LG
Life's Good

OWNER'S MANUAL

High Definition Network Camera

Please read this manual carefully before operating your set and retain it for future reference.

MODELS
LND3110R Series
LNU3110R Series

MFL67860028

1404 (V1.0)

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Introduction

The LG Network Camera is designed to use on an Ethernet network and must be assigned an IP address to make it accessible.

This manual contains instructions on how to install and manage the LG Network Camera in your networking environment. Some knowledge of networking environments would be beneficial to the reader.

Note that design and specification of this unit may change from the manual as quality and improvement without prior notice. Should you require any technical assistance, please contact authorized service center.

Operation and settings

Before using the system

- Before using the LG IP device make sure the connections are correct and verify whether proper power supply is used.
- Check the connections of the LG IP device for the correct conditions.
- Check that the LG IP device is(are) connected to the network and that power is supplied.
- Once the connections are made you need to install the LG client program to the PC from which you want to access the device. The LG Smart Web Viewer program is automatically installed when you connect the LG IP device.
  The LVi510 and the LG Smart Web Viewer program are the network program of the LG Video Server and the LG IP cameras.
- To view streaming video in Internet Explorer, set your browser to allow ActiveX controls. If you find this message "This website wants to install the following add-on: 'IPCam_Streamer.cab' from 'LG ELECTRONICS INC'", Click the yellow bar and install LG Smart Web Viewer Program on your computer. Please set your browser zoom level to 100%.
- The Layouts and the Live view pages may differ with different OS (Operating Systems) and Web Browsers.
- Care needs to be taken not to run any other applications when the Client Program is running as it may cause memory shortage.
- When you set on 30 fps in mobile applications, may be degraded the frame rate depending on mobile performance.

Recommended PC Requirements

The LG IP device can be used with most standard operating systems and browsers.

Items	Requirements
Operating System	Windows XP Professional, Windows VISTA, Windows 7
CPU	Intel Core2 Quad Q6700 (2.66 GHz) or above
Web Browser	Microsoft Internet Explorer (32 bit) above the version 7.0 and below the version 9.0.
DirectX	DirectX 9.0c(Windows XP), DirectX 11(Windows Vista/7) or above
Memory	2 GB or above RAM
Graphics Card	256 MB or above Video RAM
Resolution	2048 x 1536 (with 32 bit color) or higher

Note:

For Windows 7, please download & install 'DirectX End-User Runtime Web Installer'.
"http://www.microsoft.com/en-us/download/details.aspx?id=35"

Accessing the LG IP device

You can access the LG IP device by following the below steps.

1. Install LVi510 Program

It recommended to use LVi510 surely.

Otherwise, it is required to install the IP Utility [Package>Tools>LG IP Utility Installer] to search the IP addresses of LG IP devices.

2. Discover the LG IP device using the IP Utility

The IP Utility can automatically discover and display LG IP devices on your network.

The IP Utility shows the MAC address, IP address, Model name and so on.

Note:

The computer running the IP Utility must be on the same network segment (physical subnet) as the LG IP device.

2.1 Run the IP Utility program.

2.2 Click the [Search] button or select the [Search] option in the Device search menu.
After a few seconds the found LG IP devices gets displayed in the IP Utility window.

3. Logging in to the LG Smart Web Viewer

3.1 Run the IP Utility and find the LG IP devices.

3.2 When the LG IP devices appear in the IP Utility window, double-click IP address or right click on the same IP address and select "Connect to Web Page" to start the LG Smart Web Viewer. When accessing the LG Smart Web Viewer, the authentication dialog appears on the screen.

3.3 Enter the user name and password. (Note that the default administrator user name and password are "admin".)

Note:

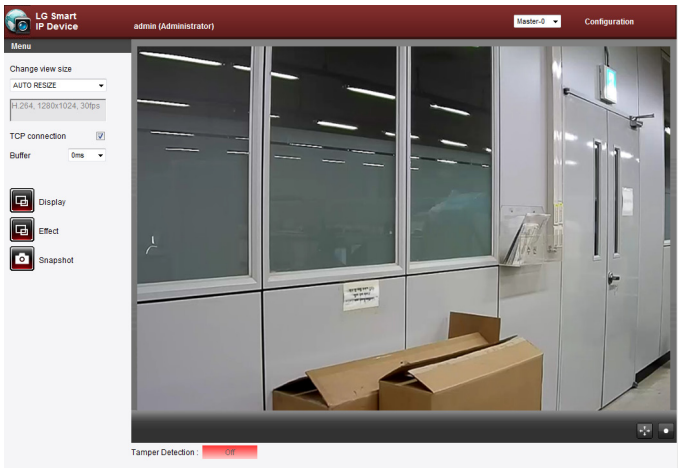
Default password must be changed for security after initial connection.

3.4 Click the [OK] button and then the LG Smart Web Viewer is displayed in your browser.

Note:

- You can also access the LG Smart Web Viewer as shown below.
  - 3.1 Start your Web browser.
  - 3.2 Enter the IP address of the LG IP device in the address bar of the browse.
  - 3.3 Enter the user name and password set by the administrator.
  - 3.4 Click the [OK] button and then the LG Smart Web Viewer is displayed in your browser.
- If LG Smart Web Viewer is required to be updated, it needs more time to display according to the network conditions.
- If the login window is not displayed, check the pop-up blocker. If you set the pop-up blocker, the login window is not displayed. You must allow the pop-ups.
- If you connect the LG Smart Web Viewer for the first time, the Security Warning window is displayed to install the LG Smart Web Viewer program. You must install the LG Smart Web Viewer program for using the LG IP device.
- If your computer or network is protected by a proxy or firewall, the proxy or firewall settings can prevent the LG Smart Web Viewer program. Change the proxy or firewall settings to activate the LG Smart Web Viewer program.

LG Smart Web Viewer Overview



Item	Description
Change view size AUTO RESIZE	Select the video image size from the drop-down list. The initial view size is set to AUTO RESIZE. **Note:** • Select [FULL SCREEN] to enlarge full screen of monitor. To return previous screen, press ESC key or double click. • When you select [AUTO RESIZE], size of live view screen fit to window. Ratio imaging is fixed by width based.
H.264_HIGH, 1280x1024, 30fps	It displays Video Codec, Resolution and FPS of the selected video stream.
TCP connection	Check this option as the network connection type (TCP or UDP). If you check it, the client connects to the server using TCP connection.
Buffer 0ms	Select buffering time of live stream.
Display	Click to display the check box of [Hostname], [Framerate] and [Bitrate] options. [Display] is displayed on left top of the live view window in order of selecting options. *Video Analysis* > Hide: Video Analysis display function is not in use. > SVA: Displays the Smart Video Analysis function to the live view window. > MD: Displays the Motion Detection function to the live view window. **Note:** When you use the DPTZ function, all of Display function is deactivated for a while.
Effect	Click to effect and then check the check box of [Edge Enhancement] option. The user gets more sharp reception on the live view window. **Note:** This feature only affects the live view window.
Snapshot	Click to save the current image in JPEG format on your computer. 1. Click the [Snapshot] button and then the Snapshot window is displayed. 2. Click the [Save] button in the Snapshot window. 3. Enter the file name (JPEG format) and select the folder to save it. 4. Click the [Save] button to confirm it. 5. Click the [Cancel] button in the Snapshot window to close it. **Note:** It is not displayed the area of MD and SVA in Snapshot file.
Master-0	Select the video stream. From the Live view drop-down list, select the desired video image source. **Note:** You can set the stream configurations independently. This would facilitate the user to set the live view at his comfort.
Configuration	Provides all the necessary tools for setting up the device to your requirements. The user will need administrator level to do this. **Note:** If you want to exit the Configuration menu, select one of the video stream in the Live view drop-down list or click LG Smart IP Device icon.
	Displays the current surveillance live screen. You can monitor the camera image on the live view window of the LG Smart Web Viewer.
	Click this button and drag the area to use digital PTZ function. Right-clicking the screen will bring up the previous magnification. (Color icon: On, Gray scale icon: Off.)
	1. Click this button to open the folder browse window. Click the button again in next time, video is recorded automatically without selection of folder. **Note:** If you want to change the folder, move to other pages or press the refresh button. 2. Recording button is activated and recording will be started. **Note:** If recording exceed the time(1 hour) or size limit (1 GB), recording is stopped automatically with warning. 3. To stop the recording, click this button during the recording.

