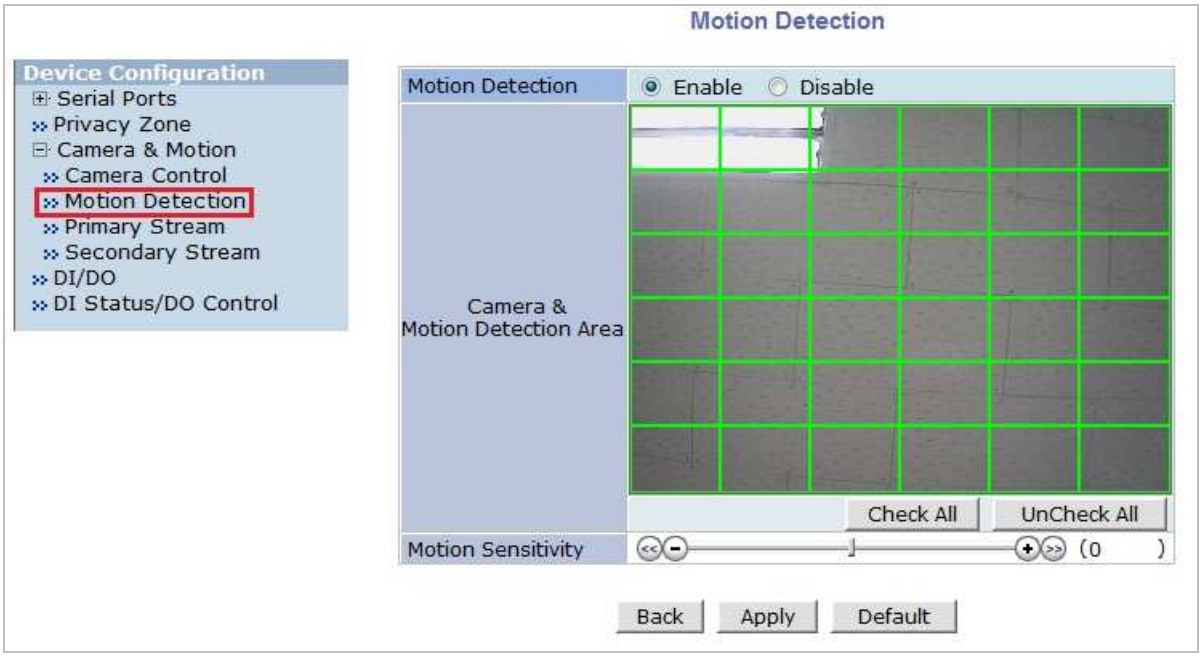
Click **Camera Control** on the bottom of **Camera & Motion Configuration** menu.



- **Hue**: Set the color of image between -100 and 100.
- **Saturation**: Set the intensity of the image between -100 and 100.
- **Contrast**: Set the contrast of the image between -100 and 100.
- **Brightness**: Set the brightness of the image between -100 and 100.

Motion Detection

Click **Motion Detection** on the bottom of **Camera & Motion Configuration** menu.

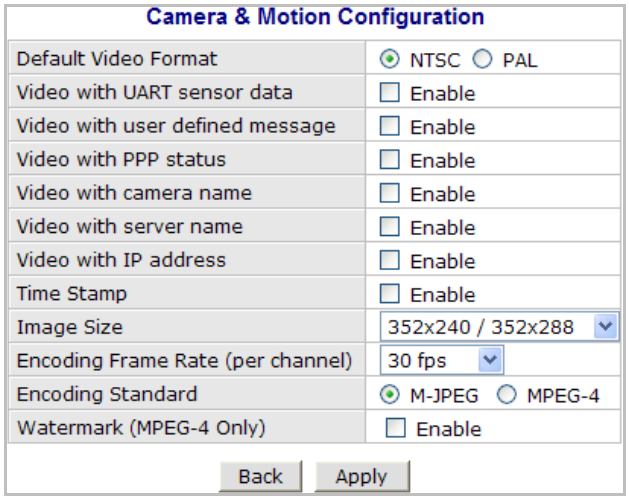


- **Motion Sensitivity**: This value sets how sensitively the motion detection works for the motion detection functionality. It can be between –100 and 100 while 100 is the most sensitive.
- **Motion Detection**: This decided whether the Motion Detection is to be used. If **Enable** is selected, you can set which part of the camera image the Motion Detection does functioning. (Primary Stream only)

After configuration is finished, click **Apply** button to save the setting. If you click **Default** button, the entire configuration will be reset to the original values.

5.3.3. Camera & Motion for FW-3470/5470

This menu is used to set up the selection of video format, data added to video data, encoding speed, audio control, image resolution, video quality, motion detection, and etc.



- **Default Video Format**: Video transmitting format of the camera attached to FlexWATCH Server. Select one from NTSC or PAL.
- **Video with UART sensor Data**: If Enabled, video data will contain UART sensor data from COM port.
- **Video with user defined message**: If Enabled, video data will contain the user-defined data.

(Reserved Field)

- **Video with PPP status**: If Enabled, video data will contain PPP connection status.
- **Video with camera name**: If Enabled, video data will contain the camera name.
- **Video with server name**: If Enabled, video data will contain the server name you defined.
- **Video with IP address**: If Enabled, video data will contain the IP address of the video server.
- **Time Stamp**: If Enabled, encoded video image will have the time display on it.
- **Image Size**: Select the resolution of each channel's video data.
- **Encoding Frame Rate (per channel)**: Video compression rate per second. You can control the total network traffic of the server with this parameter.
- **Encoding Standard**: Select the compression method of each video, either M-JPEG or MPEG-4.
- **Watermark (MPEG-4 only)**: If Enabled, video image will have water mark on it when the Encoding Standard is set to MPEG-4. This attribute applies to all the channels.

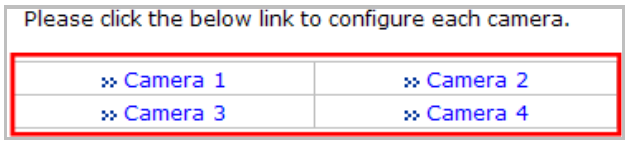
Below is the table of images sizes supported in this mode.

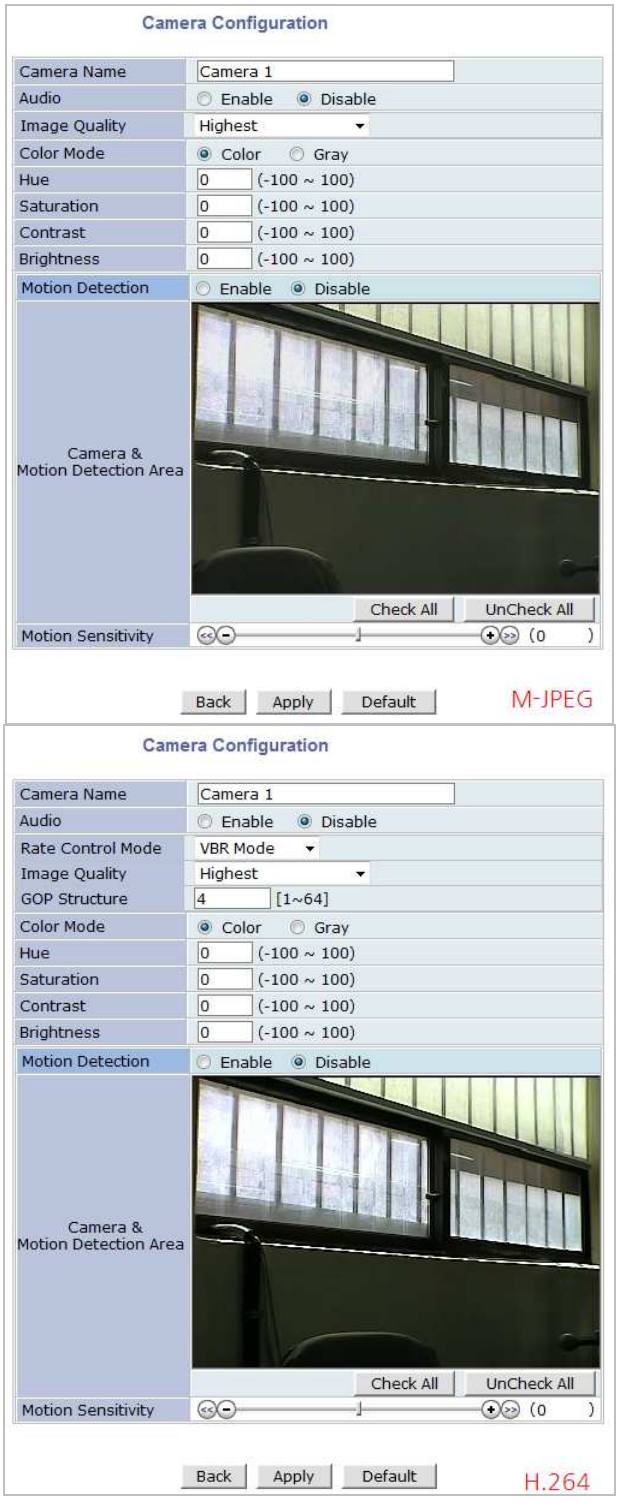
Video Format	D1	2CIF	CIF	QCIF
NTSC	704 x 480	704 x 240	352 x 240	176 x 112
PAL	704 x 576	704 x 288	352 x 288	176 x 144

Click **Apply** button to save the changes.

Camera Configuration

On the lower part of **Camera & Motion Configuration** menu, select a channel you want to configure. Then, enter the detailed parameters of the camera selected here.





- **Camera Name**: Enter the name of the channel in up to 21 alphanumeric or up to 10 Unicode characters.
- **Audio**: Select if Audio function is to be used (applies to Primary Stream only) FlexWATCH Server provides 2-way audio streaming by combining microphone input with video data. Users can listen to the streamed audio on PC speakers.
- **Video Input**: Select to see camera's connection status.
- **Color Mode**: Select if the image will be in Color or Black & White (Applies to Primary Stream only)

Image Quality Setup

MPEG-4	Rate Control Mode: **VBR** (Variable Bit Rate) Video frames are encoded with selected image quality and GOP. Encoded frames have different data size from each other.	**Image Quality**: one of 6 quality levels (Low Compression / Highest / High Normal / Low / Lowest)
		GOP Structure: Distance between I-Frames. That is filled with P-frames.
	Rate Control Mode: **CBR** (Constant Bit Rate) Video frames are encoded with selected image quality and GOP. Encoded frames have the same data size as other frames. Due to the constant bit rate, it has better stable transmission performance.	**Bit Rate Control:** Total number of Bits encoded per second. The higher Bit Rate, the better image quality. Can be set between 32kbps and 2Mbps.
		GOP: Distance between I-Frames. That is filled with P-frames.
M-JPEG	-	**Image Quality:** one of 6 quality levels (Low Compression / Highest / High Normal / Low / Lowest)

Low Compression	Highest	High	Normal	Low	Lowest

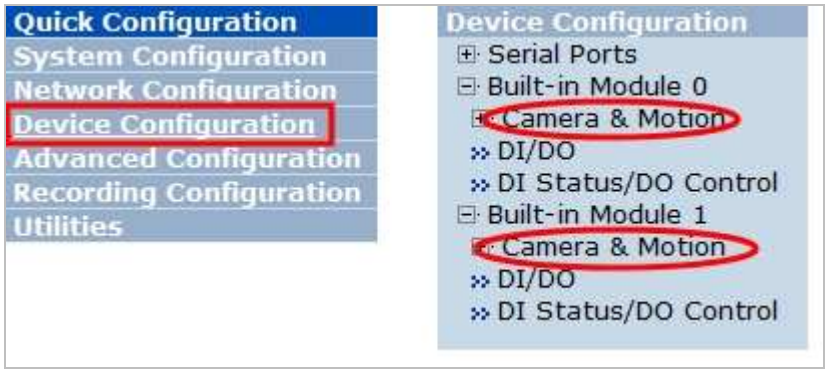
In Image quality level setup, selecting the left results in higher image quality, but requires higher network bandwidth. Selecting the right requires lower network bandwidth, but gives degraded image quality.

- **Hue**: Set the color of image between -100 and 100 (applicable to Primary Stream only)
- **Saturation**: Set the intensity of the image between -100 and 100 (applicable to Primary Stream only)
- **Contrast**: Set the contrast of the image between -100 and 100 (applicable to Primary Stream only)
- **Brightness**: Set the brightness of the image between -100 and 100 (applicable to Primary Stream only)
- **Motion Sensitivity**: This value sets how sensitively the motion detection works for the motion detection functionality. It can be between –100 and 100 while 100 is the most sensitive.
- **Motion Detection**: This decided whether the Motion Detection is to be used. If **Enable** is selected, you can set which part of the camera image the Motion Detection does functioning. (applicable to Primary Stream only)

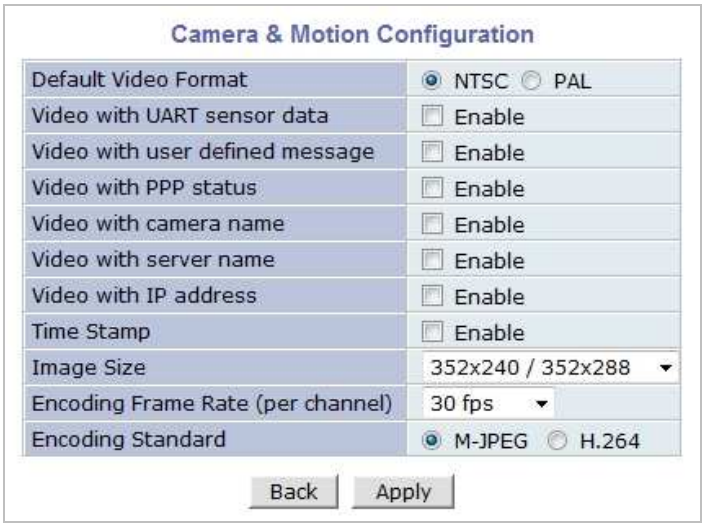
After configuration is finished, click **Apply** button to save the setting. If you click **Default** button, the entire configuration will be reset to the original values.

5.3.4. Camera & Motion for FW-3850/5850/5870

This menu is used to set up the selection of video format, data added to video data, encryption of video, and etc. Click **Built-in Module 0** or **Built-in Module 1** on Device Configuration menu, and then click **Camera & Motion**.



Configure the video data format and other information to be contained in it.



- **Default Video Format**: Video transmitting format of the camera attached to FlexWATCH Server. Select one from NTSC or PAL.
- **Video with UART sensor Data**: If Enabled, video data will contain UART sensor data from COM port.
- **Video with user defined message**: If Enabled, video data will contain the user-defined data. (Reserved Field)
- **Video with PPP status**: If Enabled, video data will contain PPP connection status.
- **Video with camera name**: If Enabled, video data will contain the camera name.
- **Video with server name**: If Enabled, video data will contain the server name you defined.
- **Video with IP address**: If Enabled, video data will contain the IP address of the video server.
- **Time Stamp**: If Enabled, encoded video image will have the time display on it.
- **Image Size**: Select the resolution of each channel's video data.
- **Encoding Frame Rate (per channel)**: Video compression rate per second. You can control the total network traffic of the server with this parameter.
- **Encoding Standard**: Select the compression method of each video, either M-JPEG or H.264.
- **Watermark (MPEG**-4 Only): If enabled, MPEG-4 video will have the watermark blended on the image. This is applied on all the other settings.

Below is the table of images sizes supported in this mode.

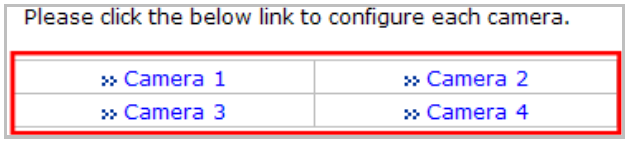
Video Format	D1	2CIF	CIF	QCIF
NTSC	704 x 480	704 x 240	352 x 240	176 x 112
PAL	704 x 576	704 x 288	352 x 288	176 x 144

Click **Apply** button to save the changes. If required, click **Built-in Module 1** on Device Configuration menu to set up the other channel as well.

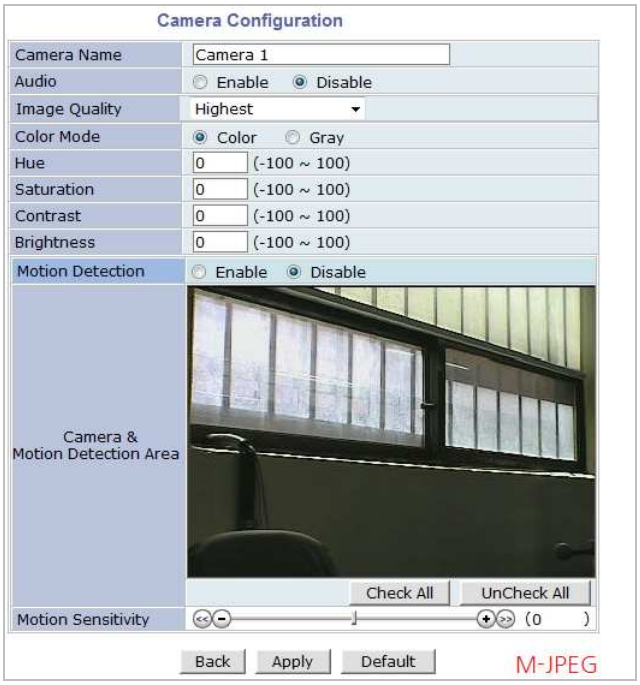
Camera Configuration

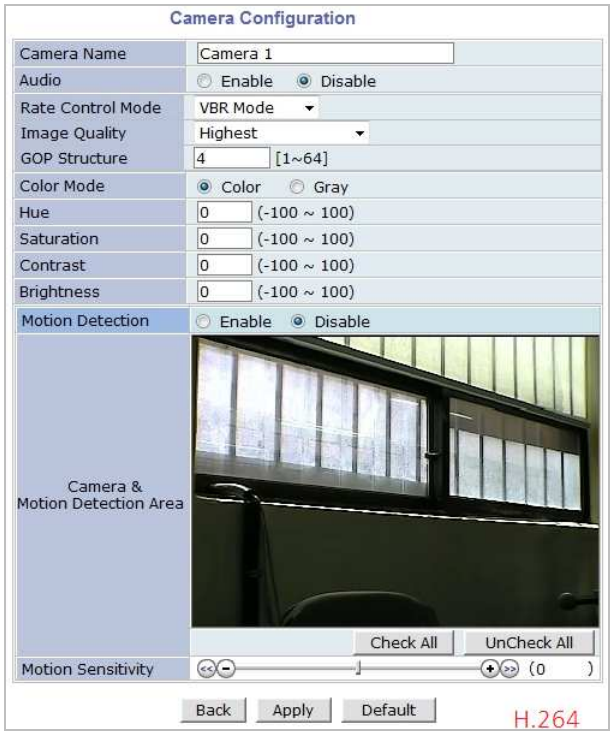
FW-3850 and FW-5850 have two modules, 8 channels respectively. Each channel represent the camera attached to FW-3850 or FW-5850.

