



# **LevelOne**

## User Manual

FCS-1091  
Day/Night PoE IP Network Camera

WCS-1090  
11b/g Wireless Day/Night IP Network Camera

Ver. 1.1.0-0809

# Safety

## FCC

This equipment has been tested and found to comply with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference
- (2) This device must accept any interference received, including interference that may cause undesired operation.

## CE

This equipment is in compliance with the requirements of the following regulations: EN 55 022: CLASS B

## RoHS

This product is RoHS compliant.



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# Chapter 1

## Introduction

# 1

*This Chapter provides details of the FCS-1091/WCS-1090's features, components and capabilities.*

### Overview

The FCS-1091/WCS-1090 has an Integrated Microcomputer and a high quality Sony Progressive CCD Image-Sensor, enabling it to display high quality live streaming video over your wired LAN, the Internet, and for the WCS-1090, an 802.11g Wireless LAN.

Using enhanced MPEG-4 technologies, the FCS-1091/WCS-1090 is able to stream high quality video and two-way 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 surveillance software-IP CamSecure Lite 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.

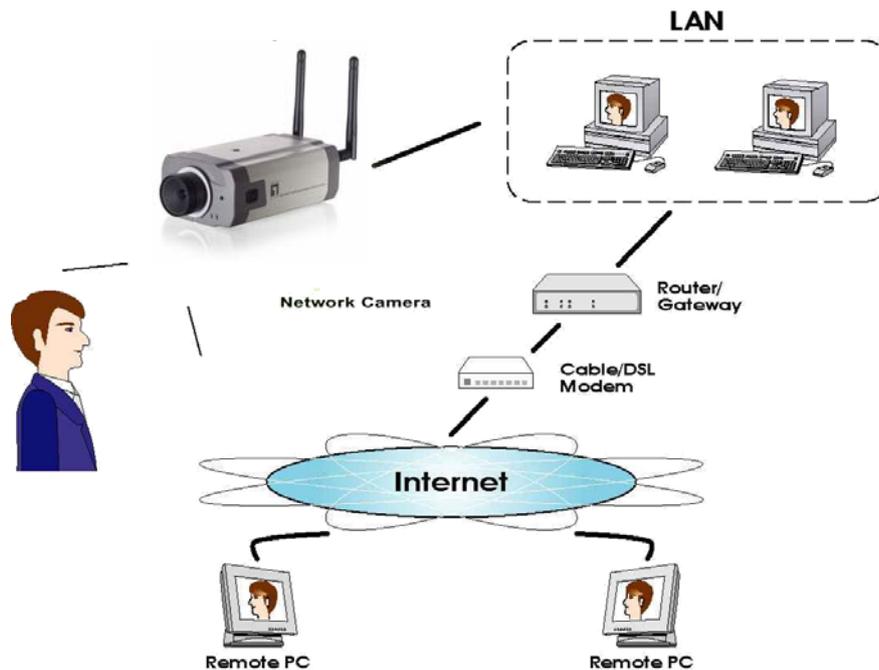


Figure 1: FCS-1091/WCS-1090

### Features

- **Dual Stream Live Video to Multiple Users.** The MPEG4 and JPEG encoders built into the camera generate a ready-to-view video stream. Just connect to the camera using your Web browser or the provided Camera Wizard to view live video.

- **Night/Day Switch Support.** Supporting IR-cut filter, the FCS-1091/WCS-1090 can get better video quality even in the nighttime.
- **Suitable for Home, Business or Public Facilities.** Whether for Home, Business or Public Facility surveillance, the FCS-1091/WCS-1090 has the features you need.
- **Multi-Protocol Support.** Supporting TCP/IP networking, SMTP (E-mail), HTTP and other Internet related protocols, the FCS-1091/WCS-1090 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 the FCS-1091/WCS-1090 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. The FCS-1091/WCS-1090 will compare consecutive frames to detect changes caused by the movement of large objects. Motion detection alarm can be triggered via e-mail, FTP, instant messaging and/or an external alarm device.
- **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, the FCS-1091/WCS-1090 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. You can use either the built-in microphone or an external microphone.
- **IP Filter.** Use the IP Filter to block/accept access to the IP addresses.
- **User-definable HTTP/HTTPS port number.** This allows Internet Gateways to use "port mapping" so the FCS-1091/WCS-1090 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-1091/WCS-1090. 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-1091/WCS-1090.
- **NTP (Network-Time-Protocol) Support.** NTP allows the FCS-1091/WCS-1090 to calibrate its internal clock from an Internet Time-Server. This ensures that the time stamp on Video from the FCS-1091/WCS-1090 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. User authentication is not required if the Multicast feature is enabled.
- **Password-Protected Configuration.** Configuration data can be password protected, so that it only be changed by the FCS-1091/WCS-1090 Administrator.

## Wireless Features (WCS-1090 only)

- **Standards Compliant.** The WCS-1090 complies with the IEEE802.11g (DSSS) specifications for Wireless LANs.
- **Supports both 802.11b and 802.11g Standards.** The WCS-1090 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-1090 supports either wired and wireless transmission.
- **WEP Support.** Full WEP support (64/128 Bit) on the Wireless interface is provided.
- **WPA/WPA2-Personal Support.** The WPA/WPA2-Personal standard is also supported, allowing advanced encryption of wireless data.

## Physical Details - FCS-1091/WCS-1090

### Front - FCS-1091/WCS-1090

<b>CS Mount Lens</b>	Adjust focus manually by turning the front lens clear. You also 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. There is also a connection for an external microphone on the rear. Connecting an external microphone will disable the built-in microphone.
<b>Power LED (Amber)</b>	<b>On</b> - Power on. <b>Off</b> - No power. <b>Blinking</b> - The <i>Power LED</i> will blink during start up. This will take 15 to 20 seconds.
<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 - FCS-1091/WCS-1090

<b>Antenna</b>	For WCS-1090, attach the supplied antenna here. The antenna is adjustable; best results are usually obtained with the antenna positioned vertically.
<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>WPS PBC Mode.</b> For the WCS-1090, when pressed and released (less then 3 seconds), the FCS-1091/WCS-1090 will be in the WPS PBC mode (Auto link mode).</li><li>• <b>WPS Pin Code Mode.</b> For the WCS-1090, when pressed and held for over 3 seconds, the FCS-1091/WCS-1090 will be in the WPS Pin Code mode.</li><li>• <b>Reset to manufacturer default value and reboot.</b> When pressed and held over 10 seconds, the settings of FCS-1091/WCS-1090 will be set to their default values.</li></ul>



**Note:**

After this procedure is completed, the *Power LED* will blink three times to confirm that the reset was completed successfully.

**LAN port**

Use a standard LAN cable to connect your FCS-1091/WCS-1090 to a 10/100BaseT hub or switch.

**Note:**

- Attaching the LAN cable will disable the Wireless interface. Only 1 interface can be active at any time.
- 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.

**Power Input**

Connect the supplied 12V power adapter here. Do not use other power adapters; doing so may damage the camera.

**GPIO**

The GPIO terminal block includes 2 input ports and 2 output ports.

**MIC In**

If required, an external microphone can be attached here. Attaching a microphone here will disable the built-in microphone on the front. Microphones which are designed to be used with PCs are usually compatible with this microphone input.

**SPKR out**

If required, an external speaker can be attached here.

## Package Contents

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

1. FCS-1091/WCS-1090
2. Power adapter (WCS-1090 only)
3. Antennae (WCS-1090 only)
4. Lens
5. Camera Stand
6. Allen Wrench
7. CD Manual/Utility
8. Quick Installation Guide

## CS Mount Lens

The following list contains the CS Mount lens which have been tested on the FCS-1091/WCS-1090:

### LevelOne

CAS-1000A

CAS-1000B

### TOPICA

0416-M1

0816-M1

TP-0550WOE

TP-0560WOE

### Computar

T2Z3514CS-2

### SpaceCom

TV308DC-2

TAV2712DC

### Pentax

C70220DCPS

### Kowa

LMVZ38A-IR

### Fujinon

YV2.8x2.8LA-SA2L

### Tamron

13VG308AS

13VG2812AS

12VG412ASIR

12FM04CST

13VM308ASIR

13FM04IR

## Chapter 2

# Basic Setup

# 2

*This Chapter provides details of installing and configuring the FCS-1091/WCS-1090.*

### 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 WCS-1090, other Wireless devices must be compliant with the IEEE802.11b or IEEE802.11g specifications. All Wireless stations must use compatible settings.



