

## Operating Instructions

### Network Camera Indoor Use Only

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Model No. **BL-C210** (Wired Type)  
**BL-C230** (Wireless/Wired Type)



BL-C210A



BL-C210CE  
BL-C210E



BL-C230A



BL-C230CE  
BL-C230E

Please read this document before using the product, and save this document for future reference.  
Panasonic Network Camera Website: <http://panasonic.net/pcc/ipcam/>

# Main Features

## On-site and remote camera monitoring

Camera images can be monitored from a PC, both on-site and over the Internet. You can even use your mobile phone to view still images when you're out of the house.

## H.264, MPEG-4, and Motion JPEG (MJPEG) support

Live camera images can be viewed and buffered (i.e., stored in memory) in H.264, MPEG-4, and JPEG (MJPEG) formats, allowing you to select the video format that best suits your needs.

## Built-in sensor (human detection sensor)

The camera features a built-in pyroelectric infrared sensor, which uses infrared rays to detect temperature differences within its range that are emitted naturally by people, animals, etc. The sensor can be used to trigger the camera to buffer (i.e., temporarily store) camera images in its memory. You can view these images later as desired. The sensor can also be used to trigger the camera to transfer images to someone or somewhere, by FTP, E-mail, or HTTP.

## Backlight Correction feature

When this feature is enabled, the camera can automatically correct the contrast in dark areas of the camera image. This means even when there is backlight or a large amount of contrast in the image, the camera can correct the image to provide a more consistent, natural image.

## Audio features

The camera features a built-in microphone that allows you to monitor the audio while viewing live camera images using your PC.

## Detection features

The camera's motion or sound detection feature allows you to buffer or transfer camera images when the camera detects motion or sound in the camera image.

## Camera image buffering and playback

Camera images can be automatically buffered at specific times, when the camera's external sensors (customer-provided) are triggered, or when the camera detects motion. You can program the camera to buffer these camera images, and then you can play back these images later while accessing the camera or save them to your PC. You can also program the camera to transfer images by E-mail or upload them to an FTP or HTTP server as they are being buffered.

## Digital zoom

When viewing camera images from a PC, you can zoom up to 3× (by length) and get a closer look. You can use your mouse to zoom in and out simply.

## Protecting your privacy

Simply press the camera's PRIVACY button to hide the lens from view and protect your privacy. You can even activate the privacy mode while away from home.

## UPnP™ support

When connecting the camera to a UPnP™ compatible router, the camera's network settings can be automatically configured, making setup quick and easy. For more information, see Page 100.

## Viewnetcam.com support

After registering your camera with the Viewnetcam.com service, you can access the camera while away from home using an easy to remember Internet address of your choosing, such as **\*\*\*.viewnetcam.com**. For more information, see Page 105.

## Multi-language support

All camera pages can be displayed in English, French, German, Italian, Spanish, Russian, Simplified Chinese, and Japanese. The most commonly used camera pages can be displayed in Korean.

## Wireless connectivity (BL-C230 only)

The BL-C230 supports wireless standards IEEE 802.11b and IEEE 802.11g, giving you the option of using the camera in either wired or wireless mode. When used in wireless mode, WEP, WPA-PSK(TKIP), and WPA2-PSK(AES) support ensures that access to the camera is secure.

# Other Information

## About this document

- This document is written for both the BL-C210 (Wired Type) and the BL-C230 (Wireless/Wired Type). Available features and operations vary slightly depending on the model. You can confirm the model no. of your camera by checking the model no. printed on the front of the camera. Features and operations that apply to a specific camera are indicated by model no. (for example, “BL-C230 only”) in this document.
- The camera illustrations in this document depict the BL-C230A.
- Model number suffixes (“A”, “CE”, and “E”) are omitted from the following model numbers shown in this document, unless necessary.  
BL-C210A, BL-C210CE, BL-C210E, BL-C230A, BL-C230CE, BL-C230E

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## Abbreviations

- UPnP is the abbreviation for “Universal Plug and Play”.
- The Network Camera is referred to as “the camera” in this document.
- The Setup CD-ROM is referred to as “the CD-ROM” in this document.

## Software information

- This software is based in part on the work of the Independent JPEG Group.
- This software includes certain software derived from the RSA Security, Inc. MD5 Message-Digest Algorithm.

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# 1 Camera Monitoring

## 1.1 Accessing the Camera

You will need to know the following information to access the camera.

- The camera's IP address (e.g., 192.168.0.253) or URL (e.g., **\*\*\*.viewnetcam.com**)
- The port number of the camera, if it is not 80.
- The user name and password required to access the camera, which were set during camera setup.

1. Start your PC's web browser.
2. In the browser's address bar, enter `http://` followed by the IP address of the camera, then press [Enter] on the keyboard.

**Example:** `http://192.168.0.253`

- If the camera's port number is a port number other than 80, enter ":" and the port number after the IP address.

**Example:** `http://192.168.0.253:50001`

- If you have registered with a Dynamic DNS service, such as Viewnetcam.com (see Page 105), enter the URL instead of the IP address. Note that accessing the camera this way may only work when you are accessing the camera from outside, i.e., from a PC that is not connected to the same network as the camera.

**Example:** `http://***.viewnetcam.com`

If the camera's port number is a port number other than 80, enter ":" and the port number after the URL.

**Example:** `http://***.viewnetcam.com:50001`

- If the camera is configured to use HTTPS (see Page 119), enter `https://` followed by the IP address or host name and the port number of the camera.

**Example:** `https://192.168.0.253:80`

**Example:** `https://***.viewnetcam.com:80`

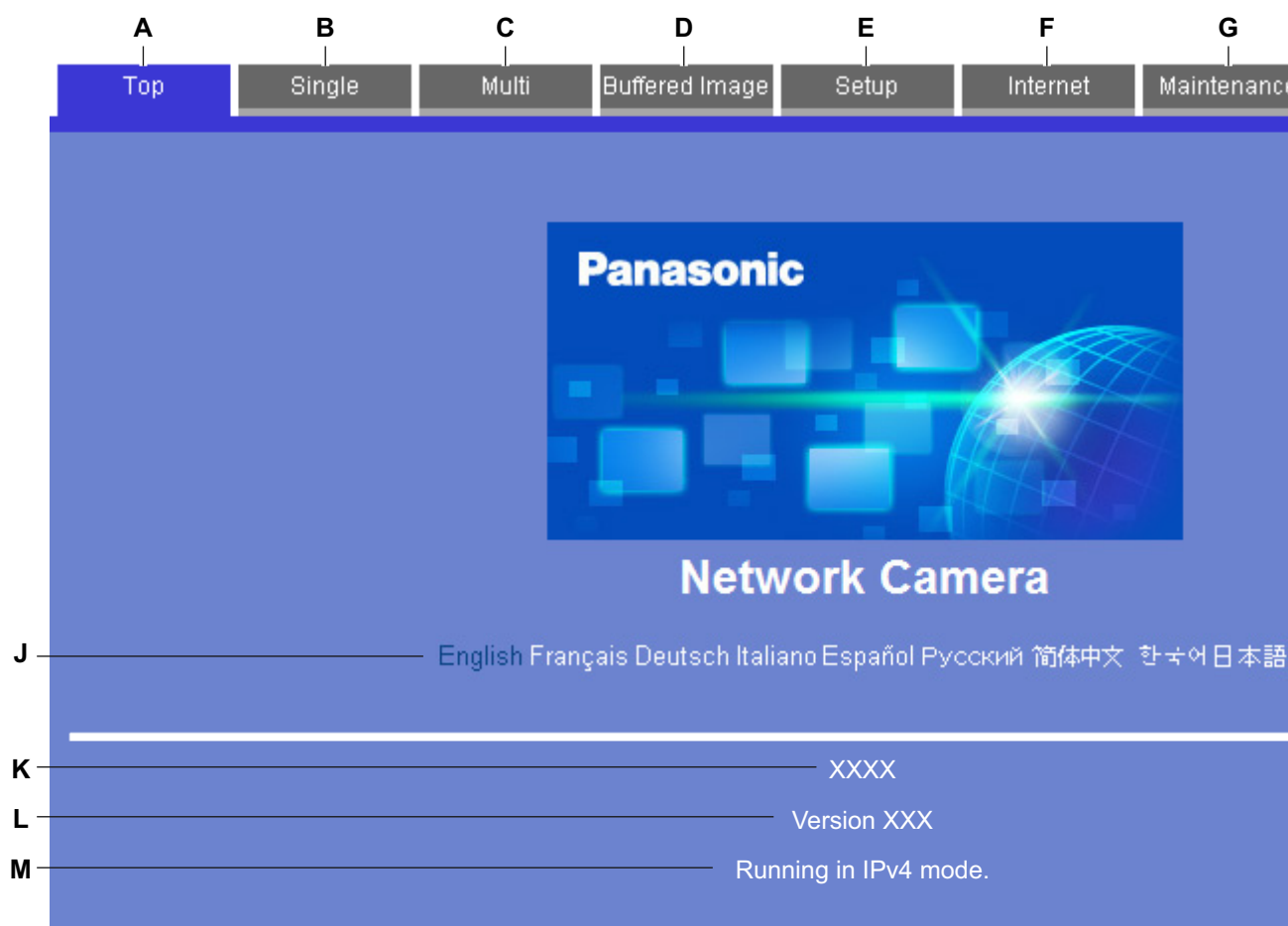
3. When the authentication dialog is displayed, enter the user name and password, then click [OK]. The top page is displayed.

### **Note**

- If the authentication dialog is not displayed, click the [Login] tab after the camera's top page is displayed. For more information, see Page 158.
- If a security warning is displayed when accessing the camera using HTTPS, see Page 119.
- **BL-C210A/BL-C230A only:** If the camera is accessed while the camera is in registration mode, [Registering...] is displayed.



4. After the top page is displayed, click the desired tab. (Depending on how the camera has been configured, certain tabs may not be displayed.)

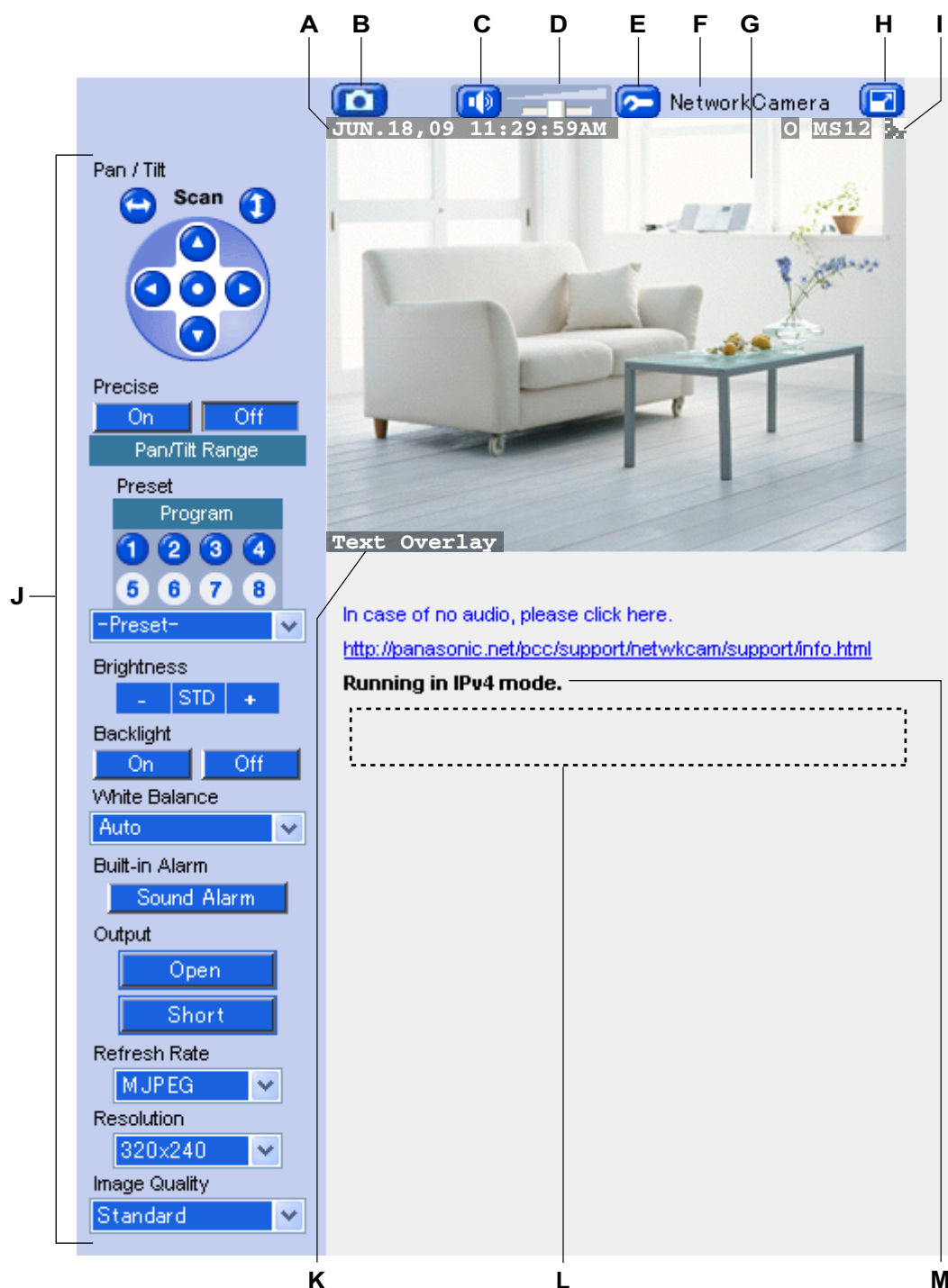


- A.** To display the top page
- B.** To view images from this camera (see Page 10)
- C.** To view images from multiple cameras (see Page 45)
- D.** To view buffered camera images (see Page 73)
- E.** To configure the camera
- F.** To configure the camera to be accessed over the Internet (see Page 96)
- G.** To confirm camera status and perform camera maintenance (see Page 176)
- H.** To view URLs for Panasonic Network Camera support sites on the Internet (see Page 186)
- I.** To log in to the camera as the administrator or as a general user (see Page 158)
- J.** Click the desired display language
- K.** Displays the camera's model number
- L.** Displays the camera's firmware version number
- M.** Displays [IPv4] or [IPv6] depending on the camera's network configuration

## 1.2 Viewing Live Camera Images

1. Access the camera (see Page 8).
2. Click the [Single] tab.
  - Viewer programs (ActiveX® Controls) must be installed in order to view H.264, MPEG-4, and MJPEG images, and to use audio features. If the appropriate viewer program (ActiveX Control) is not installed, the camera will prompt you to install them. For more information, see Page 16, Page 17, or Page 19 depending on which Internet Explorer® you are using.
  - If the camera image is not displayed, or if the ActiveX message is displayed at the top of the screen, see Page 23.


## The single camera page (MJPEG/JPEG)



- A. Date and time overlay (see Page 159)
- B. Snapshot button (see Page 35)
- C. Listen button (see Page 36)
- D. Volume slider (see Page 36)
- E. Additional Features button (see Page 37)
- F. Camera name (see Page 159)

## 1.2 Viewing Live Camera Images

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- G.** Camera image (click an area of the camera image to use the click to center feature (see Page 26), or use your mouse to use the zoom feature (see Page 30) when displaying images)
- H.** Full-screen button (click to view the image in 4:3 full-screen mode; click  to return to normal mode)
- I.** Status overlay (see Page 159)
- J.** Operation bar (see Page 24)
- K.** Text overlay (see Page 159)
- L.** Banner (see Page 159)
- M.** Displays [IPv4] or [IPv6] depending on the camera's network configuration

### The single camera page (H.264/MPEG-4)

H.264 or MPEG-4 images can be viewed by selecting [H.264] or [MPEG-4], respectively, under the refresh rate selector on the single camera page.

#### **Note**

- The first time you select H.264 or MPEG-4 as the refresh rate, a license agreement is displayed. If you agree to the terms of the license, select [I accept the License agreement], then click [OK]. You will then be prompted to install the viewer program (ActiveX Controls).


- Whether H.264 or MPEG-4 is available (**BL-C210A/BL-C230A**: H.264 is available by default, **BL-C210CE/BL-C210E/BL-C230CE/BL-C230E**: MPEG-4 is available by default) depends on the [Streaming Format] on the [Video Streaming] page (see Page 145).



- A. Date and time overlay (see Page 159)
- B. Listen button (see Page 36)
- C. Snapshot button (see Page 35)
- D. Volume slider (see Page 36)
- E. Camera name (see Page 159)

## 1.2 Viewing Live Camera Images

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- F. Additional Features button (see Page 37)
- G. Camera image (click an area of the camera image to use the click to center feature (see Page 26), or use your mouse to use the zoom feature (see Page 30) when displaying images)
- H. Full-screen button (click to view the image in 4:3 full-screen mode; click  to return to normal mode)
- I. Status overlay (see Page 159)
- J. Operation bar (see Page 24)
- K. Text overlay (see Page 159)
- L. H.264 or MPEG-4 streaming method (see Page 33)
- M. Banner (see Page 159)
- N. Displays [IPv4] or [IPv6] depending on the camera's network configuration

### Note

#### Image display

- Screen content varies by model number.
- If no camera image is displayed, the appropriate viewer program (ActiveX Controls) may not be installed. See Page 16, Page 17, or Page 19 for more information.
- If the camera image is not displayed immediately or correctly, click your web browser's refresh button to display the latest camera image.
- The image refresh rate may vary depending on network conditions, PC performance, the number of people accessing the camera, and the type of objects being viewed.
- When the camera is in a dark environment, color night view mode (if enabled; see Page 142) automatically brightens the image, however the image refresh rate may decrease (i.e., images may appear choppy) and overall image quality may decrease (i.e., images may appear grainy).
- When the camera is in a dark environment, white or colored dots or horizontal lines may be displayed in the camera image. This is a characteristic of the camera's image sensor, and is not a malfunction.
- A gray screen (MJPEG, MPEG-4) or black screen (H.264) is displayed instead of the camera image in the following situations:
  - The camera's privacy mode (see Page 170) has been turned on. If viewing H.264 or MPEG-4 images, the last image displayed before privacy mode was turned on is displayed for about 20 seconds before the screen turns gray or black.
  - Too many users are accessing the camera. When the maximum number of accesses has been exceeded (refer to the tables in Page 48), additional users will see a gray or black screen, and [The maximum number of accesses has been exceeded.] will be displayed under the camera image. Click your web browser's refresh button periodically until you are allowed to view video images, or use the [Refresh Rate] selector to select to view still images.
  - The camera is configured to not display images at this time of day (see Page 166). [The operation time has ended.] will be displayed under the camera image. If viewing H.264 or MPEG-4 images, the last image displayed before the operation time ended is displayed for about 20 seconds before the screen turns gray or black.
- If old images are displayed when you access the camera, change the browser's temporary Internet files setting (see Page 199).

#### Related settings

- The default settings for [Refresh Rate], [Resolution], and [Image Quality] that are used each time the single camera page is accessed can be changed (see Page 159).
- Using the [Refresh Rate] selector in the operation bar, you can select whether video images (H.264, MPEG-4, MJPEG) are displayed, or still images that are refreshed periodically (3 seconds, 5 seconds, etc.) are displayed.
- To reduce data traffic when other users are accessing the camera, you can configure the camera to automatically switch from displaying video images to still images. Set the [Video Display Time] for general users (see Page 152) and for guest users (see Page 155).

#### BL-C230 only

- If using the camera in wireless mode, camera images will stop refreshing if there is a disturbance in the wireless signal. If you experience difficulty when accessing the camera in wireless mode, refer to 1.4 Wireless Connection Issues (BL-C230 Only) in the Troubleshooting Guide.

## ActiveX dialog for Internet Explorer 6

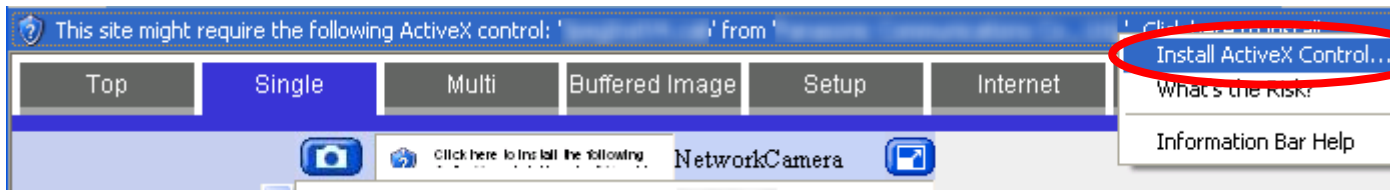
To view video images (i.e., H.264, MPEG-4, and MJPEG images) or use the camera's audio features, the corresponding viewer program (ActiveX Controls) must be installed on your PC. Follow the steps below to install ActiveX Control when using Internet Explorer 6.

### Note

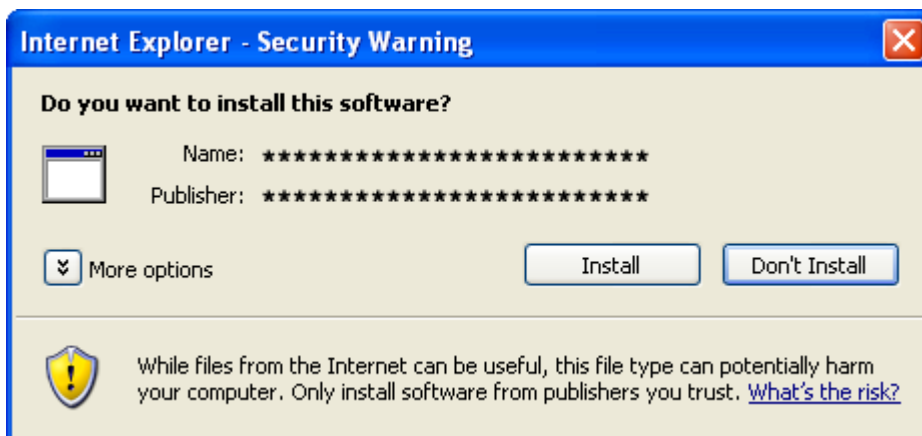
- If ActiveX Controls cannot be installed, download them from the Panasonic Network Camera website (<http://panasonic.net/pcc/support/netwcam/>).

### Installing for MJPEG

1. When the ActiveX Control message is displayed in Internet Explorer, click the message and select [Install ActiveX Control...].

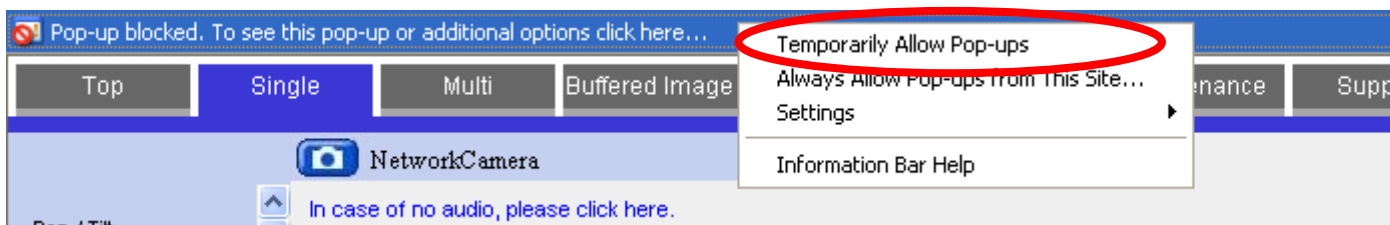


2. Click [Install].



### Installing for H.264 or MPEG-4

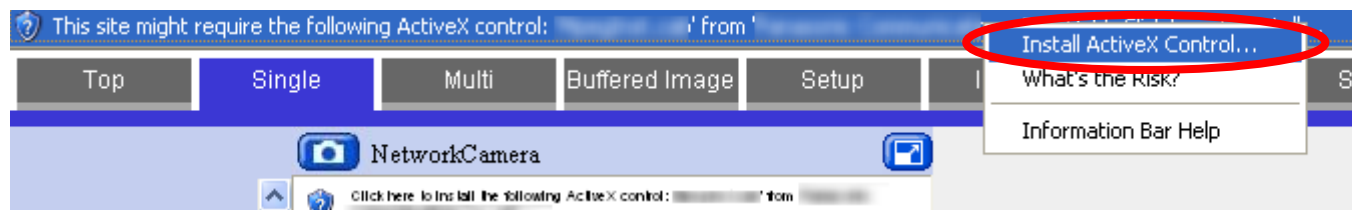
1. When the pop-up block message is displayed in Internet Explorer, click the message and select [Temporarily Allow Pop-ups].



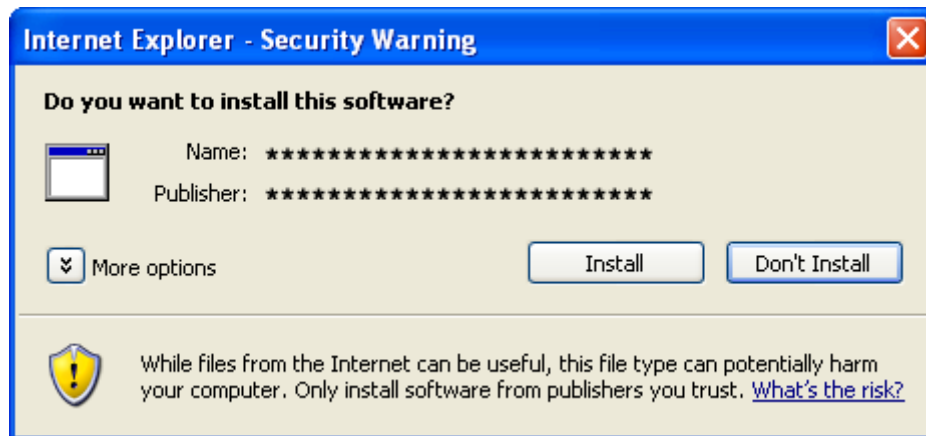
2. When a license agreement is displayed and you agree to the terms of the license, select [I accept the License agreement], then click [OK].



- When the ActiveX Control message is displayed in Internet Explorer, click the message and select [Install ActiveX Control...].



- Click [Install].



## ActiveX dialog for Internet Explorer 7

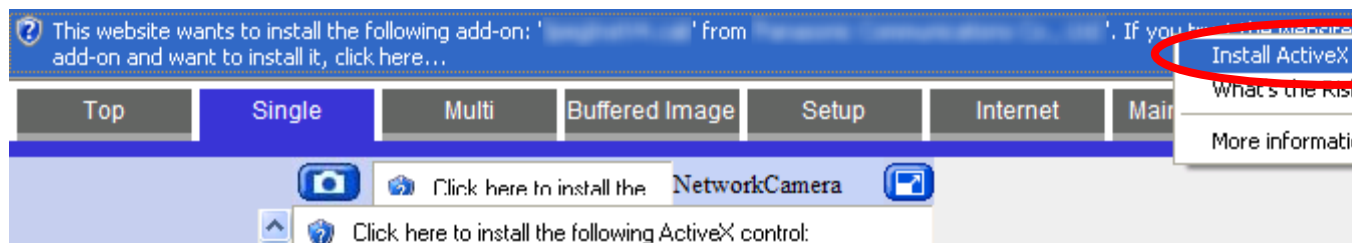
To view video images (i.e., H.264, MPEG-4, and MJPEG images), the corresponding viewer program (ActiveX Controls) must be installed on your PC. Follow the steps below to install ActiveX Control when using Internet Explorer 7.

### Note

- If ActiveX Controls cannot be installed, download them from the Panasonic Network Camera website (<http://panasonic.net/pcc/support/netwkcaml/>).

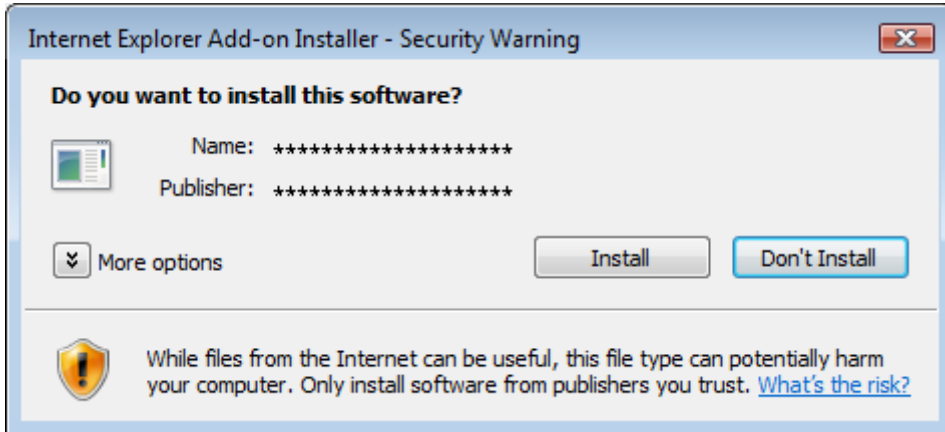
### Installing for MJPEG

- When the ActiveX Control message is displayed in Internet Explorer, click the message and select [Install ActiveX Control...].



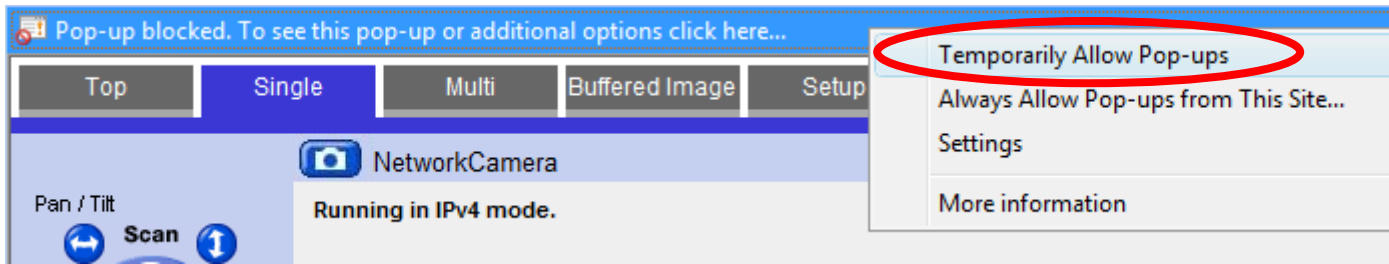
## 1.2 Viewing Live Camera Images

2. Click [Install].

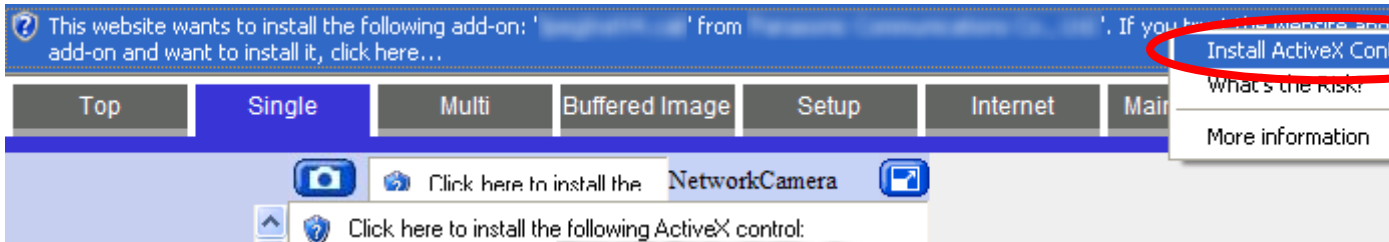


### Installing for H.264 or MPEG-4

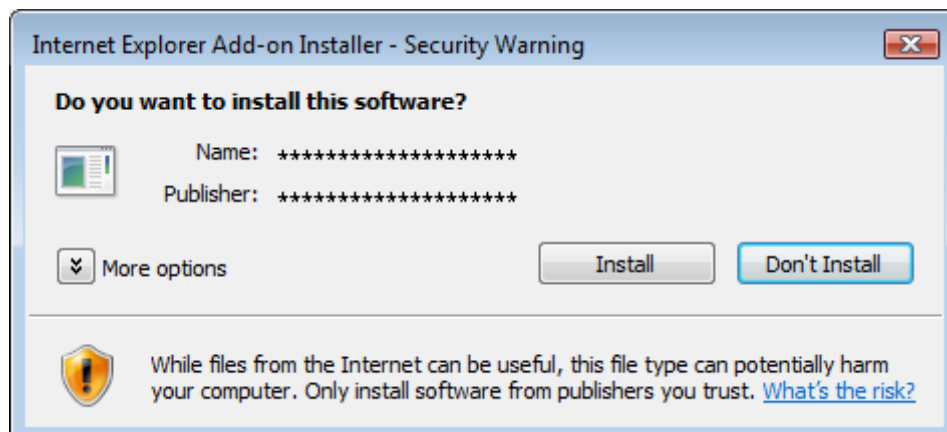
1. When the pop-up block message is displayed in Internet Explorer, click the message and select [Temporarily Allow Pop-ups].



2. When a license agreement is displayed and you agree to the terms of the license, select [I accept the License agreement], then click [OK].
3. When the ActiveX Control message is displayed in Internet Explorer, click the message and select [Install ActiveX Control...].



4. Click [Install].



## ActiveX dialog for Internet Explorer 8

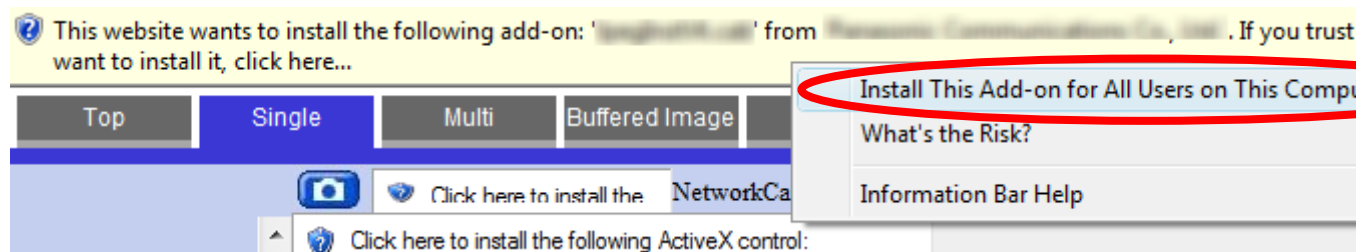
To view video images (i.e., H.264, MPEG-4, and MJPEG images), the corresponding viewer program (ActiveX Controls) must be installed on your PC. Follow the steps below to install ActiveX Control when using Internet Explorer 8.

### Note

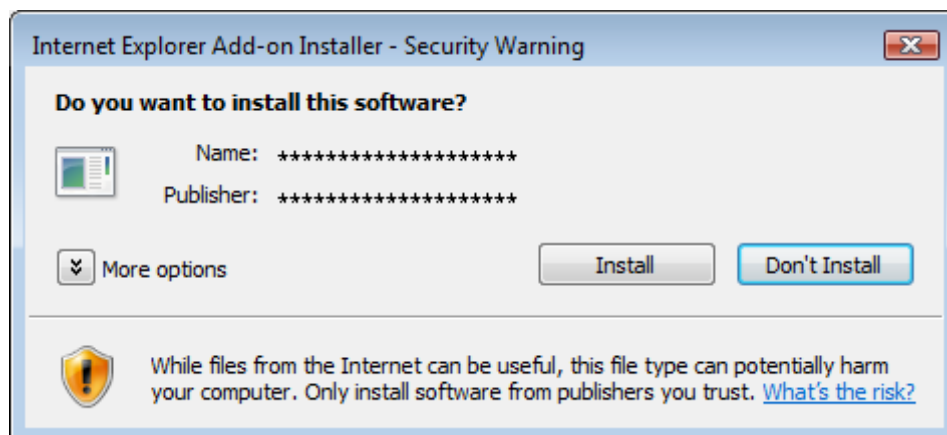
- If ActiveX Controls cannot be installed, download them from the Panasonic Network Camera website (<http://panasonic.net/pcc/support/netwcam/>).

### Installing for MJPEG

1. When the ActiveX Control message is displayed in Internet Explorer, click the message and select [Install This Add-on for All Users on This Computer...].



2. Click [Install].

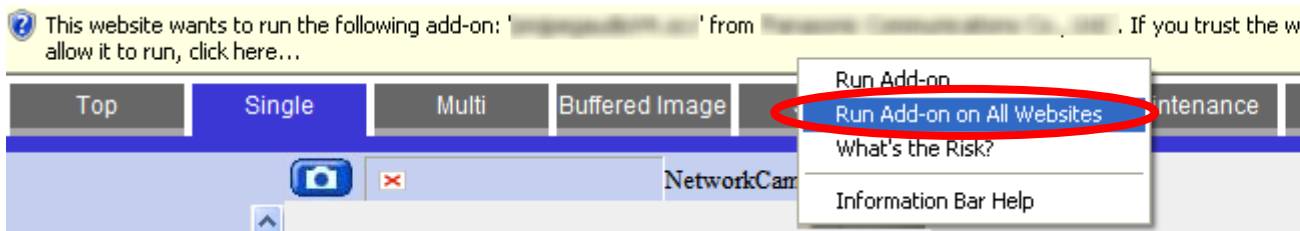


## 1.2 Viewing Live Camera Images

- If this is the first time you are installing ActiveX Control on this computer, installation is now complete.

### Note

- After the viewer program is installed, the ActiveX Control message is displayed if the audio and video components (pmjpegaudioV4.ocx and pmjpegcamV4.ocx, respectively) need to be run. Follow the procedure below and run the components.
  1. When the ActiveX Control message is displayed in Internet Explorer, click the message and select [Run Add-on on All Websites].

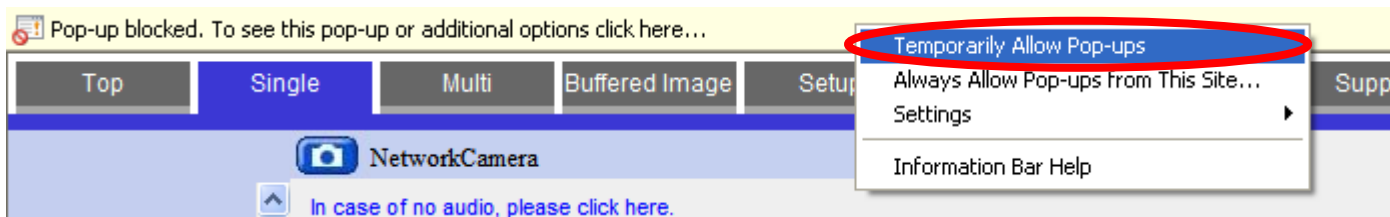


2. Click [Run].



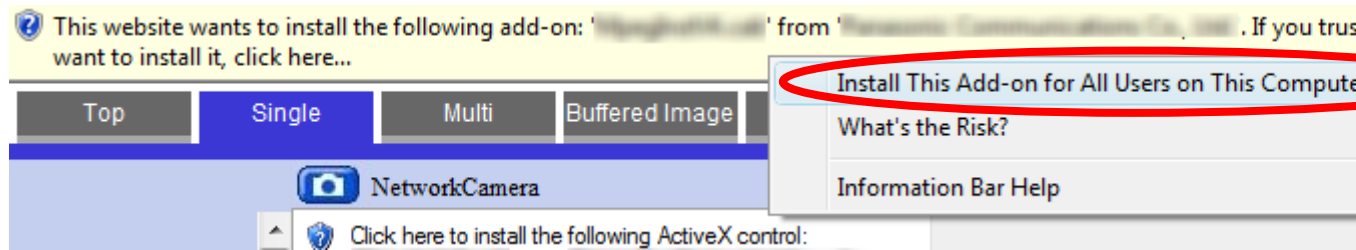
### Installing for H.264 or MPEG-4

1. When the pop-up block message is displayed in Internet Explorer, click the message and select [Temporarily Allow Pop-ups].

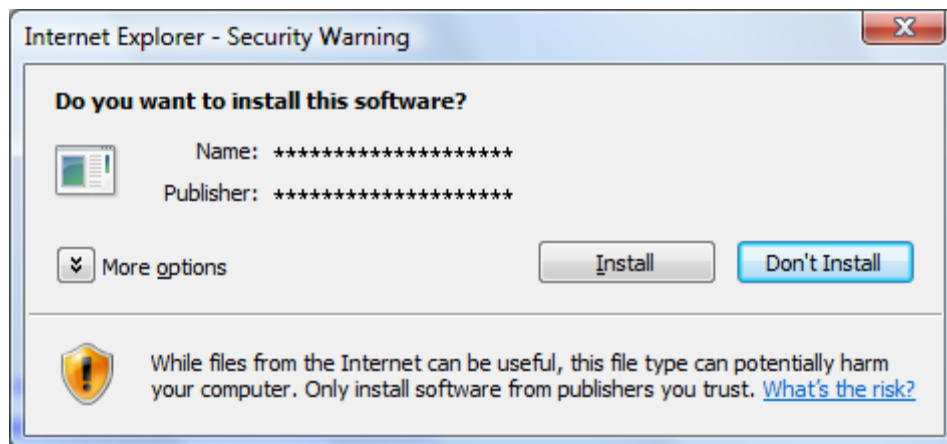


2. When a license agreement is displayed and you agree to the terms of the license, select [I accept the License agreement], then click [OK].

- When the ActiveX Control message is displayed in Internet Explorer, click the message and select [Install This Add-on for All Users on This Computer...].



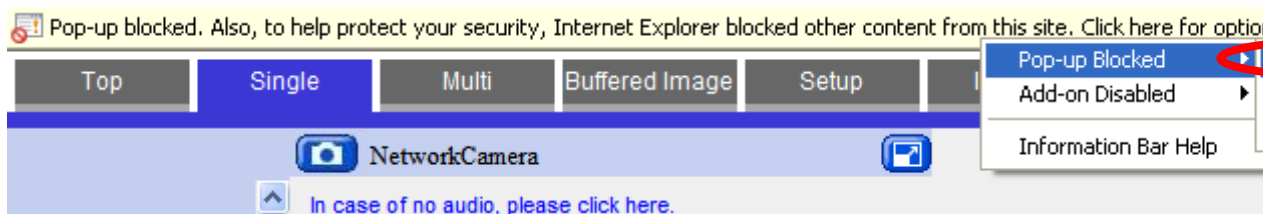
- Click [Install].



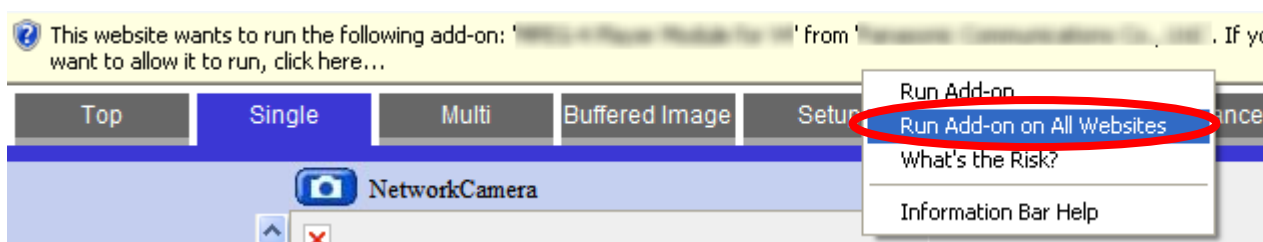
#### Note

- After the viewer program is installed, the ActiveX Control message is displayed if the MPEG-4 player component (MPEG-4 Player Module for V4) needs to be run. Follow the procedure below and run the component.

- When the pop-up block message is displayed in Internet Explorer, click the message and select [Pop-up Blocked] → [Temporarily Allow Pop-ups].



- When the ActiveX Control message is displayed in Internet Explorer, click the message and select [Run Add-on on All Websites].

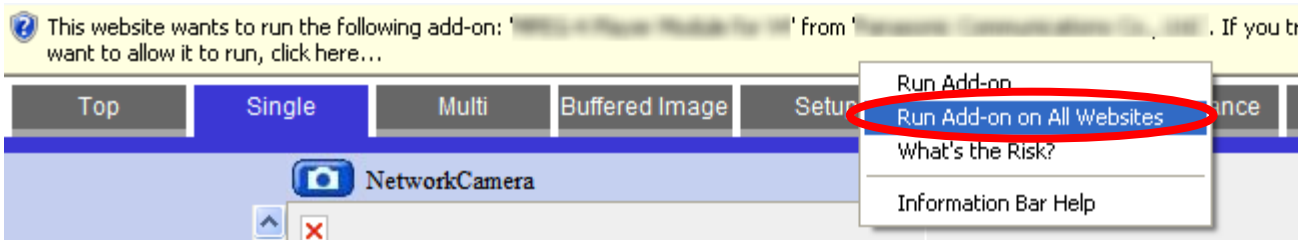


## 1.2 Viewing Live Camera Images

3. Click [Run].



- After the viewer program is installed, the ActiveX Control message is displayed if the H.264 player component (Pcc Cam ActiveX Control Module) needs to be run. Follow the procedure below and run the component.
  1. When the ActiveX Control message is displayed in Internet Explorer, click the message and select [Run Add-on on All Websites].



2. Click [Run].



- When the Windows security alert is displayed, click [Unblock].



## If you cannot install ActiveX Controls, or if you cannot see video (H.264, MPEG-4, or MJPEG) images in Internet Explorer

Confirm the following Internet Explorer settings.

1. Click [Tools]→[Internet Options...]→[Security] tab and click [Custom level...] on the web browser.
2. Under [Download signed ActiveX controls], select [Prompt].
3. Under [Run ActiveX controls and plug-ins], select [Enable].

If you need to install ActiveX Controls, you can download them from the Panasonic Network Camera support site (<http://panasonic.net/pcc/support/netwkcaml/>) or install them using the CD-ROM included with your camera.

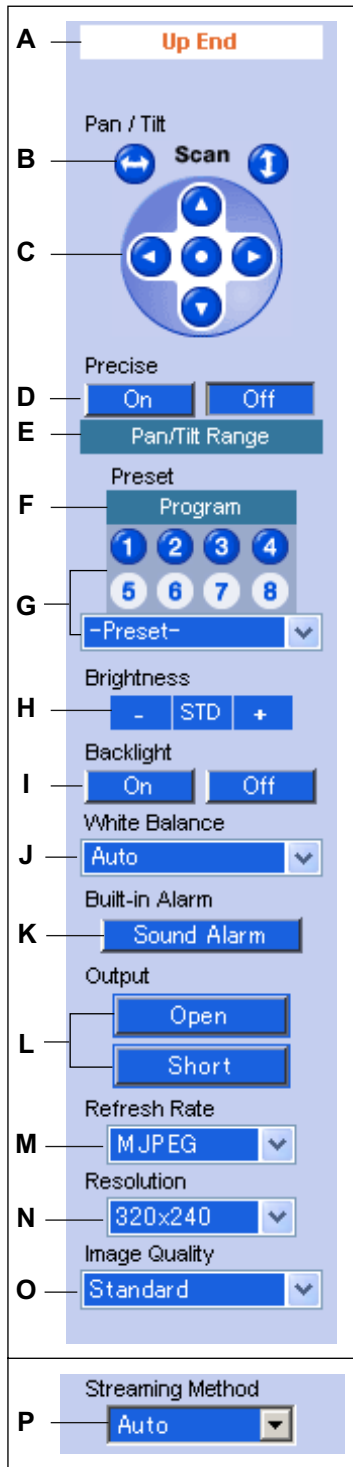
1. Download the ActiveX Controls installer or insert the CD-ROM in your PC.
2. Confirm that Internet Explorer is closed.
3. Double-click the downloaded ActiveX Controls installer, or open the [ocx] folder on the CD-ROM, then open the [H.264], [MPEG-4], or [MJPEG] folder on the CD-ROM and double-click [install.bat].

### Note

- When using Windows Vista®, you must be logged into your PC as a user with Administrator privileges. For more information, open the [ocx] folder on the CD-ROM, then open the [H.264], [MPEG-4], or [MJPEG] folder on the CD-ROM and double-click [ReadmeEng.txt].
- After installing or enabling ActiveX Controls, you may need to wait a moment before camera images are displayed.
- If you use a proxy server, see Page 195.
- If your computer or your network uses a firewall for security purposes, the firewall may prevent video images from being displayed. In this case, you can use the [Refresh Rate] selector to select to view still images. If you want to view video images, consult your network administrator.
- If your browser's pop-up blocker is enabled, you may not be able to install the H.264 or MPEG-4 viewer program (ActiveX Controls), and therefore you will not be able to view H.264 or MPEG-4 images. Temporarily disable your browser's pop-up blocker and try to view H.264 or MPEG-4 images again.

## 1.2.1 Using the Operation Bar

The operation bar is displayed to the left of the camera image when viewing images from a single camera, and provides the following features.



