



AVer SF2012H

User Manual



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Preface

The 2-megapixel SF2012H is a box IP camera (network camera) with interchangeable lenses and suitable housing for both indoor and outdoor applications. The camera has a mechanical IR-cut filter to offer clear video both day and night. Its excellent optical performance is complemented by local storage and a standard CS mount, giving you the flexibility to choose exactly the right CS mount lens for the location. This makes the SF2012H the ideal cornerstone for any intelligent, high-performance surveillance system.

Product Specifications

- Video out support
- High Definition (720p) 30fps support
- 2M-pixel CMOS sensor
- Power over Ethernet (PoE)
- H.264/MJPEG/MPEG-4 (3GPP Only) compression formats
- SD/SDHC card backup
- 2-way audio
- 3GPP mobile phone/PDA support
- SDK for software integration
- Free bundled recording software

Specifications

Hardware	
CPU	ARM 9, 32-bit RISC
RAM	256MB
Flash	16MB
Image Sensor	1/3.2" CMOS (2 megapixels)
Changeable Lens	Yes, CS Mount
DC IRIS Support	Yes
I/O	1 In, 1 Relay Out (Normal Open & Normal Close)
RS-485	Yes
Video Out	1
Audio In	Built-in MIC
Audio Out	1 (RCA Type)

Hardware	
Power over Ethernet	Yes
Power	DC 12V, 450mA
Dimensions(WxHxL)	65 x 58 x 132 mm
Network	
Ethernet	10/100 Base-T
Network Protocols	HTTP, TCP/IP, SMTP, FTP, PPPoE, DHCP, DDNS, NTP, UPnP, 3GPP, RTSP, RTP, RTCP, Multi-casting
System	
Video Resolutions	1600 x 1200, 1280 x 1024, 1280 x 960, 1280 x 720, 800 x 600, 640 x 480, 320 x 240, 176 x 144
CMOS settings	Brightness, Contrast, Sharpness, Back Light Compensation (BLC), Night Mode
Triple Streaming	Yes
Image Snapshot	Yes
Full Screen Monitoring	Yes
Privacy Mask	Yes, 3 different areas
Compression Formats	H.264/ JPEG/ MPEG-4 (3GPP only)
Video Bitrate Adjustment	Yes (CBR/VBR)
Motion Detection	Yes, 3 different areas
Triggered Action	Mail, FTP, Save to SD/SDHC card, Relay, NAS
Pre-/ Post-alarm	Yes (Configurable)
Security	Password Protection
Firmware Upgrade	HTTP mode (Can Be Upgraded Remotely)
Simultaneous Connections	Up to 10
Audio	Yes, 2-way(mono)

SD/SDHC Card Management		
Recording triggers		Motion Detection, IP Check, Network Breakdown (wire only), Schedule, Alarm
Video Formats		AVI, JPEG
Video Playback		Yes
File Deletion		Yes
Web Browsing Requirements		
OS		Windows® XP (32-bit), 7 (32/64-bit) Microsoft® IE 6.0 or above (32-bit only)
Hardware	Suggested	Intel® Dual Core 1.66GHz, RAM: 1024MB, Graphics Card: 128MB
	Minimum	Intel-C 2.8G, RAM: 512MB, Graphics Card: 64MB

Package contents

Item	Descriptions
	1. SF2012H
	2. Accessory pack
	3. Ethernet cable
	4. Power Adapter (DC12V/1A) (Optional)
	5. CD (User's Manual and Quick Guide included)

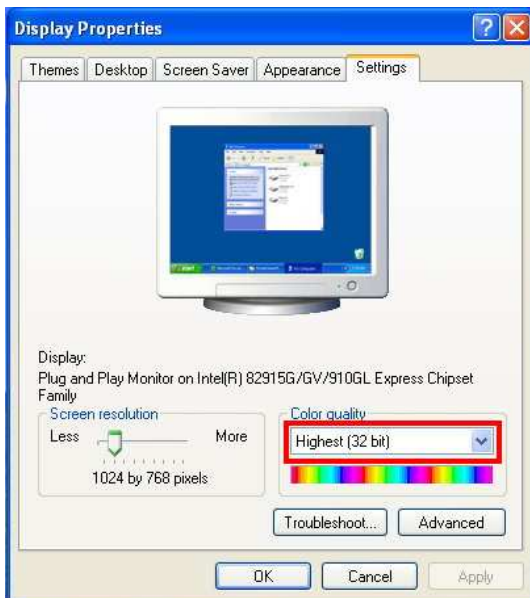
Product Installation

Monitor Settings

1. Right-click on the desktop. Select “ **Properties**”



2. Change “Color quality” to “**Highest (32-bit)**”.



Hardware Installation and I/O Pin Assignment

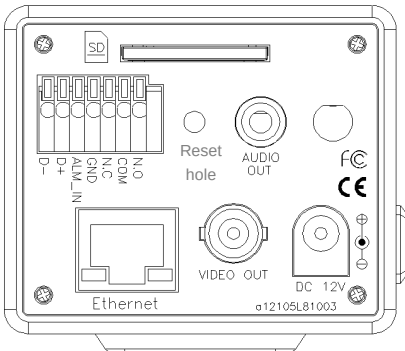
- 1. Connect power adapter.



- 2. Connect IP camera to PC or network with Ethernet cable.

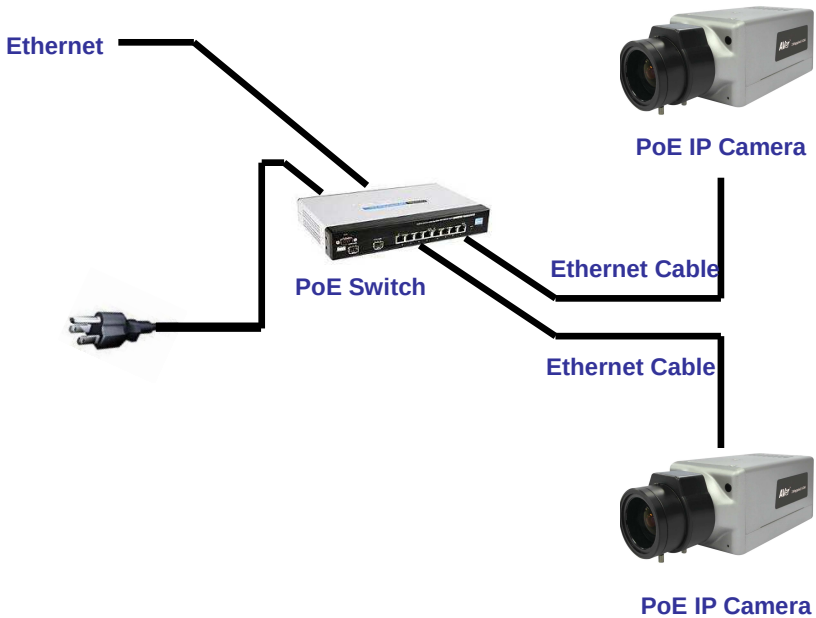


- 3. Set up the network configurations according to the network environment. For further explanation, please refer to **Chapter VI Network Configuration for IP Camera**.
- 4. **Back panel instruction:** Back panel configuration is shown in the following diagram.



5. Set up the IP camera through Power over Ethernet (PoE). POE is a technology that integrates power into a standard LAN infrastructure. It enables power to be provided to the network device, such as an IP camera, using the same cable as that used for network connection. It eliminates the need for power outlets at the camera locations and enables easier application of uninterruptible power supplies (UPS) to ensure 24 hours a day, 7 days a week operation.

[Note] 802.3af, 15.4W PoE Switch is recommended.



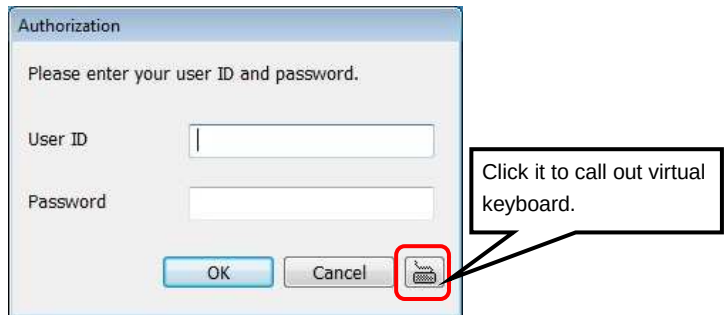
IP Assignment

There are two ways to find IP Camera:

- Finding IP Camera by using “NXU Lite recording software”
- Finding IP Camera by using “IP installer”

Finding IP Camera by using “NXU Lite recording software”

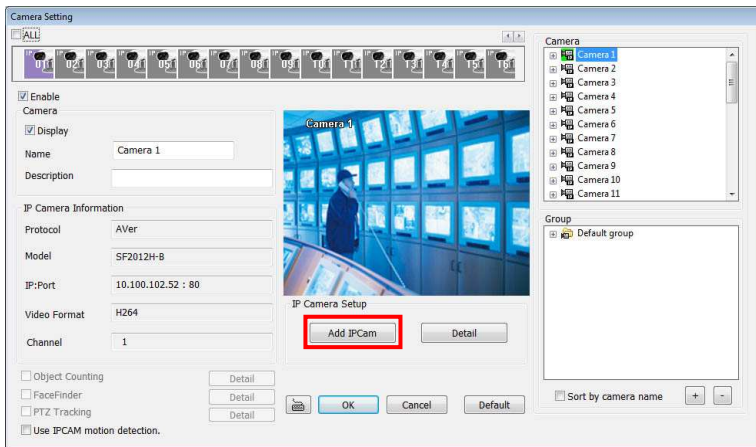
1. The NXU Lite software is in the attached software CD. Before launching it, please install the software first. During the installing process, users will be required to input a User name and Password for login NXU Lite system. Users can define the User name and Password as wishes. Please refer to NXU Lite user manual for detailed installation instruction.
2. To run the application, double-click  on your PC desktop or click **Start > Programs > DVR > NXU Lite**. For security purpose, some of the features would require you to enter User name and Password before it can be accessed. When the Authorization dialog box appears, key in your User ID and Password. (If this is the first time, enter the one you have registered when installing the software.



3. Click **“Setup”** button.



4. Click **“Add IPCam”** button.



5. Select **“IP Camera”** item.



6. Key in IP Camera's ID and Password (default is **admin/admin**) and click “**Auto Search**” to find camera.

IP Camera Information
F/W: V1.0.28

Auto Search

☒ Protocol: AVer
Model: SF2012H-B
Video Format: Auto
Channel: 1

IP Camera Site: 10.100.102.52 : 80

☐ URL
http://

☒ Authentication
ID: admin
Password:

☐ Enable Audio

Save & Exit Connect Cancel

7. In Search Result window, click the IP camera model that user has purchased (**Please ignore ONVIF connection item**); the camera is in red text that is configurable. User can double-click on the camera is in red text and configure the IP camera's setting; even the IP camera is not in the same IP segment. Press “**OK**” to back to previous screen and press “**Connect**” to start live view.

Item	Protocol	Model	IP Camera	Port
1	AVer	SF2012H-B	192.168.100.2	80
2	ONVIF	SF2012H-B	http://192.168.100.2:80/onvif/device_ser...	80

Double-click the IP camera mode that user has purchased (ex: SF2012H-B, SF2012H-DV).

Please ignore ONVIF protocol selection; NXU Lite doesn't support ONVIF connection.

Searching OK Cancel

Finding IP Camera by using “IP installer”

Use the software, “**IP Installer**” to assign the IP address of the IP camera. The software is in the attached software CD.

IP installer supports two languages

- **IPInstallerCht.exe**: Traditional Chinese version
- **IPInstallerEng.exe**: English version

There are 3 kinds of IP configuration.