**The default Wireless settings are:**

**Mode: Infrastructure**

**ESSID: ANY**

**Wireless Security: Disabled**

**Domain: USA**

**Channel No.: Auto**

## Installation - FCS-1091/WCS-1090

### 1. Assemble the Camera

Attach the lens to the FCS-1091/WCS-1090. On the WCS-1090, screw the antenna to the rear mounting point, and set the antenna to the upright position to improve wireless reception.

### 2. Connect the LAN Cable

Connect the FCS-1091/WCS-1090 to a 10/100BaseT hub or switch, using a standard LAN cable.



**For WCS-1090, plugging in the LAN cable will disable the Wireless interface. Only 1 interface can be active at any time.**

**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.**

**The first time you connect to the camera, you should connect the LAN cable and configure the FCS-1091/WCS-1090 with appropriate settings. Then you can unplug the LAN cable and power off the camera. The WCS-1090 will be in wireless interface when you power on the camera again.**

### 3. Power Up

Since FCS-1091 is a PoE IP camera, it could work without attaching to power outlet as long as it connects to PoE switch.

Connect the supplied 12V power adapter to the FCS-1091/WCS-1090 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 - FCS-1091/WCS-1090* 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-1091/WCS-1090 even if its IP address is invalid for your network. You can then configure the FCS-1091/WCS-1090 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 .



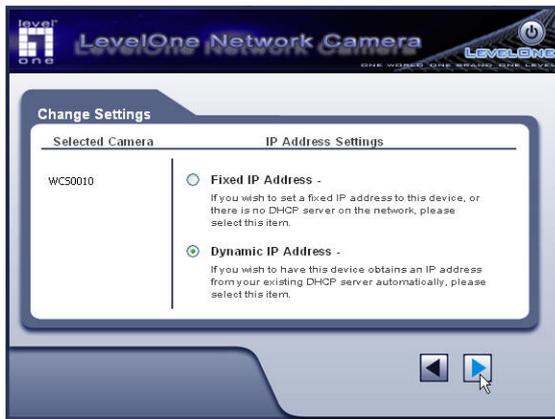
- You will be prompted to enter the *Administrator Name* and *Administrator Password*, as shown below. Enter “**administrator**” for the name, and leave the password blank. Otherwise, enter the *Administrator Name* and *Administrator Password* set on the **Maintenance** screen.



- 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.



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



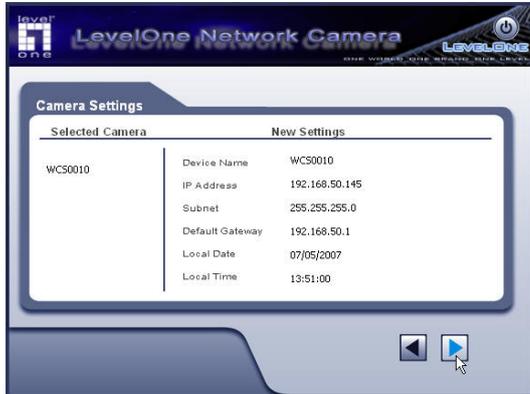
- *Fixed IP Address* is recommended, and can always be used.
- *Dynamic IP Address* can only be used if your LAN has a DCHP Server.

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

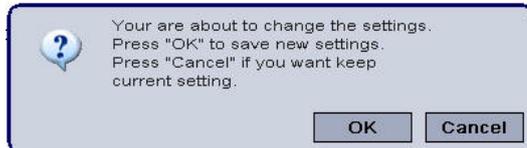
- Enter an unused **IP Address** from within the address range used on your LAN.
- The **Subnet Mask** and **Default Gateway** fields must match the values used by PCs on your LAN.
- The **Primary DNS** address is required in order to use the E-mail alert or Dynamic DNS features. Enter the DNS (Domain 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.

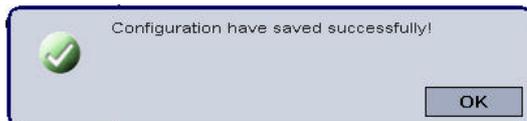
- The screen displays all details of the Network Camera. Click  if the settings are correct, or click  to modify any incorrect values.



- 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 in MAC and Linux.

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

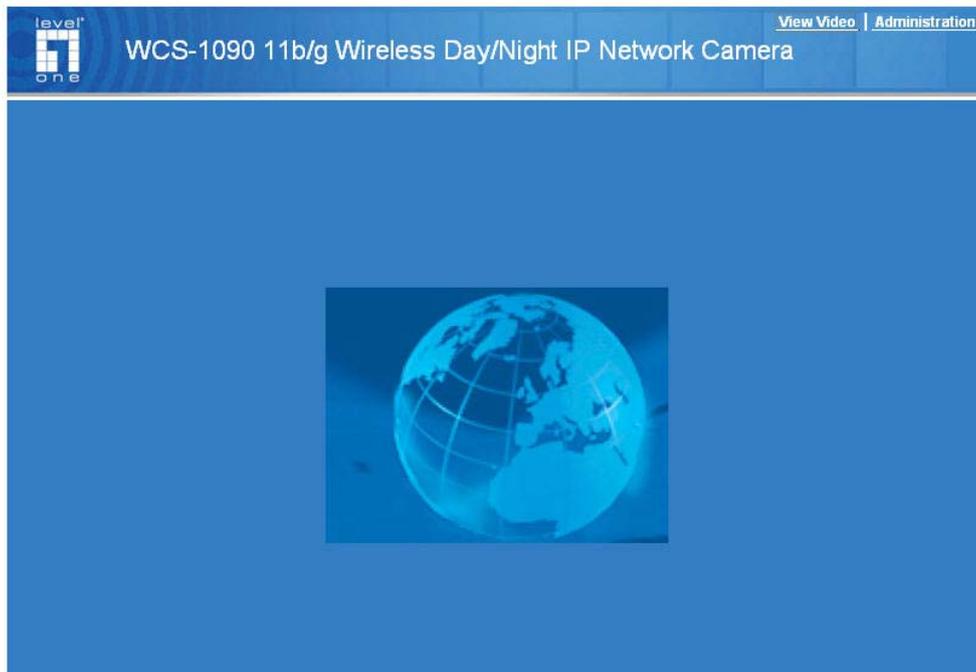
To view the live video stream generated by the FCS-1091/WCS-1090, you need to meet the following requirements:

- 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-1091/WCS-1090:

1. Use the Camera Wizard to get the IP address of the FCS-1091/WCS-1090.
2. Start Internet Explorer.
3. In the Address box, enter "HTTP://" and the IP Address of the FCS-1091/WCS-1090.
4. When you connect, the following screen will be displayed.



**Figure 2: Home Screen**

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-1091/WCS-1090 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.**



**Figure 3: ActiveX OCX Prompt**

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-1091/WCS-1090 via the Internet:

9. 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.

10. Start Internet Explorer.

11. 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

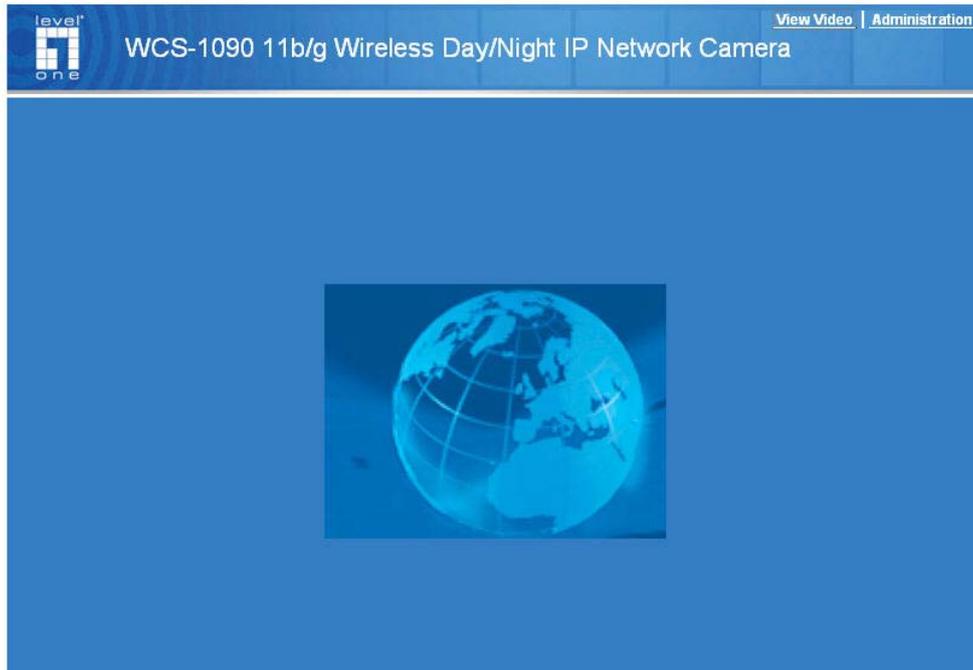
Where the Internet IP address is 203.70.212.52 and the HTTP port number is 1024.