Configuration menu overview

The following table shows the list of menu items.

The configuration images are different from each model.

Main Menu	Sub Menu
System	Version
	Date & Time
	Maintenance
	Log & Report
	Language
Audio & Video	Camera
	Stream
Network	Basic
	RTP stream
	TCP/IP
	DDNS
	IP filtering
	SNMP
	QoS
	802.1x
User	Basic
Event	Event server
	Motion detect
	Smart Analytics
	Triggered Event
	Scheduled Event

Configuring the LG Network Camera Device

The features and options of the LG IP camera are configured through the Configuration menu.

Only administrator-level users have permission to access the Configuration menu.

Accessing the Configuration menu

Click the [Configuration] button to display the LG Smart Web Viewer configuration window.

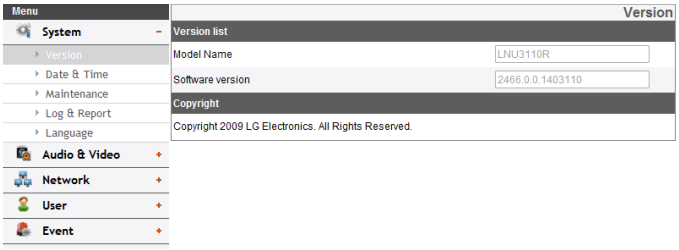
Warning

The Configuration setup should be made by qualified service personnel or system installers.

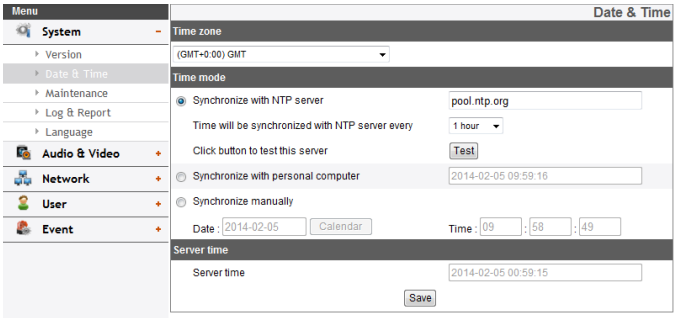
System settings

Version

Displays the current Model Name and Software version.



Date & Time



Time zone

Set the time difference from GMT in the area where the IP device is installed. Select the time zone in the area where the IP device is installed from the drop down list.

Time mode

> Synchronize with NTP Server: Select if you want to synchronize the IP device's date and time with those of the time server called NTP (Network Time Protocol). Specify the NTP server's name. Click the [Test] button for connection test to the server.

> Synchronize with personal computer: Select if you want to synchronize the IP device's date and time with your computer.

> Synchronize manually: Select if you want to set the IP device's date and time manually. Select the year, month and date by clicking the calendar button. Set hour, minutes and seconds in the edit boxes.

Note:

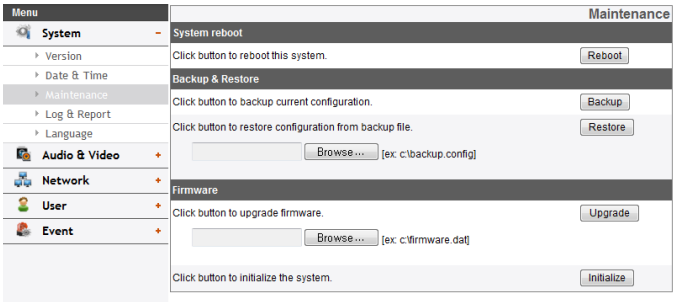
- When system reboot after time setting, time of system could be delayed. If you set the time correctly, set the [Synchronize with NTP server] option.
- Refer to NTP configuration as operation system of the Recording Server when the Recording Server use recording function and NTP server.

Server time

> Server time: Displays the current date and time of the IP device.

- Save: Click this button to confirm the settings.

Maintenance



System reboot

Click the [Reboot] button to restart the IP device. It takes some minutes for the IP device to start again.

Backup and restore

> Backup: To take a backup all of the settings. If necessary, it make possible to return to a backup configuration.

1. Click the [Backup] button.
2. Click the [Save] button.
3. Follow the instructions on the browser to specify the folder.
4. Click the [Save] button to save the settings.

> Restore:

1. Click the [Browse] button.
2. Find and open the file in which the configuration setting data is stored.
3. Click the [Restore] button and the system settings will be restored and reboot the system.

Note:

Backup and Restore can happen on IP device having the same version of firmware. This feature is not intended for multi-configurations or for firmware upgrades.

Firmware

> Upgrade

1. Click the [Browse] button.
2. Find and open the firmware file.
3. Click the [Upgrade] button to update the firmware.

Note:

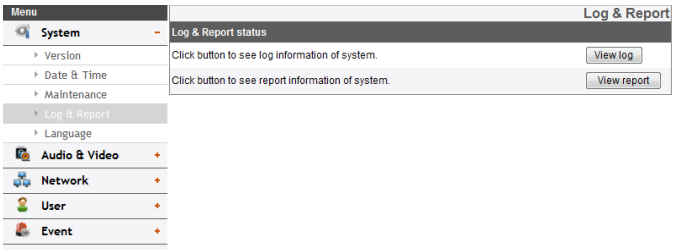
When you upgrade the system, it may take some minutes to be done. Do not close the browser while the upgrade is in progress. If you close the browser, it may cause a malfunction. You should wait until the confirmation window is displayed. When the upgrade is finished, the confirmation window will be displayed.

> Initialize: The [Initialize] button should be used with caution. Clicking it will return all of the IP device's settings to the factory default values. Except for the Network settings, PTZ Protocol and Preset settings. (The option depends on the model.)

Note:

Refer the "Clear browser's cache" of Troubleshooting.

Log & Report



Log & Report status

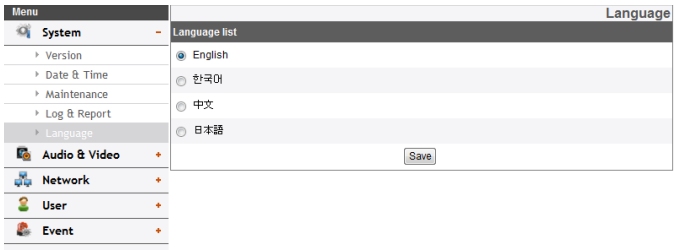
The System log provides a summary of the status of the IP device. The unit records the data of the software activity in a file.

> View Log: Click this button to display the system log information.
  - Download: Click this button to see the log information of system.
> View report: Click this button to display the report of the system.
  - Download: Click this button to see the report information of system.

Note:

The downloaded file is a UNIX type. If you open the file in Microsoft Note pad, it will display the text as if the file contained no line breaks at all.

Language



Language list

Select a language for the LG Smart Web Viewer configuration menu and information display.

- Save: Click this button to confirm the settings.

Audio & Video settings

Camera

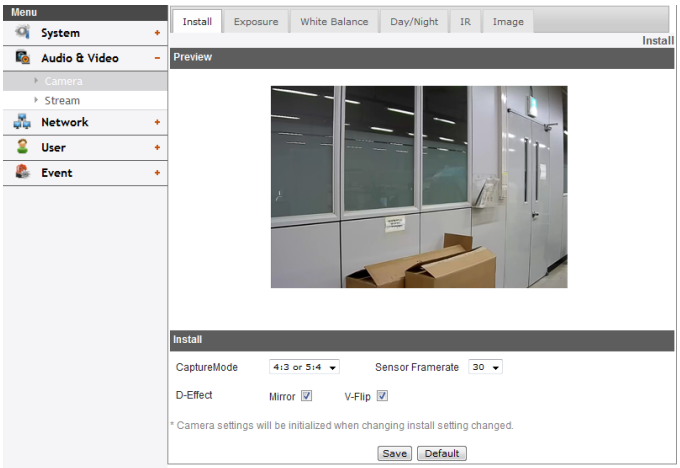
Preview

You can preview the camera image on the preview window.

