



User Manual

Wireless N Network Camera

DCS-930L

Manual Overview

D-Link reserves the right to revise this publication and to make changes in the content hereof without obligation to notify any person or organization of such revisions or changes. Information in this document may become obsolete as our services and websites develop and change. Please refer to the www.mydlink.com website for the most current information.

Manual Revisions

Revision	Date	Description
1.1	November 10, 2010	DCS-930L Revision A1 with firmware version 1.01

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Package Contents

- DCS-930L Wireless N Network Camera
- CAT5 Ethernet Cable
- Power Adapter
- Manual and Software on CD
- Quick Install Guide
- Mounting Kit

Note: Using a power supply with a different voltage than the one included with your product will cause damage and void the warranty for this product.

If any of the above items are missing, please contact your reseller.



System Requirements

- Computer with Microsoft Windows® 7, Vista®, or XP
- PC with 1.3GHz or above; at least 128MB RAM
- Internet Explorer 6 or above , Firefox 3.5 or above, Safari 4 and Chrome
- Existing 10/100 Ethernet-based network or 802.11n wireless network

Introduction

Congratulations on your purchase of the DCS-930L Wireless N Network Camera. The DCS-930L is a versatile and unique solution for your small office or home. Unlike a standard webcam, the DCS-930L is a complete system with a built-in CPU and web server that transmits high quality video images for security and surveillance. The DCS-930L can be accessed remotely, and controlled from any PC/Notebook over your local network or through the Internet via a web browser. The simple installation and intuitive web-based interface offer easy integration with your Ethernet/Fast Ethernet or 802.11n/g wireless network. The DCS-930L also comes with remote monitoring and motion detection features for a complete and cost-effective home security solution.

Features

Simple to Use

The DCS-930L is a stand-alone system with a built-in CPU, requiring no special hardware or software such as PC frame grabber cards. The DCS-930L supports both ActiveX mode for Internet Explorer and Java mode for other browsers such as Firefox® and Safari®.

Supports a Variety of Platforms

Supporting TCP/IP networking, HTTP, and other Internet related protocols. The DCS-930L can also be integrated easily into other Internet/Intranet applications because of its standards-based features.

802.11n Wireless or Ethernet/Fast Ethernet Support

The DCS-930L offers wireless 802.11n and Ethernet/Fast Ethernet connectivity, making the DCS-930L easy to integrate into your existing network environment. The DCS-930L works with a 10Mbps Ethernet based network or 100Mbps Fast Ethernet based network for traditional wired environments, and works with 802.11n routers or access points for added flexibility. The Site Survey feature also allows you to view and connect to any available wireless networks.

Web Configuration

Using a standard Web browser, administrators can configure and manage the Network Camera directly from its own Web page via Intranet or Internet. This means you can access your DCS-930L anytime, anywhere in the world.

Broad Range of Applications

With today's high-speed Internet services, the Network Camera can provide the ideal solution for delivering live video images over the Intranet and Internet for remote monitoring. The Network Camera allows remote access using a Web browser for live image viewing, and allows the administrator to manage and control the Network Camera anytime, anywhere in the world. Many applications exist, including industrial and public monitoring of homes, offices, banks, hospitals, child-care centers, and amusement parks.

Remote Monitoring Utility

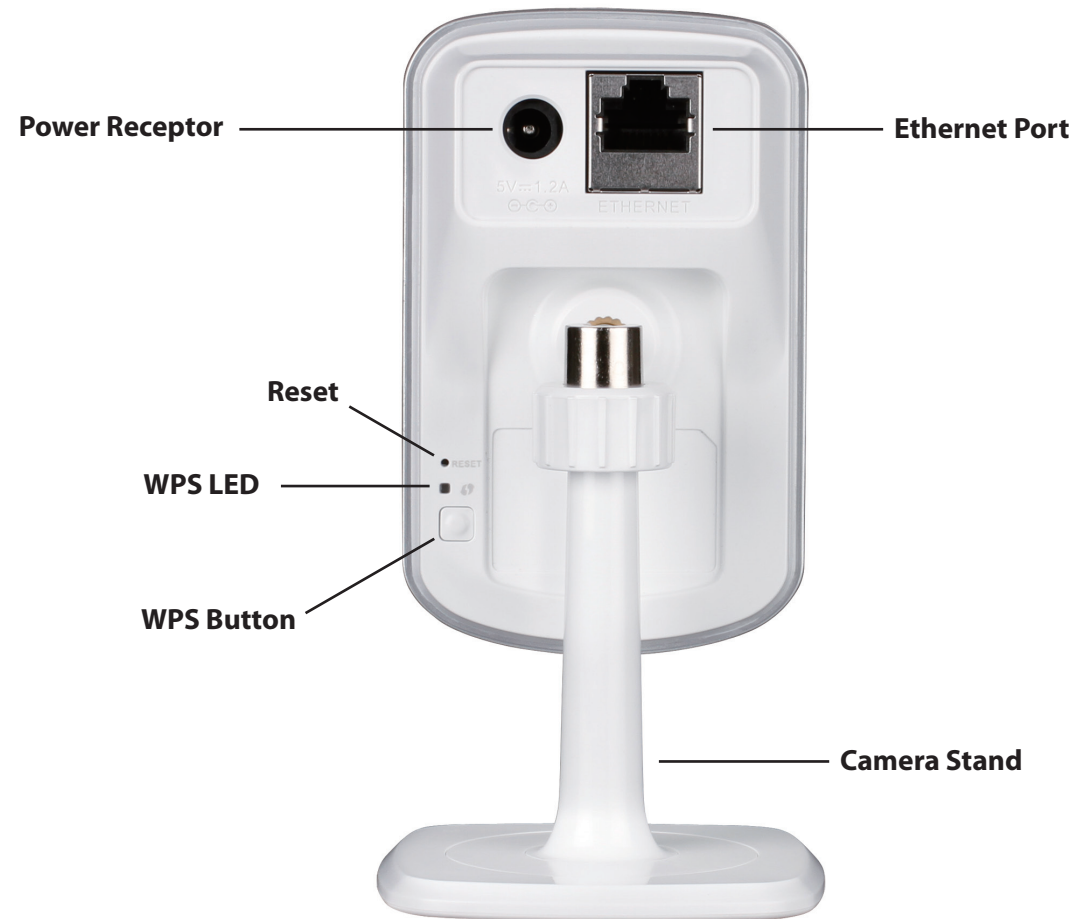
The D-ViewCam application adds enhanced features and functionality for the Network Camera and allows administrators to configure and access the Network Camera from a remote site via Intranet or Internet. Other features include image monitoring, recording images to a hard drive, viewing up to 32 cameras on one screen, and taking snapshots.

Hardware Overview

Front View



Rear View

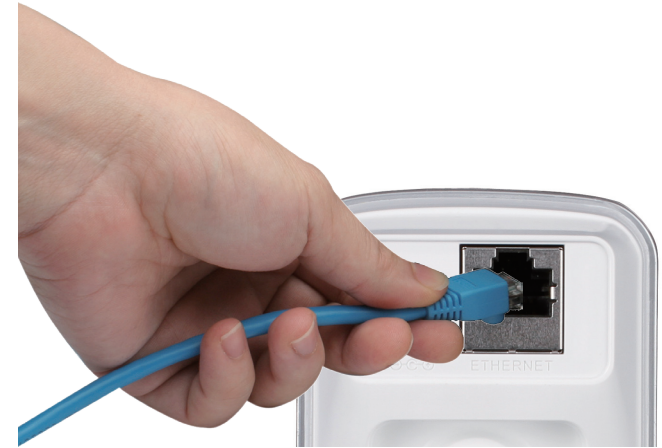


Installation

Hardware Installation

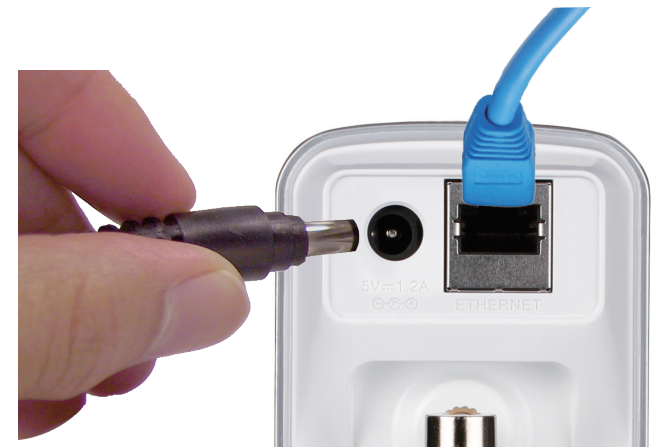
Connect the Ethernet Cable

Connect the included Ethernet cable to the network cable connector located on the bottom panel of the DCS-930L and attach it to the network.



Attach the External Power Supply

Attach the external power supply to the DC Power receptor located on the rear back panel of the DCS-930L and connect it to your wall outlet or power strip. Power is confirmed when the green LED Power Indicator located below the lens on the DCS-930L is illuminated.



Wireless Installation Considerations

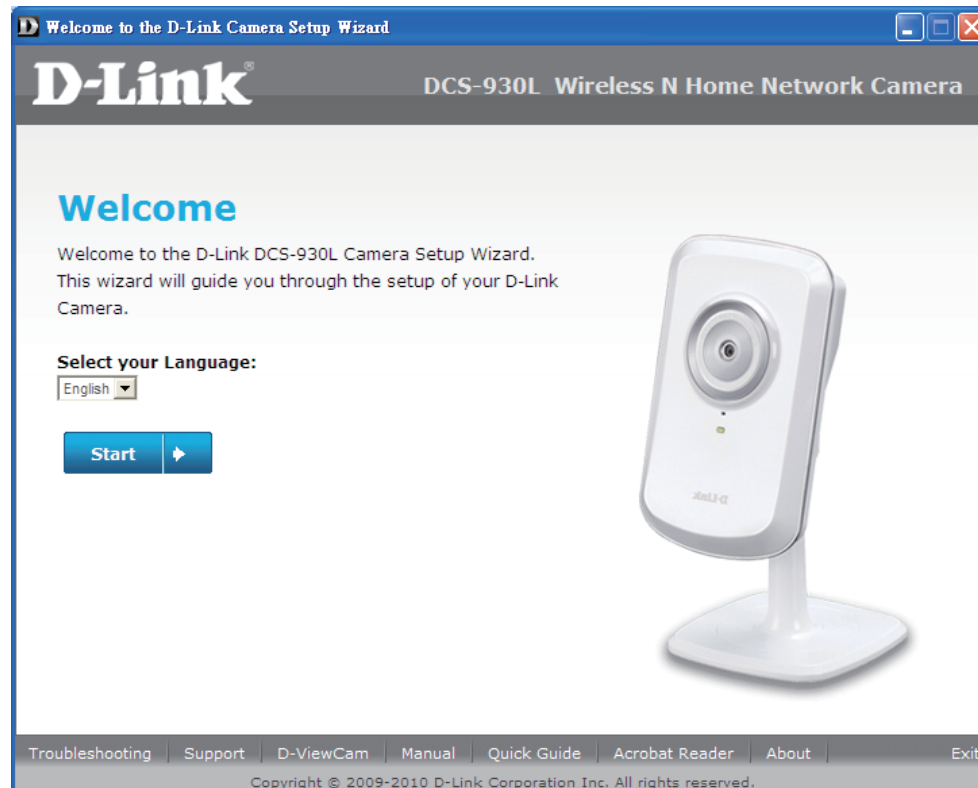
The D-Link Wireless Network Camera lets you access your network using a wireless connection from anywhere within the operating range of your wireless network. However, the number, thickness and location of walls, ceilings, or other objects that the wireless signals must pass through, may limit the range. Typical ranges vary depending on the types of materials and background RF (radio frequency) noise in your home or business. The key to maximizing wireless range is to follow these basic guidelines:

1. Minimize the number of walls and ceilings between your adapter and other network devices (such as your Network Camera) - each wall or ceiling can reduce your adapter's range from 3-90 feet (1-30 meters).
2. Be aware of the direct line between network devices. A wall that is 1.5 feet thick (.5 meters), at a 45-degree angle appears to be almost 3 feet (1 meter) thick. At a 2-degree angle, it looks over 42 feet (14 meters) thick. Position your devices so that the signal will travel straight through a wall or ceiling (instead of at an angle) for better reception.
3. Building Materials make a difference. A solid metal door or aluminum studs may weaken the wireless signal. Try to position your access points, wireless routers, and other networking devices where the signal passes through drywall or open doorways. Materials and objects such as glass, steel, metal, walls with insulation, water (fish tanks), mirrors, file cabinets, brick, and concrete will degrade your wireless signal.
4. Keep your product at least 3-6 feet or 1-2 meters away from electrical devices or appliances that generate RF noise.
5. If you are using 2.4GHz cordless phones or other radio frequency sources (such as microwave ovens), your wireless connection may degrade dramatically or drop completely. Make sure your 2.4GHz phone base is as far away from your wireless devices as possible. The base transmits a signal even if the phone is not in use.

Camera Installation Wizard

Insert the Installation CD-ROM into your computer's optical drive to start the autorun program.

The CD-ROM will open the Camera Installation Wizard. Simply click **Start** to go through the Installation Wizard, which will guide you through the installation process from connecting your hardware to configuring your camera.



WPS - Push Button Setup

Alternatively, you may create a WPS connect using the WPS Button on the back of the camera.

To create a WPS connection:

Step 1

Press and hold the WPS button for three seconds. The blue WPS status LED above the button will blink.

Step 2

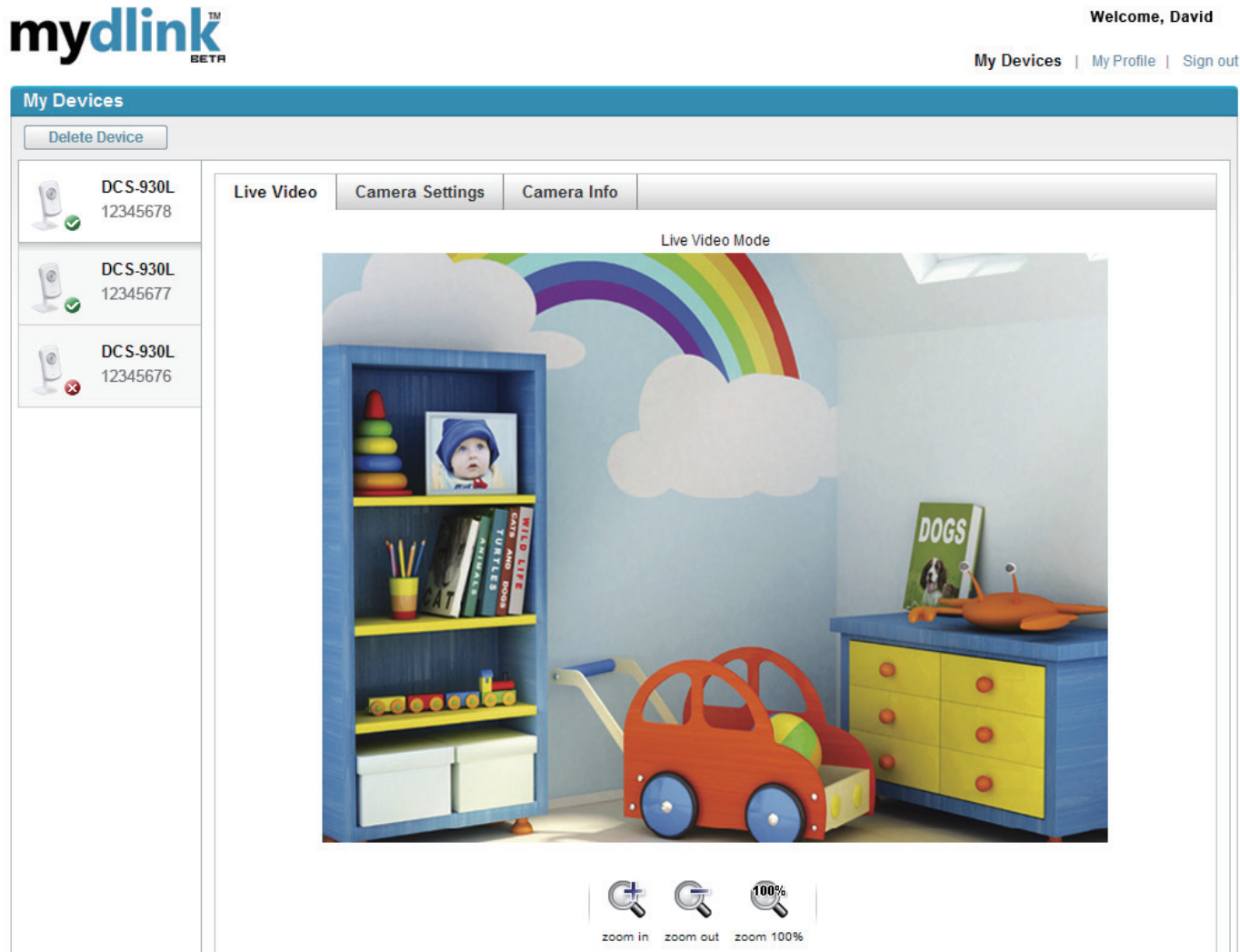
Press the WPS button on your router within 60 seconds. The WPS button is usually on the front or side of your router. On some routers, you may need to log in to the web interface and click on an on-screen button to activate the WPS feature. If you are not sure where the WPS button is on your router, please refer to your router's User Manual.

The DCS-930L will automatically create a wireless connection to your router. While connecting, the green LED will flash and your camera will reboot.



mydlink Portal

After registering your DCS-930L camera with a mydlink account in the Camera Installation Wizard. You will be able to remotely access your camera from the www.mydlink.com website. After signing in to your mydlink account, you will see a screen similar to the following:



Camera Status

Here, you can see the online status of each of your cameras. Your online status may be one of the following:



A green checkmark indicates that your camera is online and ready to use.



A yellow exclamation point indicates that your camera is online, but the camera password has changed. You will need to enter your new camera password to access your camera again.



A red x indicates that your camera is offline and currently cannot be accessed remotely.

If your camera is offline, try the following:

- Check to make sure that the Internet connection to your camera is working properly.
- Try restarting your Internet router.
- Check your camera's cable connections and make sure they are secure.
- Check to make sure that the LED on your camera is lit solid green.

If you still cannot access your camera, reset your camera and run the Camera Installation Wizard again from the CD-ROM included in your package.

Live Video

In the main part of the screen, the Live Video tab will be selected by default. If the camera is available, a Live Video feed will be displayed. Video will be shown at VGA resolution (640x480) if viewing your camera from a PC on the same local network, or at QVGA resolution (320x240) if viewing your camera from a PC on a remote network.

The screenshot displays the mydlink portal interface. At the top left is the mydlink logo with 'BETA' underneath. At the top right, it says 'Welcome, David' and provides navigation links for 'My Devices', 'My Profile', and 'Sign out'. Below the header is a 'My Devices' section with a 'Delete Device' button and a list of three DCS-930L cameras with their respective IDs (12345678, 12345677, and 12345676). The main content area is titled 'Live Video Mode' and features a large video feed of a child's room. The room contains a blue bookshelf with toys and books, a red toy car, and a blue and yellow dresser. Below the video feed are three control icons: 'zoom in', 'zoom out', and 'zoom 100%'. The video feed itself has a 'Live Video Mode' label at the top center.

Camera Settings

The Camera Settings tab allows you to access your camera's configuration interface. To open your camera's configuration interface, click **Camera web page** and enter the password exactly as listed on the **Camera Settings** page.

The screenshot displays the mydlink BETA portal interface. At the top left is the mydlink BETA logo. At the top right, it says "Welcome, David" and provides navigation links for "My Devices", "My Profile", and "Sign out". Below this is a "My Devices" section with a "Delete Device" button. A list of three DCS-930L cameras is shown, each with its ID and a status icon (green checkmark or red X). The "Camera Settings" tab is selected, displaying a message: "Please use the following password to sign in to the Camera Utility after clicking Camera web page." Below the message, the "User name" is "admin" and the "Camera Password" is "XXXXXXXX" with a "Show Password" checkbox. A "Camera web page" button is located at the bottom of the settings panel.

Camera Info

The Camera Info tab shows you various information about your camera.

Device Name: The Device Name is a unique name that you can give to your device to help you identify it. Clicking on the **Device Name** will open a window for you to log in to your camera's configuration interface. Then, it will open the Maintenance > Admin page where you can change your Device Name.

Camera Password: Displays the current password for your camera's configuration interface. Clicking on the **Show Password** checkbox will either show or hide the password. Clicking on the Password will open a window for you to log in to your camera's configuration interface. Then, it will open the Maintenance > Admin page where you can change your Password.

mydlink No.: Displays the mydlink number of your device.

Model Name: Displays the model name of your device.

MAC Address: Displays the MAC address of your device.

Device activated On: Displays the time and date that your device was added to mydlink.

Support: This section provides you with links to various support websites and downloads related to your product.

The screenshot shows the mydlink portal interface. At the top right, it says "Welcome, David" and "My Devices | My Profile | Sign out". The main content area is titled "My Devices" and has a "Delete Device" button. There are three device entries listed on the left, each with a camera icon and a status indicator (green checkmark or red X). The selected device is DCS-930L with mydlink No. 12345678. The "Camera Info" tab is active, showing the following information:

Basic Information	
Device Name:	DCS-930L
Camera Password:	***** <input type="checkbox"/> Show Password
mydlink No.:	12345678
Model Name:	DCS-930L
MAC:	1CBDB98C1631
Device activated on:	2010-06-23 14:57:09

Below the basic information, there is a "Support" section with links for "Download" and "FAQ".