- A. End Display and Preset Display:** When the lens has reached the end of its pan or tilt range, the appropriate message will be displayed here ([Left End], [Right End], [Up End], [Down End]. [Additionally, when a preset (see Page 29) is selected, the name of the preset is displayed here (except [Home Position]).
- B. Pan and Tilt Scan Buttons:** Allow you to pan or tilt the lens to its maximum pan or tilt range (see 1.2.2 Aiming the Camera Lens). The lens returns to the original position when finished.
- C. Navigation Buttons:** Allow you to pan the lens left and right, and tilt the lens up and down (see 1.2.2 Aiming the Camera Lens). Click the center navigation button to move the lens to the home position.
- D. Precise Pan and Tilt On/Off Buttons:** Turn the precise pan/tilt feature on and off. When this feature is turned on, the navigation buttons move the camera in small increments, allowing precise lens control (see 1.2.2 Aiming the Camera Lens).
- E. Pan/Tilt Range Button:** Allows you to limit the pan and tilt range of the camera's lens (see Page 28).
- F. Preset Program Button:** Allows you to add, change, or delete presets (see Page 29).
- G. Preset Selection Buttons and Menu:** Allow you to move the lens to a pre-programmed position. You can register up to 8 presets (see Page 29). Click buttons 1–8 to move the lens to the corresponding preset, or select the desired preset from the pull-down menu.
- H. Brightness Controls:** Allow you to change the brightness of the displayed image. Click [-] to darken the image, [+] to brighten the image, and [STD] to return the image to the standard brightness level. There are a total of 9 brightness levels available.
- I. Backlight Correction Buttons:** Allow you to turn the backlight correction feature on and off. This feature can automatically correct the contrast in dark areas of the camera image (see page 31).
- J. White Balance Selector:** Allows you to adjust the white balance to match the environment of the camera. Change this setting to achieve the most natural looking colors (see Page 32).
- K. Built-in Alarm Button:** Allows you to sound the built-in alarm. You can set when the built-in alarm sounds, as well as the built-in alarm volume and the built-in alarm sound type (see Page 174). This button is not available depending on the [Trigger for Built-in Alarm] setting (see Page 174).
- L. Output Control (BL-C230 Only):** Controls the output signals of the external I/O interface (see Page 168).



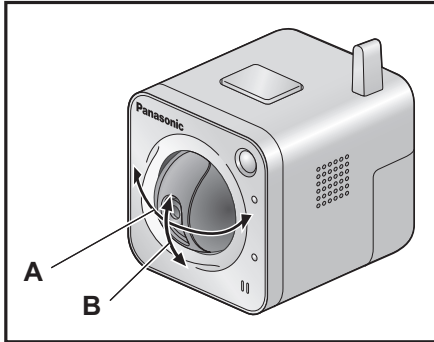
- M. Refresh Rate Selector:** Determines whether video images or still images are displayed. Select [MJPEG], [MPEG-4], or [H.264] to view video images, or select the refresh rate of still images (JPEG images). For example, selecting [3 s] will refresh the camera image once every 3 seconds. Whether H.264 or MPEG-4 is available (**BL-C210A/BL-C230A:** H.264 is available by default, **BL-C210CE/BL-C210E/BL-C230CE/BL-C230E:** MPEG-4 is available by default) depends on the [Streaming Format] on the [Video Streaming] page (see Page 145).
- N. Image Resolution Selector:** Determines the resolution of the image (i.e., the size of the image in pixels) that is displayed.
- O. Image Quality Selector:** Allows you to select the image quality. Select [Favor Clarity] for optimal image clarity, [Favor Motion] for optimal motion quality, and [Standard] for standard image quality. This selector is not displayed when [H.264] or [MPEG-4] is selected under [Refresh Rate].
- P. Streaming Method Selector:** Allows you to select the method used to stream H.264 or MPEG-4 images from the camera (see Page 33). This selector is displayed only when [H.264] or [MPEG-4] is selected under [Refresh Rate]. To stream H.264 or MPEG-4 images using Multicast, you must first configure the camera for multicasting (see Page 145), after which [Multicast] is available from this pull-down menu.

**Note**

- Screen content varies by model number.
- Features that are disabled for general users (see Page 152) or guest users (see Page 155) are not displayed in the operation bar for those users.
- The brightness, backlight, and white balance settings assigned to the home position are used each time the camera is turned on, however, the current settings are saved when registering a preset (see Page 29) and those settings are used when viewing a preset.
- The camera lens moves to the home position when it is turned on. You can change the home position if necessary (see Page 29).

## 1.2.2 Aiming the Camera Lens

The camera can be panned from  $-41^{\circ}$  to  $+41^{\circ}$  from the center position, and tilted from  $-32^{\circ}$  to  $+10^{\circ}$  from the center position. If the [Pan/Tilt Range] button was used to limit the maximum pan and tilt range of the camera (see Page 28), the lens can only be moved to the maximum pan or tilt range allowed.

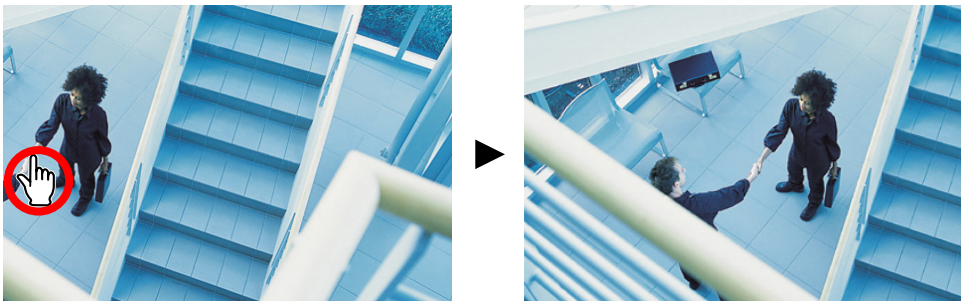


- A. Pan:  $-41^{\circ}$  to  $+41^{\circ}$
- B. Tilt:  $-32^{\circ}$  to  $+10^{\circ}$

There are several ways you can move the camera lens to view the desired image, as described in this section.

### Click to center

Allows you to quickly and easily center the camera image on the desired point. Simply move the mouse cursor to the desired point in the camera image, and click. Note that the camera may not be able to center on the clicked point if it is outside of the pan and tilt range of the lens.



This feature can be disabled for general users (see Page 152) and for guest users (see Page 155). Note, however, that if the click to center feature is disabled, users can still use this feature when using the ActiveX zoom feature. Users can click to center the image within the zoomed area, but the lens will not pan or tilt.

### Pan and tilt scan buttons

Allow you to pan or tilt the lens to its maximum pan or tilt range. The lens returns to the original position when finished. You can click an area of the camera image to stop the scan operation and center the camera image on the desired point.

This feature can be disabled for general users (see Page 152) and for guest users (see Page 155).

### Navigation buttons

Allow you to pan the lens left and right, and tilt the lens up and down. Click the center navigation button to move the lens to the home position.

When the precise pan/tilt feature is turned on (click [On] under [Precise] in the operation bar), the navigation buttons move the camera in small increments, allowing precise lens control.

- The camera lens moves to the home position when it is turned on. You can change the home position if necessary (see Page 29).

This feature can be disabled for general users (see Page 152) and for guest users (see Page 155).

### Presets

Allow you to move the lens to a pre-programmed position. You can register up to 8 presets (see Page 29). Click buttons 1–8 to move the lens to the corresponding preset, or select the desired preset from the pull-down menu. You can also move the lens to the home position by clicking the center navigation button.

This feature can be disabled for general users (see Page 152) and for guest users (see Page 155).

#### **Note**

- If the camera is aimed at a preset position while zoomed, the position may vary slightly from the registered preset position.

## 1.2.3 Limiting the Pan/Tilt Range





You can limit the maximum pan and tilt range of the camera's lens.

### Note

- This feature is available to the camera administrator only.

1. Click the [Pan/Tilt Range] button in the operation bar.



2. Set the pan and tilt range as desired.
  - a. Aim the camera to the leftmost point you want to allow to be seen, then click .
  - b. Aim the camera to the rightmost point you want to allow to be seen, then click .
  - c. Aim the camera to the uppermost point you want to allow to be seen, then click .
  - d. Aim the camera to the lowermost point you want to allow to be seen, then click .
3. Click [Save].

### Note

- Even if you limit the pan and tilt range, you can view the entire range of the camera's pan and tilt range while setting the pan and tilt range on this page.
- When you click the [Pan/Tilt Range] button, the refresh rate changes to MJPEG.
- You can aim the camera by clicking on the desired navigation button, or by using the click to center feature.

## 1.2.4 Registering and Changing Presets

Presets allow you to easily aim the camera lens in the desired direction. Brightness, backlight, and white balance settings are also saved when registering a preset. The following presets can be registered:

- Home position (the direction that the lens moves to when you turn the camera on or click the center navigator button)
- Sensor position
- Alarm positions 1 and 2
- Presets 1–8

Additionally, the first 4 presets are set by default.

- 1: UpperLeft
- 2: UpperRight
- 3: LowerLeft
- 4: LowerRight

### Viewing a preset

You can move the lens to a preset position in the following ways:

- Click the center navigator button (to move the lens to the home position)
- Click [-Preset-] and select a preset from the pull-down menu
- Click a blue preset button (1–8) (Unregistered preset buttons are displayed in white.)

### Registering or changing a preset

#### **Note**

- This feature is available to the camera administrator only.
  - Zoom settings are not registered to presets.
1. Confirm that you are logged in to the camera as the administrator.
  2. Under [Preset] in the operation bar, click [Program].
  3. Aim the camera in the desired direction.
  4. Adjust the brightness, backlight, and white balance settings if desired. These settings will be registered to the preset.
  5. Under [Preset Number], select the desired preset from the pull-down menu.
  6. Enter a name for the preset (max. 15 characters).
    - You cannot rename the home position, sensor position, or alarm positions.
    - See Page 206 for a list of valid characters. Note that [Space], ["], ['], [&], [<] and [>] cannot be used.
  7. Click [Save] to register the preset, or click [Back] to cancel.
    - When [Success!] is displayed, click [Back] to continue.

### Deleting a preset

#### **Note**

- This feature is available to the camera administrator only.
1. Confirm that you are logged in to the camera as the administrator.
  2. Under [Preset] in the operation bar, click [Program].
  3. Under [Preset Number], select the desired preset from the pull-down menu.
    - You cannot delete the home position or alarm positions.
  4. Click [Delete] to delete the preset, or click [Back] to cancel.
    - When [Success!] is displayed, click [Back] to continue.

## 1.2.5 Zooming

The camera supports ActiveX zoom. ActiveX zoom is a digital zoom that is implemented using the ActiveX software installed on the computer viewing the camera images. It allows you to magnify images by up to 3×. The zoom feature can be used when:

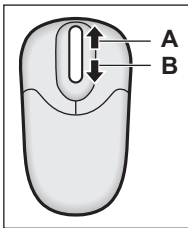
- Viewing video images on the single camera page
- Viewing video images from multiple cameras on the multi camera page
- Viewing buffered MJPEG video images on the buffered image page

### Note

- Zooming is not available when viewing camera images on a mobile phone.
- The zoom magnification (×1.0–×3.0) is displayed briefly while zooming.
- As the magnification increases, image quality decreases.
- When ActiveX zoom is used, only the image seen by the user operating the zoom is zoomed.
- You can move the lens as normal (selecting a preset, using the navigation buttons, etc.) even when zooming.

### Zooming with the scroll wheel

With the cursor placed over the camera image, rotate the scroll wheel away from you to zoom in, and rotate the scroll wheel toward you to zoom out. Note that the zoom speed depends on your mouse performance and your PC's mouse settings.



- A.** Zoom in
- B.** Zoom out

### Zooming with the right mouse button

Right-click the upper part of the image to zoom in, and right-click the lower part of the image to zoom out.




- A.** Zoom in
- B.** Zoom out

---

## 1.2.6 Backlight Correction

The camera's backlight correction feature can automatically correct the contrast in dark areas of the camera image. This means even when there is backlight or a large amount of contrast in the image, the camera can correct the image to provide a more consistent, natural image. You can turn this feature on and off by clicking [On] and [Off] under [Backlight] in the operation bar.

### **Note**

- If you select to display the status in the overlay setting,  is displayed on the single camera and multi camera pages when the backlight correction feature is on (see Page 159).
- The backlight setting assigned to the home position is used each time the camera is turned on.
- The current backlight setting is saved when registering a preset (Page 29), and is used when viewing the preset.
- The effectiveness of this feature may vary depending on the object being viewed and other conditions. Additionally, under certain conditions, the image may appear unnatural, or noise may appear in the image when this feature is enabled.

# 1.2.7 White Balance

While viewing camera images on the single camera page, you can use the [White Balance] selector to adjust the camera's image to match the environment of the camera. Change this setting to achieve the most natural looking colors.

The following settings are available.

- [Auto]: White balance is adjusted automatically according to the image being displayed
- [Indoor]: Electric bulb (2800 K)
- [Fluorescent (White)]: White type fluorescent light (4000 K)
- [Fluorescent (Daylight)]: Daylight type fluorescent light (4800 K)
- [Outdoor]: Solar light (6000 K)
- [Hold]: Maintains the current white balance setting

### **Note**

- “K” (Kelvin) is the unit used to measure color temperature.
- The current white balance setting is saved when you register a preset (see Page 29).



## 1.2.8 Video Images and Image Refresh Rate

Using the [Refresh Rate] selector in the operation bar, you can select whether video images ([MJPEG], [MPEG-4], or [H.264]) are displayed, or still images that are refreshed periodically (3 seconds, 5 seconds, etc.) are displayed. You can change the default setting for [Refresh Rate] that is used each time the single camera page is accessed (see Page 159).

Certain features are limited depending on the [Streaming Format] setting (see Page 209). Additionally, [Refresh Rate] selection can be disabled for general users (see Page 152) and for guest users (see Page 155).

### MJPEG

MJPEG (Motion JPEG) is a video format that displays a continuous series of still images. Because each MJPEG frame is a still image, this format offers high-quality images, but uses more bandwidth, and frame rate may decrease as a result. To view images in MJPEG format, set the [Refresh Rate] selector to [MJPEG].

### MPEG-4

MPEG-4 is a video format that updates images only when there is a variation in the image displayed, and as a result, requires less bandwidth. MPEG-4 is useful in situations when less bandwidth is available, such as when viewing camera images over the Internet. To view images in MPEG-4 format, set the [Refresh Rate] selector to [MPEG-4], then select the desired streaming format under [Streaming Method].

- In order to view images using MPEG-4, [Streaming Format] on the [Video Streaming] page must be set to [MPEG-4] (see Page 145). When this setting is changed, the camera must be restarted before the new setting takes effect. When [MPEG-4] is selected, H.264 images cannot be viewed.

### H.264

H.264 is a video format that offers high-quality images. Note, however, that the camera does not support buffering and transferring H.264 images. To view images in H.264 format, set the [Refresh Rate] selector to [H.264], then select the desired streaming format under [Streaming Method].

- In order to view images using H.264, [Streaming Format] on the [Video Streaming] page must be set to [H.264] (see Page 145). When this setting is changed, the camera must be restarted before the new setting takes effect. When [H.264] is selected, MPEG-4 images cannot be viewed.

### Video streaming

H.264 and MPEG-4 images can be streamed using multicast, unicast, and HTTP (see Page 145). When accessing the camera using HTTPS, multicast and unicast streaming is not possible: HTTP is the only available streaming method.

- [Auto]: The first available streaming method will be used, beginning with multicast, then unicast, then HTTP. The current streaming method is displayed below the camera image.
- [Multicast] (Multicast RTP): Multicast allows you to stream the same data over the network to multiple parties, thus reducing the amount of data that is sent over the network.
  - Multicast streaming is not possible when viewing camera images over the Internet.
  - In order to use multicast streaming, the camera must be configured for multicasting (see Page 145). Note that multicast streaming is not possible when viewing camera images on certain local networks. Consult your network administrator before configuring the camera for multicasting.
  - Images may break up when accessing the camera over a low bandwidth connection. This is normal. In this case, select [Unicast] or [HTTP] as the streaming method.
  - If images cannot be displayed or if images break up when [Multicast] is selected as the streaming method, select [Unicast] or [HTTP].

## 1.2.8 Video Images and Image Refresh Rate

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- [Unicast] (Unicast RTP): While no special settings are required to stream video using unicast, video is streamed to each individual user viewing video images, which creates more network traffic as more users access the camera. Unicast is generally more reliable than multicast, and is not as susceptible to image quality issues that may occur with when multicasting.
  - Unicast streaming is not possible when viewing camera images over the Internet.
  - Unicast streaming may not be possible when viewing camera images on certain local networks. Consult your network administrator for more information.
  - If a user with a low bandwidth connection or if many users are viewing images using unicast streaming, frame rate will decrease and image quality may be affected for all users viewing H.264 or MPEG-4 images.
  - If images cannot be displayed or if images break up when [Unicast] is selected as the streaming method, select [HTTP].
- [HTTP]: When streaming video using HTTP, the camera confirms that the data is being received by the user. Video can be viewed in network environments that do not support multicast or unicast streaming, however, this streaming method requires more bandwidth than the other methods.
  - If a user with a low bandwidth connection or if many users are viewing images using HTTP streaming, frame rate will decrease and image quality may be affected for all users viewing H.264 or MPEG-4 images.
  - If images cannot be displayed when [HTTP] is selected as the streaming method, select [MJPEG] as the image refresh rate.
  - When [HTTP] is selected, HTTP is used when viewing H.264 images, and RTP over HTTP is used when viewing MPEG-4 images.

### **Note**

- If a user with a low bandwidth connection is viewing H.264 or MPEG-4 images, frame rate will decrease and image quality may be affected for all users viewing H.264 or MPEG-4 images.
- When the camera is configured to buffer images in H.264 or MPEG-4 format, frame rate will decrease when viewing H.264 or MPEG-4 images on the single camera and multi camera pages.
- To adjust video streaming settings in order to improve image quality or frame rate when viewing H.264 or MPEG-4 images, see Page 145.
- **BL-C230 only:** When in wireless mode, Multicast may not work properly because the IEEE 802.11 standard limits the bandwidth. Select [Unicast] or [HTTP] as the streaming method.

## Still images

Still images that are refreshed periodically can be displayed instead of video images by selecting the desired refresh rate. For example, selecting [3 s] will refresh the camera image once every 3 seconds.

## 1.2.9 Taking Snapshots

You can take snapshots while viewing camera images and save them on your PC.





1. Click the snapshot button ()
  - The camera image opens in a new window.
2. Right-click the image, and select [Save Picture As...].
  - The [Save Picture] dialog appears.
3. Enter a name for the file.
4. Specify where you want to save the file, then click [Save].
5. Click [Close].

### **Note**

- Snapshots are saved in JPEG format at the [Favor Clarity] setting.
- This feature can be disabled for general users (see Page 152) and for guest users (see Page 155).

# 1.2.10 Audio Features

While viewing live images from the camera, you can monitor the audio from the camera's microphone.

1. Confirm that the listen button () is displayed.
  - You can mute the audio by pressing the listen button. It will change to the listen off button ()
  - Press the listen off button to monitor the audio again.
2. Adjust the volume using the volume slider ()
  - When viewing H.264 or MPEG-4 images, the volume slider changes appearance ()

### **Note**

- This feature can be disabled for general users (see Page 152) and for guest users (see Page 155).
- The audio may be interrupted or delayed due to your PC's performance, the network environment, if you are running other applications, or if you have multiple windows open. Close other applications and windows or reduce the maximum bandwidth (see Page 113 or Page 190) for best performance.
- By default the camera's microphone is automatically muted when the lens is panning or tilting. You can change this setting if desired, as well as adjust the sensitivity of the microphone (see Page 144).
- When the image is refreshed (such as during preset registration or when clicking your browser's refresh button), the volume is reset to the center position and the mute will be turned off (i.e., audio will be heard again).
- If you experience difficulty when using audio features, refer to 1.10 Audio Issues in the Troubleshooting Guide.

## 1.2.11 Additional Features Available While Viewing Live Camera Images

The following features are available while viewing live camera images. These features utilize the ActiveX software installed on the computer that is used to view camera images, and are therefore set individually for each computer. The features that can be used vary depending on the current image format (MJPEG, MPEG-4, H.264).


- Detection notification sound (available for MJPEG images only)  
While viewing MJPEG images on the single camera or multi camera page, your computer can play a sound to notify you when motion is detected or when the sensor is triggered (see Page 37).
- Image display method (not available for H.264 images)  
Determines which image display method is used by the computer to display camera images (see Page 39).
- Software color night view  
Brightens the camera image (see Page 41).

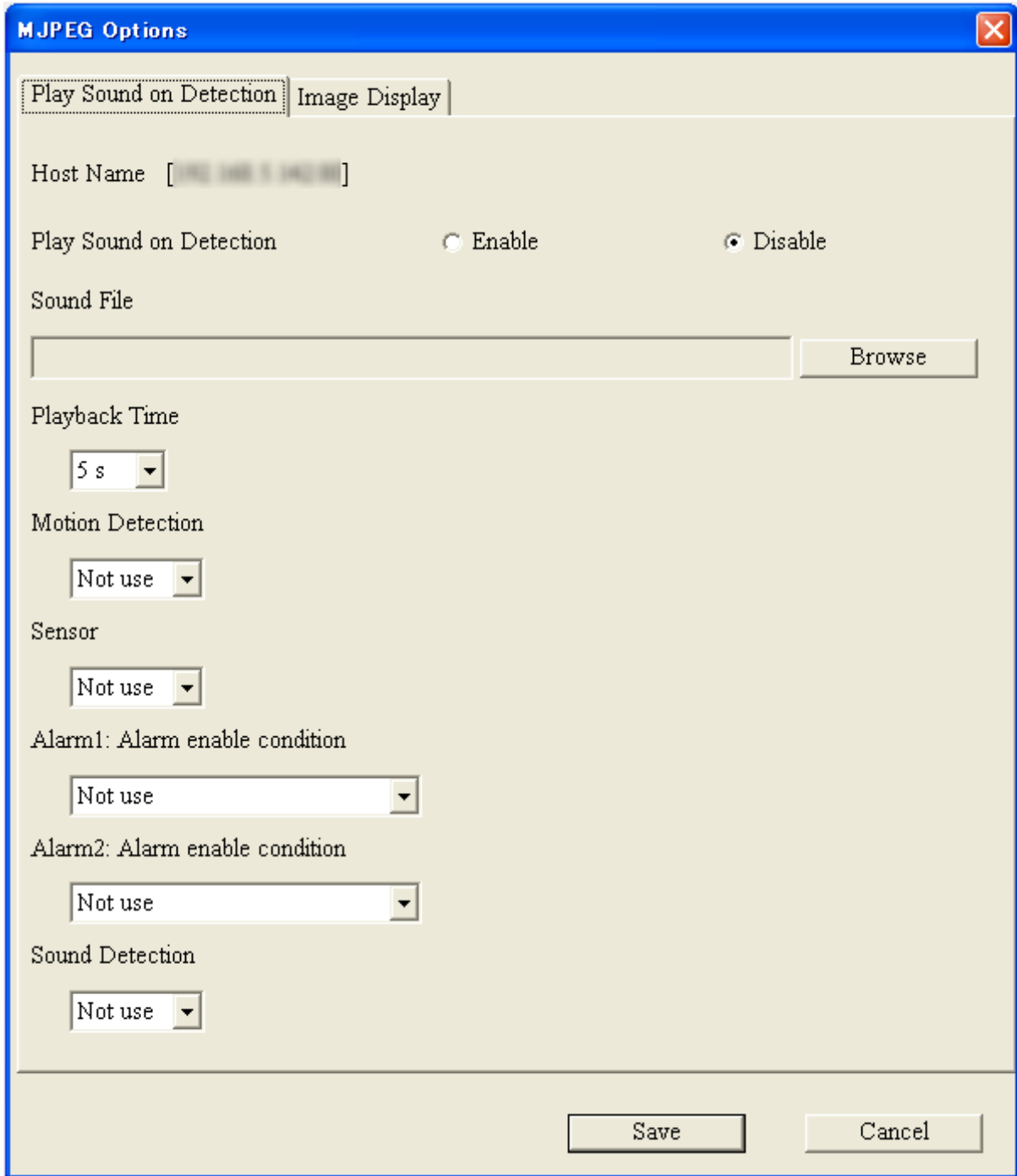
### Detection notification sound

Available when viewing MJPEG images only.

While viewing MJPEG images on the single camera page and the multi camera page, your computer can play a sound to notify you when motion is detected or when the sensor is triggered.

This feature can be set independently on each computer that accesses the camera, and functions whether the triggers on the camera's [Buffer/Transfer] page are active or disabled. When viewing images on the multi camera page, it can be set independently for each camera image.

1. While viewing the single camera or multi camera page, click .



2. Set the following parameters as desired.
  - a. Next to [Play Sound on Detection], select whether you want your computer to play a sound to notify you when motion is detected or when the sensor is triggered.
  - b. Under [Sound File], click [Browse], then select the desired sound (audio file).
    - Only PCM-format .wav files are compatible with this feature.
    - Only files that are less than 10 seconds long are compatible with this feature.
  - c. Under [Playback Time], select the desired playback time.
  - d. Select whether you want your computer to play a sound to notify you when there is a detection.

3. Click [Save].
4. Click your web browser's refresh button to apply the new settings.

**Note**

- You can set the detection notification sound feature for each camera viewed on the multi camera page, however, this feature is not available when [16 Screens] is selected.
- Sample audio files can be found in the [AudioSample] folder on the CD-ROM.

## Image display method

You can select the image display method used to display motion images on the single camera page and the multi camera page. Adjust this setting if motion images are not smooth or if frames are dropped. This feature is set independently on each computer that accesses the camera. It affects all camera images displayed on the multi camera page and cannot be set independently for each camera.

**Note**

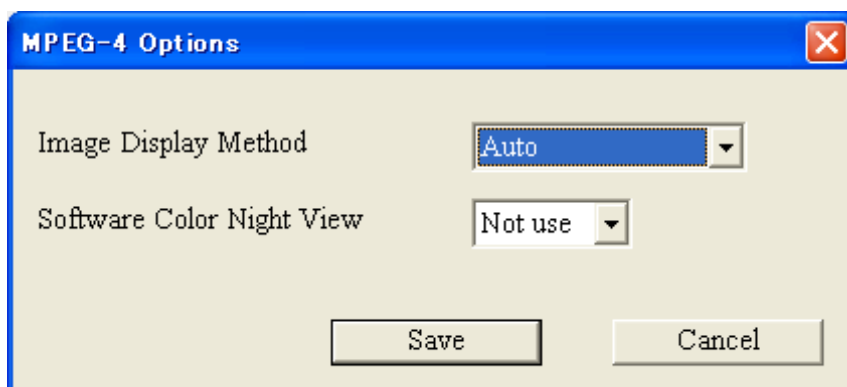
- Using this feature may cause frame rate to decrease and may increase the CPU usage. If this occurs, try changing the [Image Display Method] setting.

### When viewing H.264 images

When viewing H.264 images, the image display method is DirectShow® and cannot be changed.


### When viewing MPEG-4 images

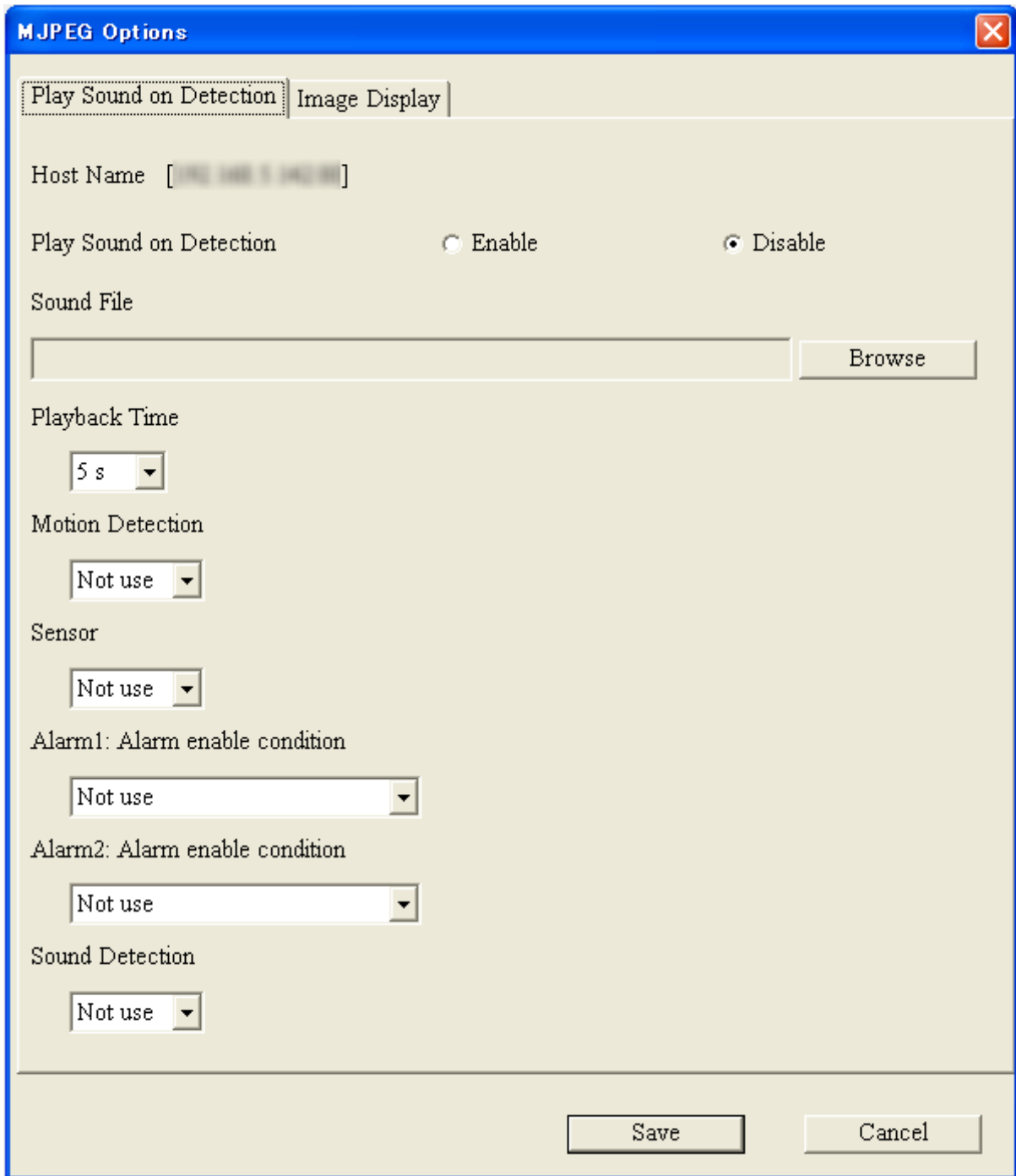
1. While viewing camera images, click .



2. Next to [Image Display Method], select the desired method.
  - Options available for this setting vary depending on the operating system and other software installed on the computer.
  - When [Auto] is selected when using Windows Vista, GDI is used. When using Windows® XP, DirectDraw® is used.
3. Click [Save].

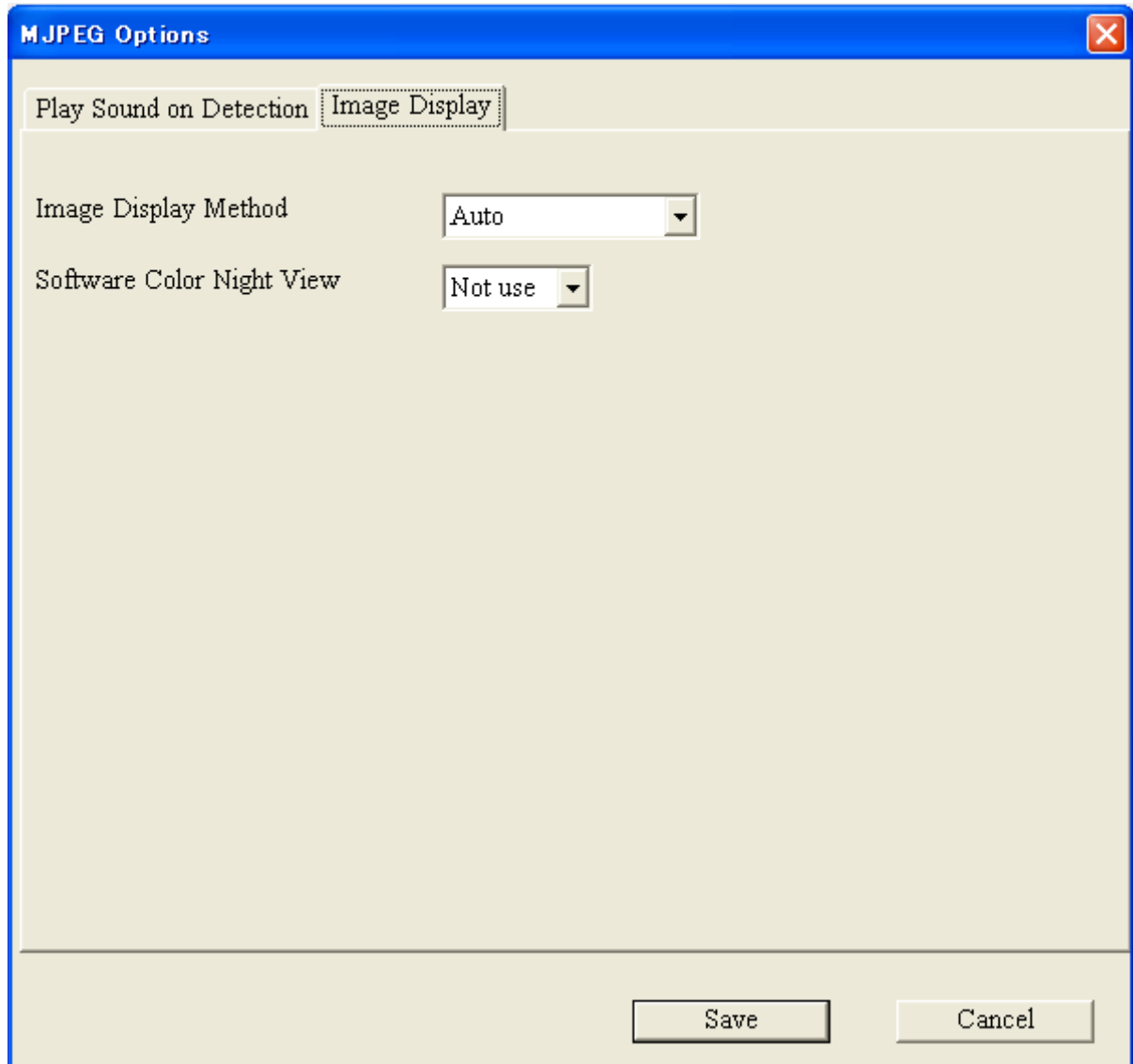
### When viewing MJPEG images

1. While viewing camera images, click .





2. Click the [Image Display] tab.



3. Next to [Image Display Method], select the desired method.
  - Options available for this setting vary depending on the operating system and other software installed on the computer.
  - When [Auto] is selected when using Windows Vista, GDI is used. When using Windows XP, DirectDraw is used.
4. Click [Save].

## Software color night view

You can set the computer to brighten motion images displayed on the single camera page. (Page 210) This feature is set independently on each computer that accesses the camera. It affects all camera images displayed on the multi camera page and cannot be set independently for each camera.

### **Note**


- If frame rate decreases, this feature may not perform as expected.

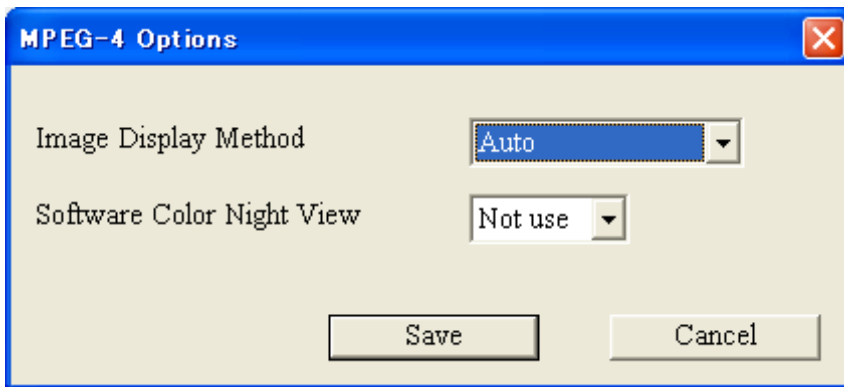
### 1.2.11 Additional Features Available While Viewing Live Camera Images

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- Frame rate decreases when the camera's color night view feature is active (see Page 142), and as a result, this feature may not perform as expected.
- Using this feature may cause frame rate to decrease and may increase the CPU usage.
- When taking snapshots while this feature is enabled, the camera image is not brightened in the captured snapshots.
- When viewing H.264 or MPEG-4 images, the computer's performance may not be adequate to use software color night view, and images may break up as a result. In this case, turn off software color night view and try using the camera's color night view mode feature (see Page 142).


#### When viewing H.264 or MPEG-4 images

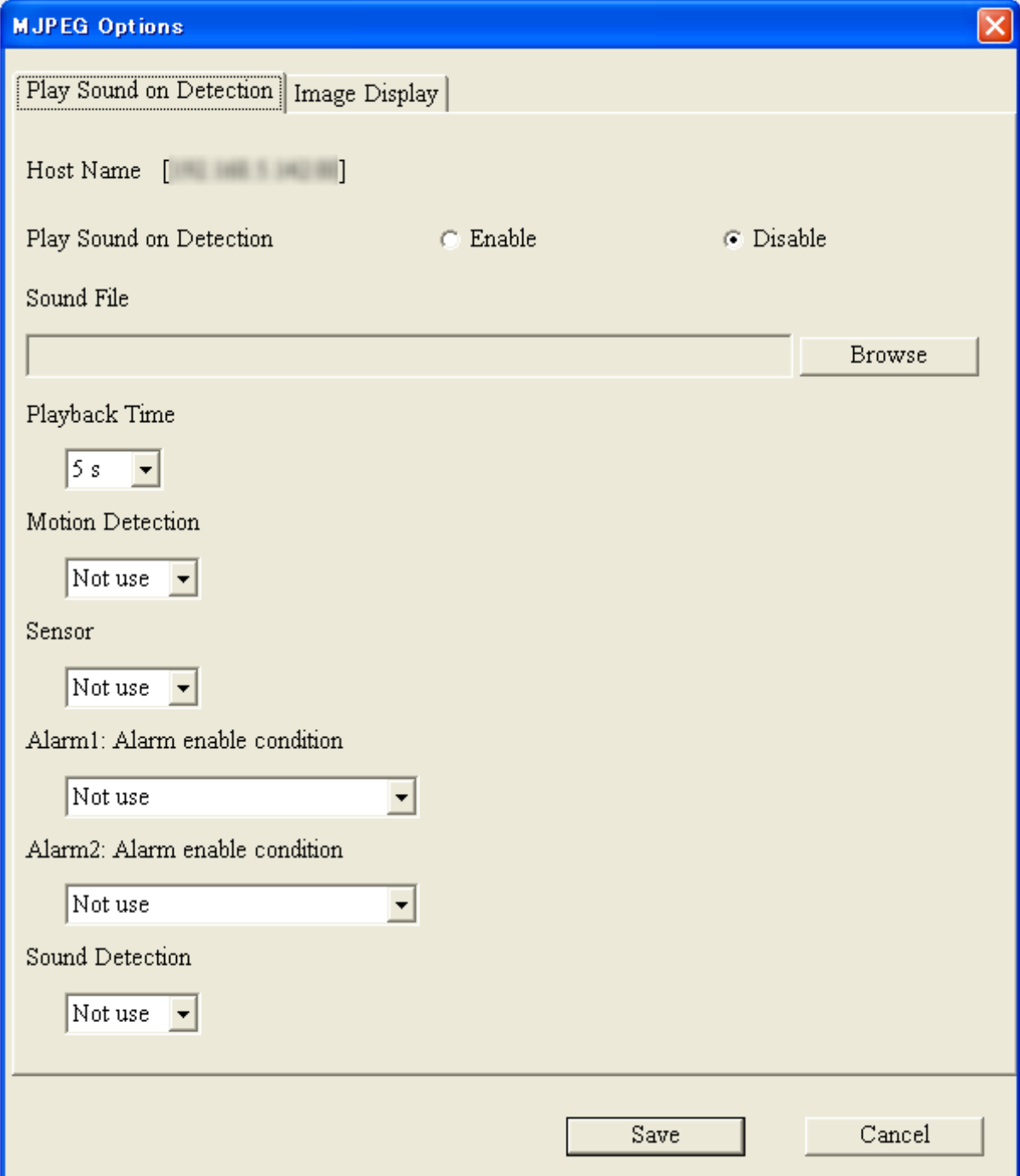
1. While viewing camera images, click .



2. Next to [Software Color Night View], select the desired setting.
3. Click [Save].

**When viewing MJPEG images**

1. While viewing camera images, click .



**MJPEG Options**

Play Sound on Detection | Image Display

Host Name [192.168.1.100:80]

Play Sound on Detection  Enable  Disable

Sound File  Browse

Playback Time  
5 s

Motion Detection  
Not use

Sensor  
Not use

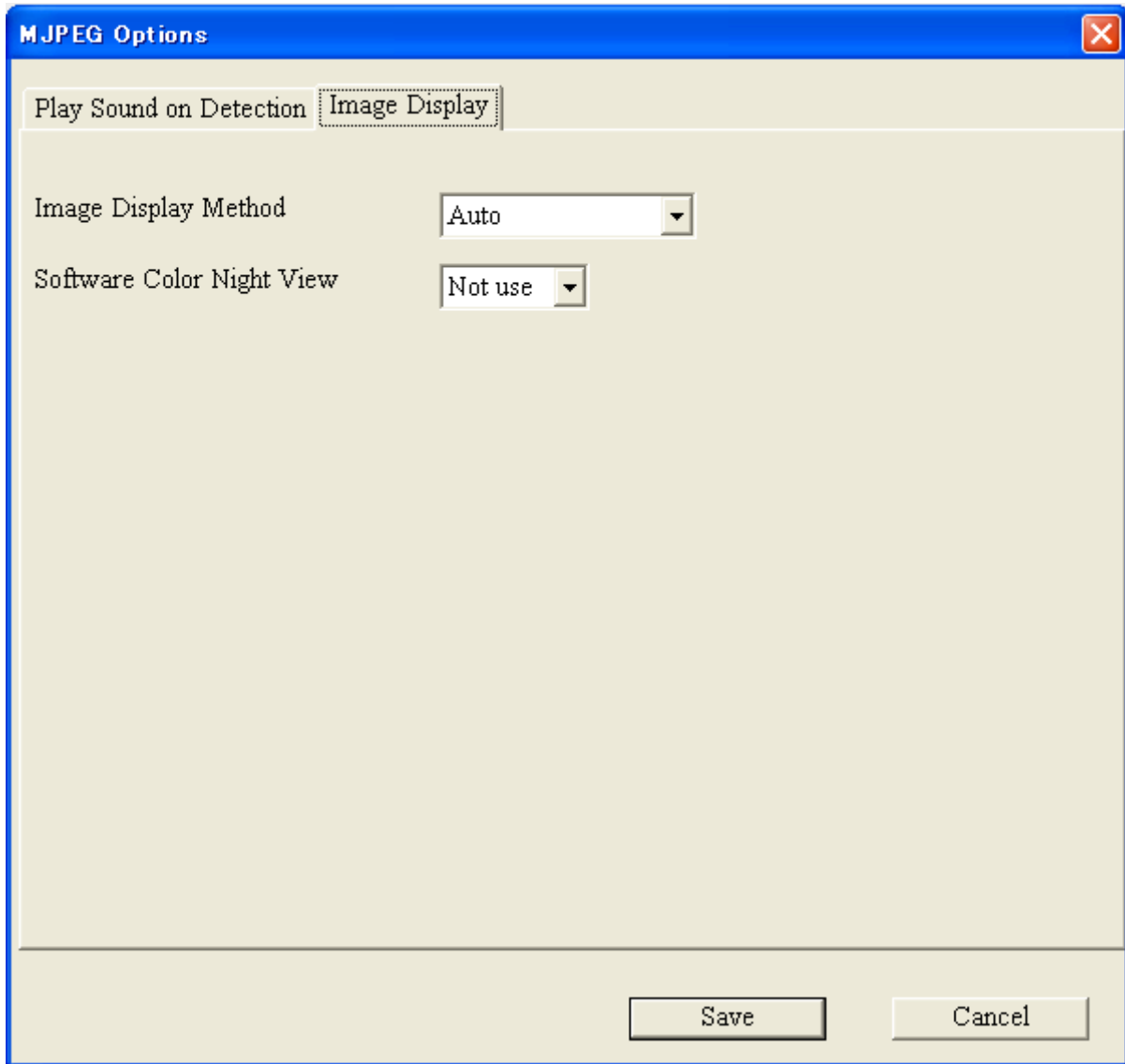
Alarm1: Alarm enable condition  
Not use

Alarm2: Alarm enable condition  
Not use

Sound Detection  
Not use

Save Cancel

2. Click the [Image Display] tab.



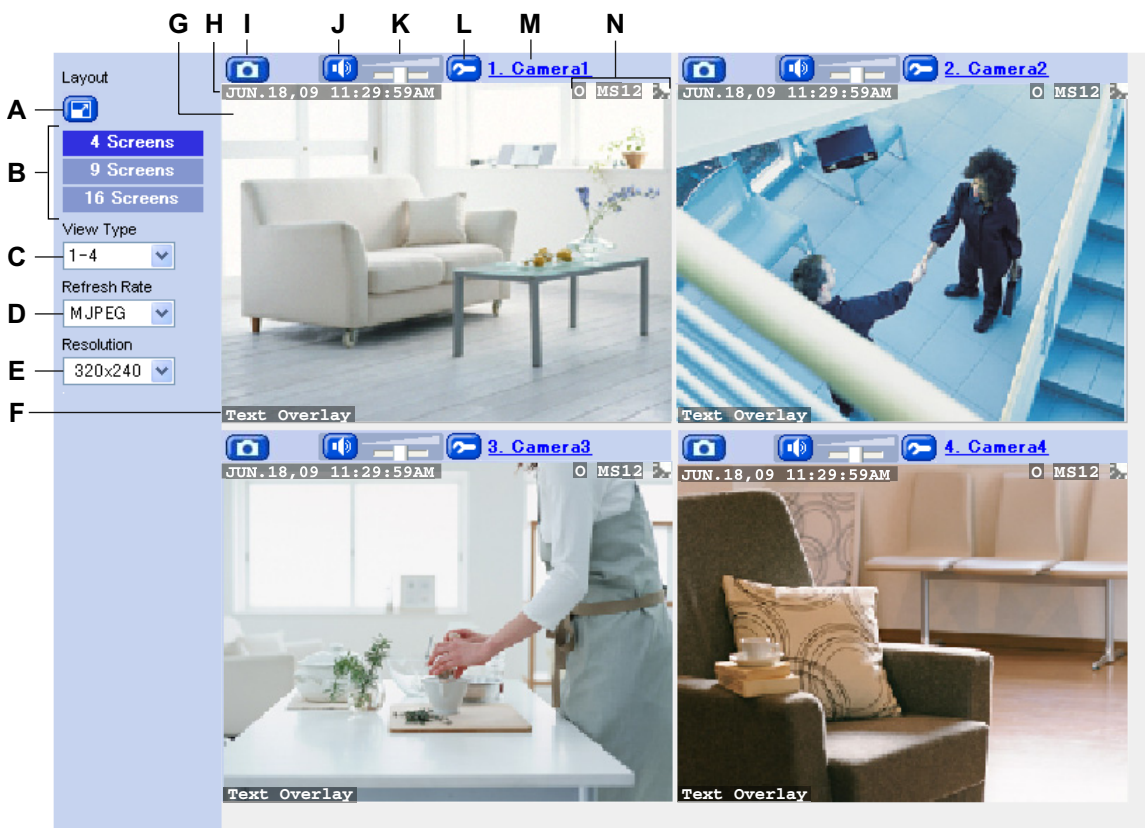
3. Next to [Software Color Night View], select the desired setting.
4. Click [Save].


## 1.3 Viewing Multiple Camera Images

You can register other Panasonic Network Cameras to this camera (see Page 163) and use the multi camera page to view images from multiple cameras. After you have registered the other cameras to this camera (up to 16 cameras can be registered), follow the procedure below to view camera images.

1. Access the camera (see Page 8).
2. Click the [Multi] tab.

### The multi camera page



- A.** Full-screen button (click to view the image in 4:3 full-screen mode; click  to return to normal mode)
- B.** Changes the number of cameras displayed
- C.** Switches the display to a different set of cameras
- D.** Determines the video format of images displayed, or how often the camera images are refreshed
- E.** Determines the resolution (i.e., the number of pixels) that are displayed for each image
- F.** Text overlay (see Page 159)<sup>1</sup>
- G.** Camera image (click an area of the camera image to use the click to center feature (see Page 26)<sup>4</sup>, or use your mouse to use the zoom feature when displaying images)
- H.** Date and time overlay (see Page 159)<sup>1</sup>
- I.** Snapshot button (see Page 35)
- J.** Listen button<sup>2</sup> (see Page 36)
- K.** Volume slider<sup>2</sup> (see Page 36)
- L.** Additional Features button (see page 37).<sup>3</sup>
- M.** Camera name (see Page 163; click to view the selected camera's image in a new window)

## 1.3 Viewing Multiple Camera Images

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### N. Status overlay (see Page 159)<sup>\*1\*5</sup>

<sup>\*1</sup> Overlays are displayed only if they are configured for the camera (see Page 159). For other cameras, overlays cannot be displayed if the other cameras do not support the overlay feature.