Note:

The option depends on the model.

Install



> Capture Mode: Select the capture mode.

Note:

If the Capture Mode, Mirror or V-Flip settings are changed in the Install menu, the Privacy Mask is initialized.

Capture Mode	Resolution
16:9	1280 x 720
4:3 or 5:4	1280 x 1024

> Sensor Framerate: Select the Sensor Framerate value.

Note:

- When you change the value of [Sensor Framerate], Flickerless value in [Exposure] menu is changed as below.

Sensor Framerate	Flickerless
30 fps	60 Hz
25 fps	50 Hz

- FPS maximum value cannot exceed the value of Sensor Framerate.

> D-Effect: You can select the digital effect.

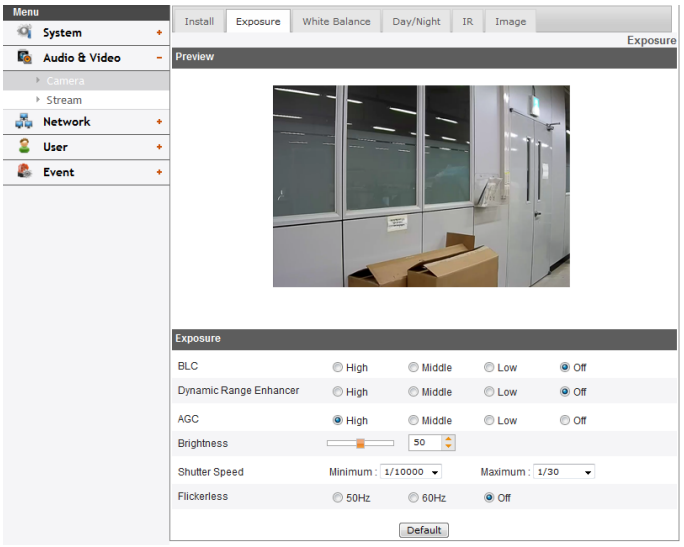
- Mirror: Turn on the mirror effect.
- V-Flip: Flip the picture vertically.

Note:

The [Mirror] and [V-Flip] function can be selected at once.

- Save: Click this button to confirm the settings.
- Default: Click this button to restore the IP device back to original factory settings.

Exposure



> BLC: Camera's backlight compensation feature helps alleviate issues of visibility in high contrast areas.

> Dynamic Range Enhancer: Adjusts the contrast of the image to provides bright and clear images.

> AGC: If the images are too dark, change the maximum [AGC] value to make the images bright.

> Brightness: Adjust the brightness of images.

> Shutter Speed: Select the desired shutter speed for camera exposure. You can change the shutter speed to higher speed to capture fast-moving subjects, though the image becomes darker.

Minimum Shutter	1/10 000	1/5 000	1/2 500	1/1 500	1/1 000
	1/700	1/500	1/480	1/400	1/360
	1/300	1/250	1/240	1/180	1/150
	1/120	1/100	1/60	1/50	1/30
	1/25				
Maximum Shutter	1/10 000	1/5 000	1/2 500	1/1 500	1/1 000
	1/700	1/500	1/480	1/400	1/360
	1/300	1/250	1/240	1/180	1/150
	1/120	1/100	1/60	1/50	1/30
	1/25	1/20	1/15	1/8	1/4
	1/2	2/3	1	1.5	

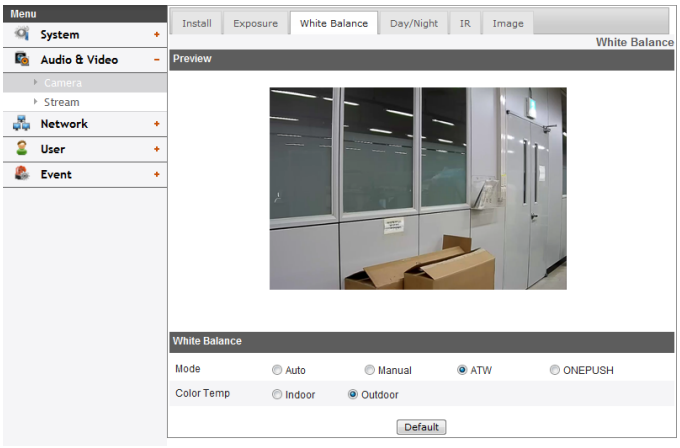
> Flickerless: Remove the band noise caused by fluorescent light.

Note:

Flickerles's default value is changed by [Sensor Framerate] setting. (30 fps » 60 Hz / 25 fps » 50 Hz)

- Default: Click this button to restore the IP device back to original factory settings.

White Balance



> Mode: Select [Mode] option on the [White Balance] menu, then select the following mode.
  - Auto: Adjust the white balance of the full image area. Use this function in the environment by special lighting lamp.

    Note:

    When a monochromatic object is caught on camera, the object may seem faded.
    In case of this, it is recommended to set to [ATW] mode.
  - Manual: You can set the white balance options manually. If the [Mode] option set to [Manual], [Red] and [Blue] are displayed.
  - ATW (Auto-Tracing White Balance): Adjust the white balance by tracing the white area.
    In the following conditions, may not work properly:
    1. When the scene contains mostly high color temperature objects, such as a blue sky or sunset.
    2. When the scene is dim.
  - ONE PUSH: If you select the [ONE PUSH] mode, the [AUTO] mode of White Balance is activated once.

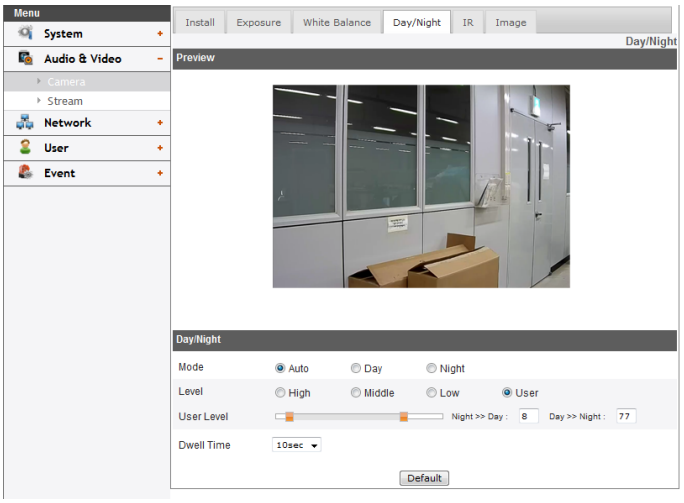
> Red: Set the desired red value.

> Blue: Set the desired blue value.

> Color Temp: If the [Mode] option set to [ATW], this option is displayed. Click to select the option.
  - Indoor: Adjust the white balance according to the indoor environment.
  - Outdoor: Adjust the white balance according to the outdoor environment.

- Default: Click this button to restore the IP device back to original factory settings.

Day/Night



> Mode: Select [Mode] option on the [Day/Night] menu, then select the following mode.
  - Auto: [Day/Night] mode can be changed automatically depending on the [Level] settings.
  - Day: Maintains the color mode always.
  - Night: Maintains the Black-and-white mode always.

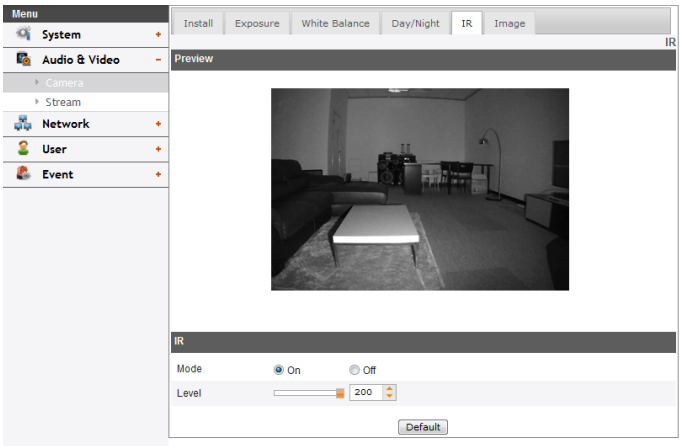
> Level: Adjust the automatic conversion time according to the ambient light. If you select the [High], conversion is made in the lowest illuminance.