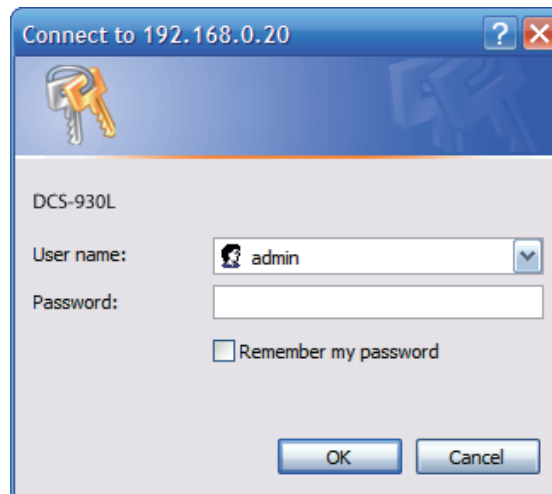
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Configuration

Using the Configuration Menu

After completing the Camera Installation Wizard, you are ready to use your camera. The camera's built-in Web configuration utility is designed to allow you to easily access and configure your DCS-930L. At the end of the wizard, click **Go To Camera**, or enter the IP address of your camera into a web browser, such as Internet Explorer®. To log in, use the User name **admin** and the password you created in the Installation Wizard. If you did not create a password, the default password is blank. After entering your password, click **OK**.

Note: If you are directly connecting your PC to the camera, or if you are using the camera on a closed network, the default IP is **192.168.0.20**.



Section 4 - Configuration

Please make sure that you have the latest version of Java application installed on your computer to ensure proper operation when viewing the video in Java mode. The Java application can be downloaded at no cost from Sun's web site (<http://www.java.com>).

When you connect to the home page of your camera, you will be prompted to download ActiveX. If you want to use ActiveX to view your video images instead of Java, then you must download ActiveX.

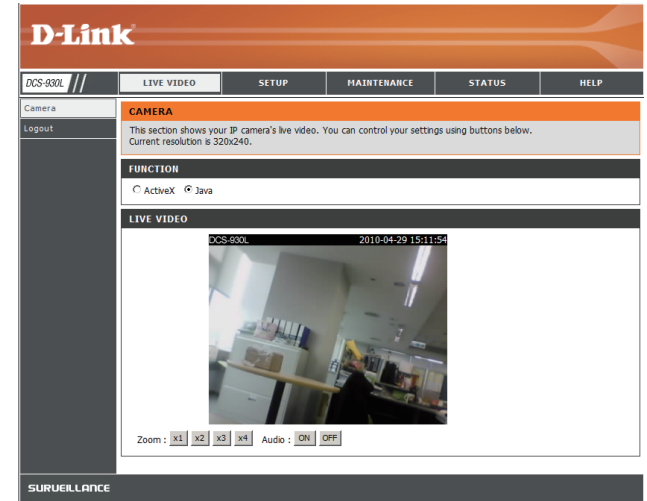
Function: Click the **ActiveX** or **Java** radio button to view live video.

The screenshot displays the D-Link web interface for the DCS-930L camera. The top navigation bar includes the D-Link logo and menu items: LIVE VIDEO (selected), SETUP, MAINTENANCE, STATUS, and HELP. A left sidebar contains links for Camera and Logout. The main content area is titled 'CAMERA' and contains the following text: 'This section shows your IP camera's live video. You can control your settings using buttons below. Current resolution is 320x240.' Below this is a 'FUNCTION' section with two radio buttons: 'ActiveX' (selected) and 'Java'. The 'LIVE VIDEO' section features a video player window showing a live feed of an office interior. The video player has a timestamp '2010-04-29 15:11:35' and the camera ID 'DCS-930L' in the top left corner. The video shows a person sitting at a desk in an office environment. At the bottom of the interface, the word 'SURVEILLANCE' is displayed.

Live Video

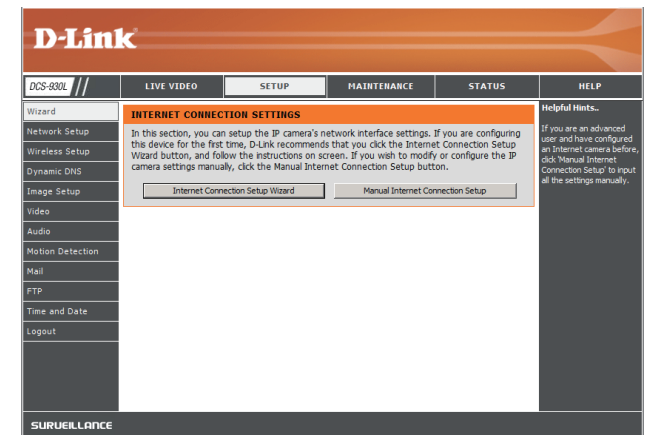
ActiveX: For Windows® Users that do not have Java installed, please choose this option to view video streaming on the Live Video page.

Java: For Windows® users that have Java installed, you can also use this for viewing video. Mac users must choose this mode to view video.



Setup Wizard

You may choose to configure your network by using the **Internet Connection Setup Wizard** that includes step-by-step instructions. Otherwise, you may manually configure your connection using the **Manual Internet Connection Setup**.



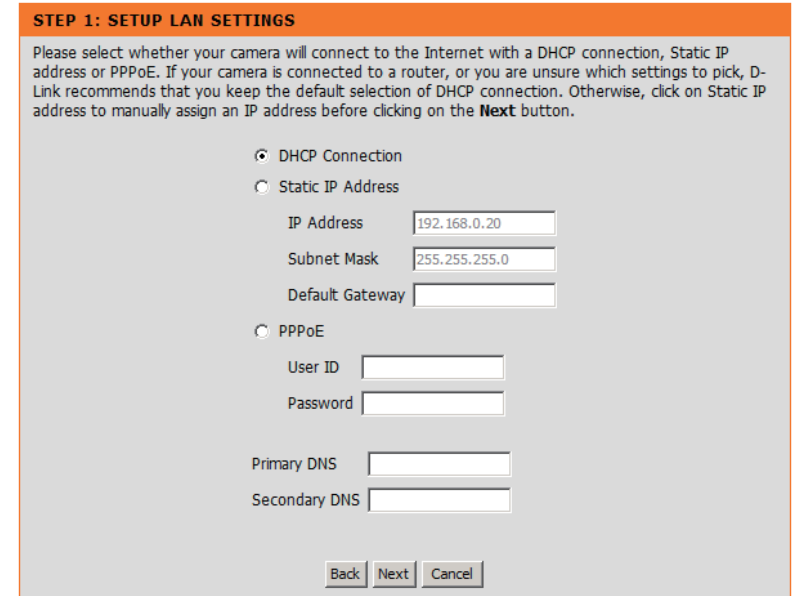
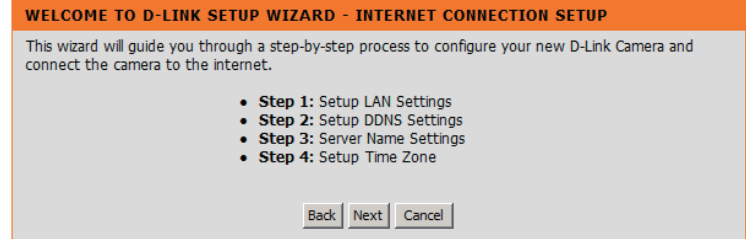
Internet Connection Setup Wizard

This wizard will guide you through a step-by-step process to configure your new D-Link Camera and connect the camera to the Internet.

Click **Next** to continue.

- **DHCP Connection** (by default), where your DHCP server will automatically assign dynamic IP to your device.
- **Static IP Address** allows you to manually enter your network settings for the camera.
- **PPPoE connection**, where your camera is directly connected to the Internet through a DSL modem.

Note: Input the DNS information if you have chosen and assigned a Static IP Address for your camera.



Section 4 - Configuration

Click **Next** to continue.

If you have a Dynamic DNS account and would like the camera to update your IP address automatically, enable **DDNS** and enter your host information.

Click **Next** to continue.

Enter a name for your camera. Click **Next** to continue.

Configure the correct time to ensure that all events triggered, captured and scheduled at the right time. Click **Next** to continue.

This page displays your configured settings. Click **Apply** to save and activate the setting, or **Back** to change your settings.

STEP 2: SETUP DDNS SETTINGS

If you have a Dynamic DNS account and would like your camera to update the IP address automatically, enable DDNS and enter your host information below. Click on the **Next** button to continue.

Enable

Disable

Server Address <<

Host Name

User Name

Password

Timeout hours

STEP 3: SERVER NAME SETTINGS

D-Link recommends that you rename your camera for easy accessibility. Please assign a name of your choice before clicking on the **Next** button.

Camera Name

STEP 4: SETUP TIME ZONE

Please configure the correct time to ensure that all events are triggered, captured and scheduled at the correct time and day and then click on the **Next** button.

Current Time 29 Apr 2010 10:12:33 A.M.

Time Zone

STEP 5: SETUP COMPLETE

Here is a summary of your camera settings. Click **Back** to review or modify the settings, or click **Apply** if all settings are correct. It is recommended to note down this information for future access or reference.

IP Address	DHCP Connection
IP Camera Name	DCS-930L
Time Zone	(GMT-05:00) Eastern Time (US & Canada)
DDNS	Disable

Network Setup

This section allows you to configure your network settings.

DHCP: Select this connection if you have a DHCP server running on your network and would like a dynamic IP address to be updated to your camera automatically.

Static IP Client: You may obtain a static or fixed IP address and other network information from your network administrator for your camera. A static IP address will ease you for accessing your camera in the future.

IP Address: The fixed IP address

Subnet Mask: The default value is "255.255.255.0." Used to determine if the destination is the same subnet.

Default Gateway: The gateway used to forward frames to destinations in a different subnet. Invalid gateway settings may cause the failure of transmissions to a different subnet.

Primary DNS: Primary domain name server that translates names to IP addresses.

Secondary DNS: Secondary domain name server to backup the Primary DNS.

PPPoE Settings: PPPoE settings:if you are using a PPPoE connection, enable it and enter the User Name and Password for your PPPoE account. You can get this information from your Internet service provider (ISP).

Port Settings: You may configure a Second HTTP port that will allow you to connect to the camera via a standard web browser. The port can be set to a number other than the default TCP ports 80. A corresponding port must be opened on the router. For example, if the port is changed to 1010, users must type **http://192.168.0.100:1010** instead of only "http://192.168.0.100".

UPnP Settings: Enable this setting to configure your camera as an UPnP device in the network.