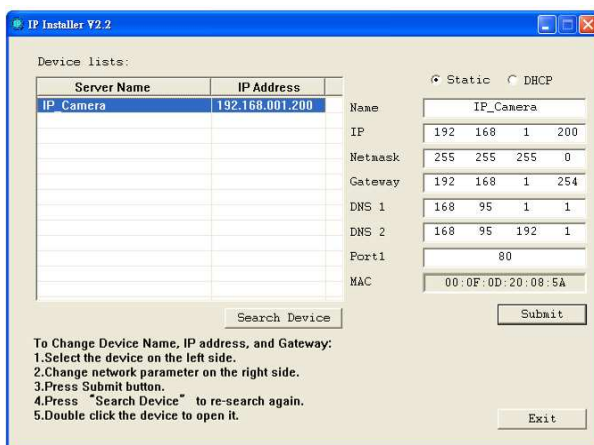
- Fixed IP (Public IP or Virtual IP)
- DHCP (Dynamic IP)
- DHCP server/router network automatically assigns IP addresses to devices. You can use the **IP Installer** software in the CD to search for the IP camera(s) in the network.
- Dial-up (PPPoE)

Execute IP Installer

For Windows® XP (SP2) users, the following message box may appear. Please click “**Unblock**”.



IP Installer configuration:



The IP Installer V2.2 window displays a configuration interface. On the left, a table lists available devices. The first device, 'IP_Camera', is selected, showing its IP address as 192.168.001.200. On the right, a configuration panel for the selected device is shown. It includes radio buttons for 'Static' (selected) and 'DHCP'. Below these, fields for Name, IP, Netmask, Gateway, DNS 1, DNS 2, Port1, and MAC are displayed. The Name field contains 'IP_Camera', IP is '192 168 1 200', Netmask is '255 255 255 0', Gateway is '192 168 1 254', DNS 1 is '168 95 1 1', DNS 2 is '168 95 192 1', Port1 is '80', and MAC is '00:0F:0D:20:08:5A'. At the bottom of the configuration panel are 'Search Device', 'Submit', and 'Exit' buttons. A text block at the bottom left provides instructions for changing device details.

Server Name	IP Address
IP_Camera	192.168.001.200

Static ☒ DHCP ☐

Name: IP_Camera

IP: 192 168 1 200

Netmask: 255 255 255 0

Gateway: 192 168 1 254

DNS 1: 168 95 1 1

DNS 2: 168 95 192 1

Port1: 80

MAC: 00:0F:0D:20:08:5A

Search Device Submit Exit

To Change Device Name, IP address, and Gateway:
1. Select the device on the left side.
2. Change network parameter on the right side.
3. Press Submit button.
4. Press "Search Device" to re-search again.
5. Double click the device to open it.

IP Installer will search all IP cameras connected on the LAN. The user can click **"Search Device"** to search again.

Click one of the IP cameras listed on the left side. The network configuration for this IP camera will show on the right side. You may change the name of the IP camera to your preference (eg: Office, warehouse) in **"Name"** on the right side.

Using DHCP Server/Router Network

To use DHCP, please check DHCP and click **"Submit"** then click **"OK"**. It will apply the change and reboot the Device.



Using NON-DHCP Server/Router Network

In Non-DHCP server/router network, the static IP address must be assigned to the device each time when adding another IP camera to the network; the default IP address of the current one must be changed to avoid conflict.

Please make sure the Subnet of the PC's IP address and the IP camera's IP address are the same.

[Example]

The same Subnet:

IP camera IP address: 192.168.1.200

PC IP address: 192.168.1.100

Different Subnets:

IP camera IP address: 192.168.2.200

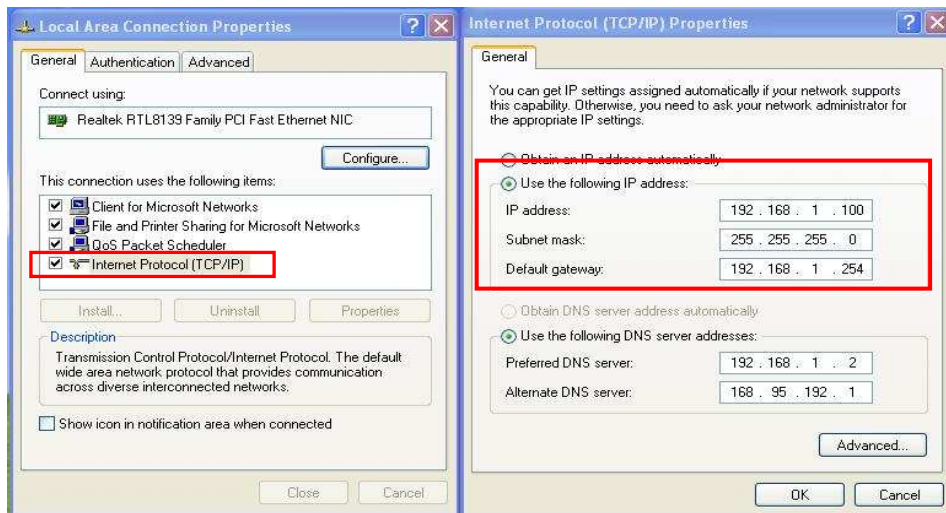
PC IP address: 192.168.1.100

To Change PC IP Address:

Control Panel→Network Connections→Local Area Connection Properties→Internet Protocol (TCP/IP) →Properties

Please make sure your IP camera and PC have the same Subnet. If not, please change IP camera subnet or PC IP subnet accordingly.

PC's IP address:



IP camera IP addresses:

IP Installer V2.2

Device lists:

Server Name	IP Address
PV_SF2012H-C_53	192.168.201.053
PV_SF2012H-C_55	192.168.201.055
PV_SF2012H-C_54	192.168.201.054
PV_SF2012H-C_65	192.168.201.065
PV_SF2012H-C_64	192.168.201.064
PV_SF2012H-C_63	192.168.201.063
PV_SF2012H-C_59	192.168.201.059
PV_SF2012H-C_56	192.168.201.056
PV_SF2012H-C_61	192.168.201.061
PV_SF2012H-C_51	192.168.201.051
PV_SF2012H-C_58	192.168.201.058
PV_SF2012H-C_60	192.168.201.060
PV_SF2012H-C_57	192.168.201.057

☒ Static ☐ DHCP

Name: PV_SF2012H-C_55

IP: 192 168 201 55

Netmask: 255 255 255 0

Gateway: 192 168 201 254

DNS 1: 168 95 1 1

DNS 2: 168 95 192 1

Port1: 80

MAC: 00:0F:0D:23:3F:79

To Change Device Name, IP address, and Gateway:

1. Select the device on the left side.
2. Change network parameter on the right side.
3. Press Submit button.
4. Press Search Device to re-search again.
5. Double click the device to open it.

- i. A quick way to access remote monitoring is to left-click the mouse twice on a selected IP camera in "Device lists" in IP Installer. Upon doing so, the Internet Explorer browser should open.

IP Installer V2.2

Device lists:

Server Name	IP Address
IP_Camera	192.168.001.165

☒ Static ☐ DHCP

Name: IP_Camera

IP: 192 168 1 165

Netmask: 255 255 255 0

Gateway: 192 168 1 254

DNS 1: 168 95 1 1

DNS 2: 168 95 192 1

Port1: 80

MAC: 00:0F:0D:00:21:0F

To Change Device Name, IP address, and Gateway:

1. Select the device on the left side.
2. Change network parameter on the right side.
3. Press Submit button.
4. Press "Search Device" to re-search again.
5. Double click the device to open it.

- ii. Then, please key in the default “**User name**” and “**Password**”, both of which are “**admin**”.



Install ActiveX Control

The first time you attempt to view the camera video via Internet Explorer, it will ask you to install the ActiveX component.

If the installation fails, please check the security settings for the Internet Explorer browser.

1. IE → Tools → Internet Options... → Security Tab → Custom Level... → Security Settings → Download unsigned ActiveX controls → Select **"Enable"** or Prompt.
2. IE → Tools → Internet Options... → Security Tab → Custom Level... → Initialize and script ActiveX controls not marked as safe → Select "Enable" or Prompt.

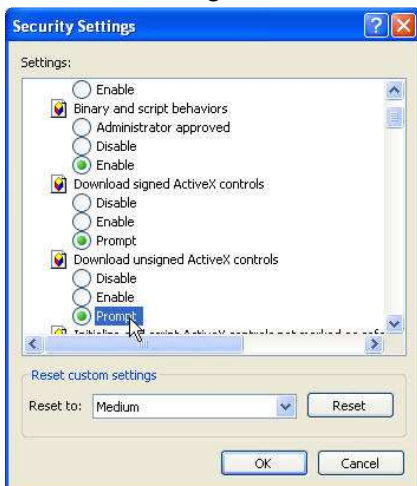
1



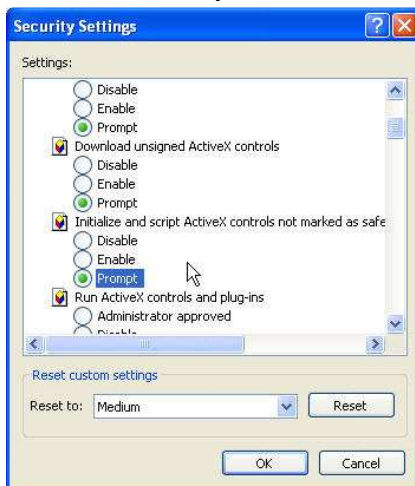
2



3

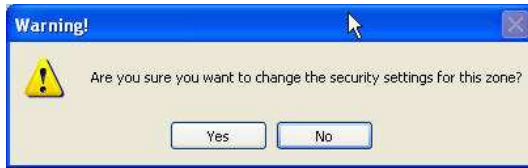


4



5

When the following dialogue box appears, click **“Yes”**.



Using the IP Camera Browser Interface

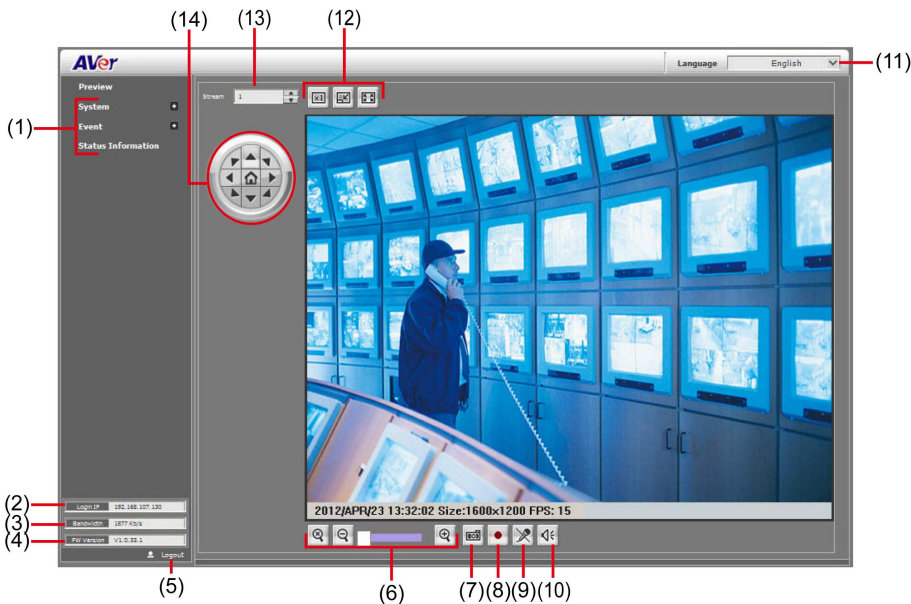
The admin have the full access to the IP camera browser interface. The menu on the left, you can expand and navigate to access all the features.

Preview

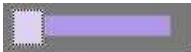
Launch the Internet Explorer browser, type the IP address of the IP camera in the address field. It will show the following dialogue box. Key-in the "ID" and "Password". The default "ID" and "Password" are both "admin".



Once connected to the IP camera, the following program interface will appear.



Name	Function
(1) System/Event/Status Information	Set up IP camera's configuration.