On the lower part of **Module 0 > Camera & Motion Configuration** menu, select a channel you want to configure.



Enter the detailed parameters of the camera selected here.





- **Camera Number**: The number of the channel in use. Not changeable. (1 to 4)
- **Camera Name**: Enter the name of the channel in up to 21 alphanumeric or up to 10 Unicode characters.
- **Audio**: Select if Audio function is to be used (applies to Primary Stream only). FlexWATCH Server provides 2-way audio streaming by combining microphone input with video data. Users can listen to the streamed audio on PC speakers.

- **Video Input**: Select to see camera's connection status.
- **Color Mode**: Select if the image will be in Color or Black and White

> *Note: In M-JPEG mode, the Image Quality is locked at Normal.*

Image Quality Setup

<table>
<tr><td rowspan="4">H.264</td><td colspan="3" rowspan="2">Rate Control Mode: VBR (Variable Bit Rate) Video frames are encoded with selected image quality and GOP. Encoded frames have different data size from each other.</td><td colspan="3">Image Quality: one of 6 quality levels (Low Compression / Highest / High Normal / Low / Lowest)</td></tr>
<tr><td colspan="3">GOP Structure: Distance between I-Frames. That is filled with P-frames.</td></tr>
<tr><td colspan="3" rowspan="2">Rate Control Mode: CBR (Constant Bit Rate) Video frames are encoded with selected image quality and GOP. Encoded frames have the same data size as other frames. Due to the constant bit rate, it has better stable transmission performance.</td><td colspan="3">Bit Rate Control: Total number of Bits encoded per second. The higher Bit Rate, the better image quality.</td></tr>
<tr><td colspan="3">GOP: Distance between I-Frames. That is filled with P-frames.</td></tr>
<tr><td>M-JPEG</td><td colspan="3"></td><td colspan="3">Image Quality: one of 6 quality levels (Low Compression / Highest / High Normal / Low / Lowest)</td></tr>
<tr><td colspan="2">Low Compression</td><td>Highest</td><td>High</td><td>Normal</td><td>Low</td><td>Lowest</td></tr>
</table>

In Image quality level setup, selecting the left results in higher image quality, but requires higher network bandwidth. Selecting the right requires lower network bandwidth, but gives degraded image quality.

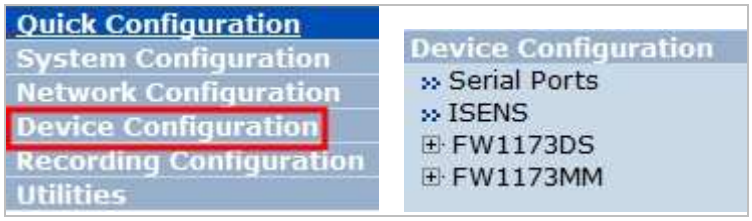
- **Hue**: Set the color of image between -100 and 100.
- **Saturation**: Set the intensity of the image between -100 and 100.
- **Contrast**: Set the contrast of the image between -100 and 100.
- **Brightness**: Set the brightness of the image between -100 and 100.
- **Motion Sensitivity**: This value sets how sensitively the motion detection works for the motion detection functionality. It can be between –100 and 100 while 100 is the most sensitive.
- **Motion Detection**: This decided whether the Motion Detection is to be used. If **Enable** is selected, you can set which part of the camera image the Motion Detection does functioning.

After configuration is finished, click **Apply** button to save the setting. If required, click **Built-in Module 1** on Device Configuration menu to set up the other channel as well.

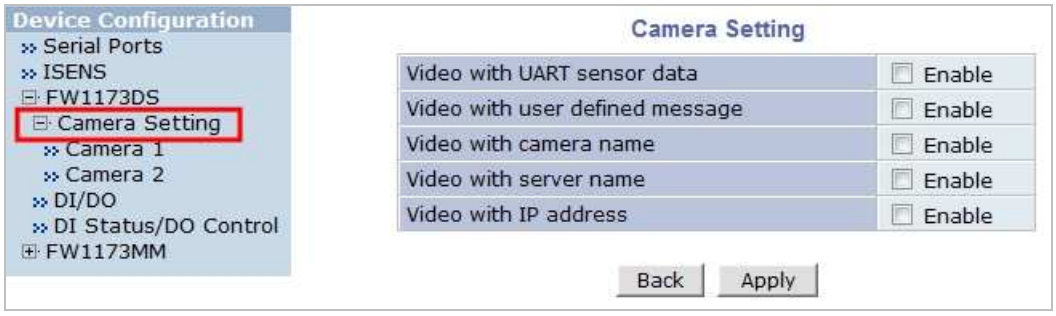
5.3.5. Camera Setting for FW-5071

When cameras are added through the network, you can set what data to be included, camera names, image size, and image quality.

Click the name of the camera you added, which can be found at **IP Devices Registration** on Device Configuration menu.



After selecting the camera, click **Camera Setting**.



Set the video data format and the information to be included in the data.

- **Video with UART sensor Data**: If Enabled, video data will contain UART sensor data from COM port.
- **Video with user defined message**: If Enabled, video data will contain the user-defined data. (Reserved Field)
- **Video with camera name**: If Enabled, video data will contain the camera name.
- **Video with server name**: If Enabled, video data will contain the server name you defined.
- **Video with IP address**: If Enabled, video data will contain the IP address of the video server.

Click **Apply** button to save the changes.

Camera Configuration

Each camera's parameters can be defined in this section. Select a channel that you'd like to configure.

Set the information of the camera.

- **Camera Name**: Enter the name of the channel in up to 21 alphanumeric or up to 10 Unicode characters.
- **Image Size**: Select the resolution of each channel's video data. This attribute applies to all the channels. (You may set the Image Size to what you did in IP Devices Registration.)
- **Image Quality**

Low Compression	Highest	High	Normal	Low	Lowest

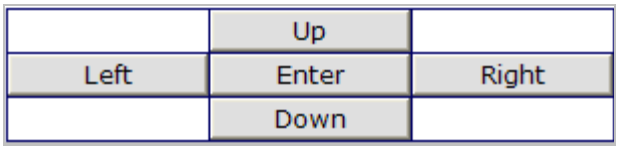
In Image quality level setup, selecting the left results in higher image quality, but requires higher network bandwidth. Selecting the right requires lower network bandwidth, but gives degraded image

quality.

After finishing the setting, click **Apply** button to save the changes. If you default button, every fields will be filled with the default values.

5.3.6. Built-in Camera Control for FW-1130/1131/1132/1173/1175

With this feature, you can send control signals to a camera when it supports functions such as AGC, ELC, AWB, etc. The OSD control window has four buttons of **Up**, **Down**, **Left**, **Right**, and **Enter** button.



On the center is the **Enter** button, and when it's pressed it goes to **Menu Mode** so that you can see the status of the menu. Moving on the menu items is done by **Up** and **Down** buttons, and the value change is done by **Left** and **Right** buttons.

SETUP Menu	Function	Description
LENS	MANUAL / DC / VIDEO	IRIS Control type of the lens mounted
SHUTTER	ESC / MANUAL / FLK	MANUAL : 1/60(50) - 1/120,000 sec, x2 - x128
WHITE BAL.	ATW / AWC / MANUAL	ATW: 1,800 10,500°K *AWC: ONE PUSH MANUAL: Adjustable between Red and Blue.
BACKLIGHT	OFF / LOW / MIDDLE / HIGH	Backlight compensation
AGC	OFF / LOW / MIDDLE / HIGH	Brightness can be adjusted.(1 - 70)
DNR	OFF / LOW / MIDDLE / HIGH	DNR is not functional if AGC is OFF.
SENS-UP	OFF / AUTO	SENS-UP is not functional if AGC is OFF.
SPECIAL	(* Refer to the table below)	-
EXIT		Exit from Menu Mode and save settings.

Special Menu	Function	Description
CAMERA ID	(Name of the camera)	Use up to 15 Alphanumeric and space
COLOR	AUTO / ON	**AUTO**: Automatic switch of Day & Night Mode (Day-time: Color Mode; Night-time: B/W mode) **ON**: Operate in COLOR mode always.
SYNC	INT / LL	**LL**: Adjustable between 0 - 359º **Trigger Signal**: Auto Sensing.
Motion Detection	OFF / ON	**ON**: Define 4 adjustable positions and sizes. When any motion is detected, it displays **MOTION DETECTED** on the screen.
PRIVACY	OFF / ON	**ON**: Define 4 positions, sizes, contrasts.
MIRROR	OFF / ON	Mirroring (Horizontal Image reversing)
SHARPNESS	OFF / ON	Adjustable between 0 - 31.
RESET		Reload the factory default condition.
RETURN		Return to SETUP menu after savingsettings.

5.3.7. Mega Pixel Camera Control for FW-1173-MM/1175-MM/1176-MM

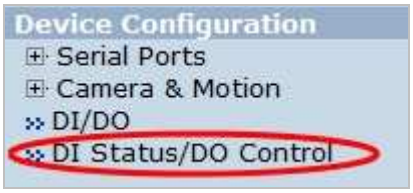
- **Max Exposure Time**: Select the exposure duration of the image sensor.
- **Brightness**: Select the brightness level of the screen.
- **Noise Filter**: Select **Enable** to use the noise filter.
- **Sharpness**: Select from 5 presets (Blur, Smooth, Normal, Enhanced, Sharp)

5.4. DI (Sensor Input) / DO (Alarm Output)

Select **DI/DO** from **Device Configuration** menu to configure Sensor Input and Alarm Output. After the setting up, select **DI Status/DO Control** on Device Configuration menu to configure the behavior of those Input and Output ports.

DI/DO Setup

DI/DO Control



DI/DO functionality can be set to either Normal Open or Normal Closed type as follows.

- **Normal Open Type**: Normal is **OPEN**, and goes **CLOSED** when triggered by an event.
- **Normal Close Type**: Normal is **CLOSED**, and goes **OPEN** when triggered by an event.

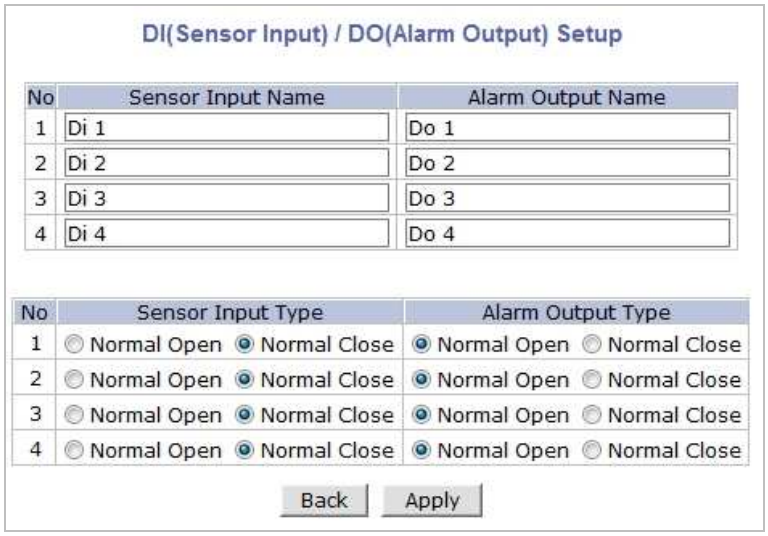
Note: Make sure the type of the sensor and use it correctly to the type. If a Sensor Input is not used, it must be set to Normal Open Type to avoid a false input.

5.4.1. DI/DO for FW-3450/5450/5470

There are 4 serial Input ports and 4 output ports in FW-3450 and FW-5450. A good example of the Input and Output usage is, an external sensor can be connected to the Input port, and a warning light is triggered by the Output port.

DI/DO Setup

Each Input and Output port can be assigned unique name respectively, so that you can easily distinguish every Input and Output ports from others by those names. This can be very useful in case of managing multiple sites with separate FlexWATCH Servers, where you can quickly and correctly identify which Sensor Input is detected or determines which Alarm Output needs to be activated.

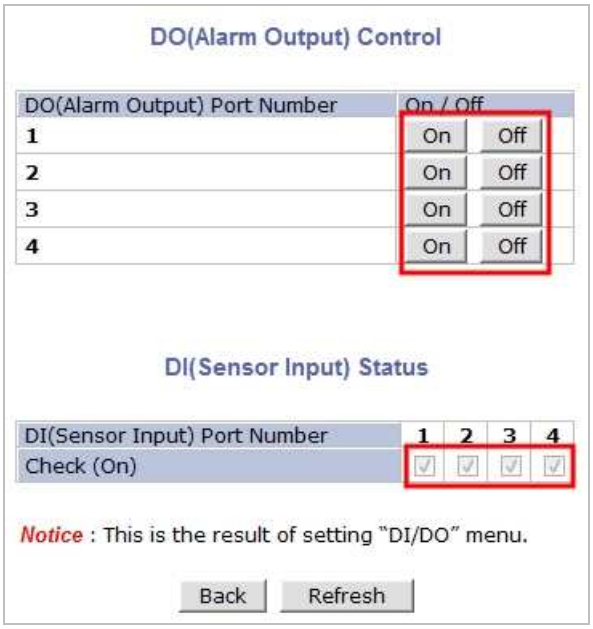


You can define **Sensor Input Name** and **Alarm Output Name** as you want, which should be up to 31 alphanumeric or up to 15 Unicode characters.

DI/DO Control

These models have 4 output ports and they act like a push button. When you click **On** button, it works like the push button pressed. When you click **Off** button, it works like the push button is released.

With **DI (Sensor Input) Status**, you can find out the status of the Alarm Input port. If the checkbox of **Check (On)** is displayed as checked, that means the alarm is activated. If not checked, that means no alarm is activated.

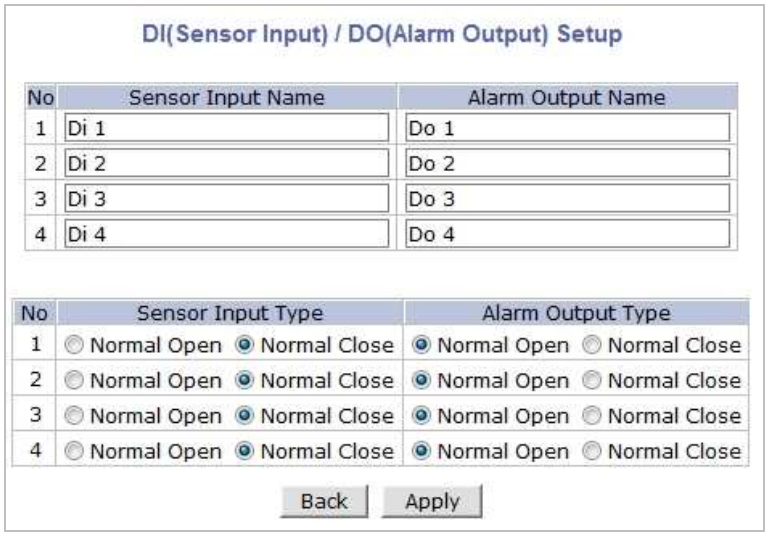


5.4.2. DI/DO for FW-3850/5850/5870

There are 8 serial Input ports and 8 output ports in FW-3850 and FW-5850 models. A good example of the Input and Output usage is, an external sensor can be connected to the Input port, and a warning light is triggered by the Output port.

DI/DO Setup

Each Input and Output port can be assigned unique name respectively, so that you can easily distinguish every Input and Output ports from others by those names. This can be very useful in case of managing multiple sites with separate FlexWATCH Servers, where you can quickly and correctly identify which Sensor Input is detected or determines which Alarm Output needs to be activated.

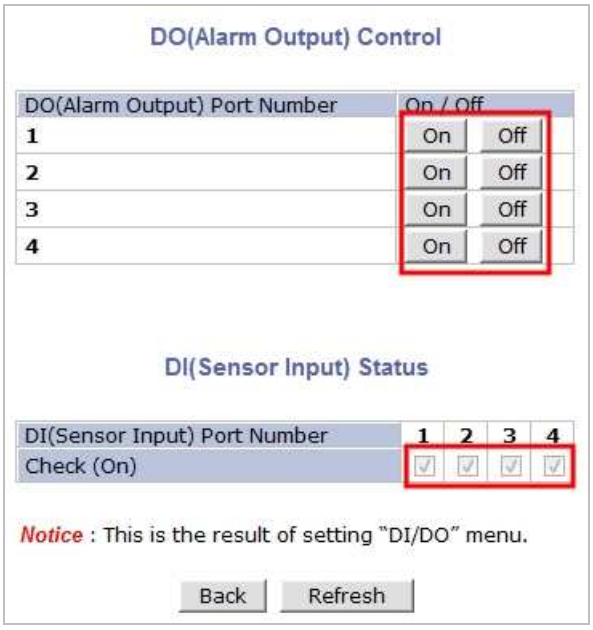


You can define **Sensor Input Name** and **Alarm Output Name** as you want, which should be up to 31 alphanumeric or up to 15 Unicode characters. After assigning names, click **Apply** button to take effect.

DI/DO Control

FW-3850 and FW-5850 have 8 output ports and they act like a push button. When you click **On** button, it is essentially like the push button is pressed. When you click **Off** button, it is like the push button is not pressed.

FW-3850 and FW-5850 have 2 built-in Module respectively, and each Built-in Module has 4 Alarm Outputs. The status of Sensor Input can be monitored through DI. When the checkbox is marked, that means the Alarm is activated. When it's not marked, then the Alarm is not activated.



5.4.3. DI/DO for FW-1130/1131/1132/1161/3150/1173/1175/1177/3170

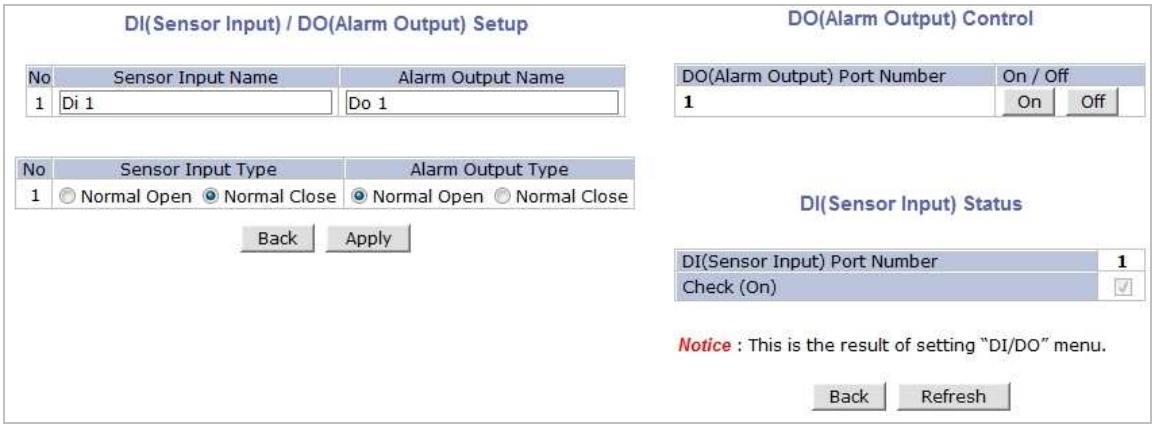
DI/DO Setup

You can define **Sensor Input Name** and **Alarm Output Name** as you want, which should be up to 31 alphanumeric or up to 15 Unicode characters.