D-Link

DCS-930L // LIVE VIDEO SETUP MAINTENANCE STATUS HELP

NETWORK SETUP
You can configure your LAN and Internet settings here.
Save Settings Don't Save Settings

LAN SETTINGS

DHCP Connection Static IP Address PPPoE

IP Address User ID

Subnet Mask Password

Default Gateway

Primary DNS

Secondary DNS

PORT SETTINGS

HTTP Port

UPnP SETTINGS

UPnP Enable Disable

UPnP Port Forwarding Enable Disable

Save Settings Don't Save Settings

Helpful Hints..
Select "DHCP Connection" if you are running a DHCP server on your network and would like an IP address assigned to your camera automatically. You may choose to manually enter a Static IP Address and all the relevant network information or select PPPoE if you connect your DCS-930 directly to the Internet that uses a PPPoE service. If you choose PPPoE you must enter the user ID and password that was given by your Internet Service Provider.
DNS (Domain Name System) server is an Internet service that translates domain names (i.e. www.dlink.com) into IP addresses (i.e. 192.168.0.20). The IP addresses can be obtained from your ISP.
Primary DNS: Primary domain name server that translates names to IP addresses.
Secondary DNS: Secondary domain name server to backup the primary one.

Wireless

This section allows you to setup and configure the wireless settings on your camera.

SSID: Service Set Identifier, an identifier for your wireless network.

Channel: The default setting is channel 6. Select the same channel that is using by other wireless devices within your network. When there is interference from the wireless networks that overlap with one another, you may change the channel to obtain maximum performance for your connection.

Connection Mode: **Infrastructure** is a wireless connection using an access point as a transmission point of all wireless devices. **Ad-Hoc** is a wireless connection used without an access point, where your DCS-930L is directly connecting to your PC. This is done using the on-board wireless adapter on the DCS-930L connected to a wireless adapter on the PC.

Site Survey: This page will allow you to select a wireless network that the DCS-930L was able to detect.

Wireless Security Mode: For security, there are three choices; **None**, **WEP**, and **WPA-PSK / WPA2-PSK**. Select the same encryption method that is being used by your wireless device/ router.

WEP: WEP provides security by encrypting data over your wireless network so that it is protected as it is transmitted from one wireless device to another. To gain access to a WEP network, you must know the key. The key is a string of characters that you create. When using WEP, you must determine the level of encryption. The type of encryption determines the key length. 128-bit encryption requires a longer key than 64-bit encryption.

WPA-PSK / WPA2PSK An appropriate **Preshared Key**, which is needed in order to connect to the wireless network.
Settings:

The screenshot shows the D-Link web interface for the DCS-930L camera. The top navigation bar includes 'LIVE VIDEO', 'SETUP', 'MAINTENANCE', 'STATUS', and 'HELP'. The 'SETUP' menu is expanded to show 'Wireless Setup'. The main content area is titled 'WIRELESS SETUP' and contains the following sections:

- WIRELESS SETUP:** A header section with a sub-header 'WIRELESS SETUP' and a description: 'In this section, you can setup and configure the wireless settings on your camera.' It includes 'Save Settings' and 'Don't Save Settings' buttons.
- WIRELESS SETTINGS:** A section with a sub-header 'WIRELESS SETTINGS' and a radio button to 'Enable' wireless settings.
- BASIC WIRELESS SETTINGS:** A section with a sub-header 'BASIC WIRELESS SETTINGS' containing:
 - SSID: A text input field with 'dlink' entered.
 - Channel: A dropdown menu showing '6'.
 - Connection Mode: Radio buttons for 'Infrastructure' (selected) and 'Ad-Hoc'. A 'Site survey' button is located below these options.
- WIRELESS SECURITY MODE:** A section with a sub-header 'WIRELESS SECURITY MODE' and radio buttons for 'None', 'WEP', and 'WPA-PSK / WPA2-PSK' (selected).
- WPA-PSK / WPA2-PSK SETTINGS:** A section with a sub-header 'WPA-PSK / WPA2-PSK SETTINGS' and a 'Pre-Shared Key' text input field containing 'PSK12345'.

On the right side of the interface, there is a 'Helpful Hints...' sidebar with text explaining how to enable wireless settings and choose a channel number for better performance.

DDNS

This section allows you to configure the DDNS setting for your camera. DDNS will allow all users to access your camera using a domain name instead of an IP address.

The screenshot shows the D-Link DCS-930L web interface. At the top is the D-Link logo. Below it is a navigation bar with tabs for LIVE VIDEO, SETUP, MAINTENANCE, STATUS, and HELP. The SETUP tab is active. On the left is a sidebar menu with options: Wizard, Network Setup, Wireless Setup, Dynamic DNS (highlighted), Image Setup, Video, Audio, Motion Detection, Mail, FTP, Time and Date, and Logout. The main content area is titled 'DYNAMIC DNS' and contains the following text: "The Dynamic DNS feature allows you to host a server (Web, FTP, Camera , etc...) using a domain name that you have purchased (www.whateveryournameis.com) from your broadband Internet Service Provider (ISP). Using a DDNS service, your friends can enter your host name to connect to your IP Camera regardless of your IP address." Below this text are two buttons: 'Save Settings' and 'Don't Save Settings'. Below that is the 'DYNAMIC DNS SETTING' section, which includes radio buttons for 'Enable' and 'Disable' (selected), and input fields for 'Server Address', 'Host Name', 'User Name', 'Password', and 'Timeout' (set to 576 hours). At the bottom of this section are two buttons: 'Save Settings' and 'Don't Save Settings'. On the right side of the main content area is a 'Helpful Hints..' section with the following text: "Dynamic DNS is useful if you have a DSL or Cable service provider that changes your modem IP address periodically. This will allow you to assign a website domain name to your camera instead of connecting through an IP address."

DDNS: (Dynamic Domain Name Server) will hold a DNS host name and synchronize the public IP address of the modem when it has been modified. The username and password are required when using the DDNS service.

Enable: Click to enable the DDNS function.

Server Address: Select your Dynamic DNS Server from the pull down menu.

Host Name: Enter the host name of the DDNS server.

User Name: Enter your username or e-mail used to connect to the DDNS.

Password: Enter your password used to connect to the DDNS server.

Image Setup

This section allows you to configure the image settings for your camera.

The screenshot shows the D-Link web interface for the DCS-930L camera. The top navigation bar includes 'LIVE VIDEO', 'SETUP', 'MAINTENANCE', 'STATUS', and 'HELP'. The left sidebar lists various setup options: Wizard, Network Setup, Wireless Setup, Dynamic DNS, Image Setup (selected), Video, Audio, Motion Detection, Mail, FTP, Time and Date, and Logout. The main content area is titled 'IMAGE SETUP' and contains the following text: 'In this section, you can configure the image settings for your camera.' Below this text are two buttons: 'Save Settings' and 'Don't Save Settings'. The 'IMAGE SETTINGS' section includes:

- Enable Anti Flicker:
- Flip Image:
- Mirror:
- Brightness Control: +0 (dropdown)
- Contrast Control: +0 (dropdown)
- Saturation Control: +0 (dropdown)

 At the bottom of the settings area are two buttons: 'Save Settings' and 'Don't Save Settings'. The right sidebar, titled 'Helpful Hints..', contains the following information:

- Anti Flicker** - This feature will help to offset the interference of the lighting system and avoid the image flicker issue. ONLY use this option when it is necessary.
- Flip Image** - Flip the image vertically.
- Mirror** - Flip the image horizontally.
- Brightness, Contrast, or Saturation Control** - There are 11 settings (-5 to 5).
- Note:** Please wait a few seconds for the camera to adjust the image after the setting has been selected.

 The bottom of the page features a 'SURUEILLANCE' banner.

Enable Antiflicker: Select this box to enable antiflicker.

Flip Image: Select this box to vertically flip the video. If the camera is installed upside down, Flip Image and Mirror should both be checked.

Mirror: Horizontally flip the video.

Brightness Control: Allows you to adjust the brightness level.

Contrast Control: Allows you to adjust the contrast level.

Saturation Control: Allows you to adjust the saturation level.

Video

This section allows you to configure the video settings for your camera.

VIDEO

In this section, you can configure the camera video quality, resolution, and frame rate.

VIDEO PROFILE

Encode Type	Resolution	FPS	Jpeg Quality	View Mode
JPEG	320 x 240 ▾	Auto ▾	Medium ▾	Image ▾

LIGHT FREQUENCY

50 Hz
 60 Hz

Video Configuration

Video Profile: This section allows you to change the **Encode Type**, **Resolution**, **FPS**, and **Quality**.

Encode Type: The compression format used when viewing your camera.

Resolution: Select the desired video resolution from three formats: 640x480, 320x240, and 160x120. The higher setting can obtain better quality. However, it will use more resource within your network.

FPS: Select the optimal setting depending on your network status. Please note that the higher setting can obtain better quality. However, it will use more resources within your network.

JPEG Quality: Select one of five levels of image quality: Highest, High, Medium, Low, and Lowest.

View Mode: Select the mode for viewing the camera image. Select Image for a still images, ActiveX for Internet Explorer, or Java for other web browsers.

Light Frequency: Select the proper frequency (50Hz or 60Hz) to reduce image flicker.

Audio

Enabling audio setting will allow you to listen to audio from the camera through your PC's audio output.

Note: Please wait a few seconds for the camera to adjust the audio after the setting has been selected.

Audio Settings: You may **Enable** or **Disable** the camera audio feed.

Volume Settings: Select the desired volume percentage level.

The screenshot displays the D-Link DCS-930L web interface. The top navigation bar includes 'LIVE VIDEO', 'SETUP', 'MAINTENANCE', 'STATUS', and 'HELP'. The 'SETUP' menu is expanded, showing options like Wizard, Network Setup, Wireless Setup, Dynamic DNS, Image Setup, Video, Audio, Motion Detection, Mail, FTP, Time and Date, and Logout. The 'Audio' section is selected, showing 'AUDIO SETTINGS' with 'Enable' selected and 'Disable' unselected. Below it, 'VOLUME SETTINGS' shows a dropdown menu set to '100'. 'Save Settings' and 'Don't Save Settings' buttons are present. A 'Helpful Hints..' sidebar on the right contains a note: 'Enabling audio setting will allow you to listen to audio from the camera through your PC's audio output. Note: Please wait a few seconds for the camera to adjust the audio after the setting has been selected.'

Motion Detect

Enabling Video Motion will allow your camera to use the motion detection feature. You may draw a finite motion area that will be used for monitoring.

Motion Detection: Select this box to enable the motion detection feature of your camera.

Sensitivity: Specifies the measurable difference between two sequential images that would indicate motion. Please enter a value between 0 and 100.

Detection Areas: Use your mouse to click on the blocks that you would like to monitor for motion.

The screenshot displays the D-Link web interface for the DCS-930L camera. The top navigation bar includes 'LIVE VIDEO', 'SETUP', 'MAINTENANCE', 'STATUS', and 'HELP'. The 'SETUP' menu is expanded to show 'MOTION DETECTION'. The main content area is titled 'MOTION DETECTION' and contains the following settings:

- Motion Detection:** Enable Disable
- Sensitivity:** 90 % (0~100%, high sensitivity makes the motions easier to be detected.)
- Detection Areas:** Use mouse to click the blocks where you want to monitor for motion.