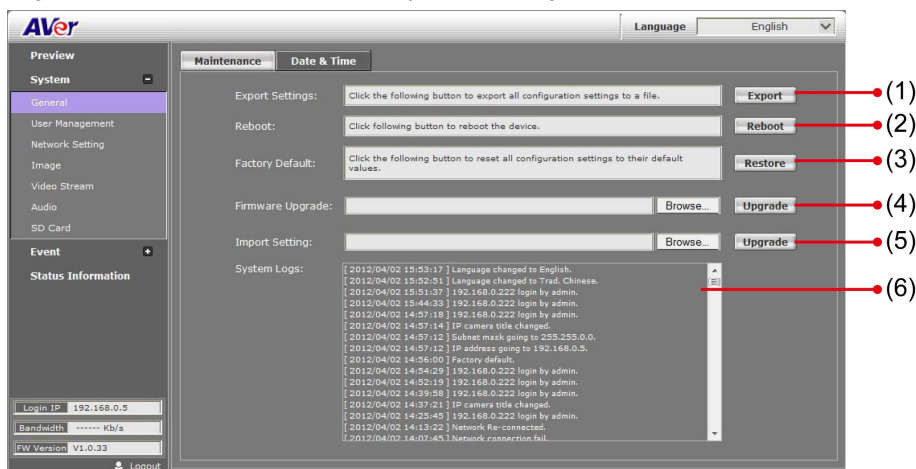
Name	Function
(2) Login IP	Show PC's IP address
(3) Bandwidth	Show current IP camera's transmitting bandwidth
(4) FW Version	Show IP camera's current firmware version
(5) Logout	Exit the application
(6) Zoom control	 Reset zoom level.  Increase zoom level.  Decrease zoom level.  Use the scroll bar to zoom in or zoom out the video screen
(7) Capture	 Capture and save the image on the screen in *.bmp format
(8) Record	 Start/stop audio and video recording. The recorded video will be saved in *.avi format.
(9) 2-way Talk	 Click the Microphone button to talk to IP camera side from user site. Click this button again to mute this function.
(10) Speaker	 Turn on the PC's speaker so that PC side can hear sound from IP camera side. Click this button again to mute this function.
(11) Language	Select the browser interface language.
(12) Video screen	Change the video screen display.  Display the actual video pixel size  Display the video screen in compact size.  Display the video in full screen mode. Press ESC to exit full screen mode.
(13) Stream	Switch to view the video stream type. The IP camera can send multiple video streams of up to 3 types. To change the video stream setting, go to System > Video Stream. [Notes] When streaming 2 setting in " Video Setting " is closed, there won't have other stream option
(14) Direction Controller	Move the position of the view point while in zoom mode. User has to zoom in first.

System > General

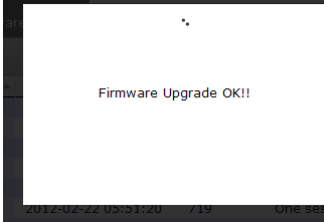
In this section, only admin level is authorized to configure the IP camera system maintenance and the date and time settings.

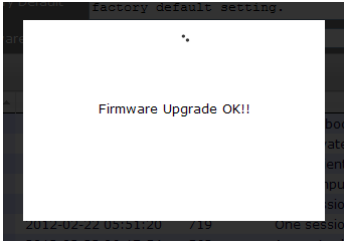
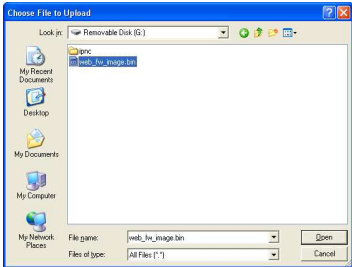
System > General > Maintenance

In the Maintenance tab, the administrator can check the system event log, upgrade the system firmware, reset the configuration settings without having to change the user management and network settings, reboot, and restore all back to factory default settings.



Name	Function
(1) Export Settings	Upload to save all the configuration settings from the IP camera to computer hard disk.
(2) Reboot	Turn the IP camera off and on again.
(3) Factory default	Set all the configuration settings back to default except the user management and network settings.

Name	Function
(4) Firmware Upgrade	Upgrade the firmware to the latest version.
<u>To Upgrade the IP Camera Firmware</u>	
1. Download the file from our website and save it in your computer hard disk. 2. Click Browse. Locate and select the file and click Open. 3. Click Apply. Wait till you see the message	
"Firmware Upgrade OK!!". You may now click the Internet Explorer browser refresh button or press F5. The login page will appear.	
	
(5) Import	Download to replace the current settings with the configuration settings file from the computer hard disk to IP camera.
(6) System log	Display the IP camera system event log.



System > General > Date & Time

In the “Date & Time” tab, the administrator can set and update the system’s date and time. After filling in the correct settings, click **Apply** to apply the new settings.

The screenshot shows the 'Date & Time' configuration page in the AVer system. The left sidebar contains navigation links: Preview, System (General, User Management, Network Setting, Image, Video Stream, Audio, SD Card), Event, and Status Information. The main content area is titled 'Maintenance' and 'Date & Time'. It includes the following fields and options:

- Current Date & Time: 2012/4/2 15:56:38 Time Zone: GMT+08:00 (1)
- Date Format: ☐ yy/mm/dd ☐ mm/dd/yy ☐ dd/mm/yy (2)
- Time Zone: GMT+08:00 (3)
- Enable Daylight Saving: ☐ (4)
- Setting Method: ☐ NTP (NTP Server: pool.ntp.org, Update: 6 (Hour), Time Shift: 0 (Minutes))
- ☐ Synchronize with PC's time (Date: 2012/4/2, Time: 15:57:1)
- ☐ Manual (Date: 2012/4/2, Time: 15:54:58)
- ☐ The date and time remain the same
- Apply button

Name	Function
(1) Current Date & Time	Display the current date and time.
(2) Date Format	Select the date display format.
(3) Time Zone	Set the local time zone. Check the box next to “Enable Daylight Saving” to enable and setup the start date and end date for daylight saving time.

The screenshot shows the 'Date & Time' configuration page in the AVer system, with the 'Enable Daylight Saving' checkbox checked. The page includes the following fields and options:

- Current Date & Time: 2012/4/2 15:57:38 Time Zone: GMT+08:00
- Date Format: ☐ yy/mm/dd ☐ mm/dd/yy ☐ dd/mm/yy
- Time Zone: GMT+08:00
- Enable Daylight Saving: ☒
- DST Start: Mar 2nd Sun 12 am
- DST End: Nov 1st Sun 12 am
- Setting Method: ☐ NTP (NTP Server: pool.ntp.org, Update: 6 (Hour), Time Shift: 0 (Minutes))
- ☐ Synchronize with PC's time (Date: 2012/4/2, Time: 15:57:41)
- ☐ Manual (Date: 2012/4/2, Time: 15:54:58)
- ☐ The date and time remain the same
- Apply button

Name	Function
(4) Setting Method	Select the date & time settings method. <u>Sync with current PC</u> – Obtain the date and time setting on the current login computer. <u>Sync with NTP Server</u> – Obtain the date and time setting from NTP server. In the drop-down list, select the NTP host name. <u>Manual</u> – Manually set the date and time. Click “Done” to close the date and time interface.

System > User Management

In this section, only admin level is authorized to create, delete, and edit the account in Account tab and configure the client connection setting in Connection tab.

System > User Management > Account

IP camera supports two different user accounts – Administrator (Admin) and Guest User.

User Type	Access Rights
Admin	Can access all the configuration pages
Guest User	Can only access the preview and status information pages.

■ Anonymous User Login

- ✓ **Yes:** Allow an anonymous user to view the IP camera without logging in.
- ✓ **No:** Need user name & password to access this IP camera

■ Add user: Enter the user name in “Username”, the password in “Password”, and re-enter the

password in “**Confirm**”. Then, click “**Add/Set**”.

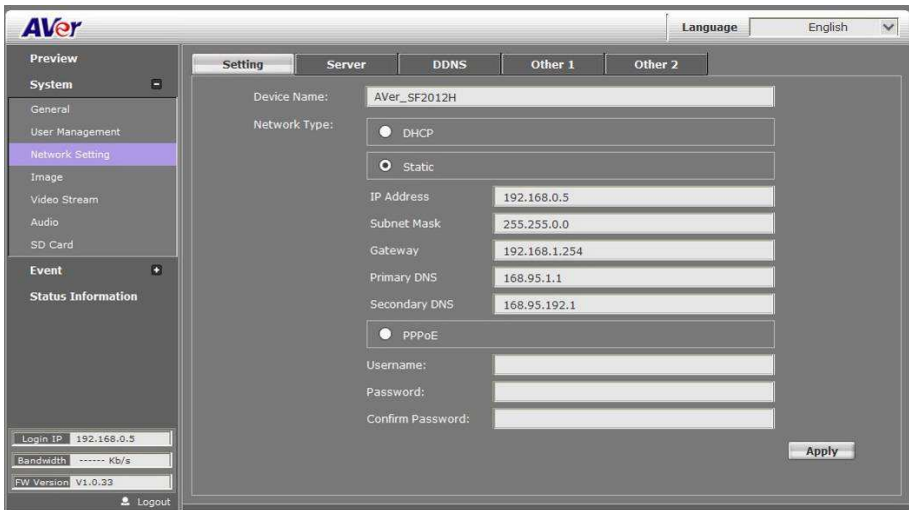
- **User List:** Click **edit** to change the account password. To delete the user account, click **Remove** button.



A screenshot of a 'User Setup' dialog box. It has a title bar 'User Setup'. Inside, there are three text input fields: 'Username:' with the text 'guest', 'Password:', and 'Confirm:'. Below these fields is an 'OK' button.

System > Network Setting>Setting

- **Device Name:** Used to name the IP camera to search more easily for this specific one among all connected IP cameras.



A screenshot of the 'Aver' Network Setting window. The window has a title bar with the 'Aver' logo and a 'Language' dropdown set to 'English'. On the left is a sidebar with a 'Preview' section and a 'System' menu. The 'System' menu is expanded, showing options like 'General', 'User Management', 'Network Setting' (which is highlighted), 'Image', 'Video Stream', 'Audio', 'SD Card', 'Event', and 'Status Information'. The main area has tabs for 'Setting', 'Server', 'DDNS', 'Other 1', and 'Other 2'. The 'Setting' tab is active. It contains fields for 'Device Name:' (AVer_SF2012H), 'Network Type:' (with radio buttons for DHCP and Static), 'IP Address:' (192.168.0.5), 'Subnet Mask:' (255.255.0.0), 'Gateway:' (192.168.1.254), 'Primary DNS:' (168.95.1.1), 'Secondary DNS:' (168.95.192.1), and 'PPPoE' (with radio buttons for Username, Password, and Confirm Password). An 'Apply' button is at the bottom right. At the bottom left, there are status fields for 'Login IP:' (192.168.0.5), 'Bandwidth:' (----- Kb/s), and 'FW Version:' (V1.0.32), along with a 'Logout' button.

- **Network Type:** IP camera supports DHCP, static IP and PPPoE. After completed all settings, click **Apply** to save the configuration.
 - **DHCP:** Using DHCP, IP camera will get all the network parameters from DHCP server automatically.
 - **Static IP:** Please enter the IP address, subnet mask, gateway, Primary DNS, and Secondary DNS.
 - **PPPoE:** Enter the **Username**, **Password** and re-enter Password in **Confirm Password** for the ADSL connection. And then click **Apply** to save the configuration.

System > Network Setting>Sever

Used to send out the video via Email or FTP, or to save on NAS.