<sup>\*2</sup> The audio controls displayed for other cameras depend on the audio features supported by the other cameras.

<sup>\*3</sup> If the camera does not support detection notification sounds, this feature is not available.

<sup>\*4</sup> If the camera does not support pan and tilt features, this feature is not available.

<sup>\*5</sup> When viewing images at 192 × 144 pixel resolution, status overlay is not displayed.

### Note

#### General Information

- When viewing images on the multi camera page, the maximum image resolution available is 320 × 240.
- When [16 Screens] is selected as the number of cameras displayed, all images are displayed in 192 × 144 pixel resolution, images are displayed as still images, and the audio controls are not displayed.
- The ActiveX zoom feature (see 1.2.5 Zooming) is available when viewing video images.
- H.264 or MPEG-4 images displayed on the multi camera page are streamed using the HTTP protocol.
- If a camera configured for the multi camera page is configured to not allow access from guest users, an authentication dialog will be displayed for that camera. You will need to enter a valid user name and password in order to view images from that camera.
- If a camera displayed on the multi camera page is configured to not allow general users or guest users to access certain features (audio, pan/tilt, etc.), those features are not available and their corresponding buttons or controls will not be displayed.
- The image refresh rate may vary depending on network conditions, PC performance, the number of people accessing the cameras, and the type of objects being viewed.
- When viewing video images, we recommend connecting the cameras using an Ethernet switching hub instead of a repeater hub to improve image refresh rate.
- As a general guideline, about 3 to 4 Mbps of bandwidth are required to display 4 camera images. If you do not have enough bandwidth, the refresh rate may decrease when viewing MJPEG images and image quality may deteriorate when viewing H.264 or MPEG-4 images.
- If audio features are disabled for the camera (see Page 144) or for certain users (see Page 152 or Page 155), the listen buttons may be displayed, but the audio features cannot be used.
- If you register a camera that does not support H.264 to the multi camera page of a camera that supports H.264, only MJPEG images from the camera that does not support H.264 can be viewed.
- If you register a camera that supports H.264 to the multi camera page of a camera that does not support H.264, only MJPEG images from the camera that supports H.264 can be viewed.

#### Related settings

- The default settings for [Refresh Rate] and [Resolution] that are used each time the multi camera page is accessed can be changed (see Page 159).
- Image quality for MJPEG and still images cannot be changed directly on the multi camera page. This setting is determined on the [Image Display] page (see Page 159).
- To reduce data traffic when other users are accessing the camera, you can configure the camera to automatically switch from displaying video images to still images. Set the [Video Display Time] for general users (see Page 152) and for guest users (see Page 155).
- When the refresh rate is too slow, you may be able to improve the refresh rate by limiting the bandwidth (see Page 113 or Page 190).

## When a camera image is not displayed

- Confirm the settings on the multi camera setup page (see Page 163).

- When configuring cameras for the multi camera page, make sure that the cameras you want to access from the Internet have been registered to this camera using their global IP addresses. For Internet access, local IP addresses (such as 192.168.xxx.xxx) cannot be used.

# 1.4 Maximum Number of Viewing Sessions

The maximum number of users (including Network Camera Recorder software connections) that can view live and buffered camera images depends on the factors described below. Additional users will see a gray or black screen.

The maximum number of viewing sessions depends on:

- The connection method (HTTP or HTTPS; see 5.2 HTTPS Settings)
- The [Max. No. of HTTP Sessions] and [Max. No. of HTTPS Sessions] settings (see 5.8 Changing Video Streaming Settings)
- The [Streaming Format] setting (see 5.8 Changing Video Streaming Settings)
- The image format of the images being viewed

### When the connection method is HTTP

Streaming Format	Image Format	Max. No. of Users	Total No. of Users (Regardless of Image Format)
H.264+MJPEG	H.264	2 (Default: 2)	Max. 5
	MJPEG	5 (Default: 3)	
MPEG-4+MJPEG	MPEG-4	4 (Default: 3)	Max. 10
	MJPEG	10 (Default: 5)	

### When the connection method is HTTPS

Streaming Format	Image Format	Max. No. of Users	Total No. of Users (Regardless of Image Format)
H.264+MJPEG	H.264	2 (Default: 2)	Max. 5
	MJPEG	5 (Default: 3)	
MPEG-4+MJPEG	MPEG-4	2 (Default: 2)	Max. 5
	MJPEG	5 (Default: 3)	

### Note

- As the number of users accessing the camera increases, the following may occur.
  - It may take more time before the camera image is displayed.
  - Frame rate may decrease.
  - Audio may be interrupted.
  - Images may be buffered at a slower rate than specified by the [Image Buffer Frequency] setting.



## 1.5 Maximum Number of Viewing Sessions in Wireless Mode (BL-C230 Only)

When in wireless mode, because the IEEE 802.11 standard limits the bandwidth, set the maximum number of users (including Network Camera Recorder software connections) that can view live and buffered camera images according to the table below.

The maximum number of viewing sessions depends on:

- The [Streaming Format] setting (see 5.8 Changing Video Streaming Settings)
- The image format of the images being viewed

In a bad wireless connection, even if you set the maximum number of sessions smaller than these numbers, the image refresh rate may decrease and images may break up or not be displayed.

### When the connection method is HTTP

Streaming Format	Image Format	Max. No. of Users <sup>*1</sup>		
		Pattern 1	Pattern 2	Pattern 3
H.264+MJPEG	H.264	1	2	–
	MJPEG	2	0	–
MPEG-4+MJPEG	MPEG-4	1	2	3
	MJPEG	5	3	1

### When the connection method is HTTPS

Streaming Format	Image Format	Max. No. of Users <sup>*1</sup>	
		Pattern 1	Pattern 2
H.264+MJPEG	H.264	1	2
	MJPEG	2	0
MPEG-4+MJPEG	MPEG-4	1	2
	MJPEG	4	3

<sup>\*1</sup> When the resolution is 640 × 480 and the image quality is Standard in a good wireless connection

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## 2 Using Triggers to Buffer and Transfer Images

The camera can be configured to buffer its images, i.e., save camera images temporarily in its memory. You can view these images later when accessing the camera. The camera can also be configured to transfer camera images by E-mail, FTP, or HTTP.

Before you can configure the camera to buffer images, you need to decide what method the camera will use to buffer or transfer images. Buffering methods are called “triggers”; up to 5 triggers can be configured. Camera images can be buffered or transferred based on the following triggers:

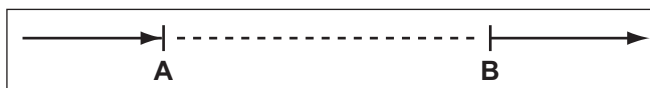
- **Timer**  
Camera images can be buffered or transferred at specific times on specific days.
- **Built-in sensor (pyroelectric infrared sensor)**  
Camera images can be buffered or transferred when the camera’s built-in sensor is triggered. The active time of the camera’s sensor can also be specified.
- **Alarm (i.e., external sensors)**  
Camera images can be buffered or transferred when the camera’s external sensors are triggered. The active time of the camera’s sensors can also be specified.
- **Motion Detection**  
Camera images can be buffered or transferred when the camera detects motion in the camera image. The active time of the camera’s motion detection feature can also be specified.
- **Sound Detection**  
Camera images can be buffered or transferred when the camera detects sound in the camera image. The active time of the camera’s sound detection feature can also be specified.

### Note

- The built-in sensor cannot make detections for about 30 seconds after the camera is turned on.
- When privacy mode is turned on (see Page 170), camera images are not buffered or transferred.
- H.264 images cannot be buffered or transferred.
- **Timer:** MPEG-4 images cannot be transferred; they can only be buffered.
- **Sensor, Alarm, or Detection:** Only JPEG images can be buffered or transferred.
- The image buffering and transferring features, the built-in sensor, and the detection features are not designed to be used for security or surveillance. No responsibility will be taken by our company with respect to consequences resulting from the use of these features.
- The camera does not use encryption when sending user names and passwords to FTP, E-mail, or HTTP servers. Use caution as necessary to prevent disclosure of this information.
- For added security, we recommend periodically changing the user names and passwords that are required to access your FTP, E-mail, and HTTP servers.
- Refer to Page 207 for the camera’s memory capacity for buffering images.
- If the camera is triggered and begins buffering or transferring images, it cannot be triggered again until the camera stops buffering or transferring images, as shown in the figure below.

— The camera can be triggered.

--- The camera is buffering or transferring images and cannot be triggered during this time.



**A** The camera is triggered. Buffering or transferring begins.

**B** Buffering or transferring ends.

Follow the procedures in this section to configure the camera to buffer or transfer images.

## 2.1 Configuring a Timer Trigger

### Note

- When you change settings for a trigger, all images buffered in the memory for the selected trigger are deleted. Additionally, images buffered for other triggers may also be deleted. See Page 79 for more information.
- Click the [Setup] tab.
  - On the left side of the screen under [Buffer/Transfer], click [Trigger].

Trigger													
No.	Status	Trigger	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Active Time of Trigger	Format	Transfer Method	N
<a href="#">1</a>	OFF	Motion Detection	X	X	X	X	X	X	X	Always	JPEG	No Transfer, Memory Overwrite	N
<a href="#">2</a>	OFF	Timer	X	X	X	X	X	X	X	Always	JPEG	No Transfer, No Memory Overwrite	
<a href="#">3</a>	OFF	Timer	X	X	X	X	X	X	X	Always	JPEG	No Transfer, No Memory Overwrite	
<a href="#">4</a>	OFF	Timer	X	X	X	X	X	X	X	Always	JPEG	No Transfer, No Memory Overwrite	
<a href="#">5</a>	OFF	Timer	X	X	X	X	X	X	X	Always	JPEG	No Transfer, No Memory Overwrite	

## 2.1 Configuring a Timer Trigger

3. Click a trigger number (1–5).

The screenshot shows a dialog box titled "Trigger Setting". At the top, there is a checkbox labeled "Enable Image Buffer/Transfer" which is currently unchecked. Below this is a "Trigger" field with a pull-down menu showing "Timer". A "Delete Buffered Images" button is located below the trigger field. At the bottom of the dialog, there are three buttons: "Next >", "Save", and "Cancel".

4. Check [Enable Image Buffer/Transfer] to enable the trigger.
5. Select [Timer] from the pull-down menu, then click [Next] to make additional settings (explained below), or click [Save] to finish.

The screenshot shows two stacked dialog boxes. The top one is titled "Time" and features a table for selecting days of the week. All days (Sun, Mon, Tue, Wed, Thu, Fri, Sat) have a checked checkbox. Below the table is the "Active Time of Trigger" section, where the "Always" radio button is selected. The time range is set to "AM 12 h 0 min to PM 11 h 59 min". The bottom dialog box is titled "Image Setting" and contains three rows of settings: "Format" set to "JPEG", "Image Resolution" set to "320x240", and "Image Quality" set to "Standard". Below this is the "Image Buffer Frequency" section, where the frequency is set to "Every 1 s" and the buffer is set to "1 images". The bottom section is titled "Transfer Method" and has five radio button options: "No Transfer, No Memory Overwrite" (selected), "No Transfer, Memory Overwrite", "FTP", "E-mail", and "HTTP". At the bottom of the entire configuration area, there are four buttons: "< Back", "Next >", "Save", and "Cancel".

6. Set the following parameters as desired.
  - a. Under [Time], select the days of the week when the trigger will be active.
  - b. Select the time of day the trigger will be active, or click [Always] to enable the trigger for the full 24 hours of each day selected.
  - c. Under [Image Setting], select the desired image format, image resolution, and image quality.
    - When [MPEG-4] is selected, the buffered MPEG-4 file contains audio from the camera's microphone if the microphone is enabled.
    - The image quality setting is not available when [MPEG-4] is selected as the image format.
    - When configuring the trigger to transfer images to a mobile phone's E-mail address, set the image resolution to 192 × 144, and set the image quality to [Favor Motion]. Note that your mobile phone may not be able to receive the image if the file size of the image is too large.
    - Only one MPEG-4 timer can be set to buffer images at a time.
  - d. Under [Image Buffer Frequency], select the desired buffer or transfer rate.
    - This setting is not available when [MPEG-4] is selected as the image format.
  - e. Under [Transfer Method], select the desired buffer or transfer method.
    - MPEG-4 images cannot be transferred.
    - If [MPEG-4] is selected as the image format, [No Transfer, No Memory Overwrite] is the only available option.
      - [No Transfer, No Memory Overwrite]: Images are not transferred. Images are buffered until the memory is full.
      - [No Transfer, Memory Overwrite]: Images are not transferred. Once the memory is full, new images replace the old images.
      - [FTP]: After an image is captured, it is transferred to the specified FTP site.
      - [E-mail]: After an image is captured, it is sent to the specified E-mail address.
      - [HTTP]: After an image is captured, it is transferred to the specified website.
7. Follow the procedure below based on the settings you made under [Transfer Method].
  - a. If you selected to not transfer images (i.e., to buffer images only), click [Save] to finish.
    - All images buffered in the internal memory for the selected trigger are deleted when you click [Save].
  - b. If you selected to transfer images by FTP, E-mail, or HTTP, click [Next].
    - The appropriate transfer settings page is displayed.
      - For FTP transfer, see Page 61.
      - For E-mail transfer, see Page 63.
      - For HTTP transfer, see Page 66.

#### **Note**

- In order for this feature to work as expected, make sure the camera's date and time setting is correct (see Page 140).
- When selecting the buffer or transfer rate, keep in mind that the actual rate may be slower depending on network conditions, the number of people accessing the camera, and the type of objects being viewed.
- When the camera is configured to buffer images in MPEG-4 format, frame rate will decrease when viewing MPEG-4 images on the single camera and multi camera pages.

## 2.2 Configuring a Sensor, Alarm, or Detection Trigger

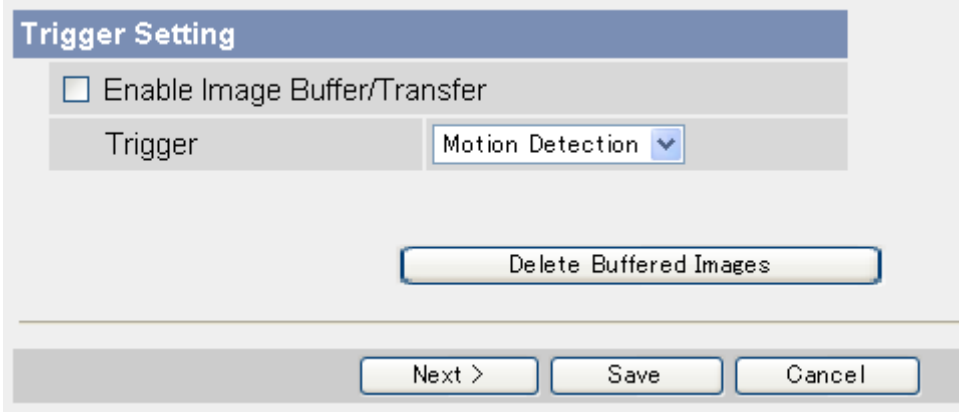
**Note**

- When you change settings for a trigger, all images buffered in the memory for the selected trigger are deleted. Additionally, images buffered for other triggers may also be deleted. See Page 79 for more information.
- Only JPEG images can be buffered or transferred.

1. Click the [Setup] tab.
2. On the left side of the screen under [Buffer/Transfer], click [Trigger].

Trigger													
No.	Status	Trigger	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Active Time of Trigger	Format	Transfer Method	Notif
<a href="#">1</a>	OFF	Motion Detection	X	X	X	X	X	X	X	Always	JPEG	No Transfer, Memory Overwrite	NO
<a href="#">2</a>	OFF	Timer	X	X	X	X	X	X	X	Always	JPEG	No Transfer, No Memory Overwrite	-
<a href="#">3</a>	OFF	Timer	X	X	X	X	X	X	X	Always	JPEG	No Transfer, No Memory Overwrite	-
<a href="#">4</a>	OFF	Timer	X	X	X	X	X	X	X	Always	JPEG	No Transfer, No Memory Overwrite	-
<a href="#">5</a>	OFF	Timer	X	X	X	X	X	X	X	Always	JPEG	No Transfer, No Memory Overwrite	-

3. Click a trigger number (1–5).



Trigger Setting

Enable Image Buffer/Transfer

Trigger      Motion Detection ▼

Delete Buffered Images

Next >      Save      Cancel

4. Check [Enable Image Buffer/Transfer] to enable the trigger.
5. Select [Sensor], [Alarm1], [Alarm2], [Motion Detection], or [Sound Detection] from the pull-down menu, then click [Next].
  - To adjust the sensitivity of the built-in sensor, see Page 81.
  - If [Alarm1] or [Alarm2], is selected, select [Rising: GND to Open (High).] (logical HIGH) or [Falling: Open (High) to GND.] (logical LOW) for the switching characteristics of the sensor. See the Installation Guide for details.
  - For information on how the motion detection feature detects motion and how to adjust the sensitivity of the motion detection feature, see Page 82.
  - For information on how the sound detection feature detects sound and how to adjust the sensitivity of the sound detection feature, see Page 84.

## 2.2 Configuring a Sensor, Alarm, or Detection Trigger

- The motion detection feature is disabled when panning and tilting the camera lens, i.e., moving the camera lens will not trigger the motion detection feature.

Time						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Active Time of Trigger						
<input checked="" type="radio"/> Always						
<input type="radio"/> AM <input type="text" value="12"/> h <input type="text" value="0"/> min to PM <input type="text" value="11"/> h <input type="text" value="59"/> min						
Image Setting						
Format	JPEG <input type="text"/>					
Image Resolution	320x240 <input type="text"/>					
Image Quality	Standard <input type="text"/>					
Lens Position When Triggered						
When triggered,	Do not move <input type="text"/>					
External Output						
Control Time	None <input type="text"/>					
Image Buffer Frequency						
<input checked="" type="checkbox"/> Enable Pre-trigger Image Buffer						
Every <input type="text" value="1"/> s, buffer <input type="text" value="5"/> images. Total <input type="text" value="5"/> images.						
<input checked="" type="checkbox"/> Enable Post-trigger Image Buffer						
Every <input type="text" value="1"/> s, buffer <input type="text" value="5"/> images. Total <input type="text" value="20"/> images.						
Sensor deactivation time setting						
Sensor deactivation time	None <input type="text"/>					
Transfer Method						
<input type="radio"/> No Transfer, No Memory Overwrite						
<input checked="" type="radio"/> No Transfer, Memory Overwrite						
<input type="radio"/> FTP						
<input type="radio"/> E-mail						
<input type="radio"/> HTTP						
Send Notification When Triggered						
<input checked="" type="radio"/> Disable						
<input type="radio"/> Send E-mail Notification						
<input type="radio"/> Send HTTP Notification						



6. Set the following parameters as desired.
- Under [Time], select the days of the week when the trigger will be active.
  - Select the time of day the trigger will be active, or click [Always] to enable the trigger for the full 24 hours of each day selected.
  - Under [Image Setting], select the desired image resolution and image quality.
    - When configuring a sensor, alarm, or detection trigger, only JPEG images can be buffered or transferred.
    - When configuring the trigger to transfer images to a mobile phone's E-mail address, set the image resolution to  $192 \times 144$ , and set the image quality to [Favor Motion]. Note that your mobile phone may not be able to receive the image if the file size of the image is too large.
  - Under [Lens Position When Triggered], select [Do not move] or the desired preset. The lens will aim in the appropriate direction when triggered.
    - Image buffering or transferring begins after the lens has moved to this position.
  - BL-C230 only:** Under [External Output], select the desired length of time for which the output terminals of the external I/O interface are turned on when the camera has been triggered.
  - Under [Image Buffer Frequency], select the desired buffer or transfer rate.
 

To configure the camera to buffer or transfer images from before the camera was triggered, click [Enable Pre-trigger Image Buffer] and select the image buffer or transfer rate and the total number of images to be buffered or transferred. This setting allows you to see camera images leading up to the moment when the camera was triggered.

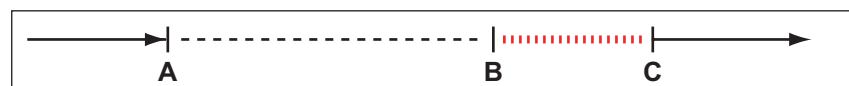
To configure the camera to buffer or transfer images from after the camera was triggered, click [Enable Post-trigger Image Buffer] and select the image buffer or transfer rate and the total number of images to be buffered or transferred. This setting allows you to see camera images beginning from when the camera was triggered.

    - The image buffer rate may decrease when buffering images.
  - Under [Sensor deactivation time setting], select the amount of time that must pass after a detection before this trigger can make another detection.
    - If the camera is triggered often, many images will be buffered or transferred. If those images are transferred to a mobile phone by E-mail, for example, many messages will be sent and mobile phone charges may become expensive. It is therefore recommended to use this setting to help reduce the number of images that are buffered or transferred.
    - Images will not be buffered or transferred during the deactivation time. As a result, pre-buffer images from the next detection may not be buffered or transferred. For example, if this parameter is set to [10 s], and if the camera is configured to buffer 1 image per second and store 10 images before detection (i.e., buffer images for 10 seconds), the camera will not buffer or transfer images if it is triggered within 10 seconds of the previous trigger. Images can only be buffered or transferred 10 seconds after the previous trigger.

— The camera can be triggered.

- - - The camera is buffering or transferring images and cannot be triggered during this time.

..... Deactivation time; the camera cannot be triggered.



- The camera is triggered. Buffering or transferring begins. No new images will be buffered or transferred.
- Buffering or transferring ends, deactivation time starts. No new images will be buffered or transferred.
- Deactivation time ends. The camera can buffer or transfer images again.

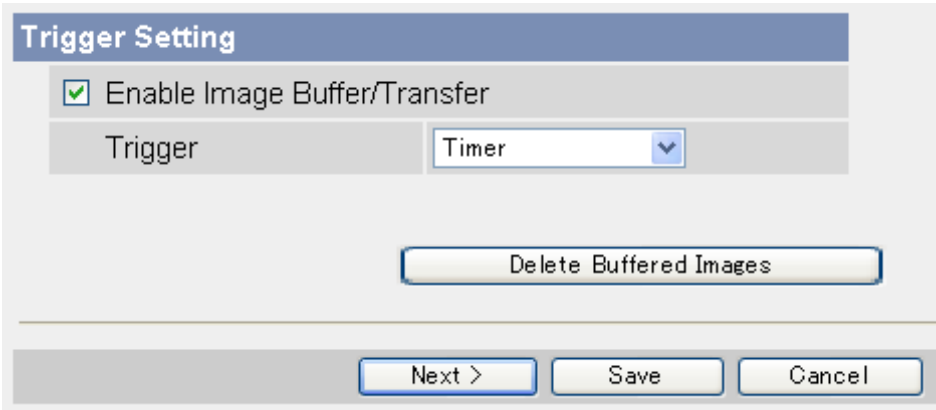


## 2.3 Disabling and Enabling a Trigger

After configuring an image buffering trigger, you can later disable the trigger to temporarily turn it off, and enable it to turn it on again. While disabled, a trigger will not buffer images, transfer images, or send trigger notification.

**Note**

- When you enable or disable a trigger, all images for all triggers buffered in the memory are deleted.
1. Click the [Setup] tab.
  2. On the left side of the screen under [Buffer/Transfer], click [Trigger].
  3. Click a trigger number (1–5).



4. Uncheck [Enable Image Buffer/Transfer] to disable the trigger.
  - To enable a trigger you disabled earlier, check [Enable Image Buffer/Transfer].
5. Click [Save].
  - All images buffered are deleted when you click [Save].

# 2.4 Configuring the Camera to Transfer Images

When configuring the camera's timer, built-in sensor, external sensor, or detection triggers, you can set the camera to transfer the captured images by FTP (see Page 61), E-mail (see Page 63), or HTTP (see Page 66). Once images are successfully transferred, they are deleted.

## 2.4.1 Transferring Images by FTP

The following screen is displayed if you select to transfer images by FTP while configuring a timer, built-in sensor, external sensor, or detection trigger (see Page 51 or Page 54). Follow the procedure below to configure the camera to transfer images to an FTP site. Ask the FTP server administrator for the appropriate settings.

FTP	
Server IP Address or Host Name	<input type="text"/>
Port No. (Usually Use 21)	<input type="text" value="21"/>
Login ID (1 to 63 Characters)	<input type="text"/>
Password (0 to 63 Characters)	<input type="password"/>
Login Timing	<input type="text" value="Every Time"/>
Upload File Name (1 to 234 Characters)	<input type="text"/>
Overwrite setting	<input type="text" value="Overwrite File"/>
Data Transfer Method	<input type="text" value="Passive Mode"/>

1. Set the following parameters as desired.
  - a. Enter the IP address or host name<sup>1</sup> of the FTP server.
    - An IPv6 address can be specified; note that the IPv6 address must be enclosed in brackets.
  - b. Enter the port number used by the server. (Port 21 is normally used for FTP.)
  - c. Enter the login ID<sup>2</sup> (user name) required to access the server (max. 63 characters).
  - d. Enter the password<sup>2</sup> required to access the server (max. 63 characters).
  - e. Select the desired setting for [Login Timing].
    - [Every Time]: The camera logs in to the server every time it transfers an image to the server.
    - [One Time]: The camera logs in to the server and stays connected for about 1 minute (unless a new transfer begins before this time expires). This can reduce transfer time when several images are transferred in a short time.
  - f. Enter the desired name<sup>1</sup> for transferred files (max. 234 characters). Transferred files will be saved using this file name.
    - You can specify existing directories on the server by entering “\” before the desired file name. For example, if you enter “CameraImages\Image”, the camera will upload files to the directory “CameraImages” and save the files using the name “Image”.
  - g. Select the desired setting for [Overwrite setting].
    - [Overwrite File]: The file on the server is replaced by the file uploaded by the camera, i.e., only 1 file is saved on the server.
    - [Save as New File with Time Stamp]: A time stamp is added to the end of the file name, allowing multiple files to be saved on the server. For example, if you set the file name as “Image”, an

## 2.4.1 Transferring Images by FTP

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uploaded file may be saved as "Image20090618173020500.jpg".

The time stamp format is Year/Month/Date/24-hour time/Second/Millisecond.

Therefore, in this example, the file was captured on June 18, 2009, at 5:30 PM and 20 seconds and 500 milliseconds. Note that if you configure the camera to adjust its time setting for Daylight Saving Time/Summer Time (see Page 140), an "s" will be inserted between the date and time of the time stamp.

- h.** Select the transfer method required to upload files to the server.
  - Select [Passive Mode] normally. If files are not uploaded properly, change the setting to [Active Mode].
- 2.** Follow the procedure below based on the settings you made when configuring the trigger.
  - a.** If you selected to not send notification when the camera is triggered, click [Save], then click [Go to Trigger page].
  - b.** If you selected to send notification when the camera is triggered, click [Next].
    - The appropriate notification settings page is displayed.
      - For E-mail notification, see Page 69.
      - For HTTP notification, see Page 72.

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<sup>\*1</sup> [Space], ["], ['], [&], [<], and [>] cannot be entered.

<sup>\*2</sup> ["] cannot be entered.

## 2.4.2 Transferring Images by E-mail

The following screen is displayed if you select to transfer images by E-mail while configuring a timer, built-in sensor, external sensor, or detection trigger (see Page 51 or Page 54). Follow the procedure below to configure the camera to send images to an E-mail address. Ask your Internet Service Provider (ISP) or network administrator for the appropriate settings.

### Note

- To prevent camera images from being sent to the wrong party, make sure you enter the desired destination e-mail addresses correctly.

E-mail Transfer	
SMTP Server IP Address or Host Name	<input type="text"/>
Port No. (Usually Use 25)	<input type="text" value="25"/>
Reply E-mail Address	<input type="text"/>
Destination E-mail Address 1	<input type="text"/>
Destination E-mail Address 2	<input type="text"/>
Destination E-mail Address 3	<input type="text"/>
Subject (Up to 44 Characters)	<input type="text"/>
Text (Up to 63 Characters)	<input type="text"/>

- Set the following parameters as desired.
  - Under [E-mail Transfer], enter the IP address or the host name<sup>1</sup> of the SMTP server (outgoing mail server).
    - An IPv6 address can be specified; note that the IPv6 address must be enclosed in brackets.
    - This feature cannot transfer images to web-based mail servers, such as Hotmail®.
  - Enter the port number used by the server. (Port 25 is normally used for sending E-mail.)
    - Some ISPs require outgoing mail to be sent using port 587 or using SSL (SMTP over SSL) on port 465. Ask your ISP or network administrator for the appropriate setting.
  - Enter the reply E-mail address<sup>2</sup> that will be shown to the recipient as the sender of the E-mail.
    - In an effort to reduce spam, many ISPs block E-mail sent through the SMTP server from an E-mail address that is not associated with the SMTP server, therefore, we recommend entering the E-mail assigned to you by your ISP.
  - Enter the destination E-mail address<sup>2</sup>. Up to 3 addresses can be entered.
  - Enter the subject<sup>2</sup> that will be displayed in E-mail messages sent by the camera (max. 44 characters).
    - The date and time (24-hour format) is automatically attached to the subject. For example, if you enter "Camera" as the subject, an E-mail may be sent with the subject "Camera: 20090618173020500". The time stamp format is Year/Month/Date/24-hour time/Second/Millisecond.

## 2.4.2 Transferring Images by E-mail

Therefore, in this example, the file was captured on June 18, 2009, at 5:30 PM and 20 seconds and 500 milliseconds. Note that if you configure the camera to adjust its time setting for Daylight Saving Time/Summer Time (see Page 140), an “s” will be inserted between the date and time of the time stamp.

- The date and time is also used as the sent file name (i.e., 20090618173020500.jpg).
- f. Enter the text<sup>2</sup> that will be displayed in the body of E-mail messages sent by the camera (max. 63 characters).
- Line breaks cannot be entered.

**How to authenticate**

No authentication

POP before SMTP authentication

POP3 Server IP Address or Host Name

Port No. (Usually Use 110)

Login ID (1 to 63 Characters)

Password (0 to 63 Characters)

SMTP authentication

Login ID (1 to 63 Characters)

Password (0 to 63 Characters)

**SSL**

Use

< Back Save Cancel

2. Under [How to authenticate], select the authentication method your ISP requires for sending E-mail, and enter the appropriate settings if necessary.
- [No authentication]: Select this option if the outgoing E-mail server does not require authentication when sending E-mail messages.
  - [POP before SMTP authentication]: Select this option if the outgoing E-mail server requires POP before SMTP authentication when sending E-mail messages. The following settings are also necessary. Enter the settings as you would for receiving E-mail.
    - a. Enter the IP address or the host name<sup>1</sup> of the POP3 server (incoming mail server).
      - An IPv6 address can be specified; note that the IPv6 address must be enclosed in brackets.
    - b. Enter the port number used by the server. (Port 110 is normally used for POP3.)
    - c. Enter the login ID<sup>2</sup> (user name) required to access the server (max. 63 characters).
    - d. Enter the password<sup>2</sup> required to access the server (max. 63 characters).



- [SMTP authentication]: Select this option if the outgoing E-mail server requires SMTP authentication when sending E-mail messages. The following settings are also necessary. Enter the settings as you would for sending E-mail.
  - a. Enter the login ID<sup>2</sup> (user name) required to access the server (max. 63 characters).
  - b. Enter the password<sup>2</sup> required to access the server (max. 63 characters).
    - The camera supports LOGIN, PLAIN, and CRAM-MD5 authentication.
- 3. Under [SSL], select [Use] if you want to use SSL encryption when sending E-mail.
  - When [Use] is selected, the port number under [E-mail Transfer] may need to be set to 465. Ask your ISP or network administrator for the appropriate settings.
  - SSL supports SMTP over SSL. STARTTLS is not supported.
- 4. Follow the procedure below based on the settings you made when configuring the trigger.
  - a. If you selected to not send notification when the camera is triggered, click [Save], then click [Go to Trigger page].
  - b. If you selected to send notification when the camera is triggered, click [Next].
    - The appropriate notification settings page is displayed.
      - For E-mail notification, see Page 69.
      - For HTTP notification, see Page 72.

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<sup>1</sup> [Space], ["], ['], [&], [<], and [>] cannot be entered.


<sup>2</sup> ["] cannot be entered.

## 2.4.3 Transferring Images by HTTP

The following screen is displayed if you select to transfer images by HTTP while configuring a timer, built-in sensor, external sensor, or detection trigger (see Page 51 or Page 54). Follow the procedure below to configure the camera to transfer images to an HTTP site. Ask the HTTP server administrator for the appropriate settings.

### Note

- If your camera's network uses a proxy server, the appropriate proxy server settings must be made on the [Network (IPv4)] page in order for images to be transferred by HTTP (see Page 118).

HTTP	
Host Name (1 to 255 Characters)	<input type="text"/>
Port No.	<input type="text" value="80"/>
Login ID (0 to 63 Characters)	<input type="text"/>
Password (0 to 63 Characters)	<input type="password"/>
Upload File Name (1 to 234 Characters)	<input type="text"/>
Overwrite setting	<input type="text" value="Overwrite File"/> 

1. Set the following parameters as desired.
  - a. Enter the URL<sup>1</sup> of the HTTP server (max. 255 characters).
    - An IPv6 address can be specified; note that the IPv6 address must be enclosed in brackets.
  - b. Enter the port number used by the server. (Port 80 is normally used for HTTP.)
  - c. Enter the login ID<sup>2</sup> (user name) required to access the server (max. 63 characters).
  - d. Enter the password<sup>2</sup> required to access the server (max. 63 characters).
  - e. Enter the desired name<sup>2</sup> for transferred files (max. 234 characters). Transferred files will be saved using this file name.
    - You can specify existing directories on the server by entering “\” before the desired file name. For example, if you enter “CameraImages\Image”, the camera will upload files to the directory “CameraImages” and save the files using the name “Image”.
  - f. Select the desired setting for [Overwrite setting].
    - [Overwrite File]: The file on the server is replaced by the file uploaded by the camera, i.e., only 1 file is saved on the server.
    - [Save as New File with Time Stamp]: A time stamp is added to the end of the file name, allowing multiple files to be saved on the server. For example, if you set the file name as “Image”, an uploaded file may be saved as “Image20090618173020500.jpg”. The time stamp format is Year/Month/Date/24-hour time/Second/Millisecond. Therefore, in this example, the file was captured on June 18, 2009, at 5:30 PM and 20 seconds and 500 milliseconds. Note that if you configure the camera to adjust its time setting for Daylight

Saving Time/Summer Time (see Page 140), an “s” will be inserted between the date and time of the time stamp.

2. Follow the procedure below based on the settings you made when configuring the trigger.
  - a. If you selected to not send notification when the camera is triggered, click [Save], then click [Go to Trigger page].
  - b. If you selected to send notification when the camera is triggered, click [Next].
    - The appropriate notification settings page is displayed.
      - For E-mail notification, see Page 69.
      - For HTTP notification, see Page 72.

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<sup>\*1</sup> [Space], ["], ['], [&], [<], and [>] cannot be entered.

<sup>\*2</sup> ["] cannot be entered.

# 2.5 Configuring the Camera to Send Trigger Notifications

When configuring the camera to buffer or transfer images by built-in sensor or external sensor, or by the detection feature, you can configure the camera to send notifications by E-mail (see Page 69) or HTTP (see Page 72) when the camera is triggered.

### **Note**

- Notifications cannot be sent when buffering or transferring images by timer.
- You can also send a log of trigger notifications once a day (see Page 87).

## 2.5.1 Sending Trigger Notifications by E-mail

The following screen is displayed while configuring the camera to buffer or transfer images by built-in sensor or external sensor, or by detection (see Page 54) if you select [Send E-mail Notification]. Follow the procedure below to send trigger notifications by E-mail. Ask your Internet Service Provider (ISP) or network administrator for the appropriate settings.

### Note

- To prevent trigger notifications from being sent to the wrong party, make sure you enter the desired destination e-mail addresses correctly.

E-mail Notification When Triggered	
SMTP Server IP Address or Host Name	<input type="text"/>
Port No. (Usually Use 25)	<input type="text" value="25"/>
Reply E-mail Address	<input type="text"/>
Destination E-mail Address 1	<input type="text"/>
Destination E-mail Address 2	<input type="text"/>
Destination E-mail Address 3	<input type="text"/>
Subject (Up to 44 Characters)	<input type="text"/>
Text (Up to 63 Characters)	<input type="text"/>

- Set the following parameters as desired.
  - Under [E-mail Notification When Triggered], enter the IP address or the host name<sup>1</sup> of the SMTP server (outgoing mail server).
    - An IPv6 address can be specified; note that the IPv6 address must be enclosed in brackets.
    - This feature cannot transfer images to web-based mail servers, such as Hotmail.
  - Enter the port number used by the server. (Port 25 is normally used for sending E-mail.)
    - Some ISPs require outgoing mail to be sent using port 587 or using SSL (SMTP over SSL) on port 465. Ask your ISP or network administrator for the appropriate setting.
  - Enter the reply E-mail address<sup>2</sup> that will be shown to the recipient as the sender of the E-mail.
    - In an effort to reduce spam, many ISPs block E-mail sent through the SMTP server from an E-mail address that is not associated with the SMTP server, therefore, we recommend entering the E-mail address assigned to you by your ISP.
  - Enter the destination E-mail address<sup>2</sup>. Up to 3 addresses can be entered.
  - Enter the subject<sup>2</sup> that will be displayed in E-mail messages sent by the camera (max. 44 characters).
    - The date and time (24-hour format) is automatically attached to the subject. For example, if you enter "CameraNotification" as the subject, an E-mail may be sent with the subject "CameraNotification:20090618173020500". The time stamp format is Year/Month/Date/24-hour time/Second/Millisecond.

## 2.5.1 Sending Trigger Notifications by E-mail

Therefore, in this example, the camera was triggered on June 18, 2009, at 5:30 PM and 20 seconds and 500 milliseconds. Note that if you configure the camera to adjust its time setting for Daylight Saving Time/Summer Time (see Page 140), an “s” will be inserted between the date and time of the time stamp.

- f. Enter the text<sup>2</sup> that will be displayed in the body of E-mail messages sent by the camera (max. 63 characters).
- Line breaks cannot be entered.

**How to authenticate**

No authentication

POP before SMTP authentication

POP3 Server IP Address or Host Name

Port No. (Usually Use 110)

Login ID (1 to 63 Characters)

Password (0 to 63 Characters)

SMTP authentication

Login ID (1 to 63 Characters)

Password (0 to 63 Characters)

**SSL**

Use

< Back Save Cancel

2. Under [How to authenticate], select the authentication method your ISP requires for sending E-mail, and enter the appropriate settings if necessary.
- [No authentication]: Select this option if the outgoing E-mail server does not require authentication when sending E-mail messages.
  - [POP before SMTP authentication]: Select this option if the outgoing E-mail server requires POP before SMTP authentication when sending E-mail messages. The following settings are also necessary. Enter the settings as you would for receiving E-mail.
    - a. Enter the IP address or the host name<sup>1</sup> of the POP3 server (incoming mail server).
      - An IPv6 address can be specified; note that the IPv6 address must be enclosed in brackets.
    - b. Enter the port number used by the server. (Port 110 is normally used for POP3.)
    - c. Enter the login ID<sup>2</sup> (user name) required to access the server (max. 63 characters).
    - d. Enter the password<sup>2</sup> required to access the server (max. 63 characters).

- [SMTP authentication]: Select this option if the outgoing E-mail server requires SMTP authentication when sending E-mail messages. The following settings are also necessary. Enter the settings as you would for sending E-mail.
  - a. Enter the login ID<sup>2</sup> (user name) required to access the server (max. 63 characters).
  - b. Enter the password<sup>2</sup> required to access the server (max. 63 characters).
    - The camera supports LOGIN, PLAIN, and CRAM-MD5 authentication.
- 3. Under [SSL], select [Use] if you want to use SSL encryption when sending E-mail.
  - When [Use] is selected, the port number under [E-mail Transfer] may need to be set to 465. Ask your ISP or network administrator for the appropriate settings.
  - SSL supports SMTP over SSL. STARTTLS is not supported.
- 4. Click [Save], then click [Go to Trigger page].

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<sup>1</sup> [Space], ["], ['], [&], [<], and [>] cannot be entered.

<sup>2</sup> [""] cannot be entered.

## 2.5.2 Sending Trigger Notifications by HTTP

The following screen is displayed while configuring the camera to buffer or transfer images by built-in sensor or external sensor, or by detection (see Page 54) if you select [Send HTTP Notification]. Follow the procedure below to send trigger notifications by HTTP.

**Note**

- If your camera's network uses a proxy server, the appropriate proxy server settings must be made on the [Network (IPv4)] page in order for images to be transferred by HTTP (see Page 118).

HTTP Notification	
Host Name (1 to 255 Characters)	<input type="text"/>
Port No.	<input type="text" value="80"/>
Login ID (0 to 63 Characters)	<input type="text"/>
Password (0 to 63 Characters)	<input type="password"/>
File Path (1 to 234 Characters)	<input type="text"/>

1. Set the following parameters as desired.
  - a. Enter the URL<sup>1</sup> of the HTTP server (max. 255 characters).
    - An IPv6 address can be specified; note that the IPv6 address must be enclosed in brackets.
  - b. Enter the port number used by the server. (Port 80 is normally used for HTTP.)
  - c. Enter the login ID<sup>2</sup> (user name) required to access the server (max. 63 characters).
  - d. Enter the password<sup>2</sup> required to access the server (max. 63 characters).
  - e. Enter the path<sup>2</sup> to the desired CGI file on the server.
2. Click [Save], then click [Go to Trigger page].

<sup>1</sup> [Space], ["], ['], [&], [<], and [>] cannot be entered.

<sup>2</sup> ["] cannot be entered.



## 2.6 Viewing Buffered Images

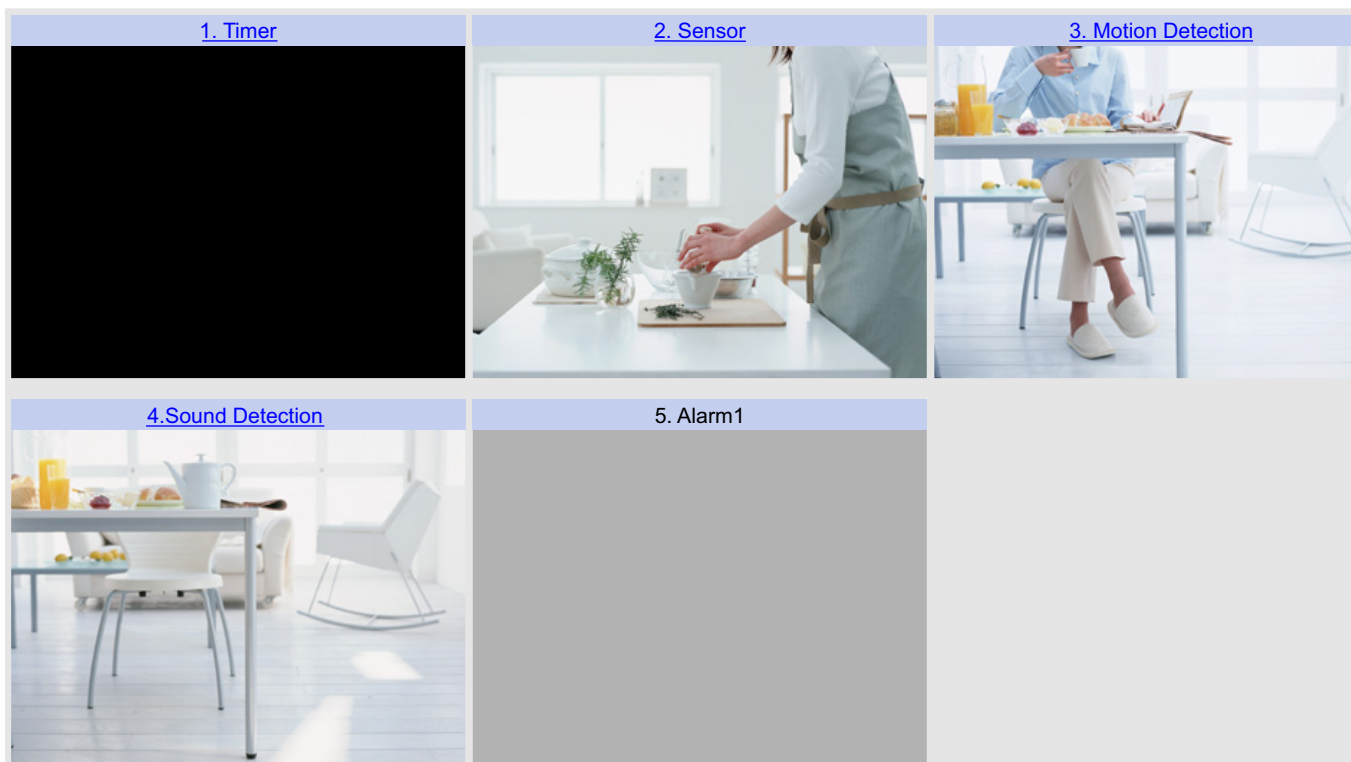
If you have configured the camera to buffer images (see Page 51 or Page 54), you can access the camera and view the buffered images.

### Note

- If you have configured the camera to transfer images by FTP, E-mail, or HTTP, images are deleted once they have been successfully transferred and you cannot view the images using the procedure described in this section.
- When buffering MPEG-4 videos, the videos cannot be viewed until buffering has ended. Buffering ends when the memory is full (up to 1 minute when buffering images to the internal memory).
- Buffering ends when the buffered file size reaches 20 MB. When the 20 MB limit is reached, a new file is created. Note that it may take 20 minutes or more for a 20 MB file to be buffered.

### 1. Click the [Buffered Image] tab.

- The oldest buffered image for triggers 1–5 are displayed.
- If an image was buffered in MPEG-4 format, a black screen is displayed.
- If a trigger is disabled, or if the trigger has not yet buffered images, a gray screen is displayed.
- Date and time overlays, status overlays, and text overlays may be displayed on buffered images according to the [Overlay Setting] (see Page 159). See Page 11 for an example of a camera image overlays.



### 2. Click the trigger title corresponding to buffered images you want to view.

## Viewing and downloading buffered JPEG images (videos and still images)



- A. Start and end date and time when the image was buffered
- B. Camera image
- C. Date and time when the displayed image was buffered, current image number, and total number of images buffered
- D. Playback controls (explained below)
- E. Click to select how many images will be downloaded when [Download] is clicked
- F. Click to download the selected number of images

### Playing images

[Play]: All buffered images are played back in sequence beginning with the current image

[First] or [Last]: The first or last image is displayed

<100], [<10], [<1]: "Rewinds" by the corresponding number of frames

[100>], [10>], [1>]: "Fast-forwards" by the corresponding number of frames

### Note

- Date, time and image number are not displayed during playback.
- The ActiveX zoom feature (see Page 30) can be used during playback.
- Screen content varies by model number.

### Downloading images

Select the number of frames you want to download, click [Download], and specify a location on your PC to save the images. The selected number of frames will be downloaded, beginning with the frame currently displayed. You can save every frame beginning with the current frame to the last frame by selecting [remaining]. Images are saved in PNC format. You can view them conveniently using the Network Camera SD Viewer software. This software can be found on the included CD-ROM, and can be installed by following the

instructions in the "Read Me" file (CD-ROM Drive:\NCV\SDVIEWER\_README.txt). You can also download this software from the Panasonic Network Camera website (<http://panasonic.net/pcc/support/netwcam/>). You can also download a still image by right-clicking in the image area and selecting [Save Picture As...].

#### Note

- The number of simultaneous viewing sessions is limited. When the maximum number of accesses has been exceeded (refer to the tables in Page 48), additional users will see a gray screen.

## Viewing and downloading buffered MPEG-4 videos



- A. Start and end date and time when the image was buffered
- B. Camera image
- C. Windows Media® Player controls (refer to the Windows Media Player help file for details)
- D. Playback controls (explained below)
- E. Download button

### Playing videos

[Play]: All buffered MPEG-4 files are played back in sequence beginning with the current file

[First] or [Last]: The first or last file is played back

[<10], [<1]: "Rewinds" by the corresponding number of files

[10>], [1>]: "Fast-forwards" by the corresponding number of files

## 2.6 Viewing Buffered Images

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### **Note**

- A video file cannot be played back while it is still being recorded.
- The G.726 audio codec must be downloaded and installed on your PC in order to view buffered videos. Click the link below [If images are not displayed or audio cannot be heard, click here.] to view information and download the codec.
- Date, time and file number are not displayed during playback.
- If you click [Play] to play all MPEG-4 files, playback may stop in the middle of a file when using Windows Vista. In this case, click the play button in Windows Media Player to resume playback.
- Screen content varies by model number.

### **Downloading videos**

Click [Download], and specify a location on your PC to save the file. The current video file will be saved on your PC in ASF (Advanced Streaming Format) format, which is a file format used by Windows Media. You can view video files later using Windows Media Player.