DI/DO Control

These FlexWATCH models have 1 Alarm output port and they act like a push button. When you click **On** button, it is essentially like the push button pressed. When you click **Off** button, it is like the push button not pressed.

The status of Sensor Input can be monitored through DI. When the checkbox is marked, that means the Alarm is activated. When it's not marked, then the Alarm is not activated.



5.4.4. DI/DO for FW-5071

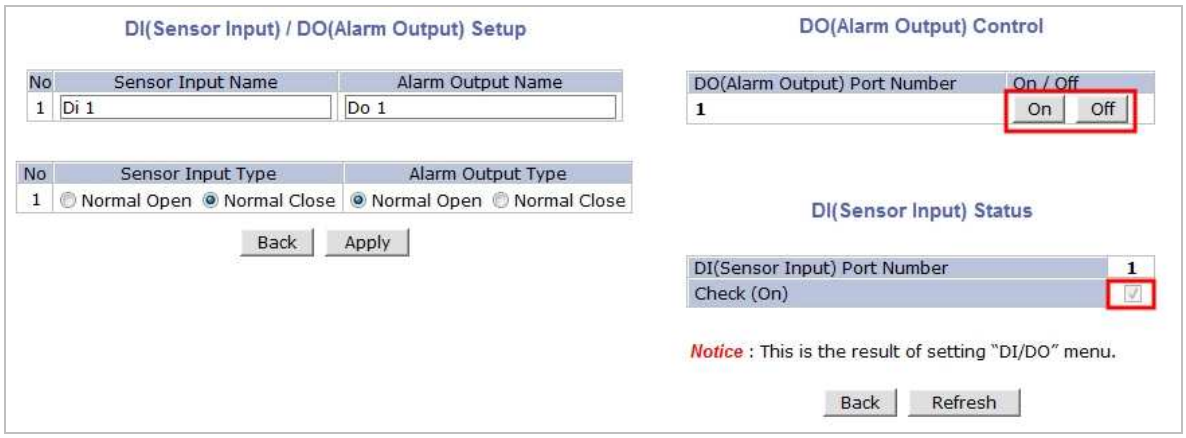
DI/DO Setup

You can define **Sensor Input Name** and **Alarm Output Name** as you want, which should be up to 31 alphanumeric or up to 15 Unicode characters. After entering the names of Input and Output, click **Apply** button. (* In this model, it is not allowed to select the type of Sensor Input / Alarm Output)

DI/DO Control

These two FlexWATCH models have ***n*** Alarm output port and they act like a push button. When you click **On** button, it is essentially like the push button pressed. When you click **Off** button, it is like the push button not pressed.

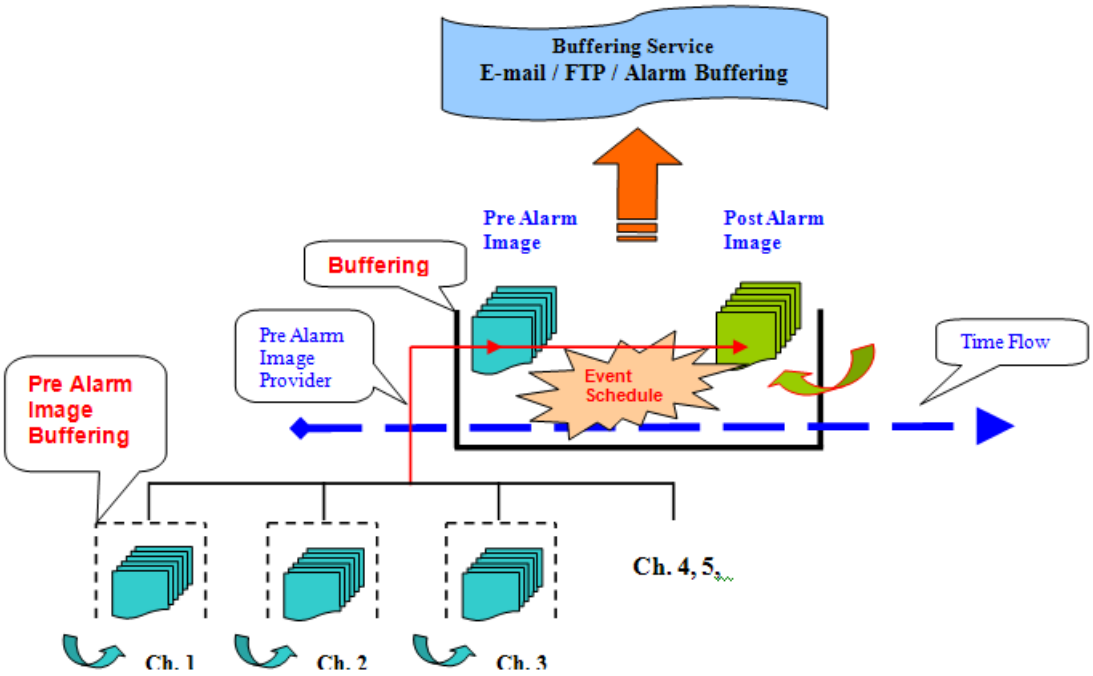
The status of Sensor Input can be monitored through DI. When the checkbox is marked, that means the Alarm is activated. When it's not marked, then the Alarm is not activated.



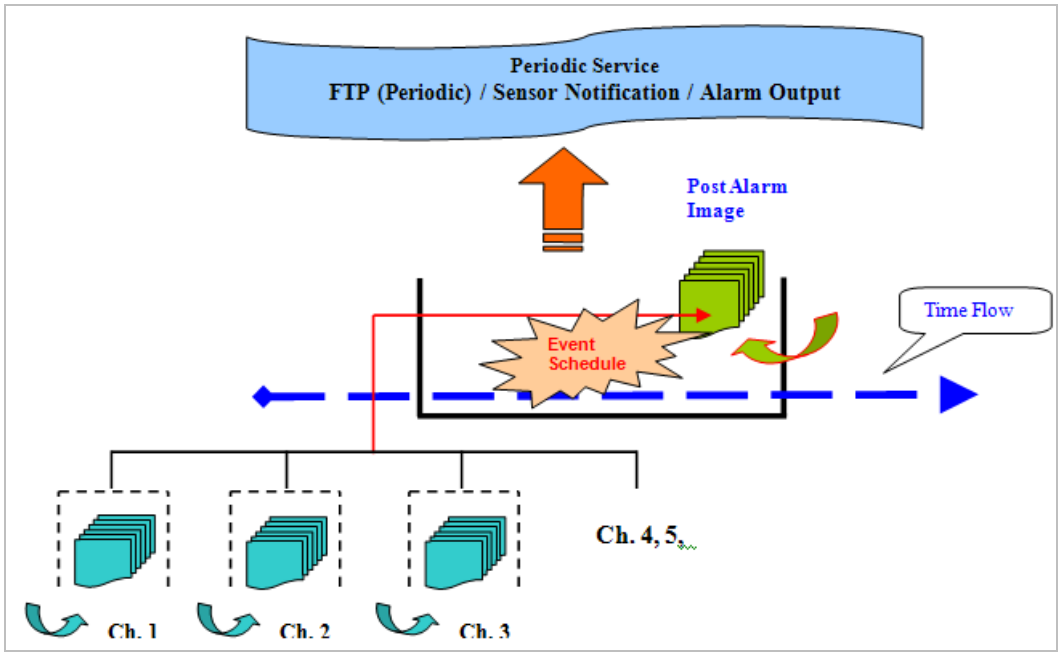
6. Advanced Configuration

FlexWATCH can be configured to start and stop certain pre-defined services by scheduling, event, or conditions. It also has ISENS feature, which is a way of integrating FlexWATCH with CMS software. You can set up the advanced services in **Advanced Configuration** menu.

There are two types of advanced service, one is **Buffered Service** and the other is **Periodic Service**. In Buffering Service, a series of images are continuously being stored in a buffer memory of server for a certain period of time. When the server is triggered by an event or schedule, the images or alarm status just before and after the event/schedule are reported to you by email or buffered FTP services.



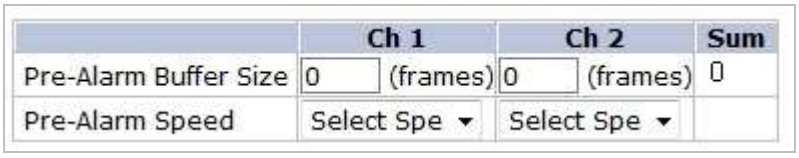
In Periodic Service, only the image, alarm/sensor status after an event/schedule is reported to you upon the server is triggered.



6.1. Advanced Services

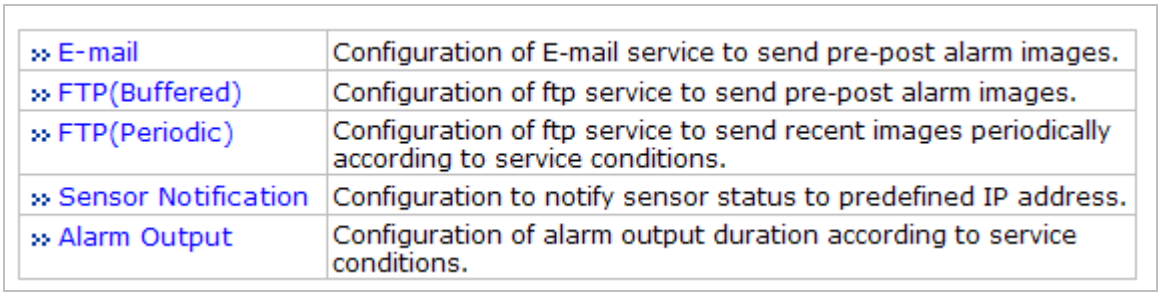
Pre-Alarm buffer size and buffering speed can be defined here.

- **Pre-Alarm Buffer Size**: You can set the buffer size which will store the images before event. The unit is in frame, and each channel can be set with different values. The total number of frames for Pre-Alarm Buffer and Post-Alarm Buffer is limited to 10 frames.



- **Pre-Alarm Speed**: You can set the buffering speed. If it's set to Fastest, the server will store images as fast as it can. Each cannel can be set with different values.

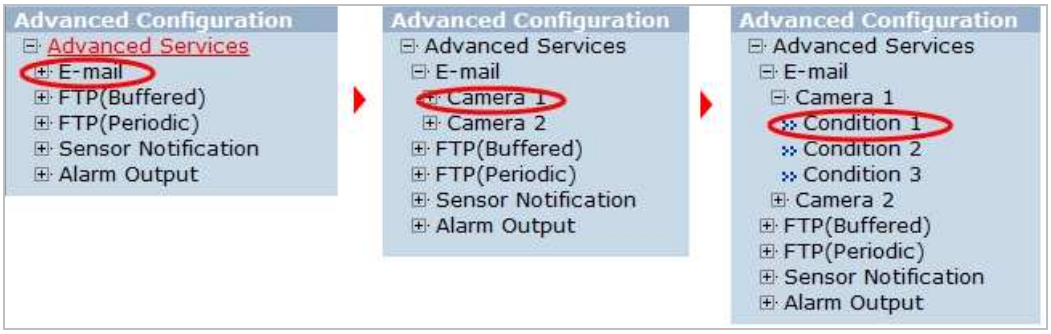
This configuration applies to E-mail and FTP (Buffered), and click **Save** button to apply changes.

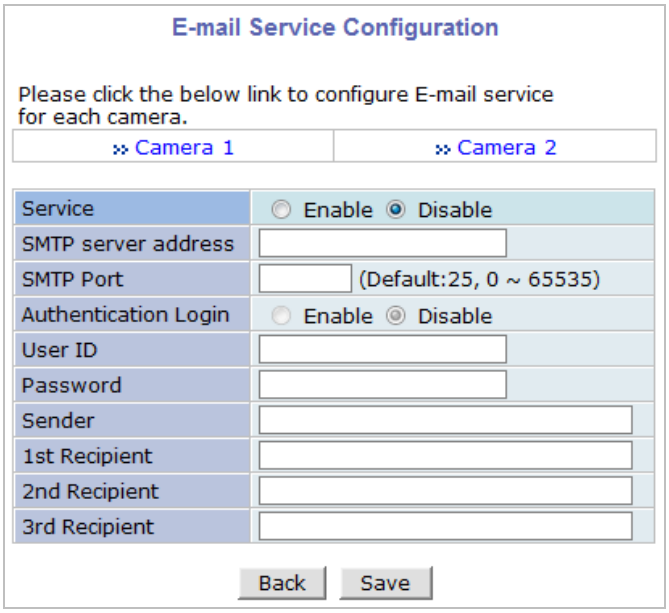


- **E-mail**: Set up Email Service configuration
- **FTP (Buffered)**: Set up FTP (Buffered) Service configuration
- **FTP (Periodic)**: Set up FTP (Periodic) Service configuration
- **Sensor Notification**: Set up configuration such as CGI by notification
- **Alarm Output**: Set up Alarm Output (DO Control) configuration

6.1.1. E-mail Service Configuration

Email configuration is set up here for Alarm in case any event occurs.



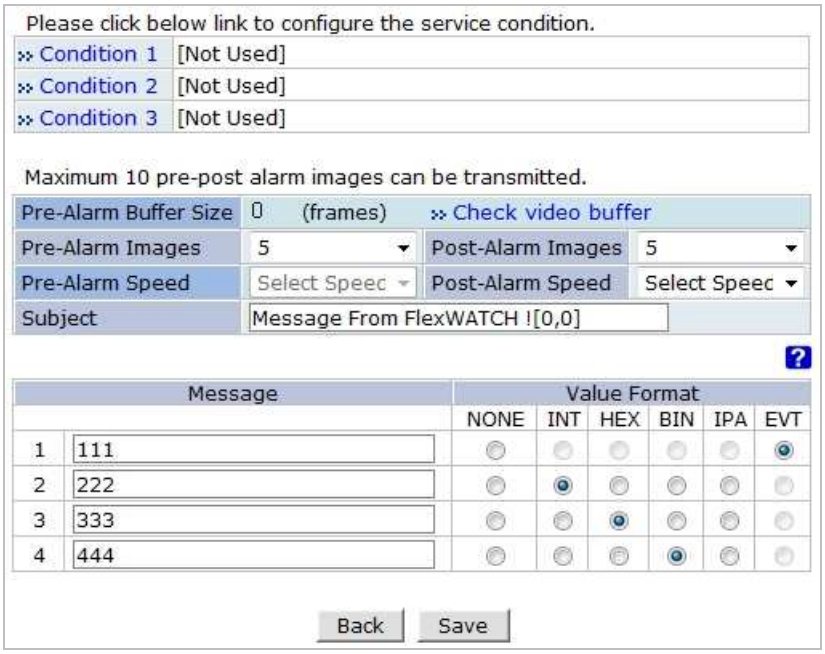


Item	Description
Camera 1~2 (max 4)	Select a channel to be configured for email notification
Service	Select **Enable** in order to use this service
SMTP server address	Enter SMTP server's address for sending email.
Authentication Login	Select **Enable** if SMTP server requires ID and password
User ID	Enter User ID to log in to SMTP server
Password	Enter Password to log in to SMTP server
Sender	Enter email address of the sender
1st Recipient	Enter the email address of the first recipient
2nd Recipient	Enter the email address of the second recipient
3rd Recipient	Enter the email address of the third recipient

Click **Save** button to apply the change. If you don't want to change, click **Back** button.

E-mail Service Setup for Each Channel

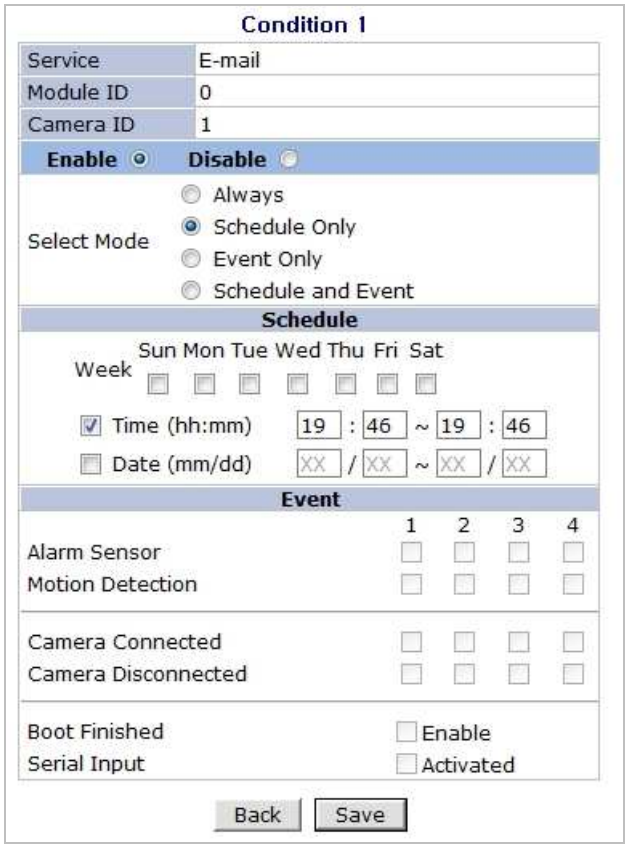
For each channel, the following items can be configured for email service: Condition, Post-Alarm Buffer Size, and Post-Alarm speed. The content of text message and display style of DI value can be configured as well.



Item	Description
Condition 1 ~ Condition 3	Select a condition for Email service to be activated.
Pre-Alarm Buffer Size	The Buffer size assigned for Pre-Alarm.
Check Video buffer	Click this link to go to Advanced Services for buffer setup.
Pre-Alarm Images	The number of image frames to store before Alarm
Post-Alarm Images	The number of image frames to store after Alarm
Pre-Alarm Speed	This field shows the speed of Pre-Alarm. Configuration can be done in Advances Services page.
Post-Alarm Speed	Select the speed of Post-Alarm. **Fastest** is the highest value.
Subject	Subject of the E-mail message to send.
1	Content of the first line in the email message.
2	Content of the second line in the email message.
3	Content of the third line in the email message.
4	Content of the fourth line in the email message
Value Format	Select the format for the Event or DI data to email. NONE: Don't Send, INT: Decimal, HEX: Hexadecimal, BIN: Binary, IPA: IP Address, EVT: Name of Event

After finishing setup, click **Save** button to apply. If you don't want to change, click **Back** button.