A live video feed is shown with a blue grid overlay indicating the detection area. The interface also includes 'Save Settings' and 'Don't Save Settings' buttons at the bottom of the settings section and a 'SURVEILLANCE' label at the bottom of the page.

Mail

This section allows you to configure the email notification settings for your camera.

SMTP Server Address: This is the domain name or IP address of your external e-mail server.

Sender e-mail Address: This is the e-mail address of the person sending the camera snapshots.

Receiver e-mail Address: This is the e-mail address of the recipient.

User Name: If the SMTP server uses authentication, you must enter your user name here.

Password: This is the password that corresponds to your user name to connect to the SMTP server.

For example, if you want to use Gmail by SSL-TLS for the e-mail notification, you can follow the setup procedure as below:

Step 1 - Enter "smtp.gmail.com" in SMTP Server Address.

Step 2 - Change the SMTP server port number from 25 to **465**.

Step 3 - Enter your gmail E-mail address in Sender E-mail Address.

Step 4 - Enter the destination E-mail address in Receiver E-mail Address.

Step 5 - Enter the user name required to access the SMTP server.

Step 6 - Enter the password required to access the SMTP server.

Step 7 - Select **SSL-TLS** and then click **Save Settings**.

Step 8 - Click the **Test** button to send a test e-mail will be sent to the e-mail account listed above.

Note: You can also use **STARTTLS** which will use SMTP server port number **587**.

Note: If you want to use the Yahoo SMTP server, the SMTP server address will be different between each registered region. And it only supports the SMTP server port number **465** for the **SSL-TLS**.

MAIL

This section allows you to setup and configure the email notification settings for your camera. If your details change or you are experiencing issues with alert notifications, you may need to modify these settings.

E-MAIL ACCOUNT

SMTP Server Address	<input type="text"/>	
SMTP Server Port	<input type="text" value="25"/>	(Default is 25)
Sender E-mail Address	<input type="text"/>	
Receiver E-mail Address	<input type="text"/>	
User Name	<input type="text"/>	
Password	<input type="password"/>	
Use SSL-TLS/STARTTLS	<input type="radio"/> No <input type="radio"/> SSL-TLS <input checked="" type="radio"/> STARTTLS	

TIME SCHEDULE

Enable emailing images to email account

Always

Schedule

Day	<input type="checkbox"/> Mon	<input type="checkbox"/> Tue	<input type="checkbox"/> Wed	<input type="checkbox"/> Thu	<input type="checkbox"/> Fri	<input type="checkbox"/> Sat	<input type="checkbox"/> Sun
Time Period Start :	<input type="text" value="00:00:00"/>		(Example : 06:30:00)				
Stop :	<input type="text" value="00:00:00"/>		(Example : 22:30:00)				

Motion Detection

- E-mail motion frame immediately
- E-mail attached with 6 frames (3 frames before and 3 frames after motion frame)

Frame interval time : second

E-mail Interval Seconds

TEST E-MAIL ACCOUNT

A test e-mail will be sent to the e-mail account listed above.

Time Schedule

Enable e-mail image Choosing **Always** will start sending snapshots to the recipient's e-mail account right away. Choosing **Schedule** will allow you to schedule **to e-mail account:** when to start and stop the sending of snapshots to the recipient's e-mail account.

Select Motion Detection if you would like to camera sending image to the recipient's email account when the motions are detected.

Interval: The frequency of the snapshot interval can also be configured from 1 to 65535 seconds.

Test E-mail This will send a snapshot to the e-mail account that you have configured in the **E-mail** section. If you have configured the SMTP account **Account:** correctly, you will be able to send a test file to the e-mail account of the recipient.

FTP

This section allows you to configure a FTP server to receive images from the camera.

Host Address: This is the IP address of the FTP server that you will be connecting to.

Port Number: Default is port 21. If changed, external FTP client program must change the server connection port accordingly.

User Name: Specifies the user name to access the external FTP server. If you are to upload snapshots to an FTP server you will need to fill in the Domain name or IP address of your external FTP server. The following user settings must be correctly configured for remote access.

Password: Specifies the password to access the external FTP server.

Directory Path: Specifies the destination folder in the external FTP server.

Passive Mode: Enabling passive mode will allow access to an external FTP server if your camera is behind a router protected by a firewall.

FTP SERVER

Host Name	<input style="width: 95%;" type="text"/>	
Port	<input style="width: 80%;" type="text" value="21"/>	(Default is 21)
User Name	<input style="width: 95%;" type="text"/>	
Password	<input style="width: 95%;" type="password"/>	
Path	<input style="width: 95%;" type="text"/>	
Passive Mode	<input type="radio"/> Yes <input checked="" type="radio"/> No	

TIME SCHEDULE

Enable uploading images to the FTP server

Always

Schedule

Day Mon Tue Wed Thu Fri Sat Sun

Time Period Start : (Example : 06:30:00)

Stop : (Example : 22:30:00)

Motion Detection

Image Frequency 1 Frames/Second
 1 Seconds/Frame

Base File Name

File

Overwrite

Date/Time Suffix

Create subfolder by

Sequence Number Suffix Up to

TEST FTP SERVER

A JPEG file will be sent to the above FTP server for testing.
(File name: test_date_time.jpg)

Time Schedule

Enable upload image to FTP server: Checking this box will enable video uploads to the FTP server you have selected.

Always: Selecting this option allows snapshots to be uploaded to your FTP as soon as you click **Apply**.

Schedule: Selecting this option allows you to configure specific times when you want the snapshots to be uploaded to your FTP server.

Image Frequency: Users can select in frames per second (1, 2, 3 or auto, in auto this could go to 4). The user can also select a duration for each frame from 1 to 65535 seconds.

Base File Name: This will be the name that precedes the time, for example DCS9302010072116425101.jpg. This means that the camera took a snapshot in the year 2010, July 21 at 16th hour (4 o'clock), 42 minutes and 51 seconds and it is picture number one.

File: Select **Overwrite** and there will be only one images that are constantly refreshed. Select **Date/Time Suffix** and the pictures will be named with a date and time (may refer to **Base File Name**). Enable the **Create subfolder function**, the system will auto create the subfolder by **0.5 hour, 1 hour or 1 day**. An example of this can be seen above under the **Base file name** category. Select **Sequence Number Suffix up to 1024** and all the pictures will be numbered from 1-1024. The total amount of pictures can be configured up to 1024 pictures.

Test FTP Server: This will send a snapshot to the FTP server that you have configured in the **Upload** section. If you have configured the FTP correctly, you will be able to see a test file on your FTP server.

Time and Date

This section allows you to configure the settings of the internal system clocks for your camera.

Time Zone: Select the time zone for your region from the drop down menu.

Synchronize NTP Server: Network Time Protocol will synchronize your camera with an Internet time server. Choose the one that is closest to your camera.

Copy your Computer's Time Settings: Click to synchronize the time information from your PC.

Set the Date and Time Manually: Select this to set the time manually.

TIME AND DATE

The Time Configuration option allows you to configure, update, and maintain the internal system clock. From this section you can set the time zone that you are in, and set the NTP (Network Time Protocol) Server.

TIME CONFIGURATION

Current Time 29 Apr 2010 3:14:16 P.M.
Time Zone

AUTOMATIC TIME CONFIGURATION

Synchronize NTP Server
NTP Server Used <<

SET THE DATE AND TIME MANUALLY

Year Month Day
Hour Minute Second

Maintenance

Admin

This section allows you to change the administrator's password and configure the server settings for your camera. You can also manage the user account(s) that access to your camera.

Camera Name: Specify a name for your camera

LED Control: Select **Normal** to enable the LED on the front of the device, or select off to disable the LED.

User Access Control: Select **Enable** to enable user access control or Disable to allow only the administrator account to access the camera.

Snapshot URL Authentication: Select **Enable** to allow access to the current camera snapshot via the web address indicated.

Add User Account: Create new user for accessing the video image. Enter the user name, password, and password confirmation, and click **Add**. A maximum of 8 user accounts can be added into the user list.

User List: Displays the account names of authorized users.

ADMIN

Here you can change the administrator's password and configure the server setting for your camera. You can also add, modify and/or delete the user account(s).

ADMIN PASSWORD SETTING

Old Password

New Password

Retype Password

SERVER SETTING

Camera Name

LED Control Normal Off

User Access Control Enable Disable

Snapshot URL Authentication Enable Disable (http://172.17.5.72/image/jpeg.cgi)

ADD USER ACCOUNT

User Name

Password

Retype Password

USER LIST

no.	name	modify	delete
1	Ronald		

System

This section allows you to save and restore your configuration, restore the factory settings, and/or restart the camera.

The screenshot displays the SYSTEM configuration page. At the top, there is an orange header with the word "SYSTEM" in white. Below this is a grey box containing the text: "Here you can save and restore your configuration, restore the factory settings, and/or restart the camera." The main content area has a dark grey header with "SYSTEM" in white. Below the header, there are four rows of controls:

Save To Local Hard Drive	<input type="button" value="Save Configuration"/>
Load From Local Hard Drive	<input type="text"/> <input type="button" value="Browse..."/> <input type="button" value="Restore Configuration From File"/>
Restore To Factory Default	<input type="button" value="Restore Factory Defaults"/>
Reboot The Device	<input type="button" value="Reboot the Device"/>

Firmware Upgrade

Your current firmware version and date will be displayed on your screen. You may go to the D-Link Support Page to check for the latest firmware versions available.

To upgrade the firmware on your DCS-930L, please download and save the latest firmware version from the D-Link Support Page to your local hard drive. Locate the file on your local hard drive by using the **Browse** button. Then, click the **Upload** button to start the firmware upgrade.

The screenshot displays the D-Link web interface for the DCS-930L camera. The top navigation bar includes 'LIVE VIDEO', 'SETUP', 'MAINTENANCE', 'STATUS', and 'HELP'. The 'MAINTENANCE' tab is selected. On the left, a sidebar menu shows 'Admin', 'System', 'Firmware Upgrade', and 'Logout'. The main content area is titled 'FIRMWARE UPGRADE' and contains the following text:

A new firmware upgrade may be available for your camera. It is recommended to keep your camera firmware up-to-date to maintain and improve the functionality and performance of your internet camera. Click here [D-Link Support Page](#) to check for the latest firmware version available.

To upgrade the firmware on your IP camera, please download and save the latest firmware version from the D-Link Support Page to your local hard drive. Locate the file on your local hard drive by clicking the Browse button. Once you have found and opened the file using the browse button, click the **Upload** button to start the firmware upgrade.

Below this text is a section titled 'FIRMWARE INFORMATION' with the following details:

Current Firmware Version :	1.00
Current Firmware Date :	2010-04-29

At the bottom of the main content area is another 'FIRMWARE UPGRADE' section with a 'File Path' label, a text input field, a 'Browse...' button, and an 'Upload' button.