The screenshot shows the AVer network settings interface. On the left is a sidebar with a 'Preview' section and a 'System' menu. The 'System' menu includes 'General', 'User Management', 'Network Setting' (highlighted), 'Image', 'Video Stream', 'Audio', 'SD Card', 'Event', and 'Status Information'. Below the menu is a 'Login IP' field showing '192.168.0.5', a 'Bandwidth' field showing '----- Kb/s', and an 'FW Version' field showing 'V1.0.33'. A 'Logout' button is at the bottom of the sidebar. The main area has tabs for 'Setting', 'Server', 'DDNS', 'Other 1', and 'Other 2'. The 'Server' tab is active, showing three sections: 'Mail Setting', 'FTP Setting', and 'NAS Settings'. The 'Mail Setting' section includes fields for 'Login Method' (set to 'Account'), 'Bcc Mail', 'Sender Email Address', 'Recipient Email Address', 'Mail Server', 'Port' (set to '25'), 'Account Name', and 'Password'. The 'FTP Setting' section includes fields for 'FTP Server', 'Port' (set to '21'), 'Account Name', 'Password', 'Path' (set to '/'), 'Create the folder' (set to 'Yes'), and 'Mode' (set to 'PORT'). The 'NAS Settings' section includes fields for 'Location', 'Workgroup', 'Account Name', 'Password', and 'Create the folder' (set to 'Yes'). An 'Apply' button is at the bottom right of the main area.

■ **Mail Setting:** Used to send out the video via Email.

- Login Method:** Click drop-down list to select the method to login Email server – “Account” or “Anonymous”.
- Enter necessary information in “Bcc Mail”, “Sender Email Address”, “Recipient Email Address”, “Mail Server”, “Mail Server Port”, “Account Name”, and “Password” columns.
- Click “Apply” to save the configuration.

■ **FTP Setting:** Used to send out the video to FTP server.

- Enter necessary information in “FTP Server”, “Account Name”, “Password”, and “Path” columns.
- Port:** Select the FTP server port.
- If the user wants to create a new folder on the FTP server to save the video file, select “Yes” under the “Create the folder”.
- Mode:** Select the FTP transmission mode.
- Click “Apply” to save the configuration.

■ **NAS Settings:** Used to send out the video to NAS server.

- Enter necessary information in “**Location**”, “**Workgroup**”, “**Account Name**” and “**Password**” columns.
- If the user wants to create a new folder on the NAS server to save the video file, select “**Yes**” under the “**Create the folder**”.
- Click “**Apply**” to save the configuration.

The screenshot shows the 'NAS Settings' window. It has a title bar with 'NAS Settings' and a close button. The window contains four input fields: 'Location:' with the value '\\192.168.107.171\\AverNAS', 'Workgroup:' with the value 'AverGroup', 'Account Name:' with the value 'AverMember', and 'Password:' with masked characters '.....'. There is a 'Create the folder:' dropdown menu set to 'Yes'. An 'Apply' button is located at the bottom right.

System > Network Setting>DDNS

The IP camera supports DDNS (Dynamic DNS) service.

The screenshot shows the 'DDNS' configuration window within the AVer system interface. The interface has a sidebar with 'Preview' and 'System' sections. The 'System' section is expanded, showing 'General', 'User Management', 'Network Setting' (highlighted), 'Image', 'Video Stream', 'Audio', and 'SD Card'. The 'Event' section is also visible. The 'Status Information' section shows 'Login IP: 192.168.0.7', 'Bandwidth: ----- Kb/s', and 'FW Version: V1.0.33'. The 'DDNS' window has tabs for 'Setting', 'Server', 'DDNS', 'Other 1', and 'Other 2'. The 'DDNS' tab is active, showing fields for 'Service Provider:' (www.no-ip.org), 'Domain Name:' (AVer_IPCAM.no-ip.org), 'Account Name:' (AVer_IPCAM@aver.com), 'Password:' (masked), and 'Schedule Update:' (30 Minutes). There is a checkbox for 'Enabled DDNS' which is checked. The 'Status:' field shows 'http://AVer_IPCAM.no-ip.org'. An 'Apply' button is at the bottom right.

- Select “**Enabled DDNS**” to enable DDNS function.
- Enter the **Domain Name**, **Account Name**, and **Password** that the user has registered on the DDNS service provider in the appropriate columns.
- Enter the IP refreshing time period in the “**Schedule Update**” column.
- Click “**Apply**” to save the configuration.

[Note] If you set up schedule update to occur too frequently, the IP may be blocked. In general, performing schedule update once a day (1440 minutes) is recommended.

■ Status

- Common warning message:

Updating!

Failed(1), Please check your DNS setting.

Failed(2), Please check your internet connection.

Failed(3), Please check your internet connection.

Failed(6), receiving data failure

- Warning message from different service provider:

✧ Server Provider : **dyndns.org**

Failed(4), Please check the Dyndns.org.

Error : The system parameter given is not valid.

Error : No user agent was specified.

Error : The username and password pair do not match a real user.

Error : An option available only to credited users was specified.

Error : Not in the form hostname.domain.org or domain.com.

Error : The hostname specified does not exist.

Error : Not under the username specified.

Error : Too many or no hosts specified in an update.

Error : The hostname specified is blocked for update abuse.

Error : DNS error encountered.

Error : DNS Server Error Conditions.

✧ Server Provider : **ddns.camddns.com(TW)**

Failed(5), The name has already been registered.

✧ Server provider : **ddns.ipddn.com(HK)**

Failed(5), The name has already been registered

✧ Server provider : **www.3322.org**.

Failed(4), Please check the www.3322.org.

System > Network Setting > Other 1

The screenshot shows the AVer web interface for network configuration. The left sidebar contains a menu with 'System' expanded, showing options like General, User Management, Network Setting (highlighted), Image, Video Stream, Audio, and SD Card. Below this is an 'Event' section and a 'Status Information' section showing Login IP (192.168.0.5), Bandwidth (----- Kb/s), and FW Version (V1.0.33). The main area has tabs for Setting, Server, DDNS, Other 1 (selected), and Other 2. The 'Other 1' tab contains the following settings:

HTTP Port:	80
UPnP Support:	☐ Yes ☐ No
UPnP Port Forwarding:	☐ Yes ☐ No
External HTTP Port:	80
External RTSP Port:	554
RTSP Server:	☐ Yes ☐ No
RTSP Port:	554
RTP Start Port:	5000 [1024..9997]
RTP End port:	9000 [1027..10000]
ONVIF:	☐ v1.02 ☒ v1.01 ☐ Disabled
Security:	☐ Yes ☐ No
RTSP Keepalive:	☐ Yes ☐ No

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

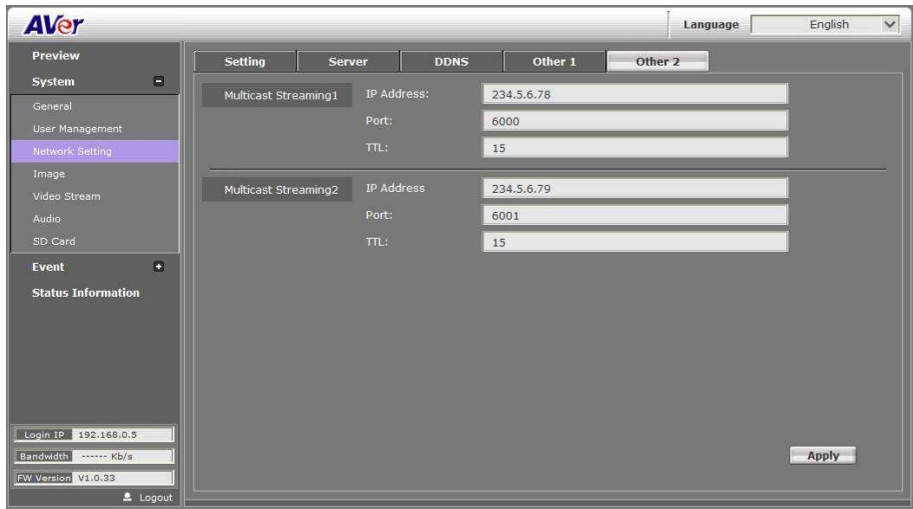
User may need to assign different port to avoid conflict when setting up IP assignment. Click **Apply** to save the configuration.

- **HTTP Port:** setup web page connecting port and video transmitting port (Default: 80)
- **UPnP Support:** This IP camera supports UPnP, if this service is enabled on your computer, the camera will automatically be detected and a new icon will be added to “My Network Places.”
[Note] UPnP must be enabled on your PC.
Please follow the procedure to activate UPnP.
 1. Open the **Control Panel** from the Start Menu.
 2. Select **Add/Remove Programs**.
 3. Select Add/Remove Windows Components and open Networking Services section.
 4. Click **Details** and select **UPnP** to setup the service.
 5. The IP device icon will be added to “**My Network Places**”.
 6. User may double click the IP device icon to access IE browser.
- **UPnP Port Forwarding:** If the IP camera is set up behind the firewall, please select YES to enable it.
- **RTSP Server:** Enable/disable RTSP function. The Real Time Streaming Protocol (RTSP) is a network control protocol designed for use in entertainment and communications systems to control streaming media servers.
- **RTSP Port:** setup port for RTSP transmitting (Default: 554)
- **RTP Start and End Port:** in RTSP mode, you may use TCP and UDP for connecting. TCP connection uses RTSP Port (554). UDP connection uses RTP Start and End Port.
- **ONVIF:** User can enable ONVIF standard and select the ONVIF version or disable it.

- **Security:** **Yes** is required account and password to connect with this IP camera through ONVIF protocol. **No** is not required account and password to connect. (Make sure the NVR system supports ONVIF v1.02.)
- **RTSP Keepalive:** To keep connection until remote site disconnects it.

System > Network Setting >Other 2

Multicast Setting (based on the RTSP Server): User can setup two streaming based on the RTSP Server.



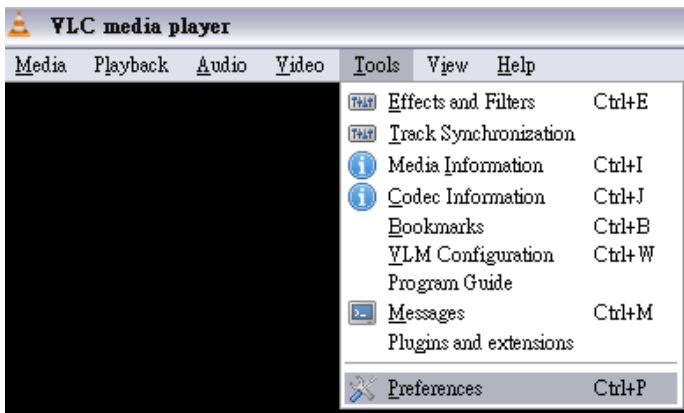
Multicast operation example:

The application is to get the multicast streaming in the LAN environment. Basically, the users operate VLC player, and then you can get the multicast streaming form IP camera.