### **Note**

- The maximum length of videos that can be buffered in the memory, as well as the total number of videos that can be buffered in the memory, varies on image resolution, MPEG-4 frame rate and bit rate settings, and the content of the videos being buffered.
- See the Panasonic Network Camera support site (<http://panasonic.net/pcc/support/netwkcsm/>) for more information about viewing or downloading buffered MPEG-4 videos.

## 2.7 Deleting Buffered Images Manually

You can delete all images in the memory buffered by a specific trigger.

1. Click the [Setup] tab.
2. On the left side of the screen under [Buffer/Transfer], click [Trigger].

Trigger													
No.	Status	Trigger	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Active Time of Trigger	Format	Transfer Method	N
<a href="#">1</a>	OFF	Motion Detection	X	X	X	X	X	X	X	Always	JPEG	No Transfer, Memory Overwrite	
<a href="#">2</a>	OFF	Timer	X	X	X	X	X	X	X	Always	JPEG	No Transfer, No Memory Overwrite	
<a href="#">3</a>	OFF	Timer	X	X	X	X	X	X	X	Always	JPEG	No Transfer, No Memory Overwrite	
<a href="#">4</a>	OFF	Timer	X	X	X	X	X	X	X	Always	JPEG	No Transfer, No Memory Overwrite	
<a href="#">5</a>	OFF	Timer	X	X	X	X	X	X	X	Always	JPEG	No Transfer, No Memory Overwrite	

3. Click a trigger number (1–5).

**Trigger Setting**

Enable Image Buffer/Transfer

Trigger Timer

---

## 2.7 Deleting Buffered Images Manually

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4. Click [Delete Buffered Images].
5. Click [OK].

### **Note**

- The following operations also delete all images buffered in the internal memory.
  - Turning off the camera.
  - Saving the Date and Time page.
  - Restarting, updating firmware or resetting the camera to factory default.
  - Disabling or enabling a trigger.
  - Restoring settings from a configuration file.

## 2.8 Understanding How the Camera Manages Buffered Images

### When images are buffered in the camera's internal memory

The camera's internal memory is divided between the number of triggers that are configured. For example, if 5 triggers are set, each trigger can use 1/5 of the camera's internal memory, and if 3 triggers are set, each trigger can use 1/3 of the camera's internal memory, etc. See Page 207 for information about the camera's internal memory capacity.

For example, when buffering JPEG images at 320 × 240 resolution and standard quality:

Number of triggers	1	2	3	4	5
Maximum number of JPEG images that can be buffered by each trigger (approximate)	1160	580	385	290	230

When you change settings for a trigger, all images buffered in the internal memory for the selected trigger are deleted. Additionally, images buffered for other triggers may also be deleted. When configuring a trigger to buffer or transfer images, it is important to understand how the camera manages buffered images.

All images for the selected trigger are deleted when:

- You change the settings for a trigger (image buffer frequency, transfer method, transfer settings, etc.)
- You click [Delete Buffered Images] on the trigger page

All images for all triggers are deleted when:

- You disable or enable a trigger (see Page 59)
- You restart the camera (see Page 180)
- You update the camera's firmware (see Page 181 and Page 203)
- You reset the camera to its default settings (see Page 184)
- You change the date and time setting (see Page 140)
- You restore settings from a configuration file (see Page 183)

### When selecting [No Transfer, Memory Overwrite] for buffering JPEG images using sensor, alarm, or detection triggers

If you want to configure the camera to buffer pre-trigger and post-trigger images, please note the following recommended settings when selecting [No Transfer, Memory Overwrite] for buffering JPEG images using sensor, alarm, or detection triggers.

When buffering JPEG images at 320 × 240 resolution and standard quality:

Number of triggers	1	2	3	4	5
Maximum number of JPEG images that can be buffered by each trigger (approximate) ("A")	1160	580	385	290	230
Recommended maximum number of pre-trigger images ("B")	385	190	125	95	75
Recommended maximum number of post-trigger images (when the number of pre-trigger images shown above is set) ("C")	390	200	135	100	80
Approximate number of images buffered when using the above settings ("D")	775	390	260	195	155

#### Note

- As a general guideline, the recommended maximum number of pre-trigger images is about 1/3 of the maximum number of images that can be buffered by the trigger. ("B" equals or is less than "A"×1/3, as shown above).

## 2.8 Understanding How the Camera Manages Buffered Images

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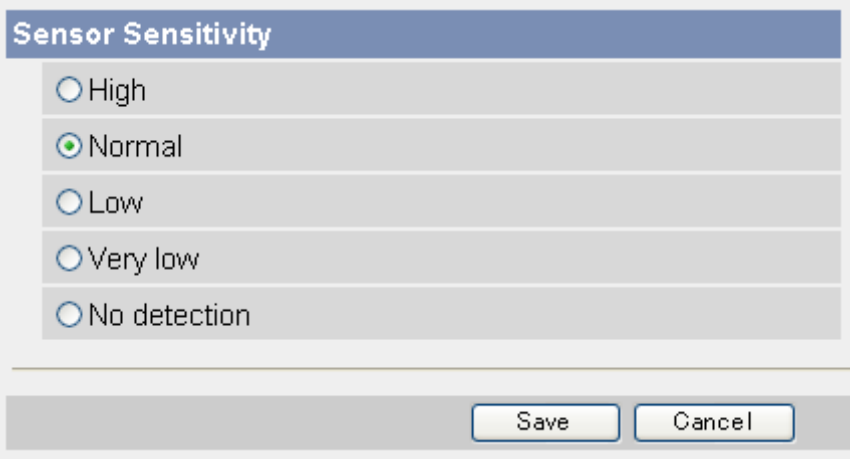
- As a general guideline, the number of post-trigger images should not exceed the total number of images that can be buffered by the trigger minus 2 times the number of pre-trigger images. (“C” equals or is less than “A”-2×“B”), as shown above).
- Note that when using the above settings, the actual number of images buffered (“D”) is less than the maximum number of images that can be buffered by the trigger (“A”).
- If the value set for post-trigger images is set too high, pre-trigger images may be overwritten.
- If the value set for pre-trigger images is set too high, images may not be buffered as expected.



## 2.9 Adjusting Sensor Sensitivity

If using the camera's built-in sensor to buffer or transfer camera images, you may want to adjust the sensor's sensitivity for optimal results.

1. Click the [Setup] tab.
2. On the left side of the screen under [Buffer/Transfer], click [Sensor Sensitivity].



The screenshot shows a dialog box titled "Sensor Sensitivity". It contains five radio button options: "High", "Normal", "Low", "Very low", and "No detection". The "Normal" option is selected, indicated by a green dot in the center of the radio button. At the bottom of the dialog box, there are two buttons: "Save" and "Cancel".

3. Select the desired setting.
  - [High]: The sensor is more sensitive to heat variations.
  - [Normal]: The sensor is moderately sensitive to heat variations (default).
  - [Low]: The sensor is less sensitive to heat variations.
  - [Very Low]: The sensor is further less sensitive to heat variations.
  - [No detection]: The sensor does not detect heat variations.
4. Click [Save].

## 2.10 Adjusting Motion Detection Sensitivity

If using the motion detection feature to buffer or transfer camera images, you may want to adjust the motion detection sensitivity for optimal results.

1. Click the [Setup] tab.
2. On the left side of the screen under [Buffer/Transfer], click [Motion Detection].
3. Observe the [Preview] area to confirm how the current settings detect motion.
  - Any changes you make on this page will not be reflected in the [Preview] area until you click [Save].
  - You can click on the image in the [Preview] area to use the click to center feature and aim the lens in the desired direction when confirming the current sensitivity settings.
4. If necessary, adjust the detection threshold by clicking the appropriate block.
5. If necessary, adjust the motion sensitivity by clicking the appropriate block.
6. Click [Save], and then click [Go to Motion Detection page].
7. Observe the [Preview] area to confirm how the new settings detect motion, and repeat from step 4 if necessary.

### Understanding [Threshold] and [Sensitivity]


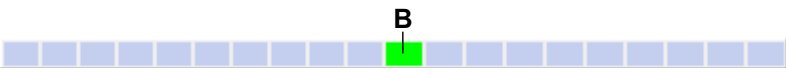


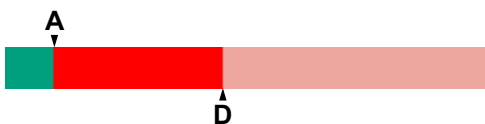
Motion detection threshold and sensitivity can be adjusted. Understanding how threshold and sensitivity interact will help you adjust the motion detection feature to suit your needs.

**[Threshold]:** Determines at what point the motion detection feature is triggered. A lower threshold means less motion is needed to trigger the motion detection feature. A higher threshold means more motion is needed to trigger the motion detection feature. Threshold is indicated in the [Preview] area by the light green area.




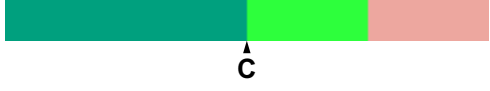

**[Sensitivity]:** Determines how easily the camera detects motion. Lower sensitivity means the camera is less likely to detect motion. Higher sensitivity means the camera is more likely to detect motion. Motion is indicated in the [Preview] area in dark green when it has not exceeded the detection threshold, and is indicated in dark red when it has exceeded the detection threshold.

**[Preview]:** Refer to this area to see how the current settings (effective after clicking [Save]) detect motion. The following examples show how [Threshold] and [Sensitivity] are represented in the [Preview] area.

#### Example 1

Parameter	Display	Meaning
[Threshold]		Low threshold (A)
[Sensitivity]		Moderate sensitivity (B)
[Preview]		Low threshold (A), <b>no motion is detected</b>
[Preview]		Low threshold (A), low motion (C), <b>motion detection is not triggered</b>
[Preview]		Low threshold (A), moderate (D), <b>motion detection is triggered</b>

**Example 2**

Parameter	Display	Meaning
[Threshold]		High threshold ( <b>A</b> )
[Sensitivity]		Moderate sensitivity ( <b>B</b> )
[Preview]		High threshold ( <b>A</b> ), <b>no motion is detected</b>
[Preview]		High threshold ( <b>A</b> ), moderate motion ( <b>C</b> ), <b>motion detection is not triggered</b>
[Preview]		High threshold ( <b>A</b> ), high motion ( <b>D</b> ), <b>motion detection is triggered</b>

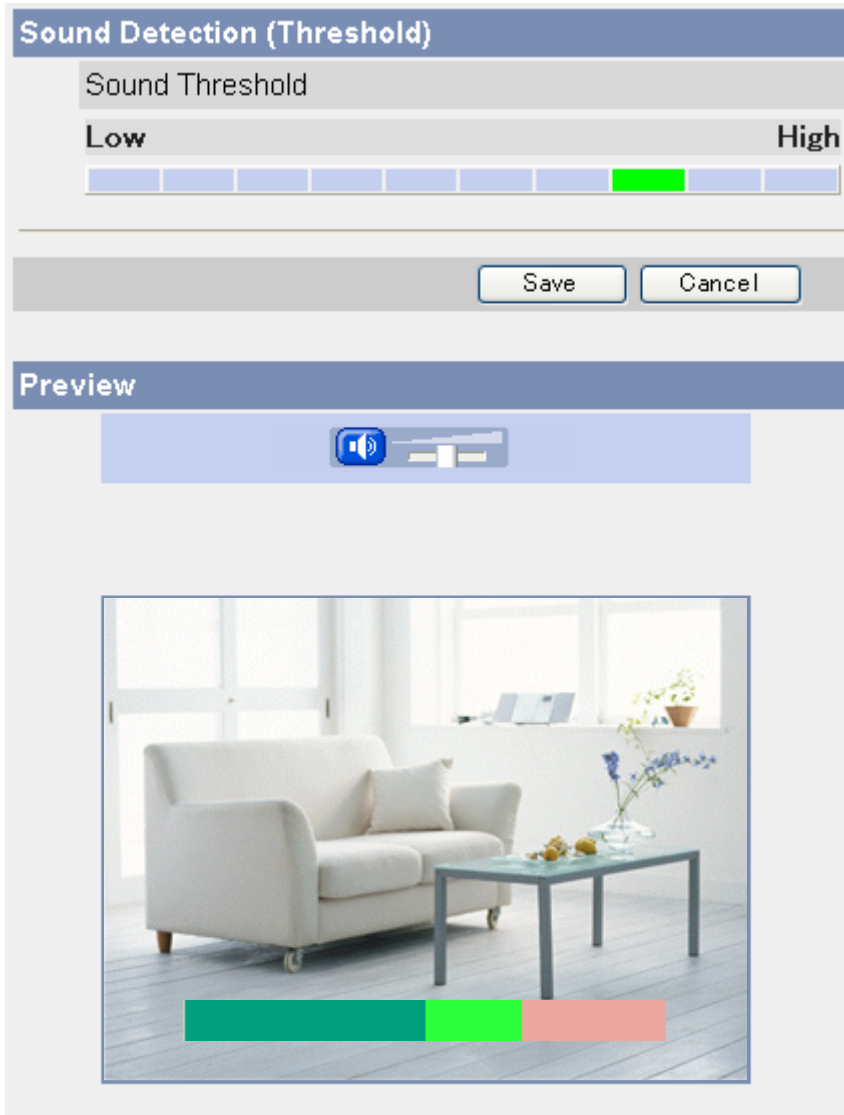
**Note**

- Motion is detected by changes in the outline of objects and changes in object brightness, however, in some cases the camera may detect rapid brightness changes by artificial light sources (such as fluorescent lights) as motion.
- The camera's motion detection feature detects motion differently than the Network Camera Recorder software (sold separately).
- Motion may not be detected as desired if the object's color is similar to the color of the background.
- The motion detection feature is disabled when panning and tilting the camera lens, i.e., moving the camera lens will not trigger the motion detection feature.
- Motion detection can vary by the object, image resolution, or image quality. Refer to the [Preview] area to see how the current settings detect motion.

## 2.11 Adjusting Sound Detection Sensitivity

If using the sound detection feature to buffer or transfer camera images, you may want to adjust the threshold for sound detection in order to achieve the desired results.

1. Click the [Setup] tab.
2. On the left side of the screen under [Buffer/Transfer], click [Sound Detection].



3. Observe the [Preview] area to confirm how the current settings trigger sound detection.
  - When the sound level indicator is green, the camera's microphone is picking up sound but the volume is not high enough to trigger the sound detection feature. When the sound level is red, the sound detection feature is triggered.
  - Any changes you make on this page will not be reflected in the [Preview] area until you click [Save].
4. If necessary, adjust the detection threshold by clicking the appropriate block.
5. Click [Save], and then click [Go to Sound Detection page].
6. Observe the [Preview] area to confirm how the new settings trigger sound detection, and repeat from step 4 if necessary.




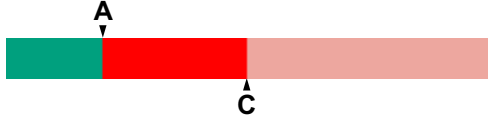
## Understanding [Threshold]

Sound detection threshold can be adjusted. Understanding how threshold will help you adjust the sound detection feature to suit your needs.



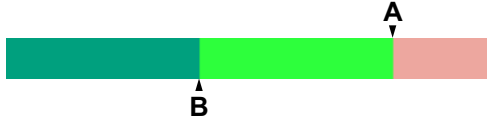

**[Threshold]:** Determines at what point the sound detection feature is triggered. A lower threshold means less sound is needed to trigger the sound detection feature, i.e., sound detection is triggered at lower volumes. A higher threshold means more sound is needed to trigger the sound detection feature, i.e., sound detection is only triggered at higher volumes. Note that the [Camera Microphone Sensitivity] setting on the [Audio] page controls microphone sensitivity (Page 144); if the microphone sensitivity is adjusted, the [Threshold] setting for the sound detection feature may also need to be adjusted to achieve the desired results.

**[Preview]:** Refer to this area to see how the current settings (effective after clicking [Save]) detect sound.

### Example 1

Parameter	Display	Meaning
[Threshold]		Low threshold (A)
[Preview]		Low threshold (A), no sound is detected
[Preview]		Low threshold (A), low volume (B), sound detection is not triggered
[Preview]		Low threshold (A), moderate volume (C), sound detection is triggered

### Example 2

Parameter	Display	Meaning
[Threshold]		High threshold (A)
[Preview]		High threshold (A), no sound is detected
[Preview]		High threshold (A), moderate volume (B), sound detection is not triggered
[Preview]		High threshold (A), high volume (C), sound detection is triggered

### Note

- The audio and video may not be in sync in the [Preview] area.

## 2.11 Adjusting Sound Detection Sensitivity

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- The sound detection feature cannot detect sound when the [Input] setting is set to [Disable] on the [Audio] page (see Page 144).
- The [Camera Microphone Sensitivity] setting on the [Audio] page affects sound detection (see Page 144).
- If there are many false detections, lower the sensitivity of the [Camera Microphone Sensitivity] on the [Audio] page. If no detections are made, increase the sensitivity of the [Camera Microphone Sensitivity] (see Page 144).
- The sound detection feature is triggered when a higher volume sound than the ambient noise is detected. We recommend setting the [Camera Microphone Sensitivity] on the [Audio] page to [High] for quiet places such as library, [Low] for noisy places, and [Very Low] for continuously noisy places such as factories (see Page 144).
- While the sound detection feature can be used to trigger image buffering, images buffered to the internal memory do not contain audio.
- The sound detection feature cannot detect sound while using the pan, tilt, or click to center features or while the built-in alarm is sounding.
- Ambient noise may cause false detections.
- The sound detection feature is triggered by sound volume only, not by the characteristics of the sound.

## 2.12 Sending Alarm Log Information

You can configure the camera to send a daily log by E-mail that reports the status of the built-in sensor, external sensor, and detection triggers. This allows you to be notified by E-mail once a day and know whether or not there were any events that triggered the camera. Ask your Internet Service Provider (ISP) or network administrator for the appropriate settings.

1. Click the [Setup] tab.
2. On the left side of the screen under [Buffer/Transfer], click [Alarm Log].

A setup of operation							
<input checked="" type="radio"/>	Never send alarm logs						
<input type="radio"/>	Always send alarm logs						
<input type="radio"/>	Send alarm logs only when the camera was triggered						
<input type="radio"/>	Send alarm logs only when the camera was not triggered						
Active Time							
Sun	Mon	Tue	Wed	Thu	Fri	Sat	Time
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	PM 12 h 0 min
Notice setup of an alarm log							
SMTP Server IP Address or Host Name	<input type="text"/>						
Port No. (Usually Use 25)	<input type="text" value="25"/>						
Reply E-mail Address	<input type="text"/>						
Destination E-mail Address 1	<input type="text"/>						
Destination E-mail Address 2	<input type="text"/>						
Destination E-mail Address 3	<input type="text"/>						
Subject (Up to 44 Characters)	<input type="text" value="Alarm Log"/>						

3. Set the following parameters as desired.
  - a. Under [A setup of operation], select the desired setting.
    - [Never send alarm logs]: Alarm logs will not be sent.
    - [Always send alarm logs]: Alarm logs will be sent, even if the camera was not triggered.
    - [Send alarm logs only when the camera was triggered]: Alarm logs will be sent if the camera was triggered.
    - [Send alarm logs only when the camera was not triggered]: Alarm logs will be sent only if the camera was not triggered.

## 2.12 Sending Alarm Log Information

- b. Under [Active Time], select the days and the time you want the camera to send alarm logs.
- c. Under [Notice setup of an alarm log], enter the IP address or the host name<sup>1</sup> of the SMTP server (outgoing mail server).
  - An IPv6 address can be specified; note that the IPv6 address must be enclosed in brackets.
  - This feature cannot transfer images to web-based mail servers, such as Hotmail.
- d. Enter the port number used by the server. (Port 25 is normally used for sending E-mail.)
  - Some ISPs require outgoing mail to be sent using port 587 or using SSL (SMTP over SSL) on port 465. Ask your ISP or network administrator for the appropriate setting.
- e. Enter the reply E-mail address<sup>2</sup> that will be shown to the recipient as the sender of the E-mail.
  - In an effort to reduce spam, many ISPs block E-mail sent through the SMTP server from an E-mail address that is not associated with the SMTP server, therefore, we recommend entering the E-mail address assigned to you by your ISP.
- f. Enter the destination E-mail address<sup>2</sup>. Up to 3 addresses can be entered.
- g. Enter the subject<sup>2</sup> that will be displayed in E-mail messages sent by the camera (max. 44 characters).

**How to authenticate**

No authentication

POP before SMTP authentication

POP3 Server IP Address or Host Name

Port No. (Usually Use 110)

Login ID (1 to 63 Characters)

Password (0 to 63 Characters)

SMTP authentication

Login ID (1 to 63 Characters)

Password (0 to 63 Characters)

**SSL**

Use

- 4. Under [How to authenticate], select the authentication method your ISP requires for sending E-mail, and enter the appropriate settings if necessary.
  - [No authentication]: Select this option if the outgoing E-mail server does not require authentication when sending E-mail messages.



- 
- [POP before SMTP authentication]: Select this option if the outgoing E-mail server requires POP before SMTP authentication when sending E-mail messages. The following settings are also necessary. Enter the settings as you would for receiving E-mail.
    - a. Enter the IP address or the host name<sup>1</sup> of the POP3 server (incoming mail server).
      - An IPv6 address can be specified; note that the IPv6 address must be enclosed in brackets.
    - b. Enter the port number used by the server. (Port 110 is normally used for POP3.)
    - c. Enter the login ID<sup>2</sup> (user name) required to access the server (max. 63 characters).
    - d. Enter the password<sup>2</sup> required to access the server (max. 63 characters).
  - [SMTP authentication]: Select this option if the outgoing E-mail server requires SMTP authentication when sending E-mail messages. The following settings are also necessary. Enter the settings as you would for sending E-mail.
    - a. Enter the login ID<sup>2</sup> (user name) required to access the server (max. 63 characters).
    - b. Enter the password<sup>2</sup> required to access the server (max. 63 characters).
      - The camera supports LOGIN, PLAIN, and CRAM-MD5 authentication.
- 5.** Under [SSL], select [Use] if you want to use SSL encryption when sending E-mail.
- When [Use] is selected, the port number under [E-mail Transfer] may need to be set to 465. Ask your ISP or network administrator for the appropriate settings.
  - SSL supports SMTP over SSL. STARTTLS is not supported.
- 6.** Click [Save], then click [Go to Alarm Log page].

**Note**

- When the settings are saved, the number of new alarm logs becomes 0.

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<sup>1</sup> [Space], ["], ['], [&], [<], and [>] cannot be entered.

<sup>2</sup> [""] cannot be entered.

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## 3 Mobile Phone Features

This section describes the features available when using a mobile phone that is compatible with Panasonic Network Cameras. Before using any of these features, please read the following notes.

- Certain mobile phones are not compatible with Panasonic Network Cameras.
- Mobile phones that only allow the use of port number 80 or mobile phones that do not support password authentication are not compatible with Panasonic Network Cameras.
- Certain mobile phones may not display images correctly.
- Video images cannot be displayed on mobile phones.
- The camera's audio features are not available with mobile phones.
- Data packet fees may apply when accessing the camera from your mobile phone. Consult your mobile service provider for more information.

## 3.1 Accessing the Camera from Your Mobile Phone

1. Enter `http://` followed by the IP address of the camera and `/mobile`, then access the camera.

**Example:** `http://***.***.***.***/mobile`

- If the camera's port number is a port number other than 80, enter ":" and the port number after the IP address.

**Example:** `http://***.***.***.***:50001/mobile`

- If you have registered with a DNS service, such as Viewnetcam.com (see Page 105), enter the URL instead of the IP address.

**Example:** `http://***.viewnetcam.com`

- If the camera is configured to use HTTPS (see Page 119), enter `https://` followed by the IP address or host name and the port number of the camera. Note, however, that certain mobile phones do not support HTTPS connections.

**Example:** `https://***.***.***.***:80/mobile`

**Example:** `https://***.viewnetcam.com:80/mobile`

2. If an authentication dialog is displayed, enter the user name and password.

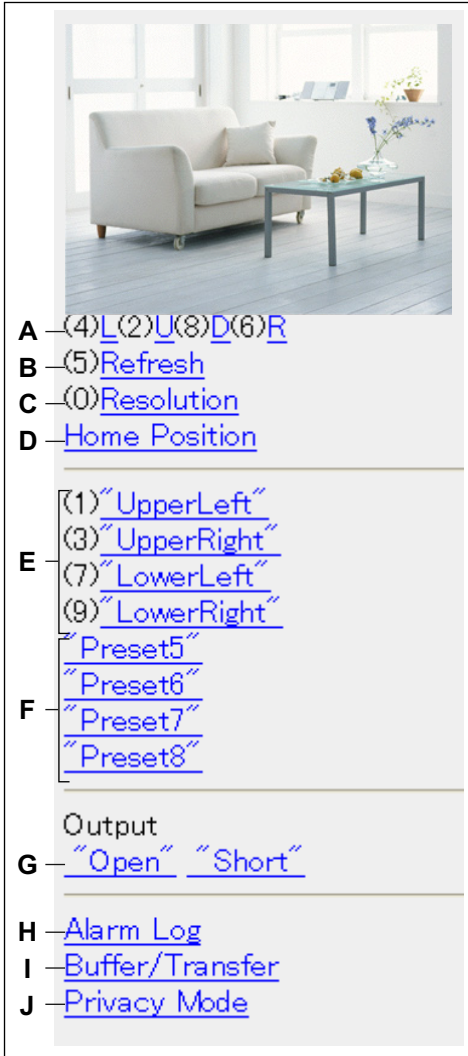
- A still image from the camera is displayed.
- If the camera image is not displayed properly, try accessing the camera by entering one of the following instead of `/mobile`.
  - `/mobileh` (for HTML)
  - `/mobilex` (for XHTML)

### **Note**

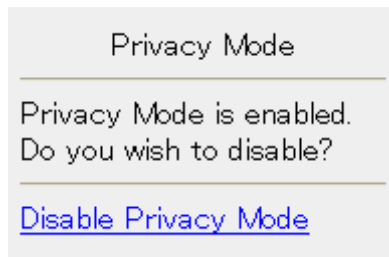
- If the camera is configured to allow access from guest users (i.e, anonymous users; see Page 155), users can access the camera's mobile phone pages using a mobile phone or PC without entering a user name or password.

## 3.2 Viewing Still Images on Your Mobile Phone

Still images from the camera can be viewed with a compatible mobile phone.



- A. Press [4] or [6] to pan the lens left or right, respectively, or press [2] or [8] to tilt the lens up or down, respectively. When the lens has reached the end of its pan or tilt range, the corresponding number will not be displayed.
- B. Press [5] to refresh the image.
- C. Press [0] to toggle between the available image resolutions (192 × 144 and 320 × 240). You can set the default image resolution for when viewing with your mobile phone (see Page 159).
- D. Select [Home Position] to move the lens to the home position.
- E. Press [1], [3], [7] or [9] to move the lens to the first four presets (presets 1–4).
- F. For presets 5–8, select the corresponding preset name to move the lens to the desired position.
- G. **BL-C230 only:** Controls the output signals of the external I/O interface (see Page 168).
- H. Select [Alarm Log] to view the last 50 external sensor and motion detection trigger logs (see Page 94).
  - You must be logged in to the camera as an administrator to use this feature.
- I. Select [Buffer/Transfer] to view the image buffer and transfer control page (see Page 95).
  - You must be logged in to the camera as an administrator to use this feature.
- J. Select [Privacy Mode] to turn privacy mode on. (You may be asked to enter the administrator user name and password.) To turn privacy mode off, access the camera again and select [Disable Privacy Mode].



- You must be logged in to the camera as an administrator to use this feature.

### Note

- When accessing the camera as a general user or as a guest user, certain features may be disabled according to the [Access Level] set for the user (see Page 152 and Page 155).
- If the camera is configured to allow access from guest users (i.e., anonymous users; see Page 155), users can access the camera's mobile phone pages using a mobile phone or PC without entering a user name or password. If guest user access is permitted, you can log in as the administrator by selecting [Alarm Log], [Buffer/Transfer], or [Privacy Mode], and then entering the user name and password when the authentication dialog is displayed.

- If you turn privacy mode on, camera images are not buffered even if the camera is configured to buffer images.
- Screen content varies by model number.

## 3.3 Viewing Alarm Logs on Your Mobile Phone

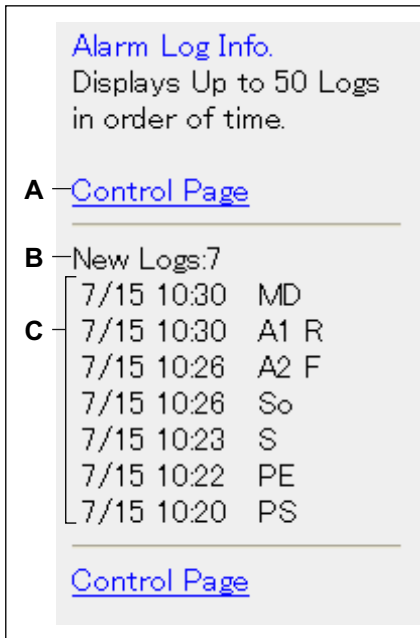
The camera records log information each time the camera is triggered and each time the camera's privacy feature is turned on and off. Up to 50 events are logged, and each event includes the date, time, and type (built-in sensor, external sensor 1, external sensor 2, motion detection, sound detection, or privacy mode on/off).

You can view the log while accessing the camera from your mobile phone.

**Note**

- You must be logged in to the camera as an administrator to use this feature.

1. Access the camera with your mobile phone (see Page 91).
2. Select [Alarm Log].
3. Confirm the alarm logs as necessary.
4. Select [Control Page] when finished to return to the previous screen.



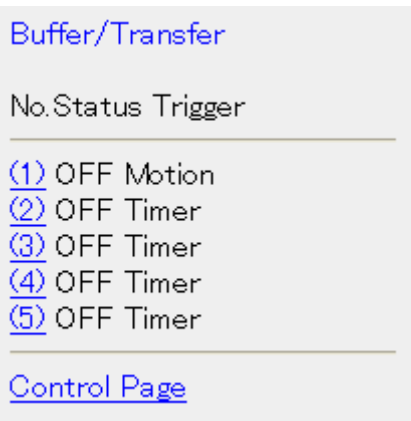
- A.** Returns to the previous screen.
- B.** The number of new alarm logs is displayed.
- C.** The date and time of each log, and the type of each trigger is displayed.
  - The date is displayed in MM/DD format.
  - The time is displayed in 24-hour format.
  - [S] indicates a sensor detection.
  - [So] indicates a sound detection.
  - [MD] indicates a motion detection.
  - [A1] indicates an external sensor 1 detection.
  - [A2] indicates an external sensor 2 detection.
  - [PS] indicates privacy mode starts.
  - [PE] indicates privacy mode ends.
  - [R] indicates [Rising: GND to Open (High).] signal type (logical HIGH).
  - [F] indicates [Falling: Open (High) to GND.] signal type (logical LOW).

## 3.4 Enabling and Disabling Image Buffering Using Your Mobile Phone

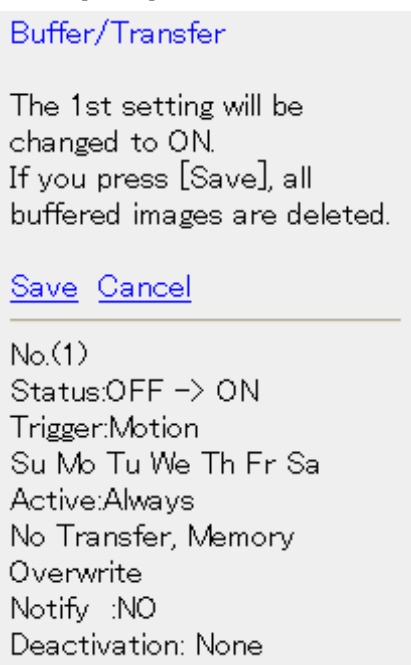
While accessing the camera from your mobile phone, select [Buffer/Transfer] to display the image buffer and transfer control page on your mobile phone.

### Note

- You must be logged in to the camera as an administrator to use this feature.
1. Access the camera with your mobile phone (see Page 91).
  2. Select [Buffer/Transfer].
  3. Select the desired trigger number to turn the trigger on or off.



4. Select [Save] to turn the selected trigger on or off.



- All images buffered in the memory are deleted when you click [Save].
5. Select [Control Page] when finished to return to the previous screen.

# 4 Configuring the Camera for Access from the Internet

You can configure the camera to be accessed over the Internet, allowing you to view camera images and change camera settings from anywhere—even using your mobile phone. This section explains the concepts and procedures for configuring your camera (and other network devices) to allow you to view camera images over the Internet.

Before you can configure the camera for access from the Internet, it is necessary to understand how IP addresses and Internet connections work.

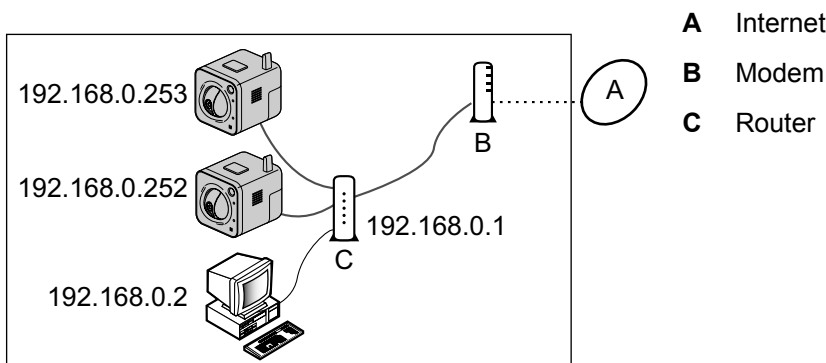
### Note

- To configure the camera to be accessed over the Internet using IPv6, see Page 194.

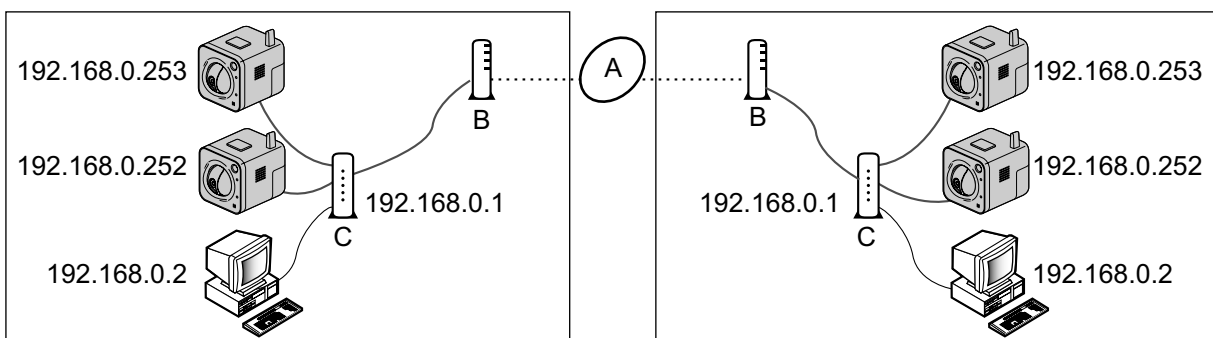
## Understanding local addresses

Each device connected to your computer network (PCs, router, network printers, network cameras, etc.) has an IP address. It probably looks something like this: 192.168.0.100. Each IP address on your network must be unique, as shown in the example below.

In this example, you would enter 192.168.0.253 or 192.168.0.252 in your web browser's address bar to access your cameras with your PC.



Although each IP address on your network must be unique, the addresses are unique only to your network. In other words, your cameras and your neighbor's cameras may have the same IP addresses. In the example below, the addresses of your devices (on the left) and the addresses of your neighbor's devices (on the right) are the same, but this is not a problem because the cameras are not connected to the same network.



IP addresses that distinguish different devices on the same LAN (local area network, i.e., personal network) are called local IP addresses. The IP addresses in the examples above are local IP addresses.

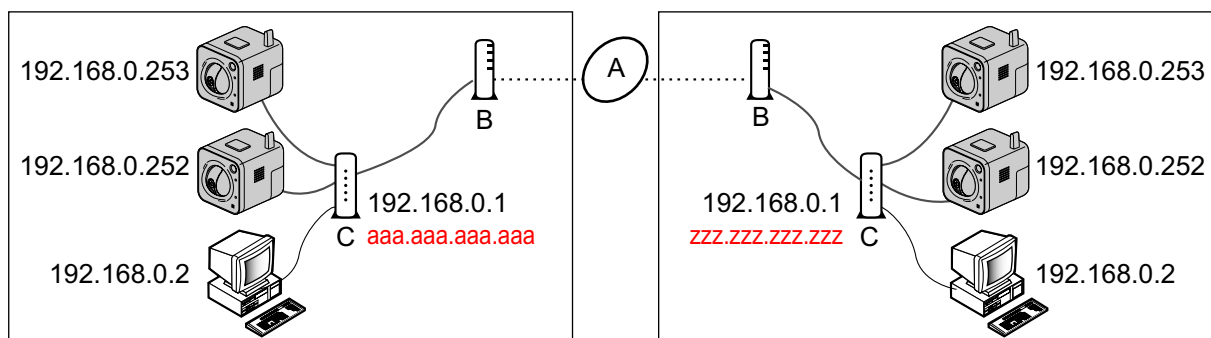


So how can you access your camera when you are away from home if other people are using the same IP address as your camera?

## Understanding global addresses

The answer is to access the camera by entering the unique IP address assigned to you by your Internet Service Provider (ISP). This address is called a global address, or a WAN (wide area network) address. In the example below, your global IP address is `aaa.aaa.aaa.aaa` and your neighbor's global IP address is `zzz.zzz.zzz.zzz`.

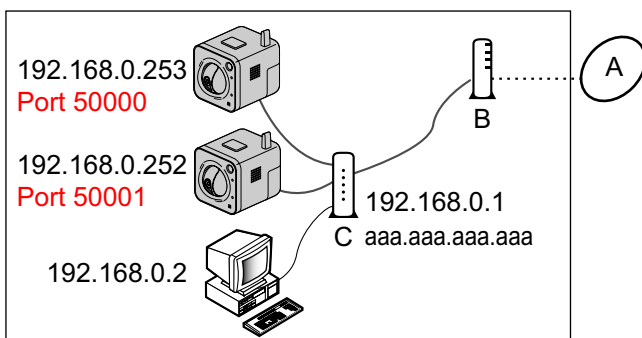
- Note that an actual IP address is made of numbers, not letters.



When you are away from home, you can access your router by entering `aaa.aaa.aaa.aaa`. But now you have another problem—you don't want to access your router, you want to access the cameras connected to your routers.

## Understanding port numbers

Data is sent between devices on a network using different ports depending on what kind of data is being sent. A port is not a physical object; it is a piece of information in the data that helps the data be directed to the intended device. In the example below, the port numbers 50000 and 50001 are assigned to your cameras.



By assigning unique port numbers to your cameras, you can access your cameras when you are away from home by entering `aaa.aaa.aaa.aaa:50000` or `aaa.aaa.aaa.aaa:50001` in the web browser of a PC. When your router receives information via its global IP address, it passes it on to one of your cameras depending on which port number you entered after the global IP address.

But how does your router know which camera to pass information to?

## Understanding port forwarding

If your router supports a feature called port forwarding (sometimes it's called address translation, static IP masquerade, virtual server, port mapping, or other names, depending on the router manufacturer), the router can be set up to take information it receives on specific ports and pass it on to a specific IP address.

The port forwarding settings needed for the example above would look something like this:

Port No. of Incoming Access	Forwarding Destination
50000	192.168.0.253:50000
50001	192.168.0.252:50001

Now you may be thinking, “do I have to do this programming by myself?”

## Understanding UPnP™

If your router does not support a feature called UPnP™ (Universal Plug and Play), you will have to manually configure your router for port forwarding. Refer to the operating instructions included with your router for more information.

If your router does support UPnP™, your cameras and router can communicate with each other so that the router knows which ports are used by which camera. This means you will be able to access your cameras from the Internet without having to configure your router manually.

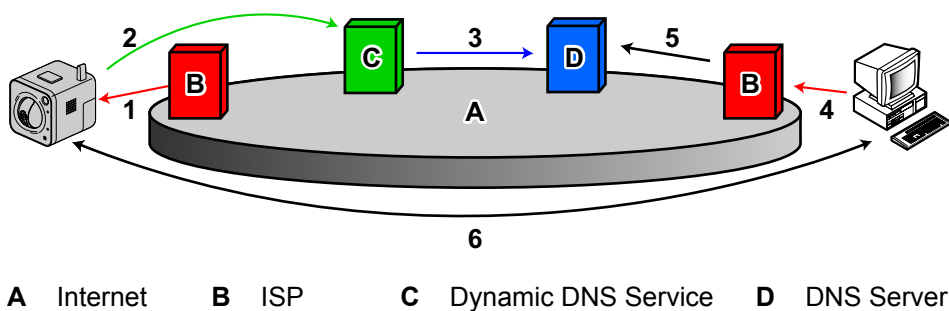
## Understanding Dynamic DNS services

There is one last problem to solve. How do you find out the global address your ISP has assigned to you? The answer is to first contact them. If your provider has assigned you a static IP address (i.e., an IP address that never changes), you can use that static address to access your cameras from the Internet as long as your router is set up for port forwarding.

But most service providers use dynamic addresses, which means your global address may change monthly, weekly, or maybe even every day. If your provider uses dynamic addresses, you will need to register with a Dynamic DNS service in order to access your camera from the Internet.

A Dynamic DNS service allows you to use an easy-to-remember address (such as **\*\*\*.viewnetcam.com**) to access your camera from the Internet. If you have subscribed to a Dynamic DNS service and configured your camera to use that Dynamic DNS service, your camera will notify the Dynamic DNS service each time your provider changes your global IP address. This means your Dynamic DNS service always knows your current global address, so whenever you enter your easy-to-remember address, the Dynamic DNS service automatically passes the information on to your router, and ultimately, your camera.

### Example of how a Dynamic DNS service helps you access your camera over the Internet



1. Your ISP assigns a new global IP address to your Internet access account.
2. The camera notifies your Dynamic DNS service of its new global IP address.
3. The Dynamic DNS service notifies the DNS server of your new global IP address. The DNS server updates its information so that your URL (for example, **\*\*\*.viewnetcam.com**) is registered to your new global IP address.
4. You try to access your camera from outside (i.e., over the Internet) by entering **\*\*\*.viewnetcam.com**.
5. The computer contacts the DNS server and requests the global IP address registered to **\*\*\*.viewnetcam.com**. The DNS server looks up the global IP address of your URL.

- 
6. The computer receives your current global IP address from the DNS server and accesses the camera.

## Summary

In order to access your camera over the Internet, you need to do the following.

1. Configure your router for port forwarding. If your router supports UPnP™, this can be done automatically. Refer to the operating instructions included with your router for information on UPnP™ support (the router's UPnP™ feature may be turned off by default) or for information on setting port forwarding.
2. If your ISP has assigned you a dynamic global IP address, register with a Dynamic DNS service. We recommend using Viewnetcam.com, a Dynamic DNS service that is designed for use with Panasonic Network Cameras. (For more information, refer to the Viewnetcam.com website at <http://www.viewnetcam.com>.)
3. After you have registered with a Dynamic DNS service, configure the camera to use that service.

# 4.1 Configuring Port Forwarding

In order to access your camera from the Internet, you will need to configure your router for port forwarding. If your router supports UPnP™ (Universal Plug and Play), the camera and router can communicate with each other and set port forwarding automatically. This can be done during initial configuration (as explained in the Setup Guide), or by following one of the procedures below.

There are two methods you can use to configure port forwarding via UPnP™.

– **Using the [Internet] tab (recommended)**

Using this method, the camera's current port number may change. The camera will be assigned a port number that is not currently used by another device on the network. If port 80 is unavailable, the camera will be assigned the first available port number between 50000 and 50050.

To use this method, see Page 101.

– **Using the [UPnP] page**

Using this method, the camera's port number will not change.

To use this method, see Page 102.

### **Note**

- If your router does not support UPnP™, you need to configure the router's port forwarding feature manually. See Page 102.
- If your router's UPnP™ feature is turned off (most routers have UPnP™ turned off by default), you need to turn it on in order to configure port forwarding automatically. Refer to the operating instructions included with your router and the Panasonic Network Camera website (<http://panasonic.net/pcc/support/netwkcam/>) for more information.
- If you have a PPPoE or PPTP connection to your Internet Service Provider, disable your router's maximum idle time setting. Refer to the operating instructions included with your router for more information.
- UPnP™ features are available when using the camera in IPv4. The camera does not support UPnP™ for IPv6 connections.

## Enabling [Auto Port Forwarding] using the [Internet] tab

1. Click the [Internet] tab.

The screenshot shows a configuration window with three sections:

- Auto Port Forwarding (IPv4):** Contains two radio buttons: "Enable" (unselected) and "Disable" (selected).
- Viewnetcam.com Registration:** Contains two radio buttons: "Register with Viewnetcam.com" (unselected) and "Do not register with Viewnetcam.com" (selected).
- Allow Access from the Internet (IPv6):** Contains two radio buttons: "Yes" (unselected) and "No" (selected).

At the bottom of the window are two buttons: "Save" and "Cancel".

2. Under [Auto Port Forwarding (IPv4)], select [Enable].
3. Click [Save].
  - A notice is displayed informing you that the camera's port number may change.
4. Click [OK].
  - [Router configuration in progress to allow access from the Internet.] is displayed.
  - If you want to register with Viewnetcam.com (visit <http://www.viewnetcam.com> for details), select [Register with Viewnetcam.com] before clicking [Save]. Click [Go to Viewnetcam.com Registration page] when this button is displayed. The Viewnetcam.com website will open in a new window. Follow the on-screen instructions to register with Viewnetcam.com.
  - When [Setup completed] is displayed, the addresses for accessing the camera over the LAN and over the Internet are displayed.
5. Click [To Single Camera page].
6. Confirm that port forwarding was configured correctly (see Page 102).

### Note

- If you have multiple cameras connected to the same network, only one of the cameras needs to be registered with Viewnetcam.com. All cameras connected to the network can be accessed from the Internet using your Viewnetcam.com URL (for example, **\*\*\*.viewnetcam.com**) and adding the desired camera's port number after the URL. Example: **http://\*\*\*.viewnetcam.com:50000**, **http://\*\*\*.viewnetcam.com:50001**, etc. Note, however, if the camera that is registered to Viewnetcam.com is turned off and your ISP-provided global IP address changes, you will not be able to access any of the cameras.
- To disable Viewnetcam.com service for this camera later, access the Viewnetcam.com website (<http://www.viewnetcam.com>) and cancel your registration.
- If auto port forwarding is enabled or disabled on this page, it is also enabled or disabled on the [UPnP] page.

### Enabling [Auto Port Forwarding] using the [UPnP] page

1. Click the [Setup] tab.
2. On the left side of the screen under [Basic], click [UPnP].

The screenshot shows a configuration interface with two sections. The first section, 'Auto Port Forwarding', has two radio buttons: 'Enable' (unselected) and 'Disable' (selected). The second section, 'Display Shortcut Icon in My Network Places', has two radio buttons: 'Enable' (selected) and 'Disable' (unselected). At the bottom right, there are 'Save' and 'Cancel' buttons.

3. Under [Auto Port Forwarding], select [Enable].
4. Click [Save].
  - When setup is complete, [Success!] is displayed.
5. Confirm that port forwarding was configured correctly (see Page 102).

#### Note

- If auto port forwarding is enabled or disabled on this page, it is also enabled or disabled on the [Internet] tab.
- Screen content varies by model number.

### Confirming that UPnP™ port forwarding is configured correctly

To confirm that the UPnP™ port forwarding has been successfully configured, follow the procedure below.

1. Click the [Maintenance] tab.
2. On the left side of the screen, click [Status].
3. Under [UPnP], confirm that the status is [Enabled].
  - If [Enabled] is not displayed, refer to the UPnP™ related items in 1.3 Camera Setup Issues and 1.5 Camera Access Issues in the Troubleshooting Guide.

### Configuring port forwarding without using UPnP™

If your router does not support UPnP™, you need to configure the router's port forwarding feature manually.

1. Click the [Setup] tab.
2. On the left side of the screen under [Basic], click [Network (IPv4)].
3. Under [Connection Mode], click [Static].
4. Make a note of the IP address and port number displayed here. You will need to know these settings when configuring the router for port forwarding.
5. Click [Save].
6. Click [Restart].

7. While referring to the operating instructions included with your router, configure the router's port forwarding feature.
  - When configuring port forwarding, store the camera's IP address and port number that you noted above.
8. Register the camera to use a Dynamic DNS service, such as Viewnetcam.com (see Page 105).

# 4.2 Configuring the Camera to Use a Dynamic DNS Service

You can configure the camera to use Viewnetcam.com (see Page 105) or a third-party Dynamic DNS service (see Page 109).

A Dynamic DNS service is a service that allows you to assign an easy-to-remember URL (web address) to the camera, such as **\*\*\*.viewnetcam.com**, allowing you to access the camera from the Internet using your personalized URL. A Dynamic DNS service also allows you to easily access the camera, even when your Internet Service Provider changes your IP address, because the camera periodically contacts the Dynamic DNS service and notifies the service of its current address.