**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.

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



**Figure 4: Home Screen**

13. Click *View Video*.

14. 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-1091/WCS-1090 administrator.

15. 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.**



**Figure 5: ActiveX OCX Prompt**

16. 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 be able to view the live video stream in its own window, as shown below.

Adjust focus manually by turning the front lens until the video becomes clear.



Figure 6: View Video Screen

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.



**ON.** Click this to set the output I/O port to ON mode.



**OFF.** Click this to set the output I/O port to OFF mode.



**Resolution.** Select the desired video resolution format.



**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.



**Audio Upload.** This icon is displayed when the Speaker (Audio & Video screen) is enabled. Use this slider to adjust the volume.



**Volume.** Use this slider to adjust the volume.



**Setup.** Select the desired setup format from the pop-up menu.

## Setting the Focus

After viewing the live video, you need to adjust focus manually by turning the front lens until the video becomes clear.

# Chapter 4

## Advanced Viewing Setup



*This Chapter provides information about the optional settings and features for viewing video via the FCS-1091/WCS-1090. 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 FCS-1091/WCS-1090 Administrator can adjust the Video image. Settings are provided for:

- **Resolution** - Select the desired resolution format. The larger sizes require greater bandwidth.
- **Video quality** - This determines the degree of compression applied to the Video stream. Higher quality requires greater bandwidth.
- **Frame Rate** - Select the max frame rate to determine the bandwidth required by the video stream.
- **Power Line frequency** - Select 50Hz or 60Hz power line frequency, as used in your region. The correct setting will improve the picture quality under florescent lighting.
- **White Balance** - Select the correct white balance for your environment.
- **Brightness** - Adjust the brightness of the image.
- **Sharpness** - Select the desired option for the sharpness.
- **Contrast** - Select the desired option for the contrast. You can select a contrast value between -3 and 3.
- **Microphone** - If enabled, audio can be included in the video stream.
- **Time Stamp** - If enabled, the time will be displayed on the Video image.
- **Text Overlay** - If enabled, up to 20 characters can be superimposed on the Video image. This is useful for identifying the camera.
- **Day/Night Switch** - If enabled, the FCS-1091/WCS-1090 can get better video quality even in the nighttime.

## To Adjust the Video Image:

1. Connect to the Web-based interface of the FCS-1091/WCS-1090. (See **Chapter 5 - Web-based Management** for details.)
2. Select *Video & Audio*. You will see a screen like the example below.

The screenshot shows the web interface for a WCS-1090 camera. The top navigation bar includes 'Home', 'View Video', and 'Logout'. The left sidebar lists various configuration categories: Setup, System, Network, Wireless, DDNS, IP Filter, I/O Port, Video & Audio (selected), Video Access, User Database, Event, Motion Detection, E-Mail, FTP, Instant Messaging, Event Trigger, Administration, Maintenance, Status, and Log. The main content area is titled 'WCS-1090 11b/g Wireless Day/Night IP Network Camera' and contains the following settings:

- MPEG-4 Settings:** Resolution: 320\*240; Video Quality Control: 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.
- Video Adjustments:** Power Line Frequency: 60Hz (for fluorescent lighting); White Balance: Auto; Brightness: Normal; Sharpness: Normal; Contrast: Normal.
- Options:**  Enable Microphone (Audio Type: G.726);  Enable Speaker;  Enable Time Stamp;  Enable Text Display.
- Day/Night Switch:** Switching Method: Auto.

Buttons for 'Save', 'Cancel', and 'Help' are located at the bottom of the settings area.

**Figure 7: Video & Audio Screen**

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>	Select the desired Maximum frame rate for the video stream.

<b>MJPEG Settings</b>	
<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>	Select the desired Maximum frame rate for the video stream.
<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 frame rate for the video stream. The default maximum frame rate is set to 15 fps.
<b>Access Code</b>	Enter the code for accessing the live video from camera through cell phone connection.
<b>Video Adjustments</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>Contrast</b>	Select the desired option for the contrast. You can select a Contrast 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>Audio Type</b>	Select the desired audio type.
<b>Speaker</b>	Enable speaker feature by checking this checkbox.
<b>Time Stamp</b>	If enabled, the current time will be displayed on the Video image.
<b>Text Overlay</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.

<b>Day/Night Switch</b>	
<b>Auto</b>	The camera automatically switches to night mode when it detects low-light conditions.
<b>Schedule</b>	Choose the desired time to switch to night mode by checking this box. Select the desired Start Time and End Time on a 24-hour schedule.
<b>Day Mode</b>	Enable Day switch. Use this to get better video quality during the daytime.
<b>Night Mode</b>	Enable Night switch. Use this to get better video quality during the nighttime.



For environments that have IR illuminators, we suggest setting the camera in Night Mode.

## Controlling User Access to the Video Stream

By default, anyone can connect to the FCS-1091/WCS-1090 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-1091/WCS-1090. (See **Chapter 5 - Web-based Management** for details.)
2. Select *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 IP CamSecure. However, viewing video is still possible by logging in as the Administrator.

The screenshot displays the web interface for the WCS-1090 11b/g Wireless Day/Night IP Network Camera. The top navigation bar includes links for Home, View Video, and Logout. A left sidebar lists various configuration categories: Setup, System, Network, Wireless, DDNS, IP Filter, I/O Port, Video & Audio (highlighted), Event, and Administration. Under the Video & Audio section, the Video Access sub-menu is selected. The main content area shows the following settings:

- User Access:  Enable Security Checking
- Video Access:  Enable Scheduled Video Access
- Access Schedule**: A large empty rectangular box for viewing the current schedule, with a Delete button below it.
- Add New Schedule**:
  - Day: Every day (dropdown menu)
  - Start Time: 00 : 00 (hh:mm)
  - End Time: 00 : 00 (hh:mm)
  - Buttons: Add, Clear
- Bottom navigation: Save, Cancel, Help

Figure 8: Controlling User 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-1091/WCS-1090 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-1091/WCS-1090. The Router/Gateway uses the *Port Number* to determine which incoming connections are intended for the FCS-1091/WCS-1090.

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-1091/WCS-1090. If necessary, check the user manual for your Router/Gateway for further details.

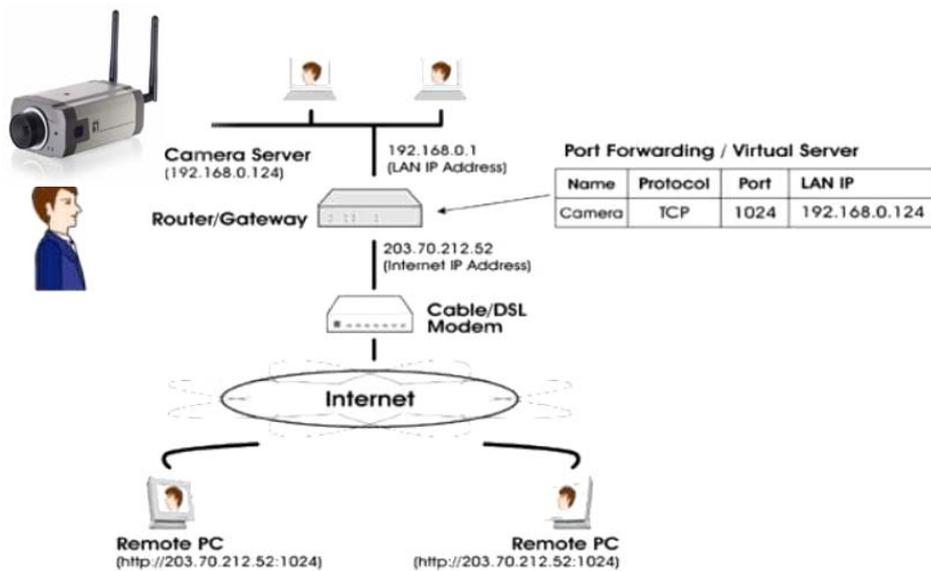


Figure 9: Connecting via the Internet



The "Port" for the *Port Forwarding / Virtual Server* entry above is the "Secondary Port" number specified on the *Network* screen of the FCS-1091/WCS-1090.