Please follow the steps to obtain the multicast streaming in the following steps:

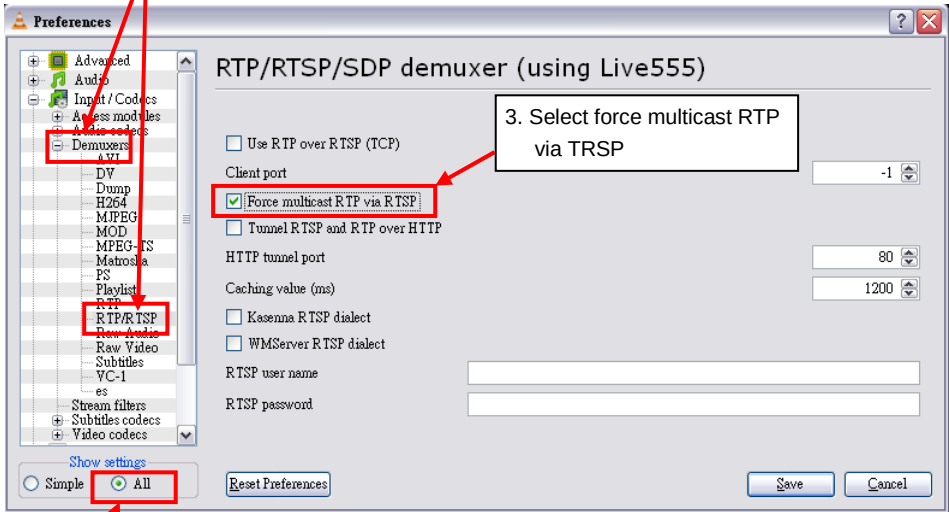
Step 1:

- 1. Implement VLC player (please download from the internet)
- 2. Select /tools/preferences



Step 2:

2. Select Demuxers and
RTP/RTSP

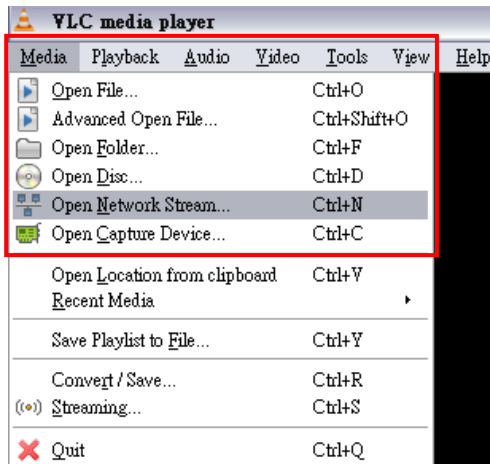


3. Select force multicast RTP
via TRSP

1. Select all

Step 3:

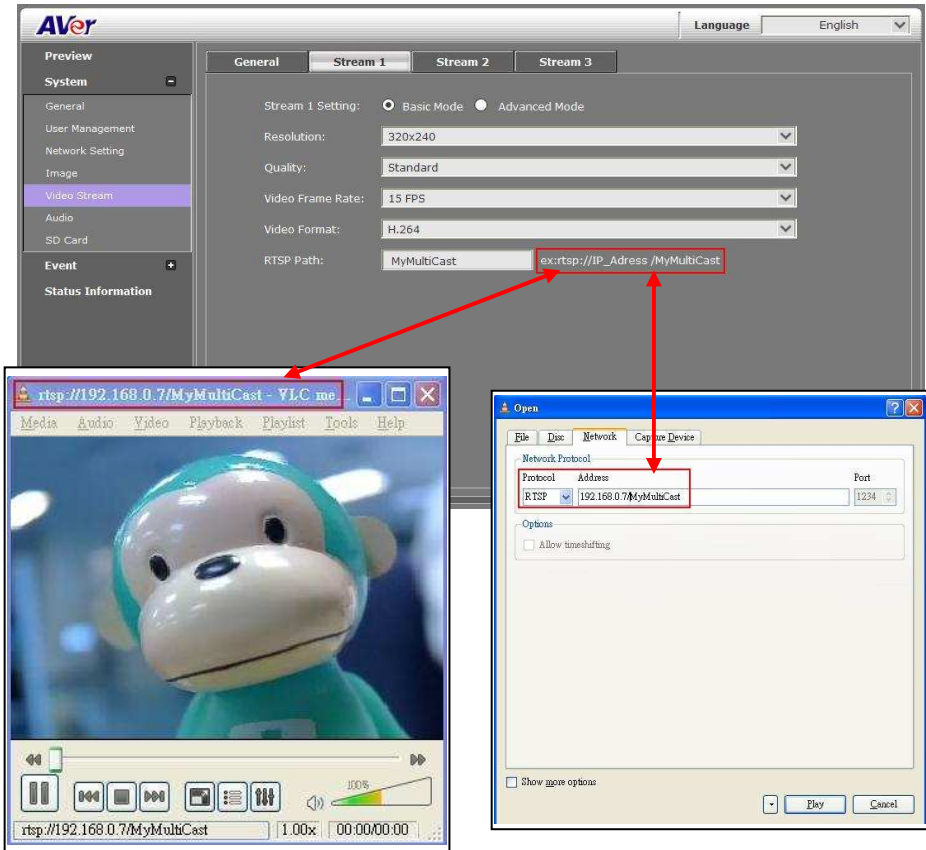
Select Media/open network stream



Step 4:

Input `rtsp://[IPCAM Address] / [RTSP Path]`

The URL address should be the same as the RTSP path in Video Stream (System-->Video Stream)



[Notice]

- a. If the received image is not from the required IP camera, please adjust the value. (Change either IP Address or Port number)

The screenshot shows the AVer network settings interface. On the left is a sidebar with a 'Preview' section and a 'System' menu. The 'System' menu is expanded, showing options like General, User Management, Network Setting (highlighted), Image, Video Stream, Audio, and SD Card. Below the menu is a 'Status Information' section with fields for Login IP (192.168.0.7), Bandwidth, and FW Version (V1.0.33), along with a Logout button. The main area has tabs for Setting, Server, DDNS, Other 1, and Other 2. The 'Setting' tab is active, showing 'Multicast Streaming1' and 'Multicast Streaming2' sections. In the 'Multicast Streaming1' section, the 'IP Address' field is highlighted with a red box and contains the value '234.5.6.78'. Other fields in this section include 'Port' (6000) and 'TTL' (15). The 'Multicast Streaming2' section has 'IP Address' (234.5.6.79), 'Port' (6001), and 'TTL' (15). An 'Apply' button is at the bottom right.

- b. If the Multicast stream you use doesn't support RTSP Keepalive, please select NO.

The screenshot shows the AVer network settings interface with the 'Setting' tab active. The 'RTSP' section is visible, containing fields for 'HTTP Port' (80), 'UPnP Support' (radio buttons for Yes/No), 'UPnP Port Forwarding' (radio buttons for Yes/No), 'External HTTP Port' (80), 'External RTSP Port' (554), 'Rtsp Server' (radio buttons for Yes/No), 'RTSP Port' (554), 'RTP Start Port' (5000), and 'RTP End port' (9000). Below these are 'ONVIF' (radio buttons for v1.02, v1.01, Disabled), 'Security' (radio buttons for Yes/No), and 'RTSP Keepalive' (radio buttons for Yes/No). The 'RTSP Keepalive' field is highlighted with a red box. An 'Apply' button is at the bottom right.

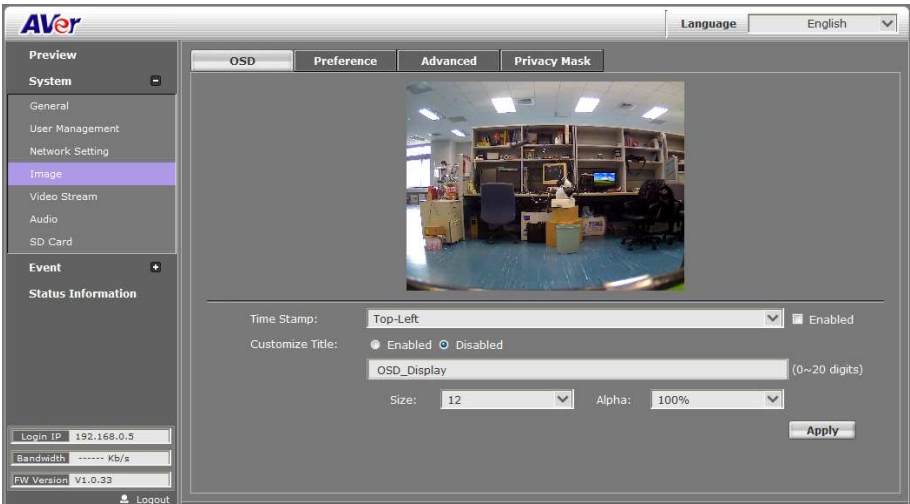
System > Image

Admin and operator levels can adjust the Image setting. There are 5 tabs: OSD, Preference, Exposure, Advanced, and Privacy Mask

System > Image>OSD

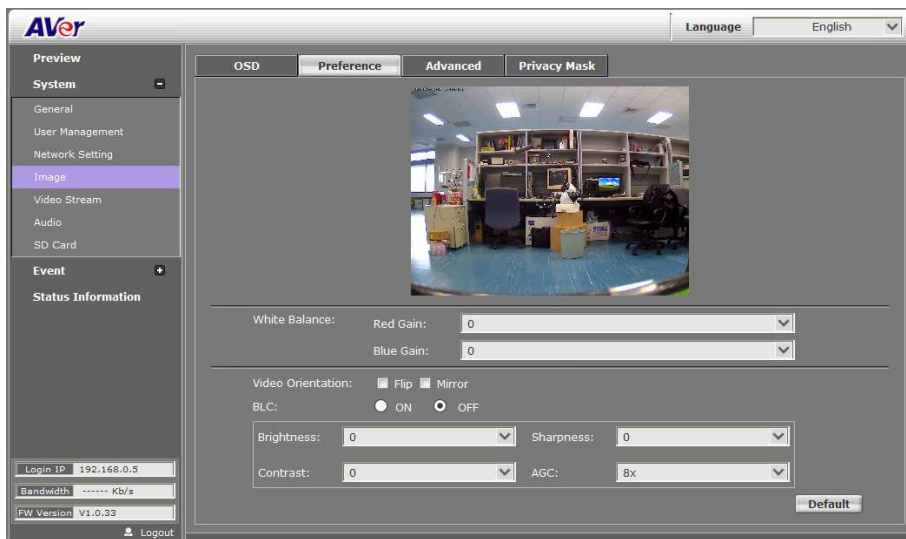
In OSD tab, you can enable/disable overlaying time stamp and text title. After completing the setting, click Save to apply the new setting and Cancel to keep the new setting.

- **Time Stamp:** Mark **Enable** check box and select a position where date and time stamp / text to display on video screen.
- **Customize Title:** Click **Enabled** can adjust the OSD contents which are including **Size** and **Alpha** of text.



System > Image>Preference

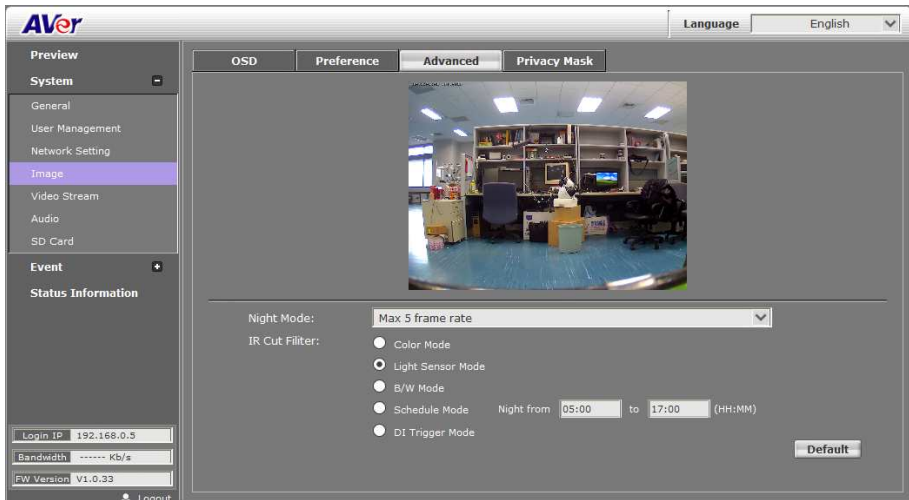
In Preference tab, you can tune the IP camera white balance, display color or black & white, set the flicker frequency, change the video orientation, and adjust the brightness and contrast. After completing the setting, click Save to apply the new setting and Cancel to keep the new setting.



- **White Balance:** Adjust white balance value.
- **Video Orientation:** To **Flip** or **Mirror** the video on screen.
- **BLC:** The IP camera supports "**Back Light Compensation**". **Yes** is turn on and **No** is turn off the BLC function.
- Adjust "**Brightness**", "**Contrast**", "**Hue**", "**Saturation**" to get clear video.

