



# LevelOne

FCS-0010 10/100Mbps Network Camera /  
WCS-0010 11g Network Camera



## User's Manual

Ver. 1.2.0-0809

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# Chapter 1

## Introduction



*This Chapter provides details of the FCS-0010/WCS-0010's features, components and capabilities.*

### Overview

FCS-0010/WCS-0010 has an Integrated Microcomputer and a high quality CMOS digital-Image-Sensor, enabling it to display high quality live streaming video over your wired LAN, the Internet, and for the WCS-0010, an 802.11g Wireless LAN.

Using enhanced MPEG-4 technologies, FCS-0010/WCS-0010 is able to stream high quality video and audio directly to your PC. The high compression capabilities of MPEG-4 reduce network bandwidth requirements to amazingly low levels.

A convenient and user-friendly Windows program is provided for both viewing and recording video. If necessary, you can even view video using your Web Browser, on a variety of software platforms.

### Features

- **Standalone Design.** FCS-0010/WCS-0010 is a standalone system with built-in CPU and Video encoder. It requires only a power source and a connection to your LAN or Wireless LAN.
- **Dual Video Support.** FCS-0010/WCS-0010 can support both MPEG4 and MJPEG video for different image compression.
- **Stream Live Video to Multiple Users.** The MPEG4 encoder and HTTP server built into the camera generate a ready-to-view video stream. Just connect to FCS-0010/WCS-0010 using your Web browser or the provided Windows utility to view live video.
- **Suitable for Home, Business or Public Facilities.** Whether for Home, Business or Public Facility surveillance, or just for entertainment and fun, FCS-0010/WCS-0010 has the features you need.
- **Multi-Protocol Support.** Supporting TCP/IP networking, SMTP (E-mail), HTTP and other Internet related protocols, FCS-0010/WCS-0010 can be easily integrated into your existing network.
- **Easy Configuration.** A Camera Wizard is provided for initial setup. Subsequent administration and management can be performed using a standard web browser. The administrator can configure and manage FCS-0010/WCS-0010 via the LAN or Internet.
- **Viewing/Recording Utility.** IP CamSecure Lite version is provided for viewing live video. For periods when you are absent, or for scheduled recording. Users can monitor up to 32 channels simultaneously.
- **Motion Detection.** This feature can detect motion in the field of view. FCS-0010/WCS-0010 will compare consecutive frames to detect changes caused by the movement of large objects. This function only works indoors due to the

sensitivity of the CMOS sensor. When motion is detected, an E-mail alert can be sent, or some other action may be triggered.

- **Flexible Scheduling.** You can limit access to the video stream to specified times using a flexible scheduling system. The Motion Detection feature can also have its own schedule, so it is active only when required.
- **Syslog Support.** If you have a Syslog Server, FCS-0010/WCS-0010 can send its log data to your Syslog Server.
- **Audio Support.** You can listen as well as look! Audio is encoded with the video if desired.

### Internet Features

- **User-definable HTTP port number.** This allows Internet Gateways to use "port mapping" so the FCS-0010/WCS-0010 and a Web Server can share the same Internet IP address.
- **DDNS Support.** In order to view video over the Internet, users must know the Internet IP address of the gateway used by the FCS-0010/WCS-0010. But if the Gateway has a dynamic IP address, DDNS (Dynamic DNS) is required. Since many existing Gateways do not support DDNS, this function is incorporated into the FCS-0010/WCS-0010.
- **NTP (Network-Time-Protocol) Support.** NTP allows the FCS-0010/WCS-0010 to calibrate its internal clock from an Internet Time-Server. This ensures that the time stamp on Video from the FCS-0010/WCS-0010 will be correct.

### Security Features

- **User Authentication.** If desired, access to live video can be restricted to known users. Users will have to enter their username and password before being able to view the video stream. Up to 10 users can be entered.
- **Password-Protected Configuration.** Configuration data can be password protected, so that it only be changed by the FCS-0010/WCS-0010 Administrator.

## Wireless Features

- **Standards Compliant.** The WCS-0010 complies with the IEEE802.11g (DSSS) specifications for Wireless LANs.
- **Supports both 802.11b and 802.11g Standards.** The WCS-0010 supports both 802.11b and 802.11g standards.
- **Speeds to 54Mbps.** All speeds up to the 802.11g maximum of 54Mbps are supported.
- **Wired and Wireless Network Support.** The WCS-0010 supports either wired and wireless transmission.
- **WEP Support.** Full WEP support (64/128 Bit) on the Wireless interface is provided.
- **WPA/WPA2-PSK Support.** The WPA/WPA2-PSK standard is also supported, allowing advanced encryption of wireless data.

## Physical Details

### Front Panel

<b>Lens</b>	No physical adjustment is required or possible for the lens, but you should ensure that the lens cover remain clean. The image quality is degraded if the lens cover is dirty or smudged.
<b>Microphone</b>	The built-in microphone is mounted on the front.
<b>Power LED (Green)</b>	<b>On</b> - Power on. <b>Off</b> - No power. <b>Blinking</b> - The <i>Power</i> LED will blink during start up. This will take 15 to 20 seconds.
<b>Active LED (Green)</b>	<b>Off</b> - No user is viewing the camera. <b>Blinking</b> - User(s) is viewing the camera.
<b>Network LED (Green)</b>	<b>On</b> - Wireless or LAN connection is detected. <b>Off</b> - Wireless or LAN connection is not detected <b>Blinking</b> - Data is being transmitted or received via the LAN or Wireless connection.

### Rear

<b>Antenna (WCS-0010 Only)</b>	Attach the supplied antenna here. The antenna is adjustable; best results are usually obtained with the antenna positioned vertically.
<b>SPKR out</b>	If required, an external speaker can be plugged in here.
<b>Power Input</b>	Connect the supplied 5V power adapter here. Do not use other power adapters; doing so may damage the camera.
<b>LAN port</b>	Use a standard LAN cable to connect FCS-0010/WCS-0010 to a 10/100BaseT hub or switch. <b>Note:</b> <ul style="list-style-type: none"><li>• Attaching the LAN cable will disable the Wireless interface. Only 1 interface can be active at any time.</li><li>• The LAN cable should only be connected or disconnected when the camera is powered OFF. Attaching or detaching the LAN cable while the camera is powered on does NOT switch the interface between wired and wireless.</li></ul>
<b>Reset Button</b>	This button is recessed; you need a pin or paper clip can be used to depress it. It can be activated at any time the camera is in the "ready" mode. <ul style="list-style-type: none"><li>• <b>Restore to Default IP Address.</b> When pressed and released, the FCS-0010/WCS-0010 will reset to DHCP Client.</li><li>• <b>Restore to Factory Default setting including IP Address, Administrator ID, and Administrator password.</b> When pressed and held for 3 seconds, the <i>IP</i></li></ul>



*address, Administrator ID, and Administrator Password* settings will be set to their default values.

- IP address: DHCP Client
- Administrator ID: administrator
- Administrator Password: null (no password)

**Note:**



1. !! Please aim the triangle to the reset button otherwise it may damage parts of camera.
2. After this procedure is completed, the *Power* LED will blink three times to confirm that the reset was completed successfully.

**Rotation**

By rotating the rear panel, the lens can simply be turned to capture the image in its correct, upright position.



## **Package Contents**

The following items should be included: If any of these items are damaged or missing, please contact your dealer immediately.

1. FCS-0010/WCS-0010
2. Power adapter
3. Antenna (WCS-0010 Only)
4. Camera Stand
5. CD Manual/Utility
6. Quick Installation Guide

## Chapter 2

# Basic Setup



*This Chapter provides details of installing and configuring the FCS-0010/WCS-0010.*

### System Requirements

- To use the wired LAN interface, a standard 10/100BaseT hub or switch and network cable is required.
- To use the Wireless interface on the Network Camera, other Wireless devices must be compliant with the IEEE802.11b or IEEE802.11g specifications. All Wireless stations must use compatible settings.



**Note**

**The default Wireless settings are:**

**Mode: Infrastructure**

**ESSID: ANY**

**Wireless Security: Disabled**

**Domain: USA**

**Channel No.: Auto**

## Installation

### 1. Assemble the Camera

For WCS-0010, screw the supplied antenna to the mounting point on the rear.  
Attach the Camera Mount to the camera.

### 2. Connect the LAN Cable

Connect the FCS-0010/WCS-0010 to a 10/100BaseT hub or switch, using a standard LAN cable.



**For the WCS-0010 Network Camera, this disables the Wireless Interface, because only one interface can be active.**

**The LAN cable should only be connected or disconnected when the camera is powered OFF. Attaching or detaching the LAN cable while the camera is powered on does NOT switch the interface between wired and wireless.**

### 3. Power Up

Connect the supplied 5V power adapter to the FCS-0010/WCS-0010 and power up. Use only the power adapter provided. Using a different one may cause hardware damage.

### 4. Check the LEDs

- The *Power* LED will turn on briefly, then start blinking. It will blink during startup, which takes 15 to 20 seconds. After startup is completed, the *Power* LED should remain ON.
- The *Network* LED should be ON.

For more information, refer to *Physical Details* in Chapter 1.