> User Level: When you select the [Level] option to [User], you can adjust the automatic conversion time according to the ambient light. The left handle set the value of [Night >> Day] and the right handle set the value of [Day >> Night].

> Dwell Time: Set the time to maintain the brightness for the automatic conversion.

- Default: Click this button to restore the IP device back to original factory settings.

IR



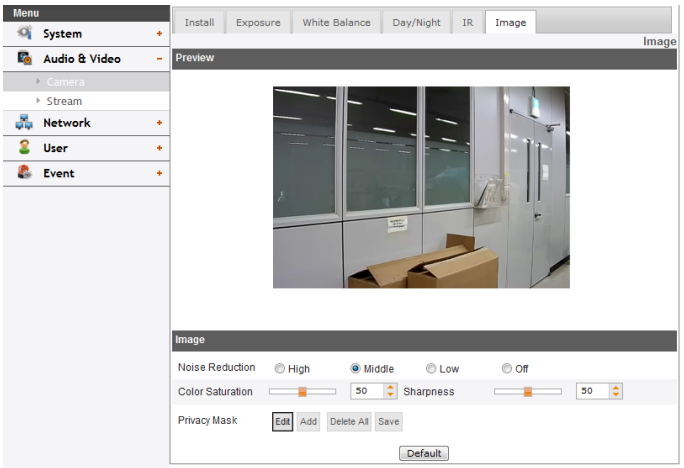
> Mode

- On: When the [Day/Night] menu set to [Night] mode, the IR LED will be turned on. The [Level] is displayed.
- OFF: When the [Day/Night] menu set to [Night] mode, IR LED will be turned off.

> Level: If the [Mode] option set to [On], can be adjust the fixed brightness of IR LED.

- Default: Click this button to restore the IP device back to original factory settings.

Image



> Noise Reduction: If pictures are not clear due to noise, this option would reduce the noise of picture. When you use this function, the afterimage may occur.

> Color Saturation: Set the intensity of the color.

> Sharpness: The degree to which the boundary of the two portions is clearly distinguished. If you set the sharpness value to higher, the image outline becomes sharp. If you set to lower value, the image outline becomes dim.

> Privacy Mask

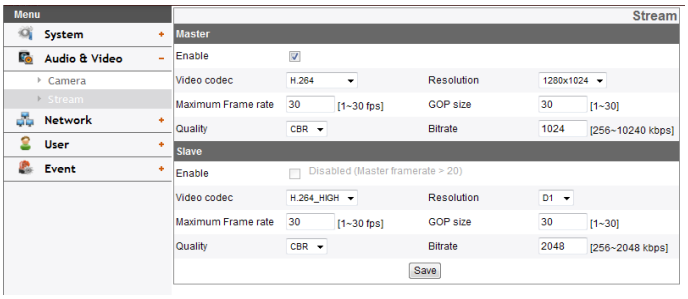
- Edit: When you click this button, the other 3 buttons appear to set a privacy mask area.
  1. Click the [Add] button. The privacy mask window is displayed. You can add the 5 windows maximum for privacy mask area.
  2. Click the edge or corner of the window box to adjust the window size for privacy mask.
  3. Click the [Save] button to save the settings.
- Delete All: Delete all of the mask zone.
- Save: Save the settings of the Privacy Mask.

Note:

- When the [Image] tab is selected, the Privacy Mask area is displayed on the preview window.
- Set the [Privacy Mask] after complete the [Install] settings.

- Default: Click this button to restore the IP device back to original factory settings.

Stream



Master/Slave

> Enable: Click to activate the stream function.

> Video codec: Select the video mode (Codec) from the drop-down list. The viewer can choose among MJPEG, H.264 and H.264_HIGH.

> Resolution: Select the resolution from the drop-down list.

> Maximum frame rate: Set the frame rate of the image.

Note:

Refer to the table below for the supported Framerate.
If you enter the unsupported framerate, the less Encoding Framerate than the input is applied.
For example, when 17 fps is entered, 15 fps will be applied.

Encoding Framerate	Sensor Framerate		Capture Mode			
	30	25	4:3 or 5:4		16:9	
			Master	Slave	Master	Slave
30	O	N/A	O	N/A	O	O
25	O	O	O	N/A	O	O
20	O	O	O	O	O	O
15	O	O	O	O	O	O
10	O	O	O	O	O	O
5	O	O	O	O	O	O
4	O	O	O	O	O	O
3	O	O	O	O	O	O
2	O	O	O	O	O	O
1	O	O	O	O	O	O

> GOP size: It means "Group of Pictures". The higher the GOP, the better is the video quality of the camera. Edit the value of GOP from 1 to 30. This setting is valid for H.264 video format only.

> Quality: Select the Quality.

- VBR: The bit rate may vary depending on the complexity of the video to meet the selected quality.
- CBR: The video quality may vary in order to preserve a constant bit rate.

> Bit rate: If the [Quality] option set to CBR, this option is displayed. If the Profile is set to [Master], can be set the Bitrate value from 256 kbps to 10 240 kbps. In case of [Slave], can be set from 256 kbps to 2 048 kbps.

Note:

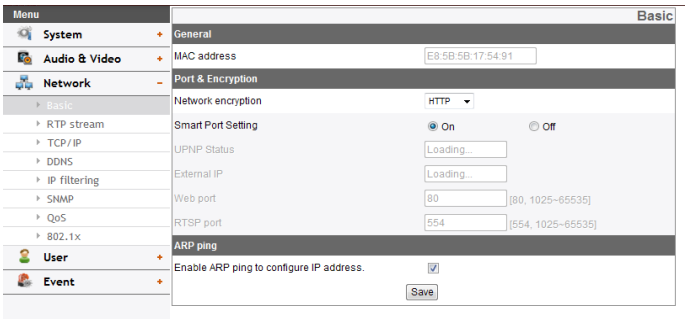
If the 'Bit rate' is configured too low with high resolution, the actual frame rate will decrease because of narrow bandwidth. So you need to set or change the 'Bit rate' to high value.

> Stream quality: If the [Quality] option set to VBR, this option is displayed. Select the stream quality from the drop down box, the camera supports five types. (Highest, High, Medium, Low and Lowest)

- Save: Click this button to confirm the settings.

Network settings

Basic



General

> MAC address: Displays the MAC address.

Port & Encryption

> Network encryption: Select the HTTP or HTTPS option for security.

> Smart Port Setting: Select [On] to allocate a port number automatically.

Note:

If you select [On], [UPNP Status], [External IP], [Web Port] and [RTSP Port] options are deactivated.

> UPNP Status: When you use the router that is supported UPNP function, you can set the port forwarding automatically by using the [Smart Port Setting]. [UPNP Status] shows connected status of router.

> External IP: When you connect the router that is supported UPNP function, this option is displayed. Displays the external IP address allocated router.

> Web port: The default HTTP port number (80) can be changed to any port within the range 1 025 to 65 535.

> RTSP port: Check RTSP port. The default port is 554. Other ports can be selected within the range 1 025 to 65 535.

Note:

The RTSP port number should not be same with the web port number.

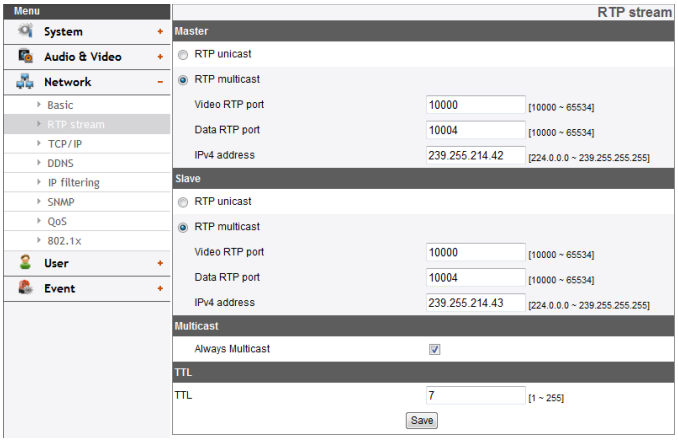
ARP Ping

> Enable ARP Ping to configure IP address: Check to enable ARP ping.