System > Image>Advanced

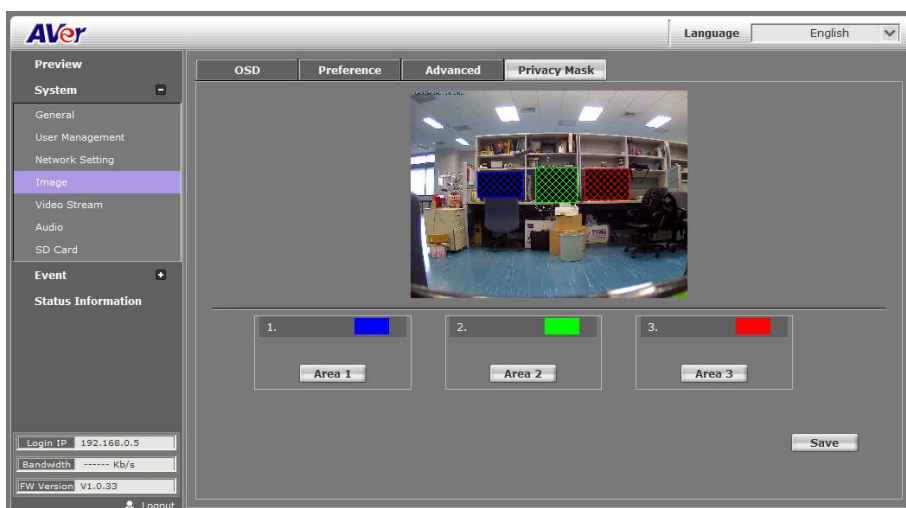
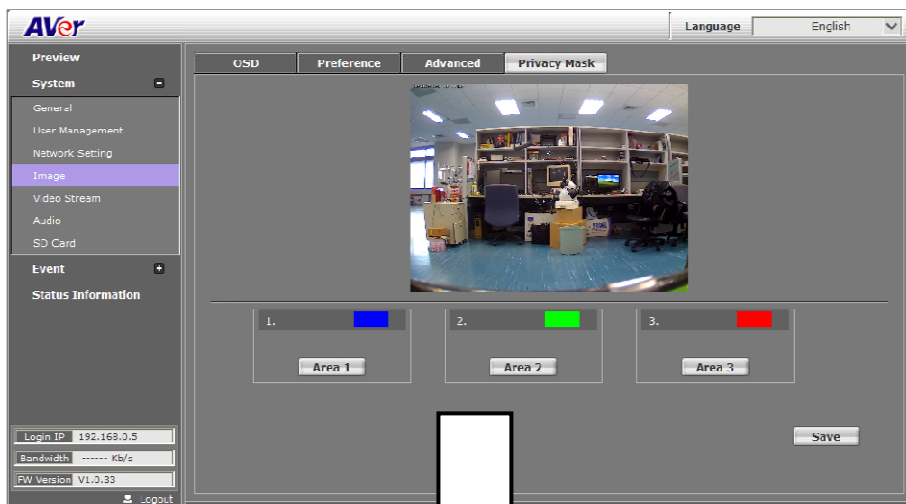
Click **Default** button will back to factory default setting.



- **Night Mode:** select the setting of night mode.
- **IR Cut Filter:** Select the IR cut filter mode – Color Mode, Light Sensor Mode, B/W Mode, Schedule Mode, or DI Trigger Mode. The Schedule mode can set the time period. (depending on different models)

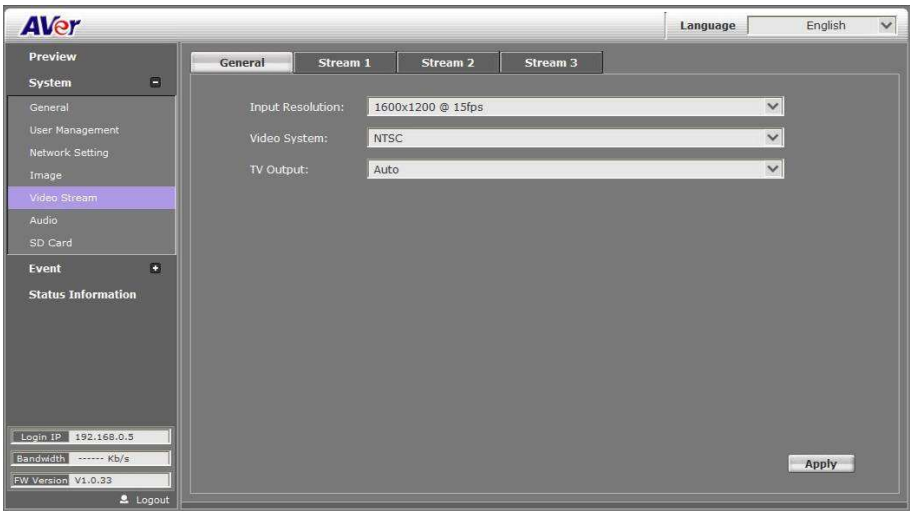
System > Image>Privacy Mask

For the security purpose, there are three areas can be setup for privacy mask. Click Area # (Area 1, Area 2, Area 3) button first and drag a area on the image screen. Then, click **Save** button to save the setting.



System > Video Stream>General

- **Input Resolution:** Select the video resolution that is the maximum resolution supported in Stream 1 and Stream 2.
- **Video System:** Select the video format.
- **TV Output:** Select the video format of TV Output. (depending on different models)

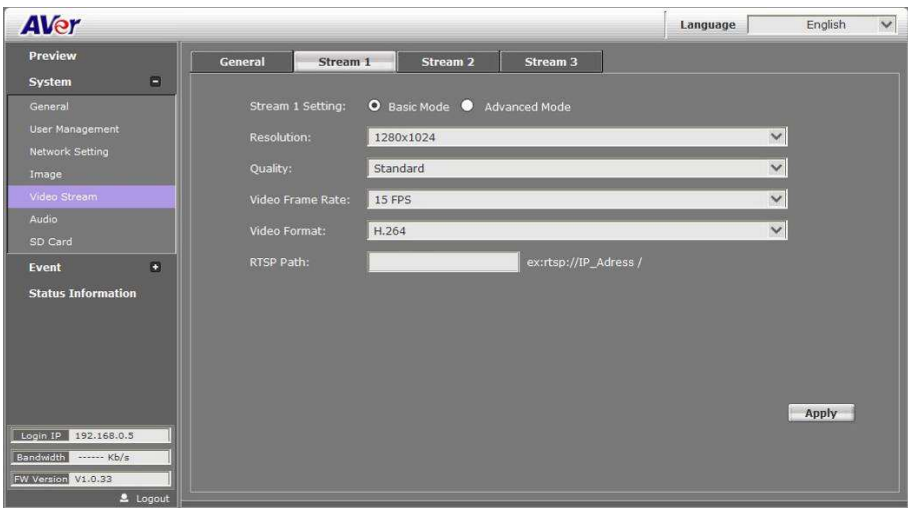


System > Video Stream>Stream1

■ Basic Mode

Click **Apply** to save the configuration.

- **Resolution:** There are 8 resolutions can be chosen -- 1600x 1200, 1280x1024, 1280x960, 1280x720, 800x600, 640x480, 320x240, 176x144.
- **Quality:** There are 5 levels to adjust – Best, High, Standard, Medium, and Low. The higher the quality is, the bigger the file size is. Also not good for internet transmitting.
- **Video Frame Rate:** The video refreshing rate per second.
- **Video Format:** H.264 or JPEG.
- **RTSP Path:** It's a URL address.



■ Advanced Mode

Click **Apply** to save the configuration.

- **Resolution:** There are 8 resolutions can be chosen. 1600x 1200, 1280x1024, 1280x960, 1280x720, 800x600, 640x480, 320x240, 176x144.
- **Rate Control:** There are CBR (Constant Bit Rate) and VBR (Variable Bit Rate) to use.
 - ✓ **CBR:** 32Kbps~8Mbps (the higher the CBR is, the better the video quality is).
 - ✓ **VBR:** 1(Low) ~10(High) – Compression rate, the higher the compression rate, the better the picture quality is; vice versa. The balance between VBR and network bandwidth will affect picture quality. Please carefully select the VBR rate to avoid picture breaking up or lagging.
- **Video Frame Rate:** The video refreshing rate per second.
- **GOP Size:** It means "**Group of Pictures**".

- **Video Format:** H.264 or JPEG
- **RTSP Path:** It's a URL address

The screenshot displays the AVer web interface for configuring a network camera. The interface is divided into a left sidebar and a main content area.

Left Sidebar:

- Preview**
- System** (expanded)
 - General
 - User Management
 - Network Setting
 - Image
 - Video Stream** (selected)
 - Audio
 - SD Card
- Event**
- Status Information**

At the bottom of the sidebar, there are status fields: Login IP (192.168.0.5), Bandwidth (***** Kb/s), and FW Version (V1.0.33), along with a Logout button.

Main Content Area:

The top of the main area has tabs for **General**, **Stream 1**, **Stream 2**, and **Stream 3**. The **Stream 1** tab is active.

Under the **Stream 1** tab, the settings are as follows:

- Stream 1 Setting:** ☒ Basic Mode ☐ Advanced Mode
- Resolution:** 1600x1200
- Rate Control:** ☒ CBR ☐ VBR
- Video Bitrate:** 2Mbps
- Video Frame Rate:** 15 FPS
- GOP Size:** 1 X FPS (with a note **GOP = 15** on the right)
- Video Format:** H.264
- RTSP Path:** A text input field followed by the example text `ex:rtsp://IP_Address:8080 /`

An **Apply** button is located at the bottom right of the main content area.

System > Video Stream>Stream2

■ Basic Mode

Click **Apply** to save the configuration.

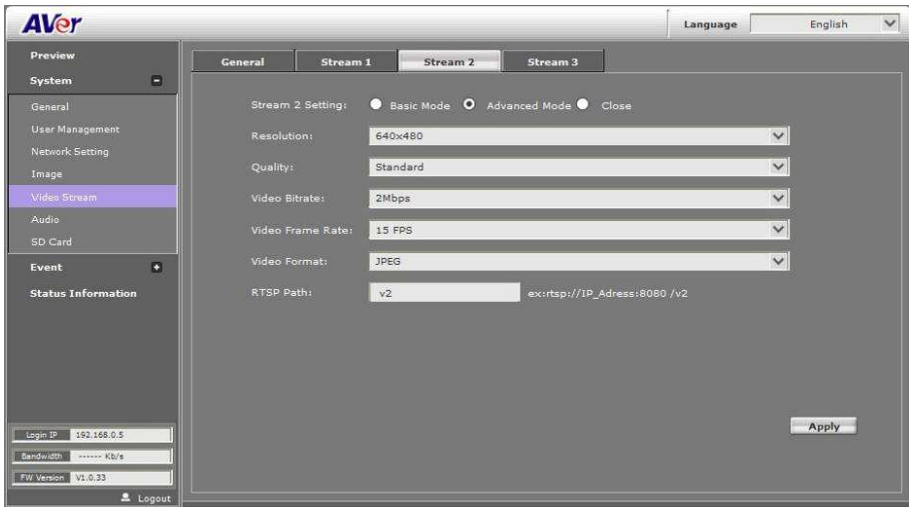
- **Resolution:** There are 8 resolutions can select -- 1600x1200, 1280x1024, 1280x960, 1280x720, 800x600, 640x480, 320x240, 176x144.
- **Quality:** There are 5 levels to adjust – Best, High, Standard, Medium, and Low. The higher the quality is, the bigger the file size is. Also not good for internet transmitting
- **Video Frame Rate:** The video refreshing rate per second.
- **Video Format:** H.264 or JPEG
- **RTSP Path:** It's a URL address

The screenshot shows the AVer system configuration interface. The top bar includes the AVer logo and a language dropdown set to English. The left sidebar contains a 'System' menu with options: General, User Management, Network Setting, Image, Video Stream (highlighted), Audio, and SD Card. Below this is an 'Event' section and a 'Status Information' section. The main area has tabs for 'General', 'Stream 1', 'Stream 2' (selected), and 'Stream 3'. Under 'Stream 2 Setting', there are three radio buttons: 'Basic Mode' (selected), 'Advanced Mode', and 'Close'. Below these are four dropdown menus: 'Resolution' (set to 640x480), 'Quality' (set to Standard), 'Video Frame Rate' (set to 15 FPS), and 'Video Format' (set to JPEG). The 'RTSP Path' is set to 'v2' with a placeholder text 'ex:rtsp://IP_Address /v2'. At the bottom right of the main area is an 'Apply' button. The bottom status bar shows 'Login IP' as 192.168.0.5, 'Bandwidth' as ----- Kb/s, and 'FW Version' as V1.0.33, with a 'Logout' button.