On the right side of the interface, there is a 'Helpful Hints..' section with the following text:

Firmware updates are released periodically to improve the functionality of your IP camera and also to add new features. If you run into a problem with a specific feature of the IP camera, check our support site by clicking [here](#) and see if updated firmware is available for your IP camera.

Device Info

This section displays all the details information about your device and network settings.

DEVICE INFO

All of your network connection details are displayed on this page. The firmware version is also displayed here.

BASIC INFORMATION

Camera Name	DCS-930L
Time & Date	03 May 2010 11:06:11 A.M.
Firmware Version	0.80 (2010-04-29)
IP Address	172.17.5.72
Subnet Mask	255.255.255.0
Default Gateway	172.17.5.254
Primary DNS	192.168.168.250
Secondary DNS	192.168.168.201
DDNS	Disable
FTP Server Test	No test conducted.
E-mail Test	No test conducted.

WIRELESS STATUS

Connection Mode	Infrastructure
Link	No
SSID	dlink (MAC : 00 00 00 00 00 00)
Channel	6
Encryption	WPA2PSK-AES

Refresh

Active User

This page lists all the active user's information including the User Name, IP address, and the time that camera access began.

ACTIVE USER

This page lists all the active user's informations include user name, IP address and the time start accessing the camera.

USER LIST			
no.	user name	IP address	time
1	Ronald	172.17.5.95	2010-05-03 11:12:35

Refresh

Wireless Security

This section will show you the different levels of security you can use to protect your data from intruders.

The DCS-930L offers the following types of security:

- WPA-PSK (Pre-Shared Key)
- WEP (Wired Equivalent Privacy)

What is WEP?

WEP stands for Wired Equivalent Privacy. It is based on the IEEE 802.11 standard and uses the RC4 encryption algorithm. WEP provides security by encrypting data over your wireless network so that it is protected as it is transmitted from one wireless device to another.

To gain access to a WEP network, you must know the key. The key is a string of characters that you create. When using WEP, you must determine the level of encryption. The type of encryption determines the key length. 128-bit encryption requires a longer key than 64-bit encryption. Keys are defined by entering in a string in HEX (hexadecimal - using characters 0-9, A-F) or ASCII (American Standard Code for Information Interchange – alphanumeric characters) format. ASCII format is provided so you can enter a string that is easier to remember. The ASCII string is converted to HEX for use over the network. Four keys can be defined so that you can change keys easily.

What is WPA?

WPA, or Wi-Fi Protected Access, is a Wi-Fi standard that was designed to improve the security features of WEP (Wired Equivalent Privacy).

The 2 major improvements over WEP:

Improved data encryption through the Temporal Key Integrity Protocol (TKIP). TKIP scrambles the keys using a hashing algorithm and, by adding an integrity-checking feature, ensures that the keys haven't been tampered with. WPA2 is based on 802.11i and uses Advanced Encryption Standard instead of TKIP.

User authentication, which is generally missing in WEP, through the extensible authentication protocol (EAP). WEP regulates access to a wireless network based on a computer's hardware-specific MAC address, which is relatively simple to be sniffed out and stolen. EAP is built on a more secure public-key encryption system to ensure that only authorized network users can access the network.

WPA-PSK/WPA2-PSK uses a passphrase or key to authenticate your wireless connection. The key is an alpha-numeric password between 8 and 63 characters long. The password can include symbols (!?*&_) and spaces. This key must be the exact same key entered on your wireless router or access point.

Configuring the DCS-930L with a Router

D-Link's DCS-930L is a versatile and cost effective Network Camera offering both video and audio monitoring. It can also serve as a powerful surveillance system in security applications. The DCS-930L can be used with any wired or 802.11n/g wireless router. This section explains how to view the camera from either the Internet or from inside your internal network.

Components Needed:

- 1 DCS-930L Network Camera
- 1 Ethernet Cable
- A Wired or Wireless router such as the D-Link DIR-655 Wireless Router
- Ethernet based PC for system configuration

Setting up the DCS-930L for Use Behind a Router

Installing a DCS-930L Network Camera on your network is an easy 4–step procedure:

1. Assign a local IP address to your network camera.
2. View the network camera using your Internet Explorer web browser.
3. Access the router with your web browser.
4. Open virtual server ports to enable remote image viewing.

Note: *These are manual steps; however, if you decide to use the wizard, it will perform every step automatically.*

This section is designed to walk you through the setup process for installing your camera behind a router and enable remote video viewing. For the basic setup of the DCS-930L, follow the steps outlined in the Quick Installation Guide.

After you have completed the setup of the DCS-930L outlined in the Quick Installation Guide you will have an operating camera that has an assigned IP Address. Because you are using a router to share the Internet with one or more PCs, the IP Address assigned to the Network Camera will be a local IP Address. This allows viewing within your Local Area Network (LAN) until the router is configured to allow remote viewing of the camera over the Internet.

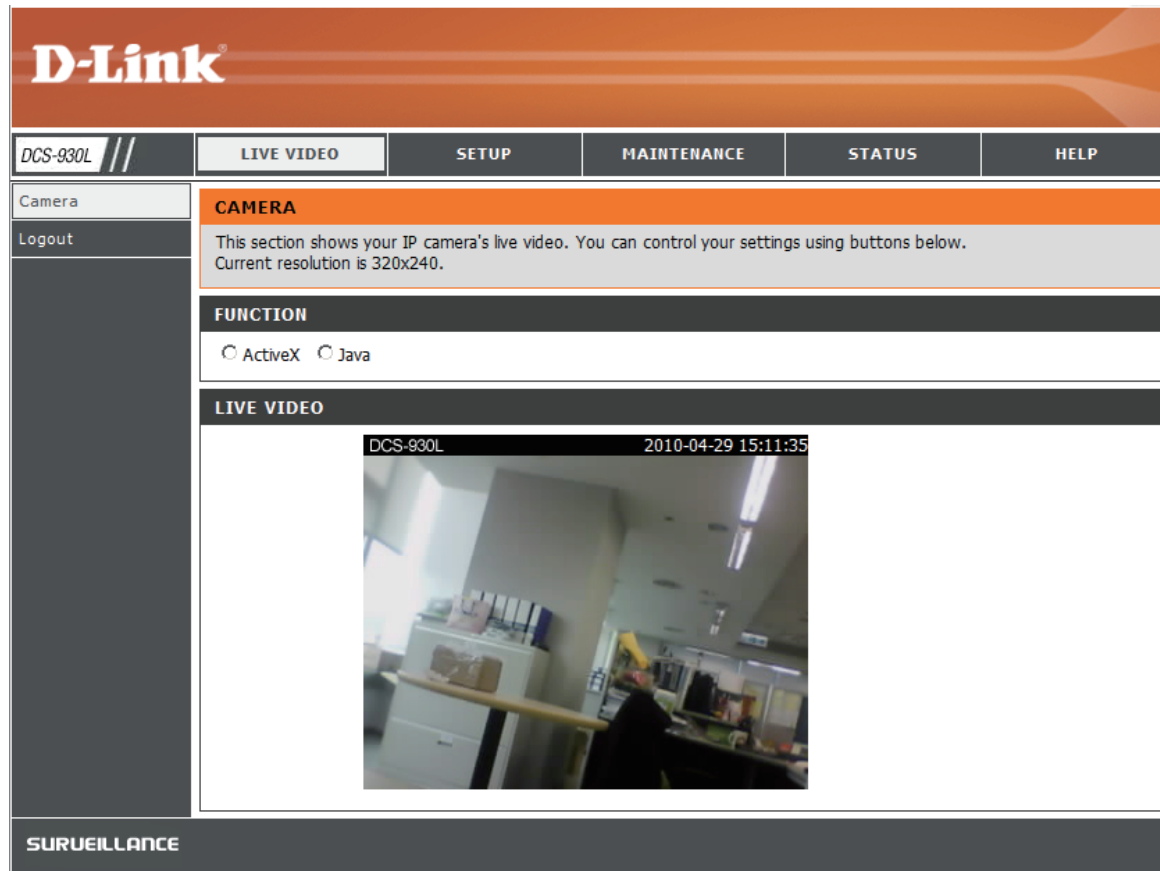
1. Assign a Local IP Address to Your Camera

Run the setup wizard from the CD included with the DCS-930L. Follow the steps in the Quick Installation Guide to configure the DCS-930L. The camera will be assigned a local IP Address that allows it to be recognized by the router. Write down this IP Address for future reference.

2. View the Network Camera Using Your Internet Explorer Web Browser

Run your Internet Explorer Web browser. In the address bar, type in the IP Address that was assigned to the Network Camera by the DCC program. The DCS-930L Live Video Page appears with a window displaying live video from the camera. You are able to view this screen from any PC running Internet Explorer on your LAN.

Click on the **Setup** button on the left side of the display. Scroll to the bottom of the Network Setup page to display the ports used by HTTP and Streaming audio and video.



The screenshot displays the D-Link DCS-930L web interface. At the top, the D-Link logo is visible. Below it, a navigation bar contains buttons for LIVE VIDEO, SETUP, MAINTENANCE, STATUS, and HELP. The main content area is divided into sections: CAMERA, FUNCTION, and LIVE VIDEO. The CAMERA section includes a description of the live video and current resolution (320x240). The FUNCTION section has radio buttons for ActiveX and Java. The LIVE VIDEO section shows a live video feed from the camera, with a timestamp of 2010-04-29 15:11:35. The video feed shows an indoor setting with a desk and a person. The bottom of the page features a SURVEILLANCE banner.

The **Setup > Network Setup** page displays the port settings for your camera. If necessary, these ports can be changed if they are already in use by other devices (e.g. in a multiple camera environment).

Note: Both the HTTP port and RTSP port are required to be opened for the DCS-930L.

The screenshot shows the D-Link DCS-930L web interface. At the top, it displays 'Product: DCS-930' and 'Firmware version: 0.80'. The main navigation bar includes 'DCS-930L', 'LIVE VIDEO', 'SETUP', 'MAINTENANCE', 'STATUS', and 'HELP'. The 'SETUP' menu is expanded to show 'Wizard', 'Network Setup', 'Wireless Setup', 'Dynamic DNS', 'Image Setup', 'Video', 'Audio', 'Motion Detection', 'Mail', 'FTP', 'Time and Date', and 'Logout'. The 'Network Setup' page is titled 'NETWORK SETUP' and contains the following sections:

- LAN SETTINGS:** Includes radio buttons for 'DHCP Connection' (selected), 'Static IP Address', and 'PPPoE'. Fields for IP Address (192.168.0.20), Subnet Mask (255.255.255.0), Default Gateway, User ID, and Password are present. There are also fields for Primary DNS and Secondary DNS.
- PORT SETTINGS:** Includes a field for 'HTTP Port' set to 80.
- UPnP SETTINGS:** Includes radio buttons for 'UPnP' (selected 'Enable') and 'UPnP Port Forwarding' (selected 'Disable').