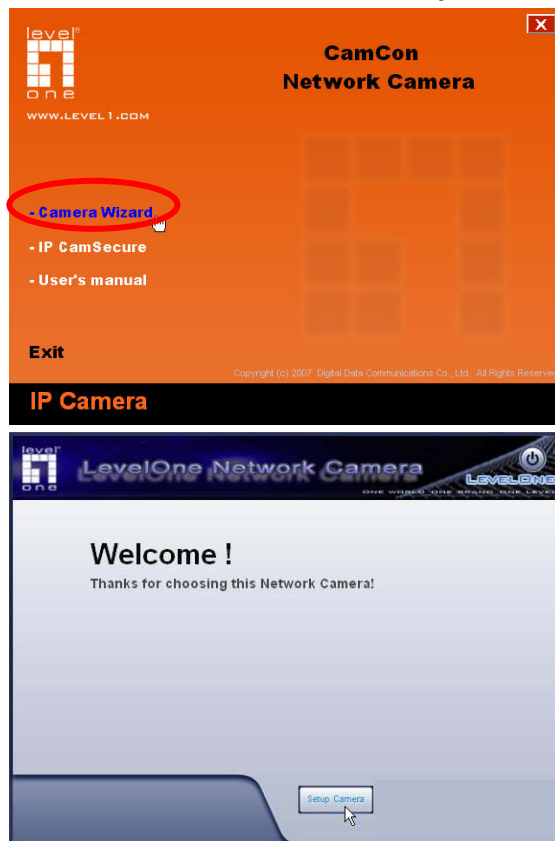
## Setup using the Windows Wizard


Initial setup should be performed using the supplied Windows-based setup Wizard. This program can locate the FCS-0010/WCS-0010 Network Camera even if its IP address is invalid for your network. You can then configure the FCS-0010/WCS-0010 Network Camera with appropriate TCP/IP settings for your LAN.

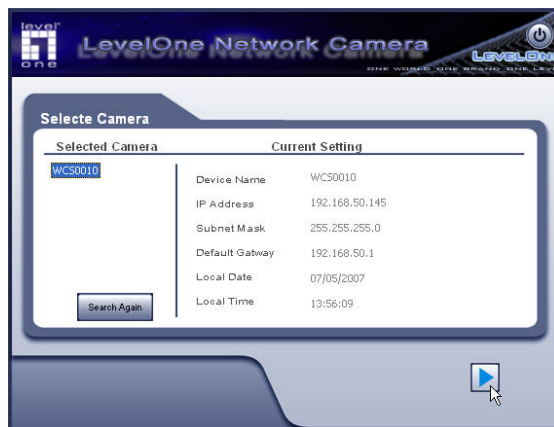
Subsequent administration can be performed with your Web browser, as explained in **Chapter 5 - Web-based Management**.

### Setup Procedure


1. Insert the supplied CD-ROM into your drive. If the setup program does not start automatically, select your CD-ROM drive manually to open the set up page.
2. Select **"Camera Wizard"**->**"Setup Camera"** to initiate the installation.



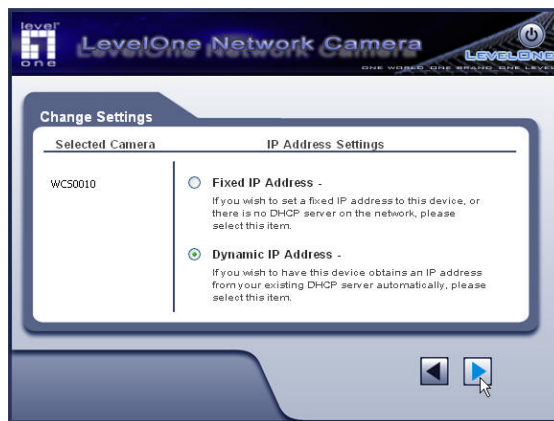
3. The screen will list all the Network Cameras on the LAN. Select the desired camera from the list on the left. The settings for the camera will be displayed on the right, then click .



4. You will be prompted to enter the *Administrator Name* and *Administrator Password*, as shown below. Enter “**administrator**” for the name, and leave the password blank. Otherwise, enter the *Administrator Name* and *Administrator Password* set on the **Maintenance** screen.

5. This screen allows you to enter a suitable **Description**, and set the correct **Time Zone**, **Date**, and **Time**. Make any desired changes, then click  to continue.

6. On the following **IP Address Settings** screen, shown below, choose *Fixed IP Address* or *Dynamic IP Address*. Click  to continue.





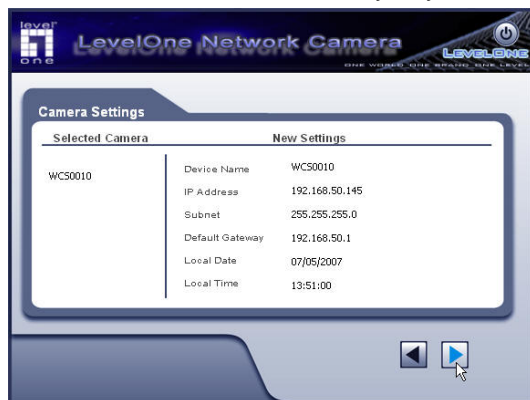
- *Fixed IP Address* is recommended, and can always be used.
- *Dynamic IP Address* can only be used if your LAN has a DHCP Server.

If you chose *Fixed IP Address*, the following **TCP/IP Settings** screen will be displayed.

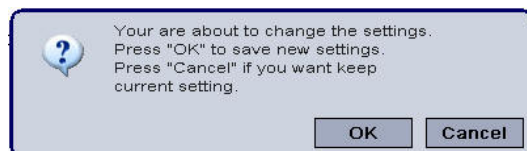
- Enter an unused **IP Address** from within the address range used on your LAN.
- The **Subnet Mask** and **Default Gateway** fields must match the values used by PCs on your LAN.
- The **Primary DNS** address is required in order to use the E-mail alert or Dynamic DNS features. Enter the DNS (Domain Name Server) address recommended by your ISP.
- The **Secondary DNS** is optional. If provided, it will be used if the Primary DNS is unavailable.

Click  to continue.

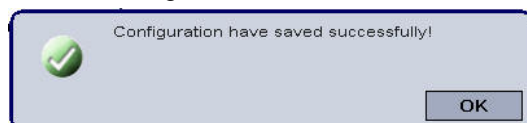
- The screen displays all details of the Network Camera. Click  if the settings are correct, or click  to modify any incorrect values.



- Click **OK** to save the new settings. Or click **Cancel** to cancel your changes,



- The configurations have been saved. Click **OK** to quit the program.



## Chapter 3

# Viewing Live Video



*This Chapter provides basic information about viewing live video.*

### Overview

After finishing setup via the Camera Wizard, all LAN users can view live video using a variety of browsers on Windows/MAC/Linux.

For MPEG4 video: Internet Explorer in Windows.

For MJPEG video: Internet Explorer in MAC, Firefox, Mozilla, Netscape.

This Chapter has details of viewing live video using Internet Explorer.

But many other powerful features and options are available:

- To view multiple cameras simultaneously, or record video (either interactively or by schedule), you should install the IP CamSecure. Refer to the user's manual in the software *CD* for details on installing and using this program.
- The camera administrator can also adjust the Video Stream, and restrict access to the video stream to known users by requiring viewers to supply a username and password.
- To make Live Video from the camera available via the Internet, your Internet Gateway or Router must be configured correctly.

### Requirements

To view the live video stream generated by the FCS-0010/WCS-0010, you need to meet the following requirements:

- Windows 98/98SE, Windows 2000, Windows XP, Windows VISTA.
- Internet Explorer 5.5 or later.

### Connecting to a Camera on your LAN

To establish a connection from your PC to the FCS-0010/WCS-0010:

1. Use the *Camera Wizard* to get the IP address of the FCS-0010/WCS-0010Network Camera.
2. Start Internet Explorer.
3. In the Address box, enter "HTTP://" and the IP Address of the FCS-0010/WCS-0010 Network Camera.
4. When you connect, the following screen will be displayed.





5. Click *View Video*.
6. If the Administrator has restricted access to known users, you will then be prompted for a username and password.  
Enter the name and password assigned to you by the FCS-0010/WCS-0010 Network Camera administrator.
7. The first time you connect to the camera, you will be prompted to install an ActiveX component (OCX or CAB file), as in the example below.  
**You must install this ActiveX component (OCX or CAB file) in order to view the Video stream in Internet Explorer.**  
**Click the "Yes" button to install the ActiveX component.**



8. Video will start playing automatically. There may be a delay of a few seconds while the video stream is buffered.

## Connecting to a Camera via the Internet

**You can NOT connect to a camera via the Internet unless the camera Administrator has configured both the camera and the Internet Gateway/Router used by the camera.**

See *Making Video available from the Internet* in **Chapter 4 - Advanced Viewing Setup** for details of the required configuration.

Also, you need a broadband Internet connection to view video effectively. Dial-up connections are NOT supported.

To establish a connection from your PC to the FCS-0010/WCS-0010 Network Camera via the Internet:

1. Obtain the following information from the Administrator of the camera you wish to connect to:
  - Internet IP Address or Domain Name of the camera.
  - Port number for HTTP connections.
  - Login (username, password) if required.
2. Start Internet Explorer.
3. In the Address box, enter the following:

HTTP://Internet\_Address:port\_number

Where Internet\_Address is the Internet IP address or Domain Name of the camera, and port\_number is the port number used for HTTP (Web) connections to the camera.

### **Examples using an IP address:**

HTTP://203.70.212.52:1024

Where the Internet IP address is 203.70.212.52 and the HTTP port number is 1024.

### **Example using a Domain Name:**

HTTP://mycamera.dyndns.tv:1024

Where the Domain name (using DDNS in this example) is mycamera.dyndns.tv and the HTTP port number is 1024.