If you are interested in accessing your camera over the Internet, we recommend using a Dynamic DNS service, such as Viewnetcam.com. For more information about Viewnetcam.com, please visit <http://www.viewnetcam.com> for details.



## 4.2.1 Configuring the Camera to Use Viewnetcam.com

If you are interested in accessing your camera over the Internet, we recommend using Viewnetcam.com. Viewnetcam.com is a Dynamic DNS service designed for use with Panasonic Network Cameras. For more information about Viewnetcam.com, please visit <http://www.viewnetcam.com> for details.

There are two methods you can use to configure the camera to use Viewnetcam.com.

– **Using the [Internet] tab (recommended)**

To use this method, see Page 105.

– **Using the [DynamicDNS] page**

To use this method, see Page 106.

### Note

- If your router supports UPnP™ and you want to enable auto port forwarding as well as use Viewnetcam.com, use the procedure described in Page 101.
- If you have multiple cameras connected to the same network, only one of the cameras needs to be registered with Viewnetcam.com. All cameras connected to the network can be accessed from the Internet using your Viewnetcam.com URL (for example, **\*\*\*.viewnetcam.com**) and adding the desired camera's port number after the URL. Example: **http://\*\*\*.viewnetcam.com:50000**, **http://\*\*\*.viewnetcam.com:50001**, etc. Note, however, if the camera that is registered to Viewnetcam.com is turned off and your ISP-provided global IP address changes, you will not be able to access any of the cameras.
- To disable Viewnetcam.com service for this camera later, access the Viewnetcam.com website (<http://www.viewnetcam.com>) and cancel your registration.
- It may take up to 30 minutes before the camera can be accessed over the Internet.

### Configuring the camera to use Viewnetcam.com from the [Internet] tab

1. Click the [Internet] tab.

The screenshot shows a configuration window with three sections and two buttons at the bottom:

- Auto Port Forwarding (IPv4)**: Two radio buttons, "Enable" (unselected) and "Disable" (selected).
- Viewnetcam.com Registration**: Two radio buttons, "Register with Viewnetcam.com" (unselected) and "Do not register with Viewnetcam.com" (selected).
- Allow Access from the Internet (IPv6)**: Two radio buttons, "Yes" (unselected) and "No" (selected).
- At the bottom right, there are two buttons: "Save" and "Cancel".

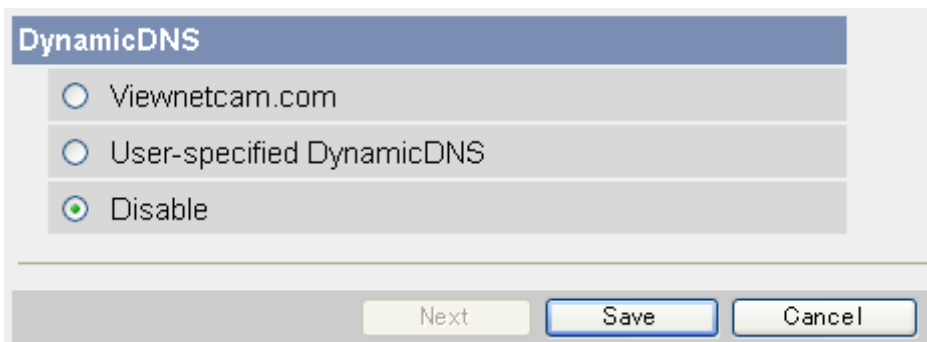
#### 4.2.1 Configuring the Camera to Use Viewnetcam.com

---

2. Under [Viewnetcam.com Registration], select [Register with Viewnetcam.com].
3. Click [Save].
4. When [Setup completed] is displayed, click [Go to Viewnetcam.com Registration page].
  - The Viewnetcam.com website is displayed. Follow the on-screen instructions to register with Viewnetcam.com.
  - When [Setup completed] is displayed, the addresses for accessing the camera over the LAN and over the Internet are displayed.
5. Click [To Single Camera page].

### Configuring the camera to use Viewnetcam.com from the [DynamicDNS] page

1. Click the [Setup] tab.
2. On the left side of the screen under [Basic], click [DynamicDNS].



**DynamicDNS**

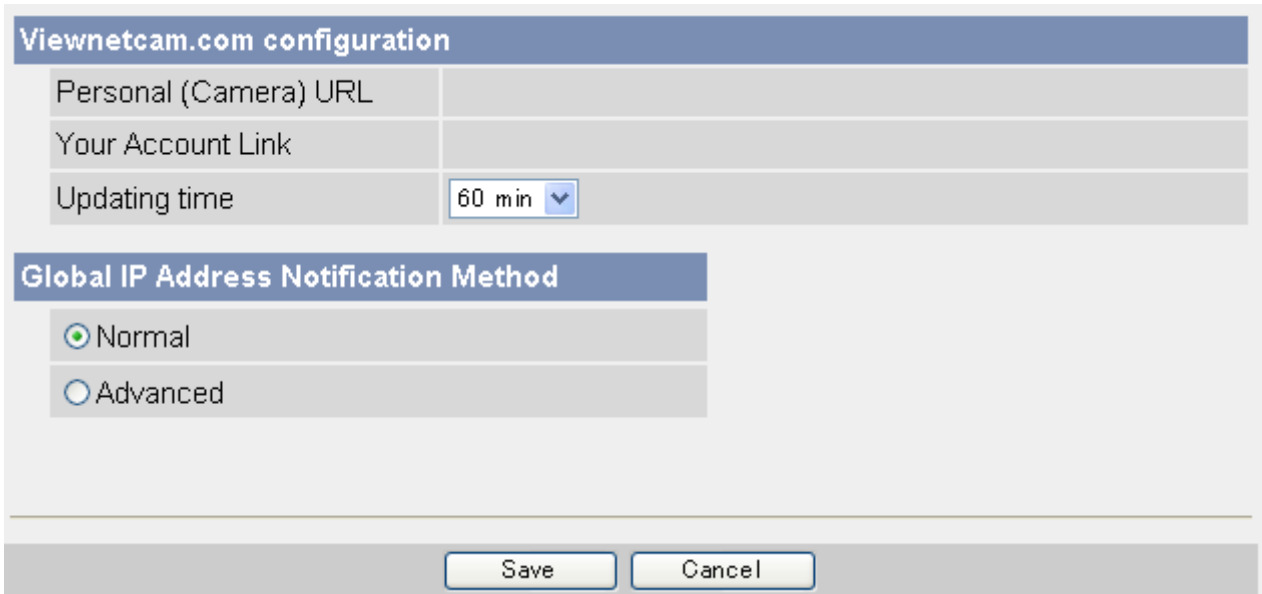
Viewnetcam.com

User-specified DynamicDNS

Disable

Next Save Cancel

3. Select [Viewnetcam.com], then click [Next].



**Viewnetcam.com configuration**

Personal (Camera) URL

Your Account Link

Updating time 60 min

**Global IP Address Notification Method**

Normal

Advanced

Save Cancel

4. Click [Save].
  - When setup is complete, [Success!] is displayed.

- Click [Go to Viewnetcam.com page].

**Viewnetcam.com configuration**

Personal (Camera) URL	
<a href="#">Your Account Link</a>	https://xxxxxxxxxxxxxxxxxxxxxxxx
Updating time	60 min ▼

**Global IP Address Notification Method**

Normal

Advanced

Save Cancel

- Click [Your Account Link].
- The Viewnetcam.com website is displayed. Follow the on-screen instructions to register with Viewnetcam.com.
  - If the Viewnetcam.com website is not displayed, confirm that your PC can access the Internet, then click your web browser's refresh button.
  - When registration is complete, you can access the camera using the Viewnetcam.com URL you selected during registration. Note that you can access the camera using this URL only from a PC that is not connected to the same network (LAN) as the camera.

#### Note

- If you have already registered with Viewnetcam.com, your personalized URL is displayed. This is the address you can use to access the camera over the Internet. You can also access the URL displayed next to [Your Account Link] to view your Viewnetcam.com registration information.
- If [Your Account Link] is not displayed, confirm that you have registered with Viewnetcam.com and that your PC can access the Internet, then click your web browser's refresh button.
- Typically [Global IP Address Notification Method] should be set to [Normal]. If you cannot access the camera using the registered URL 30 minutes after registering with Viewnetcam.com, select [Advanced]. In this case, UPnP must be enabled for the camera and for the router.
- If the global IP address of the router changes frequently, the camera may not be able to be accessed over the Internet. In this case, set the [Updating time] setting to a lower (shorter) value.

## Confirming your Viewnetcam.com registration

You can confirm that the camera has been successfully registered to Viewnetcam.com.

- Click the [Maintenance] tab.
- On the left side of the screen under [Maintenance], click [Status].
- Under [Viewnetcam.com], confirm that [Enabled (2)] is displayed.

#### Note

- If the status is displayed as [Expiration], confirm that you have registered with Viewnetcam.com, or restart the camera and access this page again.

### Changing the Viewnetcam.com address update time

You can select how often the camera notifies the Viewnetcam.com server of its current global IP address.

1. Click the [Setup] tab.
2. On the left side of the screen under [Basic], click [DynamicDNS].
3. Select [Viewnetcam.com], then click [Next].
4. Select the desired setting for [Updating time].
5. Click [Save].

## 4.2.2 Configuring the Camera to Use a Third-party Dynamic DNS Service

Before configuring the camera to use a third-party Dynamic DNS service, you will first need to subscribe to the desired service. Ask the Dynamic DNS service provider for the settings required to use that service.

### Note

- Certain third-party Dynamic DNS services may not be compatible with your camera. We cannot guarantee that your camera will be compatible with third-party Dynamic DNS services, and therefore we cannot take responsibility for any damage or performance issues that may occur when using a Dynamic DNS service other than Viewnetcam.com (see Page 105).
- Please direct any questions you may have regarding the settings required to use a third-party Dynamic DNS service to the Dynamic DNS service provider.
- After configuring the camera to use a third-party Dynamic DNS service, it may take several minutes before the camera can be accessed over the Internet.

1. Click the [Setup] tab.
2. On the left side of the screen under [Basic], click [DynamicDNS].

3. Select [User-specified DynamicDNS], then click [Next].

4. Enter the URL (including `http://`)<sup>1</sup> provided or required by your Dynamic DNS service provider (max. 255 characters).
5. Select how often the camera notifies the Dynamic DNS service of its current global IP address.
6. Enter the user name<sup>2</sup> provided by the Dynamic DNS service provider (max. 63 characters).

## 4.2.2 Configuring the Camera to Use a Third-party Dynamic DNS Service

---

7. Enter the password<sup>2</sup> provided by the Dynamic DNS service provider (max. 63 characters).
8. Click [Save].

---

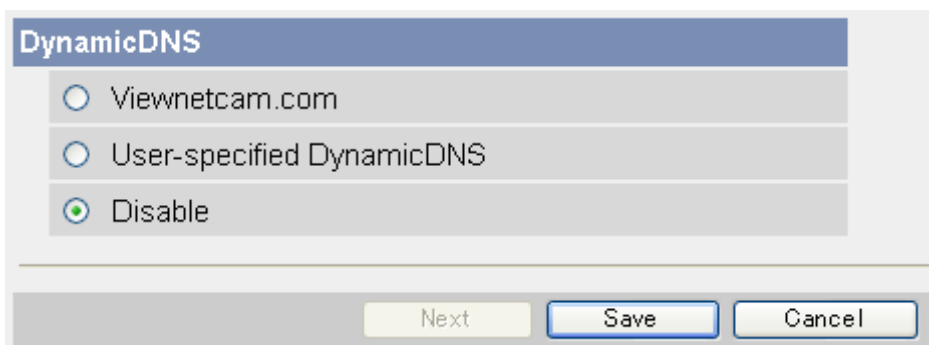
<sup>1</sup> [Space] and ["] cannot be entered.

<sup>2</sup> ["] and [:] cannot be entered.

### Canceling the camera's access to the Dynamic DNS service

Use the following procedure to stop the camera from notifying the Dynamic DNS service when your global IP address changes. Note that if you intend to stop using the Dynamic DNS service altogether, you may need to contact the Dynamic DNS service provider in order to cancel your subscription.

1. Click the [Setup] tab.
2. On the left side of the screen under [Basic], click [DynamicDNS].



3. Select [Disable], then click [Save].

## 4.3 Confirming Internet Access

After configuring the camera to use a Dynamic DNS service and configuring your router for port forwarding, confirm that the camera can be accessed over the Internet.

Most routers will not allow you to access a camera over the Internet using a PC connected to the same LAN as the camera. To confirm that the camera can be accessed over the Internet, try accessing the camera using a PC connected to a different network or by using your mobile phone (see Page 91).

## 5 Changing Camera Settings

### 5.1 Network Settings

The camera's network settings are made when configuring the camera according to the instructions provided in the Setup Guide. You can change these settings later if necessary using the procedures described in this section.

**Note**

- You must log in to the camera as the administrator in order to change these settings.
- After changing network settings and clicking [Save], the camera must be restarted. All images buffered in the internal memory are deleted when the camera is restarted.
- Ask your Internet Service Provider or network administrator for the appropriate network settings.
- If you cannot access the camera after changing certain network settings, use the Setup Program to confirm the camera's IP address (see Page 202) or reconfigure the camera as explained in the Setup Guide.
- If your network uses the IPv6 protocol, see Page 187.





### [Static]

**Network Configuration from Setup Program**

Enable

**Internet Connection**

Port No.	80
IP Address	192.168.0.253
Subnet Mask	255.255.255.0

**Default Gateway**

Default Gateway	***.***.***.***
-----------------	-----------------

**DNS**

Primary Server Address	***.***.***.***
Secondary Server Address	***.***.***.***

**Max. Bandwidth Usage**

Unlimited ▾

**Connection Type**

Auto Negotiation ▾

Save Cancel

1. Set the following parameters as desired.
  - a. Under [Network Configuration from Setup Program], select whether or not you want to allow the camera to be configured using the Setup Program on the CD-ROM.
  - b. Under [Internet Connection], enter the port number to be assigned to the camera.
    - The default port number is 80, however, note that some ISPs do not allow access from the Internet using port 80. Ask your ISP or network administrator about which port numbers are available for access over the Internet.
    - Do not use the following port numbers:
      - 20 and 21: used for FTP
      - 23: used for Telnet
      - 25: used for SMTP
      - 53: used for DNS
      - 110: used for POP3
      - 443: used for HTTPS
      - 4000: used for ICQ
      - 6661–6667: used for IRC
    - If you are connecting multiple cameras and plan on using port forwarding to allow Internet access to the cameras, assign a different port number to each camera. We recommend using port numbers in the 50000–50050 range.
  - c. Enter the IP address to be assigned to the camera.

- Assign an IP address that belongs to the same class as other network devices (router, PCs, etc.) on the local area network. For example, if your router's address is 192.168.0.1, you can assign an IP address between 192.168.0.2 and 192.168.0.254 as long as the assigned address is not used by another network device.
  - d. Enter the appropriate subnet mask.
    - Confirm the subnet mask assigned to your router or PC. You can enter the same value here.
  - e. Under [Default Gateway], enter the IP address of your router or the default gateway IP address provided by your ISP or network administrator.
  - f. Under [DNS], enter the IP addresses of the primary and secondary DNS servers provided by your ISP or network administrator.
  - g. Under [Max. Bandwidth Usage], select the maximum bandwidth you want to allow the camera to use.
    - This setting is effective for both IPv4 and IPv6 connections.
    - Refer to the following file size information when restricting the maximum bandwidth. Note that these are estimated file sizes for one JPEG image (the actual file size may vary depending on image quality, image brightness, etc.). To determine the bandwidth required, multiply this number by the number of accesses (for JPEG images), and multiply the H.264 or MPEG-4 bit rate setting on the [Video Streaming] page by the number of H.264 or MPEG-4 accesses.
      - 192 × 144: 7 KB (56 Kbit)
      - 320 × 240: 16 KB (128 Kbit)
      - 640 × 480: 35 KB (280 Kbit)
  - h. Under [Connection Type], select the appropriate connection type.
    - Normally you can leave this setting at [Auto Negotiation].
    - This setting is effective for both IPv4 and IPv6 connections.
2. Click [Save].
  3. When the [New settings are saved.] message is displayed, click [Restart].
    - All images buffered in the internal memory are deleted when the camera is restarted.

**Note**

- To access the camera again, use the IP address you assigned to the camera in this procedure.
- The current network settings can be confirmed on the [Status] page (see Page 176).

[DHCP]

Network Configuration from Setup Program	
<input checked="" type="checkbox"/> Enable	
Internet Connection	
Port No.	<input type="text" value="80"/>
Host Name	<input type="text"/>
Default Gateway	
Default Gateway	<input type="text"/>
DNS	
Primary Server Address	<input type="text"/>
Secondary Server Address	<input type="text"/>
Max. Bandwidth Usage	
Unlimited <input type="button" value="v"/>	
Connection Type	
Auto Negotiation <input type="button" value="v"/>	
<input type="button" value="Save"/> <input type="button" value="Cancel"/>	

1. Set the following parameters as desired.
  - a. Under [Network Configuration from Setup Program], select whether or not you want to allow the camera to be configured using the Setup Program on the CD-ROM.
  - b. Under [Internet Connection], enter the port number to be assigned to the camera.
    - The default port number is 80, however, note that some ISPs do not allow access from the Internet using port 80. Ask your ISP or network administrator about which port numbers are available for access over the Internet.
    - Do not use the following port numbers:
      - 20 and 21: used for FTP
      - 23: used for Telnet
      - 25: used for SMTP
      - 53: used for DNS
      - 110: used for POP3
      - 443: used for HTTPS
      - 4000: used for ICQ
      - 6661–6667: used for IRC
    - If you are connecting multiple cameras and plan on using port forwarding to allow Internet access to the cameras, assign a different port number to each camera. We recommend using port numbers in the 50000–50050 range.
  - c. Enter the host name<sup>1</sup> if required by your ISP or network administrator.

- If the camera is connected to a router, you can usually leave this field blank.
  - d. Under [Default Gateway], enter the default gateway IP address if required by your ISP or network administrator.
    - This field can normally be left empty.
  - e. Under [DNS], enter the IP addresses of the primary and secondary DNS servers if required by your ISP or network administrator.
    - These fields can normally be left empty.
  - f. Under [Max. Bandwidth Usage], select the maximum bandwidth you want to allow the camera to use.
    - This setting is effective for both IPv4 and IPv6 connections.
    - Refer to the following file size information when restricting the maximum bandwidth. Note that these are estimated file sizes for one JPEG image (the actual file size may vary depending on image quality, image brightness, etc.). To determine the bandwidth required, multiply this number by the number of accesses (for JPEG images), and multiply the H.264 or MPEG-4 bit rate setting on the [Video Streaming] page by the number of H.264 or MPEG-4 accesses.
      - 192 × 144: 7 KB (56 Kbit)
      - 320 × 240: 16 KB (128 Kbit)
      - 640 × 480: 35 KB (280 Kbit)
  - g. Under [Connection Type], select the appropriate connection type.
    - Normally you can leave this setting at [Auto Negotiation].
    - This setting is effective for both IPv4 and IPv6 connections.
2. Click [Save].
  3. When the [New settings are saved.] message is displayed, click [Restart].
    - All images buffered in the internal memory are deleted when the camera is restarted.

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\*1 [Space], ["], ['], [&], [<], and [>] cannot be entered.

#### **Note**

- If the camera's IP address was changed as a result of changing the network settings, use the Setup Program on the CD-ROM to find the camera's new IP address (see Page 202).
- The current network settings can be confirmed on the [Status] page (see Page 176).

## 5.1.2 Proxy Server Settings

The following settings are necessary if your network uses a proxy server and you want to transfer images by HTTP or send trigger notifications by HTTP. If you do not use a proxy server, these settings are unnecessary.

### Note

- Consult your Internet Service Provider (ISP) or network administrator to find out if your network uses a proxy server.
- The camera does not use encryption when sending the login ID and password to access the proxy server. Use caution as necessary to prevent disclosure of this information.
- For added security, we recommend periodically changing the login ID and password that are required to access your proxy server.

1. Click the [Setup] tab.
2. On the left side of the screen under [Basic], click [Network (IPv4)].

Proxy Server Settings	
Address	<input type="text"/>
Port No.	<input type="text" value="8080"/>
Login ID (0 to 63 Characters)	<input type="text"/>
Password (0 to 63 Characters)	<input type="text"/>

3. Under [Proxy Server Settings], enter the address<sup>\*1</sup> port no., login ID<sup>\*2</sup> and password<sup>\*2</sup> that are required to access the proxy server.
  - Ask your ISP or network administrator for the correct settings.
  - An IPv6 address can be specified; note that the IPv6 address must be enclosed in brackets.
4. Click [Save].

---

<sup>\*1</sup> [Space], ["], ['], [&], [<], and [>] cannot be used.

<sup>\*2</sup> ["] cannot be used.

## 5.2 HTTPS Settings

The camera supports HTTPS connections. When accessing the camera using HTTPS, data sent between the computer and camera is encrypted, providing increased security. To access the camera using HTTPS, see Page 120.

1. Click the [Setup] tab.
2. On the left side of the screen under [Basic], click [HTTPS].

The screenshot shows a web-based configuration interface for HTTPS settings. At the top, there is a blue header with the text 'HTTPS'. Below this header, there are two radio button options: 'Use HTTPS' (which is currently unselected) and 'Use HTTP' (which is selected). Underneath these options is another blue header labeled 'Certificate Information'. Below this header, there is a text input field with the label 'Camera IP Address or Host Name'. At the bottom of the form, there are two buttons: 'Save' and 'Cancel'.

3. Set the following parameters as desired.
  - a. Under [HTTPS], select [Use HTTPS] if you want to use the HTTPS feature.
  - b. If [HTTPS] is set to [Use HTTPS], enter the IP address or host name of the server that contains the SSL key under [Certificate Information].<sup>1</sup>
    - Generally the camera's IP address can be entered here.
4. Click [Save].
  - It may take up to 5 minutes to receive the SSL key. The camera cannot be accessed using HTTPS until the SSL key is received.
5. When the [Success!] message is displayed, click [Restart].
  - All images buffered in the internal memory are deleted when the camera is restarted.

### Note

- When the camera is configured for HTTPS access, it cannot be accessed using HTTP. Similarly, when the camera is configured for HTTP access (i.e., when [HTTPS] is set to [Use HTTP]), it cannot be accessed using HTTPS.
- When configuring the camera for access from the Internet, enter the IP address or host name used to access the camera over the Internet next to [Camera IP Address or Host Name]. In this case a security warning will be displayed when accessing the camera over the local network.
- When accessing the camera using HTTPS, the following may occur.
  - Frame rate may decrease and camera response time may increase.
  - It may take a while to display images.
  - Images may break up or audio may be interrupted at the beginning of the access.
- **BL-C210A/BL-C230A only:** If [HTTPS] is set to [Use HTTPS], the camera cannot be accessed from a TV and you cannot set the camera to registration mode (see Page 172).

<sup>1</sup> [Space], ["], ['], [&], [<], and [>] cannot be entered.

### Accessing the camera using HTTPS

If the camera is configured for HTTPS access, it can only be accessed using HTTPS; HTTP access is not possible. Use the following address format when accessing the camera using HTTPS.

1. Start your PC's web browser.
2. In the browser's address bar, enter `https://` followed by the IP address or host name and the port number of the camera, then press [Enter] on the keyboard.

**Example:** `https://192.168.0.253:80`

- If you have registered with a Dynamic DNS service, such as Viewnetcam.com (see Page 105), enter the URL instead of the IP address. Note that accessing the camera this way may only work when you are accessing the camera from outside, i.e., from a PC that is not connected to the same network as the camera.

**Example:** `https://***.viewnetcam.com:80`

3. When the authentication dialog is displayed, enter the user name and password, then click [OK]. The top page is displayed.

#### **Note**

- If the authentication dialog is not displayed, click the [Login] tab after the camera's top page is displayed. For more information, see Page 158.

### Installing security certificates

When accessing the camera using HTTPS, a security warning is displayed if there is a security certificate that corresponds to the camera is not installed on the PC. To prevent this dialog from being displayed, follow the procedure below and install a security certificate.

#### **Note**

- The value entered next to [Camera IP Address or Host Name] on the [HTTPS] screen must match the IP address or host name used to access the camera. If this value does not match, a security warning will be displayed when accessing the camera.
- If the IP address or host name used to access the camera changes after installing the security certificate, a security warning will be displayed when accessing the camera. To prevent the security warning from being displayed, a new security certificate must be installed.
- When configuring the camera for access from the Internet, enter the IP address or host name used to access the camera over the Internet next to [Camera IP Address or Host Name]. In this case a security warning will be displayed when accessing the camera over the local network.

#### **For Internet Explorer 7/Internet Explorer 8 and Windows Vista/Windows XP**

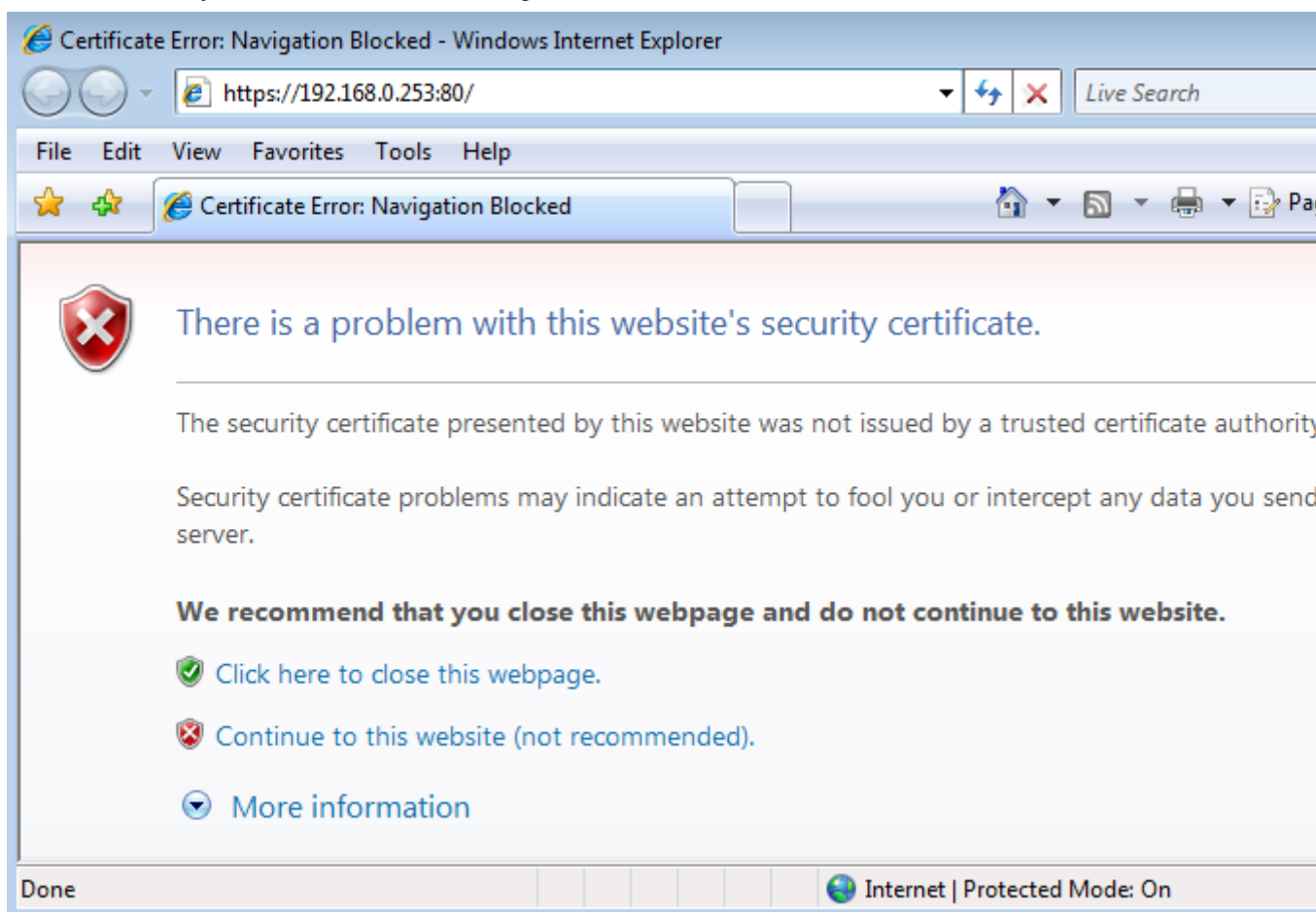
#### **Note**

- Screens displayed when using Windows XP vary slightly from those shown below.

1. Access the camera using HTTPS.
2. When the security warning is displayed, click [Continue to this website (not recommended)].



- Installing security certificates for unknown devices or sites can lead to security risks. Confirm the origin of the security certificates before installing them for devices or sites other than the camera.

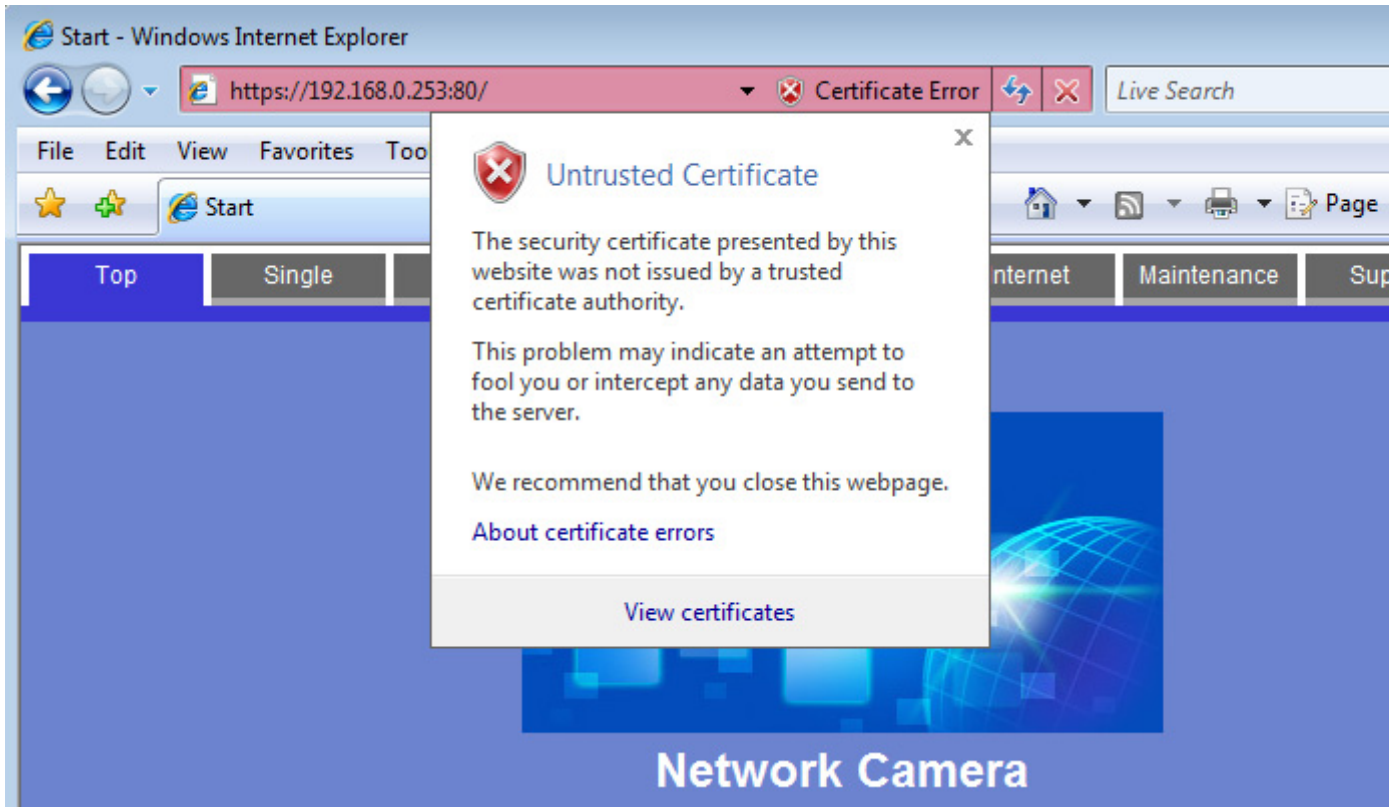


3. When the authentication dialog is displayed, enter the user name and password, then click [OK].
  - The top page is displayed.

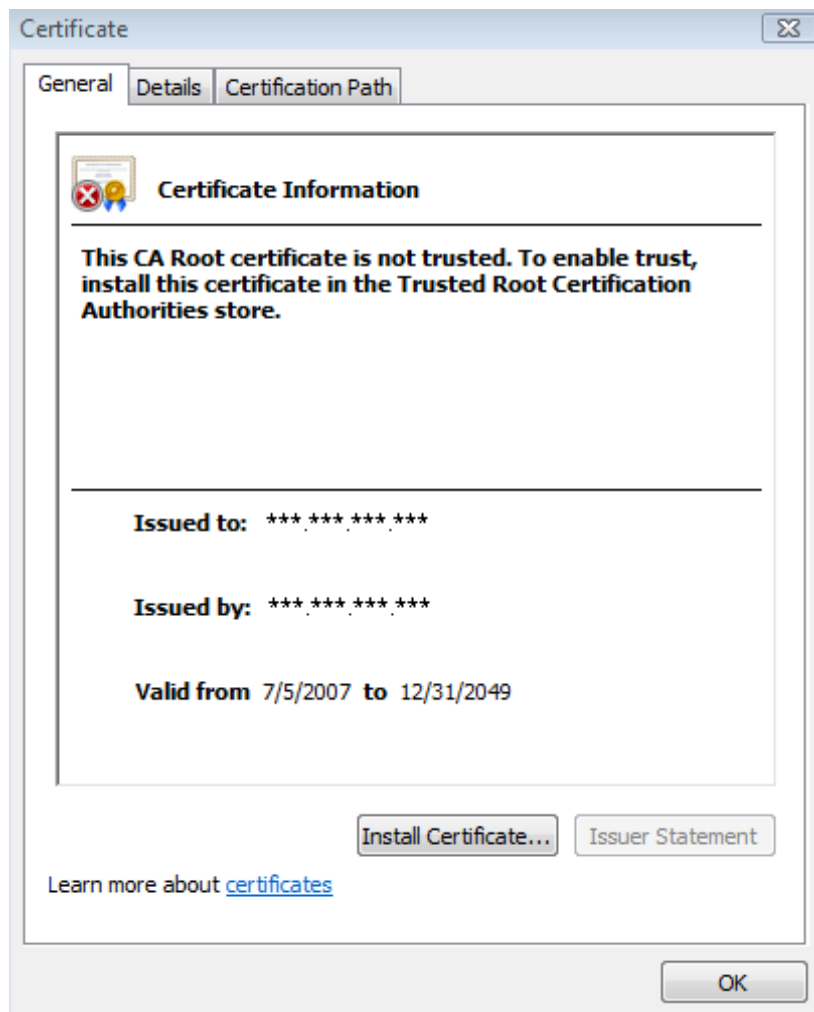
## 5.2 HTTPS Settings

---

4. Click [Certificate Error] in the address bar, then click [View certificates].



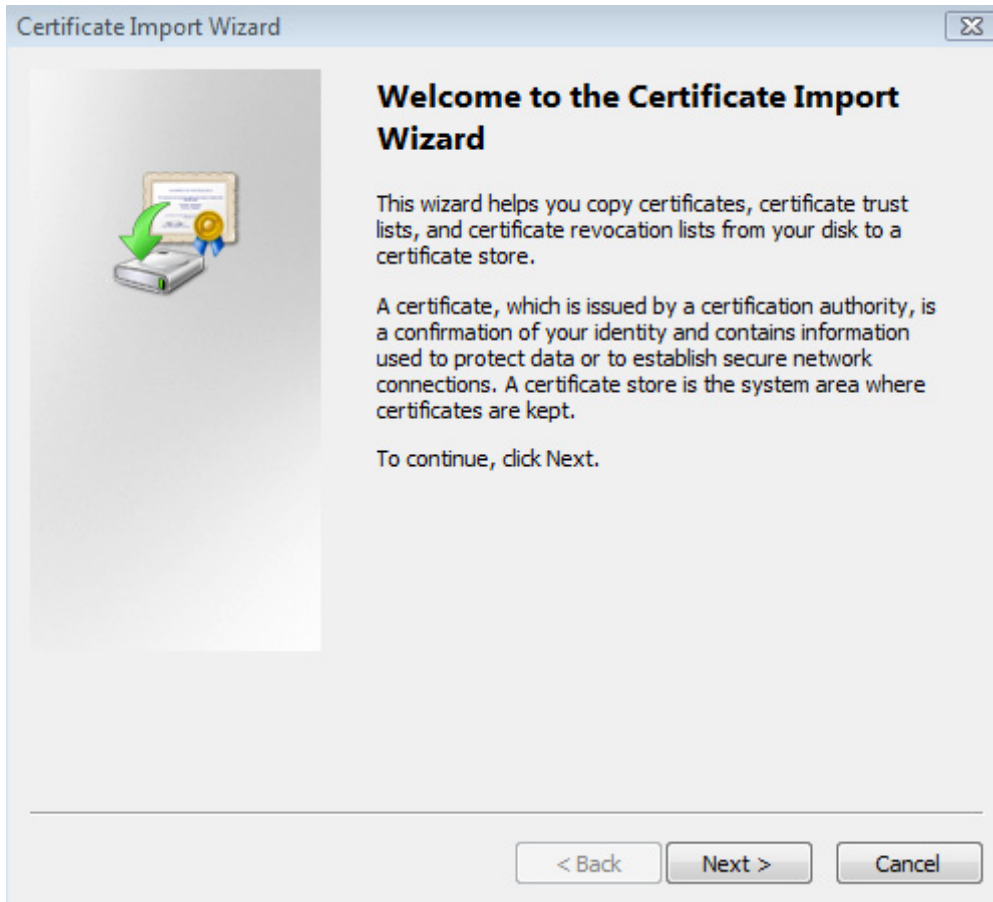
5. Click [Install Certificate...].



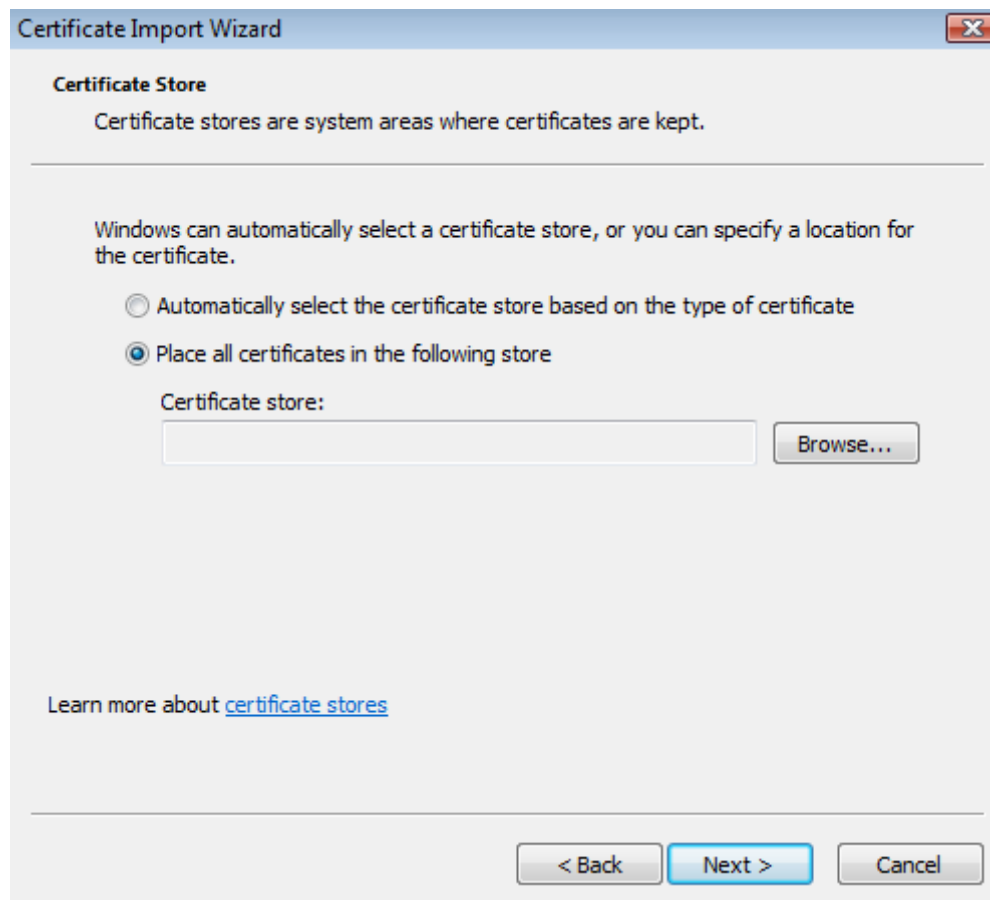
#### Note

- If the [Install Certificate...] button is not displayed, exit Internet Explorer, then start Internet Explorer using the [Run as administrator] option. Click [Start]→[All Programs]→right-click [Internet Explorer], then click [Run as administrator].

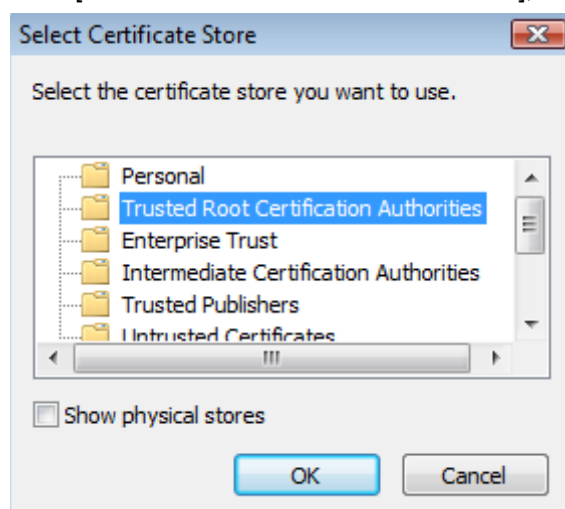
6. After the wizard is displayed, click [Next].



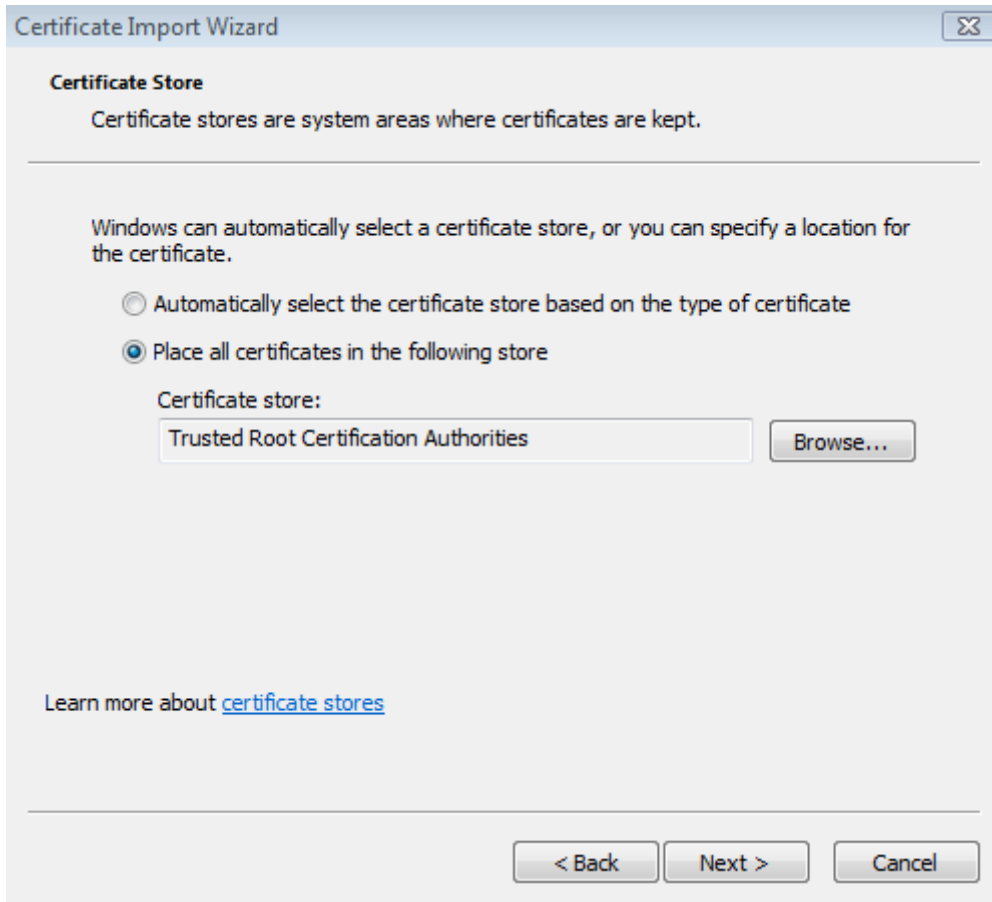
7. Select [Place all certificates in the following store], then click [Browse...].



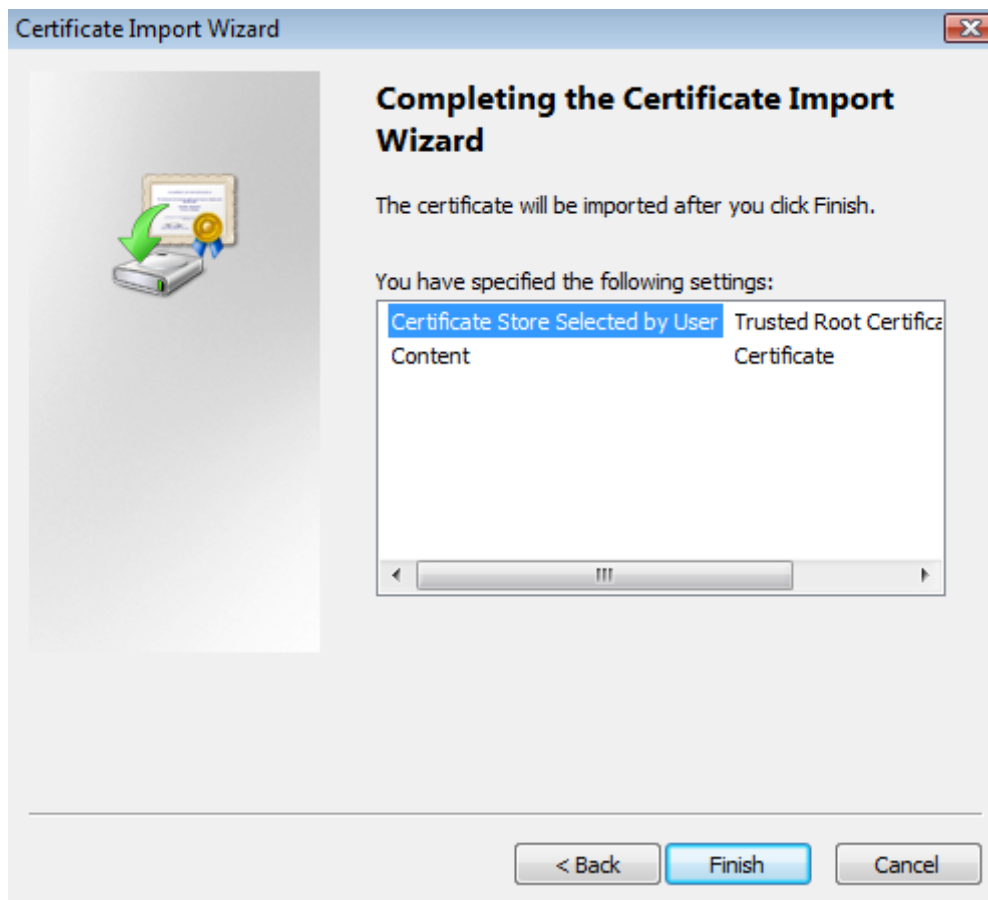
8. Click [Trusted Root Certification Authorities], then click [OK].