Condition, Schedule & Event Configuration

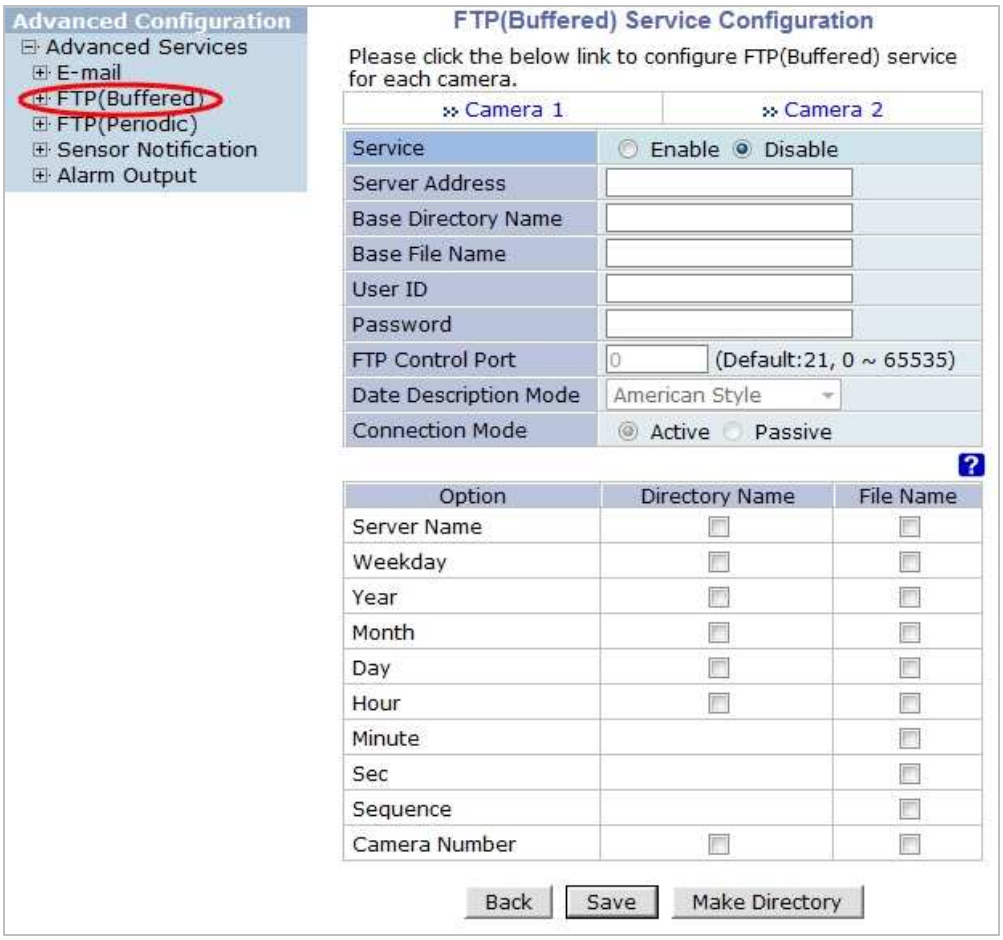


If you click on a **Condition** link, the **Advanced Service** windows is displayed as shown below. Alarm Service is activated only when the conditions in Advanced Services are met.

Item	Description
Service	This shows what service this condition is for.
Module ID	Module ID for current setup
Camera ID	Channel ID for current setup
Enable / Disable	Select **Enable** to use Condition, otherwise select **Disable**.
Always	This Condition applies all the time. (Schedule or Event is not usable)
Schedule Only	Use Week, Time, and Date in Condition parameter. If none of weekdays is set, it is activated every day.
Event Only	It is activated only when any of the following events occurs. (Sensor, Motion Detection, Camera Connection, Server Booting)

To save the setting, click **Save** button. If you want to cancel it, click **Back**.

6.1.2. FTP (Buffered) Service Configuration

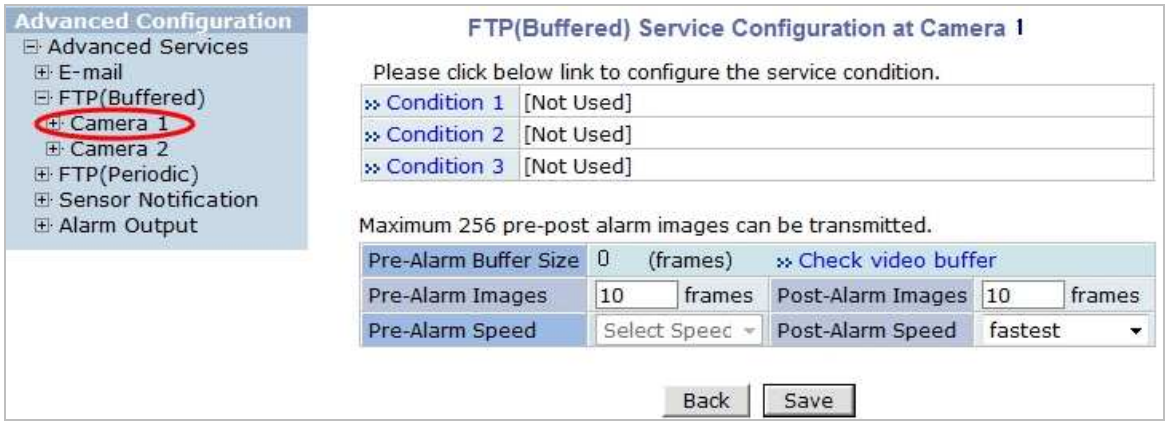


Item	Description
Camera 1 - Camera 4	Select which channel to set up for FTP (Buffered).
Service	Select **Enable** to use the FTP (Buffered) service. Otherwise select **Disable**.
Server Address	FTP Server Address.
Base Directory Name	The directory in FTP server where the data will be uploaded. (You should make the directory in the FTP server before using the service.)
Base File Name	The base file name of the data to be uploaded in FTP server.
User ID	Enter a User ID to log in to FTP server.
Password	Enter the Password for the user ID to log in to FTP server
FTP Control Port	Port number for FTP server (Normally 21 is used)
Date Description Mode	Select Date Display Style (e.g. 20090228)
Connection Mode	Select connection mode for FTP server
Server Name	If **Directory Name** is checked, new directory is created with server name. If **File Name** is checked, new file is created with server name.
Weekday	If **Directory Name** is checked, new directory name is created with weekday. If **File Name** is checked, new file name is created with weekday.
Month	If **Directory Name** is checked, new directory name is created with month. If **File Name** is checked, new file name is created with month.

Day	If **Directory Name** is checked, new directory name is created with day. If **File Name** is checked, new file name is created with day.
Hour	If **Directory Name** is checked, new directory name is created with hour. If **File Name** is checked, new file name is created with hour.
Minute	If checked, new file name is created with minute.
Sec	If checked, new file name is created with second.
Sequence	If checked, new files are created starting from 0, with increment of 1.
Camera Number	If **Directory Name** is checked, new directory is created with camera number. If **File Name** is checked, new file is created with camera number.

To create a directory with the options shown above, click **Make Directory** button. After finishing the configuration, click **Save** button to apply the change and continue to the next page. Clicking **Back** button will cancel the changes and go back to the previous page. (This service is available only in M-JPEG mode.)

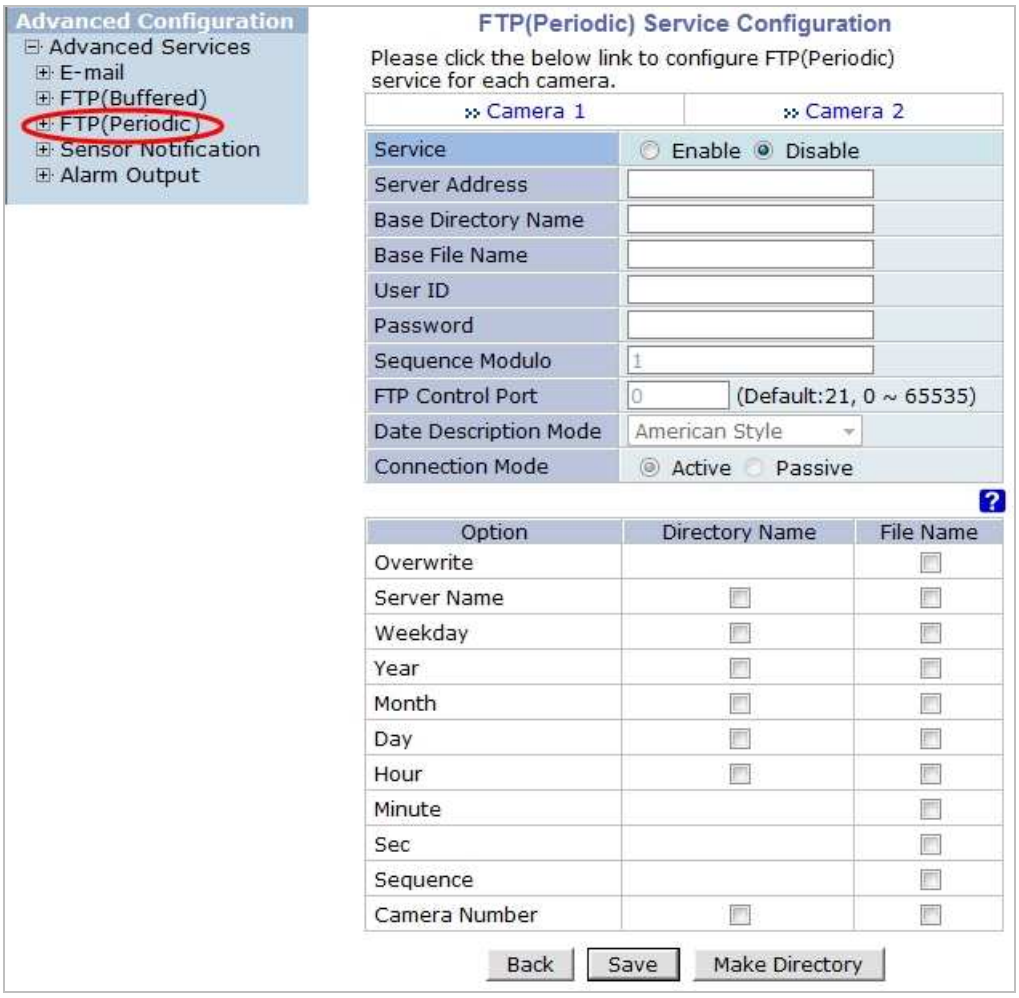
FTP (Buffered) Service Configuration at Camera 1



Item	Description
Condition 1 ~ Condition 3	Select a condition for FTP (Buffered) service to be activated. Up to 3 conditions can be set.
Pre-Alarm Buffer Size	The Buffer size assigned for Pre-Alarm.
Check Video buffer	Click this link to go to Advanced Services for video buffer setup.
Pre-Alarm Images	The number of image frames to store before Alarm.
Post-Alarm Images	The number of image frames to store after Alarm.
Pre-Alarm Speed	This field shows the speed of Pre-Alarm. Configuration can be done in Advances Services page.
Post-Alarm Speed	Select the speed of Post-Alarm. **Fastest** is the highest value.

After finishing setup, click **Save** button to apply. If you don't want to change, click **Back** button.

6.1.3. FTP (Periodic) Service Configuration



Item	Description
Camera 1 - Camera 4	Select which channel to set up for FTP (Periodic) service
Service	Select **Enable** to use the FTP (Periodic) service. Otherwise select **Disable**.
Server Address	FTP Server Address.
Base Directory Name	The directory in FTP server where the data will be uploaded. (You should make the directory in the FTP server before using the service.)
Base File Name	The base file name of the data to be uploaded in FTP server.
User ID	Enter a User ID to log in to FTP server.
Password	Enter the Password for the user ID to log in to FTP server
Sequence Modulo	Maximum number used in sequential file name
FTP Control Port	Port number for FTP server (Normally 21 is used)
Date Description Mode	Select Date Display Style (e.g. 20090228)
Connection Mode	Select connection mode for FTP server
Overwrite	If checked, new file overwrites the existing file with the same name.
Server Name	If **Directory Name** is checked, new directory is created with server name. If **File Name** is checked, new file is created with server name.

Weekday	If **Directory Name** is checked, new directory name is created with weekday. If **File Name** is checked, new file name is created with weekday.
Month	If **Directory Name** is checked, new directory name is created with month. If **File Name** is checked, new file name is created with month.
Day	If **Directory Name** is checked, new directory name is created with day. If **File Name** is checked, new file name is created with day.
Hour	If **Directory Name** is checked, new directory name is created with hour. If **File Name** is checked, new file name is created with hour.
Minute	If checked, new file name is created with minute.
Sec	If checked, new file name is created with second.
Sequence	If checked, new files are created starting from 0, with increment of 1.
Camera Number	If **Directory Name** is checked, new directory is created with camera number. If **File Name** is checked, new file is created with camera number.

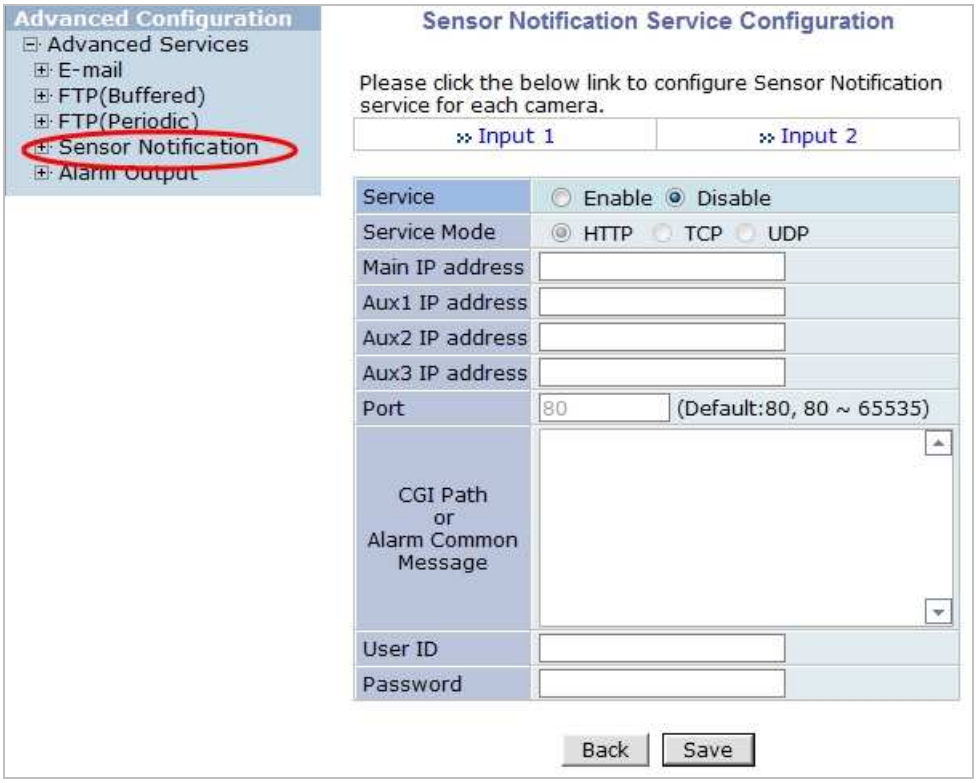
To create a directory with the options shown above, click **Make Directory** button. After finishing the configuration, click **Save** button to apply the change and continue to the next page. Clicking **Back** button will cancel the changes and go back to the previous page. (This service is available only in M-JPEG mode.)

FTP (Periodic) Service Configuration for each channel

Item	Description
Condition 1 ~ Condition 3	Select a condition for FTP (Periodic) service to be activated. Up to 3 conditions can be set respectively.
Alarm Speed	Select the speed of images to send in FTP(Periodic) service

After finishing setup, click **Save** button to apply. If you don't want to change, click **Back** button.

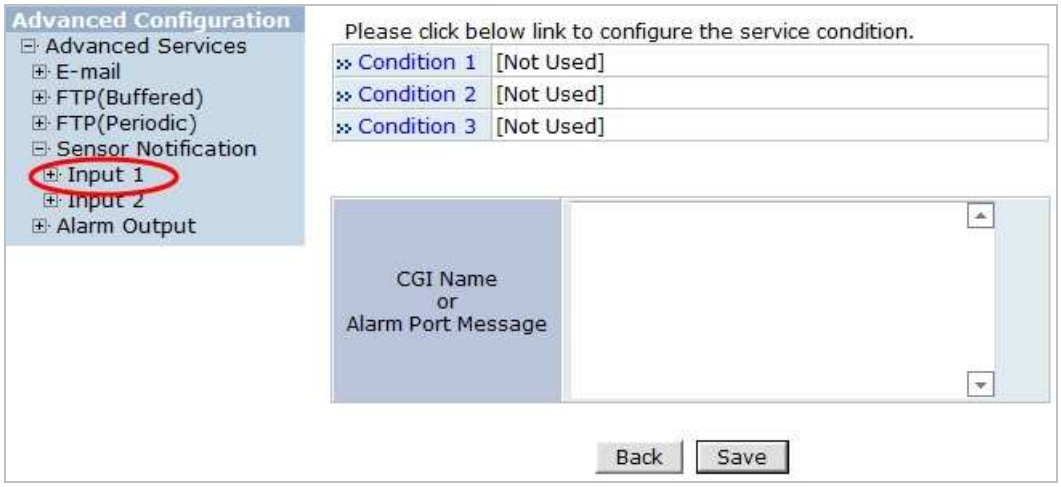
6.1.4. Sensor Notification Service Configuration



Item	Description
Input 1 - Input 4	Select which input to set up for Sensor Notification Service
Service	Select **Enable** to use Sensor Notification. Otherwise select **Disable**.
Service Mode	Select network mode for CGI. Select one among HTTP, TCP, or UDP.
Main IP address	Enter IP address to use in CGI or other functions
Aux1 ~ Aux 3 IP address	Enter 3 more addresses to use in CGI or other functions if needed.
Port	Enter port number for CGI or other functions. Default is 80.
CGI Path or Alarm Common Message	Enter CGI Path for CGI or other functions.
User ID	Enter User ID to log in.
Password	Enter Password for the User ID to log in.

After finishing the configuration, click **Save** button to apply the change and continue to the next page. Clicking **Back** button will cancel the changes and go back to the previous page.

6.1.5. Sensor Notification Service Configuration for Each Input



Item	Description
CGI Name or Alarm Port Message	Enter the contents of CGI when it is used.