4. When you connect, the following screen will be displayed.



5. Click *View Video*.
6. If the Administrator has restricted access to known users, you will then be prompted for a username and password.  
Enter the name and password assigned to you by the Network Camera administrator.
7. The first time you connect to the camera, you will be prompted to install an ActiveX component (OCX or CAB file), as in the example below.  
**You must install this ActiveX component (OCX or CAB file) in order to view the Video stream in Internet Explorer.**  
**Click the "Yes" button to install the ActiveX component.**



8. Video will start playing automatically. There may be a delay of a few seconds while the video stream is buffered.

## Viewing Live Video

After installing the ActiveX component, you will be able to view the live video stream in its own window, as shown below.



There are a number of options available on this screen, accessed by select list, button or icon. See the table below for details.

### General Options

These options are always available, regardless of the type of camera you are connected to.



**Resolution.** Use this drop-down list to select the desired video size.



**Zoom.** A digital zoom feature is available. To zoom in on a section of the window, click this icon. Then use your mouse to select the section you want to magnify. Click the icon again to disable the zoom feature.



**Snapshot.** Click this to take a single JPEG "snapshot" image of the current video.



**Flip.** Click this to have the image swapped top-to-bottom.



**Mirror.** Click this to have the image swapped left-to-right.



**Audio On.** This icon is displayed if audio is On. Click on the icon to turn audio Off.



**Volume.** If audio is enabled, use this slider to adjust the volume.



**Setup.** Select the desired setup format from the drop-down list.

## Chapter 4

# Advanced Viewing Setup



*This Chapter provides information about the optional settings and features for viewing video via the FCS-0010/WCS-0010 Network Camera. This Chapter is for the Camera Administrator only.*

### Introduction

This chapter describes some additional settings and options for viewing live Video:

- Adjusting the video image
- Controlling user access to the live video stream
- Making video available from the Internet
- Using the *Motion Detection* feature

### Adjusting the Video Image

If necessary, the Network Camera Administrator can adjust the Video image.

#### To Adjust the Video Image:

1. Connect to the Web-based interface of the FCS-0010/WCS-0010 Network Camera. (See **Chapter 5 - Web-based Management** for details.)
2. Select *Administration*, then *Video Image*. You will see a screen like the example below.

Home | View Video | Logout

WCS-0010 11g Wireless Network Camera LEVELONE

**Setup**

System

Network

Wireless

DDNS

**Video & Audio**

Video Access

User Database

**Event**

Motion Detection

E-Mail

FTP

HTTP

Event Trigger

**Administration**

Maintenance

Status

Log

**MPEG-4 Settings**

Resolution: 640\*480

Video Quality Control:

☐ Constant Bit Rate 256 Kb ps

☒ Fixed Quality Normal

Max Frame Rate: 30 fps

**MJPEG Settings**

Resolution: 320\*240

Fixed Video Quality: Normal

Max Frame Rate: 30 fps

**Mobile Settings**

☒ Enable Mobile Streaming

Resolution: 160\*120

Video Quality Control:

☒ Constant Bit Rate 32 Kb ps

☐ Fixed Quality Normal

Max Frame Rate: 15 fps

Access Code:

**Video Adjustments**

Power Line Frequency: 60Hz (for fluorescent lighting)

White Balance: Auto

Brightness: Normal

Sharpness: Normal

**Options**

☒ Enable Microphone

☐ Enable Speaker

☒ Enable Time Stamp

☒ Enable Text Display

wcs0010

Save Cancel Help

3. Make the required adjustments, as explained below, and save your changes.

MPEG-4 Settings	
<b>Resolution</b>	Select the desired video resolution format. The default resolution is set to 320*240.
<b>Video Quality Control</b>	<ul style="list-style-type: none"> <li>Constant Bit Rate: Select the desired bit rate. The default is set to 1.2 Mbps.</li> <li>Fixed Quality: Select the desired option. The default fix quality is set to Normal.</li> </ul>
<b>Max. Frame Rate</b>	<p>Select the desired Maximum bandwidth for the video stream. Note that you can specify EITHER the Bandwidth OR the Frame Rate, not both. If the Bandwidth is defined, the frame rate will be adjusted as necessary to achieve the specified frame rate.</p> <p>The default value for bandwidth is <b>Unlimited</b>, which allows you to specify the desired frame rate.</p>
MJPEG Settings	
<b>Resolution</b>	Select the desired video resolution format. The default resolution is set to 320*240.
<b>Fixed Video Quality</b>	Select the desired fix quality. The default fix quality is set to Normal.

<b>Max. Frame Rate</b>	<p>Select the desired Maximum bandwidth for the video stream. Note that you can specify EITHER the Bandwidth OR the Frame Rate, not both. If the Bandwidth is defined, the frame rate will be adjusted as necessary to achieve the specified frame rate.</p> <p>The default value for bandwidth is <b>Unlimited</b>, which allows you to specify the desired frame rate.</p>
<b>Mobil Settings</b>	
<b>Enable Mobil Streaming</b>	Enable streaming video for the mobile device by checking this checkbox.
<b>Resolution</b>	The default resolution is set to 160x120.
<b>Video Quality Control</b>	<ul style="list-style-type: none"> <li>Constant Bit Rate: Select the desired fix bit rate.</li> <li>Fixed Quality: Select the desired option. The default fix quality is set to Normal.</li> </ul>
<b>Max. Frame Rate</b>	Select the desired Maximum bandwidth for the video stream.
<b>Access Code</b>	Enter the code for accessing the live video from camera through cell phone connection.
<b>Video Adjustment</b>	
<b>Power Line Frequency</b>	Select the power line frequency (50Hz or 60Hz) used in your region, to improve the picture quality under florescent lighting.
<b>White Balance</b>	Select the desired option to match the current environment and lighting.
<b>Brightness</b>	If necessary, you can adjust the brightness to obtain a better image. For example, if the camera is facing a bright light, the image may be too dark. In this case, you can increase the brightness.
<b>Sharpness</b>	Select the desired option for the sharpness. You can select a Sharpness value between -3 and 3.
<b>Options</b>	
<b>Microphone</b>	Enable microphone by checking this checkbox. Using Audio will increase the bandwidth requirements slightly.
<b>Speaker</b>	Enable speaker by checking this checkbox. Using Audio will increase the bandwidth requirements slightly.
<b>Time Stamp</b>	If enabled, the current time will be displayed on the Video image.
<b>Text Display</b>	Enable this setting if you want text to be displayed on the Video image, and enter the desired text - up to 20 characters. This feature is often used to identify each camera when multiple cameras are installed.

## Controlling User Access to the Video Stream

By default, anyone can connect to the FCS-0010/WCS-0010 Network Camera and view live Video at any time.

If desired, you can limit access to scheduled times, and also restrict access to known users.

### To Control User Access to Live Video:

1. Connect to the Web-based interface of the FCS-0010/WCS-0010 Network Camera. (See **Chapter 5 - Web-based Management** for details.)
2. Select *Administration*, then *Video Access*.
3. Set the desired options for **Access**.

### Access

If the Video Access is disabled, users cannot connect using either their Web Browser or the Windows utility. However, viewing video is still possible by logging in as the Administrator.

User Access:	<input type="checkbox"/> Enable Security Checking
Video Access:	<input checked="" type="checkbox"/> Enable Scheduled Video Access

See **Chapter 5 - Web-based Management** for further details about using the *Video Access* and *User Database* screens.



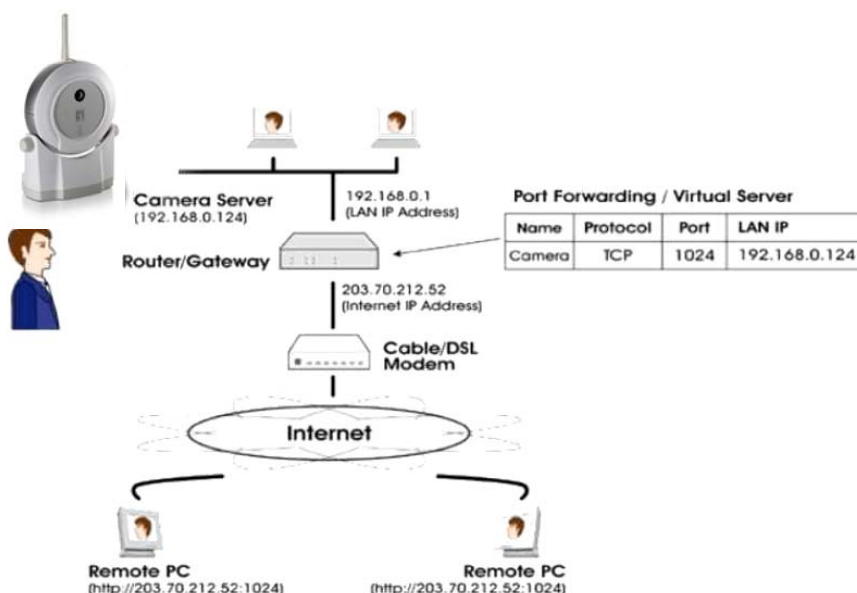
## Making Video available from the Internet

If your LAN is connected to the Internet, typically by a Broadband Gateway/Router and Broadband modem, you can make the FCS-0010/WCS-0010 Network Camera available via the Internet. You will need to configure your Router or Gateway to allow connections from the Internet to the camera.

### Router/Gateway Setup

Your Router or Gateway must be configured to pass incoming TCP (HTTP) connections (from Internet Viewers) to the FCS-0010/WCS-0010 Network Camera. The Router/Gateway uses the *Port Number* to determine which incoming connections are intended for the FCS-0010/WCS-0010 Network Camera.