■ Advanced Mode

Click **Apply** to save the configuration.

- **Resolution:** There are 8 resolutions can select -- 1600x1200, 1280x1024, 1280x960, 1280x720, 800x600, 640x480, 320x240, 176x144.
- **Quality:** There are 5 levels to adjust – Best, High, Standard, Medium, and Low. The higher the quality is, the bigger the file size is. Also not good for internet transmitting.
- **Video Bitrate:** Select the bitrate of video.
- **Video Frame Rate:** The video refreshing rate per second.
- **Video Format:** H.264 or JPEG.
- **RTSP Path:** It's a URL address

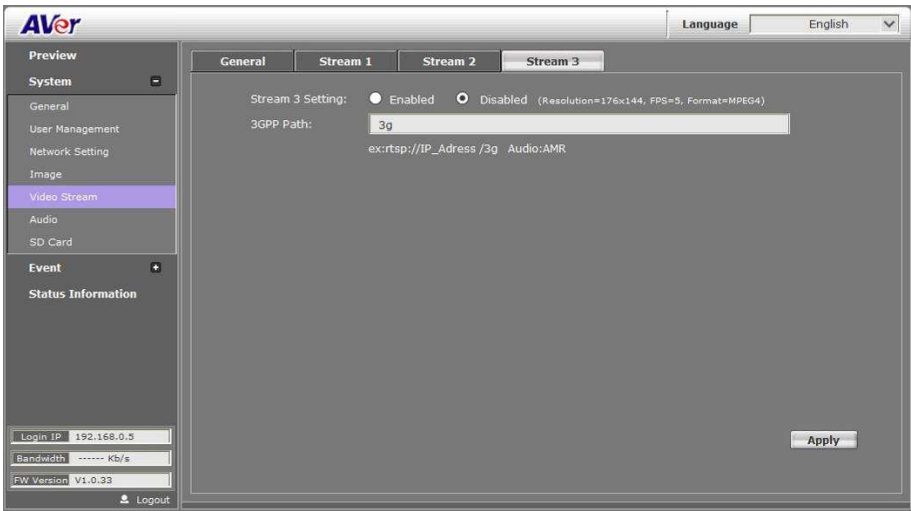


- **Close:** To close the stream 2. Click **Apply** to save the configuration.

System > Video Stream>Stream3

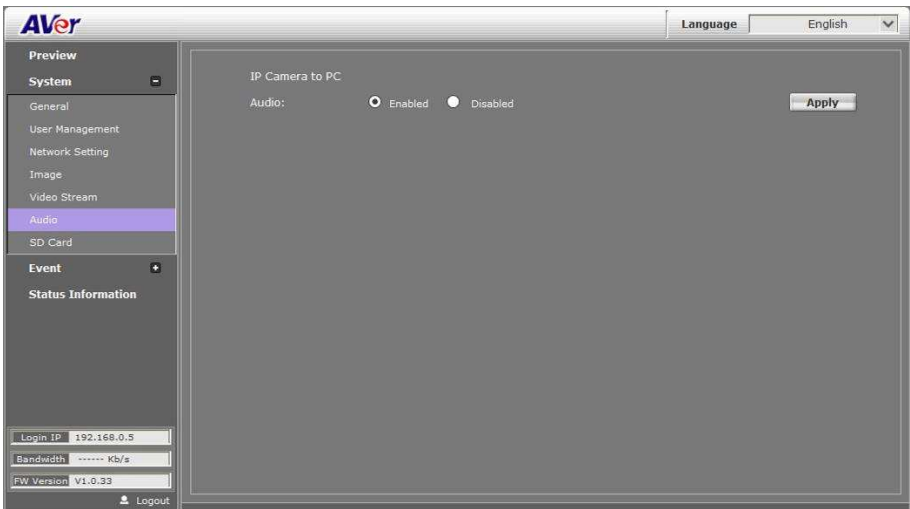
[Note] 3GPP mode suggested setting: 176x144 resolution, 5FPS, MPEG-4 format.

- **Stream 3 Setting: Enable or Disable** 3GPP Streaming.
- **3GPP Path:** It's a URL address.

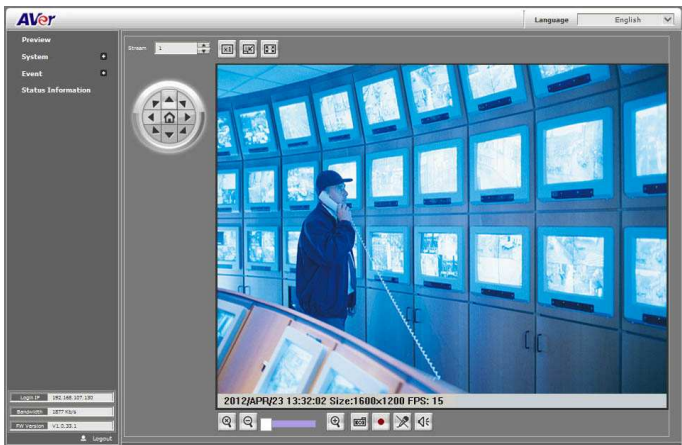


System > Audio

IP camera supports 2-way audio (mono). User can send audio from IP camera built-in MIC (depending on different models) to remote site; User can also send audio from remote site to IP camera's external speaker.

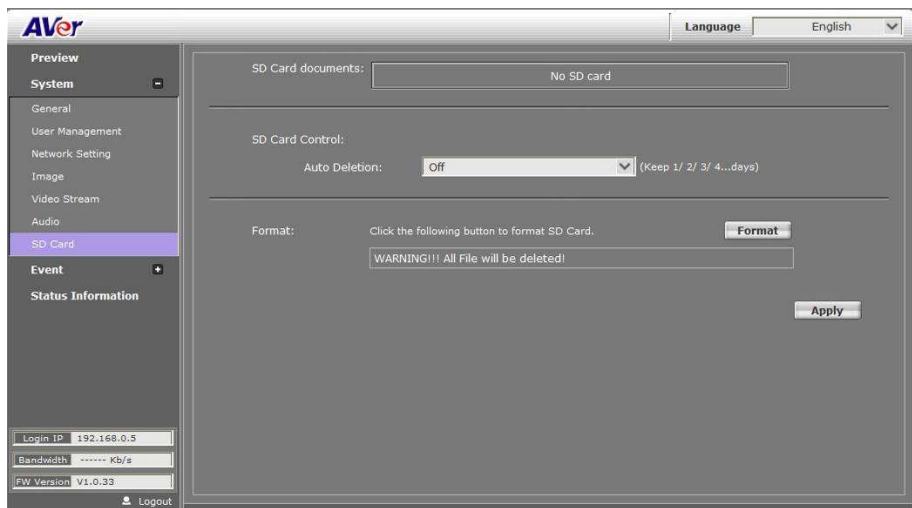


- a. IP Camera to PC: select “**Enable**” to start this function.
- b. In live video screen, click  button to start chatting. Press again to mute. Click  button to turn on or off the speaker of PC.



[Note] The Audio will not be smooth when enable SD/SDHC card recording function simultaneously.

System > SD Card



Please Insert SD/SDHC card before using it. Make sure pushing SD/SDHC card into the slot completely.

[Note]The use of the SD/SDHC card will affect the operation of the IP camera slightly, such as affecting the frame rate of the video.



Event > Arrangement>Motion

Motion Detection: IP camera allows 3 areas motion detection. When motion is triggered, it can send the video to some specific mail addresses, transmit the video to remote ftp server, trigger the relay, and save video to local SD/SDHC card. To set up the motion area 1, click “Area 1” button. Using mouse to drag and draw the area. The same operation for area 2 and 3. (The higher the sensitivity value is, the more sensitive to trigger event.)



Event > Arrangement > Preference

The screenshot shows the AVer IP camera web interface. The top bar includes the AVer logo and a language dropdown set to 'English'. The left sidebar contains navigation links: Preview, System, Event, Arrangement (highlighted), Schedule, DI/DO, and Status Information. The main content area is titled 'Preference' and features a live video feed of a room. Below the video feed, the 'Record File' section includes 'File Format' (set to 'AVI File(with Record Time Setting)'), 'Pre Alarm' (5 sec), and 'Post Alarm' (5 sec). The 'Network Connected' section has a 'Save to SD card' checkbox. The 'Network IP Check' section includes 'IP Check' (radio buttons for 'Enabled' and 'Disabled'), 'IP Address' (www.google.com), 'Interval' (30 sec), and another 'Save to SD card' checkbox. An 'Apply' button is located at the bottom right. A status bar at the bottom left displays 'Login IP: 192.168.0.5', 'Bandwidth: ----- Kb/s', and 'FW Version: V1.0.33'.

■ Record File:

- **File Format:** IP camera allows 3 different types of recording file to change its record size. When motion/alarm is triggered, there are 3 different types of record mode.
 - AVI File (With Record File Setting)
 - JPEG Files (With Record File Setting), only with M-JPEG compression format.
 - Single JPEG (Single File with Interval Setting)(JPEG photo).
- **Pre Alarm and Post Alarm:** Setups for video start and end time when motion detected, I/O, or other devices got triggered.

[Note] Pre/Post Alarm record time is base on record time setting and IP Camera built-in Ram memory. Limited by IP Camera built-in Ram Memory, When information is too much or video quality set too high, it will cause recording frame drop or decrease on post alarm recording time.

- **Network Connected:** When the network is down, it will save the video to local SD/SDHC card.

[Note] This function is only enabled in wire connection.

- **Network IP check:** When the connection is down, it records the **video** to SD/SDHC card. Make sure the video recording is continuous. To use this function, key in the IP address of the PC which has recording software installed. Enable the function of “**Save to SD card**”, then click “**Apply**”.

[Note] The interval of two video files on SD/SDHC card is fixed with 30 seconds.

Event > Schedule

- **Schedule:** After complete the schedule setup, the camera data will be recorded according to the schedule setup.
- **Snapshot:** After enable the snapshot function; user can select the storage position of snapshot file, the **Interval time** of snapshot and the reserved **File Name** of snapshot.

AVer

LanguageEnglish

Preview

System

Event

Arrangement

Schedule

DI/DO

Status Information

All	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Mon.																								
Tue.																								
Wed.																								
Thu.																								
Fri.																								
Sat.																								
Sun.																								

Schedule Setup.

Snapshot:YesNo

Snapshot:

E-mail

FTP

Save to SD card

Samba

Interval:

10

Second(s)

File Name:

Snapshot

Apply

Login IP:192.168.0.5

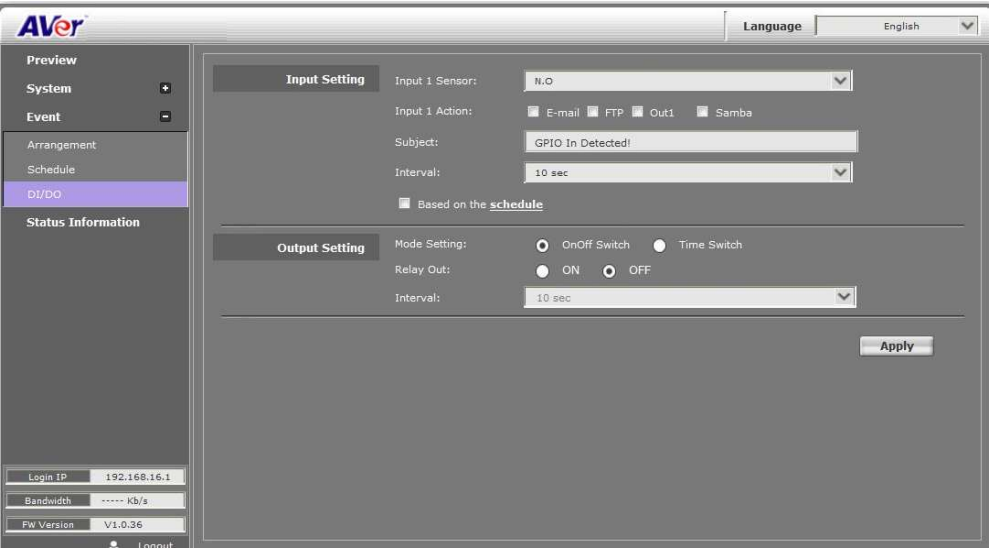
Bandwidth:----- Kb/s

FW Version:V1.0.33

Logout

Event > DI/DO

IP camera supports 1 input/1 output (depending on different models). When input is triggered, it can send the video to some specific mail addresses, transmit the video to remote ftp server, trigger the relay, and save video to local SD/SDHC card.