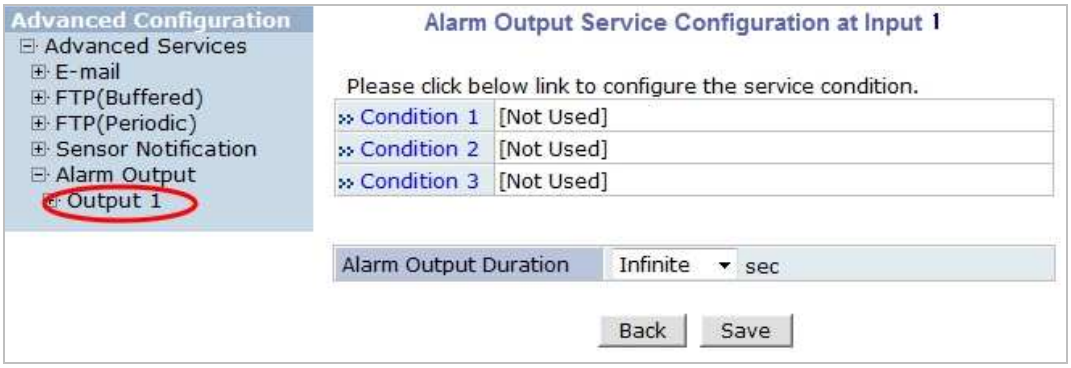
Click **Save** button to save the change. Clicking **Back** button will cancel the change and go back to previous page.

6.1.6. Alarm Output Service Configuration

Category	Contents
Output 1 – Output 4	Select the output port to configure for **Alarm Output Service**.
Service	Select **Enable** to use the service, otherwise select **Disable**.

After finishing the configuration, click **Save** button to apply the change and continue to the next page. Clicking **Back** button will cancel the changes and go back to the previous page.

6.1.7. Alarm Output Service Configuration for each Output



Item	Description
Condition 1 - Condition 3	Select a condition to configure Alarm Output Service. Up to 3 conditions can be set respectively.
Alarm Output Duration	Select how long the Alarm Output signal is maintained. Unit is in second.

7. Recording Configuration for FW-5071/5450/5850/5870 & FW-1170/1173/1175/1176 with microSD Slot

It is possible to record and search the video data sent from camera if the FlexWATCH Server is equipped with a hard disk drive. Recording configuration is available only when a hard drive is up and running in the server. You can format the hard drive, check the information of the drive, and set the recording conditions of motion detection and event.

Some versions of FlexWATCH network cameras (FW-1170/1173/1175/1176) have microSD slots on the back. Those models can record video if microSD card is present in the slot, which supports 1GB to 32GB.

7.1. HDD Configuration

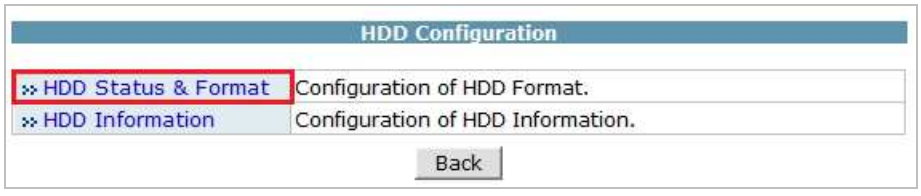
If the HDD is not installed yet, turn off the FlexWATCH Server by using the power switch located on back or front panel. Install the hard drive in the FlexWATCH Server, and turn the power back on. Now on your PC's web browser, connect the FlexWATCH Server with a proper IP address, and enter the server as admin.

Click **Recording Configuration**.

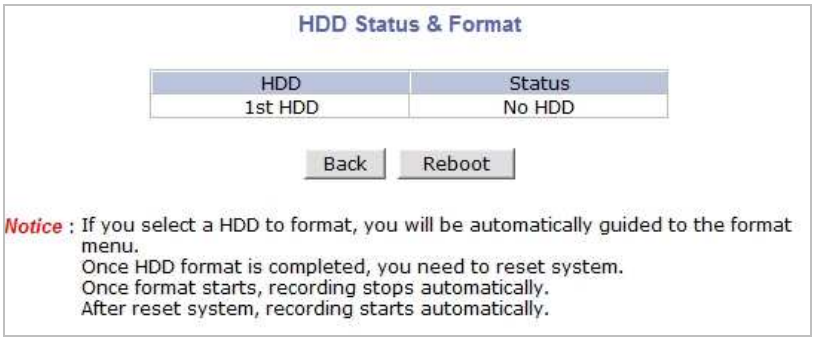
> *Note: Before attaching a hard disk drive, make sure the FlexWATCH Server is turned off. Otherwise, the hard drive may get defected. Also check if the hard drive you're installing is in the list of usable hard drive since an unlisted hard drive may not function properly.*

Click **HDD Information** to see whether it is in a formatted condition.

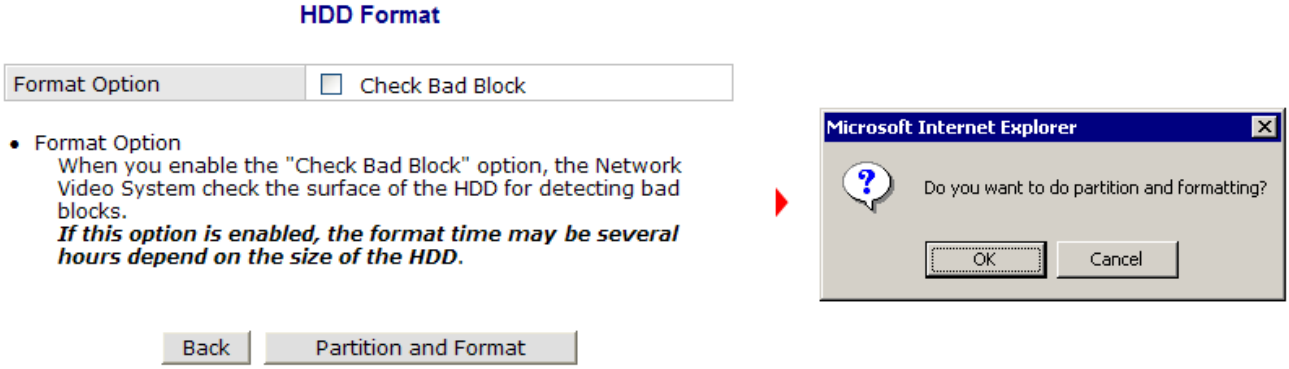
If **HDD Information** window displays all the fields as **-None-**, that means the hard drive is not in a formatted condition. To start formatting, click **Back** button to go back to the previous menu, and then click **HDD Status & Format**.



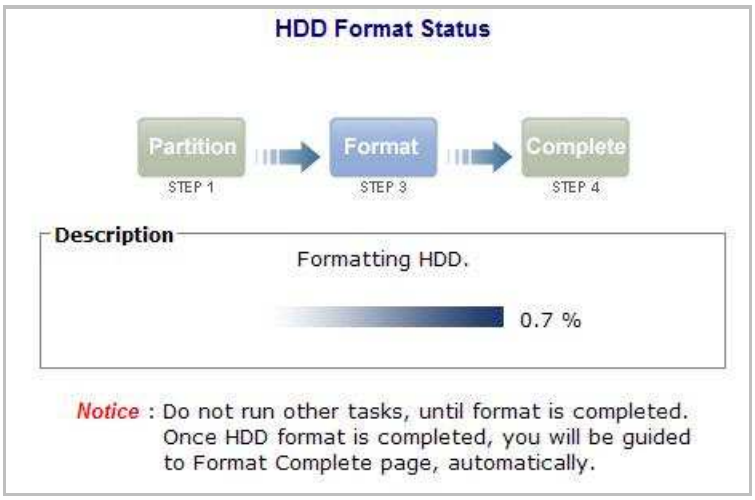
The list of hard drives will be displayed with the format status. Click on the one you'd like to format.



If you put check mark on **Check Bad Block** option, it'll take much longer time to complete the formatting process. In case of installing a new hard drive, it's not necessary to use that option.



Click **Partition and Format** button, then a confirmation window will be displayed. Click **OK** button to proceed formatting, otherwise click **Cancel** button. The progress of formatting will be displayed as below.

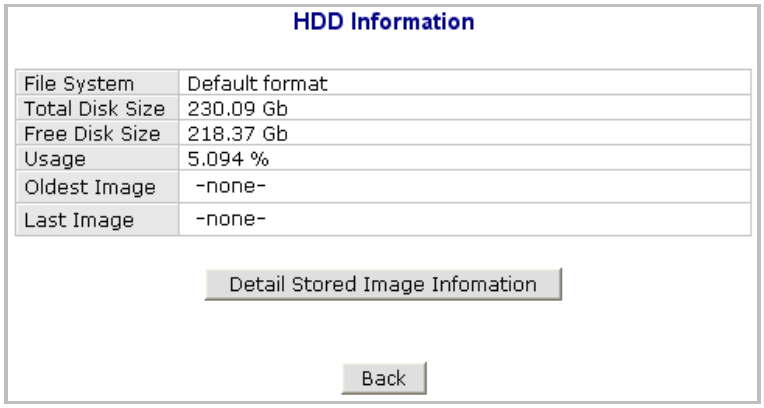


Note: If an abnormal termination is happened during the formatting process, it is possible for the hard drive to be defected. Make sure to complete the process properly.

When formatting is finished, a notification window is displayed. Click **OK** button.

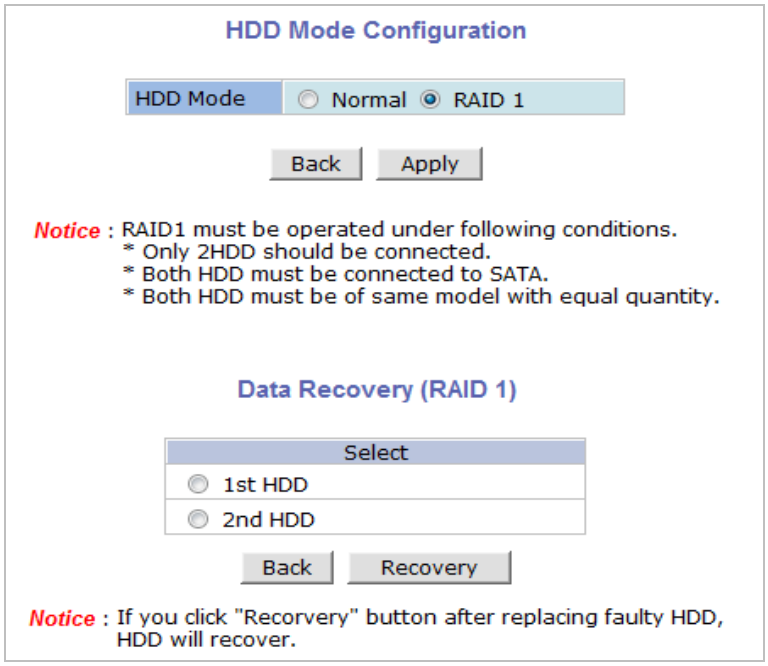
Now you will see the **HDD Status & Format** window, and the status of **1st HDD** has been changed to Formatted. If there're more HDD's newly installed, go ahead with formatting them. After completing all the hard drive's formatting, click **Reboot** button.

Reboot process will take about 30 seconds. Then with your PC's web browser, open the Admin Page of the FlexWATCH Server, and check **HDD Information** on **Recording Configuration** menu.



If you want to use RAID 1 feature, two hard drives are required in the system. It is strongly recommended to use the same sized drives. With two drives in the system, you will see the HDD mode configuration window will be shown as below. You have choice of **Normal** and **RAID1**. If you choose **Normal**, the two hard drives will store different data and the total amount of storage space will be the combined capacity of them. If you choose **RAID1**, there will be only one hard drive seen on the system and the total amount of storage space will be the capacity of smaller drive.

When using **RAID1** feature, if either one of the hard drives fails you will still be able to record and search video data without any problem. To replace the failed hard drive, it is required to turn the power off and replace it with a new one. Then turn the power back on, enter the **HDD Mode** page, choose **Data Recovery** menu, select the new hard drive, and click **Recovery**. By doing that procedure, RAID1 feature will start functioning again. If HDD Mode is set to Normal, Data Recovery menu is not shown on the window.

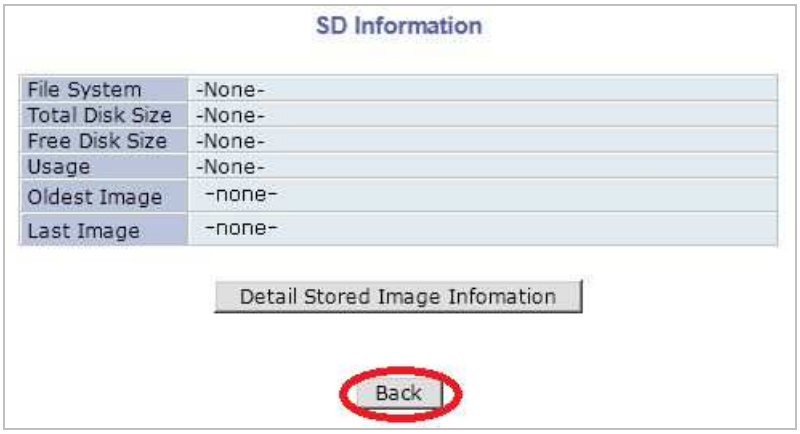


7.2. microSD Configuration

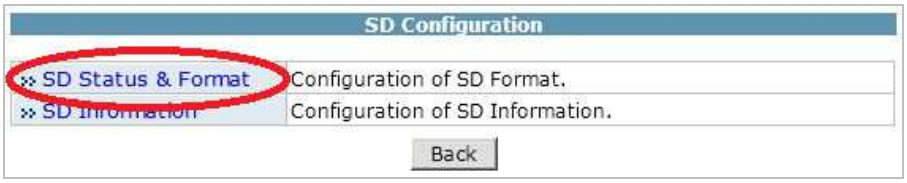
If a microSD card (SD card) is not present in the slot already, turn off the FlexWATCH network camera before inserting a SD card. Make sure to turn the power on after inserting the SD card. Open a web browser, type in the IP address of the FlexWATCH network camera. Log in as admin, and run **Recording Configuration**.

> *Note: Be sure to turn off the device before installing a SD card. Otherwise, the SD card may become defective. Always check the recommended type of SD card because non-conforming SD cards can cause abnormal behavior of the system.*

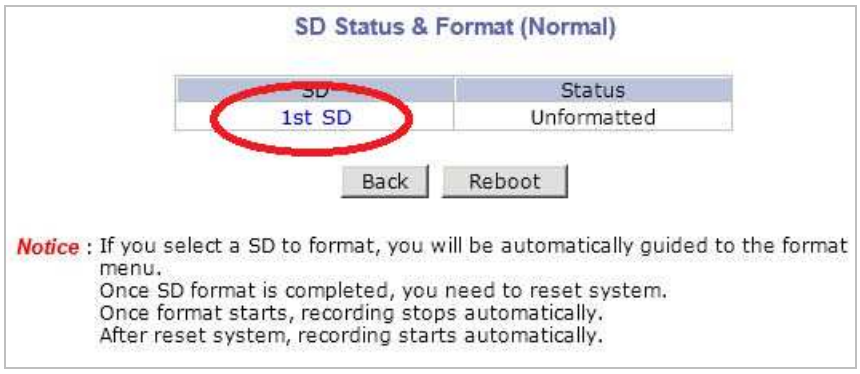
Enter Recording Configuration menu, then click the **SD Information** to find out the SD card's format information.



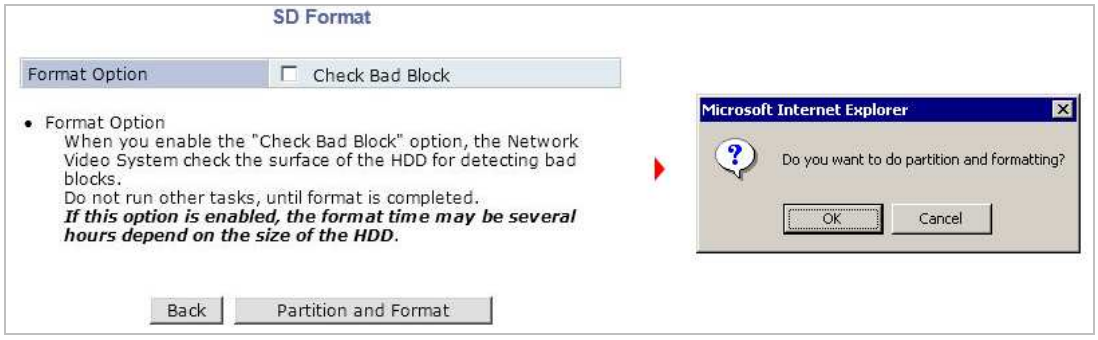
If entire SD Information is shown as **-None-**, that means the SD card is not formatted. In that case, click the **Back** button followed by clicking **SD Status & Format**.



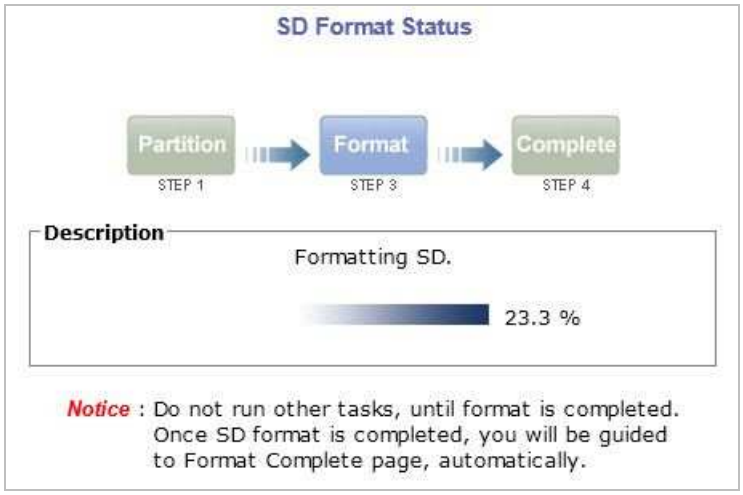
Now you will see the list of SD cards available and whether they are formatted or not. To perform formatting the unformatted one, click the SD card.



Then the following window will be displayed.