## FCS-1091/WCS-1090 Setup

The FCS-1091/WCS-1090 configuration does NOT have to 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-1091/WCS-1090.

### HTTP Port Configuration

Normally, HTTP (Web) connections use port 80. Since the FCS-1091/WCS-1090 uses HTTP, but port 80 is likely to be used by a Web Server, you can use a different port for the FCS-1091/WCS-1090. 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 FCS-1091/WCS-1090's **Network** screen, as shown below.

The screenshot shows the 'Network' configuration page for a WCS-1090 camera. The left sidebar contains navigation links: Setup, System, Network (selected), Wireless, DDNS, IP Filter, I/O Port, Video & Audio, Video & Audio, Video Access, User Database, Event, Motion Detection, E-Mail, FTP, Instant Messaging, Event Trigger, Administration, Maintenance, Status, and Log. The main content area is titled 'WCS-1090 11b/g Wireless Day/Night IP Network Camera' and includes the following settings:

- IP Address:**  Obtain an IP address automatically (DHCP) /  Use the following IP address
- DNS Server Address:**  Obtain DNS server address automatically /  Use the following DNS server address
- Secondary Port:**  Enable HTTP Secondary Port (1024) (1024-65535) /  Enable HTTPS Secondary Port (1024) (1024-65535)
- RTP/RTSP:**
  - RTSP Port:** 554 (554,1024-65535)
  - RTP Data Port:** 5000 (mobile phone only)
  - Max RTP Data Packet:** 1400 bytes (400-1400)
- Multicast RTP/RTSP:**  Enable Multicast
- Video Address:** 224.2.0.1
- Video Port:** 2240 (1024-65534; Even Value)
- Audio Address:** 224.2.0.1
- Audio Port:** 2242 (1024-65534; Even Value)
- Time to Live:** 16 (1-255)

At the bottom, there are checkboxes for **UPnP:**  Enable Discovery /  Enable Traversal (Port Mapping) and **QoS:**  Enable QoS Mode (for Video and Audio). Buttons for 'Save', 'Cancel', and 'Help' are located at the bottom right.

Figure 10: Network Screen

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 FCS-1091/WCS-1090.

The screenshot shows the DDNS configuration interface for the WCS-1090 camera. The top navigation bar includes 'level one' logo, 'Home', 'View Video', and 'Logout'. The main title is 'WCS-1090 11b/g Wireless Day/Night IP Network Camera'. The left sidebar lists various settings: Setup, System, Network, Wireless, **DDNS**, IP Filter, I/O Port, Video & Audio, Video & Audio, Video Access, User Database, Event, Motion Detection, E-Mail, FTP, Instant Messaging, Event Trigger, Administration, Maintenance, Status, and Log. The DDNS section is active, showing a checked 'Enable DDNS' box. The form fields are: Service Provider (DynDNS.org), Domain (Host) Name (empty), Account/E-Mail (empty), Password/Key (empty), and Check WAN IP Address (Every 24 Hrs). The 'Starting at' section is set to 12 Hour(s) and 00 Minute(s). At the bottom, there are 'Save', 'Cancel', and 'Help' buttons.

**Figure 11: DDNS Screen**

3. Operation is then automatic:
  - The FCS-1091/WCS-1090 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 FCS-1091/WCS-1090 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 FCS-1091/WCS-1090 is 1024.

## Motion Detection Alerts

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

The FCS-1091/WCS-1090 will compare consecutive frames to detect changes caused by the movement of large objects.

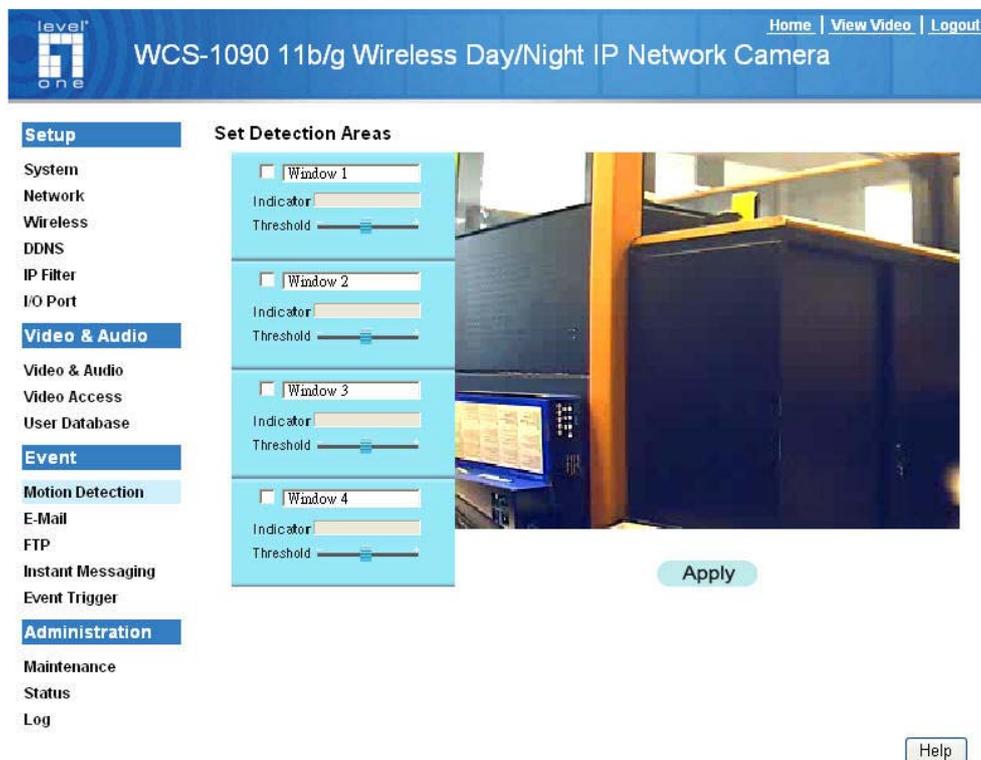
But the motion detector can also be triggered by:

- 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.

### To Use Motion Detection Alerts

Using the Web-based interface on the FCS-1091/WCS-1090, select the *Motion Detection* screen, then configure this screen as described below.



**Figure 12: Motion Detection**

1. Enable the *Motion Detection* feature.
2. Set the 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 *Event Trigger* screen to have alerts sent
  - Enable *Trigger Event* and check the box of *Motion Detection*.

- Select the desired options for sending the alerts.

# Chapter 5

## Web-based Management

# 5

*This Chapter provides Setup details of the FCS-1091/WCS-1090's Web-based Interface. This Chapter is for the Camera Administrator only.*

### Introduction

The FCS-1091/WCS-1090 can be configured using your Web Browser. The FCS-1091/WCS-1090 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 FCS-1091/WCS-1090