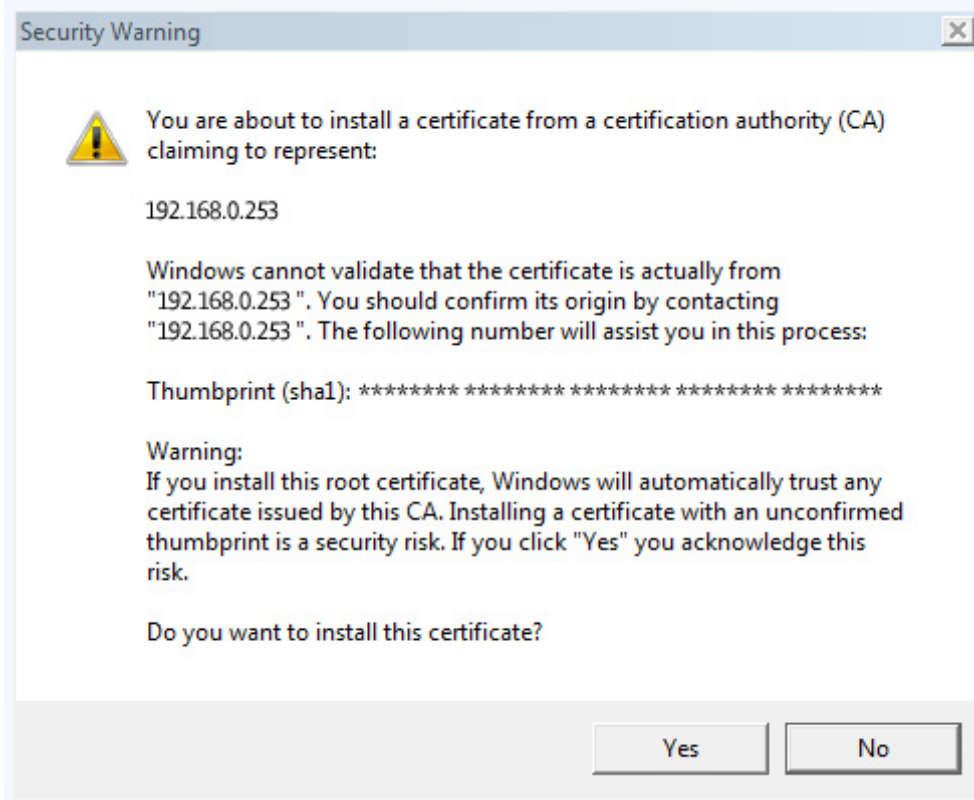
9. Click [Next].



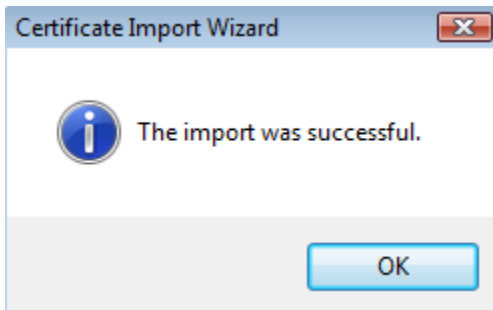
10. Click [Finish].



11. Click [Yes].



12. After [The import was successful.] is displayed, click [OK].



**Note**

- After you restart the browser and access the camera using HTTPS, the security warning will not be displayed.

**For Internet Explorer 6 and Windows XP**

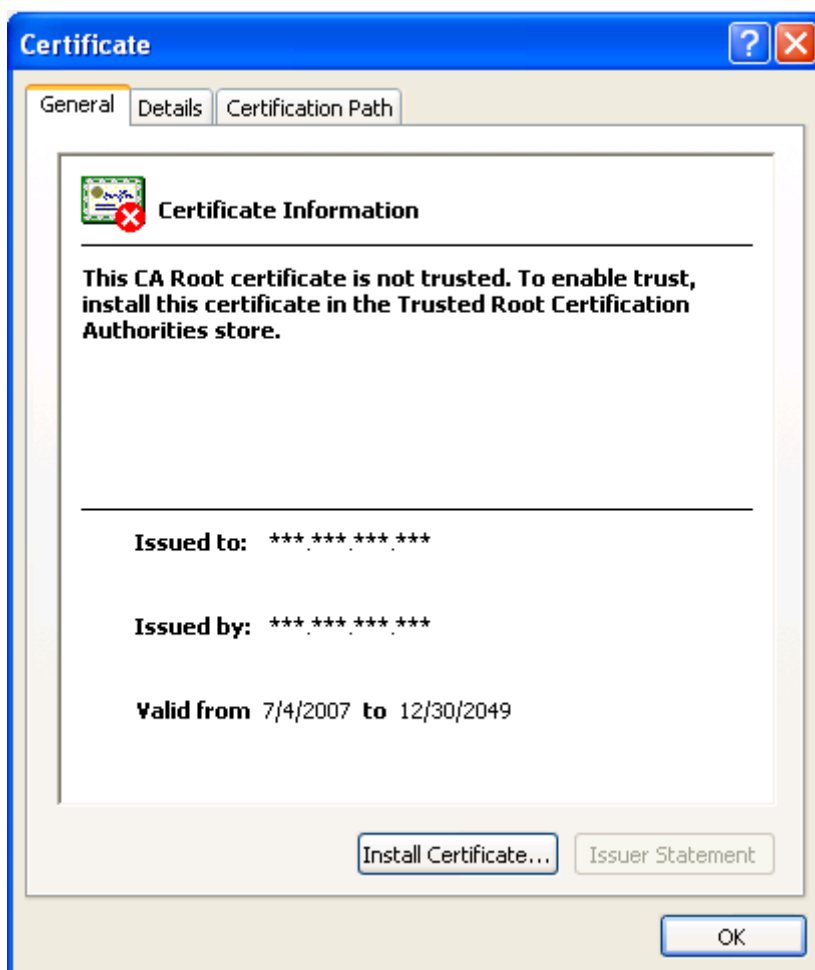
1. Access the camera using HTTPS.
2. Click [View Certificate].



- Installing security certificates for unknown devices or sites can lead to security risks. Confirm the origin of the security certificates before installing them for devices or sites other than the camera.



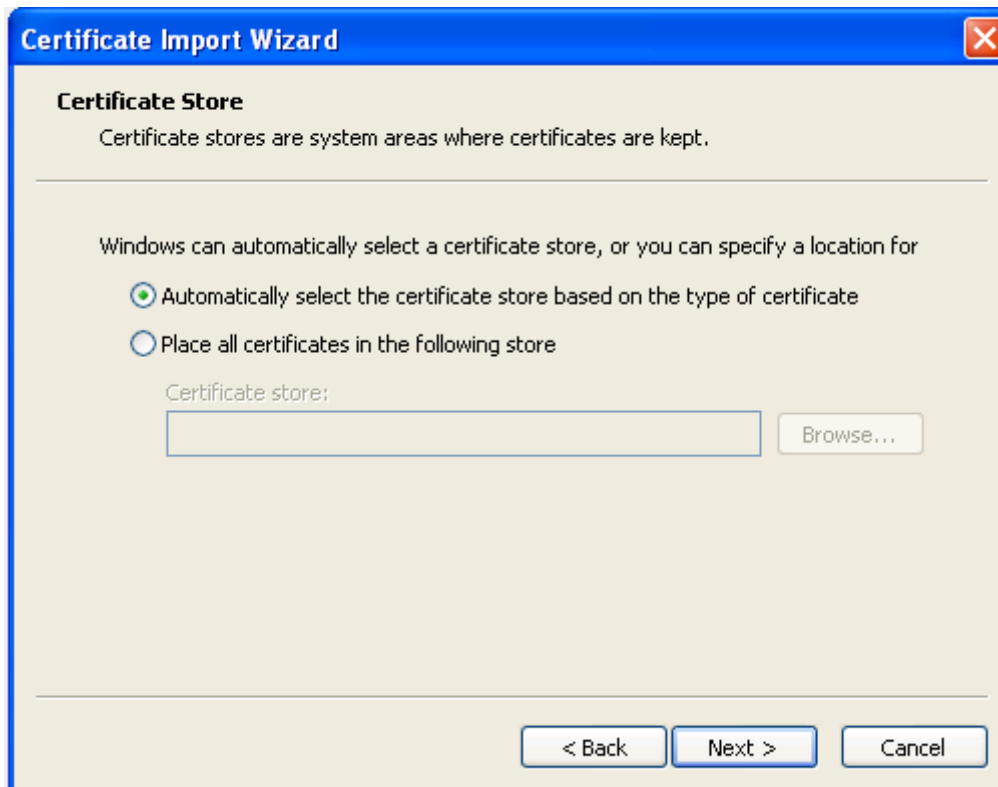
3. Click [Install Certificate...].



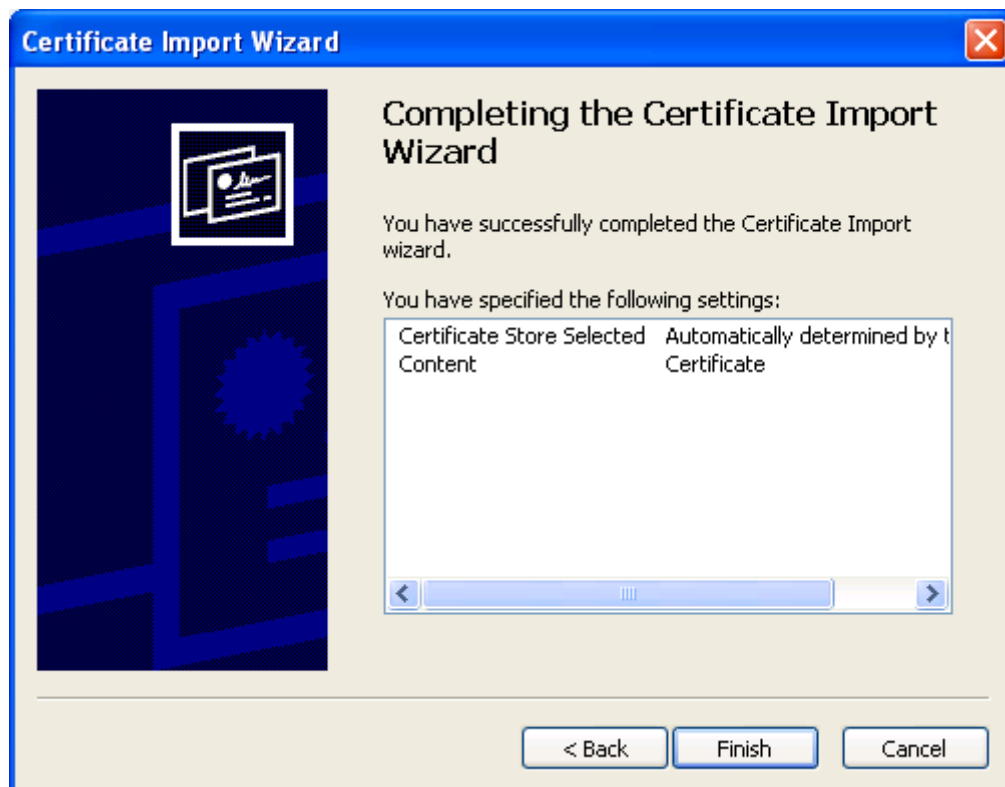
4. After the wizard is displayed, click [Next].



5. Select [Automatically select the certificate store based on the type of certificate], then click [Next].



6. Click [Finish].



7. Click [Yes].



8. After [The import was successful.] is displayed, click [OK].



**Note**

- After you restart the browser and access the camera using HTTPS, the security warning will not be displayed.

## 5.3 Using the Camera in Wireless Mode (BL-C230 Only)

The BL-C230 can be used wirelessly. In this case, there is no need to connect a LAN cable to the camera. In order to use the camera wirelessly, you must:

1. Configure the camera for wired connection. Refer to the included Installation Guide and Setup Guide if you have not done this.
2. Configure the camera's wireless settings (see Page 134).
3. Restart the camera in wireless mode (see Page 138).

### **Note**

- If images cannot be displayed or if images break up, the following devices may be causing interference.
    - wireless LAN devices
    - 2.4 GHz cordless telephones/faxes
    - microwave ovens
    - wireless AV devices
- If the above devices are causing interference, change the wireless communication channels of the camera and the router not to overlap with interfering devices. For more information, refer to the operating instructions included with your wireless router.
- If communicating to another wireless device (a PC, etc.) using the wireless router that the camera is connected, streaming may become congested because the wireless bandwidth is shared.

## 5.3.1 Configuring the Camera for Wireless Connection (BL-C230 Only)

Configure the camera for wireless access by configuring the corresponding camera settings to **match the wireless settings of your wireless router**. For more information, refer to the operating instructions included with your wireless router.

### Note

- SSID is an identification name that is used to distinguish and separate wireless connections into groups. It is also called Network Name (SSID), Wireless network name (SSID), or ESSID. Cipher is a technology that increases security in wireless communications by using encryption methods (WEP, WPA-PSK (TKIP), or WPA2-PSK (AES)) to encrypt data sent on the network. It is also called Security or Security Mode.
- WPA-PSK (TKIP) and WPA2-PSK (AES) have stronger encryption than WEP and have high level security capabilities. We recommend using WPA-PSK (TKIP) or WPA2-PSK (AES) as the encryption method.
- Encryption helps protect wireless communications from being accessed or intercepted by unauthorized parties. Using the encryption features on your wireless router and the camera is recommended.
- If your wireless router uses MAC address filtering, enter the MAC address of the camera and the MAC address of the camera's wireless module when setting your wireless router's MAC address filtering feature. You can confirm the camera's MAC address on the [Status] page (see Page 176) and the MAC address of the wireless module on the [Wireless Status] page (see Page 177).
- After changing and saving the camera's wireless settings, it takes about 1 minute for the new settings to become effective.
- Even if the camera is turned on in wired mode, it emits radio waves for about 5 minutes. During this time, the router's wireless indicator may light or flash.
- To switch between wired and wireless connection (see Page 138), the camera must be restarted. Your router may also need to be restarted before the camera can access the router.
- If communicating to another wireless device (a PC, etc.) using the wireless router that the camera is connected, streaming may become congested because the wireless bandwidth is shared.

1. Click the [Setup] tab.
2. On the left side of the screen under [Basic], click [Wireless].

Wireless Configuration	
SSID	<input type="text"/>
Communication mode	<input type="radio"/> 802.11b <input checked="" type="radio"/> 802.11b/g <input type="radio"/> 802.11g exclusive

3. Under [Wireless Configuration], enter the SSID used by your wireless router (max. 32 characters).
4. Select the wireless standard used by your wireless router.
  - Even if your router supports the 802.11g standard (which is theoretically faster than 802.11b), wireless communication speed may decrease if there are other devices nearby which use the 2.4 GHz bandwidth, including devices that use the 802.11b standard.
5. Under [Encryption], select the desired encryption method, make the appropriate settings (explained below), then click [Save].

## When [No encryption] is selected

When [No encryption] is selected, encryption will not be used for wireless communications, and therefore **wireless communication may not be secure**. If you select [No encryption], click [Save] to finish.

Encryption	
Cipher	No encryption <input type="button" value="v"/>
<input checked="" type="radio"/> WEP Key 1	<input type="text"/> ASCII 13characters 128bit <input type="button" value="v"/>
<input type="radio"/> WEP Key 2	<input type="text"/> ASCII 13characters 128bit <input type="button" value="v"/>
<input type="radio"/> WEP Key 3	<input type="text"/> ASCII 13characters 128bit <input type="button" value="v"/>
<input type="radio"/> WEP Key 4	<input type="text"/> ASCII 13characters 128bit <input type="button" value="v"/>
<input type="button" value="Save"/> <input type="button" value="Cancel"/>	

## When [WEP] is selected

When [WEP] is selected, the WEP standard will be used for encryption. **Refer to the settings of your wireless router**, then select the WEP key (1–4) used by your wireless router, select the key format from the corresponding pull-down menu, enter the WEP key, then click [Save] to finish.

Encryption	
Cipher	WEP <input type="button" value="v"/>
<input checked="" type="radio"/> WEP Key 1	<input type="text"/> ASCII 13characters 128bit <input type="button" value="v"/>
<input type="radio"/> WEP Key 2	<input type="text"/> ASCII 13characters 128bit <input type="button" value="v"/>
<input type="radio"/> WEP Key 3	<input type="text"/> ASCII 13characters 128bit <input type="button" value="v"/>
<input type="radio"/> WEP Key 4	<input type="text"/> ASCII 13characters 128bit <input type="button" value="v"/>
<input type="button" value="Save"/> <input type="button" value="Cancel"/>	

### 5.3.1 Configuring the Camera for Wireless Connection (BL-C230 Only)

Key Format	No. of Characters	Usable Characters
[HEX, 10characters 64bit]	10	0–9, a–f
[HEX, 26characters 128bit]	26	
[HEX, 32characters 152bit]	32	
[ASCII 5characters 64bit]	5	ASCII characters (see Page 206) <sup>*1</sup>
[ASCII 13characters 128bit]	13	
[ASCII 16characters 152bit]	16	

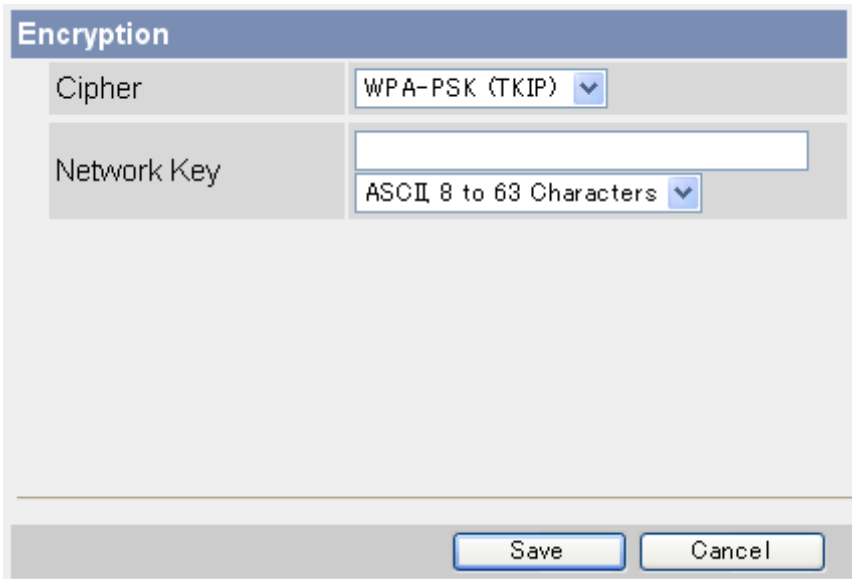
<sup>\*1</sup> [Space] cannot be used.

**Note**

- The camera supports only open system authentication. If the wireless router or access point is configured to use shared key authentication, reconfigure the wireless router or access point to use auto or open system authentication.

### When [WPA-PSK (TKIP)] is selected

When [WPA-PSK (TKIP)] is selected, the WPA-PSK (TKIP) standard will be used for encryption. **Refer to the settings of your wireless router**, then enter the [Network Key], select the key format from the pull-down menu, and click [Save] to finish.



Key Format	No. of Characters	Usable Characters
[HEX, 64 Characters]	64	0–9, a–f
[ASCII, 8 to 63 Characters]	8–63	ASCII characters (see Page 206) <sup>*1</sup>

<sup>\*1</sup> [Space] cannot be used.



## When [WPA2-PSK (AES)] is selected

When [WPA2-PSK (AES)] is selected, the WPA2-PSK (AES) standard will be used for encryption. **Refer to the settings of your wireless router**, then enter the [Network Key], select the key format from the pull-down menu, and click [Save] to finish.

The screenshot shows a configuration window titled "Encryption". It contains two main sections: "Cipher" and "Network Key". The "Cipher" dropdown menu is currently set to "WPA2-PSK (AES)". The "Network Key" section has an empty text input field and a dropdown menu for "Key Format" set to "ASCII 8 to 63 Characters". At the bottom of the window, there are two buttons: "Save" and "Cancel".

Key Format	No. of Characters	Usable Characters
[HEX, 64 Characters]	64	0–9, a–f
[ASCII, 8 to 63 Characters]	8–63	ASCII characters (see Page 206) <sup>*1</sup>

<sup>\*1</sup> [Space] cannot be used.

## 5.3.2 Restarting the Camera in Wireless Mode (BL-C230 Only)

After you have configured the camera for wireless connection, follow the procedure below to restart the camera in wireless mode.

1. Turn off the camera by unplugging the AC plug from the power outlet.
2. Set the **WIRELESS/WIRED** switch on the bottom of the camera to the **WIRELESS** position.
3. Turn the camera on by plugging the AC plug into the power outlet.
4. Confirm the camera's wireless settings are correct by accessing the camera (see Page 8).

### **Note**

- To use the camera in wired mode again, repeat the procedure above and set the **WIRELESS/WIRED** switch on the bottom of the camera to the **WIRED** position.
- If you cannot access the camera, the camera's wireless settings may be incorrect. Repeat the procedure above and set the **WIRELESS/WIRED** switch on the bottom of the camera to the **WIRED** position. Access the camera in wired mode and confirm that all wireless settings are correct and match the settings of your wireless router.
- If your wireless router uses MAC address filtering, enter the MAC address of the camera and the MAC address of the camera's wireless module when setting your wireless router's MAC address filtering feature. You can confirm the camera's MAC address on the [Status] page (see Page 176) and the MAC address of the wireless module on the [Wireless Status] page (see Page 177).
- You may need to restart your router in order to access the camera in wireless mode.
- Even if the camera is turned on in wired mode, it emits radio waves for about 5 minutes. During this time, the router's wireless indicator may light or flash.
- If you still cannot access the camera in wireless mode, see 1.4 Wireless Connection Issues (BL-C230 Only) in the Troubleshooting Guide.

## 5.4 UPnP™ Settings

The camera supports UPnP™ (Universal Plug and Play) features, which allow you to do the following:

- Configure your router's port forwarding feature. (A UPnP™ compatible router is required.) This is useful if you want to access your camera from the Internet or using a mobile phone. See Page 96 for more information.
  - **BL-C210CE/BL-C210E/BL-C230CE/BL-C230E only:** Create a shortcut to the camera in your computer's [My Network Places] folder ([Network] folder when using Windows Vista) that will be automatically updated even if the camera's IP address changes.
1. Click the [Setup] tab.
  2. On the left side of the screen under [Basic], click [UPnP].

The screenshot shows a settings window with two sections. The first section, 'Auto Port Forwarding', has two radio buttons: 'Enable' (unselected) and 'Disable' (selected). The second section, 'Display Shortcut Icon in My Network Places', has two radio buttons: 'Enable' (selected) and 'Disable' (unselected). At the bottom of the window are 'Save' and 'Cancel' buttons.

3. Set the following parameters as desired.
  - a. Under [Auto Port Forwarding], select [Enable] if you want to configure your router's port forwarding feature.
    - In order to use this feature, your router must support UPnP™ and have its UPnP™ feature turned on.
  - b. **BL-C210CE/BL-C210E/BL-C230CE/BL-C230E only:** Under [Display Shortcut Icon in My Network Places], select [Enable] if you want to create a shortcut to the camera in your computer's [My Network Places] folder ([Network] folder when using Windows Vista).
    - In order to use this feature, your computer's UPnP™ feature must be enabled. See Page 198 for more information.
4. Click [Save].

### Note

- You can also configure your UPnP™ compatible router for port forwarding from the [Internet] tab (see Page 100).
- Screen content varies by model number.
- **BL-C210A/BL-C230A only:** [Display Shortcut Icon in My Network Places] is not displayed. This feature is enabled for the camera and cannot be changed.

## 5.5 Setting the Date and Time

Set the camera's date and time settings to ensure image buffering, image transferring, camera operation time, and time stamp features function as expected.

**Note**

- All images buffered in the internal memory are deleted when you click [Save] at the end of this procedure.
1. Click the [Setup] tab.
  2. On the left side of the screen under [Basic], click [Date and Time].

The screenshot shows a configuration window with three main sections: 'Time Setting', 'Automatic Time Adjustment', and 'Adjust Clock for Daylight Saving Time/Summer Time'.  
1. **Time Setting:** Includes fields for Date (Month: Jun, Day: 18, Year: 09), Format (AM/PM selected, 24H button), and Time (Hour: 3, Minute: 49, PM selected).  
2. **Automatic Time Adjustment:** Features an 'Enable' checkbox, an 'NTP Server Address or Host Name' text input field, and a 'Time Zone' dropdown menu set to 'GMT-05:00 Eastern Time'.  
3. **Adjust Clock for Daylight Saving Time/Summer Time:** Features an 'Enable' checkbox, 'Start Day' (Month: Mar, Weekday: Second Sunday, Hour: 2 AM), and 'End Day' (Month: Nov, Weekday: First Sunday, Hour: 2 AM) settings.  
At the bottom are 'Save' and 'Cancel' buttons.

3. Set the following parameters as desired.
  - a. Under [Time Setting], select the current month, day, and year.
  - b. Select whether you want to use 12-hour or 24-hour time format.
  - c. Select the current time.
  - d. Under [Automatic Time Adjustment], select whether you want to enable automatic date and time adjustment.
    - i. If you select to enable this feature, enter the IP address or host name of the desired NTP (network time protocol) server<sup>1</sup> (max. 255 characters) that the camera will use to adjust its date and time.
      - An IPv6 address can be specified; note that the IPv6 address must be enclosed in brackets.
    - ii. Select your time zone.
  - e. Under [Adjust Clock for Daylight Saving Time/Summer Time], select whether you want the camera to automatically adjust its date and time for Daylight Saving Time/Summer Time.

- i. If you select to enable this feature, enter the month, day, and time when Daylight Saving Time/Summer Time begins. (The camera's clock moves forward one hour at the set date and time.)
  - ii. Enter the month, day, and time when Daylight Saving Time/Summer Time ends. (The camera's clock moves back one hour at the set date and time.)
4. Click [Save].
  - All images buffered in the internal memory are deleted when you click [Save].

---

\*1 [Space], ["], ['], [&], [<], and [>] cannot be entered.

### **Note**

- The camera will not synchronize to the NTP server if there is more than an 1 hour difference between the NTP server time and the camera's current time. This is to protect the camera's time setting from fraudulent NTP server tampering, incorrect time information, etc.
- The camera's clock becomes less accurate over time and can be affected when the camera's temperature changes. Using the [Automatic Time Adjustment] feature is recommended.
- Screen content varies by model number.

## 5.6 Changing Basic Camera Settings

The [Camera] page of the [Setup] tab allows you to adjust basic camera features.

1. Click the [Setup] tab.
2. On the left side of the screen under [Basic], click [Camera].

The screenshot shows a settings menu with three main sections:

- AC Power Source Frequency:** Two radio button options: 50Hz (unselected) and 60Hz (selected).
- Return to Specified Position:** Two dropdown menus. The first is labeled 'Time' and is set to 'Do not move'. The second is labeled 'Specified Position' and is set to 'Home Position'.
- Shutter Speed/Color Night View:** Two radio button options: Shutter Speed (selected) and Color Night View (unselected). The Shutter Speed option has a dropdown menu set to '1/30 s'.

At the bottom of the form are two buttons: 'Save' and 'Cancel'.

3. Set the following parameters as desired.
  - a. Under [AC Power Source Frequency], select the desired setting.
    - [50 Hz]: Select this item if your AC power source operates at 50 Hz.
    - [60 Hz]: Select this item if your AC power source operates at 60 Hz.

**Note**

- Screen content varies by model number.
- b. Under [Return to Specified Position], select whether you want the camera to move the lens to a specific preset position after a specified period of inactivity.
    - i. Select the length of time (inactivity) that passes before the camera moves the lens. If this setting is too short, you may have difficulty registering presets because the lens will return to the specified position before you have saved your new preset.
    - ii. Select the desired preset position (see Page 29).
  - c. Under [Shutter Speed/Color Night View], select whether the camera's shutter speed is fixed, or whether the color night view mode feature automatically adjusts the shutter speed when the camera image is dark.
    - i. To set the shutter speed, select [Shutter Speed], then select the desired speed from the pull-down menu.
      - The available shutter speeds depend on the [AC Power Source Frequency] setting, as follows:  
50 Hz: 1/25 s, 1/50 s, 1/100 s  
60 Hz: 1/30 s, 1/60 s, 1/120 s

- This setting determines the minimum shutter speed. Shutter speed may increase when viewing bright objects.
  - Note that when the shutter speed is faster, noise may be seen in the camera image depending on the light source, and noise may increase depending on the brightness of the image.
  - ii. To enable the color night view mode feature, select [Color Night View]. (Page 210)
    - When the camera image becomes dark (e.g., when the lights in a room are turned off), the shutter speed is reduced.
    - This feature is disabled by default.
    - Note that when this feature is activated:
      - Refresh rate decreases and images become blurry when the object is moving.
      - White or colored dots or horizontal lines may be displayed in the camera image. This is a characteristic of the camera's image sensor, and is not a malfunction.
4. Click [Save].

## 5.7 Changing Audio Settings

The [Audio] page of the [Setup] tab allows you to adjust audio feature-related settings.

1. Click the [Setup] tab.
2. On the left side of the screen under [Basic], click [Audio].

The screenshot shows a settings interface with three main sections:

- Input:** Two radio button options:  Enable and  Disable.
- Camera Microphone Sensitivity:** A dropdown menu currently set to "Normal".
- Mute during Pan/Tilt:** Two radio button options:  Enable and  Disable.

At the bottom right, there are two buttons: "Save" and "Cancel".

3. Set the following parameters as desired.
  - a. Under [Input], select whether the camera's microphone is enabled or disabled.
    - When set to [Disable], the sound detection feature is not available.
  - b. Under [Camera Microphone Sensitivity], select the desired setting.
    - [Very Low]: Sets the microphone to very low sensitivity. Further less sound is picked up by the microphone.
    - [Low]: Sets the microphone to low sensitivity. Less sound is picked up by the microphone.
    - [Normal]: Sets the microphone to moderate sensitivity.
    - [High]: Sets the microphone to high sensitivity. More sound is picked up by the microphone.
    - This setting affects the performance of the sound detection feature. After changing this setting, adjust sound detection sensitivity again (see Page 84).
  - c. Under [Mute during Pan/Tilt], select whether the camera's microphone is automatically muted when the camera is panning or tilting.
    - This feature is enabled by default.
    - When this feature is set to [Disable], the microphone will be enabled when the camera pans or tilts. The sound of the lens moving may be picked up by the microphone.
4. Click [Save].



## 5.8 Changing Video Streaming Settings

The [Video Streaming] page of the [Setup] tab allows you to adjust video streaming feature-related settings.

1. Click the [Setup] tab.

## 5.8 Changing Video Streaming Settings

2. On the left side of the screen under [Basic], click [Video Streaming].

Streaming Format	
<input checked="" type="radio"/> H.264 (640x480/320x240) MJPEG (640x480/320x240/192x144)	
<input type="radio"/> MPEG-4 (640x480/320x240/192x144) MJPEG (640x480/320x240/192x144)	

Max. No. of HTTP Sessions	
H.264	2
MJPEG	3

Max. No. of HTTPS Sessions	
H.264	2
MJPEG	3

H.264 Max. Frame Rate	
640x480	30 Frames/Sec.
320x240	30 Frames/Sec.

H.264 Bit Rate	
640x480	512 Kbps to 2048 Kbps
320x240	64 Kbps to 1024 Kbps

RTSP	
Port No. (1 to 65535, Usually Use 554)	554

RTP	
Port No. (2 to 65400, Use Even Number)	33000 to 33128

Multicast	
Determines whether Multicast is enabled. Multicast allows you to stream the same data over the network to multiple parties.	
<input type="checkbox"/> Multicast settings screen is displayed.	

3. Set the following parameters as desired.
  - a. Under [Streaming Format], select the streaming format.
    - This setting may change the values selected for the [Refresh Rate] and [Image Resolution] parameters for [Single Camera] and [Multi-Camera] on the [Image Display] page.
    - Certain features are unavailable depending on this setting. See 13.5 Feature Limitations Based on Image Format for details.
  - b. Under [Max. No. of HTTP Sessions], select the maximum number of HTTP sessions allowed.
    - See 1.4 Maximum Number of Viewing Sessions for details.
  - c. Under [Max. No. of HTTPS Sessions], select the maximum number of HTTPS sessions allowed.
    - See 1.4 Maximum Number of Viewing Sessions for details.
  - d. Under [H.264 Max. Frame Rate] or [MPEG-4 Max. Frame Rate], select the number of frames per second the camera streams for each resolution setting.
  - e. Under [H.264 Bit Rate] or [MPEG-4 Bit Rate], select the minimum and maximum bit rate for each resolution setting.
    - This setting is for video only; it does not affect audio bit rate.
    - The bit rates specified here are used generally for images in which only small areas of the image change from frame to frame (for example, when the subject is not moving, when the camera is not panning or tilting, etc.). As more of the visible area changes (for example, when the subject is moving, when the camera is panning or tilting, etc.), a higher bit rate is used, and the actual bit rate used may exceed the limits specified here.
    - To limit the bandwidth used by the camera, adjust the [Max. Bandwidth Usage] setting of the [IPv4] or [IPv6] pages (see Page 113 or Page 190).
  - f. Under [RTSP], enter the port number used for RTSP. (Usually port number 554 is used.)
  - g. Under [RTP], enter the first port number used for RTP. This port number must be an even number.
    - The port number above RTP is used for RTCP. For example, when port number 33000 is used for RTP, port number 33001 is used for RTCP.
  - h. Under [Multicast], check [Multicast settings screen is displayed.] to configure the camera for multicasting, otherwise click [Save] to finish.

## 5.8 Changing Video Streaming Settings

- When [Use] is checked under [Multicast (IPv4)] or [Multicast (IPv6)], [Multicast] becomes available in the [Streaming Method] selector on the single camera page.

Multicast	
Determines whether Multicast is enabled. Multicast allows you to stream the same data over the network to multiple parties.	
<input checked="" type="checkbox"/> Multicast settings screen is displayed.	
Packet Availability Time	
TTL (1 to 255, Usually Use 5)	<input type="text" value="5"/>
Multicast (IPv4)	
<input type="checkbox"/> Use	
Address	<input type="text" value="231.244.244.241"/>
MPEG-4 Port No. (2000 to 65520, Use Even Number)	<input type="text" value="30000"/> to 30006
H.264 Port No. (2000 to 65520, Use Even Number)	<input type="text" value="30040"/> to 30046
Audio Port No. (2000 to 65520, Use Even Number)	<input type="text" value="30020"/>
Multicast (IPv6)	
<input type="checkbox"/> Use	
Address	<input type="text" value="ffe::0010"/>
MPEG-4 Port No. (2000 to 65520, Use Even Number)	<input type="text" value="30100"/> to 30106
H.264 Port No. (2000 to 65520, Use Even Number)	<input type="text" value="30140"/> to 30146
Audio Port No. (2000 to 65520, Use Even Number)	<input type="text" value="30120"/>

- Set the following parameters as desired.
  - Under [Packet Availability Time], enter the desired setting.



## 6 User Accounts

### 6.1 Understanding User Accounts

The camera supports 3 different types of users. Each type of user can use the camera in different ways, and the administrator can control which features each user can have access to.

User Type	No. of Users	Camera Configuration	Feature Access
[Administrator]	1	Can access all pages and change all settings.	All features can be used.
[General Users]	50 different users can be registered.	Cannot configure the camera.	The administrator controls which features each general user can access (see Page 152).
[Guest User] (Anonymous users)	–	Cannot configure the camera.	The administrator controls which features guest user can access, and can limit guest user access to the mobile phone page only (see Page 155).

## 6.2 Changing the Administrator User Name and Password

For security, we recommend setting a user name and password that uses many characters and is difficult to guess. Change the password periodically for added security.

1. Click the [Setup] tab.
2. On the left side of the screen under [Account], click [Administrator].

Administrator Authentication	
User Name (6 to 15 Characters)	<input type="text"/>
Password (6 to 15 Characters)	<input type="password"/>
Retype Password	<input type="password"/>

3. Under [Administrator Authentication], enter the user name and password, then re-enter the password for verification.
  - See Page 206 for a list of valid characters. Note that [Space], ["], ['], [&], [<], [>], and [:] cannot be entered.
4. Click [Save].

## 6.3 General Users

Up to 50 general user accounts can be created. Each user has his or her own user name and password, and you can control the camera features that are available to general users.

**Note**

- For security, we recommend setting user names and passwords that are difficult to guess. Change the passwords periodically for added security.
- When general users access the camera, the [Internet], [Setup], and [Maintenance] tabs are never displayed. The [Multi] and [Buffered Image] tabs will be displayed if you allow general users to access those pages.

### Creating or modifying a general user account

1. Click the [Setup] tab.
2. On the left side of the screen under [Account], click [General User].
3. Under [User ID List], click [Create].
  - Up to 50 general user accounts can be created.
  - To modify an existing user account, select the general user account you want to modify, then click [Modify].

Input User Name and Password	
User Name (6 to 15 Characters)	<input type="text"/>
Password (6 to 15 Characters)	<input type="password"/>
Retype Password	<input type="password"/>



4. Under [Input User Name and Password], enter the user name and password, then re-enter the password for verification.
  - See Page 206 for a list of valid characters. Note that [Space], ["], ['], [&], [<], [>], and [:] cannot be entered.

**Access Level**

Video Display Time	Not permitted ▼
Refresh Rate	3 s ▼
<b>Level 1</b> (Camera viewing only)	
<input type="checkbox"/> Change Refresh Rate	
<input type="checkbox"/> Change Resolution	
<input type="checkbox"/> Change Quality	
<input type="checkbox"/> Capture Image Button	
<input type="checkbox"/> View Multi-Camera page	
<input type="checkbox"/> View Buffered Image page	
<b>Level 2</b> (Camera viewing and preset control)	
<input type="checkbox"/> Preset	
<b>Level 3</b> (Camera viewing and all controls)	
<input type="checkbox"/> Pan / Tilt	
<input type="checkbox"/> Zoom (includes digital zoom operation)	
<input type="checkbox"/> Click to Center	
<input type="checkbox"/> Brightness / Backlight	
<input type="checkbox"/> White Balance	
<input type="checkbox"/> External Output	
<input type="checkbox"/> Listen	
<input type="checkbox"/> Built-in Alarm	

5. Set the following parameters as desired.
  - a. Under [Access Level], select the desired setting for [Video Display Time].
    - [Unlimited]: The user can view video images ([H.264], [MPEG-4], or [MJPEG]) from the camera without restriction.
    - [Not permitted]: The user can view only still images.
    - [10 s]–[60 min]: The user can view video images for the selected amount of time, after which the user can view only still images.

## 6.3 General Users

---

- b. Select the desired setting for [Refresh Rate]. Still images viewed by the user will be refreshed at this rate.
  - c. Select the features the user is allowed to use.
    - You can select features individually, or click [Level 1], [Level 2], or [Level 3] to enable the corresponding group of features.
    - **BL-C230 only:** [External Output] can be selected.
6. Click [Save].

### **Note**

- Screen content varies by model number.
- Users can click to center when using the ActiveX zoom feature, even if the click to center feature is disabled. Users can click to center the image within the zoomed area, but the lens will not pan or tilt.
- When [Change Resolution] is disabled, users may not be able to change the refresh rate even if [Change Refresh Rate] is enabled, due to feature limitations based on the [Streaming Format] setting on the [Video Streaming] page. For more information on these limitations, see Page 209.
- Images displayed on the multi-camera page may be reduced in size when [View Multi-Camera page] is enabled, therefore we recommend enabling [Change Resolution] as well.

## Deleting a general user account

1. Click the [Setup] tab.
2. On the left side of the screen under [Account], click [General User].
3. Under [User ID List], select the general user account you want to delete, then click [Delete].
4. Confirm that you have selected the desired general user account to be deleted, then click [Delete].
5. Click [OK].

## 6.4 Guest Users

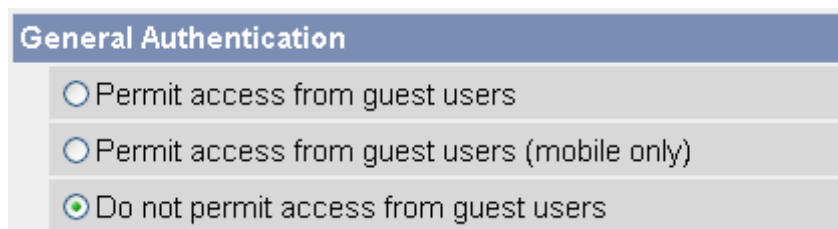
Guest users are anonymous users, and they do not need to enter a user name or password to access the camera. You can control the camera features that are available to guest users, and you can restrict guest user access altogether.

### **IMPORTANT**

To prevent unauthorized access to the camera, it is important to manage who can access the camera through the use of user names and passwords. Because the camera can be accessed from the Internet, it is possible that the camera may be accessed by unknown individuals, including those who are commonly known as “hackers”, to whom you do not want to allow access. If you choose to allow guest access (i.e., anonymous access), there is a risk that unknown individuals will access the camera and view camera images. You have the option of allowing guest access, but it is strongly recommended that you do not allow guest access, and rather create general user accounts and assign secret user names and passwords for use by known individuals only.

### Allowing/restricting guest users to access the camera

1. Click the [Setup] tab.
2. On the left side of the screen under [Account], click [Administrator].



3. Under [General Authentication], select the desired setting.
  - [Permit access from guest users]: Guest users can access the camera.
  - [Permit access from guest users (mobile only)]: Guest users can access the camera’s mobile phone page only.
  - [Do not permit access from guest users]: Guest users cannot access the camera.
4. Click [Save].

#### **Note**

- When [Permit access from guest users] is selected, no authentication dialog is displayed when you access the camera, and the [Login] tab is displayed on the top page. Click this tab to log in to the camera as the administrator or as a general user. For more information, see Page 158.

### Changing the features available to guest users

1. Make sure you configured the camera to allow guest users to access the camera (explained above).
2. Click the [Setup] tab.
3. On the left side of the screen under [Account], click [General User].

- 4. Under [User ID List], select [Guest User], then click [Modify].

**Access Level**

Video Display Time: Not permitted

Refresh Rate: 3 s

**Level 1** (Camera viewing only)

- Change Refresh Rate
- Change Resolution
- Change Quality
- Capture Image Button
- View Multi-Camera page
- View Buffered Image page

**Level 2** (Camera viewing and preset control)

- Preset

**Level 3** (Camera viewing and all controls)

- Pan / Tilt
- Zoom (includes digital zoom operation)
- Click to Center
- Brightness / Backlight
- White Balance
- External Output
- Listen
- Built-in Alarm

Buttons: Save, Cancel, Back

- 5. Set the following parameters as desired.
  - a. Under [Access Level], select the desired setting for [Video Display Time].
    - [Unlimited]: The user can view video images ([H.264], [MPEG-4], or [MJPEG]) from the camera without restriction.
    - [Not permitted]: The user can view only still images.
    - [10 s]–[60 min]: The user can view video images for the selected amount of time, after which the user can view only still images.
  - b. Select the desired setting for [Refresh Rate]. Still images viewed by the user will be refreshed at this rate.
  - c. Select the features the user is allowed to use.

- You can select features individually, or click [Level 1], [Level 2], or [Level 3] to enable the corresponding group of features.
- **BL-C230 only:** [External Output] can be selected.

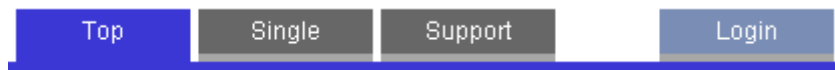
6. Click [Save].

**Note**

- Screen content varies by model number.
- Users can click to center when using the ActiveX zoom feature, even if the click to center feature is disabled. Users can click to center the image within the zoomed area, but the lens will not pan or tilt.
- When [Change Resolution] is disabled, users may not be able to change the refresh rate even if [Change Refresh Rate] is enabled, due to feature limitations based on the [Streaming Format] setting on the [Video Streaming] page. For more information on these limitations, see Page 209.
- Images displayed on the multi-camera page may be reduced in size when [View Multi-Camera page] is enabled, therefore we recommend enabling [Change Resolution] as well.

## 6.5 The Login Tab

When guest users are allowed to access the camera (see Page 155), no authentication dialog is displayed when you access the camera, and the [Login] tab is displayed on the top page. Click this tab to log in to the camera as the administrator or as a general user.



# 7 Advanced Settings

## 7.1 Changing Image Display Settings

You can change the camera name and the way camera images are displayed each time the camera is accessed. Use the procedure below to change the following settings:

- Camera name
- Refresh rate, image resolution, and image quality for the single camera page and for the multi camera page
- Streaming method for the single camera page
- Default image resolution for when viewing with your mobile phone
- Overlay settings (control whether the date and time, a text message, the camera's trigger status, and backlight correction status are displayed)
- Default display language
- Banner settings (control whether a banner is displayed on the single camera page, and the properties of the banner)

1. Click the [Setup] tab.


## 7.1 Changing Image Display Settings

2. On the left side of the screen under [Advanced], click [Image Display].

Camera Name	
Camera Name	<input type="text" value="NetworkCamera"/>
Single Camera	
Refresh Rate	<input type="text" value="MJPEG"/>
Image Resolution	<input type="text" value="320x240"/>
Image Quality	<input type="text" value="Standard"/>
Streaming Method	<input type="text" value="Auto"/>
Multi-Camera	
Refresh Rate	<input type="text" value="MJPEG"/>
Image Resolution	<input type="text" value="320x240"/>
Image Quality	<input type="text" value="Standard"/>
Mobile Phone	
Image Resolution	<input type="text" value="192x144"/>
Overlay Setting	
Date and Time	<input type="checkbox"/> Include
Date Format	<input type="text" value="MMM.DD.YY (APR.15.06)"/>
Text	<input type="checkbox"/> Include
Text (1 to 20 Characters)	<input type="text"/>
Status	<input type="checkbox"/> Include
Language	
Language	<input type="text" value="English"/>
Banner Display	
<input type="checkbox"/> Enable	
Banner user	<input type="text" value="All users"/>
Image URL (1 to 127 Characters)	<input type="text"/>
Link URL (0 to 127 Characters)	<input type="text"/>

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3. Set the following parameters as desired.
  - a. Under [Camera Name], change the camera name as desired (max. 15 characters).
    - See Page 206 for a list of valid characters. Note that [Space], ["], ['], [&], [<], and [>] cannot be entered.
  - b. Under [Single Camera], select the desired default refresh rate, image resolution, and image quality (for when viewing MJPEG or still images) and streaming method (for when viewing H.264 or MPEG-4 images).
  - c. Under [Multi-Camera], select the desired default refresh rate, image resolution, and image quality (for when viewing MJPEG or still images).
  - d. Under [Mobile Phone], select the desired default image resolution for when viewing still images with your mobile phone.
  - e. Under [Overlay Setting], select what information is displayed in the overlay displayed on the single camera page, multi camera page, and buffered images page. See Page 11 for an example of a camera image overlays. Screen content varies by model number.
    - i. Select whether you want to display a time stamp in the upper left corner of camera images, then select the desired format for the time stamp. To select 12-hour or 24-hour time format, see Page 140.
    - ii. Select whether you want to display a text message in the lower left corner of camera images, then enter the desired text (max. 20 characters).
      - See Page 206 for a list of valid characters. Note that ["], ['], [&], [<], and [>] are not available.
    - iii. Select whether you want to display status in the upper right corner of camera images.
      - [O] will be displayed when the sound detection feature has been triggered.
      - [M] will be displayed when the motion detection feature has been triggered.
      - [S] will be displayed when the built-in sensor has been triggered.
      - [1] or [2] will be displayed when external sensor 1 or 2, respectively, has been triggered.
      -  will be displayed while the backlight correction feature is on.

**Note**

- When viewing images at 192 × 144 pixel resolution, status overlay is not displayed.
  - If the external sensor uses a ground to open signal (i.e., if you select [Rising: GND to Open (High).] when configuring the alarm trigger), the corresponding alarm number is displayed when the sensor is not being triggered. While the sensor is being triggered, the alarm number disappears from the overlay.
- f. Under [Language], select the camera's display language.
    - The user can change the display language on the top page if desired.
    - If you select [Korean], Korean is displayed as the initial language when clicking the [Top], [Single], [Multi], and [Buffered Image] tabs. All other pages are displayed in English.
  - g. Under [Banner Display], select the desired parameters for the banner displayed on the single camera page.
    - i. Select whether you want to display a banner.
    - ii. Select which users the banner is displayed for.
    - iii. Enter the URL (max. 127 characters"), including `http://` if necessary, of the banner image file. This specifies the location of the image file that is displayed as the banner. Note that the file extension of the image file must be .jpg or .png.

**Note**

- If authentication is required to display the image URL, an authentication window will be displayed when you access the single camera page.
- Each time the single camera page is accessed, the camera accesses the URL of the banner image file and reads the file. Be aware that the computer/server that contains the banner image file may become burdened if the single camera page is accessed or refreshed frequently.

## 7.1 Changing Image Display Settings

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- iv. Enter the URL (max. 127 characters<sup>\*1</sup>), including `http://` if necessary, of the banner's link. This specifies the web page or image that is displayed when the user clicks the banner.
4. Click [Save].

---

<sup>\*1</sup> [Space], ["], ['], [&], [<], and [>] cannot be entered.

## 7.2 Registering Multiple Cameras

You can register other Panasonic Network Cameras to this camera's [Multi] tab. This allows you to view images from up to 16 cameras by simply accessing this camera and clicking the [Multi] tab.

### Registering other cameras to this camera

1. Click the [Setup] tab.
2. On the left side of the screen under [Advanced], click [Multi-Camera].

No.	Display	HTTPS	IP Address or Host Name	Port No.	Camera Name
<a href="#">1</a>	On	Do not use	selfcamera	--	xxxx
<a href="#">Add</a>					

3. Click [Add].

**Add Camera**

Display	<input checked="" type="checkbox"/> On
HTTPS	<input type="checkbox"/> Use
IP Address or Host Name	<input type="text"/>
Port No. (1 to 65535)	<input type="text"/>
Camera Name (1 to 15 characters)	<input type="text"/>

[Clicking this link, enters this camera's settings.](#)

4. Under [Add Camera], check [Display].
5. Check [HTTPS] if the corresponding camera is configured to use HTTPS.
  - If this setting does not match the camera's setting, the camera cannot be accessed from the [Multi] page.
6. Enter the IP address or host name of the other camera.
  - An IPv6 address can be specified; note that the IPv6 address must be enclosed in brackets.
  - To allow users to view cameras over the Internet, enter the camera's global IP address or host name here (i.e., the IP address or host name needed to access the other camera over the Internet).
  - To allow users to view cameras over the LAN, enter the local IP address of the other camera here (i.e., the IP address needed to access the other camera over the LAN).
  - See Page 206 for a list of valid characters. Note that [Space], ["], ['], [&], [<], [>], [#], [%], [=], [+], and [?] cannot be entered.
  - You can register this camera to the multi camera page by simply clicking [Clicking this link, enters this camera's settings.].
7. Enter the port number of the other camera.