This feature is normally called *Port Forwarding* or *Virtual Servers*, and is illustrated below. The Port Forwarding/Virtual Server entry tells the Router/Gateway that incoming TCP connections on port 1024 should be passed to the FCS-0010/WCS-0010 Network Camera. If necessary, check the user manual for your Router/Gateway for further details.



The "Port" for the *Port Forwarding / Virtual Server* entry above is the "Secondary Port" number specified on the *Network* screen of the Network Camera.

## Network Camera Setup

The FCS-0010/WCS-0010 Network Camera configuration does NOT have be changed, unless:

- You wish to change the port number from the default value (1024).
- You wish to use the DDNS (Dynamic DNS) feature of the FCS-0010/WCS-0010 Network Camera.

### HTTP Port Configuration

Normally, HTTP (Web) connections use port 80. Since the Network Camera uses HTTP, but port 80 is likely to be used by a Web Server, you can use a different port for the Network Camera. This port is called the *Secondary Port*.

The default *Secondary Port* is 1024. If you prefer to use a different port number, you can specify the port number on the Network Camera's **Network** screen, as shown below.

Secondary Port:	<input type="checkbox"/> Enable HTTP Secondary Port	<input type="text" value="1024"/> (1024-65535)
-----------------	---	--

See **Chapter 5 - Web-based Management** for further details on using the **Network** screen.



**Viewers need to know this port number in order to connect and view live Video, so you must inform viewers of the correct port number.**

### DDNS (Dynamic DNS)

Many internet connections use a "Dynamic IP address", where the Internet IP address is allocated whenever the Internet connection is established.

This means that other Internet users don't know the IP address, so can't establish a connection.

DDNS is designed to solve this problem, by allowing users to connect to your LAN using a domain name, rather than an IP address.

#### To use DDNS:

1. Register for the DDNS service with a supported DDNS service provider. You can then apply for, and be allocated, a Domain Name.
2. Enter and save the correct DDNS settings on the **DDNS** screen of the Network Camera.

3. Operation is then automatic:

- The Network Camera will automatically contact the DDNS server whenever it detects that the Internet IP address has changed, and inform the DDNS server of the new IP address.
- Internet users can then connect to the camera using the Domain Name allocated by the DDNS service provider.

## Viewing Live Video via the Internet

Clients (viewers) will also need a broadband connection; dial-up connections are NOT recommended.

### Viewing Live Video Using your Web Browser

If using your Web browser, you need to know the Internet IP address (or the Domain name) of the camera's Router/Gateway, and the correct port number.

Enter the Internet address of the Router/Gateway, and its port number, in the *Address* (or *Location*) field of your Browser.

#### Example - IP address:

HTTP://203.70.212.52:1024

Where the Router/Gateway's Internet IP address is 203.70.212.52 and the "Secondary Port" number on the Network Camera is 1024.

#### Example - Domain Name:

HTTP://mycamera.dyndns.tv:1024

Where the Router/Gateway's Domain name is mycamera.dyndns.tv and the "Secondary Port" number on the Network Camera is 1024.

## Motion Detection Alerts

The *Motion Detection* feature can generate an Alert when motion is detected.

The Network Camera will compare consecutive frames to detect changes caused by the movement of large objects.

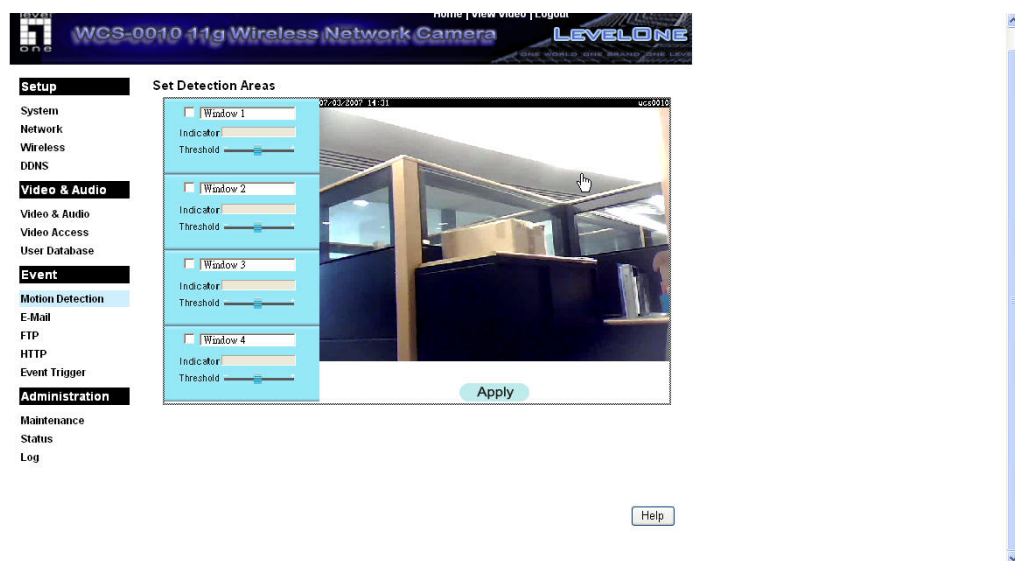
But the motion detector can also be triggered by:

- Sudden changes in the level of available light
- Movement of the camera itself.

Try to avoid these situations. The motion detection feature works best in locations where there is good steady illumination, and the camera is mounted securely. It cannot be used outdoors due to the sensitivity of the CMOS sensor.

### To Use Motion Detection Alerts

Using the Web-based interface on the Network Camera, select the *Motion Detection* screen, then configure this screen as described below.



1. Enable the *Motion Detection* feature.
2. Set the area or areas of the video image to be examined for movement. You can define up to 4 areas, and set the motion threshold individually for each area.
3. If using a schedule, define the desired schedule in *Event Trigger* screen.
4. Save your changes.
5. Select the *E-Mail* screen to have alerts sent by E-mail:
  - Enable and enter at least one (1) E-mail address
  - Select or enter the desired options for *Video Attachment*, *Show "From" as* and *Subject* fields.
  - Enter details of the SMTP Server used to send the E-mail.



**If the Motion Detection feature is enabled, but E-Mail is not enabled, then the only action when motion is detected is to log this event in the system log.**

## Chapter 5

# Web-based Management



*This Chapter provides Setup details of the Network Camera's Web-based Interface. This Chapter is for the Camera Administrator only.*

### Introduction

The Network Camera can be configured using your Web Browser. The Network Camera must have an IP address which is compatible with your PC.

The recommended method to ensure this is to use the supplied *Camera Wizard*, as described in **Chapter 2 - Basic Setup**.

### Connecting to Network Camera

- If using your Web Browser, use the following procedure to establish a connection from your PC to the Network Camera:
- Once connected, you can add the Network Camera to your Browser's *Favorites* or *Bookmarks*.

### Connecting using your Web Browser

1. Use the *Camera Wizard* utility to get the IP address of the Network Camera.
2. Start your WEB browser.
3. In the *Address* box, enter "HTTP://" and the IP Address of the Network Camera.
4. You will then be prompted for a username and password.
  - If using the default values, enter **administrator** for the name, and leave the password blank.
  - Otherwise, enter the *Administrator ID* and *Administrator Password* set on the **Maintenance** screen.

## Welcome Screen

When you connect, the following screen will be displayed.



The menu options available from this screen are:

- **View Video** - View live Video using your Web Browser. See **Chapter 3 - Viewing Live Video** for details.
- **Administration** - Access the Administration menu.

## Administration Menu

Clicking on **Administration** on the menu provides access to all the settings for the Network Camera.

The **Administration** menu contains the following options:

### Setup

- System
- Network
- Wireless
- DDNS

### Video Stream

- Video Image
- Video Access
- User Database

### Event

- Motion Detection
- E-Mail
- FTP
- HTTP
- Event Trigger

### Administration

- Maintenance
- Status
- Log

## System Screen

After clicking *Administration* on the main menu, or selecting *System* on the *Administration* menu, you will see a screen like the example below.

### Data - System Screen

System Settings	
<b>Device ID</b>	This displays the name for the Network Camera.
<b>Description</b>	This field is used for entering a description, such as the location of the Network Camera.
Date & Time	
<b>Date Format</b>	<p>Select the desired date format, it will also be used to display the date and time as an overlay on the video image.</p> <p>The abbreviations used to predefine the date formats are list as follows:</p> <ul style="list-style-type: none"> <li>• YYYY-MM-DD = Year-Month-Day, e.g. 2006-01-31</li> <li>• MM/DD/YYYY = Month/Day/Year, e.g. 01/31/2006</li> <li>• DD/MM/YYYY = Day/Month/Year, e.g. 31/01/2006</li> </ul>
<b>Current Date &amp; Time</b>	<p>This displays the current date and time on the camera.</p> <p>If it's not correct, click the <b>Change</b> button to modify the date/time settings. This button will open a sub-screen where you have 2 options:</p> <ul style="list-style-type: none"> <li>• Set the camera's date and time to match your PC.</li> <li>• Enter the correct date and time.</li> </ul>
<b>Time Zone</b>	<p>Choose the Time Zone for your location from the drop-down list.</p> <p>If your location is currently using Daylight Saving, enable the <b>Adjust for daylight saving</b> checkbox.</p> <p><b>You must UNCHECK this checkbox when Daylight Saving finishes.</b></p>



<b>Network Time Protocol</b>	Enable or disable the Time Server feature as required. If Enabled, the Network Camera will contact a Network Time Server at regular intervals and update its internal timer.
<b>NTP Server Address</b>	Enter the address for the desired NTP server.
<b>Update</b>	The Schedule determines how often the Network Camera contacts the NTP Server. Select the desired options.
<b>LED Operation</b>	Enable this if you want to use this function.