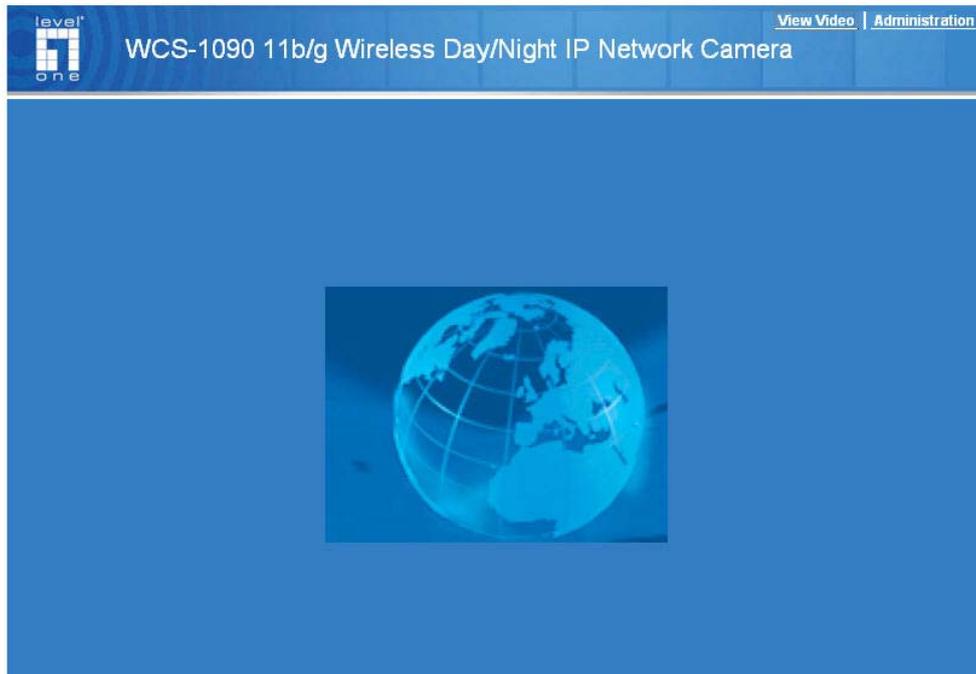
- If using only your Web Browser, use the following procedure to establish a connection from your PC to the FCS-1091/WCS-1090:
- Once connected, you can add the FCS-1091/WCS-1090 to your Browser's *Favorites* or *Bookmarks*.

### Connecting using your Web Browser

1. Use the Camera Wizard to get the IP address of the FCS-1091/WCS-1090.
2. Start your WEB browser.
3. In the *Address* box, enter "HTTP://" and the IP Address of the FCS-1091/WCS-1090.
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.



**Figure 13: Welcome Screen**

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 FCS-1091/WCS-1090.

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

### Setup

- System
- Network
- Wireless
- DDNS
- IP Filter
- I/O Port

### Video & Audio

- Video & Audio
- Video Access
- User Database

### Event

- Motion Detection
- E-Mail
- FTP
- Instant Messaging
- Event Trigger

### Administration

- Maintenance
- Status
- Log

## System Screen

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

Figure 14: System Screen

### Data - System Screen

System Settings	
<b>Device ID</b>	This displays the name for the FCS-1091/WCS-1090.
<b>Description</b>	This field is used for entering a description, such as the location of the FCS-1091/WCS-1090.
Date & Time	
<b>Date Format</b>	Choose the desired format from the drop-down list.
<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>Timezone</b>	<p>Choose the Timezone 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>	<p>Enable or disable the Time Server feature as required.</p> <p>If Enabled, the FCS-1091/WCS-1090 will contact a Network Time Server at regular intervals and update its internal timer.</p>
<b>NTP Server Address</b>	<p>Enter the address for the desired NTP server.</p>
<b>Update</b>	<p>The Schedule determines how often the FCS-1091/WCS-1090 contacts the NTP Server.</p> <p>Select the desired options.</p>
<b>LED Operation</b>	<p>If Disabled, the LED of the FCS-1091/WCS-1090 will be in off state.</p>

# Network Screen

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

The screenshot shows the 'Network' configuration page for a WCS-1090 camera. The left sidebar lists various setup categories, with 'Network' highlighted. The main area contains the following settings:

- IP Address:**  Obtain an IP address automatically (DHCP);  Use the following IP address
- DNS Server Address:**  Obtain DNS server address automatically;  Use the following DNS server address
- Secondary Port:**
  - Enable HTTP Secondary Port (1024) (1024-65535)
  - Enable HTTPS Secondary Port (1024) (1024-65535)
- RTP/RTSP:**
  - RTSP Port: 554 (554,1024-65535)
  - RTP Data Port: 5000 (mobile phone only)
  - Max RTP Data Packet: 1400 bytes (400-1400)
- Multicast RTP/RTSP:**
  - Enable Multicast
  - Video Address: 224.2.0.1
  - Video Port: 2240 (1024-65534; Even Value)
  - Audio Address: 224.2.0.1
  - Audio Port: 2242 (1024-65534; Even Value)
  - Time to Live: 16 (1-255)
- UPnP:**
  - Enable Discovery
  - Enable Traversal (Port Mapping)
- QoS:**
  - Enable QoS Mode (for Video and Audio)

Buttons for 'Save', 'Cancel', and 'Help' are located at the bottom of the configuration area.

Figure 15: Network Screen

## Data - Network Screen

Network	
<b>Obtain an Address Automatically</b>	If selected, the FCS-1091/WCS-1090 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>	If selected, you must assign the following data to the FCS-1091/WCS-1090. <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 FCS-1091/WCS-1090 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>	<ul style="list-style-type: none"> <li>• HTTP Secondary Port - 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.</li> <li>• HTTPS Secondary Port - 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.</li> </ul> <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 style="text-align: center;">http://192.168.1.100:1024</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 sending packet. 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 FCS-1091/WCS-1090 will broadcast its availability through UPnP. UPnP compatible systems such as Windows XP will then be able to detect the presence of the FCS-1091/WCS-1090.
<b>Enable Traversal</b>	If enabled, HTTP connections (from your Web Browser or the Viewer and Recorder utility) can use secondary port instead of port 80 (the standard HTTP port) to access the camera.

QoS	
<b>Enable QoS Mode</b>	If enabled, the throughput level (for Video and Audio) is guaranteed through QoS (Quality of Service).

## Wireless Screen (WCS-1090 Only)

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

**Figure 16: Wireless Screen**

### Data - Wireless Screen

Wireless Network	
<b>Network Type</b>	Select the network type of wireless communication used by the FCS-1091/WCS-1090.
<b>SSID</b>	This must match the value used by other devices on your wireless LAN. <div style="text-align: center;">  <b>Note! The SSID is case sensitive.</b> </div>
<b>Domain</b>	Select your domain from the drop-down list.

<b>Channel No</b>	<ul style="list-style-type: none"> <li>• In Infrastructure mode, you cannot set the Channel. The FCS-1091/WCS-1090 will use the Channel set on the Access Point.</li> <li>• For Ad-hoc mode, select the Channel you wish to use on your FCS-1091/WCS-1090. This should match the Channel used on the other Wireless Stations.</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 is the best.</li> </ul>
<b>Security</b>	
<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 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>
<b>WEP</b>	
<b>Authentication Type</b>	<p>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 Keys (10 Hex Characters)</li> <li>• 128 Bit Keys (26 Hex Characters)</li> <li>• 64 Bit Keys (5 ASCII Characters)</li> <li>• 128 Bit Keys (13 ASCII Characters)</li> </ul>
<b>Passphrase</b>	<p>Enter a word or group of printable characters in the Passphrase box and click the "Generate Keys" 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 Personal****Shared Key**

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.

## 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 FCS-1091/WCS-1090 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 FCS-1091/WCS-1090 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.

The screenshot shows the DDNS configuration interface for a Level One WCS-1090 camera. The top navigation bar includes 'Home', 'View Video', and 'Logout'. The sidebar menu on the left lists various settings categories: Setup, System, Network, Wireless, DDNS (highlighted), IP Filter, I/O Port, Video & Audio, Video & Audio, Video Access, User Database, Event, Motion Detection, E-Mail, FTP, Instant Messaging, Event Trigger, Administration, Maintenance, Status, and Log. The main content area is titled 'WCS-1090 11b/g Wireless Day/Night IP Network Camera' and contains the following configuration options:

- Enable DDNS
- Service Provider: DynDNS.org (dropdown) Web Site (button)
- Domain (Host) Name: [text input]
- Account/E-Mail: [text input]
- Password/Key: [text input]
- Check WAN IP Address: Every 24 Hrs (dropdown)
- Starting at: 12 (dropdown) Hour(s) 00 (dropdown) Minute(s)