## 7.2 Registering Multiple Cameras

8. Enter the camera's name (max. 15 characters). This is the camera name that is displayed on the [Multi] page and does not need to match the camera name set on the other camera.
  - Only ASCII characters are available (see Page 206). Note that [Space], ["], ['], [&], [<], [>], [#], [%], [=], [+], [?], and [:] cannot be entered.
9. Click [Save].

### Note

- If you register a camera that does not support H.264 to the multi camera page of a camera that supports H.264, only MJPEG images from the camera that does not support H.264 can be viewed.
- If you register a camera that supports H.264 to the multi camera page of a camera that does not support H.264, only MJPEG images from the camera that supports H.264 can be viewed.

## Modifying previously registered cameras

1. Click the [Setup] tab.
2. On the left side of the screen under [Advanced], click [Multi-Camera].
3. Click the desired camera number.

Modify a camera setting	
No.	1
Display	<input checked="" type="checkbox"/> On
HTTPS	<input type="checkbox"/> Use
IP Address or Host Name	<input type="text" value="selfcamera"/>
Port No. (1 to 65535)	<input type="text" value="--"/>
Camera Name (1 to 15 characters)	<input type="text" value="xxxx"/>

[Clicking this link, enters this camera's settings.](#)

Save Delete Cancel

4. Change the settings as desired.
5. Click [Save].

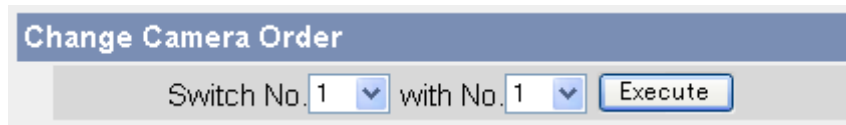
## Deleting previously registered cameras

1. Click the [Setup] tab.
2. On the left side of the screen under [Advanced], click [Multi-Camera].
3. Click the desired camera number.
4. Click [Delete].
5. Click [OK].

## Changing the order of cameras on the [Multi] tab

1. Click the [Setup] tab.

2. On the left side of the screen under [Advanced], click [Multi-Camera].



3. Under [Change Camera Order], select the number of the camera you would like to move, and select the number you would like to move the camera to. The 2 cameras will switch places in the list.
  - For example, to switch camera 2 and camera 1, select [Switch No.] 2 [with No.] 1.
4. Click [Execute].

## 7.3 Specifying Operation Times

You can specify the days and times during which general users and guest users can view camera images (the administrator can always view camera images). When the camera is accessed outside of the operation time, the camera image on the single camera page, multi camera page, and buffered image page is displayed as a gray or black screen. Additionally, [The operation time has ended.] is displayed on the single camera page. Up to 7 different operation times can be set.

**Note**

- Your privacy may be compromised if you set this feature incorrectly. To confirm that you have made the correct settings, access the camera as a general user or guest user during a time the camera is outside of the operational time to confirm that camera images cannot be seen.
- Make sure the camera’s date and time setting is correct in order for this feature to function as desired.
- If H.264 or MPEG-4 images are being viewed when the camera’s operation time ends, the last image will be displayed for about 20 seconds, followed by a black screen when viewing H.264 images and a gray screen when viewing MPEG-4 images. If MJPEG are being viewed when the camera’s operation time ends, the last image is displayed continuously as a still image.

1. Click the [Setup] tab.
2. On the left side of the screen under [Advanced], click [Operation Time].

Operation Time									
No.	Status	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Operation Time
1	Disable	X	X	X	X	X	X	X	Always
2	Disable	X	X	X	X	X	X	X	Always
3	Disable	X	X	X	X	X	X	X	Always
4	Disable	X	X	X	X	X	X	X	Always
5	Disable	X	X	X	X	X	X	X	Always
6	Disable	X	X	X	X	X	X	X	Always
7	Disable	X	X	X	X	X	X	X	Always

3. Select the desired operation time setting number.
  - If No. 1–7 are disabled, camera images can always be seen.

Operation Time									
Enable	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Operation Time	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="radio"/> Always <input type="radio"/> AM 12 h 0 min to AM 12 h 0 min

4. Check [Enable] to enable this operating time setting number, then set the desired operation days and times.
  - Click [Always] to allow camera images to be seen at any time of day on the days which have a check mark under them.
5. Click [Save].

**Note**

- If 2 operating time settings overlap, the [Enable] setting takes priority. In the example below, the camera is set to be disabled on Mondays (in setting No. 1) and is set to be disabled on Tuesdays (in setting No. 2). However, the camera can be accessed on both Mondays and Tuesdays because these days are each enabled by one of the settings.

Operation Time									
No.	Status	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Operation Time
1	Enable	X		X	X	X	X	X	Always
2	Enable	X	X		X	X	X	X	Always

## 7.4 Controlling the External Output Terminal (BL-C230 Only)

If a device is connected to the output terminals of the external I/O interface (see the Installation Guide for connection information), follow the procedure below to configure the camera to interact with the device properly and to rename the external output buttons displayed in the operation bar.

1. Click the [Setup] tab.
2. On the left side of the screen under [Advanced], click [External Output].

The screenshot shows a configuration window titled "External Device Control Output". It contains two radio button options: "Open" (which is selected) and "Short to GND". Below this is a section titled "Button name modification" with two rows. The first row has a text input field containing "Open (1 to 6 Characters)" and a button labeled "Open". The second row has a text input field containing "Short to GND (1 to 6 Characters)" and a button labeled "Short". At the bottom of the window are two buttons: "Save" and "Cancel".

3. Under [External Device Control Output], select the appropriate setting.
  - [Open]: The camera's internal transistor turns off and the output has high impedance (logical HIGH).
  - [Short to GND]: The camera's internal transistor turns on and the output is shorted to the GND (logical LOW).
4. Under [Button name modification], modify the names of the external output buttons displayed in the operation bar if necessary. Note that [Space], ["], ['], [&], [<], and [>] cannot be entered.
5. Click [Save].

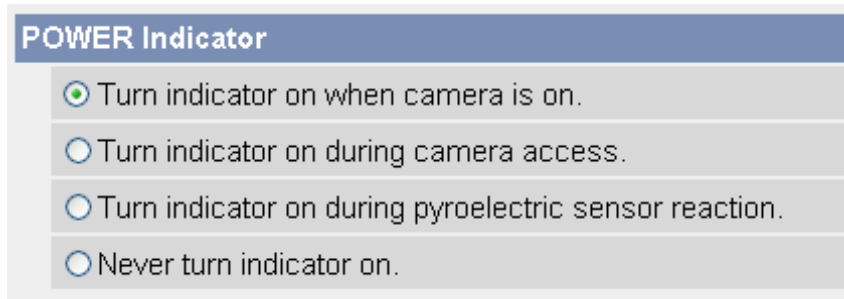


## 7.5 Changing the Indicator Display

### The POWER indicator

The POWER indicator can be used to indicate when the camera is being accessed, however you can set the camera so that the indicator is:

- Always on (green) during normal operation
  - On (green) only when the camera is being accessed
  - On (orange) only when the camera's built-in sensor is being triggered  
This setting is useful when deciding where to mount the camera, because the indicator will indicate when the built-in sensor has been triggered, allowing you to change the location of the camera to a more appropriate location if necessary.
  - Always off during normal operation
1. Click the [Setup] tab.
  2. On the left side of the screen under [Advanced], click [Indicator Control].



3. Select the desired setting.
4. Click [Save].

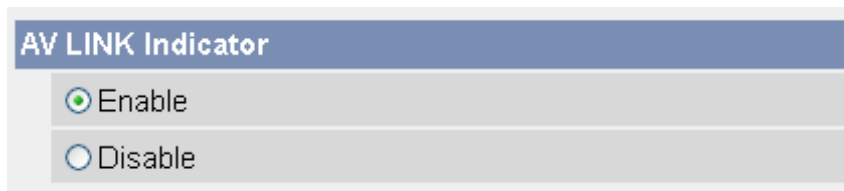
#### Note

- If the POWER indicator lights in any color other than green, refer to 1.2 POWER Indicator Issues in the Troubleshooting Guide.

### The AV LINK indicator (BL-C210A/BL-C230A only)

The AV LINK indicator can be used to indicate the status of the camera's communication with a registered TV, however you can set the camera so that the indicator is:

- Enabled (see The AV LINK indicator (BL-C210A/BL-C230A only) in the Troubleshooting Guide for details)
  - Disabled; i.e., the AV LINK indicator lights only when the camera is in registration mode
1. Click the [Setup] tab.
  2. On the left side of the screen under [Advanced], click [Indicator Control].



3. Select the desired setting.
4. Click [Save].

## 7.6 Privacy Mode

Privacy mode allows you to protect your privacy by hiding the lens inside the camera, preventing camera images from being seen. When privacy mode is activated:

- The POWER indicator turns red so that you can easily see that privacy mode is activated.
- No camera images are buffered or transferred.
- The camera image changes to a gray or black screen if privacy mode is activated while viewing camera images.
- If privacy mode is already activated when you try to access the camera, a dialog will be displayed asking if you want to disable privacy mode. In order to disable privacy mode, the administrator's user name and password must be entered.

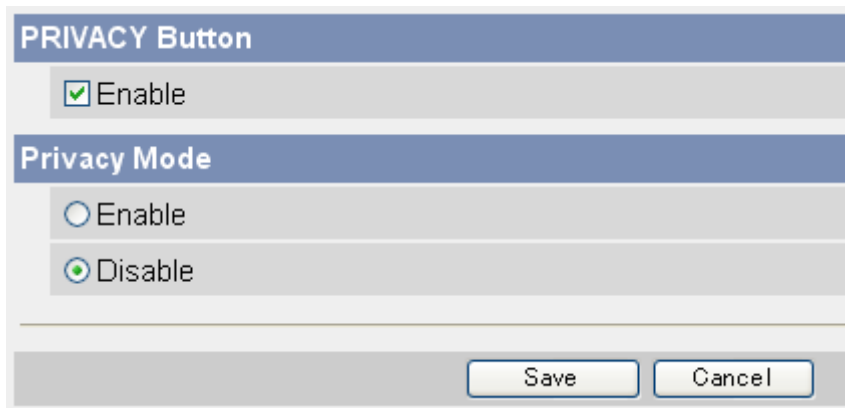
### Note

- **BL-C210A/BL-C230A only:** You cannot turn privacy mode on while the camera is in registration mode (see Page 172).

### Turning privacy mode on

You can turn privacy mode on by:

- Pressing the camera's PRIVACY button (the POWER indicator will turn from green to red).
- Accessing the camera with a PC as the administrator.
  1. Click the [Setup] tab.
  2. On the left side of the screen under [Advanced], click [Privacy Mode].



3. Under [Privacy Mode], select [Enable].
  4. Click [Save].
- Accessing the camera from a mobile phone (see Page 92) as the administrator.

### Turning privacy mode off

You can turn privacy mode off by:

- Pressing the camera's PRIVACY button (the POWER indicator will turn from red to green).
- Accessing the camera with a PC. When [Privacy Mode is enabled. Do you wish to disable?] is displayed, click [Disable Privacy Mode] and enter the administrator user name and password if prompted.
- Accessing the camera from a mobile phone (see Page 92) as the administrator.

## Disabling the PRIVACY button

You can disable the PRIVACY button so that privacy mode cannot be turned on or off by pressing the PRIVACY button.

1. Click the [Setup] tab.
2. On the left side of the screen under [Advanced], click [Privacy Mode].
3. Under [PRIVACY Button], uncheck [Enable].
4. Click [Save].

## 7.7 Managing Registered Devices (BL-C210A/BL-C230A Only)

A compatible Panasonic VIERA TV can be used to view camera images and configure certain camera features. In order to use this feature, the camera and TV must be registered to each other. This page allows you to confirm and delete devices (TVs) that are registered to the camera. Additionally, you can set the camera to Registration Mode, so that it can be registered to additional TVs.

For details on registration, refer to the Setup Guide (for VIERA Connection). For details on viewing camera images and configuring the camera with a TV, refer to the Operating Instructions (for VIERA Connection).

### List of Registered Devices

MAC addresses are used to differentiate devices on a network.

A blank space is shown in the [Status] column for devices to which the camera is not registered, devices that have set the camera to [Disconnected], and devices that are not turned on.

If the camera's registration is deleted on another a device, delete that device from the list.

No.	Device Type	MAC Address	Status	Delete
-----	-------------	-------------	--------	--------

### Registering the Camera to a Device

Click the [Registration Mode] button when registering the camera to another device.

Registration Mode

#### Note

- This page is not available when accessing the camera using HTTPS.
- If the camera is accessed while the camera is in registration mode, [Registering...] is displayed.

### Confirming a TV's status

1. Click the [Setup] tab.
2. On the left side of the screen under [Advanced], click [Registered Devices].
  - The following information is displayed.
    - The type of device
    - The device's MAC address
    - The device's status[X] is displayed in the [Status] column if the TV is not turned on, if the camera is not registered to the TV, or if the TV has set the camera to [Disable]. If the camera's registration is deleted on the TV, delete that TV from the camera's registered devices list.

### Deleting a TV

1. Click the [Setup] tab.
2. On the left side of the screen under [Advanced], click [Registered Devices].
3. Click [Delete] to delete a TV.
  - After deleting a TV, we recommend deleting this camera's registration from that TV.

## Preparing to register the camera to a TV (registration mode)

You can also set the camera to registration mode by pressing and holding the camera's PRIVACY button for about 3 seconds, until the AV LINK indicator flashes. If the camera is not registered to a TV within 5 minutes, registration mode is canceled.

1. Click the [Setup] tab.
2. On the left side of the screen under [Advanced], click [Registered Devices].
3. Click the [Registration Mode] button when registering the camera to another device.
  - You may now register the camera to the TV. Refer to the Setup Guide (for VIERA Connection) for details.
  - The AV LINK indicator flashes orange while the camera is in registration mode.
  - After 5 minutes, registration mode is cancelled if the camera has not been registered to a TV.

### **Note**

- Registration mode cannot be turned on while the camera is in privacy mode (see Page 170).
- The camera can be registered to up to 4 TVs.
- While the camera is in registration mode:
  - No camera images are buffered or transferred.
  - The built-in alarm does not sound.
  - Privacy mode cannot be turned on.

## 7.8 Built-in Alarm Settings

The camera's built-in alarm can sound when the built-in sensor, external sensor, or motion detection is triggered. You can set when the built-in alarm sounds, as well as the built-in alarm volume and the built-in alarm sound type. After saving these settings, confirm the built-in alarm volume and sound type by clicking [Sound Alarm] on the single camera page.

1. Click the [Setup] tab.
2. On the left side of the screen under [Advanced], click [Built-in Alarm].

The screenshot shows a settings panel for the built-in alarm. It is organized into three distinct sections, each with a blue header bar:

- Trigger for Built-in Alarm:** Contains four radio button options: 'Button or sensor', 'Button only' (which is selected), 'Sensor only', and 'Off'.
- Built-in Alarm Volume:** Contains three radio button options: 'High', 'Medium' (which is selected), and 'Low'.
- Built-in Alarm Sound Type:** Contains four radio button options: 'A' (which is selected), 'B', 'C', and 'D'.

At the bottom of the panel, there are two buttons: 'Save' and 'Cancel'.

3. Under [Trigger for Built-in Alarm], select when the built-in alarm sounds.
  - [Button or sensor]: The built-in alarm sounds when [Sound Alarm] is clicked on the single camera page and when the built-in sensor, external sensor, or motion detection is triggered.
  - [Button only]: The built-in alarm sounds only when [Sound Alarm] is clicked on the single camera page.
  - [Sensor only]: The built-in alarm sounds only when the built-in sensor, external sensor, or motion detection is triggered, and the [Built-in Alarm] button is not displayed in the operation bar.
  - [Off]: The built-in alarm does not sound, and the [Built-in Alarm] button is not displayed in the operation bar.
4. Under [Built-in Alarm Volume], select the volume of the built-in alarm.
5. Under [Built-in Alarm Sound Type], select the built-in alarm sound type.
6. Click [Save].

### Note

- The built-in alarm does not sound when the sound detection feature is triggered (see Page 54).

- When you set [Trigger for Built-in Alarm] to [Button or sensor] or [Sensor only], configure the camera to buffer and transfer images (see Page 54) so that the built-in alarm can sound when the built-in sensor, external sensor, or motion detection is triggered.
- The built-in alarm does not sound even if [Trigger for Built-in Alarm] is set to [Button or sensor] or [Sensor only] while the camera is in privacy mode (Page 170) or in registration mode (Page 172).

## 8 Camera Administration and Maintenance

### 8.1 Confirming Camera Status

You can confirm various camera status information on the [Status] page such as:

- Detailed camera information, including the firmware version number and MAC address
- Detailed network information
- Dynamic DNS status
- UPnP™ status
- The status of various protocols (such as FTP, HTTP, SMTP, etc.) and whether or not there have been any errors

The information displayed on this page can help you when the camera is not functioning as you expect it to. Refer to this information for troubleshooting assistance.

1. Click the [Maintenance] tab.
2. On the left side of the screen under [Maintenance], click [Status].
3. Confirm the desired information.

#### **Note**

- See the Panasonic Network Camera support site (<http://panasonic.net/pcc/support/netwcam/>) for details about the information displayed on this page.



## 8.2 Confirming Wireless Status (BL-C230 Only)

You can confirm various wireless information on the [Wireless Status] page such as:

- The status of the wireless connection to the wireless router
- The MAC address of the camera's wireless module
- The quality of the wireless communication between the camera and the wireless router

The information displayed on this page can help you when the camera is not functioning in wireless mode as you expect it to. Refer to this information for troubleshooting assistance.

1. Click the [Maintenance] tab.
2. On the left side of the screen under [Maintenance], click [Wireless Status].
3. Confirm the desired information.

### **Note**

- If your wireless router uses MAC address filtering, enter the MAC address of the camera and the MAC address of the camera's wireless module when setting your wireless router's MAC address filtering feature. The MAC address of the camera's wireless module is displayed on the [Wireless Status] page next to [MAC address of Wireless module]. You can confirm the camera's MAC address on the [Status] page (see Page 176).
- The signal strength of the wireless connection to the wireless router is displayed next to [Radio Condition] as follows:
  - [Good]: When the signal strength is 50%–100%
  - [Normal]: When the signal strength is 15%–49%
  - [Weak]: When the signal strength is 1%–14%
  - [No connection]: When there is no signal (0%)
- If you still cannot access the camera in wireless mode, see 1.4 Wireless Connection Issues (BL-C230 Only) in the Troubleshooting Guide.
- See the Panasonic Network Camera support site (<http://panasonic.net/pcc/support/netwkcam/>) for details about the information displayed on this page.

# 8.3 Confirming Session Status

You can confirm various client session information on the [Session Status] page such as:

- The number of active video (H.264, MPEG-4, and MJPEG) and audio sessions
- Multicast session status
- 1. Click the [Maintenance] tab.
- 2. On the left side of the screen under [Maintenance], click [Session Status].
- 3. Confirm the desired information.

### **Note**

- Information for the following session types is not displayed:
  - Mobile phone access
  - Still image viewing
  - Accessing the [Top], [Setup], [Internet], [Maintenance], and [Support] pages

## 8.4 Confirming Alarm Logs

The camera records log information each time the camera is triggered and each time the camera's privacy feature is turned on and off. Up to 50 events are logged, and each event includes the date, time, and type (built-in sensor, external sensor 1, external sensor 2, motion detection, sound detection, or privacy mode on/off).

1. Click the [Maintenance] tab.
2. On the left side of the screen under [Maintenance], click [Alarm Log].
3. Confirm the desired information.

### **Note**

- When the camera is restarted, the alarm log content is deleted.
- You can configure the camera to send a daily log by E-mail that reports the status of triggers 1–5 (see Page 87).

## 8.5 Restarting the Camera

You can restart the camera from the [Restart] page.

**Note**

- When the camera is restarted, all images buffered in the internal memory are deleted.
- When the camera is restarted, the alarm log content is deleted.
- The amount of time it takes for the BL-C210 and the BL-C230 to restart is different.

1. Click the [Maintenance] tab.
2. On the left side of the screen under [Maintenance], click [Restart].

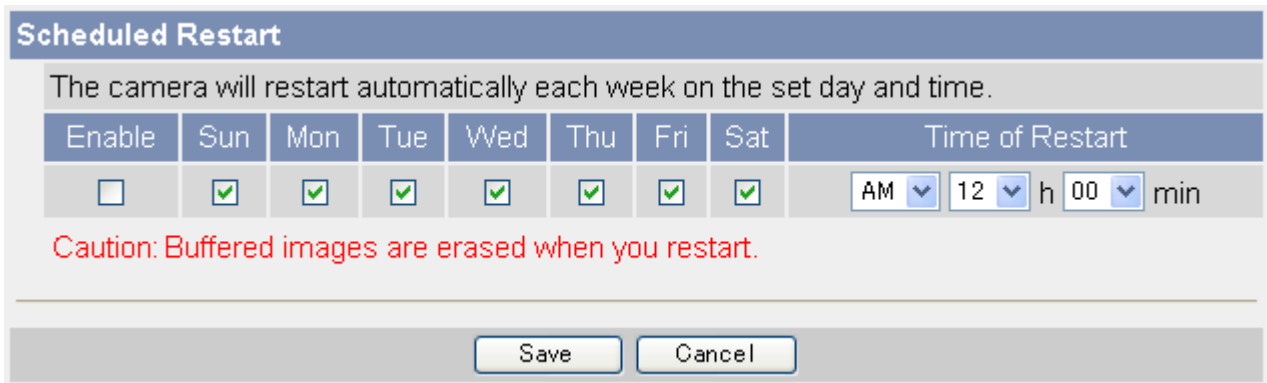


3. Click [Restart].

### Automatically restarting the camera

You can set the camera restart itself automatically periodically.

1. Click the [Maintenance] tab.
2. On the left side of the screen under [Maintenance], click [Restart].



3. Under [Scheduled Restart], click [Enable].
4. Select the days and times you would like the camera to automatically restart.
5. Click [Save].

## 8.6 Updating the Camera's Firmware

You can update the camera's firmware from the [Update Firmware] page.

1. Download the latest firmware from the Panasonic Network Camera website (<http://panasonic.net/pcc/support/netwcam/>) and save it on your PC.
2. Click the [Maintenance] tab.
3. On the left side of the screen under [Maintenance], click [Update Firmware].
4. Click [Update Firmware]. The camera will automatically restart.
5. After the camera restarts, a dialog prompts you to select the firmware file.
6. Click [Browse...]. A dialog prompts you to specify the location of the firmware file.
7. Select the firmware file you downloaded from the Panasonic Network Camera website and click [Open]. The selected file name is displayed.
8. Confirm the file name, then click [Update Firmware].
  - The [Updating firmware.] screen is displayed, and then the [Restarting now...] screen is displayed. When the firmware update is complete, the camera's top page is displayed.

### **Note**

- The firmware update may take 10 minutes or longer depending on the network environment.

9. Confirm the camera's new firmware version on the top page.

### **Note**

- Do not turn off the power during a firmware update.
- All images buffered in the internal memory are deleted when the firmware is updated.
- All alarm logs are deleted when the firmware is updated.
- You can also use the Setup Program to update the camera's firmware (see Page 202).
- The camera's current firmware version can be confirmed on the [Top] page and the [Status] page.
- The camera can only be accessed using HTTP while updating the firmware. If HTTPS was used to begin the firmware update, the camera will switch to HTTP during the update, and then return to HTTPS when the update is completed.
- After updating the firmware, if the top page is not displayed when accessing the camera in IPv6 mode, use the Setup Program to find the camera and access it.

# 8.7 Saving Settings in a Configuration File

You can save a configuration file (i.e., a backup of the camera's settings) on your PC and restore the settings later if desired (see Page 183).

1. Click the [Maintenance] tab.
2. On the left side of the screen under [Maintenance], click [Save Settings].
3. Click [Save]. A dialog prompts you to specify a location to save the configuration file.
4. Specify a location to save the file, then click [Save].

### **Note**

- The saved configuration file contains user names, passwords, and other private information. You are responsible for storing the configuration file in a safe place where it cannot be retrieved by unauthorized parties.
- You can also use the Setup Program to save a configuration file (see Page 202).
- Buffered images are not saved in the configuration file.
- The configuration file's extension (.dat) must not be changed. If you change it, the saved settings cannot be restored.
- If you save a configuration file and then update the camera's firmware later, the configuration file may not be able to be restored properly. If you regularly save a configuration file of the camera's settings, remember to save a configuration file after you update the camera's firmware.

## 8.8 Restoring Settings from a Configuration File

If you have saved a configuration file (i.e., a backup of the camera's settings) on your PC, you can restore the settings later. If you reset the camera to factory default, the camera can load its settings from the configuration file.

1. Click the [Maintenance] tab.
2. On the left side of the screen under [Maintenance], click [Load Settings].
3. Click [Browse...]. A dialog prompts you to specify the location of the saved configuration file.
4. Specify the configuration file and click [Open].
5. Confirm the file name and click [Load].
6. Click [Restart]. The camera will restart and the saved settings will be restored.

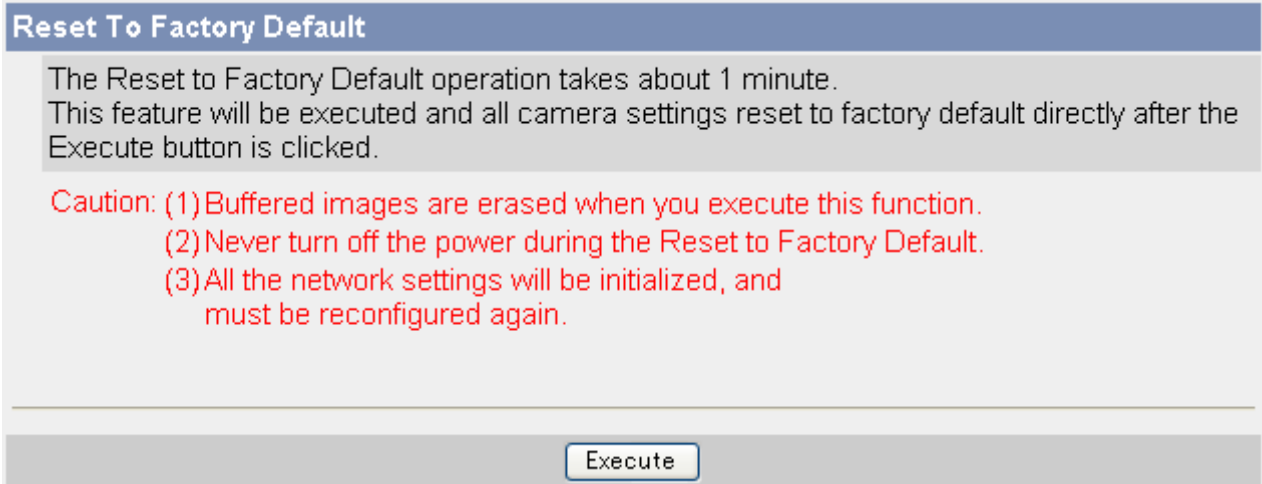
### **Note**

- The configuration file saves the camera's network settings. When the settings are loaded, the settings are restored as they were saved, therefore the camera's IP address may change. If you cannot access the camera after loading the configuration file, use the Setup Program to confirm the camera's IP address (see Page 202).
- The configuration file saves the camera's user names and passwords. When the settings are loaded, the settings are restored as they were saved, therefore the administrator user name and password may change. If you cannot remember the administrator user name or password, you will need to reset the camera and set the user name and password again.
- You can also use the Setup Program to restore a configuration file (see Page 202). Network settings and the administrator user name and password are not changed when you restore a configuration file using the Setup Program.
- Buffered images will be deleted when you load the saved configuration file and restart the camera.
- Alarm logs will be deleted when you load the saved configuration file and restart the camera.
- If you have updated the camera's firmware, you may not be able to restore a configuration file correctly if the configuration file was saved with the old camera firmware version.

# 8.9 Resetting the Camera

You can reset all of the camera's settings to their factory default settings.

1. Click the [Maintenance] tab.
2. On the left side of the screen under [Maintenance], click [Reset to Factory Default].



3. Click [Execute].
  - The POWER indicator flashes orange, and then turns off for a few seconds.

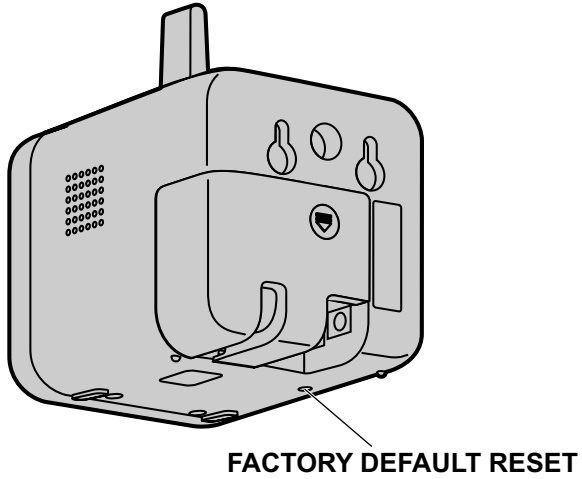
### Note

- Do not turn off the camera while the camera is being reset. When the lens finishes panning and tilting, it is safe to turn off the camera.
- When the camera is reset, the following information will be deleted:
  - All images buffered in the internal memory
  - All alarm logs
  - All camera settings (including the user name, password, IP address, subnet mask etc.)  
The network connection mode changes to [Automatic Setup]. Reconfigure the camera by referring to the Setup Guide.
- When the camera is reset, the internal clock will not be reset, but the time format will be set to AM/PM mode. Change the setting if necessary (see Page 140).
- See Page 211 for a list of the camera's default settings.



## Resetting the camera using the FACTORY DEFAULT RESET button

You can also reset all of the camera's settings to their factory default settings by pressing the FACTORY DEFAULT RESET button for about one second with a pointed object.



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## 9 The [Support] Tab

The [Support] tab can be accessed by all users and provides access to the following pages.

### The [Help] page

Displays basic help information.

### The [Wireless Help] page (BL-C230 only)

Displays basic help information regarding wireless settings.

### The [Product Information] page

Displays a link to the Panasonic Network Camera website (<http://panasonic.net/pcc/ipcam/>) where you can view product information.

### The [Support Information] page

Displays a link to the Panasonic Network Camera support site (<http://panasonic.net/pcc/support/netwkcam/>), where you can view technical information, download the latest firmware, etc.

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## 10 Using IPv6

Your Panasonic Network Camera supports IPv6 (Internet Protocol Version 6). IPv6 is a next generation protocol and is expected to eventually replace IPv4, the current standard Internet protocol. As the Internet continues to expand and more and more IP-compatible devices are being introduced, the number of IP addresses supported by IPv4 is running out. While IPv4 supports just over 4 billion unique addresses, the number of addresses supported by IPv6 is virtually unlimited.

Although several Internet Service Providers (ISPs) do not support IPv6 yet, your Network Camera will be ready as IPv6 services become more widespread.

For more information regarding IPv6, visit <http://www.ipv6.org/>.

### **Note**

- The following restrictions apply when using the camera in an IPv6-native network.
  - Viewnetcam.com service cannot be used
  - The Setup Program can be used to search for cameras only (other Setup Program features cannot be used)

### Requirements for accessing the camera using IPv6

The following hardware and software is required to access the camera using IPv6.

- Windows Vista, Windows XP Service Pack 1 or later
- Internet Explorer 6.0 or later
- An IPv6-compatible router
- An IPv6-compatible Internet connection

Subscribe to your Internet Service Provider's "IPv4/IPv6 Dual-Stack" or "IPv6 over IPv4 Tunneling" service.

- **For Internet Explorer 6 users:** A subscription to an IPv6-compatible domain name service or Dynamic DNS service

You cannot access the camera by entering its IPv6 address in your web browser, therefore, you need to subscribe to an IPv6-compatible domain name service or Dynamic DNS service and configure the camera to use the Dynamic DNS Service (see Page 104). We recommend using Viewnetcam.com, a Dynamic DNS service designed for use with Panasonic Network Cameras. For more information about IPv6 access, ask your ISP about IPv6-compatible services.

### Preparations for accessing the camera using IPv6

The following procedures are required before you can access the camera using IPv6.

1. Configure your router for IPv6 (see Page 188).
2. Configure your PC for IPv6 (see Page 189).
3. Configure the camera for IPv6 (see Page 190).

## 10.1 Configuring Your Router for IPv6

Refer to your Internet Service Provider and the operating instructions included with your router for information on configuring the router for IPv6. If outside access (WAN access) is disabled on the router, use the router's packet filtering feature to allow the router to receive the desired TCP packets from the WAN side. See the Panasonic Network Camera website at <http://panasonic.net/pcc/support/netwcam/> for information about the recommended routers.

## 10.2 Configuring Your PC for IPv6

IPv6 is supported by Windows Vista and Windows XP Service Pack 1 or later. If using Windows XP, use the procedure below to enable your PC for IPv6.

1. Click [Start]→[All Programs]→[Accessories]→[Command Prompt].
2. When the [Command Prompt] is displayed, enter `ipv6 install`. When installation is complete, [Succeeded.] will be displayed.
3. Confirm that IPv6 was successfully enabled, enter `ipconfig`. If IPv6 addresses are displayed, installation was successful.

### For Windows XP Service Pack 2 or later users

If you use Windows XP Service Pack 2 or later, the following procedure is also necessary.

1. Click [Start]→[Control Panel]→[Security Center]→[Windows Firewall]→[Advanced] tab.
2. Click the [Settings...] button under [ICMP].
3. Check [Allow incoming router request], then click [OK].

# 10.3 Configuring Your Camera for IPv6

When the [Connection Mode] on the [Network (IPv6)] page is set to [Automatic Setup], an IPv6 address is automatically assigned to the camera. To assign a static IPv6 address, follow the procedure below.

1. Click the [Setup] tab.
2. On the left side of the screen under [Basic], click [Network (IPv6)].

Connection Mode	
Connection Mode	Current Setting
<a href="#">Automatic Setup</a>	X
<a href="#">Static</a>	

3. Select the desired connection mode, then make the appropriate settings as described in this section.
  - [Automatic Setup]: The camera is automatically assigned an IPv6 prefix from the IPv6 router, and produces an original IPv6 address based on the IPv6 prefix.
  - [Static]: Allows you to set all network settings manually.

## [Automatic Setup]

**DNS**

Primary Server Address	<input type="text"/>
Secondary Server Address	<input type="text"/>

**Max. Bandwidth Usage**

Unlimited

**Connection Type**

Auto Negotiation

Save
Cancel

1. Set the following parameters as desired.
  - a. Under [DNS], enter the IP addresses of the primary and secondary DNS servers provided by your ISP.
  - b. Under [Max. Bandwidth Usage], select the maximum bandwidth you want to allow the camera to use.
  - c. Under [Connection Type], select the appropriate connection type.
    - Normally you can leave this setting at [Auto Negotiation].
2. Click [Save].
3. When the [New settings are saved.] message is displayed, click [Restart].

**Note**

- The current network settings can be confirmed on the [Status] page (see Page 176). You can also confirm the camera’s IPv6 address using the Setup Program.

**[Static]**

Internet Connection	
Port No.	<input type="text" value="80"/>
IP Address	<input type="text"/>
Default Gateway	
Default Gateway	<input type="text"/>
DNS	
Primary Server Address	<input type="text"/>
Secondary Server Address	<input type="text"/>
Max. Bandwidth Usage	
<input type="text" value="Unlimited"/> ▼	
Connection Type	
<input type="text" value="Auto Negotiation"/> ▼	
<input type="button" value="Save"/> <input type="button" value="Cancel"/>	

1. Set the following parameters as desired.
  - a. Under [Internet Connection], enter the port number to be assigned to the camera.
    - The default port number is 80, however, note that some ISPs do not allow access from the Internet using port 80. Ask your ISP or network administrator about which port numbers are available for access over the Internet.
  - b. Enter the IP address to be assigned to the camera.
    - Ask your ISP or network administrator for the correct settings.
  - c. Under [Default Gateway], enter the IP address of your router or the default gateway IP address provided by your ISP.
  - d. Under [DNS], enter the IP addresses of the primary and secondary DNS servers provided by your ISP.
  - e. Under [Max. Bandwidth Usage], select the maximum bandwidth you want to allow the camera to use.
    - This setting is effective for both IPv4 and IPv6 connections.
    - Refer to the following file size information when restricting the maximum bandwidth. Note that these are estimated file sizes for one JPEG image (the actual file size may vary depending on image quality, image brightness, etc.). To determine the bandwidth required, multiply this number by the number of accesses (for JPEG images), and multiply the H.264 or MPEG-4 bit rate setting on the [Video Streaming] page by the number of H.264 or MPEG-4 accesses.
      - 192 × 144: 7 KB (56 Kbit)
      - 320 × 240: 16 KB (128 Kbit)

### 10.3 Configuring Your Camera for IPv6

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- 640 × 480: 35 KB (280 Kbit)

- f. Under [Connection Type], select the appropriate connection type.
  - Normally you can leave this setting at [Auto Negotiation].
  - This setting is effective for both IPv4 and IPv6 connections.
2. Click [Save].
3. When the [New settings are saved.] message is displayed, click [Restart].

#### **Note**

- The current network settings can be confirmed on the [Status] page (see Page 176). You can also confirm the camera's IPv6 address using the Setup Program.



## 10.4 Accessing the Camera in IPv6 Mode

You will need to know the following information to access the camera in IPv6 mode.

### For Internet Explorer 6 users:

- The URL assigned to you by the domain name service or Dynamic DNS service you registered the camera to (e.g., **\*\*\*.viewnetcam.com**).
- The port number of the camera, if it is not 80.
- The user name and password required to access the camera, which were set during camera setup.

### For Internet Explorer 7 or Internet Explorer 8 users:

- The camera's IPv6 address, or the URL assigned to you by the domain name service or Dynamic DNS service you registered the camera to (e.g., **\*\*\*.viewnetcam.com**).
- The port number of the camera, if it is not 80.
- The user name and password required to access the camera, which were set during camera setup.

### Accessing the camera in IPv6 mode

1. Start your PC's web browser.
2. In the browser's address bar, enter **http://** followed by the host name and port number (if it is not 80) of the camera, then press [Enter] on the keyboard.

**Example:** **http://\*\*\*.viewnetcam.com**

- If using Internet Explorer 7 or Internet Explorer 8, you can also access the camera by entering **http://** followed by the IPv6 address and port number (if it is not 80) of the camera. Note that the IPv6 address must be enclosed in brackets as shown below.

**Example:** **http://[\*\*\*\*:\*\*\*:\*\*\*\*:\*\*\*\*:\*\*\*]:50000**

- If the camera is configured to use HTTPS (see Page 119), enter **https://** followed by the host name and port number of the camera.
3. When the authentication dialog is displayed, enter the user name and password, then click [OK]. The top page is displayed.

### **Note**

- For general information on accessing the camera, see Page 8.

## 10.5 Allowing IPv6 Access from the Internet

You can configure the camera to allow or restrict IPv6 access from the Internet.

1. Click the [Internet] tab.

The screenshot shows a configuration window with three main sections:

- Auto Port Forwarding (IPv4):** Contains two radio buttons: "Enable" (unselected) and "Disable" (selected).
- Viewnetcam.com Registration:** Contains two radio buttons: "Register with Viewnetcam.com" (unselected) and "Do not register with Viewnetcam.com" (selected).
- Allow Access from the Internet (IPv6):** Contains two radio buttons: "Yes" (unselected) and "No" (selected).

At the bottom of the window, there are two buttons: "Save" and "Cancel".

2. Under [Allow Access from the Internet (IPv6)], select [Yes] to allow IPv6 access to the camera from the Internet, or [No] to limit IPv6 access to the camera.
  - If [No] is selected, IPv6 access to the camera is only possible from an address of the same prefix as the camera's IPv6 address. The camera will not be able to be accessed from the Internet using IPv6.
3. Click [Save].

# 11 PC Settings

## 11.1 Proxy Server Settings

A proxy server is used to protect computers when connecting to the Internet. If your computer network uses a proxy server (many corporate networks do; most home networks do not) and you are accessing the camera from a PC connected to the same LAN as the camera, you may experience the following issues.

- Camera cannot be accessed
- Slow image refresh rate
- Camera images cannot be seen
- Audio features cannot be used

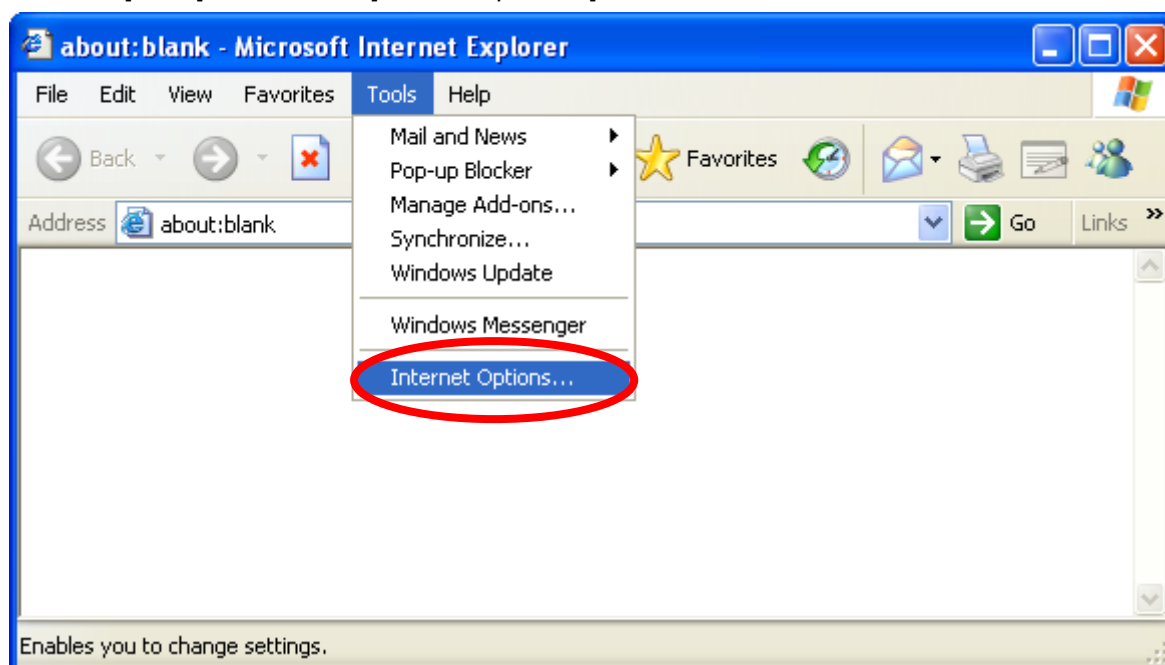
If your network uses a proxy server, we recommend setting your web browser to bypass the proxy server when accessing the camera from a PC connected to the same LAN as the camera.

### Note

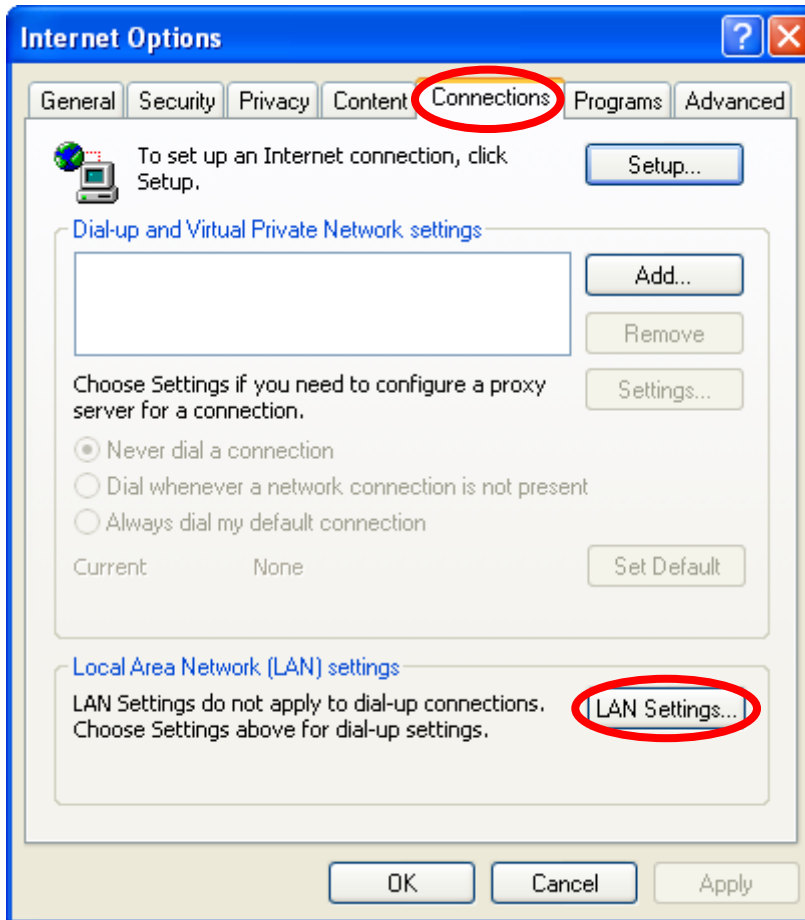
- Consult your Internet Service Provider or network administrator to find out if your network uses a proxy server and consult your network administrator before changing your PC's proxy server settings.
- The video and audio features cannot be used when the camera is accessed through a proxy server requiring authentication.

### How to bypass the proxy server when accessing the camera

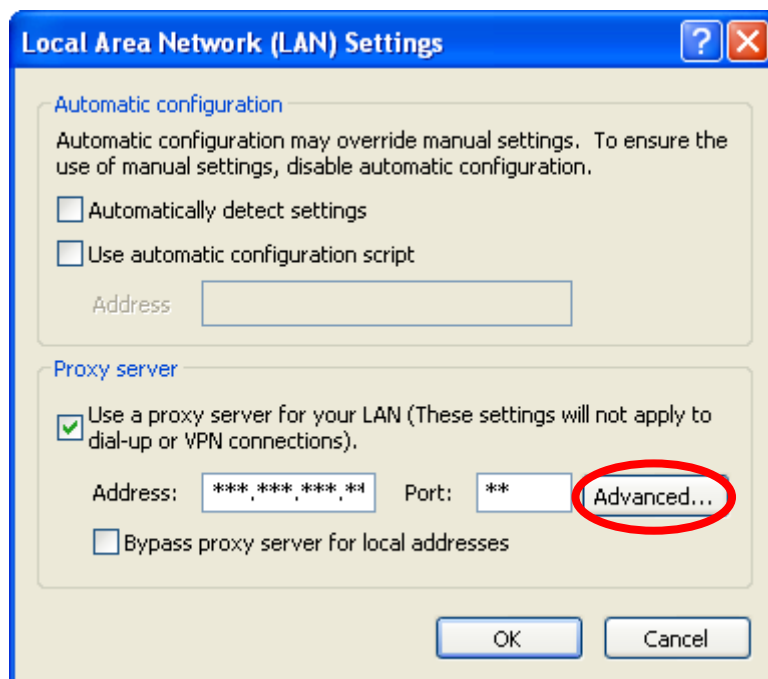
1. Start Internet Explorer.
2. From the [Tools] menu, select [Internet Options...].



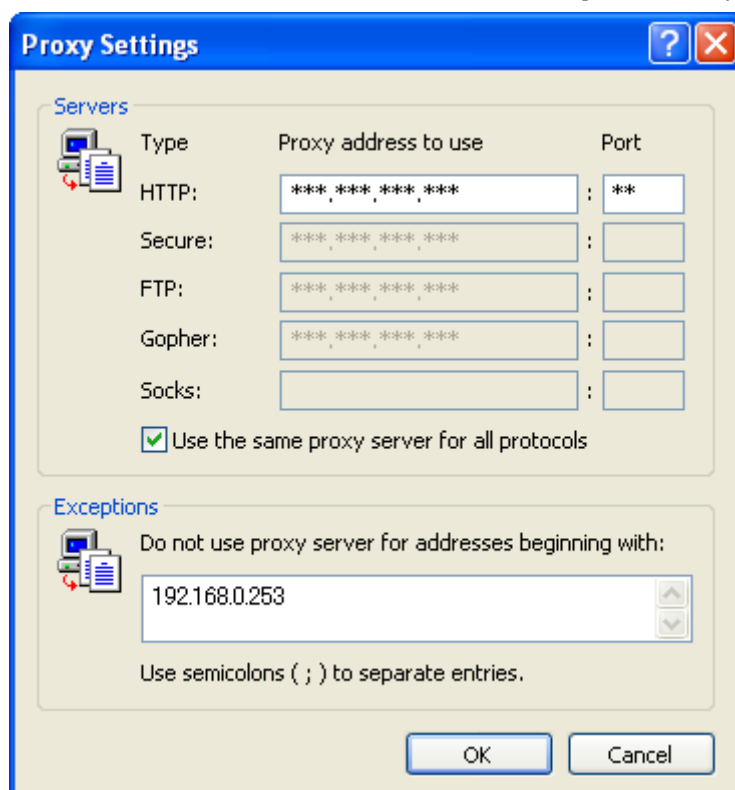
3. Click the [Connections] tab, then click [LAN Settings...].