- Save: Click this button to confirm the settings.

RTP stream

RTP (Real-time Transport Protocol) is an internet protocol that allows programs to manage the real-time transmission of multimedia data, via unicast or multicast.



Master/Slave

> RTP unicast: When enabled the transmission of the data to the specified equipment happens on a network specifying a single address.

> RTP multicast: When enabled it reduces the transmission load on the camera by making the computer of the same segment network receive the same transmission data.

- Video RTP port: Specify the video transmission port number used for the multicast streaming. It is initially set to 10 000 and you can edit this between 10 000 and 65 534.
- Data RTP port: Specify the VA data port number used for the multicast streaming. It is initially set to 10 000 and you can edit this between 10 000 and 65 534.
- IPv4 address: Set the IP address for RTP multicast.

Multicast

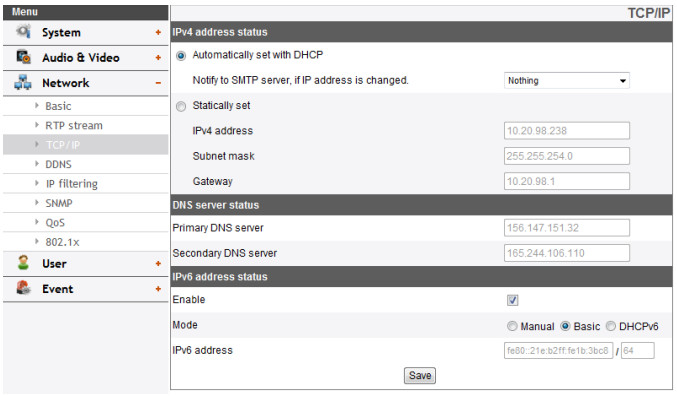
> Always Multicast: Check to enable multicast regardless of client connection.

TTL

> TTL: This option indicates the Time-To-Live of multicast packets. The default setting is 7, and the allowed TTL range is from 1 to 255.

- Save: Click this button to confirm the settings.

TCP/IP



IPv4 address status

> Automatically set with DHCP: Select this option when a DHCP server is installed on the network to allow IP address assignment. With this setting, the IP address is assigned automatically.

- Notify to SMTP server, if IP address is changed: If you select this option, the user get a notification mail telling about changing of IP of the IP device.

Note:

- You should register the SMTP server on the Event server setting to set this function.
- If you select [Automatically set with DHCP], the camera obtain IP address from DHCP server after IP address is set "192.168.0.16".

> Statically set: Select this option when you set a fixed IP address, with this setting, specify the IP address, Subnet mask and default gateway manually.

- IPv4 address: Enter an IP address.
- Subnet mask: Enter a subnet mask address.
- Gateway: Enter the gateway address.

DNS server status

> Primary DNS server: Enter the Primary domain name server that translates the host names into IP address.

> Secondary DNS server: Enter the Secondary DNS server address that backups the Primary DNS.

IPv6 address status

> Enable: Click the check box if you want to use the IPv6 address.

> Mode

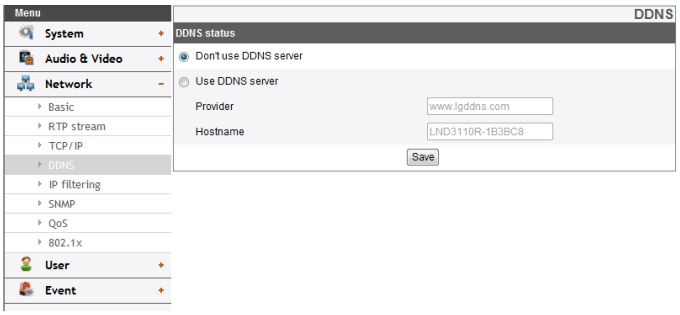
- Manual: Select this option when you set a fixed IP address manually.
- Basic: Select this option to allow IPv6 address assignment based on the Mac address. With this setting, the IP address is assigned automatically.
- DHCPv6: Select this option when exist a DHCPv6 server in network. If DHCPv6 server is not existed or temporary disability, it requests assignment every 3 minutes.

> IPv6 address: You can enter the IP address when you select the Manual mode. It alarms when you enter the invalid IP address.

- Save: Click this button to confirm the settings.

DDNS

This free service is very useful when combined with the LG DDNS Server. It allows the user to connect the IP device using the URL, rather than an IP Address. This also solves the problem of having a dynamic IP address.



DDNS status

> Don't use DDNS server: Disable the DDNS function.

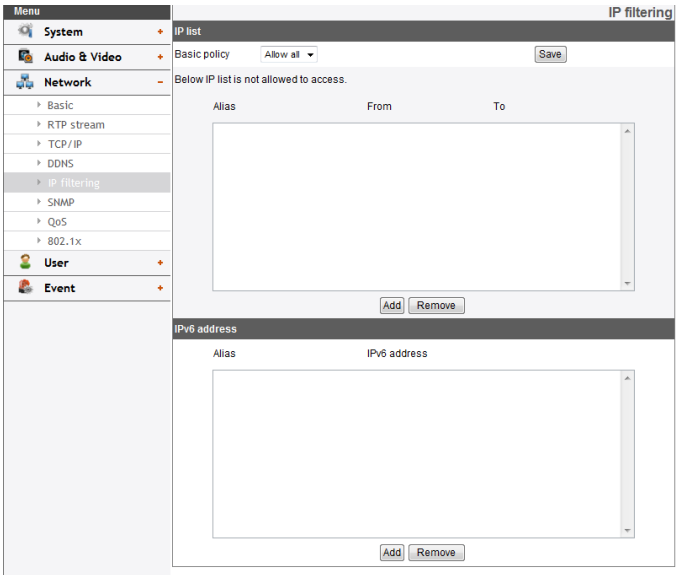
> Use DDNS server: Enable the DDNS function.

- Provider: Displays the DDNS provider.
- Hostname: Enter the host name you want to use.

- Save: Click this button to confirm the settings.

IP filtering

The access of the IP addresses in the list are allowed or denied according to the choice made in the drop-down list of the Basic policy option. The administrator can add up to 10 IP address entries to the list (a single entry can contain multiple IP addresses). The users from these IP addresses need to be specified in the user list with the appropriate access rights. The IP list is to control the access permission of clients by checking the client IP address.



IP list

> Basic policy: Select the basic policy type.

- Allow all: Allow all the IP address basically, but the IP addresses in the list are denied.
- Deny all: Deny all the IP address basically, but the IP addresses in the list are allowed. It needs at least one IP address to activate this function.

- Save: Click this button to confirm the settings.
- Add: Click this button to add the IP address.
  1. Click the [Add] button.
  2. Set the IP options.
     - Alias: Enter the alias.
     - From: Enter the start IP address for the IP filtering.
     - To: Enter the end IP address for the IP filtering.

     Note:

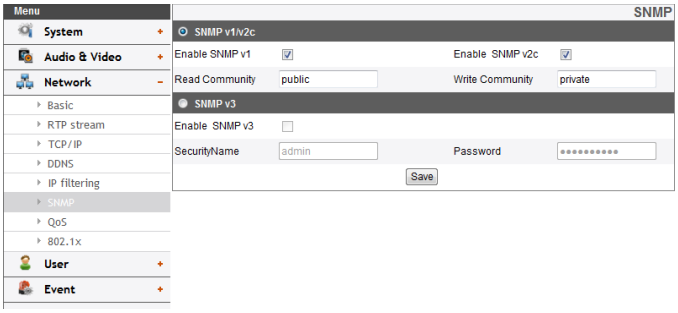
     If you want to deny or to allow a range of IP addresses, enter the start IP address to "From" and the end IP address to "To". You can also add an IP address by entering the same IP address to "From" and "To".
  3. Click the [Save] button.
  4. Repeat the steps 1 to 3 to add additional IP address.
- Remove: Click this button to delete the IP address.
  1. Select the alias from the list.
  2. Click the [Remove] button. The IP address will be deleted.