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

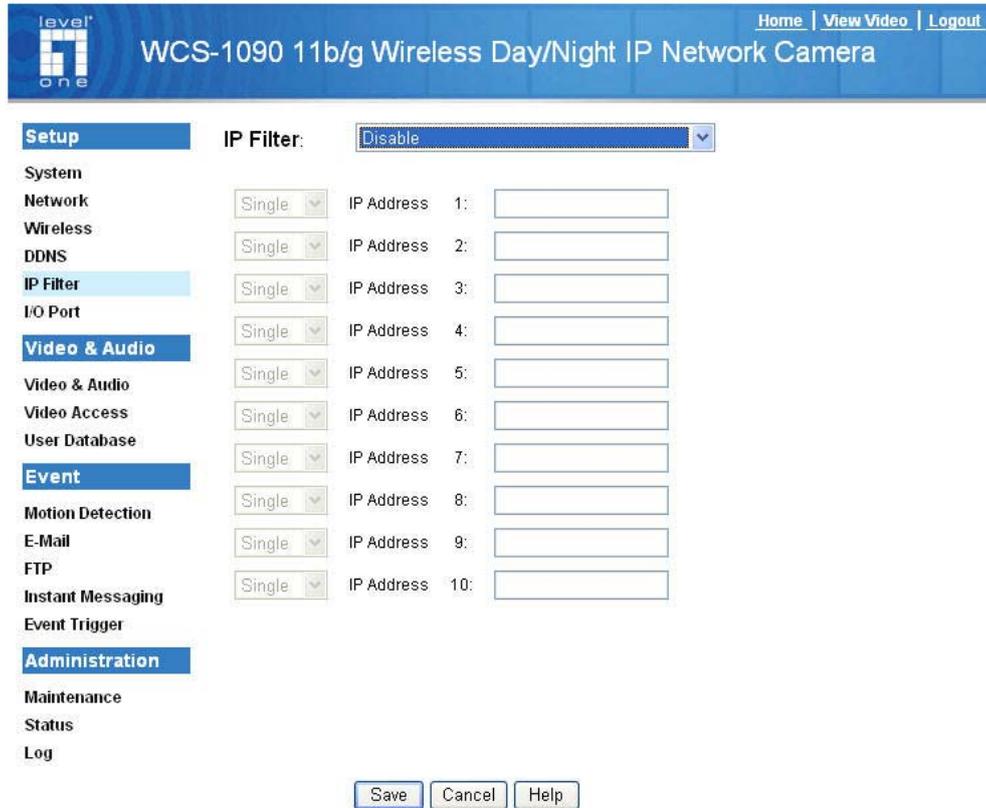
Figure 17: DDNS Screen

## Data - DDNS Screen

DDNS	
<b>DDNS Enable/Disable</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 or the E-mail address for the DDNS account.
<b>Password/Key</b>	Enter the password/key 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>

# IP Filter Screen

This screen is displayed when the *IP Filter* option is clicked.



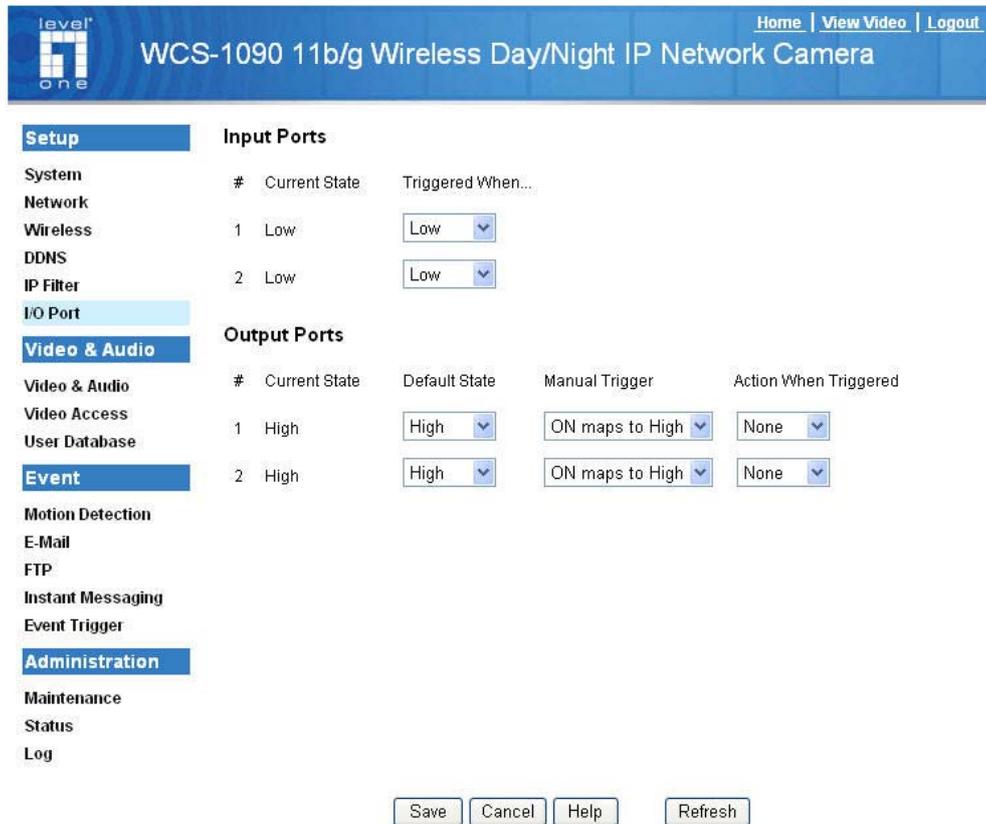
**Figure 18: IP Filter Screen**

## Data - IP Filter Screen

IP Filter	
<b>IP Filter</b>	The IP Filter feature allows administrators to control FCS-1091/WCS-1090 access by filtering IP address. Select the desired option from the drop-down list.
<b>Single/Range</b>	Enter an IP address or a range of IP addresses you would like to allow or deny.

# I/O Port Screen

The FCS-1091/WCS-1090 supports 2 input ports and 2 output ports. This screen is displayed when the *I/O Port* menu option is clicked.



**Figure 19: I/O Port Screen**

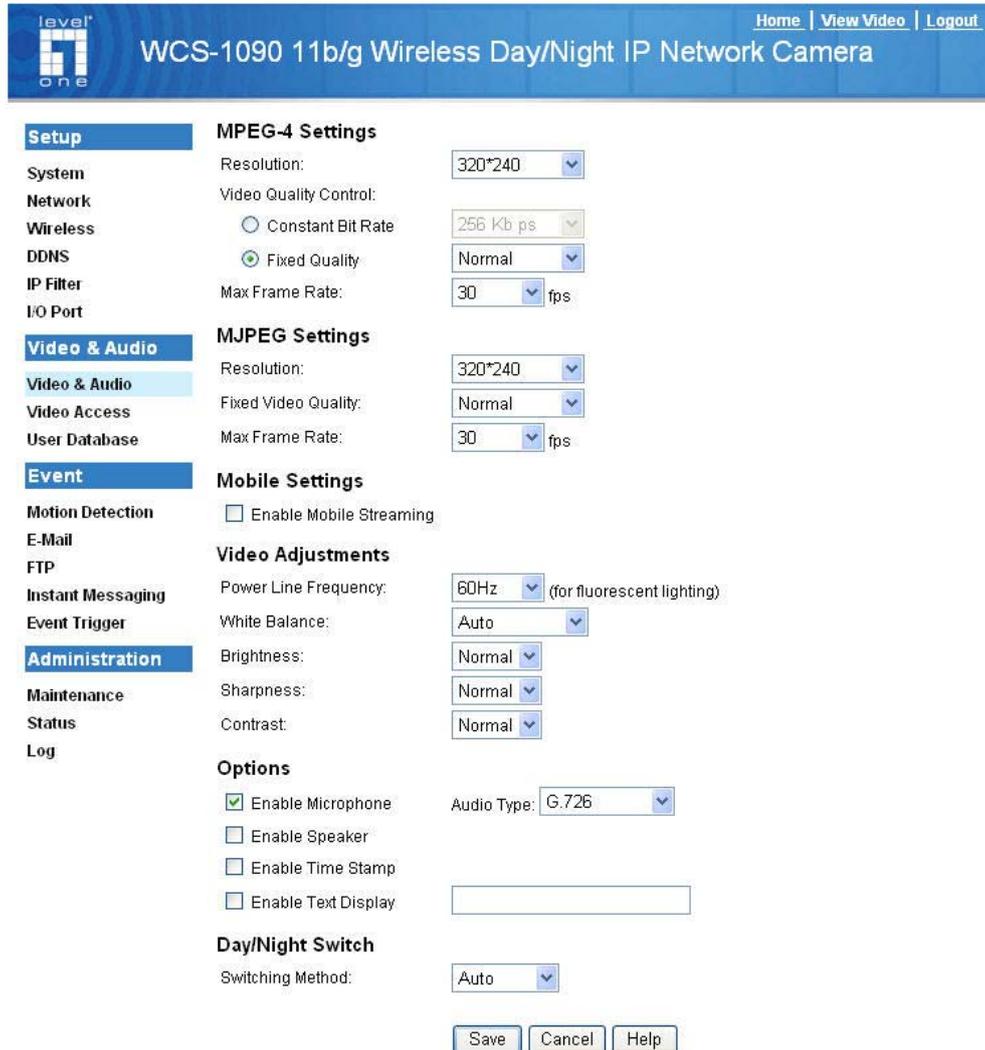
## Data - I/O Port Screen

Input Ports	
<b>Current State</b>	It indicates the current state of the input port. Once the configured state is happened, it will trigger the event actions.
<b>Triggered When...</b>	Select the desired State: <ul style="list-style-type: none"> <li>• High</li> <li>• Low</li> <li>• Rising</li> <li>• Falling</li> </ul>
Output Ports	
<b>Current State</b>	It indicates the current state of the output port.
<b>Default State</b>	Select the desired option from the drop-down list.
<b>Manual Trigger</b>	Select the option to control the output state.