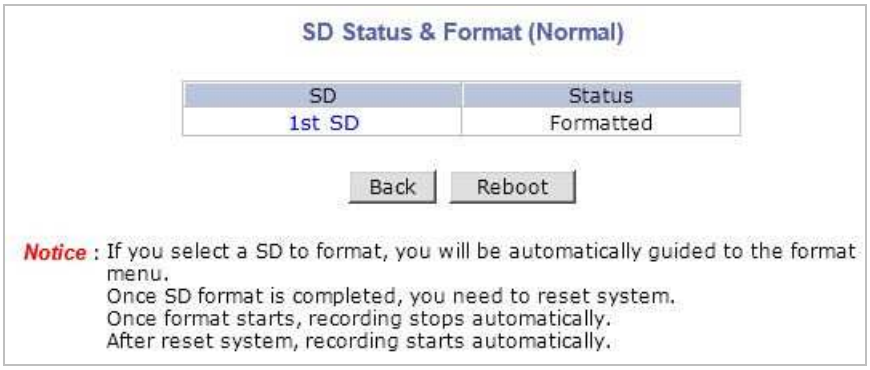
Click the **Partition and Format** button, then a pop-up window will be shown to confirm the formatting. Click the **OK** button to proceed, or click the **Cancel** button to abort the formatting.



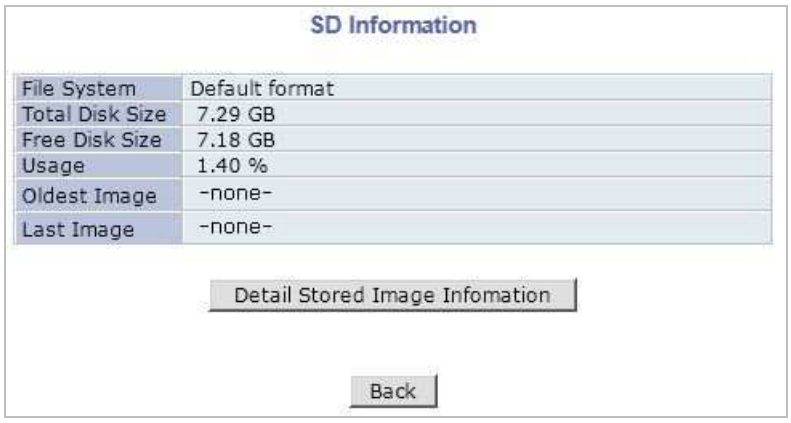
Note: If the program is terminated during the format process, the SD card may be damaged. To avoid this problem, make sure to close the program in the right manner and check the SD card.

After formatting is finished, the following window will appear informing it. Click the **OK** button.

On **SD Status & Format** window, you will be able to see that the **1ST SD** is shown formatted. After formatting SD card is finished, click the **Reboot** button to restart the system.



After about 30 seconds, the system will be rebooted. You will be able to see the following information when you log in to the Admin web page of the FlexWATCH server.



7.3. Recording Configuration for FW-5050/5071/5450/5850 & FW-1170/1173/1175/1176 with microSD Slot

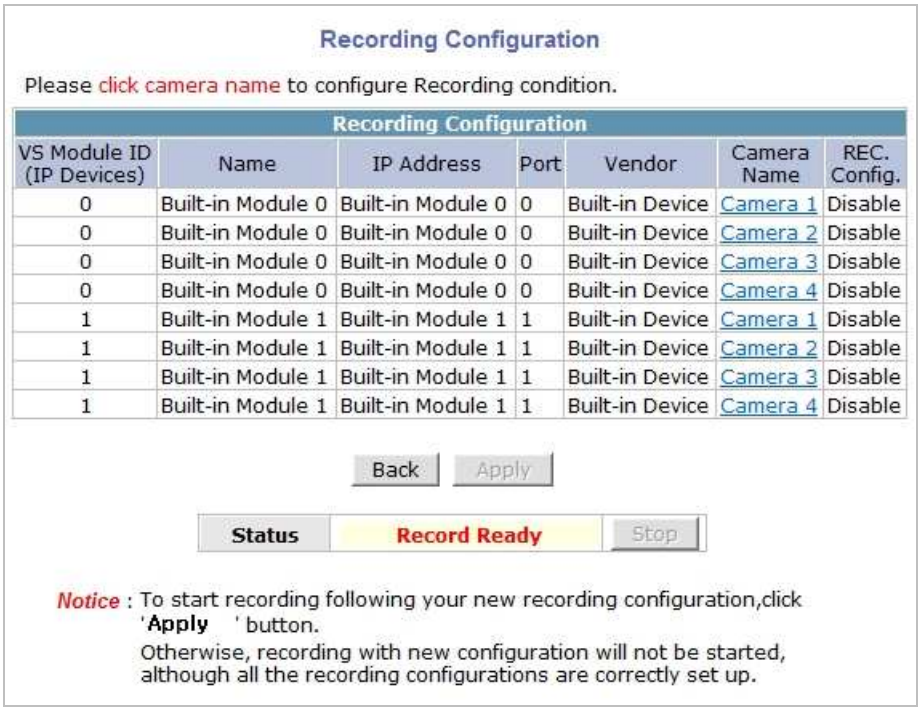
Each camera can be configured for recording option in this section. Configuration items include motion detection recording, 24-hour continuous recording, event-driven recording, and etc. If other vendor's products are added in the previous **IP Devices Registration** section, those cameras' video can be also recorded in your device.

You can find out the list of servers with recording capability by clicking **Recording Configuration**. For example, you will see 12 channels from the list of **VS Module ID (IP Devices)** after adding two FW-3450 devices in **IP Devices Registration** of FW-5450. That means, FW-5450 can record the video sent from other remote cameras, as well as the four local cameras attached.

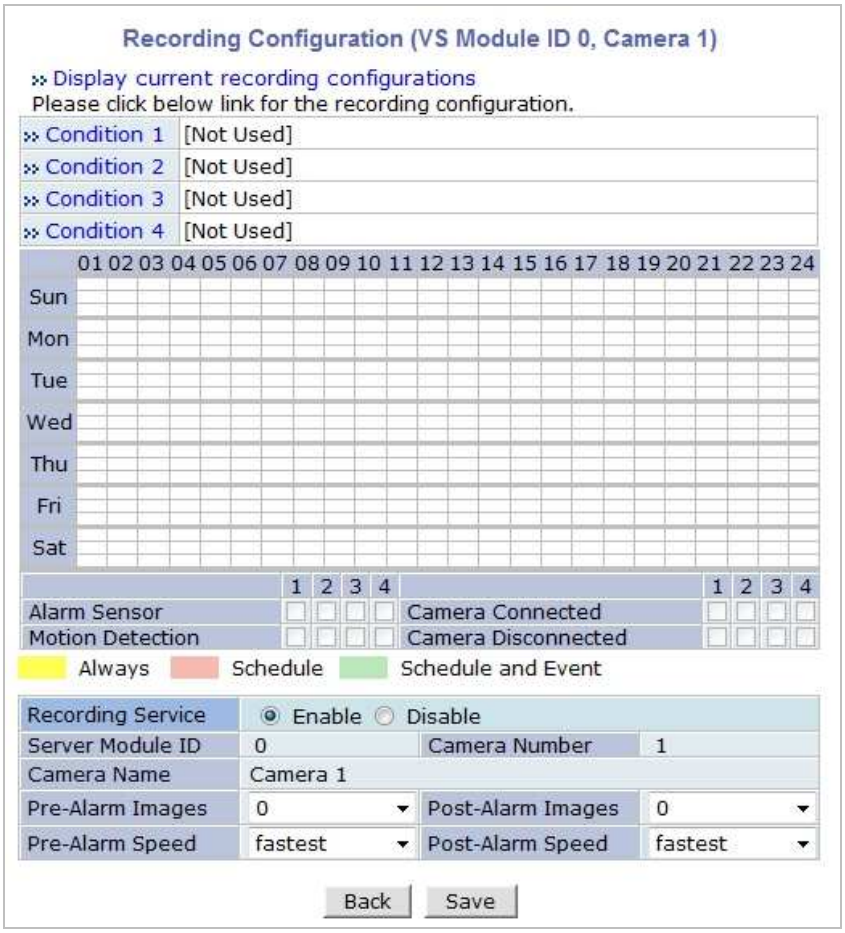
Below is an example of configuring the motion detection-triggered recording for FW-5450 model. It starts by clicking **Recording Configuration**.

It displays the information of the recording-capable servers such as VS Module ID (IP Devices), Server Name, Server IP Address, Service Port Number, Vendor, Camera Name, and Record ability. To configure, select a camera according to your need.

Below is the **Recording Configuration** screen when **Camera 1** is selected from Module **ID (IP Devices) 0**, which is attached to the FW-5450 device.

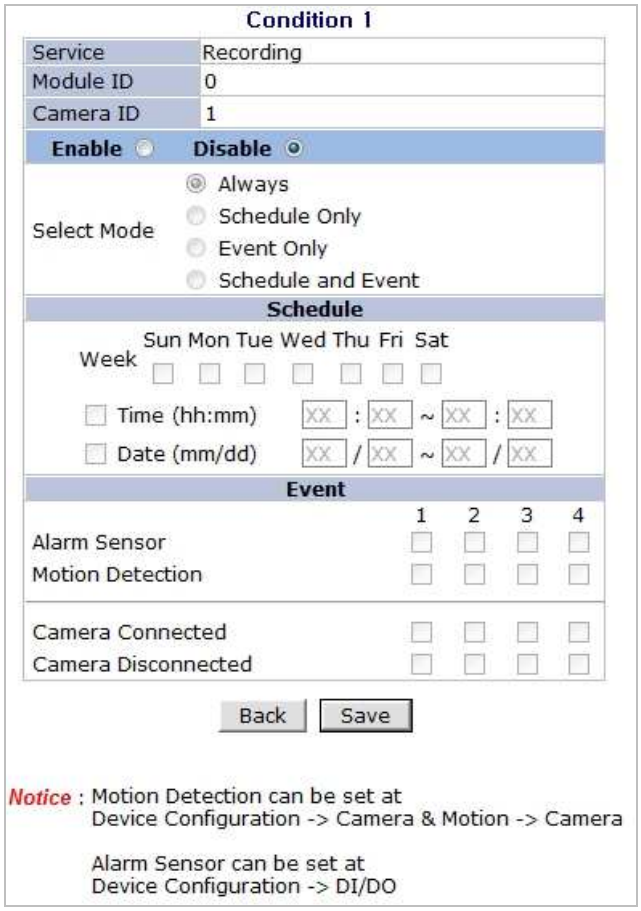


Click on **Camera 1**, and it will display the screen for detailed configuration such as recording speed, camera name, Pre- and Post-alarm image speed. After configuring them properly, click the **Save** button to save the change.



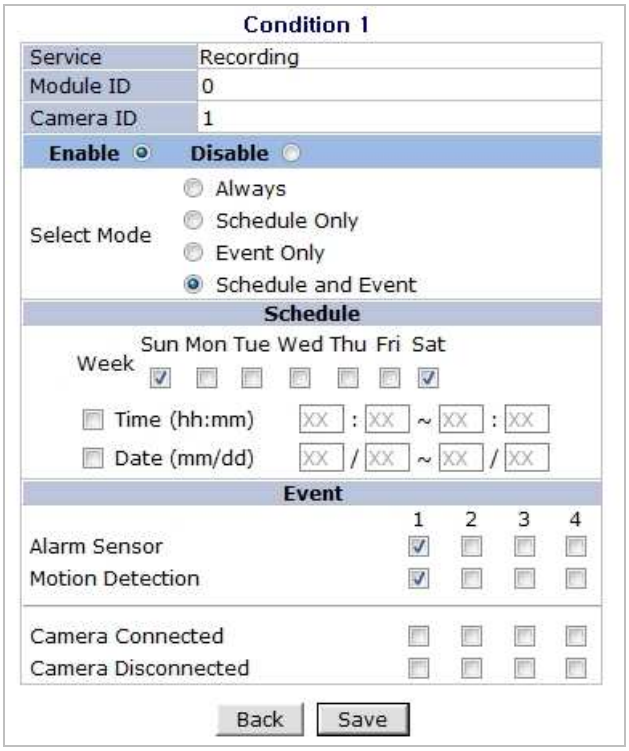
Item	Description
Condition 1~4	Set the conditions for recording
Graphs for Time, Day of week, Alarm, Motion, Camera Connection	Graphic displays of conditions for recording
Recording Service	Click **Enable** to record the video. Click **Disable** otherwise.
Server Module ID	Server ID number of the added VS Module ID (IP Devices).
Camera Number	Camera number to select.
Camera Name	The name of the camera selected. Use up to 31 alphanumeric or 15 Unicode characters.
Pre-Recording Speed	Recording speed before Event. Valid only when Recording condition is set to **Always** or **Schedule**.
Pre-Alarm Count	The number of frames stored before Event. Up to 5 frames. Valid only for **Event-Driven Recording**.
Post-Recording Speed	Recording speed after Event. Valid only when Recording condition is set to **Event-Driven Recording**.
Post-Alarm Count	The number of frames stored after Event. Up to 5 frames. Valid only for **Event-Driven Recording**.

Up to 4 different recording conditions can be set per camera. All the conditions are checked by **OR** logic, so it will start recording when at least one of the conditions is met. To set a condition, click **Condition 1**, then Condition setup screen will be displayed.

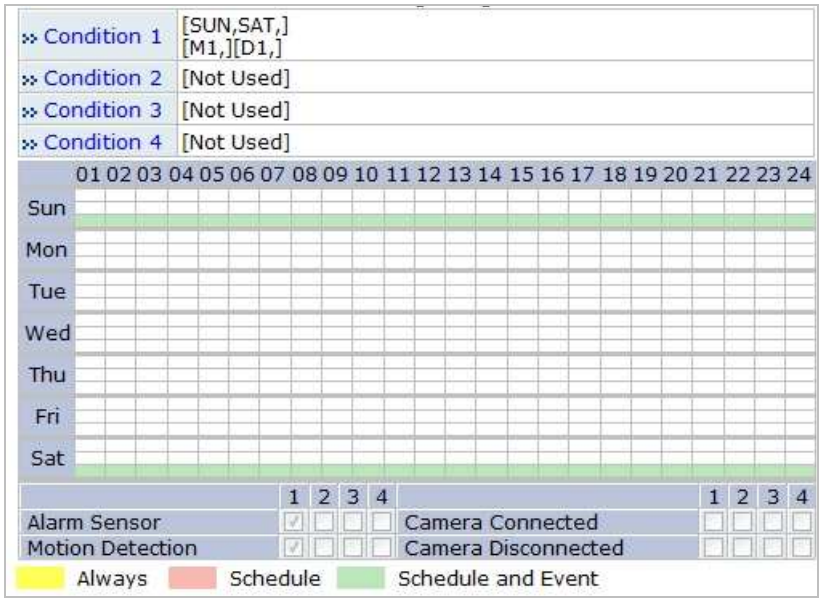


Category	Item	Description
Select Mode	Always	Recording is enabled all the time.
	Schedule Only	Recording is done by configured schedule.
	Event Only	Recording is controlled by configured event.
	Schedule and Event	Recording is controlled by both schedule and event.
Schedule	Week	Set day of week
	Time	Set time
	Date	Set date
Event	Alarm Sensor	Each of 1, 2, 3, 4 refers to the sensor number, and checked when Event-Driven Recording is selected. If all the four sensors are checked together, recording is enabled only when all four sensor are activated.
	Motion Detection	Each of 1, 2, 3, 4 refers to the sensor number, and checked when Motion Detection Recording is selected. If all the four sensors are checked together, recording is enabled only when all four sensor are activated. When Hardware motion detection is used, you should set the detection area in **Camera & Motion** section.
	Camera Connected	Recording is enabled when camera signal is detected.
	Camera Disconnected	Recording is enabled when camera signal is not detected.

Below is an example of configuring the recording condition, which means "*Video is recorded if Alarm is activated or Motion is detected, on Saturday and Sunday every week*." If time condition is not specified, it is taken as setting 24 hours. If date is not specified, it is taken as setting all the months and weeks. Click the **Back** button if you want to return to previous page without saving. Click the **Save** button to save the change and return to previous page.



The graph displayed below means "*Video is recorded if alarm is activated on Saturday and Sunday.*"



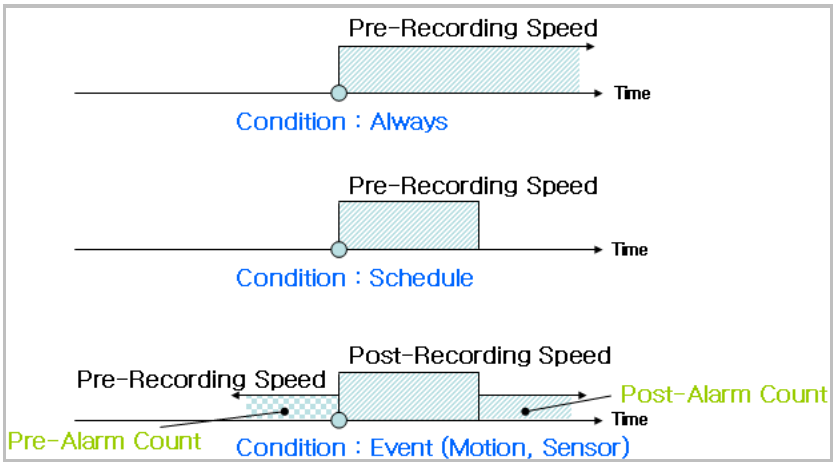
You need to select **Enable** on **Recording Service** field for recording to be made by recording condition setup. If you want to prevent recording from starting even though recording conditions are configure, select it as **Disable**. It is possible to set the number of video frames to be recorded by setting up a recording condition. You can configure it as shown below.

Example 1) Recording Condition: **Always**, **Schedule**

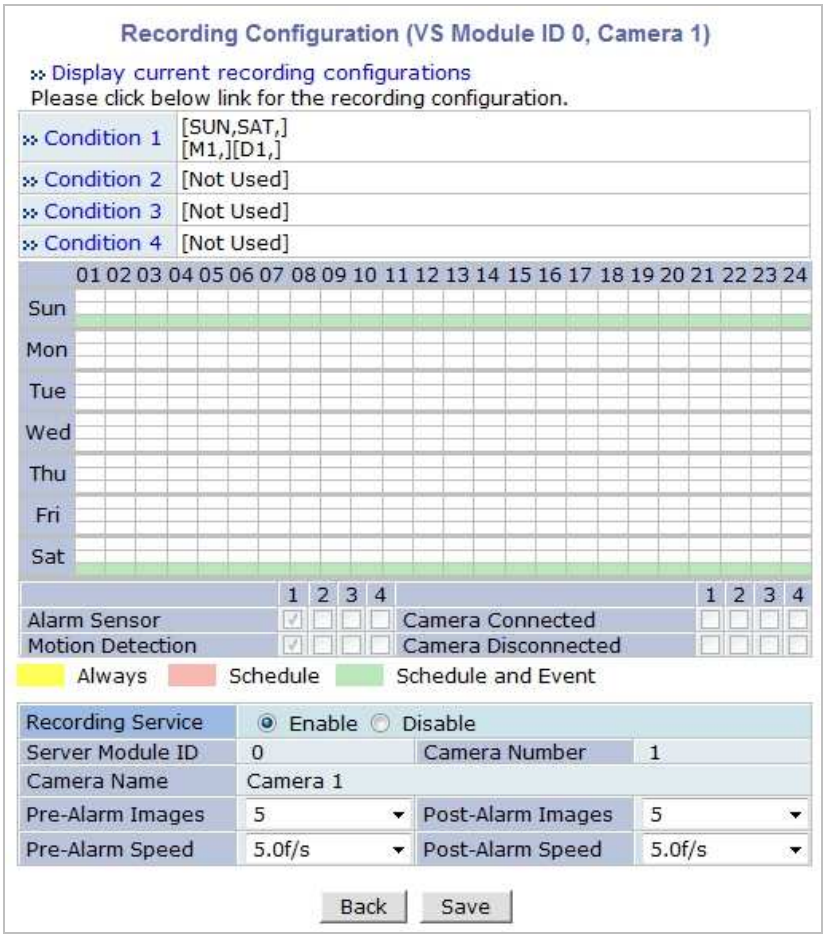
- **Pre-Recording Speed**: 1 fps
- **Pre-Alarm Count**: 5
- **Post-Recording Speed**: 10 fps
- **Post-Alarm Count**: 5
- Since the recording condition is Always and Schedule, Pre-Recording Speed is in effect. So the recording speed is 1 fps. Other values don't affect the recording.