IPv6 address

- Add: Click this button to add the IP address.
  1. Click the [Add] button.
  2. Set the IP address option.
     - Alias: Enter the alias.
     - IPv6 address: Enter the IP address for IP filtering.
  3. Click the [Save] button.
  4. Repeat the steps 1 to 3 to add additional IPv6 address.
- Remove: Click this button to delete the IPv6 address.
  1. Select the alias from the list.
  2. Click the [Remove] button. The IPv6 address will be deleted.

SNMP

The Simple Network Management Protocol (SNMP) is an application protocol to exchange the management information of network devices.



SNMP v1/v2c

> Enable SNMP v1/v2c: Selects when SNMP is allowed access to this device.

> Read Community: Specifies the SNMP management community in which you want to read this system.

> Write Community: Specifies the SNMP management community in which you want to write this system.

SNMP v3

> Enable SNMP v3: Selects when SNMP v3 is allowed access to this device. It supports authentication and encryption.

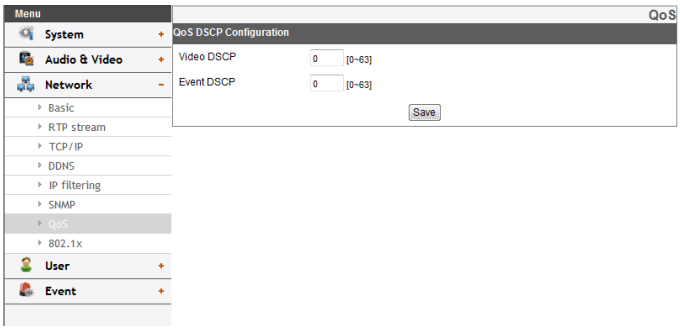
> SecurityName: Type the security name for the SNMP.

> Password: Type the password for the SNMP.

- Save: Click this button to confirm the settings.

QoS

You can specify network Quality of Service (QoS) settings.



QoS DSCP Configuration

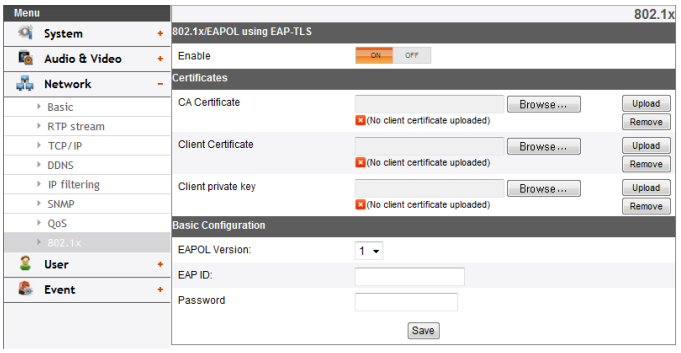
> Video DSCP: Enter the priority of Video for DSCP (Differentiated Service Code Point) Quality of Service.

> Event DSCP: Enter the priority of Event for DSCP Quality of Service.

- Save: Click this button to confirm the settings.

802.1x

Specifies whether 802.1x network access is enabled.



802.1x/EAPOL using EAP-TLS

> Enable: Select on to enable the protocol. Current authorization status of 802.1x port is displayed on buttons right.

Certificates

> To upload or remove the certificates

1. Click the [Browse] Button.
2. Find and open the certificates file.

- CA Certificate: Upload the accredited certificate included public key.
- Client Certificate: Upload the accredited certificate included client authentication key.
- Client private key: Upload the accredited certificate included client private key.

3. Click the [Upload] button to install certificates.
4. Click the [Remove] button to delete certificates.

Basic Configuration

> EAPOL Version: Select the EAPOL version.

> EAP ID: Enter the ID of the client certificate using up to 16 characters.

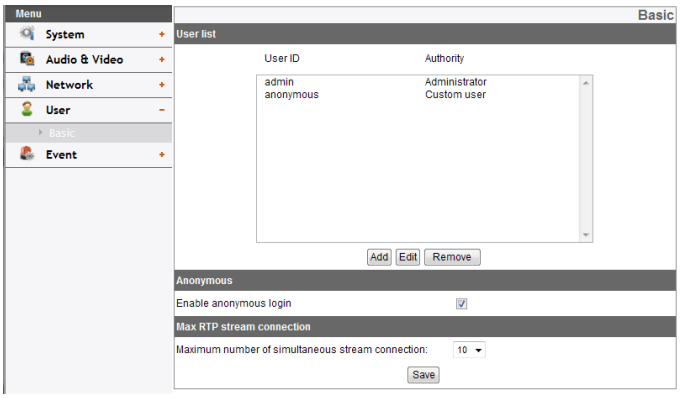
> Password: Enter the password of the client private key using up to 16 characters.

- Save: Click this button to confirm the settings.

User settings

Basic

The IP device is shipped with the login rights of administrator only. If others need to access the IP device excluding the configuration a login with viewer rights need to be created. A maximum of 50 users can be created.



User list

> Add the User

You can register a new user with various access rights.

1. Click the [Add] button. User setting dialog is displayed.
2. Enter the new User ID and Password. (Should have a minimum of 4 characters and preferably a combination of alphanumeric.)
3. To confirm the password, retype the password that you typed in the Password box.
4. Select the authority from the drop down list to provide the access rights to each user and then click the [Save] to confirm your selection.
   - Administrator: Allows you to operate setup menus and to view live images.
   - Power user: Use of the limited functions of the system. (The Configuration menu is not allowed.) A power user can use the Live View and audio functions.
   - Normal user: Provides the lowest level of access, Allows to view live images only.
   - Custom user: The user can login and view the live stream image only when the "Enable anonymous login" option is checked to enable it.

     Note:

     Remember the password.

> Edit the registered user

You can change the password or authority.

1. Choose the user ID and then click the [Edit] button.
2. Change the Password or Authority, then click the [Save] button to confirm your selection.

> Delete the registered user

1. Choose the user ID you want to delete.
2. Click the [Remove] button.

Note:

The default administrator user ID 'admin' and 'anonymous' are permanent and cannot be deleted.

Anonymous

> Enable anonymous login

Check the box to enable anonymous user login - allows the user access for only viewing the live stream image.

Maximum RTP stream connection

> Maximum number of simultaneous stream connection:

Set this number to limit the number of simultaneous stream connections.

The connections depend on the stream configuration as shown in the following Maximum RTP stream connection by stream configuration.

Video Codec	Resolution	Frame Rate	Maximum RTP stream
H.264	1280 x 1024	30	Up to 10
MJPEG	1280 x 1024	5	Up to 5

Note:

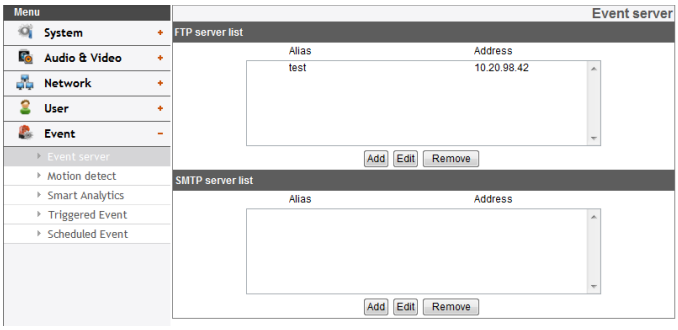
- Preview window of the IP device setting and preset setting are affected by this setting.
- The video streaming may appear poor at times, this may be because of the network traffic, too many devices connected to the switch or hub, enabling motion detection to each of the video streams and because of other programs running on your computer.

- Save: Click this button to confirm the settings.

Event settings

Event Server

Event Servers are used to receive the recorded video clip and/or notification messages.



FTP server list

Image files can be transferred to the FTP server within the scheduled time. Image file that has been recorded linked to an external event is sent to the FTP server periodically.

> To add the FTP server

1. Click the [Add] button. FTP server setting window is displayed.
2. Set the FTP server options.
   - Alias: Type the FTP Server name to upload the image files.
   - Address: Enter the FTP server's IP address.
   - Port: Enter the port number. The default FTP port is 21.
   - User ID: Type the user name for the Folder shared in the FTP server.
   - Password: Type the password for the folder shared in the FTP Server.
   - Folder: Type the path with the folder that is shared in the FTP server.
   - Test: Select [Test] to test the FTP server.
3. Click the [Save] button to confirm the settings.