<b>Action When Triggered</b>	If an event is happened, it will trigger the event alerting.
------------------------------	--------------------------------------------------------------

# Video & Audio Screen

This screen is displayed when the *Video & Audio* option is clicked.



**Figure 20: Video & Audio Screen**

## Data - Video & Audio 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.</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 frame rate for the video stream.

<b>MJPEG Settings</b>	
<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>	Select the desired Maximum frame rate for the video stream.
<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>Contrast</b>	Select the desired option for the contrast. You can select a Contrast 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>Audio Type</b>	Select the desired audio type.
<b>Speaker</b>	Enable speaker feature by checking this checkbox.
<b>Time Stamp</b>	If enabled, the current time will be displayed on the Video image.
<b>Text Overlay</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.

<b>Day/Night Switch</b>	
<b>Auto</b>	The camera automatically switches to night mode when it detects low-light conditions.
<b>Schedule</b>	Choose the desired time to switch to night mode by checking this box. Select the desired Start Time and End Time on a 24-hour schedule.
<b>Day Mode</b>	Enable Day switch
<b>Night Mode</b>	Enable Night switch



For environments that have IR illuminators, we suggest setting the camera in Night Mode.

# Video Access Screen

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



Figure 21: Video Access Screen

## Data - Video Access Screen

<p><b>Enable Security Checking</b></p>	<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>
----------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<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>
--------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<b>Access Schedule</b>	
<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.
<b>Add New Schedule</b>	
<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 *Video & Audio* menu is clicked.

The screenshot shows the 'User Database' screen for a WCS-1090 11b/g Wireless Day/Night IP Network Camera. The interface includes a navigation menu on the left with categories like Setup, Video & Audio, Event, Administration, and Maintenance. The 'User Database' option is selected. The main area is divided into two sections: 'Existing Users' and 'User Properties'. The 'Existing Users' section contains an empty table and buttons for 'Edit', 'Delete', and 'Delete All'. The 'User Properties' section contains input fields for 'User Name', 'User Password', and 'Confirm Password', along with radio buttons for 'Control Level' (Viewer and Operator) and buttons for 'Add', 'Clear', 'Save', 'Cancel', and 'Help'.

Figure 22: User Database Screen

### 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. The camera can let you save up to 20 cameras in the database.
<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>Control Level</b>	Select the desired control level for the user you plan to add. (* Operator level allows user to switch day/night vision and to trigger output ports manually)
<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.

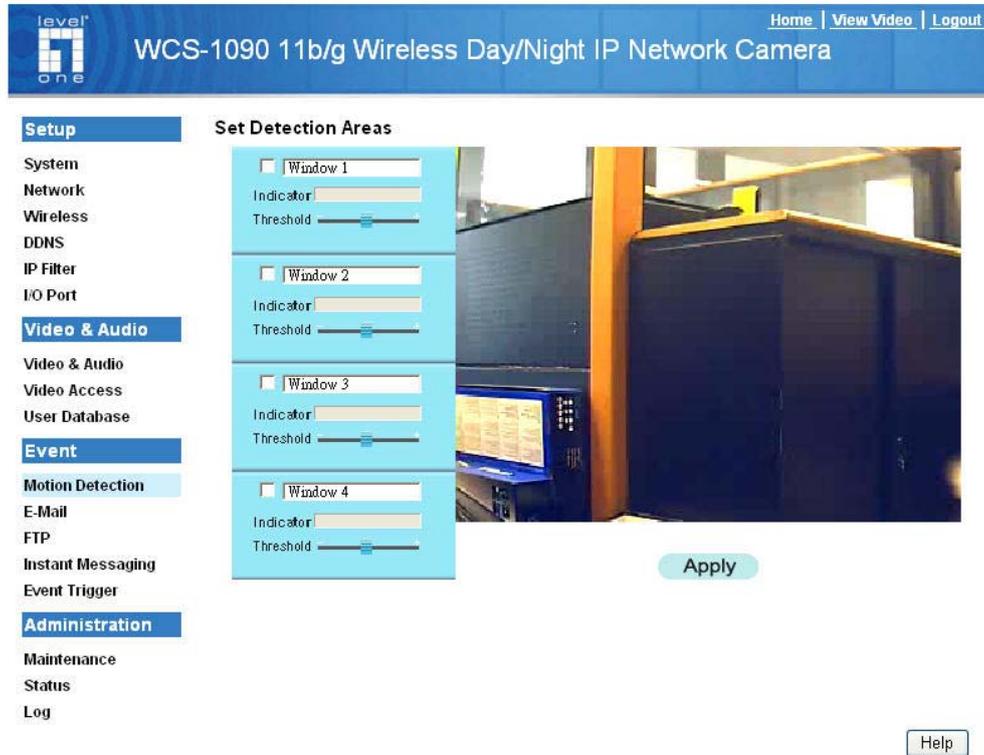


Figure 23: Motion Detection Screen

### 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.

Figure 24: E-Mail Screen

### 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.
<b>E-Mail Setup</b>	
<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.

Figure 25: FTP Screen

### 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.

## Instant Messaging Screen

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

The screenshot shows the configuration interface for the camera's instant messaging features. The left sidebar contains a menu with categories: Setup, Video & Audio, Event, and Administration. Under 'Event', 'Instant Messaging' is selected. The 'Jabber' section includes an 'Enable' checkbox and text boxes for 'Server Address', 'Login ID', 'Password', 'Send To', and a text area for 'Message'. The 'HTTP Notification' section includes an 'Enable' checkbox and text boxes for 'URL', 'Proxy Server Name', 'Port Number', and a dropdown for 'Method'. At the bottom, there are 'Save', 'Cancel', and 'Help' buttons.

Figure 26: Instant Messaging Screen

### Data - Instant Messaging Screen

Jabber	
<b>Enable</b>	Enable this checkbox to use Jabber, which is a free Instant Messaging (IM).
<b>Server Address</b>	Enter the address of your Jabber Server.
<b>Login ID</b>	Enter your login ID for the Jabber account.
<b>Password</b>	Enter your password for the Jabber account.
<b>Send To</b>	The log will be sent to the e-mail address you specified here.
<b>Message</b>	Enter the message you wish to attach with the sending log.
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>	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>

## Event Trigger Screen

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

Figure 27: Event Trigger Screen

### Data - Event Trigger Screen

Event Schedule	
<b>Schedule List</b>	<p>The Event Schedule shows all of the event types currently configured in the FCS-1091/WCS-1090, 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>Enable</b>	Check to perform all of the event(s) that were configured and scheduled.
<b>Interval</b>	Select the desired option for the events interval. (* "0" = No Delay)
<b>Trigger by</b>	<ul style="list-style-type: none"> <li>• Input 1 / 2 - This describes the states that the input(s) must be in for an event to be triggered. Only one input can be used, also note that the states for all the inputs used must be reached before the event will be triggered.</li> <li>• Motion Detection - Movement in a motion detection window can be used to trigger events.</li> </ul>
<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>• Output 1 / 2 - If checked, the output port(s) state will be activated as configured. (Output port(s) must be configured on the I/O Port page.)</li> <li>• Instant Messaging - 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>Overwrite/Replace oldest video file</b> Check to overwrite/replace the oldest video clip with the current recording when detecting device's SDRAM is full.</li> <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

Figure 28: Maintenance Screen

## 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>	Enter 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 upgrade the Firmware. When the upgrade is finished, the FCS-1091/WCS-1090 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.
<b>Backup &amp; Restore</b>	
<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>Buttons</b>	
<b>Defaults</b>	Click <i>Defaults</i> button to reload the default settings of the camera.
<b>Restart</b>	Click <i>Restart</i> button to restart the camera.