At the bottom of the settings area are 'Save Settings' and 'Don't Save Settings' buttons. On the right side, there is a 'Helpful Hints..' section with text explaining DHCP Connection, Static IP Address, and PPPoE, and a 'DNS' section explaining Primary and Secondary DNS servers.

Router Set-Up and Installation

The following steps generally apply to any router that you have on your network. The D-Link DIR-655 is used as an example to clarify the configuration process. Configure the initial settings of the DIR-655 by following the steps outlined in the DIR-655 Quick Installation Guide.

3. Access the Router with Your Web Browser

If you have cable or DSL Internet service, you will most likely have a dynamically assigned WAN IP Address. 'Dynamic' means that your router's WAN IP address can change from time to time depending on your ISP. A dynamic WAN IP Address identifies your router on the public network and allows it to access the Internet. To find out what your router's WAN IP Address is, go to the Status menu on your router and locate the WAN information for your router (as shown on the next page). The WAN IP Address will be listed. This will be the address that you will need to type in your Web browser to view your camera over the Internet.

Your WAN IP Address will be listed on the router's **Status > Device Info** page.

The screenshot shows the web interface of a D-Link DIR-655 router. The top navigation bar includes tabs for SETUP, ADVANCED, TOOLS, STATUS, and SUPPORT. The left sidebar contains menu items: DEVICE INFO, LOGS, STATISTICS, INTERNET SESSIONS, WIRELESS, and WISH SESSIONS. The main content area is titled 'DEVICE INFORMATION' and contains the following sections:

- GENERAL:** Time: 2007/10/10 PM 10:10:33, Firmware Version: 1.02, 2006/10/13.
- WAN:** Connection Type: DHCP Client, QoS Engine: Active, Cable Status: connected, Network Status: connected, Connection Up Time: N/A. Includes buttons for Renew and Release. MAC Address: 00:19:5B:03:04:E9, IP Address: 210.21.33.48, Subnet Mask: 255.255.255.248, Default Gateway: 210.21.33.254, Primary DNS Server: 168.95.1.1, Secondary DNS Server: 0.0.0.0.
- LAN:** MAC Address: 00:19:5B:03:04:E8, IP Address: 192.168.0.1, Subnet Mask: 255.255.255.0, DHCP Server: Enabled.
- WIRELESS LAN:** Wireless Radio: Enabled, WISH: Active, MAC Address: 00:19:5B:03:04:E8, Network Name (SSID): dlink, Channel: 4, Security Mode: Disabled, Wi-Fi Protected Setup: Enabled/Not Configured.
- LAN COMPUTERS:** A table listing connected devices.

IP Address	Name (if any)	MAC
192.168.0.155	end_user	00:05:5d:ce:b3:8d
- IGMP MULTICAST MEMBERSHIPS:** Multicast Group Address: 239.255.255.250.

On the right side, there is a 'Helpful Hints...' section with a 'More...' link.

Note: Because a dynamic WAN IP can change from time to time depending on your ISP, you may want to obtain a Static IP address from your ISP. A Static IP address is a fixed IP address that will not change over time and will be more convenient for you to use to access your camera from a remote location. The Static IP Address will also allow you to access your camera attached to your router over the Internet.

4. Open Virtual Server Ports to Enable Remote Image Viewing

The firewall security features built into the DIR-655 router prevent users from accessing the video from the DCS-930L over the Internet. The router connects to the Internet over a series of numbered ports. The ports normally used by the DCS-930L are blocked from access over the Internet. Therefore, these ports need to be made accessible over the Internet. This is accomplished using the Virtual Server function on the DIR-655 router. The Virtual Server ports used by the camera must be opened through the router for remote access to your camera. Virtual Server is accessed by clicking on the **Advanced** tab of the router screen.

Follow these steps to configure your router's Virtual Server settings:

1. Click **Enabled**.
2. Enter a different name for each entry.
3. Enter your camera's local IP Address (e.g., 192.168.0.120) in the Private IP field.
4. Select TCP for HTTP port, both (TCP and UDP) for RTSP and both (TCP and UDP) for 5556 - 5559 ports.
5. If you are using the default camera port settings, enter 80 into the Public and Private Port section, click **Apply**.
6. Scheduling should be set to Always so that the camera images can be accessed at any time.

Repeat the above steps adding the port 554 to both the Public and Private Port sections. A check mark appearing before the entry name will indicate that the ports are enabled.

Important: Some ISPs block access to port 80 and other commonly used Internet ports to conserve bandwidth. Check with your ISP so that you can open the appropriate ports accordingly. If your ISP does not pass traffic on port 80, you will need to change the port the camera uses from 80 to something else, such as 800. Not all routers are the same, so refer to your user manual for specific instructions on how to open ports.

Enter valid ports in the Virtual Server section of your router. Please make sure to check the box next to the camera name on the Virtual Server List to enable your settings.

D-Link

DIR-655 // SETUP ADVANCED TOOLS STATUS SUPPORT

VIRTUAL SERVER

The Virtual Server option allows you to define a single public port on your router for redirection to an internal LAN IP Address and Private LAN port if required. This feature is useful for hosting online services such as FTP or Web Servers.

Save Settings Don't Save Settings

24--VIRTUAL SERVERS LIST

	Name	IP Address	Port	Traffic Type	Schedule
<input checked="" type="checkbox"/>	DCS-5220	192.168.0.120	80	TCP	Always
<input checked="" type="checkbox"/>	DCS-5220	192.168.0.120	554	TCP	Always
<input type="checkbox"/>		0.0.0.0	0	TCP	Always

Helpful Hints...

Check the **Application Name** drop down menu for a list of predefined server types. If you select one of the predefined server types, click the arrow button next to the drop down menu to fill out the corresponding field.

You can select a computer from the list of DHCP clients in the **Computer Name** drop down menu, or you can manually enter the IP address of the computer at which you would like to open the specified port.

Select a schedule for when the virtual server will be enabled. If you do not see the schedule you need in

Troubleshooting

This chapter provides solutions to problems that can occur during the installation and operation of the DCS-930L.

Read the following descriptions if you are having problems. (The examples below are illustrated in Windows Vista® and XP. If you have a different operating system, the screenshots on your computer will look similar to the following examples.)

1. What is Remote Access? How do I enable it?

Remote Access allows you to access your camera from any PC connected to the Internet through a web browser. This lets you view your camera feed and manage your camera's settings when you're away from home.

To enable Remote Access, simply go through the Camera Installation Wizard included on the Installation CD that came in your package. You can also download the wizard from the following websites:

DCS-930L: <http://dcs-930L.mydlink.com>

After going through the wizard, you should see Remote Status: Enabled on the summary page.

If you see Remote Status: Disabled, make sure that:

...the front LED on your camera is lit solid green

...your Internet connection is working

...your router's LAN & WAN connections are working properly

...your router has UPnP enabled (if your router does not support UPnP, please refer to Appendix A)

...your router can get a public IP

...your router is upgraded to the latest firmware

...you have tried rebooting your router by unplugging it, then plugging it back in

After checking the above items, you can click the Retry button to refresh the summary screen to see if Remote Access has been enabled.

2. What can I do if I forget my password?

If you forget your password, you will need to perform a hard reset of your camera. This process will change all your settings back to the factory defaults.

To reset your camera, please use an unfolded paperclip to press and hold the RESET button for at least 3 seconds while your camera is plugged in.

3. In addition to using mydlink.com, is there another way to access my camera remotely over the Internet?

Yes, you can access your camera over the Internet through the following URL after successfully installing your camera through the Camera Installation Wizard:

http://[mydlink No.].mydlink.com

For example, if your camera's mydlink No. was 12345678, you would be able to access your camera remotely by opening your web browser and going to <http://12345678.mydlink.com>

This URL will open a webpage where you will be asked to log in by entering your camera's password. After entering your password, your camera's Live View window will open, and you will be able to configure your camera as well.

4. Why does the LED not light up?

The power supply might be faulty. Confirm that you are using the provided DC 5V power supply for this network camera. Verify that the power supply is correctly connected. If the camera is functioning normally, the LED may have been disabled. See page 36 for information about how to enable the LED.

5. Why is the camera's network connection unreliable?

There might be a problem with the network cable. To confirm that the cables are working, PING the address of a known device on the network. If the cabling is OK and your network is reachable, you should receive a reply similar to the following (...bytes = 32 time = 2 ms).

Another possible problem may be that the network device such as a hub or switch utilized by the Network Camera is not functioning properly. Please confirm the power for the devices are well connected and functioning properly.

6. Why does the Network Camera work locally but not remotely?

This might be caused by the firewall protection. Check the Internet firewall with your system administrator. The firewall may need to have some settings changed in order for the Network Camera to be accessible outside your local LAN. For more information, please refer to the section about installing your camera behind a router.

Make sure that the Network Camera isn't conflicting with any Web server you may have running on your network.

The default router setting might be a possible reason. Check that the configuration of the router settings allow the Network Camera to be accessed outside your local LAN.

7. Why does a series of broad vertical white lines appear through out the image?

It could be that the CMOS sensor (a square panel situated behind the lens that measures the light signals and changes it into a digital format so your computer can present it into an image that you are familiar with) has become overloaded when it has been exposed to bright lights such as direct exposure to sunlight or halogen lights. Reposition the Network Camera into a more shaded area immediately as prolonged exposure to bright lights will damage the CMOS sensor.

8. The camera is producing noisy images. How can I solve the problem?

The video images might be noisy if the Network Camera is used in a very low light environment.

9. The images are poor quality, how can I improve the image quality?

Make sure that your computer's display properties are set to at least 6-bit color. Using 16 or 256 colors on your computer will produce dithering artifacts in the image, making the image look as if it is of poor quality.

The configuration on the Network Camera image display is incorrect. The Web Configuration Video section of the Web management allows you to adjust the related-parameters for improved images such as: brightness, contrast, hue and light frequency. Please refer to the Web Configuration section for detailed information.

10. Why are no images available through the Web browser?

ActiveX might be disabled. If you are viewing the images from Internet Explorer make sure ActiveX has been enabled in the Internet Options menu. You may also need to change the security settings on your browser to allow the ActiveX plug-in to be installed.

If you are using Internet Explorer with a version number lower than 6, then you will need to upgrade your Web browser software in order to view the streaming video transmitted by the Network Camera.

Wireless Basics

D-Link wireless products are based on industry standards to provide easy-to-use and compatible high-speed wireless* connectivity within your home, business or public access wireless networks. Strictly adhering to the IEEE standard, the D-Link wireless family of products will allow you to securely access the data you want, when and where you want it. You will be able to enjoy the freedom that wireless networking delivers.

A wireless local area network (WLAN) is a cellular computer network that transmits and receives data with radio signals instead of wires. Wireless LANs are used increasingly in both home and office environments, and public areas such as airports, coffee shops and universities. Innovative ways to utilize WLAN technology are helping people to work and communicate more efficiently. Increased mobility and the absence of cabling and other fixed infrastructure have proven to be beneficial for many users.