> To edit the FTP server

1. Choose the FTP server in the FTP server list.
2. Click the [Edit] button.
   You can check or edit the FTP server options.

> To delete the FTP server

1. Choose the FTP server in the FTP server list.
2. Click the [Remove] button. This would remove the FTP server from the list.

SMTP server list

By selecting the e-mail option, a still image of the event is captured and an e-mail with the attached image file is sent to the specified mail address.

> To add the SMTP server

1. Click the [Add] button. SMTP server setting window is displayed.
2. Set the SMTP server options.
   - Alias: Enter the SMTP server name.
   - User ID: Enter the user ID of the SMTP server. This would be the one who owns the mail account.
   - Password: Enter the password of the SMTP server.
   - Address: Enter the SMTP server address.
   - Port: Enter the port number. The default port is 25.
   - Enable SSL: Check when use the SSL (Secure Socket Layer) protocol. SSL protocol is cryptographic protocols that provide secure communication on a network.
   - Receiving address: Type the recipients e-mail address. You can specify only one recipient e-mail address.
   - Administrator address: Type the e-mail address of the administrator.
   - Subject: Enter the subject/title of the e-mail.
   - Message: This message can describe the information of the acquired IP address, etc.
   - Test: Select [Test] to test the SMTP server.
3. Click the [Save] button to confirm the settings.

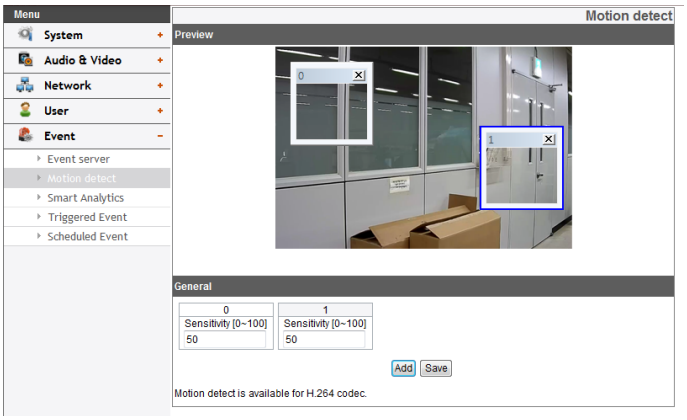
> To edit the SMTP server

1. Choose the SMTP server in the SMTP server list.
2. Click the [Edit] button.
   You can check or edit the SMTP server options.

> To delete the SMTP server

1. Choose the SMTP server in the SMTP server list.
2. Click the [Remove] button.

Motion detect



Preview

You can preview the motion detection window on the preview window.

General

> Sensitivity: Enter the sensitivity to detect an object in motion.

> Save: Click this button to confirm the settings.

Note:

Motion detect function may not normal operate as installation environment.

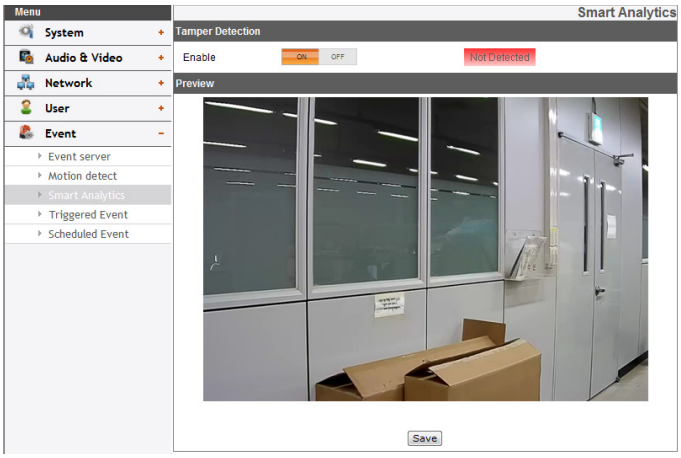
How to set the motion detect window

1. Click the [Add] button. The motion detect window is displayed. You can add the five windows maximum for motion detection area.
2. Set the [Sensitivity] option.
3. Click the edge or corner of the window box to adjust the window size for motion detection.
4. Click the [Save] button to save the settings.

Note:

- You can reset the window size. Click one of the window edge or corner and drag & drop to reset the motion detection area.
- Motion Detection can be activated when at least one of channels(Master/Slave) is enabled, Video codec is set to H.264 and GOP size is more than 2.
- If you set the motion detection area smaller than the initial setting, it is recommended to set the high sensitivity.

Smart Analytics



Tamper Detect

> Enable: Set to [On] or [Off]. Detect changes on the screen and operate in accordance with the registered Event.

Preview

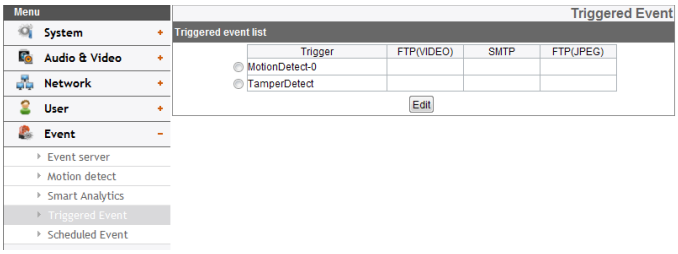
You can preview the camera image on the preview window.

Note:

- The [Smart Analytics] option is ancillary function and performance is depends on installation environment or configuration.
- When a sudden change (camera shake, lighting changes, etc) occurs on the screen, the camera can be recognized as the Tamper event.
- SD resolution is changed when you use the Smart Analytics function.

Triggered Event

When an event (VA / Motion detect) occurs, this unit records the live images and routes as configured.



Event schedule list

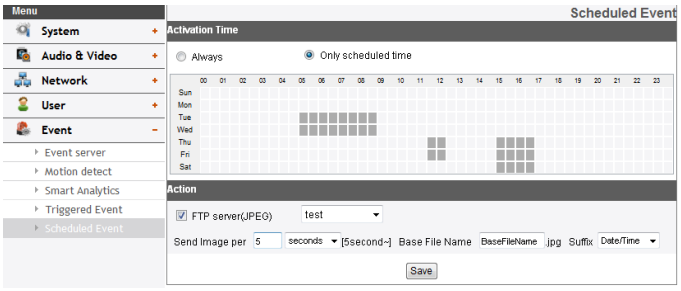
> To edit the Event Schedule

1. Select the Trigger event and click the [Edit] button. Event schedule window is displayed.
2. Set the options.
   - Trigger: Display the selected trigger event and the current state of trigger. Current state of trigger is Displayed to On or Off.
   - Time: Sets the weekday, Start, Finish, Pre alarm, Post alarm and Ignore interval time options.
   - Action: Selects the options. This occurs when the event runs.
     - FTP(Video) server/SMTP server: Uploading of images to an FTP server, or e-mail notification.
     - FTP server(JPEG): Sends the JPEG Image to the FTP server. Image file and suffix setting is available. You can select Date/Time or Sequence of Suffix.
   - Stream: Selects the stream of the connected camera.
3. Click the [Save] button to confirm the settings.

Note:

- You should register the SMTP and FTP server on the Event server setting to set this function.
- Recording of event(VA / Motion detect) runs every 5 minutes split file.

Scheduled Event



Activation Time

> Always : You can use always by using the FTP server regardless of activation time.

> Only scheduled time: Continuously record according to the set time and the selected weekday.

Action

Set the below option.

> FTP server(JPEG) : Upload the image or send the e-mail to the FTP server. Send Image per, Base File Name and Suffix setting are available.

Note:

- You can select through drag of Activation Time table that is possible to select according to weekday and time.
- It uses the Master (1st) stream when the FTP (JPEG) file is transferred. If always checkbox next to FTP(JPEG) is checked, FTP(JPEG) is always enable regardless of the activation time.

- Save: Click this button to confirm the settings.

Reference

Troubleshooting

This section provides useful information to help you to resolve any difficulty you might have with your LG IP device. Fault symptoms, possible causes and remedial actions are provided here.