## Network Screen

This screen is displayed when the *Network* menu option is clicked.

## Data - Network Screen

Network	
<b>Obtain an IP Address Automatically</b>	If selected, the Network Camera will obtain its IP address and related information from a DHCP Server. Only select this option if your LAN has a DHCP Server.
<b>Use the following IP Address</b>	<p>If selected, you must assign the following data to the Network Camera.</p> <ul style="list-style-type: none"> <li><b>IP Address</b> - Enter an unused IP address from the address range used on your LAN.</li> <li><b>Subnet Mask</b> - Use the same value as PCs on your LAN.</li> <li><b>Default Gateway</b> - Use the same value as PCs on your LAN.</li> </ul>
<b>Obtain DNS server address automatically</b>	If selected, the Network Camera will use the DNS address or addresses provided by the DHCP server. This option is only available if the IP address setting is <i>Obtain an IP address Automatically</i> .
<b>Use the following DNS server address</b>	<p><b>Primary DNS server</b> - Use the same value as PCs on your LAN. Normally, your ISP will provide this address.</p> <p><b>Secondary DNS server</b> - This is optional. If entered, this DNS will be used if the Primary DNS does not respond.</p>

<b>Secondary Port</b>	<p>This sets the port number for HTTP (Web) connections to the Camera, whether for administration or viewing video.</p> <p>If enabled, you can connect using either port 80 or the Secondary port. You must enter the Secondary port number (between 1024 to 65535) in the field provided.</p> <p>Note that when using a port number which is not 80, you must specify the port number in the URL. For example, if the Camera's IP address was 192.168.1.100 and the Secondary port was 1024, you would specify the URL for the Camera as follows:</p> <p><code>http://192.168.1.100:1024</code></p>
<b>RTP/RTSP</b>	<p>The RTSP (Real Time Streaming Protocol), a standard for connected client(s) to control streaming data (MPEG-4) over the World Wide Web. Enter the RTSP Port number (between 1024 and 65535) in the field provided. The default RTSP Port is 554.</p> <p>The RTP (Real Time Transport Protocol), an Internet protocol for transmitting real-time data such as audio and video.</p> <p>Max RTP Data Packet field will let users limit the size of the file. Enter the desired value between 400 and 1400.</p>
<b>Video Address</b>	Enter the address of video.
<b>Video Port</b>	Enter the desired value (between 1024 to 65534) in the field provided. The number you entered must be even values.
<b>Audio Address</b>	Enter the address of the audio.
<b>Audio Port</b>	Enter the desired value (between 1024 to 65534) in the field provided. The number you entered must be even values.
<b>Time to Live</b>	Enter the desired length of time, if the packets fail to be delivered to their destination within. The Time to Live you entered must be in-between 1 to 255.
<b>UPnP</b>	
<b>Enable Discovery</b>	If enabled, the Network Camera will broadcast its availability through UPnP. UPnP compatible systems such as Windows XP will then be able to detect the presence of the Network Camera.
<b>Enable Traversal</b>	If enabled, HTTP connections can use secondary port instead of port 80 (the standard HTTP port) to access the camera.
<b>QoS</b>	
<b>Enable QoS Mode</b>	If enabled, the throughput level (for Video and Audio) is guaranteed through QoS (Quality of Service).

## Wireless Screen (WCS-0010 Only)

This screen is displayed when the *Wireless* menu option is clicked.

The screenshot shows the 'Wireless Network' configuration page for a LevelOne WCS-0010 11g Wireless Network Camera. The page has a sidebar menu on the left with categories like Setup, Network, Wireless, DDNS, Video & Audio, Event, Motion Detection, E-Mail, FTP, HTTP, Event Trigger, Administration, Maintenance, Status, and Log. The 'Wireless' option is selected. The main content area is titled 'Wireless Network' and contains the following fields and controls:

- WSC PIN Code:** 00000178
- Network Type:** Infrastructure (dropdown)
- SSID:** ANY (text input)
- Domain:** USA (dropdown)
- Channel No.:** Auto (dropdown)
- Security System:** WEP (dropdown)
- Authentication Type:** Open System (dropdown)
- WEP Encryption:** 64 Bit Keys (10 Hex chars) (dropdown)
- Passphrase:** (text input)
- WEP Keys:** Four radio buttons for Key 1, Key 2, Key 3, and Key 4, each followed by a text input field. Key 1 is selected.
- Buttons:** 'Generate Keys', 'Clear Keys', 'Save', 'Cancel', and 'Help'.

### Data - Wireless Screen

Wireless Network	
<b>Network Type</b>	<p>This determines the type of wireless communication used by the Network Camera.</p> <ul style="list-style-type: none"> <li>If you have an Access Point, select <i>Infrastructure</i>.</li> <li>Otherwise, select <i>Ad-hoc</i>.</li> </ul>
<b>SSID</b>	<p>This must match the value used by other devices on your wireless LAN.</p> <p><b>Note! The SSID is case sensitive.</b></p>
<b>Domain</b>	<p>Select your region from the drop-down list.</p>
<b>Channel No.</b>	<ul style="list-style-type: none"> <li>In <i>Infrastructure</i> mode, this setting is ignored. The Network Camera will use the Channel set on the Access Point.</li> <li>For <i>Ad-hoc</i> mode, select the Channel you wish to use on your Network Camera. Other Wireless stations should use the same setting.</li> <li>If you experience interference (shown by lost connections and/or slow data transfers) you may need to experiment with different channels to see which one is the best.</li> </ul>

Security	
<b>Security System</b>	<p>Select the desired option, and then enter the settings for the selected method:</p> <ul style="list-style-type: none"> <li>• <b>Disabled</b> - No security is used. Anyone using the correct SSID can connect to your network.</li> <li>• <b>WEP</b> - The 802.11b standard. Data is encrypted before transmission, but the encryption system is not very strong.</li> <li>• <b>WPA/WPA2-PSK Personal</b> - Like WEP, data is encrypted before transmission. WPA is more secure than WEP, and should be used if possible. WPA Personal is the version of WPA which does NOT require a Radius Server on your LAN.</li> </ul>
WEP	
<b>Authentication Type</b>	<p>Normally this can be left at the default value of "Automatic." If that fails, select the appropriate value - "Open System" or "Shared Key." Check your wireless card's documentation to see what method to use.</p> <p><b>Note:</b> In <i>Infrastructure</i> mode, either setting will normally work, since most Access Points can use both methods.</p>
<b>WEP Encryption</b>	<p>Select the WEP Encryption level:</p> <ul style="list-style-type: none"> <li>• 64-bit (sometimes called 40-bit) encryption</li> <li>• 128-bit encryption</li> </ul>
<b>Passphrase</b>	<p>Enter a word or group of printable characters in the Passphrase box and click the "Generate Key" button to automatically configure the WEP Key(s). If encryption strength is set to 64-bit, then each of the four key fields will be populated with key values. If encryption strength is set to 128-bit, then only the selected WEP key field will be given a key value.</p>
<b>WEP Keys</b>	<ul style="list-style-type: none"> <li>• Use the radio buttons to select the default key.</li> <li>• Enter the key value you wish to use. Other stations must have the same key values.</li> <li>• Keys must be entered in Hex. Hex characters are the digits (0 ~ 9) and the letters A ~ F.</li> <li>• Click <i>Clear Keys</i> to set the Keys to be blank.</li> </ul>
WPA/WPA2-PSK Personal	
<b>Shared Key</b>	<p>Enter the key value. Data is encrypted using a key derived from the network key. Other Wireless Stations must use the same network key. The PSK must be from 8 to 63 characters in length.</p>

## DDNS Screen

Many internet connections use a "Dynamic IP address", where the Internet IP address is allocated whenever the Internet connection is established.

This means that other Internet users don't know the IP address, so can't establish a connection.

DDNS is designed to solve this problem, as follows:

- You must register for the DDNS service with a DDNS service provider. The DDNS Service provider will allocate a Domain Name to you upon request.
- The DDNS settings on the **DDNS** screen above must be correct.
- The Network Camera will then contact the DDNS server whenever it detects that the Internet IP address has changed, and inform the DDNS server of the new IP address. (The *Check WAN IP Address* determines how often the Network Camera checks if the Internet IP address has changed.)

This system allows other internet users to connect to you using the Domain Name allocated by the DDNS service provider.

This screen is displayed when the *DDNS* menu option is clicked.

LevelOne WCS-0010 11g Wireless Network Camera

Home | View Video | Logout

**Setup** ☒ Enable DDNS

Service Provider: DynDNS.org Web Site

Domain (Host) Name: wcs0010.dyndns.org

Account/E-Mail: ddcwinson

Password/Key: .....

Check WAN IP Address: Every 10 mins

Starting at 12 Hour(s) 00 Minute(s)

Save Cancel Help

### Data - DDNS Screen

DDNS	
<b>Enable DDNS</b>	Enable or disable the DDNS function, as required. Only enable this feature if you have registered for the DDNS Service with a DDNS Server provider.
<b>Service Provider</b>	Choose a service provider from the list.
<b>Web Site Button</b>	Click this button to open a new window and connect to the Web site for the selected DDNS service provider.
<b>Domain (Host) Name</b>	Enter the Domain Name (Host Name) allocated to you by the DDNS Server provider.
<b>Account/E-Mail</b>	Enter the login name for the DDNS account.
<b>Password/Key</b>	Enter the password for the DDNS account.