Example 2) Recording Condition: **Motion**, **Sensor**

- **Pre-Recording Speed**: 1 fps
- **Pre-Alarm Count**: 5
- **Post-Recording Speed**: 10 fps
- **Post-Alarm Count**: 5
- Post-Recording Speed is in effect. So the recording speed is 10 fps when Motion is detected. Also, Pre-Recording Speed is in effect, so image is stored by Pre-Alarm Count setting. So 5 images will be recorded before Motion is detected (speed: 1 image per second). After Motion Detection (or Sensor) is over, Post-Recording Speed becomes in effect now, so only 5 images out of 10 will be stored afterwards. That means that the images captured until 0.5 second after Post-Alarm images are stored.

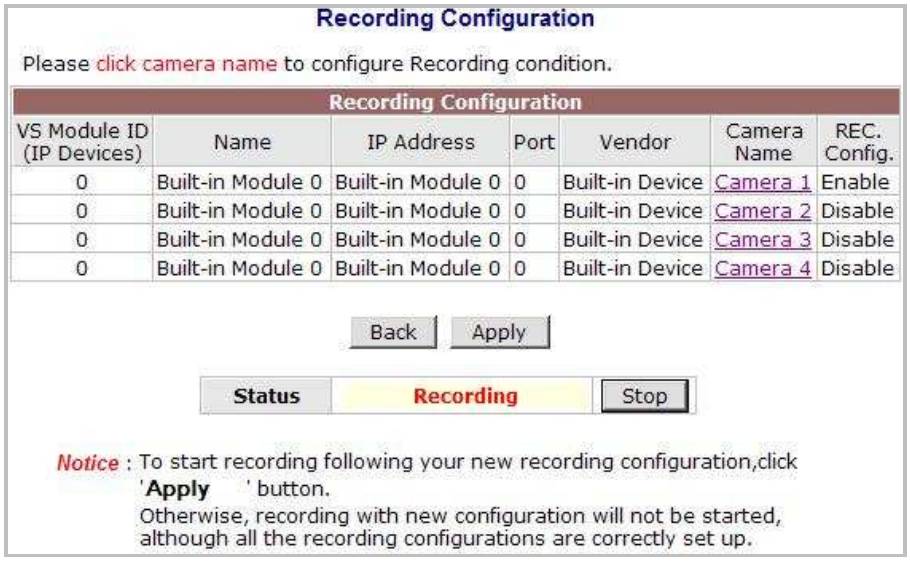


If there are two recording conditions configured, it can start recording when at least one condition is valid. After configuration is finished, click the **Save** button to apply the change and return to previous screen.



Now you will notice that the Recording Configuration is made. If the video is already being recorded, the status will display **Recording**. You need to click the **Apply** button in this case. If recording conditions are configured properly and video is not being recorded at the moment, you need to click the **Record** button to start recording.

Once recording has been started, the Status field will change to **Recording**. From that point on, when the conditions meet the setup value in recording condition, the video will be recorded to the HDD.

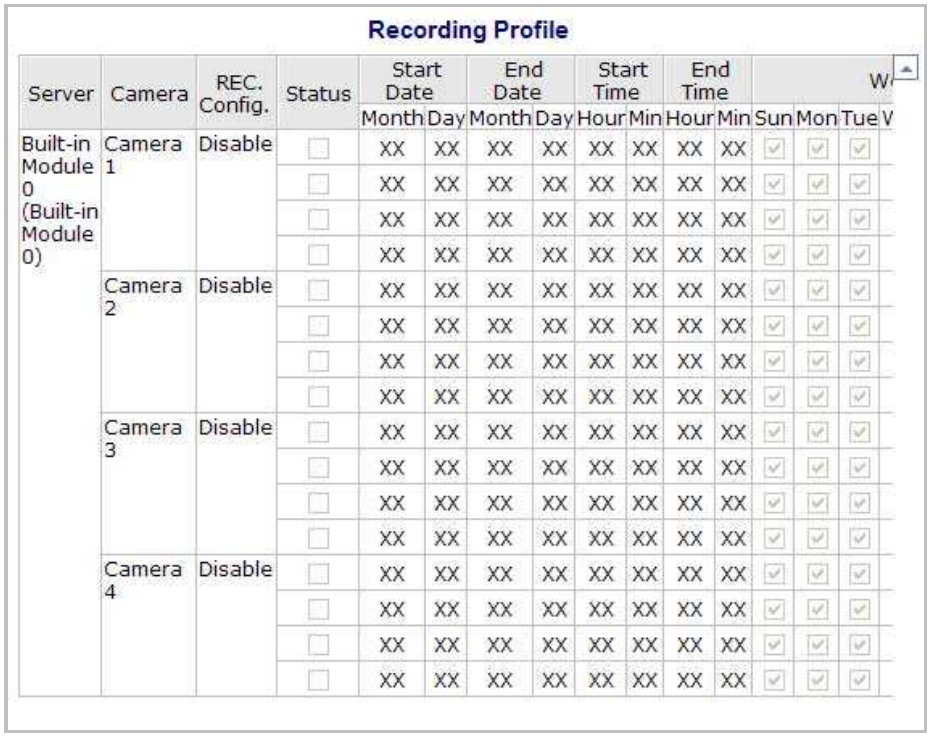


Note: Record button will become Stop button after pressing. If you want stop recording, click the Stop button again.

7.4. View Recording Profile

When it's needed to check recording configurations which have been made to each camera, it may take quite some time to go through the menu tree. In this case, you can get the overview of the recording configuration by clicking **View Recording Profile** on the menu.

To view the recording profile, click **Recording Profile**. It will display a pop-up window that shows the recording configuration in one screen.



7.5. Recording Mode

In this part, you can decide which action to take in case the HDD's capacity becomes full during recording video. To configure, click **Recording Mode** on the menu. The following will be displayed.

Now you are to choose the action between two options. If you want the FlexWATCH Server to keep recording without interruption, select **Circulation**. In this setting, the oldest file in HDD will be deleted first to make space for new video. If you want the FlexWATCH Server to stop recording and

let you to replace the HDD, click **Pause at full** and then select **Pause at Full**.

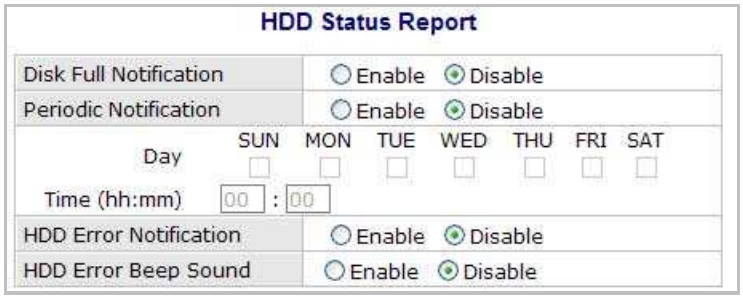
- **Circulation**: The base file size for video is 630 Mbytes in HDD. So every time the HDD is out of space, it will delete the oldest 630 Mbytes file to make space.
- **Pause at full**: When the HDD is out of space, it will stop recording and display STOP status. The capacity information of a HDD can be sent to you by email, so you can be aware of the HDD capacity information before it's full.

You can set a time limit on how long the recorded video will be kept in the hard drive by putting a check on **Restrict Duration**. If chosen to use, a time setting menu will be enabled to enter in days. The default is 90 days and it can be changed between 1 and 3650. For instance, if it's set to 3 days, only the video since the 3 days ago will be kept.

7.6. HDD Status Report

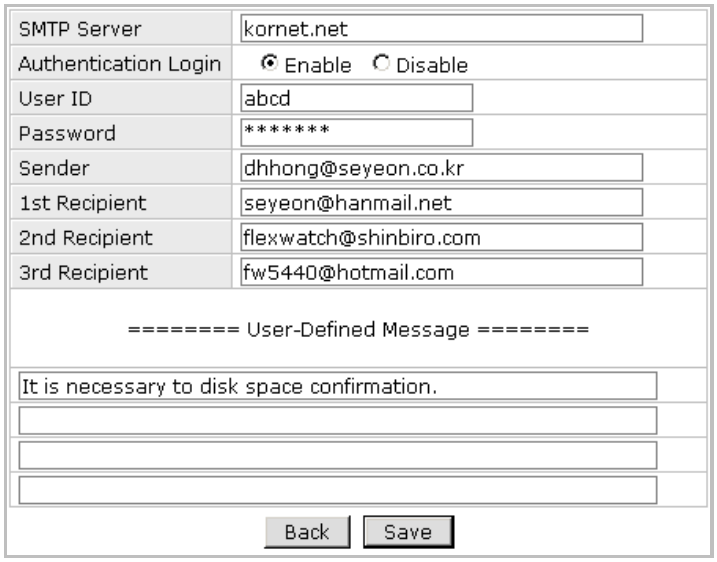
If it is configured here, the capacity information of HDD can be sent by email. This feature is very useful when **Recording Mode** is set to **Pause at full**, so that you can prevent a service interruption by full HDD.

Click **HDD Status Report** on Recording Configuration menu. Set the condition of HDD status for sending email, and Date/Time when email is sent.



Disk Full Notification	Select **Enable** to use this feature.
Periodic Notification	Select **Enable** if you want to receive the HDD capacity information on specific Day of week and Time.
Day & Time	Set the **Day** of week and **Time** you want to receive email notification. (Above Example: Receiving HDD capacity information at 3 pm every Monday and Wednesday)
HDD Error Notification	Select **Enable** if you want to receive a notification upon HDD Error.
HDD Error Beep Sound	Select **Enable** if you want to sound Beep upon HDD Error.

Now enter the email addresses to receive the email and the contents of the notification.

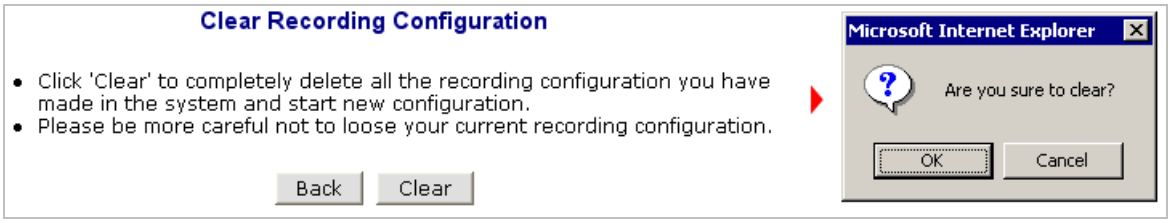


SMTP Server	IP address of the server for email service.
Authentication Login	Select **Enable** if the SMTP server requires user authentication.
User ID	User ID for authentication login
Password	Password for the User ID
Sender	Email address of sender
1st Recipient	Email addresses of the recipients (up to 3 persons).
2nd Recipient	
3rd Recipient	
User Defined Message	Contents of the message to add in the notification.

7.7. Clear Recording Configuration

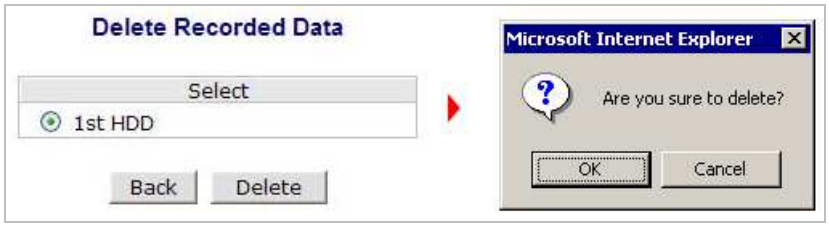
This feature is useful when there are configurations for multiple cameras and you want to clear them all. It'd take quite a time to delete them one by one. You can clear all the contents of Recording Configuration in a single step.

Click **Clear Recording Config** on Recording Configuration menu. Click **Clear** button, and a confirmation window will be displayed as below. Click **OK** button, then all the Recording Configuration data will be deleted from the server.



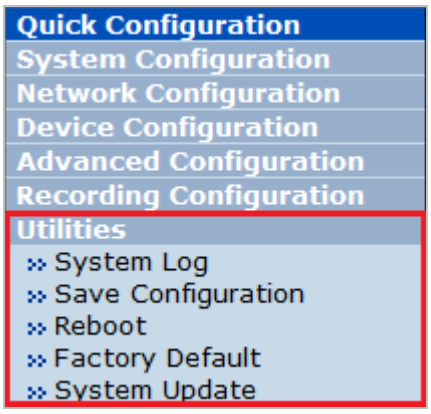
7.8. Delete Recorded Data

All the stored video data will be deleted with this feature. Click **Delete Recorded Data** on Recording Configuration menu. The following will be displayed. Select the HDD to be deleted, and click **Delete** button. A confirmation window will be displayed as below. Click **OK** button to delete all the stored video data.


Delete Recorded Data
Select
1st HDD
Back
Delete
Microsoft Internet Explorer
Are you sure to delete?
OK
Cancel

8. Utilities

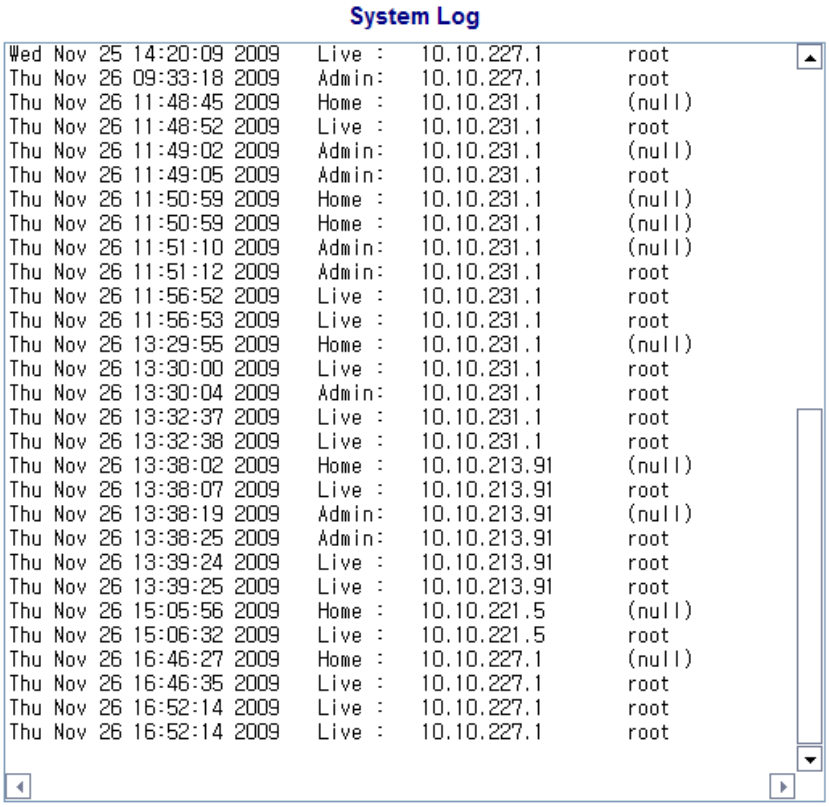
In **Utilities** part of the Admin menu, you can view the system log file, save the changed value during the configuration, reboot, restore the factory default condition, and update the system.



8.1. System Log

System log file provides you the information about when and who access the contents of FlexWATCH Server such as HTTP file or CGI programs. In each line, log data consists of date, time, category, soFlxwatche IP address, user ID logged in.

Day of Week	Month	Day	Hour:Minute:Second	Year	Category	IP Address	User ID



8.2. Save Configuration

After setting up FlexWATCH Server, it is recommended to make sure by saving the changes in Flash Memory in the system. To save all the changes made during configuration, first click on **Save**

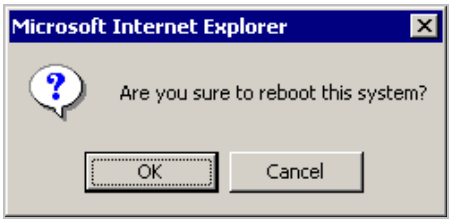
Configuration on Utilities menu. The confirmation screen will be displayed as shown below. Click **Save Configuration** button to finalize the action, otherwise click **Back** button to cancel it.

In some FlexWATCH models which automatically save the configured contents, **Save Configuration** button will not be displayed.

8.3. Reboot

It is recommended to reboot the system after making changes and saving the configuration. To reboot, click **Reboot** on Utilities menu. A confirmation screen will be displayed as shown Click **Save Configuration** button, otherwise click **Back** button to cancel the rebooting.

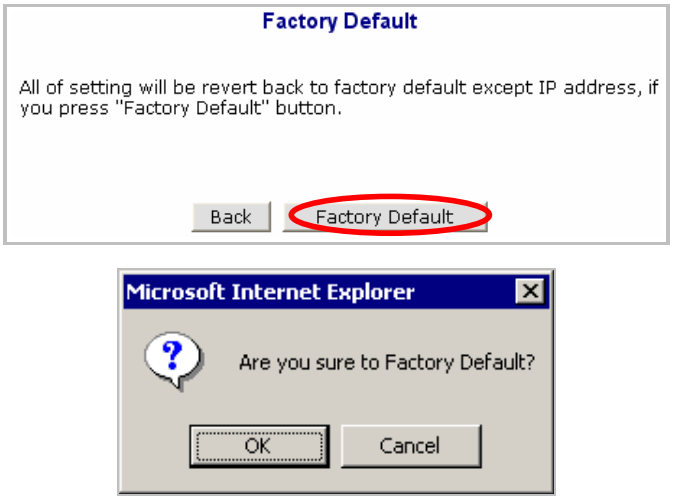
The second confirmation screen will be shown. This is only to confirm closing of web browser that FlexWATCH Server is on. Click **OK** button to close the web browser and reboot right away. If you click Cancel, the web browser is still open, but you will not be able to access the FlexWATCH Server until the rebooting is finished.