IP Setting problems

- ARP/Ping: Disconnect and reconnect the power to the network camera. The device should get the IP within 2 minutes.
- Ping your camera: Open the command prompt on your computer, type ping with the IP address of the network device. The reply obtained by this command provides explanation for the cause of the problem.
    1. bytes = 32 time = 2 ms indicates that the IP address is already used and cannot reuse the same. A new IP address needs to be obtained.
    2. Destination host unreachable: indicates that the network device and your computer do not fall in the same subnet hence needs to get a new IP address. Contact the system administrator for the required help.
    3. Request timed out: Indicates that the IP is free as it is not used by anyone and the network device can obtain this.
- IP Conflicts: If the LG network device is set with a static IP address and if the DHCP option is set then there may be IP's same as the network device and other network partner. Hence set the static IP address to 0.0.0.0 to resolve this conflict.

Cannot access the camera from browser:

- Reconnect the network camera with power and check the ping operation to know if the IP is used by others.
- Disable the proxy setting in the Browser if you are using a proxy server.
- Check for proper cabling and network connections, try to ping after verifying the connectivity.
- Sometimes when HTTPS is enabled, we would be checking the URL with http, in this case manually change the URL to the http/https accordingly.
- Verify the DNS and Gateway settings if the IP address is assigned statically to the network device.
- If the browser you're using or a page you're viewing is displaying problems, try to clear the browser's cache. If that doesn't fix the problem, try to clear the browser's cookies.

Accessing camera external to the local network

- Firewall Protection: Check for the internet firewall with the system administrator, either he has to do port forwarding or modify the DMZ function on the router.
- Default router needed: Check if you need configure the router settings.

Sporadic network performance

- Network Switches or hubs used may be of the lower configuration and the load on this may not meet the required conditions of our network camera.
- Check for the RJ-45 cables that are used for the network connectivity.

Login Password lost

- Reset the camera by pressing the Reset button for more than 3 seconds to restore default settings.
- After the factory settings login using the default user name and password.

Video Streaming problems

- If the video streaming does not start on the Web browser, install the LG Web Client ActiveX program on your computer following the instructions on the Web browser.
- When Windows IE browsers are used always take care to allow pop ups, check this option before we run the web client.
- Check the quality of image by referring the video settings as described in the manual.
- Sometimes there would be intermittent or very slow video streaming, this may be because of the higher resolution and frame rate that are set for the video.
- The video streaming may appear poor at times, this may be because of the network traffic ,too many devices connected to the switch or hub, enabling motion detection to each of the video streams and because of other programs running on your computer.
- If the images appear to be blurred adjust the focus of the network camera to get a clear image.
- Video images if appear white and black adjust the settings in the OSD to get back the colorful image.
- Select the Night mode if the network camera is connected at a place where surrounding light is less or dark.
- If we obtain lower frame rate than set we need to check from the system administrator for sufficient bandwidth available or reduce the number of applications running on the client computer.
- If the client PC's are unable to access the multicast stream, check with the system administrator for the use of a valid multicast address or check if the router is supporting multicasting.
- If the images appear to have white of gray stripes on it, upgrade the Video graphics driver on the client PC to the latest version.

- Video images may be noisy if you are using the camera in a very low light environment or the bit rate/quality is set to very low values. Provide higher values for quality and support the surrounding environment with enough light.

Browser's problems

When you have a problem with browser, press the [Refresh] button on your browser window.

Clear browser's Cache

- If your browser is not working correctly after upgrade firmware. Please follow the below solution.
- Solution: Deleting your browser's cache may be resolved this issue.
  1. Open Internet Options in browser Tools menu and click the [Delete Files] button in the second entry (Internet temporary files).
  2. Check the other settings that should not be changed.
- If the browser you're using or a page you're viewing is displaying problems, try to clear the browser's cache. If that doesn't fix the problem, try to clear the browser's cookies.

Open source software notice

To obtain the source code under GPL, LGPL, MPL and other open source licenses, that is contained in this product, please visit http://opensource.lge.com. In addition to the source code, all referred license terms, warranty disclaimers and copyright notices are available for download. LG Electronics will also provide open source code to you on CD-ROM for a charge covering the cost of performing such distribution (such as the cost of media, shipping and handling) upon email request to opensource@lge.com. This offer is valid for three (3) years from the date on which you purchased the product.

Specifications

Item		LND3110R series
Camera	Image Device	6.28 mm (1/3 type) CMOS
	Lens Type	4 mm F2.0
	Day/Night	ICR (Auto / Day / Night)
	Minimum Illumination	**Color:** 0.03 lx @ F2.0 (1/30 sec, 50 IRE)
		B/W: 0 lx @ IR LED on
	IR Distance	20 m
	WDR	Digital (Dynamic Range Enhancer)
	Image Enhancement	Backlight Compensation, DNR, Exposure Control, AGC, White Balance, Privacy Masking, Sharpness
Video	Compression	H.264_HIGH, H.264, MJPEG
	Resolution	1280 x 1024 / 1280 x 720 / D1 (704 x 480) / CIF (352 x 240)
	Maximum Frame Rate	30 fps @ 1280 x 1024
	Multi-Streaming	Up to 2
	Video Analytics	Motion detection, Tampering alarm
Event	Event Notification	Email, FTP
	Pre Event Buffering	Support
Network	Ethernet	RJ-45 10/100BASE-T
	Security	Password Protection, HTTPS(SSL, TLS), IP filtering, IEEE 802.1X
	Open Protocol	ONVIF 2.2 Profile S, PSIA 1.1
	Protocol	**IPv4 and IPv6:** TCP, UDP, HTTP, HTTPS, RTP, RTSP, DHCP, ICMP, QoS
		IPv4: FTP, SMTP, NTP, ARP, SNMPv1/v2c/v3, DDNS(LG)
	Connections	Up to 10
	Integrated Software	LG Ipsolute VMS Suite / Mobile application (iPhone, iPad, Android)
General	Power Source	DC 12 V
	Maximum Power Consumption	5.4 W
	Maximum Input Current	450 mA (DC 12 V)
	Operation Temperature/ Humidity	-10 ºC to 55 ºC / 0 % RH to 80 % RH
	Dimension (Ø x H)	140 mm x 122 mm
	Weight	465 g

Item		LNU3110R series
Camera	Image Device	6.28 mm (1/3 type) CMOS
	Lens Type	4 mm F2.0
	Day/Night	ICR (Auto / Day / Night)
	Minimum Illumination	**Color:** 0.03 lx @ F2.0 (1/30 sec, 50 IRE)
		B/W: 0 lx @ IR LED on
	IR Distance	30 m
	WDR	Digital (Dynamic Range Enhancer)
	Image Enhancement	Backlight Compensation, DNR, Exposure Control, AGC, White Balance, Privacy Masking, Sharpness
Video	Compression	H.264_HIGH, H.264, MJPEG
	Resolution	1280 x 1024 / 1280 x 720 / D1 (704 x 480) / CIF (352 x 240)
	Maximum Frame Rate	30 fps @ 1280 x 1024
	Multi-Streaming	Up to 2
	Video Analytics	Motion detection, Tampering alarm
Event	Event Notification	Email, FTP
	Pre Event Buffering	Support
Network	Ethernet	RJ-45 10/100BASE-T
	Security	Password Protection, HTTPS(SSL, TLS), IP filtering, IEEE 802.1X
	Open Protocol	ONVIF 2.2 Profile S, PSIA 1.1
	Protocol	**IPv4 and IPv6:** TCP, UDP, HTTP, HTTPS, RTP, RTSP, DHCP, ICMP, QoS
		IPv4: FTP, SMTP, NTP, ARP, SNMPv1/v2c/v3, DDNS(LG)
	Connections	Up to 10
	Integrated Software	LG Ipsolute VMS Suite / Mobile application (iPhone, iPad, Android)
General	Power Source	DC 12 V
	Maximum Power Consumption	6.1 W
	Maximum Input Current	510 mA (DC 12 V)
	Operation Temperature/ Humidity	-10 ºC to 55 ºC / 0 % RH to 80 % RH
	Protection	IP66
	Dimension (W x H x D)	89 mm x 83 mm x 280 mm
	Weight	406 g

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