Under many circumstances, it may be desirable for mobile network devices to link to a conventional Ethernet LAN in order to use servers, printers or an Internet connection supplied through the wired LAN. A Wireless Router is a device used to provide this link.

What is Wireless?

Wireless or WiFi technology is another way of connecting your computer to the network without using wires. WiFi uses radio frequency to connect wirelessly, so you have the freedom to connect computers anywhere in your home or office network.

Why D-Link Wireless?

D-Link is the worldwide leader and award winning designer, developer, and manufacturer of networking products. D-Link delivers the performance you need at a price you can afford. D-Link has all the products you need to build your network.

How does wireless work?

Wireless works similar to how cordless phone work, through radio signals to transmit data from one point A to point B. But wireless technology has restrictions as to how you can access the network. You must be within the wireless network range area to be able to connect your computer. There are two different types of wireless networks Wireless Local Area Network (WLAN), and Wireless Personal Area Network (WPAN).

Wireless Local Area Network (WLAN)

In a wireless local area network, a device called an Access Point (AP) connects computers to the network. The access point has a small antenna attached to it, which allows it to transmit data back and forth over radio signals. With an indoor access point as seen in the picture, the signal can travel up to 300 feet. With an outdoor access point the signal can reach out up to 30 miles to serve places like

manufacturing plants, industrial locations, college and high school campuses, airports, golf courses, and many other outdoor venues.

Who uses wireless?

Wireless technology has become so popular in recent years that almost everyone is using it, whether it's for home, office, business, D-Link has a wireless solution for it.

Home

- Gives everyone at home broadband access
- Surf the Web, check email, instant message, and etc
- Gets rid of the cables around the house
- Simple and easy to use

Small Office and Home Office

- Stay on top of everything at home as you would at office
- Remotely access your office network from home
- Share Internet connection and printer with multiple computers
- No need to dedicate office space

Where is wireless used?

Wireless technology is expanding everywhere not just at home or office. People like the freedom of mobility and it's becoming so popular that more and more public facilities now provide wireless access to attract people. The wireless connection in public places is usually called "hotspots".

Using a D-Link Cardbus Adapter with your laptop, you can access the hotspot to connect to Internet from remote locations like: Airports, Hotels, Coffee Shops, Libraries, Restaurants, and Convention Centers.

Wireless network is easy to setup, but if you're installing it for the first time it could be quite a task not knowing where to start. That's why we've put together a few setup steps and tips to help you through the process of setting up a wireless network.

Tips

Here are a few things to keep in mind, when you install a wireless network.

Centralize your router or Access Point

Make sure you place the router/access point in a centralized location within your network for the best performance. Try to place the router/access point as high as possible in the room, so the signal gets dispersed throughout your home. If you have a two-story home, you may need a repeater to boost the signal to extend the range.

Eliminate Interference

Place home appliances such as cordless telephones, microwaves, and televisions as away as possible from the router/access point. This would significantly reduce any interfere that the appliances might cause since they operate on same frequency.

Security

Don't let you next-door neighbors or intruders connect to your wireless network. Secure your wireless network by turning on the WPA or WEP security feature on the router. Refer to product manual for detail information on how to set it up.

Wireless Modes

There are basically two modes of networking:

- **Infrastructure** – All wireless clients will connect to an access point or wireless router.
- **Ad-Hoc** – Directly connecting to another computer, for peer-to-peer communication, using wireless network adapters on each computer, such as two or more DCS-930L wireless network Cardbus adapters.

An Infrastructure network contains an Access Point or wireless router. All the wireless devices, or clients, will connect to the wireless router or access point.

An Ad-Hoc network contains only clients, such as laptops with wireless cardbus adapters. All the adapters must be in Ad-Hoc mode to communicate.

Networking Basics

Check your IP address

After you install your new D-Link adapter, by default, the TCP/IP settings should be set to obtain an IP address from a DHCP server (i.e. wireless router) automatically. To verify your IP address, please follow the steps below.

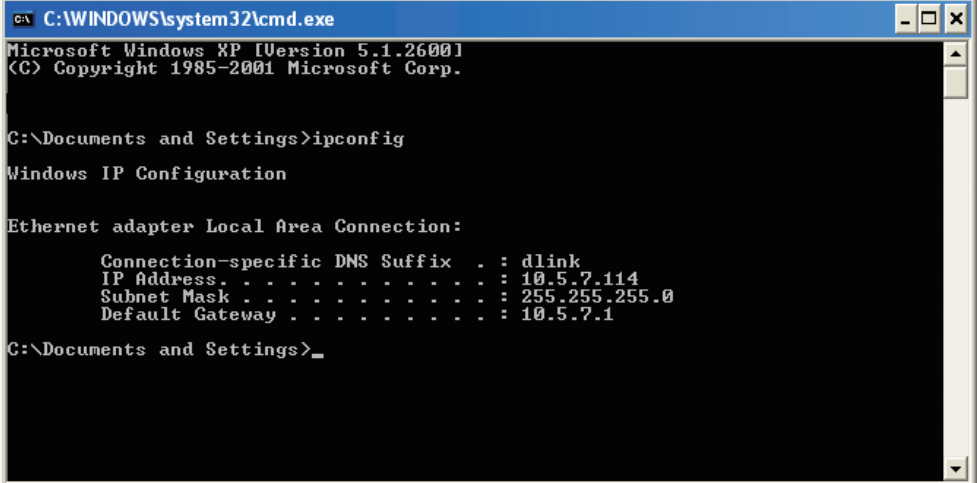
Click on **Start > Run**. In the run box type **cmd** and click **OK**.

At the prompt, type **ipconfig** and press **Enter**.

This will display the IP address, subnet mask, and the default gateway of your adapter.

If the address is 0.0.0.0, check your adapter installation, security settings, and the settings on your router. Some firewall software programs may block a DHCP request on newly installed adapters.

If you are connecting to a wireless network at a hotspot (e.g. hotel, coffee shop, airport), please contact an employee or administrator to verify their wireless network settings.



```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings>ipconfig

Windows IP Configuration

Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix  . : dlink
    IP Address. . . . .                : 10.5.7.114
    Subnet Mask . . . . .              : 255.255.255.0
    Default Gateway . . . . .          : 10.5.7.1

C:\Documents and Settings>
```

Statically Assign an IP Address

If you are not using a DHCP capable gateway/router, or you need to assign a static IP address, please follow the steps below:

Step 1

Windows® Vista - Click on **Start > Control Panel > Network and Internet > Network and Sharing Center > Manage Network Connections**.

Windows XP - Click on **Start > Control Panel > Network Connections**.

Step 2

Right-click on the **Local Area Connection** which represents your D-Link network adapter and select **Properties**.

Step 3

Highlight **Internet Protocol (TCP/IP)** and click **Properties**.

Step 4

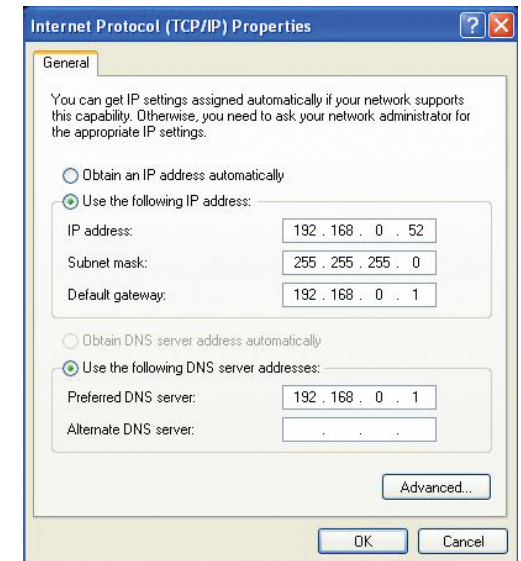
Click **Use the following IP address** and enter an IP address that is on the same subnet as your network or the LAN IP address on your router.

Example: If the router's LAN IP address is 192.168.0.1, make your IP address 192.168.0.X where X is a number between 2 and 99. Make sure that the number you choose is not in use on the network. Set Default Gateway the same as the LAN IP address of your router (192.168.0.1).

Set Primary DNS the same as the LAN IP address of your router (192.168.0.1). The Secondary DNS is not needed or you may enter a DNS server from your ISP.

Step 5

Click **OK** twice to save your settings.



Technical Specifications

SYSTEM REQUIREMENTS

- Operating System: Microsoft Windows XP, Vista, Windows 7
- Internet Explorer 6 or above , Firefox 3.5 or above, Safari 4

NETWORKING PROTOCOL

- IPV4, ARP, TCP, UDP, ICMP
- DHCP Client
- NTP Client (D-Link)
- DNS Client
- DDNS Client (DynDNS and D-Link)
- SMTP Client
- FTP Client
- HTTP Server
- PPPoE
- UPnP Port Forwarding

BUILT-IN NETWORK INTERFACE

- 10/100BASE-TX Fast Ethernet
- 802.11b/g/n WLAN

WIRELESS CONNECTIVITY

- 802.11b/g/n Wireless with WEP/WPA/WPA2 security

WIRELESS TRANSMIT OUTPUT POWER

- 16 dbm for 11b, 12 dbm for 11g,
12 dbm for 11n (typical)

SDRAM

- 32 MB

FLASH MEMORY

- 4 MB

RESET BUTTON

- Reset to factory default

VIDEO CODECS

- MJPEG
- JPEG for still images

VIDEO FEATURES

- Adjustable image size and quality
- Time stamp and text overlay
- Flip and Mirror

RESOLUTION

- 640 x 480 at up to 20 fps
- 320 x 240 at up to 30 fps
- 160 x 120 at up to 30 fps

LENS

- Focal length: 5.01 mm, F2.8

SENSOR

- VGA 1/5 inch CMOS Sensor

MINIMUM ILLUMINATION

- 1 lux @ F2.8

VIEW ANGLE

- Horizontal: 45.3°
- Vertical: 34.5°
- Diagonal: 54.9°

DIGITAL ZOOM

- Up to 4x

3A CONTROL

- AGC (Auto Gain Control)
- AWB (Auto White Balance)
- AES (Auto Electronic Shutter)

POWER

- Input: 100-240 V AC, 50/60 Hz
- Output: 5 V DC, 1.2 A
- External AC-to-DC switching power adapter

DIMENSIONS (W X D X H)

- Including the bracket and stand:
65.8 x 65 x 126 mm
- Camera only:
27.2 x 60 x 96 mm

WEIGHT

- 76.9 g (without bracket and stand)

MAX POWER CONSUMPTION

- 2 W

OPERATION TEMPERATURE

- 0 °C to 40 °C (32 °F to 104 °F)

STORAGE TEMPERATURE

- -20 °C to 70 °C (-4 °F to 158 °F)

HUMIDITY

- 20-80% RH non-condensing

EMISSION (EMI), SAFETY & OTHER CERTIFICATIONS

- FCC Class B
- IC
- C-Tick
- CE