4. If there is a check next to [Use a proxy server for your LAN], click [Advanced...].
  - If there is no check next to [Use a proxy server for your LAN], click [Cancel]. You do not need to change any settings.



5. Enter the camera's IP address in the field under [Do not use proxy server for addresses beginning with:].



6. Click [OK].

## 11.2 Creating a Shortcut to the Camera

You can create a shortcut to the camera in your computer's [My Network Places] folder ([Network] folder when using Windows Vista) that will be automatically updated even if the camera's IP address changes. In order to use this feature, you must first enable the UPnP™ component of Windows using the following procedure.

### When using Windows XP (Service Pack 2 or later)

[Start]→([Settings])→[Control Panel]→[Add or Remove Programs]→  
[Add/Remove Windows Components]→Select [Networking Services]→[Details]→  
Check [Internet Gateway Device Discovery and Control Client] and [UPnP User Interface]→  
[OK]→[Next]→Complete

### When using previous versions of Windows XP

[Start]→([Settings])→[Control Panel]→[Add or Remove Programs]→  
[Add/Remove Windows Components]→Select [Networking Services]→  
[Details]→Check [UPnP User Interface]→[OK]→[Next]→Complete

### When using Windows Vista

[Start]→[Control Panel]→[Network and Internet]→[Network and Sharing Center]→Click the arrow button to expand [Network discovery] under [Sharing and Discovery]→Select [Turn on network discovery]→Click [Apply]→Complete

## 11.3 Changing the Browser's Temporary Internet Files Setting

If old images are displayed when you access the camera, change the browser's temporary Internet files setting using the following procedure.

### When using Internet Explorer 6

Start Internet Explorer→[Tools]→[Internet Options...]→[General] tab→  
Click [Settings...] under [Temporary Internet files]→  
Check [Every visit to the page] under [Check for newer versions of stored pages:]→  
[OK]→[OK]→Complete

### When using Internet Explorer 7 or Internet Explorer 8

Start Internet Explorer→[Tools]→[Internet Options]→[General] tab→  
Click [Settings] under [Browsing history]→  
Check [Every time I visit the webpage] under [Check for newer versions of stored pages:]→  
[OK]→[OK]→Complete

## 11.4 About the MPEG-4 Viewer Program

The MPEG-4 viewer program is an ActiveX Control that is used to play MPEG-4 files within Internet Explorer. This software is installed automatically the first time you view MPEG-4 videos.

A software license for the MPEG-4 decoder is included with the MPEG-4 viewer program, and the license is valid for 1 PC. Please read the included End-User License Agreement before installing the viewer program. When installing the MPEG-4 viewer program on additional PCs, please purchase additional licenses (Model No. BB-HCA5A for BL-C210A/BL-C230A, BB-HCA5CE for BL-C210CE/BL-C210E/BL-C230CE/BL-C230E).

### Uninstalling the MPEG-4 viewer program

Follow the procedure below to uninstall the MPEG-4 viewer program.

#### When using Windows XP

1. Confirm that Internet Explorer is not running→Start Internet Explorer→[Tools]→[Internet Options... ]→[General] tab→Click [Settings...] under [Browsing history] ([Temporary Internet files] for Internet Explorer 6)→Click [View Objects...]→Right-click on [pmpeg4camV4 Class]→[Remove]→[Yes]
2. Open the [ocx] folder on the CD-ROM→Open the [MPEG-4] folder→Double-click [uninstall.bat]

#### When using Windows Vista

1. Confirm that Internet Explorer is not running→Start Internet Explorer→[Tools]→[Internet Options... ]→[Programs] tab→Click [Manage add-ons]→  
**for Internet Explorer 8**  
Select [Show:]→[Downloaded controls]→Right-click on [pmpeg4camV4 Class]→[More Information]→Click [Remove]  
**for Internet Explorer 7**  
Select [Show:]→[Downloaded ActiveX Controls (32bit)]→Click [pmpeg4camV4 Class]→Click [Delete]
2. Open the [ocx] folder on the CD-ROM.
3. Copy the [MPEG-4] folder to the PC.
4. Click [Start]→[All Programs]→[Accessories].
5. Right-click on [Command Prompt], then click [Run as administrator].
6. Using the Command Prompt, navigate to the [MPEG-4] folder and execute [uninstall.bat].

#### Note

- When using Windows Vista, you must be logged into your PC as a user with Administrator privileges. For more information, open the [ocx] folder on the CD-ROM, then open the [MPEG-4] folder on the CD-ROM and double-click [ReadmeEng.txt].
- Refer to the Panasonic Network Camera support site (<http://panasonic.net/pcc/support/netwkcam/>) for more information.



## 11.5 About the H.264 Viewer Program

The H.264 viewer program is an ActiveX Control that is used to play H.264 files within Internet Explorer. This software is installed automatically the first time you view H.264 videos.

A software license for the H.264 decoder is included with the H.264 viewer program, and the license is valid for 1 PC. Please read the included End-User License Agreement before installing the viewer program. When installing the H.264 viewer program on additional PCs, please purchase additional licenses (Model No. BB-HCA8A for BL-C210A/BL-C230A, BB-HCA8CE for BL-C210CE/BL-C210E/BL-C230CE/BL-C230E).

### Uninstalling the H.264 viewer program

Follow the procedure below to uninstall the H.264 viewer program.

#### When using Windows XP

1. Confirm that Internet Explorer is not running→Start Internet Explorer→[Tools]→[Internet Options... ]→[General] tab→Click [Settings...] under [Browsing history] ([Temporary Internet files] for Internet Explorer 6)→Click [View Objects...]→Right-click on [PccCamActXCtrl Control]→[Remove]→[Yes]
2. Open the [ocx] folder on the CD-ROM→Open the [H.264] folder→Double-click [uninstall.bat]

#### When using Windows Vista

1. Confirm that Internet Explorer is not running→Start Internet Explorer→[Tools]→[Internet Options... ]→[Programs] tab→Click [Manage add-ons]→  
**for Internet Explorer 8**  
Select [Show:]→[Downloaded controls]→Right-click on [PccCamActXCtrl Control]→[More Information]→Click [Remove]  
**for Internet Explorer 7**  
Select [Show:]→[Downloaded ActiveX Controls (32bit)]→Click [PccCamActXCtrl Control]→Click [Delete]
2. Open the [ocx] folder on the CD-ROM.
3. Copy the [H.264] folder to the PC.
4. Click [Start]→[All Programs]→[Accessories].
5. Right-click on [Command Prompt], then click [Run as administrator].
6. Using the Command Prompt, navigate to the [H.264] folder and execute [uninstall.bat].

#### Note

- When using Windows Vista, you must be logged into your PC as a user with Administrator privileges. For more information, open the [ocx] folder on the CD-ROM, then open the [H.264] folder on the CD-ROM and double-click [ReadmeEng.txt].
- Refer to the Panasonic Network Camera support site (<http://panasonic.net/pcc/support/netwkcaml/>) for more information.

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## 12 Using the Setup Program

The Setup Program, found on the included CD-ROM, can be used to:

- Find cameras on the LAN and confirm information (IP address, firmware version, status, etc.) as needed (see Page 202).
- Configure a camera's network settings (see Page 202).
- Update a camera's firmware (see Page 203).
- Save a configuration file of a camera's settings to your PC (see Page 203).
- Restore the settings saved in a configuration file on your PC (see Page 204).

### Note

- Although the above can be performed by accessing a camera directly, using the Setup Program is convenient when you want to configure several cameras because there is no need to access each camera individually with your web browser.
- When the camera is connected in IPv6 mode, the Setup Program can be used only to find and confirm cameras on the LAN (other Setup Program features are not available).
- If you are using firewall or antivirus software on your PC, the Setup Program may not be able to find any cameras on your network. If you cannot disable your firewall or antivirus software, you can find the camera by entering its MAC address. Click [Search by MAC Address], then enter the camera's MAC address. (The MAC address is printed on a label affixed to the camera.)
- If the Setup Program fails to set up the camera, temporarily disable any antivirus software.

### Finding cameras on the LAN

1. Insert the included CD-ROM into the CD-ROM drive of your PC.
  - The Setup Program starts. If the program does not start, double-click Setup.exe found on the CD-ROM.
2. Click [Search for Cameras].
3. Wait for the Setup Program to find all cameras on the network and display their information.
  - If the desired camera is not displayed, confirm it is turned on and connected to the network.
  - If the desired camera is not displayed, you can find the camera by entering its MAC address. Click [Search by MAC Address], then enter the camera's MAC address. (The MAC address is printed on a label affixed to the camera.)
4. Confirm the information as needed.

### Configuring a camera's network settings

1. Find the camera on the LAN (see Page 202).
2. Select the desired camera.
3. Click [Network Settings].
  - If more than 20 minutes have passed since the selected camera was turned on, you cannot configure the camera. Turn off the camera, then turn it on again. This restriction does not apply to cameras which have not been configured yet or have been reset to their factory default settings.
4. Change the camera name as desired (max. 15 characters).
  - See Page 206 for a list of valid characters. Note that [Space], ["], ['], [&], [<], and [>] cannot be entered.
5. Enter the port number to be assigned to the camera.
  - The default port number is 80, however, note that some ISPs do not allow access from the Internet using port 80. Ask your ISP or network administrator about which port numbers are available for access over the Internet.
  - Do not use the following port numbers:
    - 20 and 21: used for FTP
    - 23: used for Telnet

- 
- 25: used for SMTP
  - 53: used for DNS
  - 110: used for POP3
  - 443: used for HTTPS
  - 4000: used for ICQ
  - 6661–6667: used for IRC
- If you are connecting multiple cameras and plan on using port forwarding to allow Internet access to the cameras, assign a different port number to each camera. We recommend using port numbers in the 50000–50050 range.
6. Select the desired connection mode, and enter the appropriate settings. See Page 113 for details about each setting.
    - [Automatic Setup]: Configures the camera automatically based on your network's settings.
    - [Specify an IP Address]: Allows you to assign a static IP address. Refer to your ISP or network administrator for more information.
      - a. Specify an IP address corresponding to your network's settings.
      - b. Specify the subnet mask of your network.
      - c. Enter the default gateway (the IP address of your router).
      - d. Enter the IP address of the DNS server(s).
      - e. Specify the maximum bandwidth the camera is allowed to use.
    - [DHCP]: Allows the camera to be configured automatically by your network's DHCP server (usually your router). Refer to your ISP or network administrator for more information.
      - a. Enter the host name if required by your ISP or network administrator.
      - b. Enter the default gateway if required by your ISP or network administrator.
      - c. Enter the IP address of the DNS server(s). Refer to your ISP or network administrator for more information.
      - d. Specify the maximum bandwidth the camera is allowed to use.
  7. Click [Save].
  8. Follow the on-screen prompts.

## Updating a camera's firmware

1. Download the latest firmware from the Panasonic Network Camera website (<http://panasonic.net/pcc/support/netwcam/>) and save it on your PC.
2. Insert the included CD-ROM into the CD-ROM drive of your PC.
  - The Setup Program starts. If the program does not start, double-click Setup.exe found on the CD-ROM.
3. Click [Update Firmware]. A dialog prompts you to specify the location of the firmware file.
4. Select the firmware file you downloaded from the Panasonic Network Camera website and click [Open].
5. Select the camera you would like to update.
  - Only cameras which are compatible with the selected firmware file are displayed.
  - You can select multiple cameras if desired.
6. Enter the administrator user name and password when prompted, then click [OK].
7. Click [Execute].
  - [Firmware updated successfully.] is displayed when the firmware has been updated.
8. Click [Save Log] to save a log of the firmware revision.
9. Click [OK] when finished.

## Saving settings in a configuration file

1. Insert the included CD-ROM into the CD-ROM drive of your PC.
  - The Setup Program starts. If the program does not start, double-click Setup.exe found on the CD-ROM.
2. Click [Save Settings to PC/Save Settings to Camera].

- 
3. Select the desired camera, enter the camera's administrator user name and password when prompted, then click [OK].
  4. Click [Save Settings to PC].
  5. Specify a location to save the file, then click [Save].
  6. When [Settings were saved on the PC.] is displayed, click [OK].

**Note**

- Buffered images are not saved in the configuration file.
- The configuration file's extension (.dat) must not be changed. If you change it, the saved settings cannot be restored.
- The configuration file is encrypted. Do not open it using a text editor or other software, otherwise it may become corrupted. If the configuration file becomes corrupted it cannot be used to restore camera settings.
- If you save a configuration file and then update the camera's firmware later, the configuration file may not be able to be restored properly. If you regularly save a configuration file of the cameras settings, remember to save a configuration file after you update the camera's firmware.

## Restoring settings from a configuration file

1. Insert the included CD-ROM into the CD-ROM drive of your PC.
  - The Setup Program starts. If the program does not start, double-click Setup.exe found on the CD-ROM.
2. Click [Save Settings to PC/Save Settings to Camera].
3. Click [Save Settings to Camera]. A dialog prompts you to specify the location of the saved configuration file.
4. Specify the configuration file and click [Open].
5. Select the desired camera, enter the camera's administrator user name and password when prompted, then click [OK].
6. Click [Execute]. A dialog displays the status.
7. After the settings have been restored to the camera, the camera will restart automatically.
8. Click [OK] when finished.

**Note**

- Network settings and the administrator user name and password are not changed when you restore a configuration file using the Setup Program.

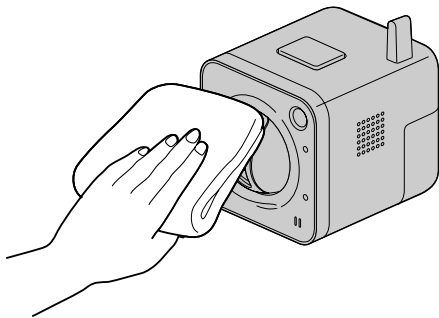
## 13 Technical Information

### 13.1 Cleaning the Camera

For best performance, we recommend cleaning the camera periodically. Turn the camera off before cleaning it.

#### Cleaning the main unit

Clean the main unit with a dry and soft cloth.



#### **Note**

- Do not use alcohol, polishing powder, cleanser, benzine, thinner, wax, petroleum products, pesticides, glass cleaners, hair spray, or hot water when cleaning the camera, as they may cause a change in the shape or color of the camera.
- Do not directly touch the lens cover. Fingerprints may cause the image to be out of focus.
- If the built-in sensor has dust on it, it may not make detections properly. Keep the built-in sensor clean.

## 13.2 ASCII Character Table

[Space]	0	@	P	`	p
!	1	A	Q	a	q
"	2	B	R	b	r
#	3	C	S	c	s
\$	4	D	T	d	t
%	5	E	U	e	u
&	6	F	V	f	v
'	7	G	W	g	w
(	8	H	X	h	x
)	9	I	Y	i	y
*	:	J	Z	j	z
+	;	K	[	k	{
,	<	L	\	l	
-	=	M	]	m	}
.	>	N	^	n	~
/	?	O	_	o	

## 13.3 Internal Memory Capacity for Buffered Images

The camera's internal memory can buffer images according to the table below.

### Note

- All values are approximate.
- H.264 images cannot be buffered to the camera's internal memory.

### JPEG images (videos and still images)

Resolution	Specification	Snapshot	Image Quality		
			Favor Clarity	Standard	Favor Motion
640 × 480	File Size	50 KB	50 KB	35 KB	27 KB
	No. of Images	(Saved to PC)	360	520	680
320 × 240	File Size	25 KB	25 KB	16 KB	10 KB
	No. of Images	(Saved to PC)	730	1160	1880
192 × 144	File Size	10 KB	10 KB	7 KB	5 KB
	No. of Images	(Saved to PC)	1880	2710	3850

### Note

- The maximum number of images that can be buffered depends on image resolution and image quality.

### MPEG-4 videos

For information about MPEG-4 image capacity, see the Panasonic Network Camera support site at <http://panasonic.net/pcc/support/netwkcaml/>.

### Note

- The maximum amount of video that can be buffered depends on image resolution, network bandwidth, and the frame rate and bit rate set for the streaming method.

## 13.4 Information About Streaming Format

The image refresh rate and resolution settings that are available to users are determined by the [Streaming Format] setting on the [Video Streaming] page (see 5.8 Changing Video Streaming Settings). Refer to the table below and set this parameter based on the refresh rate and resolution you wish to be available to camera users.

[Streaming Format] Setting	Available [Refresh Rate] Settings	Available [Resolution] Settings
H.264 (640 × 480, 320 × 240) MJPEG (640 × 480, 320 × 240, 192 × 144)	H.264	640 × 480 320 × 240
	MJPEG	640 × 480 320 × 240 192 × 144
MPEG-4 (640 × 480, 320 × 240, 192 × 144) MJPEG (640 × 480, 320 × 240, 192 × 144)	MPEG-4	640 × 480 320 × 240 192 × 144
	MJPEG	640 × 480 320 × 240 192 × 144

**Note**

- If the [Streaming Format] setting on the [Video Streaming] page is changed, the camera must be restarted in order for the new settings to take effect. All images buffered in the internal memory are deleted when the camera is restarted.
- If using Network Camera Recorder software, a blue screen will be displayed if the software tries to access camera images with a refresh rate and resolution that are not supported according to the [Streaming Format] setting, as described above.
- Only 320 × 240 and 192 × 144 images are available on the multi camera screen.



## 13.5 Feature Limitations Based on Image Format

Certain features are limited based on the image format (H.264, MPEG-4, and MJPEG) as explained below.

### Image buffer and transfer

Image Format	Resolution	Image Buffer	Image Transfer
H.264	640 × 480	×	×
	320 × 240	×	×
MPEG-4	640 × 480	Timer only	×
	320 × 240	Timer only	×
	192 × 144	Timer only	×
MJPEG	640 × 480	✓	✓
	320 × 240	✓	✓
	192 × 144	✓	✓

✓=Available

×=Not available

## 13.6 Comparing Color Night View and Software Color Night View

When camera images are dark, there are two features you can use to brighten camera images: Color Night View (Page 142) and Software Color Night View (Page 41). The differences between these features are described below.

	<b>Color Night View</b>	<b>Software Color Night View</b>
<b>Refresh Rate</b>	Decreases when subject is dark	Decreases when subject is dark depending on computer performance
<b>CPU Usage</b>	Is not affected	Increases CPU usage
<b>User Control</b>	Is either enabled or disabled for all users	Is enabled or disabled by each user on their computers
<b>Resolution</b>	Has no limitations	Has no limitations
<b>Activation</b>	Is activated when subject is dark (when enabled)	Is activated when subject is dark (when enabled)
<b>Other Limitations</b>	Image may blur when dark	May not perform as expected when frame rate decreases

**Note**

- When viewing H.264 or MPEG-4 images, the computer’s performance may not be adequate to use software color night view, and images may break up as a result. In this case, turn off software color night view and try using the camera’s color night view mode feature (see Page 142).

## 13.7 Default Setting List

### Single

Parameter	Default	Value Range
Precise	Off	On, Off
Pan/Tilt Range	Pan: $-41^{\circ} - +41^{\circ}$ Tilt: $-32^{\circ} - +10^{\circ}$	Pan: $-41^{\circ} - +41^{\circ}$ Tilt: $-32^{\circ} - +10^{\circ}$
Preset	1.UpperLeft 2.UpperRight 3.LowerLeft 4.LowerRight	Presets 1–8, Home Position, Sensor, Alarm1, Alarm2
Brightness	STD	9 levels
Backlight	Off	On, Off
White Balance	Auto	Auto, Indoor, Fluorescent (White), Fluorescent (Daylight), Outdoor, Hold
<b>BL-C230 only:</b> Output	–	Open Short
Refresh Rate	MJPEG	H.264, MPEG-4, MJPEG, 3 s, 5 s, 10 s, 30 s, 60 s
Resolution	320 × 240	640 × 480, 320 × 240, 192 × 144
Image Quality	Standard	Favor Clarity, Standard, Favor Motion
Streaming Method	Auto	Auto, Multicast, Unicast, HTTP

### Multi

Parameter	Default	Value Range
Layout	4 Screens	4 Screens, 9 Screens, 16 Screens
View Type	1–4	1–4, 5–8, 9–12, 13–16
Refresh Rate	MJPEG	H.264, MPEG-4, MJPEG, 3 s, 5 s, 10 s, 30 s, 60 s
Resolution	320 × 240	320 × 240, 192 × 144

**Network (IPv4)**

Parameter		Default	Value Range
<b>Connection Mode</b>	Connection Mode	<b>BL-C210A/ BL-C230A:</b> DHCP <b>BL-C210CE/ BL-C210E/ BL-C230CE/ BL-C230E:</b> Automatic Setup	Automatic Setup, Static, DHCP
<b>Proxy Server Settings</b>	Address	–	–
	Port No.	8080	1–65535
	Login ID	–	–
	Password	–	–
<b>Network Configuration from Setup Program</b>	Network Configuration from Setup Program (Available for Static and DHCP connection only)	Enable	Enable, Disable
<b>Internet Connection</b>	Port No. (Available for Static and DHCP connection only)	80	1–65535
	IP Address (Available for Static connection only)	192.168.0.253	–
	Subnet Mask (Available for Static connection only)	255.255.255.0	–
	Host Name (Available for DHCP connection only)	–	–
<b>Default Gateway</b>	Default Gateway (Available for Static and DHCP connection only)	–	–
<b>DNS</b>	Primary Server Address (Available for Static and DHCP connection only)	–	–
	Secondary Server Address (Available for Static and DHCP connection only)	–	–
<b>Max. Bandwidth Usage</b>	Max. Bandwidth Usage (Mbps)	Unlimited	Unlimited, 0.1, 0.2, 0.3, 0.5, 1, 2, 3 Mbps
<b>Connection Type</b>	Connection Type	Auto Negotiation	Auto Negotiation, 100 Mbps/Full Duplex, 100 Mbps/Half Duplex, 10 Mbps/Full Duplex, 10 Mbps/Half Duplex

## Network (IPv6)

Parameter		Default	Value Range
<b>Connection Mode</b>	Connection Mode	Automatic Setup	Automatic Setup, Static
<b>Internet Connection</b>	Port No. (Available for Static connection only)	80	1–65535
	IP Address (Available for Static connection only)	–	–
<b>Default Gateway</b>	Default Gateway (Available for Static connection only)	–	–
<b>DNS</b>	Primary Server Address	–	–
	Secondary Server Address	–	–
<b>Max. Bandwidth Usage</b>	Max. Bandwidth Usage (Mbps)	Unlimited	Unlimited, 0.1, 0.2, 0.3, 0.5, 1, 2, 3 Mbps
<b>Connection Type</b>	Connection Type	Auto Negotiation	Auto Negotiation, 100 Mbps/Full Duplex, 100 Mbps/Half Duplex, 10 Mbps/Full Duplex, 10 Mbps/Half Duplex

## HTTPS

Parameter		Default	Value Range
HTTPS		Use HTTP	Use HTTPS, Use HTTP
<b>Certificate Information</b>	Camera IP Address or Host Name	–	–

## Wireless (BL-C230 Only)

Parameter		Default	Value Range
<b>Wireless Configuration</b>	SSID	NetCam****	–
	Communication mode	802.11b/g	802.11b, 802.11b/g, 802.11g exclusive

### 13.7 Default Setting List

Parameter		Default	Value Range
Encryption	Cipher	No encryption	No encryption, WEP, WPA-PSK (TKIP), WPA2-PSK (AES)
	WEP Key 1–4 (for WEP encryption)	–	HEX, 10 characters 64bit  HEX, 26 characters 128bit  HEX, 32 characters 152bit  ASCII 5 characters 64bit  ASCII 13 characters 128bit  ASCII 16 characters 152bit
	Network Key (for WPA-PSK (TKIP) or WPA2-PSK (AES) encryption)	–	HEX, 64 Characters ASCII, 8 to 63 Characters

### UPnP

Parameter	Default	Value Range
Auto Port Forwarding	Disable	Enable, Disable
<b>BL-C210CE/BL-C210E/BL-C230CE/BL-C230E only:</b> Display Shortcut Icon in My Network Places	Enable	Enable, Disable

### DynamicDNS

Parameter		Default	Value Range
DynamicDNS		Disable	Viewnetcam.com, User-specified DynamicDNS, Disable
User-specified DynamicDNS	DynamicDNS Server URL	–	–
	Updating time	10 min	At the time of starting, 10 min, 30 min, 1 h, 3 h, 6 h, 12 h, 24 h
Input User Name and Password	User Name	–	–
	Password	–	–

Parameter		Default	Value Range
<b>Viewnetcam.com configuration</b>	Updating time	60 min	10 min, 20 min, 30 min, 40 min, 50 min, 60 min
<b>Global IP Address Notification Method</b>		Normal	Normal, Advanced

## Date and Time

Parameter		Default	Value Range
<b>Time Setting</b>	Date	–	–
	Format	AM/PM	AM/PM, 24H
	Time	–	–
<b>Automatic Time Adjustment</b>	Enable	Not enabled	–
	NTP Server Address or Host Name	–	–
	Time Zone	<b>BL-C210A/</b> <b>BL-C230A:</b> GMT -05:00 Eastern Time <b>BL-C210CE/</b> <b>BL-C210E/</b> <b>BL-C230CE/</b> <b>BL-C230E:</b> GMT 00:00 Western Europe Time	–
<b>Adjust Clock for Daylight Saving Time/Summer Time</b>	Enable	Not enabled	–
	Start Day	<b>BL-C210A/</b> <b>BL-C230A:</b> Mar Second Sunday 2 AM <b>BL-C210CE/</b> <b>BL-C210E/</b> <b>BL-C230CE/</b> <b>BL-C230E:</b> Mar Last Sunday 1 AM	–
	End Day	<b>BL-C210A/</b> <b>BL-C230A:</b> Nov First Sunday 2 AM <b>BL-C210CE/</b> <b>BL-C210E/</b> <b>BL-C230CE/</b> <b>BL-C230E:</b> Oct Last Sunday 1 AM	–

### 13.7 Default Setting List

## Camera

Parameter		Default	Value Range
AC Power Source Frequency		<b>BL-C210A/ BL-C230A:</b> 60 Hz <b>BL-C210CE/ BL-C210E/ BL-C230CE/ BL-C230E:</b> 50 Hz	50 Hz, 60 Hz
<b>Return to Specified Position</b>	Time	Do not move	Do not move, 10 s, 20 s, 30 s, 1 min, 5 min, 10 min, 30 min, 1 h
	Specified Position	Home Position	Home Position, Sensor, Alarm No.1, Alarm No.2, Presets 1–8
Shutter Speed/Color Night View		<b>BL-C210A/ BL-C230A:</b> Shutter Speed 1/30 s <b>BL-C210CE/ BL-C210E/ BL-C230CE/ BL-C230E:</b> Shutter Speed 1/25 s	<b>50 Hz:</b> 1/25 s, 1/50 s, 1/100 s, Color Night View <b>60 Hz:</b> 1/30 s, 1/60 s, 1/120 s, Color Night View

## Audio

Parameter	Default	Value Range
Input	Enable	Enable, Disable
Camera Microphone Sensitivity	Normal	Very Low, Low, Normal, High
Mute during Pan/Tilt	Enable	Enable, Disable

## Video Streaming

Parameter	Default	Value Range
Streaming Format	<b>BL-C210A/ BL-C230A:</b> H.264/MJPEG <b>BL-C210CE/ BL-C210E/ BL-C230CE/ BL-C230E:</b> MPEG-4/MJPEG	H.264/MJPEG, MPEG-4/MJPEG



Parameter		Default	Value Range
<b>Max. No. of HTTP Sessions</b> (When [Streaming Format] is set to H.264/MJPEG)	H.264	2	0–2
	MJPEG	3	0–5
<b>Max. No. of HTTPS Sessions</b> (When [Streaming Format] is set to H.264/MJPEG)	H.264	2	0–2
	MJPEG	3	0–5
<b>Max. No. of HTTP Sessions</b> (When [Streaming Format] is set to MPEG-4/MJPEG)	MPEG-4	3	0–4
	MJPEG	5	0–10
<b>Max. No. of HTTPS Sessions</b> (When [Streaming Format] is set to MPEG-4/MJPEG)	MPEG-4	2	0–2
	MJPEG	3	0–5
<b>H.264 Max. Frame Rate</b>	640 × 480	30 Frames/Sec.	5, 10, 15, 30 frames/sec.
	320 × 240	30 Frames/Sec.	5, 10, 15, 30 frames/sec.
<b>H.264 Bit Rate</b>	640 × 480	512 Kbps–2048 Kbps	512, 768, 1024, 1536, 2048 Kbps
	320 × 240	64 Kbps–1024 Kbps	64, 128, 192, 256, 384, 512, 768, 1024 Kbps
<b>MPEG-4 Max. Frame Rate</b>	640 × 480	30 Frames/Sec.	5, 10, 15, 30 frames/sec.
	320 × 240	30 Frames/Sec.	5, 10, 15, 30 frames/sec.
	192 × 144	30 Frames/Sec.	5, 10, 15, 30 frames/sec.
<b>MPEG-4 Bit Rate</b>	640 × 480	192 Kbps–2048 Kbps	192, 256, 384, 512, 768, 1024, 1536, 2048 Kbps
	320 × 240	64 Kbps–1024 Kbps	64, 128, 192, 256, 384, 512, 768, 1024 Kbps
	192 × 144	32 Kbps–512 Kbps	32, 64, 128, 192, 256, 384, 512 Kbps
<b>RTSP</b>	Port No.	554	1–65535
<b>RTP</b>	Port No.	33000	2–65400 (must be an even number)
<b>Multicast</b>	Multicast settings screen is displayed.	Not checked	–
<b>Packet Availability Time</b>	TTL	5	1–255

### 13.7 Default Setting List

Parameter		Default	Value Range
<b>Multicast (IPv4)</b>	Use	Not checked	–
	Address	231.244.244.241	–
	MPEG-4 Port No.	30000–30006	2000–65520 (must be an even number)
	H.264 Port No.	30040–30046	2000–65520 (must be an even number)
	Audio Port No.	30020	2000–65520 (must be an even number)
<b>Multicast (IPv6)</b>	Use	Not checked	–
	Address	ff1e::0010	–
	MPEG-4 Port No.	30100–30106	2000–65520 (must be an even number)
	H.264 Port No.	30140–30146	2000–65520 (must be an even number)
	Audio Port No.	30120	2000–65520 (must be an even number)

### Administrator

Parameter	Default	Value Range
General Authentication	Do not permit access from guest users	Permit access from guest users, Permit access from guest users (mobile only), Do not permit access from guest users
User Name	–	–
Password	–	–
Retype Password	–	–

### General User

Parameter	Default	Value Range
User ID List	–	–
User Name	–	–
Password	–	–
Retype Password	–	–

Parameter	Default	Value Range
Video Display Time	Not permitted	Not permitted, Unlimited, 10 s, 30 s, 1 min, 5 min, 10 min, 30 min, 60 min
Refresh Rate	3 s	3 s, 5 s, 10 s, 30 s, 60 s
Access Level	All unchecked	–

## Guest User

Parameter	Default	Value Range
Video Display Time	Not permitted	Not permitted, Unlimited, 10 s, 30 s, 1 min, 5 min, 10 min, 30 min, 60 min
Refresh Rate	3 s	3 s, 5 s, 10 s, 30 s, 60 s
Access Level	All unchecked	–

## Trigger

Parameter	Default	Value Range	
<b>Trigger Setting</b>	Enable Image Buffer/Transfer	Not enabled	–
	Trigger	<b>No. 1:</b> Motion Detection <b>No. 2–5:</b> Timer	Timer, Sensor, Alarm1, Alarm2, Motion Detection, Sound Detection
	Alarm enable condition	Rising: GND to Open (High).	Rising: GND to Open (High). Falling: Open (High) to GND.
<b>Time</b>	Days	All days checked	–
	Active Time of Trigger	Always	Always, specified time
<b>Image Setting</b>	Format	JPEG	JPEG, MPEG-4
	Image Resolution	320 × 240	640 × 480, 320 × 240, 192 × 144
	Image Quality	Standard	Favor Clarity, Standard, Favor Motion

### 13.7 Default Setting List

Parameter		Default	Value Range
<b>Lens Position When Triggered</b>	When triggered,	Do not move	Do not move, Home Position, Sensor, Alarm No.1, Alarm No. 2, Presets 1–8
<b>BL-C230 only: External Output</b>	Control Time	None	None, 1 s, 3 s, 5 s, 10 s, 30 s, 1 min, 3 min, 5 min, 10 min, 30 min, When Recording
<b>Image Buffer Frequency</b> (for timer triggers)	Image Buffer Frequency	<b>No. 1:</b> Buffer 5 images every 1 second <b>No. 2–5:</b> Buffer 1 image every 1 second	1 image every hour–30 images every second
<b>Image Buffer Frequency</b> (for sensor, alarm, and detection triggers)	Enable Pre-trigger Image Buffer	<b>No. 1:</b> Enabled <b>No. 2–5:</b> Not enabled	–
	Image Buffer Frequency	<b>No. 1:</b> Buffer 5 images every 1 second, total of 5 images <b>No. 2–5:</b> Buffer 1 image every 1 second, total of 1 image	1 image every minute–30 images every second. Total 1–600 images.
	Enable Post-trigger Image Buffer	Enabled	–
	Image Buffer Frequency	<b>No. 1:</b> Buffer 5 images every 1 second, total of 20 images <b>No. 2–5:</b> Buffer 1 image every 1 second, total of 1 image	1 image every minute–30 images every second. Total 1–1500 images.
<b>Sensor deactivation time setting</b>	Sensor deactivation time	None	None, 10 s, 30 s, 1 min, 3 min, 5 min, 10 min
<b>Transfer Method</b>	Transfer Method	<b>No. 1:</b> No Transfer, Memory Overwrite <b>No. 2–5:</b> No Transfer, No Memory Overwrite	No Transfer, No Memory Overwrite No Transfer, Memory Overwrite FTP E-mail HTTP
<b>Send Notification When Triggered</b>	Send Notification When Triggered	Disable	Disable, Send E-mail Notification, Send HTTP Notification

Parameter		Default	Value Range
<b>FTP</b>	Server IP Address or Host Name	–	–
	Port No.	21	1–65535
	Login ID	–	–
	Password	–	–
	Login Timing	Every Time	Every Time, One Time
	Upload File Name	–	–
	Overwrite setting	Overwrite File	Overwrite File, Save as New File with Time Stamp
	Data Transfer Method	Passive Mode	Passive Mode, Active Mode
<b>E-mail Transfer</b>	SMTP Server IP Address or Host Name	–	–
	Port No.	25	1–65535
	Reply E-mail Address	–	–
	Destination E-mail Address 1	–	–
	Destination E-mail Address 2	–	–
	Destination E-mail Address 3	–	–
	Subject	–	–
	Text	–	–
<b>How to authenticate</b>	No authentication	Checked	No authentication, POP before SMTP authentication, SMTP authentication
SSL		Not use	Use, Not use
<b>POP before SMTP authentication</b>	POP3 Server IP Address or Host Name	–	–
	Port No.	110	1–65535
	Login ID	–	–
	Password	–	–
<b>SMTP authentication</b>	Login ID	–	–
	Password	–	–

### 13.7 Default Setting List

Parameter		Default	Value Range
<b>HTTP</b>	Host Name	–	–
	Port No.	80	1–65535
	Login ID	–	–
	Password	–	–
	Upload File Name	–	–
	Overwrite setting	Overwrite File	Overwrite File, Save as New File with Time Stamp
<b>E-mail Notification When Triggered</b>	SMTP Server IP Address or Host Name	–	–
	Port No.	25	1–65535
	Reply E-mail Address	–	–
	Destination E-mail Address 1	–	–
	Destination E-mail Address 2	–	–
	Destination E-mail Address 3	–	–
	Subject	–	–
	Text	–	–
<b>How to authenticate</b>	No authentication	Checked	No authentication, POP before SMTP authentication, SMTP authentication
<b>SSL</b>		Not use	Use, Not use
<b>POP before SMTP authentication</b>	POP3 Server IP Address or Host Name	–	–
	Port No.	110	1–65535
	Login ID	–	–
	Password	–	–
<b>SMTP authentication</b>	Login ID	–	–
	Password	–	–
<b>HTTP Notification</b>	Host Name	–	–
	Port No.	80	1–65535
	Login ID	–	–
	Password	–	–
	File Path	–	–

## Sensor Sensitivity

Parameter	Default	Value Range
Sensor Sensitivity	Normal	Very Low, Low, Normal, High, No detection

## Motion Detection

Parameter	Default	Value Range
Threshold	<b>BL-C210A/ BL-C230A:</b> Fourth bar from the left <b>BL-C210CE/ BL-C210E/ BL-C230CE/ BL-C230E:</b> Third bar from the left	–
Sensitivity	<b>BL-C210A/ BL-C230A:</b> Ninth bar from the right <b>BL-C210CE/ BL-C210E/ BL-C230CE/ BL-C230E:</b> Tenth bar from the right	–

## Sound Detection

Parameter	Default	Value Range
Sound Threshold	Third bar from the right	–

## Alarm Log

Parameter		Default	Value Range
<b>A setup of operation</b>	A setup of operation	Never send alarm logs	Never send alarm logs, Always send alarm logs, Send alarm logs only when the camera was triggered, Send alarm logs only when the camera was not triggered

### 13.7 Default Setting List

Parameter		Default	Value Range
<b>Active Time</b>	Days	All days checked	–
	Time	PM12h 0min	Specified time
<b>Notice setup of an alarm log</b>	SMTP Server IP Address or Host Name	–	–
	Port No.	25	1–65535
	Reply E-mail Address	–	–
	Destination E-mail Address 1	–	–
	Destination E-mail Address 2	–	–
	Destination E-mail Address 3	–	–
	Subject	Alarm Log	–
<b>How to authenticate</b>	No authentication	Checked	No authentication, POP before SMTP authentication, SMTP authentication
SSL		Not use	Use, Not use
<b>POP before SMTP authentication</b>	POP3 Server IP Address or Host Name	–	–
	Port No.	110	1–65535
	Login ID	–	–
	Password	–	–
<b>SMTP authentication</b>	Login ID	–	–
	Password	–	–

### Image Display

Parameter		Default	Value Range
<b>Camera Name</b>	Camera Name	NetworkCamera	–
<b>Single Camera</b>	Refresh Rate	MJPEG	H.264, MPEG-4, MJPEG, 3 s, 5 s, 10 s, 30 s, 60 s
	Image Resolution	320 × 240	640 × 480, 320 × 240, 192 × 144
	Image Quality (MJPEG or still images only)	Standard	Favor Clarity, Standard, Favor Motion
	Streaming Method (H.264 or MPEG-4 only)	Auto	Auto, Multicast, Unicast, HTTP



Parameter		Default	Value Range
<b>Multi-Camera</b>	Refresh Rate	MJPEG	H.264, MPEG-4, MJPEG, 3 s, 5 s, 10 s, 30 s, 60 s
	Image Resolution	320 × 240	320 × 240, 192 × 144
	Image Quality (MJPEG or still images only)	Standard	Favor Clarity, Standard, Favor Motion
<b>Mobile Phone</b>	Image Resolution	192 × 144	320 × 240, 192 × 144
<b>Overlay Setting</b>	Date and Time	Not checked	–
	Date Format	<b>BL-C210A/</b> <b>BL-C230A:</b> MMM.DD,YY <b>BL-C210CE/</b> <b>BL-C210E/</b> <b>BL-C230CE/</b> <b>BL-C230E:</b> DD MMM,YY	YY/MM/DD MMM.DD,YY DD MMM,YY
	Text	Not checked	–
	Text	–	–
	Status	Not checked	–
<b>Language</b>	Language	English	English, Japanese, French, German, Italian, Spanish, Simplified Chinese, Russian, Korean
<b>Banner Display</b>	Enable	Not checked	–
	Banner user	All users	All users, Administrator only, General user only
	Image URL	–	–
	Link URL	–	–

## Multi-Camera

Parameter		Default	Value Range
No.		1	–
Display		On	–
HTTPS		Do not use	Use, Do not use
IP Address or Host Name		selfcamera	–
Port No.		–	1–65535
Camera Name		(Camera's model no.)	–

### Operation Time

Parameter	Default	Value Range
Enable	Not checked	Enable, Disable
Days	All days checked	–
Operation Time	Always	Always, specified time

### External Output (BL-C230 Only)

Parameter	Default	Value Range
External Device Control Output	Open	Open, Short to GND
Button name modification	Open Short	–

### Indicator Control

Parameter	Default	Value Range
POWER Indicator	Turn indicator on when camera is on.	Turn indicator on when camera is on. Turn indicator on during camera access. Turn indicator on during pyroelectric sensor reaction. Never turn indicator on.
<b>BL-C210A/BL-C230A only:</b> AV LINK Indicator	Enable	Enable, Disable

### Privacy Mode

Parameter	Default	Value Range
PRIVACY Button	Enable	Enable, Disable
Privacy Mode	Disable	Enable, Disable

### Built-in Alarm

Parameter	Default	Value Range
Trigger for Built-in Alarm	Button only	Button or sensor, Button only, Sensor only, Off
Built-in Alarm Volume	Medium	High, Medium, Low
Built-in Alarm Sound Type	A	A–D

## Internet

Parameter	Default	Value Range
Auto Port Forwarding (IPv4)	Disable	Enable, Disable
Viewnetcam.com Registration	Do not register with Viewnetcam.com	Register with Viewnetcam.com, Do not register with Viewnetcam.com
Allow Access from the Internet (IPv6)	No	Yes, No

## Restart

Parameter	Default	Value Range
Scheduled Restart	Disable	Enable, Disable
Days	All days checked	–
Time of Restart	AM12h00min	Specified time

## MJPEG Options

Parameter	Default	Value Range
Play Sound on Detection	Disable	Enable, Disable
Sound File	–	–
Playback Time	5 s	1–10 s
Motion Detection	Not use	Not use, Use
Sensor	Not use	Not use, Use
Alarm1: Alarm enable condition	Not use	Not use Rising: GND to Open (High). Falling: Open (High) to GND.
Alarm2: Alarm enable condition	Not use	Not use Rising: GND to Open (High). Falling: Open (High) to GND.
Sound Detection	Not use	Not use, Use
Image Display Method	Auto	Auto, DirectX Graphics, DirectDraw, GDI
Software Color Night View	Not use	Not use, Use

## 13.7 Default Setting List

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\* Settings are stored on the computer, and are therefore not reset to their default values when the camera is reset.

### MPEG-4 Options

Parameter	Default	Value Range
Image Display Method	Auto	Auto, DirectX Graphics, DirectDraw, GDI
Software Color Night View	Not use	Not use, Use

\* Settings are stored on the computer, and are therefore not reset to their default values when the camera is reset.

### H.264 Options

Parameter	Default	Value Range
Image Display Method	DirectShow	DirectShow (cannot be changed)
Software Color Night View	Not use	Not use, Use

\* Settings are stored on the computer, and are therefore not reset to their default values when the camera is reset.

## 13.8 Specifications

### Camera Specifications

Items	Specifications
Zoom	3× (by length) ActiveX zoom
Pan/Tilt Angle	Pan: -41 ° to +41 °, Tilt: -32 ° to +10 °
Image Sensor	1/4 inch CMOS sensor, 320,000 pixels
Illuminance	5–10,000 lx (3–10,000 lx when in Color Night View mode)
White Balance	Auto/Manual/Hold
Lens Brightness	9 levels
Focus	Fixed, 0.3 m–Infinity
Minimum Object Distance	0.3 m (1 foot)
Aperture (F No.)	F2.8
Horizontal Viewing Angle	58 °
Vertical Viewing Angle	45 °
Exposure	Auto

### Other Specifications

Items	Specifications
Image Compression	JPEG (3 levels), MPEG-4, H.264
Image Resolution	640 × 480, 320 × 240, 192 × 144
Buffered Images <sup>*1</sup>	About 1160 frames (320 × 240, standard image quality) with time display
Audio Communication	Camera to PC
Audio Compression Format	<b>H.264:</b> MPEG-2 AAC (AAC-LC) 64 Kbps <b>MPEG-4/MJPEG:</b> ADPCM 32 kbps
Audio Bandwidth	300 Hz–3.4 KHz
Audio Reception Method	ActiveX
Audio Reception Decoding	ActiveX
Audio Input	Built-in microphone
Audio Output	Built-in speaker
External Input/Output Interface	<b>BL-C210:</b> External sensor input × 2 <b>BL-C230:</b> External sensor input × 2 External output × 1

### 13.8 Specifications

Items	Specifications
Frame Rate <sup>2</sup>	Max. 30 frames/second (640 × 480, 320 × 240, 192 × 144)
Communication Protocols	IPv4/IPv6 Dual-Stack <b>IPv4:</b> TCP, UDP, IP, HTTP, FTP, SMTP, DHCP, DNS, ARP, ICMP, POP3, NTP, UPnP™, SMTP Authentication, RTP, RTSP, RTCP, HTTPS, SSL, TLS, Auto IP <sup>3</sup> <b>IPv6:</b> TCP, UDP, IP, HTTP, FTP, SMTP, DNS, ICMPv6, POP3, NDP, NTP, RTP, RTSP, RTCP, HTTPS, SSL, TLS
Image Buffer/Transfer Triggers	Timer, Sensor, Alarm 1, Alarm 2, Motion Detection, Sound Detection
Image Transfer Method	SMTP <sup>4</sup> , FTP, HTTP
Wired LAN Interface	10Base-T/100Base-TX Ethernet RJ-45 connector
Sensor Detection Method	Pyroelectric Infrared Sensor
Sensor Detection Range <sup>5</sup>	Horizontal: About 28 ° Vertical: About 71 ° Distance: About 5 m (16 feet 5 inches) when in a 20 °C (68 °F) environment
POWER Indicator Display	Power Camera Operation Ethernet Link
<b>BL-C210A/BL-C230A only:</b> AV LINK Indicator Display	AV Link
Dimensions (W×H×D)	<b>BL-C210:</b> 74 mm × 74 mm × 91 mm (2 15/16 inches × 2 15/16 inches × 3 9/16 inches) <b>BL-C230:</b> 74 mm × 74 mm × 101 mm (2 15/16 inches × 2 15/16 inches × 4 inches)
Weight (Main Unit Only)	<b>BL-C210:</b> 230 g (0.51 lb) <b>BL-C230:</b> 260 g (0.57 lb)
Power Supply	<b>BL-C210A/BL-C230A:</b> AC adaptor (order no. PQLV206Y) Input 100–240 V AC, 50/60 Hz Output 9 V DC, 750 mA <b>BL-C210CE/BL-C230CE:</b> AC adaptor (order no. PQLV206CEY) Input 100–240 V AC, 50/60 Hz Output 9 V DC, 750 mA <b>BL-C210E/BL-C230E:</b> AC adaptor (order no. PQLV206EY) Input 220–240 V AC, 50/60 Hz Output 9 V DC, 750 mA
Maximum Power Consumption	<b>BL-C210:</b> About 2.5 W (5.4 W during pan/tilt scan) <b>BL-C230:</b> About 4.0 W (7.7 W during pan/tilt scan)

Items	Specifications
Operating Temperature	Operation: +0 °C (+32 °F) to +40 °C (+104 °F) Storage: -10 °C (+14 °F) to +50 °C (+122 °F)
Operating Humidity	Operation: 20 %–80 % (no condensation) Storage: 20 %–90 % (no condensation)

## Wireless Specifications (BL-C230 Only)

Items	Specifications
Communication Standard	IEEE 802.11b, 802.11b/g, 802.11g exclusive
Data Transfer Mode	IEEE 802.11b: Direct Sequence Spectrum Spread (DS-SS) IEEE 802.11g: Orthogonal Frequency Division Multiplexing (OFDM)
Frequency Range	<b>BL-C230A:</b> 2.412–2.462 GHz <b>BL-C230CE/BL-C230E:</b> 2.412–2.472 GHz
Channel	<b>BL-C230A:</b> 1–11 <b>BL-C230CE/BL-C230E:</b> 1–13
Security	SSID, WEP (64/128/152 bit), WPA-PSK (TKIP), WPA2-PSK (AES)

\*1 See Page 207 for details.

\*2 Frame rate may decrease in the following situations.

- When buffering images
- When using color night view mode
- When many users are viewing camera images

\*3 Auto IP is available for BL-C210A/BL-C230A only.

\*4 The camera supports POP Before SMTP Authentication and SMTP Authentication. PLAIN, LOGIN, and CRAM-MD5 SMTP Authentication are supported. SSL supports SMTP over SSL. STARTTLS is not supported.

\*5 When the temperature is 20 °C (68 °F)

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