<b>Check WAN IP Address</b>	<p>Set the schedule for checking if the Internet IP address has changed. If the IP address has changed, the DDNS Server will be notified.</p> <p>NOTE: If the DDNS Service provided some software to perform this IP address update or notification, you should NOT use this software. The update is performed by the camera.</p>
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## Video Image Screen

This screen is displayed when the *Video Image* menu option is clicked.

The screenshot shows the 'Video Image' configuration screen for a LevelOne WCS-0010 41g Wireless Network Camera. The interface includes a sidebar menu with options like Setup, System, Network, Wireless, DDNS, Video & Audio, Video Access, User Database, Event, Motion Detection, E-Mail, FTP, HTTP, Event Trigger, Administration, Maintenance, Status, and Log. The main content area is divided into sections: MPEG-4 Settings, MJPEG Settings, Mobile Settings, Video Adjustments, and Options. Each section contains configuration options such as Resolution, Video Quality Control, Max Frame Rate, and various checkboxes for enabling features like Mobile Streaming, Microphone, Time Stamp, and Text Display.

### Data - Video Image Screen

MPEG-4 Settings	
<b>Resolution</b>	Select the desired video resolution format. The default resolution is set to 320*240.
<b>Video Quality Control</b>	<ul style="list-style-type: none"> <li>Constant Bit Rate: Select the desired bit rate. The default is set to 1.2 Mbps.</li> <li>Fixed Quality: Select the desired option. The default fix quality is set to Normal.</li> </ul>
<b>Max. Frame Rate</b>	<p>Select the desired Maximum bandwidth for the video stream. Note that you can specify EITHER the Bandwidth OR the Frame Rate, not both. If the Bandwidth is defined, the frame rate will be adjusted as necessary to achieve the specified frame rate.</p> <p>The default value for bandwidth is <b>Unlimited</b>, which allows you to specify the desired frame rate.</p>
MJPEG Settings	
<b>Resolution</b>	Select the desired video resolution format. The default resolution is set to 320*240.
<b>Fixed Video Quality</b>	Select the desired fix quality. The default fix quality is set to Normal.



<b>Max. Frame Rate</b>	<p>Select the desired Maximum bandwidth for the video stream. Note that you can specify EITHER the Bandwidth OR the Frame Rate, not both. If the Bandwidth is defined, the frame rate will be adjusted as necessary to achieve the specified frame rate.</p> <p>The default values for bandwidth is <b>Unlimited</b>, which allows you to specify the desired frame rate.</p>
<b>Mobil Settings</b>	
<b>Enable Mobil Streaming</b>	Enable streaming video for the mobile device by checking this checkbox.
<b>Resolution</b>	The default resolution is set to 160x120.
<b>Video Quality Control</b>	<ul style="list-style-type: none"> <li>• Constant Bit Rate: Select the desired fix bit rate.</li> <li>• Fixed Quality: Select the desired option. The default fix quality is set to Normal.</li> </ul>
<b>Max. Frame Rate</b>	Select the desired Maximum bandwidth for the video stream.
<b>Access Code</b>	Enter the code for accessing the live video from camera through cell phone connection.
<b>Video Adjustment</b>	
<b>Power Line Frequency</b>	Select the power line frequency (50Hz or 60Hz) used in your region, to improve the picture quality under florescent lighting.
<b>White Balance</b>	Select the desired option to match the current environment and lighting.
<b>Brightness</b>	If necessary, you can adjust the brightness to obtain a better image. For example, if the camera is facing a bright light, the image may be too dark. In this case, you can increase the brightness.
<b>Sharpness</b>	Select the desired option for the sharpness. You can select a Sharpness value between -3 and 3.
<b>Options</b>	
<b>Microphone</b>	Enable audio by checking this checkbox. Using Audio will increase the bandwidth requirements slightly.
<b>Time Stamp</b>	If enabled, the current time will be displayed on the Video image.
<b>Text Display</b>	Enable this setting if you want text to be displayed on the Video image, and enter the desired text - up to 20 characters. This feature is often used to identify each camera when multiple cameras are installed.

## Video Access Screen

This screen is displayed when the *Video Access* option on the *Administration* menu is clicked.

The screenshot shows the 'Video Access' configuration page. The sidebar on the left includes sections for Setup, System, Network, Wireless, DDNS, Video & Audio, Event, and Administration. The 'Administration' section is currently selected, showing 'Video Access' as the active option. The main content area contains two checkboxes: 'Enable Security Checking' and 'Enable Scheduled Video Access'. Below these is an 'Access Schedule' table, which is currently empty. A 'Delete' button is positioned below the table. The 'Add New Schedule' section includes a 'Day' dropdown menu (set to 'Every day'), 'Start Time' and 'End Time' fields (each with hour and minute dropdowns), and 'Add' and 'Clear' buttons. At the bottom of the page are 'Save', 'Cancel', and 'Help' buttons.

### Data - Video Access Screen

User Access	
<b>Enable Security Checking</b>	<ul style="list-style-type: none"> <li>If disabled - No login required, users do not have to provide a username and password when they connect to the camera to view video.</li> <li>If enabled - Require login, users will be prompted for a username and password when they connect to the camera to view video. The camera administrator must use the "User Database" menu option to create the desired users.</li> </ul>
Video Access	
<b>Enable Scheduled Video Access</b>	<ul style="list-style-type: none"> <li>If enabled - Camera is available during the scheduled periods, and unavailable at other times. If this option is selected, you need to define a schedule. If no schedule is defined, this option is always disabled.</li> <li>If disabled – The option will remain disabled until you enable it.</li> </ul> <p>Note that regardless of which setting is chosen, the Administrator can ALWAYS access the camera and view live video.</p>
Access Schedule	
<b>Scheduled Periods</b>	This displays all periods you have entered into the database. If you have not entered any periods, this list will be empty.
<b>Delete</b>	Use the Delete button to delete the selected item in the list.
Add Period	
<b>Day</b>	Choose the desired option for the period.

<b>Start Time</b>	Enter the start time using a 24 hr clock.
<b>End Time</b>	Enter the end time using a 24 hr clock.
<b>Add</b>	Click this button to add a new period.

## User Database Screen

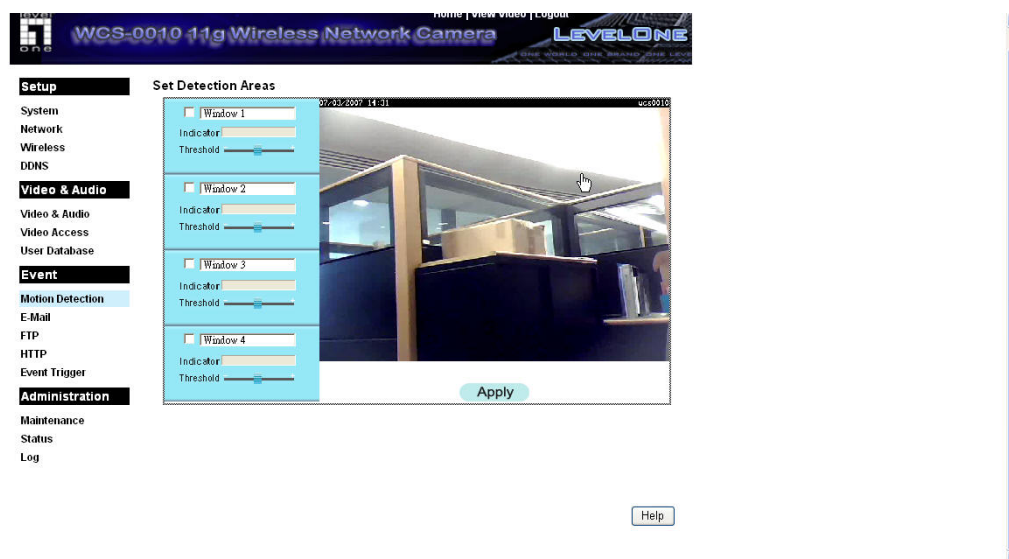
This screen is displayed when the *User Database* option on the *Administration* menu is clicked.

### Data - User Database Screen

Existing Users	
<b>User List</b>	This displays all users you have entered into the User database. If you have not entered any users, this list will be empty.
<b>Edit, Delete, Delete All</b>	Use these buttons to manage the user database.
User Properties	
<b>User Name</b>	Enter the name for the user here. <ul style="list-style-type: none"> <li>Spaces, punctuation, and special characters must NOT be used in the name.</li> <li>The name is case insensitive (case is ignored), so you can not have 2 names which differ only by case.</li> </ul>
<b>User Password</b>	The password for this user.
<b>Confirm Password</b>	Re-enter the password for the user, to ensure it is correct.
<b>Add Button</b>	Click this button to add a new user, using the data shown on screen.
<b>Clear Button</b>	Use this button to clear the input fields, ready to add a new user.

## Motion Detection Screen

This screen is displayed when the *Motion Detection* option on the *Event* menu is clicked.



### Data - Motion Detection Screen

Motion Detection	
<b>Set Detection Areas</b>	<p>You can set the full screen or areas of the video image to be examined.</p> <p>Note: Motion detection can be triggered by rapid changes in lighting condition, as well as by moving objects. For this reason, it should only be used indoors.</p>
<b>Threshold</b>	Adjust the threshold of detection for each area.

## E-Mail Screen

This screen is displayed when the *E-Mail* option on the *Event* menu is clicked.