## Status Screen

level one

Home | View Video | Logout

### WCS-1090 11b/g Wireless Day/Night IP Network Camera

**Setup**

- System
- Network
- Wireless
- DDNS
- IP Filter
- I/O Port

**Video & Audio**

- Video & Audio
- Video Access
- User Database

**Event**

- Motion Detection
- E-Mail
- FTP
- Instant Messaging
- Event Trigger

**Administration**

- Maintenance
- Status
- Log

**System**

Device Name: WCS10900CB207

Description:

FW version: V1.0.01

**Network**

MAC Address: 00:c0:02:0c:b2:07

IP Address: 192.168.50.158

Network Mask: 255.255.255.0

Gateway: 192.168.50.1

**Wireless**

WSC PIN Code: **08320070**

Network Type: Infrastructure

SSID: camera

Channel: N/A

Security: WEP

Signal Strength: N/A

**MPEG-4**

Resolution: 320\*240

Video Quality: Normal

Frame Rate: 30

**MJPEG**

Resolution: 320\*240

Video Quality: Normal

Frame Rate: 30

Help Refresh

Figure 29: Status Screen

### Data - Status Screen

System	
<b>Device Name</b>	This shows the name of the FCS-1091/WCS-1090.
<b>Description</b>	This shows the description of the FCS-1091/WCS-1090, such as location.
<b>F/W version</b>	The version of the current firmware installed.
Network	
<b>MAC Address</b>	The current IP address of the FCS-1091/WCS-1090.
<b>IP Address</b>	The IP Address of the FCS-1091/WCS-1090.
<b>Network Mask</b>	The network mask associated with the IP address above.
<b>Gateway</b>	The IP Address of the remote Gateway associated with the IP Address above.

<b>Wireless</b>	
<b>Network Type</b>	This shows the Network Type currently in use (Ad-hoc or Infrastructure).
<b>SSID</b>	This displays the wireless SSID.
<b>Channel</b>	This shows the wireless channel currently used.
<b>Security</b>	The current security setting for Wireless connections.
<b>Signal Strength</b>	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 data shown on screen.

## Log Screen

This screen displays a log of system activity.

The screenshot shows the 'Log' screen of a network camera. The left sidebar contains a navigation menu with the following items: Setup, System, Network, Wireless, DDNS, IP Filter, I/O Port, Video & Audio, Video Access, User Database, Event, Motion Detection, E-Mail, FTP, Instant Messaging, Event Trigger, Administration, Maintenance, Status, and Log. The main content area displays a log of system activity with the following entries:

```

11/12/2007 15:12:43 HTTP: Streaming end (HTTP: 192.168.50.137, administrator).
11/12/2007 15:11:41 HTTP: Streaming start (HTTP: 192.168.50.137, administrator).
11/12/2007 15:06:53 HTTP: Streaming end (HTTP: 192.168.50.137, anonymous).
11/12/2007 15:06:38 HTTP: Streaming start (HTTP: 192.168.50.137, anonymous).
11/12/2007 15:06:32 HTTP: Streaming end (HTTP: 192.168.50.137, anonymous).
11/12/2007 15:04:21 HTTP: Streaming start (HTTP: 192.168.50.137, anonymous).
11/12/2007 14:56:13 NTP: Synchronization OK.
11/12/2007 14:56:06 DHCP: Lease renewal successful.
11/12/2007 14:55:56 Network: Lan activated.
  
```

Below the log, there are two buttons: 'Refresh' and 'Clear Log'. There is a checkbox labeled 'Enable Syslog Service' which is currently unchecked. Below it is a text input field for 'Syslog Server Address'. At the bottom, there are three buttons: 'Save', 'Cancel', and 'Help'.

Figure 30: Log Screen

### 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 FCS-1091/WCS-1090 and some possible solutions to them. If you follow the suggested steps and the FCS-1091/WCS-1090 still does not function properly, contact your dealer for further advice.

### Problems

**Problem 1:** I can't connect to the FCS-1091/WCS-1090 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 FCS-1091/WCS-1090. Use the Camera Wizard to configure the FCS-1091/WCS-1090 with a valid IP address.

**Problem 2:** The Camera Wizard doesn't list any FCS-1091/WCS-1090s.

**Solution 2:** Check the following:

- The FCS-1091/WCS-1090 is installed, LAN connections are OK, it is powered ON and startup is complete.
- Ensure that your PC and the FCS-1091/WCS-1090 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 FCS-1091/WCS-1090, 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 FCS-1091/WCS-1090 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 FCS-1091/WCS-1090 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 FCS-1091/WCS-1090, 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* 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.

**Problem 9**     I turned on the auto launch after startup option of camera utility, but it's blocked and takes no action under Windows Vista. How can I make it work?

**Solution 9**

Windows Vista has the built-in ability to automatically reduce the potential of security breaches in the system. It does that by automatically enabling a feature called UAC (User Account Control). With the UAC on, applications will be blocked from launching during system startup. That would also block the camera utility. However, you could turn off the UAC by the following steps:

1. Select *Start - Control Panel - Account and Family settings*.
2. Click "Add or remove user account".
3. Select the desired user account.
4. Click "Go to the main User Account page"
5. Select "Change security settings" in the "Make changes to your user account" screen.
6. Unselect "Turn on User Account Control (UAC) to make your computer more secure".
7. Click *OK*. You will be prompted to reboot your computer.

# Appendix A

## Specifications



### FCS-1091/WCS-1090

<b>Model</b>	<b>FCS-1091/WCS-1090</b>
Dimensions	80mm (W) * 50mm (H) * 132mm (D)
Operating Temperature	0° C to 40° C
Storage Temperature	-20° C to 70° C
Network Protocols:	TCP/IP, DHCP, SMTP, NTP, HTTP, HTTPS, UPnP, FTP, RTP, RTSP
Network Interface:	1 Ethernet 10/100BaseT (RJ45) LAN connection
Wireless interface	IEEE 802.11b/802.11g compatible, Infrastructure/Ad-hoc mode, WEP/WPA/WPA2-Personal security support, roaming support
LEDs	2
Power Adapter	12V/1A DC External
Lens	CS/M Type, 6mm/F1.6 Fixed Focus Lens

### Regulatory Approvals

#### FCC Statement

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

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

To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to

operate this equipment. (Example - use only shielded interface cables when connecting to computer or peripheral devices).

### **FCC Radiation Exposure Statement**

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

### **CE Approvals**

The FCS-1091/WCS-1090 and the Ethernet FCS-1091/WCS-1090 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

This is a Class B product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

## Copyright Notice

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Details of each applicable license are contained in the following section.

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### FCS-1091/WCS-1090 copyright information

Package source codes	License
boot loader	GPL
ARM-Linux 2.4.19	GPL
ARM-Linux-gcc 3.3.4 library	LGPL
Busy-box	GPL
cron	Public domain (BSD & Lineo <a href="http://www.lineo.com/">http://www.lineo.com/</a> )
thttpd-2.25b	Public domain ( <a href="http://www.acme.com/software/thttpd/">http://www.acme.com/software/thttpd/</a> )
ntp-4.1.71	Public domain ( <a href="http://www.ntp.org/">http://www.ntp.org/</a> )
ez-ipupdate-3.0.11b7	GPL
iptables-1.3.4	GPL
stunnel	GPL
wireless_tools.26	GPL
wpa_supplicant	GPL
dhcpcd-1.3.22	GPL
DM9102 lan driver	GPL
libupnp-1.2.1	BSD

## **thttpd.c - tiny/turbo/throttling HTTP server**

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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\*120)

2 (320\*240)

3 (640\*480)

Quality = 5 (Very low)

4 (Low)

3 (Normal)

2 (High)

1 (Very high)

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

<http://<ip>/img/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\*120, very low quality) through a mobile phone:

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