8.4. Factory Default

Whenever it is required to restore the configuration of Camera setup to factory default condition, you can do it here. Network configuration is not affected by this action.

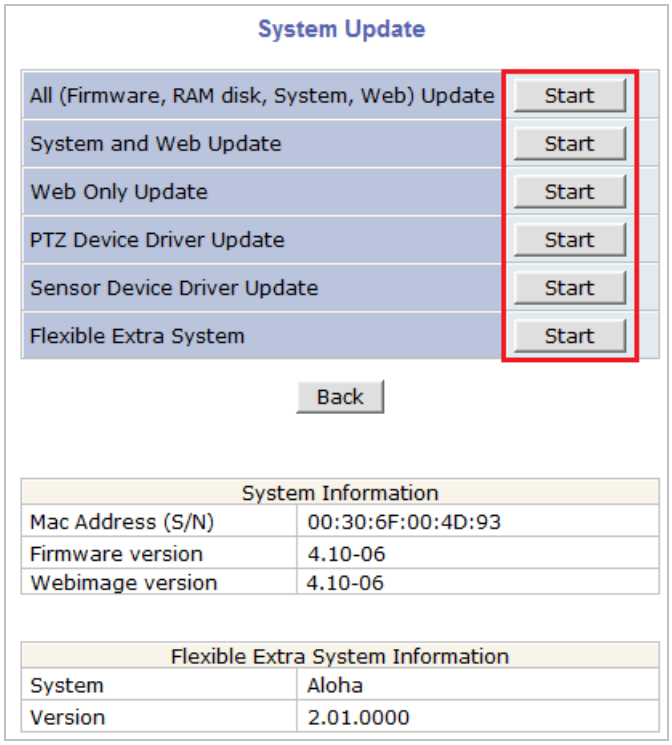
Click **Factory Default** on Utilities menu. A confirmation screen will be displayed as shown Click **Factory Default** button, otherwise click **Back** button to cancel it. The second confirmation screen will appear. Click **OK** button to restore the factory default condition right away. If you click **Cancel**, web browser will go back to the previous screen without any change made.



8.5. System Update

FlexWATCH Server's system program and data are stored in Flash memory, and it consists of Kernel Image, RAM Disk Image, System Image, and Web Image. In order to update the system of the server, you should have proper image files ready in your PC.

Click **System Update** on Utilities menu, then the following window will be displayed. From the Start buttons displayed, choose the one that meets your needs.

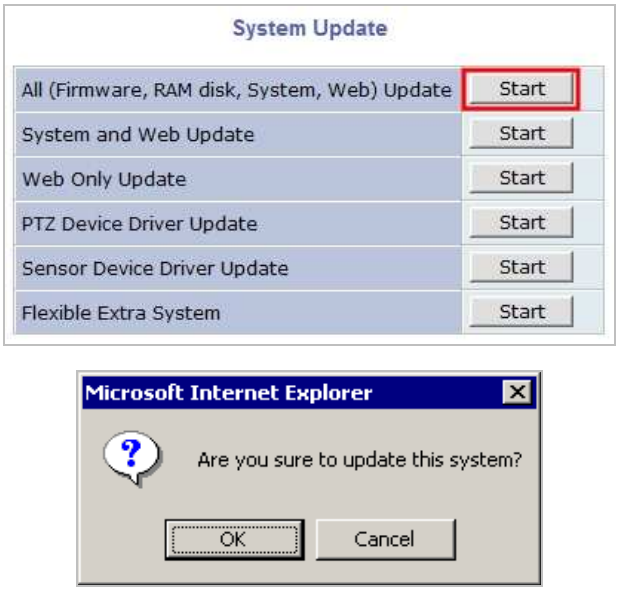


- **All (Firmware, RAM disk, System, Web) Update**: Update all four system images.
- **System and Web Update**: Only System and Web images are to be updated.
- **Web Only Update**: Only Web image is to be updated.

Up-to-date system files can be downloaded in Support page of Seyeon Tech's homepages at http://www.flexwatch.com. After the update is done, it is required to reboot the server.

1.1.1. All (Kernel, RAM disk, System, Web) Update

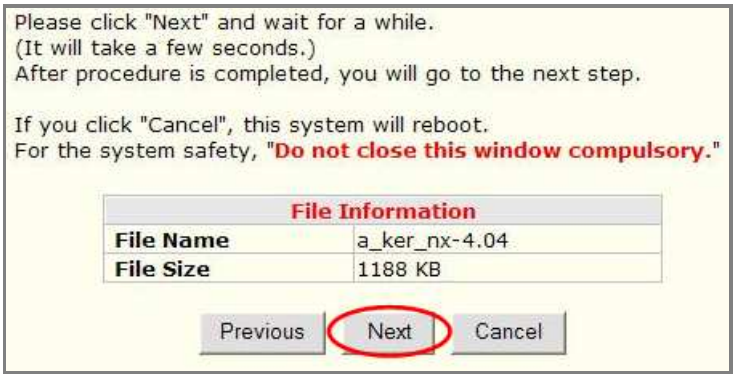
Click the **Start** button next to **All (Firmware, RAM disk, System, Web) Update** item on the menu, and a confirmation window will appear. Click **OK** button to proceed the update, otherwise click **Cancel**.



Note: If your web browser's pop-up blocker is enabled, your PC many not display the confirmation window above. In that case, the pop-up blocking feature of the web browser should be disabled for system update to be completed.

In the next window, enter the location of the Firmware Image file to update with. You can use the **Browse** button to navigate the directories in your PC to find the file. Once the image file is selected, click **Next** button to proceed. You can cancel the update by clicking **Skip** button.

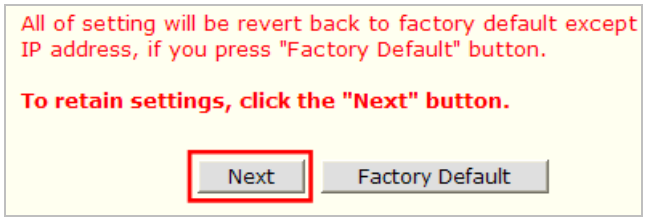
Now you can check the file name and the size in the new window. If you want to go back to the previous stage, click the **Previous** button. Click the **Next** button to update the firmware right away and proceed to next stage. If you want to stop the update process, click the **Cancel** button.



The next window is for locating the RAM Disk Update file.

Go through the same steps as in Firmware Update, and do the same in update process for **System and Web Update** files.

After all the update processes pare finished, the window for **Factory Default** is displayed. If there was no problem in the entire update processes and you want to continue, click **Next** button. If you're not sure about the system update, you can restore the Factory Default condition by clicking **Factory Default** button.



Now the final confirmation window will appear. Click **Reboot** button and the system will reboot.

1.1.2. System and Web Update

Click the **Start** button next to **System and Web Update** item on the menu, and a confirmation window will appear. Click **OK** button to proceed the update, otherwise click **Cancel**.

Go through the same steps as in **All Update** process (Kernel and RAM Disk updates are not made here). After update is done, click **Reboot** to start the system over.

1.1.3. Web Only Update

Click the **Start** button next to **Web Only Update** item on the menu, and a confirmation window will appear. Click **OK** button to proceed the update, otherwise click **Cancel**. The rest of the process is the same as in **All Update** part. After update is done, click **Reboot** to start the system over.

1.1.4. PTZ Device Driver Update

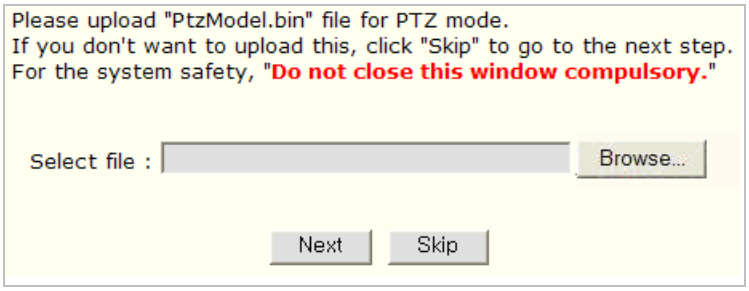
When adding a new PTZ model that doesn't have a proper driver found in FlexWATCH Server, it is required to install a driver for the PTZ function. The name of the file used in update process is **PTZModel.bin**.

Click the **Start** button next to **PTZ Device Driver Update** on the menu, and a confirmation window will appear. Click **OK** button to proceed the update, otherwise click **Cancel**. The rest of the update process is

the same as in **All Update** part.

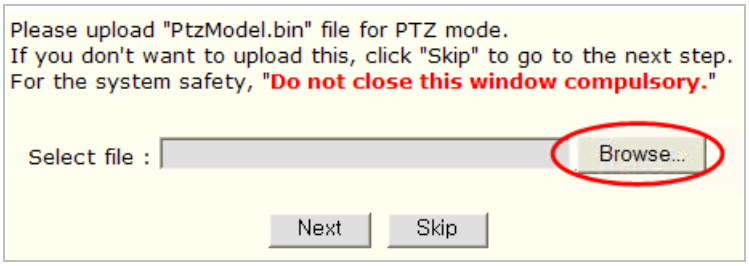
It displays the window that requests to enter the location of the PTZ Device Image file. The upper right corner of the window shows the progress of current update.

Note: If a new PTZModel.bin file needs to be made, contact Seyeon Tech.

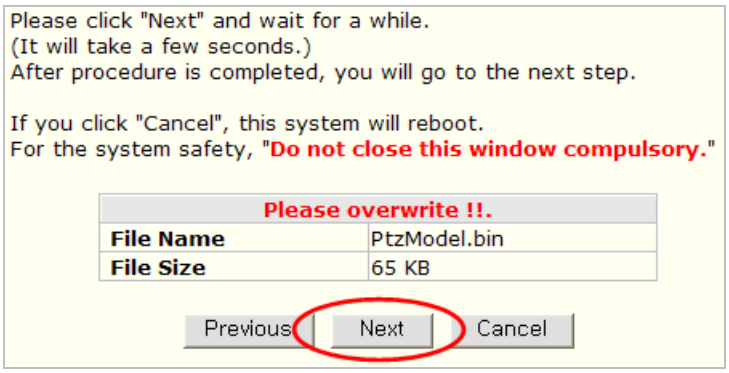


Using **Browse** button, locate the **PtzModel.bin** file from your PC.

Note: If your web browser's pop-up blocker is enabled, the PC many not display the confirmation window above. In that case, the pop-up blocking feature of the web browser should be disabled for system update to be completed.



Click Next **button** to continue with the file. If **Skip** button is clicked, it will go to the next step without updating PTZ Device Image. If **Next** button was clicked in the previous step, you'll see the window displaying the file name and size.



Now the update process is finished and the window for rebooting will be displayed. Click **Reboot** button to start the server over.

1.1.5. Sensor Device Driver Update

When adding a new Sensor device that doesn't have a proper driver found in FlexWATCH Server, it is required to install a driver for it. The name of the file used in update process is **SensorModel.bin**.

Click the **Start** button next to **Sensor Device Driver Update** on the menu, and a confirmation window will be shown. Click **OK** button to proceed the update, otherwise click **Cancel**. The rest of the update process is the same as in **PTZ Device Driver Update** part.

> *Note: If a new SensorModel.bin file needs to be made, please contact Seyeon Tech.*

1.1.6. Flexible Extra system

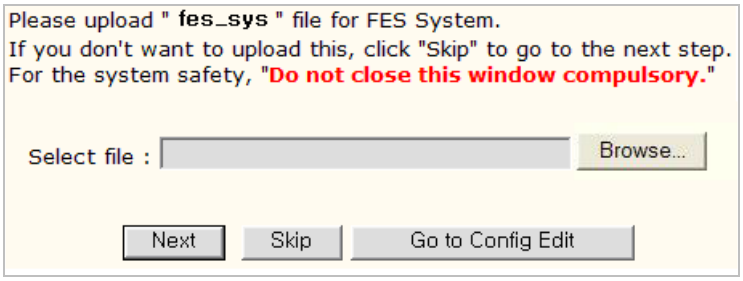
Flexible Extra system is an integrated system combining FlexWATCH® Server's video with external devices. Examples of the external devices can be entry control equipment, POS terminal, intelligent video analyzer, GPS terminal, dust density monitor, license plate recognition system, and so on.

The files required for updates can be different in each case, but usually consists of a system file and a configure file.

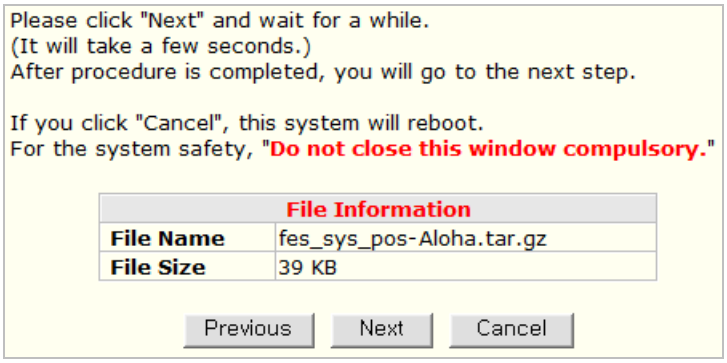
Click the **Start** button next to **Flexible Extra System** on the menu, and a confirmation window will appear. Click **OK** button to proceed the update, otherwise click **Cancel**.

In the next window, enter the location of the System Image file to update with. You can use the **Browse** button to navigate the directories in your PC to find the file.

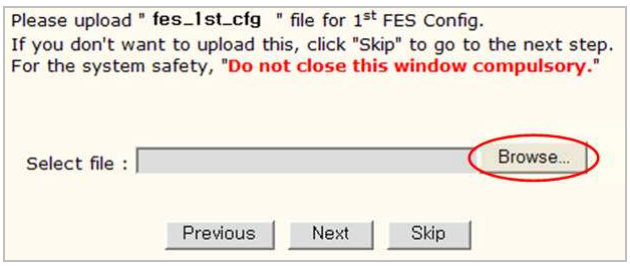
Once a System image file is selected, click **Next** button to proceed. If you click **Skip**, you will skip this step, and move to the next step. If you click **Go to Config Edit** button, it will go to the stage where you can edit the configuration file.



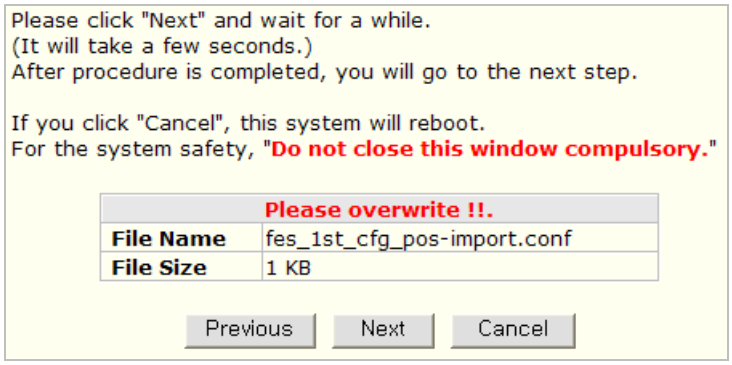
Now you can check the file name and the size in the new window. If you want to go back to the previous stage, click **Previous** button. Click **Next** button to update the System Image right away and proceed to next stage. If you want to stop the update process, click **Cancel** button.



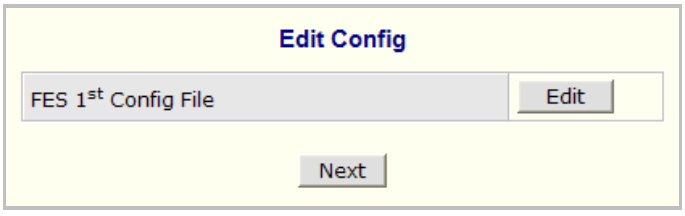
Now the window to locate the Config Image file is displayed. Select a file after clicking **Browse** button. Click **Next** button to move to the next stage. If **Previous** button is clicked, it will go back to the file selection step. If **Skip** button is clicked, it will go to the next step without updating the file.



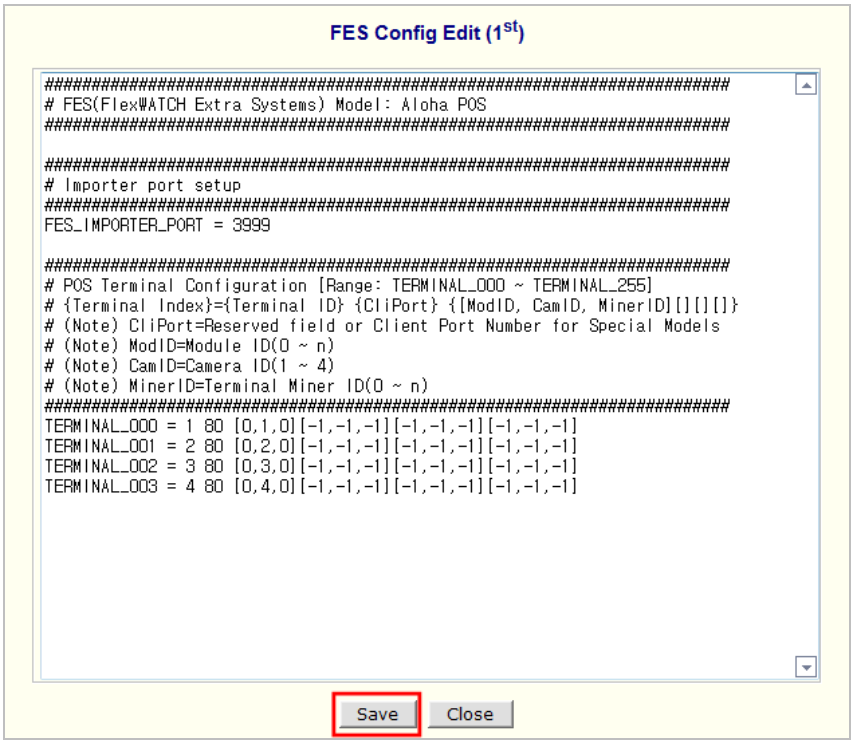
Check the file name and the size of Config Image file. If **Previous** button is clicked, it'll go back to start of file locating stage. If **Next** button is clicked, the update process will be done and go back to the next stage. If you want to stop the update, click **Cancel** button.



After finishing all the update process, it displays a window for editing the configuration file.



If you click **Edit** button, now you can edit the Config file after clicking Edit button which is found on the right of the file name.



Click **Save** button to save the Config file. Click **Close** button to close the editing window.

If you click **Next** button, a window for rebooting is displayed. Click **Reboot** button, and the system will start over.