### Data - E-Mail Screen

Primary/Secondary SMTP Server	
<b>SMTP Server Address</b>	Enter the address of the SMTP (Simple Mail Transport Protocol) Server to be used to send E-Mail.
<b>Authentication</b>	Select the desired Authentication type for the SMTP Server.
<b>SMTP Login name</b>	Enter your login name for the SMTP Server.
<b>SMTP Password</b>	Enter your password for the SMTP Server.
<b>POP server name</b>	Enter the name for the POP Server.
<b>Secondary SMTP</b>	Check the box to upload to the Secondary SMTP if the camera can not connect to the primary SMTP.
E-Mail Setup	
<b>E-mail Address</b>	Enter at least one (1) E-Mail address; the 2nd and 3rd addresses are optional. The E-Mail alert will be sent to the E-Mail address or addresses specified here.
<b>Subject</b>	Enter the desired text to be shown as the "Subject" for the E-Mail when it is received. Subject can not exceed 48 alphanumeric characters.
<b>Show "From" as</b>	Enter the E-Mail address to be shown in the "From" field when the E-Mail is received.

## FTP Screen

This screen is displayed when the *FTP* option on the *Event* menu is clicked.

The screenshot shows the LevelOne WCS-0010 11g Wireless Network Camera configuration interface. The top bar includes 'Home | View Video | Logout' and the LevelOne logo. The left sidebar lists menu items: Setup, System, Network, Wireless, DDNS, Video & Audio, Video Access, User Database, Event, Motion Detection, E-Mail, FTP (highlighted), HTTP, Event Trigger, Administration, Maintenance, Status, and Log. The main content area is titled 'Primary FTP' and contains fields for 'FTP Server', 'Port' (set to 21), 'Login Name', 'Password', and 'File Path Name'. There is an unchecked checkbox for 'Enable Passive Mode'. Below this is the 'Secondary FTP' section, which includes a checkbox for 'Secondary FTP (enable this if the camera can not connect to the primary FTP)', followed by similar fields for 'FTP Server', 'Port' (set to 21), 'Login Name', 'Password', and 'File Path Name'. At the bottom of the main area are 'Save', 'Cancel', and 'Help' buttons.

### Data - FTP Screen

Primary/Secondary FTP	
<b>FTP Server</b>	Enter the address of the FTP Server.
<b>Port</b>	Enter the Port of the FTP Server to be connected.
<b>Login name</b>	Enter your login name for the FTP Server.
<b>Password</b>	Enter your password for the FTP Server.
<b>Enable Passive Mode</b>	Check the box to enable the Passive mode feature of the FTP.
<b>File Path Name</b>	Enter the file path/name of the FTP.
<b>Secondary FTP</b>	Check the box to upload to the Secondary FTP if the camera can not connect to the primary FTP.

## HTTP Screen

This screen is displayed when the *HTTP* option on the *Event* menu is clicked.

The screenshot shows the web interface of a LevelOne WCS-0010 11g Wireless Network Camera. The top navigation bar includes links for Home, View Video, and Logout. A sidebar on the left contains a menu with categories: Setup, Network, Wireless, DDNS, Video & Audio, Event, and Administration. The 'Event' category is expanded, showing options like Motion Detection, E-Mail, FTP, HTTP (which is selected), Event Trigger, and Administration. The main content area is titled 'HTTP Notification' and contains the following settings:

- Enable:** A checked checkbox.
- URL:** An empty text input field.
- Proxy Server Name:** An empty text input field with '(optional)' text to its right.
- Port Number:** A text input field containing the value '80'.
- Method:** A dropdown menu with 'POST' selected.

At the bottom of the form are three buttons: 'Save', 'Cancel', and 'Help'.

### Data - HTTP Screen

HTTP Notification	
<b>Enable</b>	Enable this checkbox to use the HTTP Notification.
<b>URL</b>	Enter the URL of your HTTP notification server.
<b>Proxy Server Name</b>	Specify the proxy server name in the provided field if the camera needs to pass through a Proxy Server to do the HTTP notification.
<b>Port Number</b>	Enter the port number for the proxy server.
<b>Method</b>	<div>Select the desired method of form data encoding.<ul style="list-style-type: none"><li>• Get - It should be used if and only if the form processing is independent, which typically means a pure query form. Generally it is advisable to do so.</li><li>• Post - If there are problems related to long URLs and non-ASCII character repertoires, which can make it necessary to use "POST" even for independent processing.</li></ul></div>



## Event Trigger Screen

This screen is displayed when the *Event Trigger* option on the *Event* menu is clicked.

## Data - Event Trigger Screen

Event Schedule	
<b>Schedule List</b>	<p>The Event Schedule shows all of the event types currently configured in the Network Camera, along with various information about their configuration, as listed below:</p> <ul style="list-style-type: none"> <li>• Name - the descriptive event name set by the user.</li> <li>• Effective Time Frame - shows when the event at a set time will be triggered.</li> <li>• Trigger by - shows what kind trigger activate the event.</li> <li>• Action - shows what kind of the actions will be issued when the event been triggered</li> </ul>
New Schedule	
<b>Effective Time Frame</b>	Choose the desired option for the period.
<b>Start Time</b>	Choose the desired start time using a 24 hr clock.
<b>End Time</b>	Choose the desired end time using a 24 hr clock.
Trigger Event	
<b>Motion Detection</b>	If enabled, movement in a motion detection window can be used to trigger events.
<b>Interval</b>	Select the desired option for the events interval. (* "0" = No Delay)

<b>Actions</b>	<ul style="list-style-type: none"> <li>• E-Mail - If checked, an E-Mail (with "Attachment") will be delivered to the SMTP server. (SMTP Server must be configured on the E-Mail page.)</li> <li>• FTP - If checked, an FTP upload will be activated to the FTP server. (FTP servers must be configured on the FTP page.)</li> <li>• HTTP - If checked, an Instant Messaging (IM) will be delivered to the Jabber server. (Jabber server must be configured on the Instant Messaging page.)</li> </ul>
<b>Attachment Type</b>	<ul style="list-style-type: none"> <li>• <b>JPEG Image:</b> Frame Rate - Select the desired capture rate for the JPEG image(s) here. Pre/Post Capture - Select the desired length. The snapshot(s) of the JPEG image depends on this setting, and also the file size and degree of compression.</li> <li>• <b>Video:</b> Video Format - Select the desired type for the video file. Pre/Post Capture - Select the desired length. The size of the file depends on this setting, and also the Video size and degree of compression.</li> </ul>

## Maintenance Screen

levelOne WCS-0010 11g Wireless Network Camera LEVELONE

Home | View Video | Logout

**Setup**

System  
Network  
Wireless  
DDNS  
**Video & Audio**  
Video & Audio  
Video Access  
User Database  
**Event**  
Motion Detection  
E-Mail  
FTP  
HTTP  
Event Trigger  
**Administration**  
**Maintenance**  
Status  
Log

**Administrator Login**

Administrator ID:

Administrator Password:

Verify Password:

**Firmware Upgrade**

Upgrade File:

**Backup & Restore**

Backup Configuration File:

Restore Configuration File:

Restore Factory Defaults:

Restart Camera:

## Data - Maintenance Screen

Administrator Login	
<b>Administrator ID</b>	Enter the name for the Administrator here. Spaces, punctuation, and special characters must NOT be used in the name.
<b>Administrator Password</b>	The password for the Administrator.
<b>Verify Password</b>	Re-enter the password for the Administrator, to ensure it is correct.
Firmware Upgrade	
<b>Upgrade File</b>	Click the "Browse" button and browse to the location on your PC where you stored the Firmware file. Select this file.
<b>Start</b>	Click this button to start the Firmware. When the upgrade is finished, the Network Camera will restart, and this management connection will be unavailable during the restart.
<b>Clear File Name</b>	This does NOT stop the Upgrade process if it has started. It only clears the input for the "Upgrade File" field.
Backup & Restore	
<b>Backup Configuration File</b>	Click <i>Backup</i> button to save the current configuration information to a text file.
<b>Restore Configuration File</b>	Click <i>Restore</i> button to reinitialize the camera to load the new updated software. Do this after loading the upgrade file.

<b>Clear File Name</b>	This does NOT stop the Restore process if it has started. It only clears the input for the "Restore Configuration File" field.
<b>Restore Factory Defaults</b>	Click <i>Defaults</i> button to reloads all default settings on the camera.
<b>Restart Camera</b>	Click <i>Restart</i> button to restarts the camera.