CAUTION!!

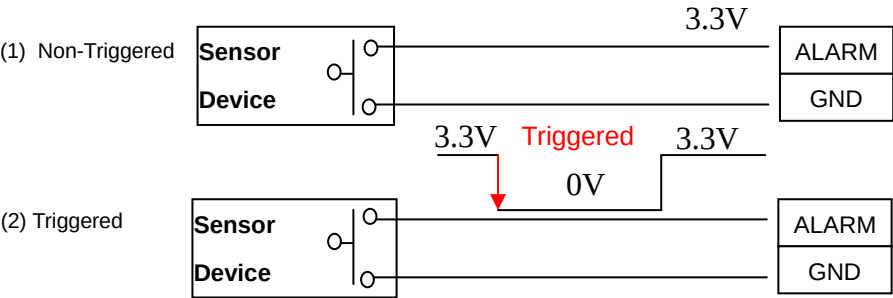
Please connect to propriety relay box to reduce the risk of electric shock & damaged.

Input Setting:

Input 1 sensor: This is to set the relay status while sensor is not yet triggered.

Input 1 action: Send the triggered video clips or photos to the selected method.

Subject: This is the subject while sending files via e-mail.



Output Setting:

Mode setting:

OnOff Switch: Relay status is based on sensor triggered times.

Time Switch: To restore the original relay status after the interval time.

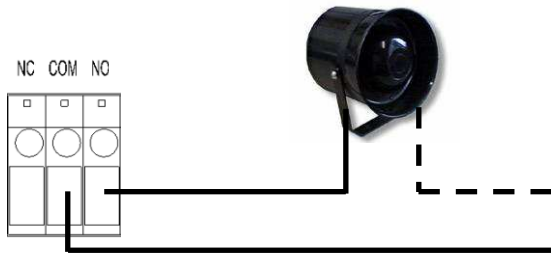
[Note]GPIO pin define please refer to the part of Front / Back plane & I/O port pin assignment.

GND	ALARM INPUT: Normal: 3.3V (The voltage differential from ALM_IN pin & GND) Active: 0V (Short the pin of ALM_IN and GND pin)
ALM_IN	
N.O	RELAY OUTPUT: Depends on the devices, the user should connect “N.C.” and “COM” pins or “N.O.” and “COM” pins
COM	
N.C	

[Example]

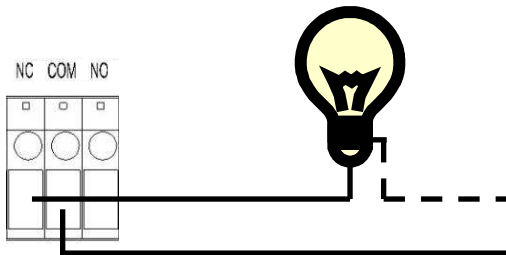
RELAY INSTALLATION EXAMPLE 1

Trigger a “Normal OFF” (Normal Open) alarm siren on when event/motion occur:



RELAY INSTALLATION EXAMPLE 2

Trigger the “Normal ON” (Normal Close) indoor illumination off when event / motion occur:



Status Information

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

LanguageEnglish

Preview

System

Event

Status Information

Login IP192.168.0.5

Bandwidth----- Kb/s

FW VersionV1.0.33

Logout

Networking info:

IP Address:192.168.0.5

MAC Address:00:0F:0D:22:25:8B

Interface:Ethernet

RTSP 1 Path:rtsp://192.168.0.5/

RTSP 2 Pat:rtsp://192.168.0.5/v2

3gpp Path:rtsp://192.168.0.5/3g

Product info:

Server Name:SF2012H

Company:AVer

FW Version:V1.0.33

Model:SF2012H

BuildTime:2012/03/27 09:46:47 CST

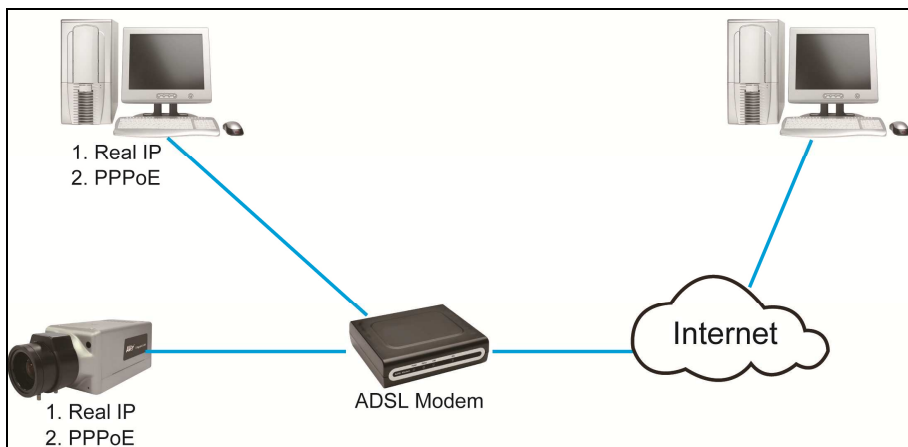
Status Bar

Apply

- **Networking Info:** Displays network information of the IP camera.
- **Product Info:** Assigns a name to the IP camera and the name shows on the IP Installer. Also, displays the related information of the IP camera. Mark **Status Bar** to display the Server Name of IP camera on preview interface.

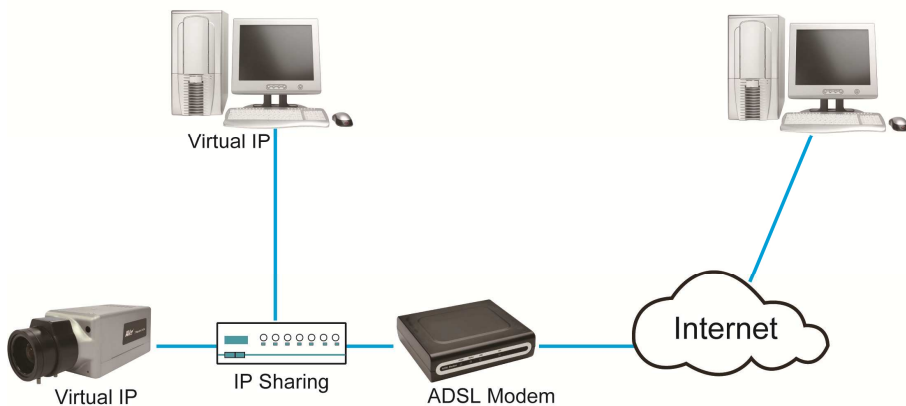
Network Configuration

■ Configuration 1



- a. Internet Access: ADSL or Cable Modem
- b. IP address: More than one real IP
- c. IP camera and PC connect to the internet
- d. For fixed real IP, set up the IP into IP camera and PC. For dynamic IP, start PPPoE.

■ Configuration 2



- a. Internet Access : ADSL or Cable Modem
- b. IP address : one real IP
- c. IP camera and PC connect to the internet
- d. Device needed : IP sharing
- e. Use virtual IP, set up port forwarding in IP sharing.(Please refer to Network Setting→Other 1→UPnP Port Forwarding)

Factory Default

1. To recover the default IP address and password, please follow the following steps.
2. **Remove power**, press and hold the button in the back of IP camera.



3. Power on the IP camera. Don't release the button during the system booting.
4. It will take around 30 seconds to boot the camera.
5. Release the button when camera finishes proceed.
6. Re-login the camera using the default IP (<http://192.168.1.200>), and user name (**admin**), password (**admin**).

Troubleshooting

Here are some useful tips on how to solve some common problems.

Problem	Solution
I forgot the account and password for SF2012H. How can I go back to default setting?	Please refer to the manual of "VI Factory Default setting" description.
I can't find a way to force day mode and night mode. Is this possible and how.	We don't provide this function due to the limitation of hardware.
What is the night mode setting does, under Camera setting page, with option to choose frame rate. Any way to check the shutter speed and settings?	Night mode means slow shutter and you increase the shutter to make the object more bright. However, the weakness is that the frame rate would be reduced.
I recorded video file in H.264 file format but failed to playback on Media Player (V.9).	Default Windows Media Player doesn't have H.264 decoder so that you can't playback the file successfully. Please install K-Lite program in advance or install KMPlayer or VLC program to playback the video file. You can search those free program on Internet.

Appendix

SF2012H is compliant with SD/SDHC card and to ensure recording quality, and please use memory cards over 2G and Class 4 above (Max. 32G)

Micro SD/SDHC card	SD/SDHC
Transcend SDHC class4 16GB	Transcend SDHC Class 4 16GB
Transcend SD class4 16GB	Transcend SD Class 4 16GB
Transcend SDHC class4 32GB	Transcend SDHC Class 4 32GB
Transcend SD class4 32GB	Transcend SD Class 4 32GB
Transcend SD class6 4GB	Transcend SD Class 6 4GB
Transcend SDHC class6 4GB	Transcend SDHC Class 6 4GB
Transcend SD class6 8GB	Transcend SD Class 6 8GB
Transcend SDHC class6 8GB	Transcend SDHC Class 6 8GB
Transcend SD class6 16GB	Transcend SD Class 6 16GB
Transcend SDHC class6 16GB	Transcend SDHC Class 6 16GB
Transcend SDHC class10 4GB	Transcend SDHC Class10 4GB
Transcend SDHC class10 8GB	Transcend SDHC Class10 8GB
Transcend SDHC class10 16GB	Transcend SDHC Class10 16GB
SanDisk SDHC class4 4GB	SanDisk SDHC Class 4 4GB
SanDisk SDHC class4 8GB	SanDisk SDHC Class 4 8GB
SanDisk SDHC class4 16GB	SanDisk SDHC Class 4 16GB
SanDisk SDHC class4 32GB	SanDisk SDHC Class 4 32GB

- SF2012H/SF2012H-D/SF2012H-B: SDHC/SD card
- SF2012H-DV/SF2012-C: Micro SDHC/SD card
- **For SF2012H-B, the SD card must be installed at factory side. Users are not allowed to install cards by themselves. Otherwise, it will be out of warranty.**

FCC NOTICE (Class B)



This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Federal Communications Commission Statement

NOTE- This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by tuning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

European Community Compliance Statement (Class B)



This product is herewith confirmed to comply with the requirements set out in the Council Directives on the Approximation of the laws of the Member States relating to Electromagnetic Compatibility Directive 2004/108/EC.

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THE MARK OF CROSSED-OUT WHEELED BIN INDICATES THAT THIS PRODUCT MUST NOT BE DISPOSED OF WITH YOUR OTHER HOUSEHOLD WASTE. INSTEAD, YOU NEED TO DISPOSE OF THE WASTE EQUIPMENT BY HANDING IT OVER TO A DESIGNATED COLLECTION POINT FOR THE RECYCLING OF WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT. FOR MORE INFORMATION ABOUT WHERE TO DROP OFF YOUR WASTE EQUIPMENT FOR RECYCLING, PLEASE CONTACT YOUR HOUSEHOLD WASTE DISPOSAL SERVICE OR THE SHOP WHERE YOU PURCHASED THE PRODUCT.

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