## Status Screen

Home | View Video | Logout

WCS-0010 11g Wireless Network Camera LEVELONE

**Setup**

**System**

Device Name: DDC000011

Description: descriptiontext

F/W version: V1.0.01

**Network**

MAC Address: 00:c0:02:00:00:11

IP Address: 192.168.50.145

Network Mask: 255.255.255.0

Gateway: 192.168.50.1

**Wireless**

WCS PIN Code: 00000178

Network Type: Infrastructure

SSID: ANY

Channel: N/A

Security: Disabled

Signal Strength: N/A

**MPEG-4**

Resolution: 640\*480

Video Quality: Normal

Frame Rate: 30

**MJPEG**

Resolution: 320\*240

Video Quality: Normal

Frame Rate: 30

[Help](#) [Refresh](#)

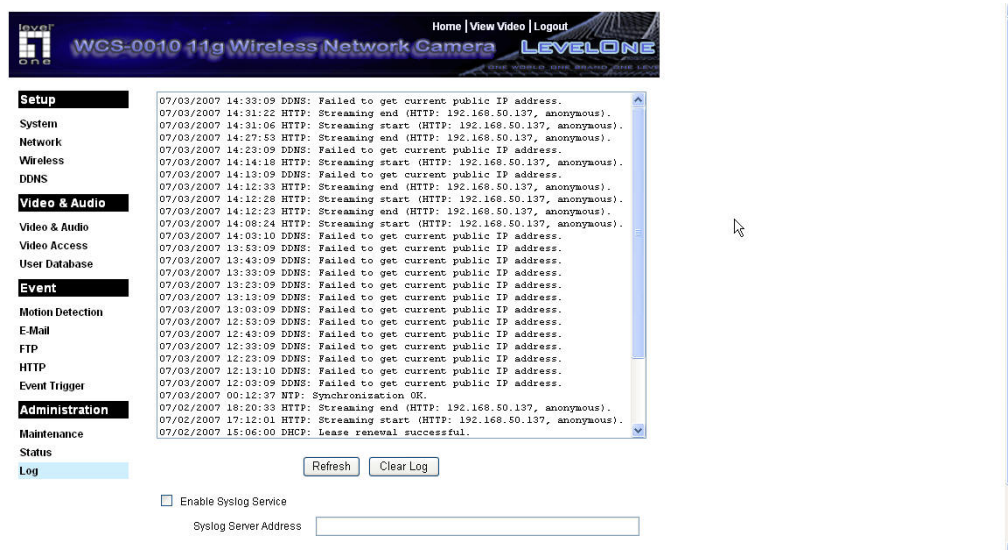
### Data - Status Screen

System	
Device Name	This shows the name of the Network Camera.
Description	This shows the description of the Network Camera, such as location.
F/W version	The version of the current firmware installed.
Network	
MAC Address	The current IP address of the Network Camera.
IP Address	The IP Address of the Network Camera.
Network Mask	The network mask associated with the IP address above.
Gateway	The IP Address of the remote Gateway associated with the IP Address above.
Wireless	
Network Type	This shows the Network Type currently in use (Ad-hoc or Infrastructure).
SSID	This displays the wireless SSID.
Channel	This shows the wireless channel currently used.
Security	The current security setting for Wireless connections.
Signal Strength	This shows the strength of the signal.

<b>MPEG-4/MJPEG</b>	
<b>Resolution</b>	The image size of the video stream.
<b>Video Quality</b>	This displays the image quality of the video stream.
<b>Frame Rate</b>	This displays the frame rate of the video stream.
<b>Buttons</b>	
<b>Refresh</b>	Update the log and any other data on screen.

## Log Screen

This screen displays a log of system activity.



## Data - Log Screen

Log	
<b>System Log</b>	This is a log of system activity.
<b>Enable Syslog Service</b>	Check the box to enable the System Log Server feature.
<b>Syslog Server Address</b>	Enter the address of the Syslog Server.
<b>Refresh Button</b>	Click this to update the data shown on screen.
<b>Clear Log</b>	Click this button to restart the log.

## Chapter 6

# Troubleshooting



*This chapter covers the most likely problems and their solutions.*

### Overview

This chapter covers some common problems that may be encountered while using the Network Camera and some possible solutions to them. If you follow the suggested steps and the Network Camera still does not function properly, contact your dealer for further advice.

### Problems

**Problem 1:** I can't connect to the Network Camera with my Web Browser to configure it.

**Solution 1:** It is possible that your PC's IP address is not compatible with the IP address of the Network Camera.  
Use the Camera Wizard utility to configure the Network Camera with a valid IP address.

**Problem 2:** The Camera Wizard utility doesn't list any Network Cameras.

**Solution 2:** Check the following:

- The Network Camera is installed, LAN connections are OK, it is powered ON and startup is complete.
- Ensure that your PC and the Network Camera are on the same network segment. (If you don't have a router, this must be the case.)
- Ensure that your PC has the TCP/IP network protocol loaded. In Windows, this is done by using *Control Panel-Network*.
  - If an entry for TCP/IP -> Network card is not listed, use *Add - Protocol - Microsoft - TCP/IP* to add it.
  - You then need to select the new entry (TCP/IP -> Network card), click *Properties*, and configure the *IP Address* tab.
  - If your LAN has a DHCP Server, you can select "Obtain an IP Address automatically". Otherwise, you must select "Specify an IP Address", and enter values for *IP Address*, *Subnet Mask*, and *Gateway*. All devices on your LAN must use compatible values. Remember that each device needs a **unique** IP Address, and the **same** Subnet Mask.

**Problem 3** When I try to connect to the Network Camera, I get prompted for a user name and password.

**Solution 3** You SHOULD be prompted for a user name and password if trying to access the *Administration* menu.  
Enter the *Administrator ID* and *Password* set on the *Maintenance* screen.



If you are just trying to view Video, the User Name/Password prompt indicates that the Administrator has restricted access to specified users. Ask the Administrator for your User Name and Password.

**Problem 4**      **I can't connect to the Network Camera using a Wireless connection.**

**Solution 4**      1) If a LAN cable is connected to the LAN port, the Wireless interface is disabled. Only one interface can be active.  
2) Check that your PC and the Network Camera have compatible Wireless settings.

- Mode (Infrastructure or Ad-hoc) must be correct.
- ESSID must match.
- WEP settings must match.
- In Ad-hoc mode, the Channel should match, although this is often not required.

**Problem 5**      **Video quality may suddenly deteriorate.**

**Solution 5**      This can happen when an additional viewer connects to the Network Camera, overloading the camera or the available bandwidth. The image size and quality can be adjusted to cater for the required number of viewers and the available bandwidth.

**Problem 6**      **The motion detection feature doesn't send me any E-Mails.**

**Solution 6**      It may be that the SMTP (Simple Mail Transport Protocol) server used by the camera to send the E-Mail will not accept mail. (This is to prevent spam being sent from the server.). Try using a different SMTP server, or contact your ISP to see if SMTP access is being blocked.

**Problem 7**      **Using the motion detection feature, I receive E-Mails which don't show any moving objects.**

**Solution 7**      The motion detection feature doesn't actually detect motion. It compares frames to see if they are different. Major differences between frames are assumed to be caused by moving objects.

But the motion detector can also be triggered by:

- Sudden changes in the level of available light
- Movement of the camera itself.

Try to avoid these situations. The motion detection feature works best in locations where there is good steady illumination, and the camera is mounted securely. This feature can NOT be used if the camera is outdoors.

**Problem 8**      **The image is blurry.**

**Solution 8**      Try cleaning the lens, or adjusting the *Video Quality Control* setting on the **Video Image** screen. Video created with the lower settings will contain less detail; this is the trade-off for using less bandwidth.

# Appendix A

## Specifications



### Network Camera

Model	Network Camera
Dimensions	114.3mm (W) * 141.6mm (H) * 41.4mm (D)
Operating Temperature	0° C to 40° C
Storage Temperature	-20° C to 70° C
Network Protocols:	TCP/IP, DHCP, SMTP, NTP, HTTP, FTP, NTP, RTP, RTSP, UPnP (Discovery only)
Network Interface:	1 Ethernet 10/100BaseT (RJ45) LAN connection
Wireless interface (WCS-0010 Only)	IEEE 802.11b/802.11g compatible, Infrastructure/Ad-hoc mode, WEP/WPA/WPA2-PSK security support, roaming support
LEDs	3
Power Adapter	5V DC External

### Regulatory Approvals

#### CE Approvals

The Network Camera and the Ethernet Network Camera meet the guidelines of the European Union and comply with the 99/5/EEC and RTTE 99/5EG directives, including the following standards:

- EN60950
- EN300 328-2
- EN301 489-1
- EN301 489-17

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Package source codes	License
bootloader	GPL
arm-linux 2.6.5	GPL
arm-linux-gcc 3.4.1 library	LGPL
DM9000 lan driver	GPL
Busy-box	GPL
boa-0.94.13a	GPL
ez-ipupdate	GPL
dhcpcd-1.3.22	GPL
boa-0.94-13e11	GPL
WPA_supPLICANT	GPL
cron	Public domain (BSD & Lineo <a href="http://www.lineo.com/">http://www.lineo.com/</a> )
ntp-4.1.71	Public domain ( <a href="http://www.ntp.org/">http://www.ntp.org/</a> )
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The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

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This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

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If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a

derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

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- c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.
- d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.
- e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

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# Appendix B

## Streaming Video/Audio Solution



### Overview

Streaming video is a sequence of "moving images" that are sent in compressed form over the Internet and displayed by the viewer as they arrive. With streaming, a Web user does not have to wait to download a large file before seeing the video or hearing the sound. Instead, the media is sent in a continuous stream and is played as it arrives.

### Streaming Video/Audio through Internet Camera

To snapshot a JPEG image from the Internet Camera with specified resolution and quality:

[http://<ip>/img/snapshot.cgi?\[size=<value>\]&quality=<value>\]](http://<ip>/img/snapshot.cgi?[size=<value>]&quality=<value>])

Size = 1(160\*128)

2(320\*240)

3(640\*480)

Quality = 1(Very low)

2(Low)

3(Normal)

4(High)

5(Very high)

To stream M-JPEG video from the Internet Camera (M-JPEG mode only)

<http://<ip>/img/mjpeg.cgi> or [http://<ip>/img/main\\_mjpeg.htm](http://<ip>/img/main_mjpeg.htm)

To stream video through the RTP/RTSP protocol from Internet Camera (MPEG-4 mode only)

<rtsp://<ip>/img/media.sav>

Note: Users need to specify the desired protocol in the players.

To snapshot a JPEG image (160\*128, very low quality) through a mobile phone:

<http://<ip>/img/mobile.cgi>