



User Manual

Wireless N H.264 Network Camera

DCS-940L

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
1.0	May 2, 2011	DCS-940L Revision A1 with firmware version 1.00

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Package Contents

- DCS-940L Wireless N H.264 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 Windows® 7, Vista®, or XP
- PC with 1.3GHz or above; at least 128MB RAM
- Internet Explorer 6
- Existing 10/100 Ethernet-based network or 802.11n wireless network

Introduction

Congratulations on your purchase of the DCS-940L Wireless N H.264 Network Camera. The DCS-940L is a versatile and unique solution for your small office or home. Unlike a standard webcam, the DCS-940L is a complete system with a built-in CPU and web server that transmits high quality video images for security and surveillance. The DCS-940L 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-940L also comes with remote monitoring and motion detection features for a complete and cost-effective home security solution.

Features

Simple to Use

The DCS-940L is a stand-alone system with a built-in CPU, requiring no special hardware or software such as PC frame grabber cards. The DCS-940L supports in ActiveX mode for Internet Explorer .

Supports a Variety of Platforms

Supporting TCP/IP networking, HTTP, and other Internet related protocols. The DCS-940L 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-940L offers wireless 802.11n and Ethernet/Fast Ethernet connectivity, making the DCS-940L easy to integrate into your existing network environment. The DCS-940L 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-940L anytime, anywhere in the world.

Broad Range of Applications

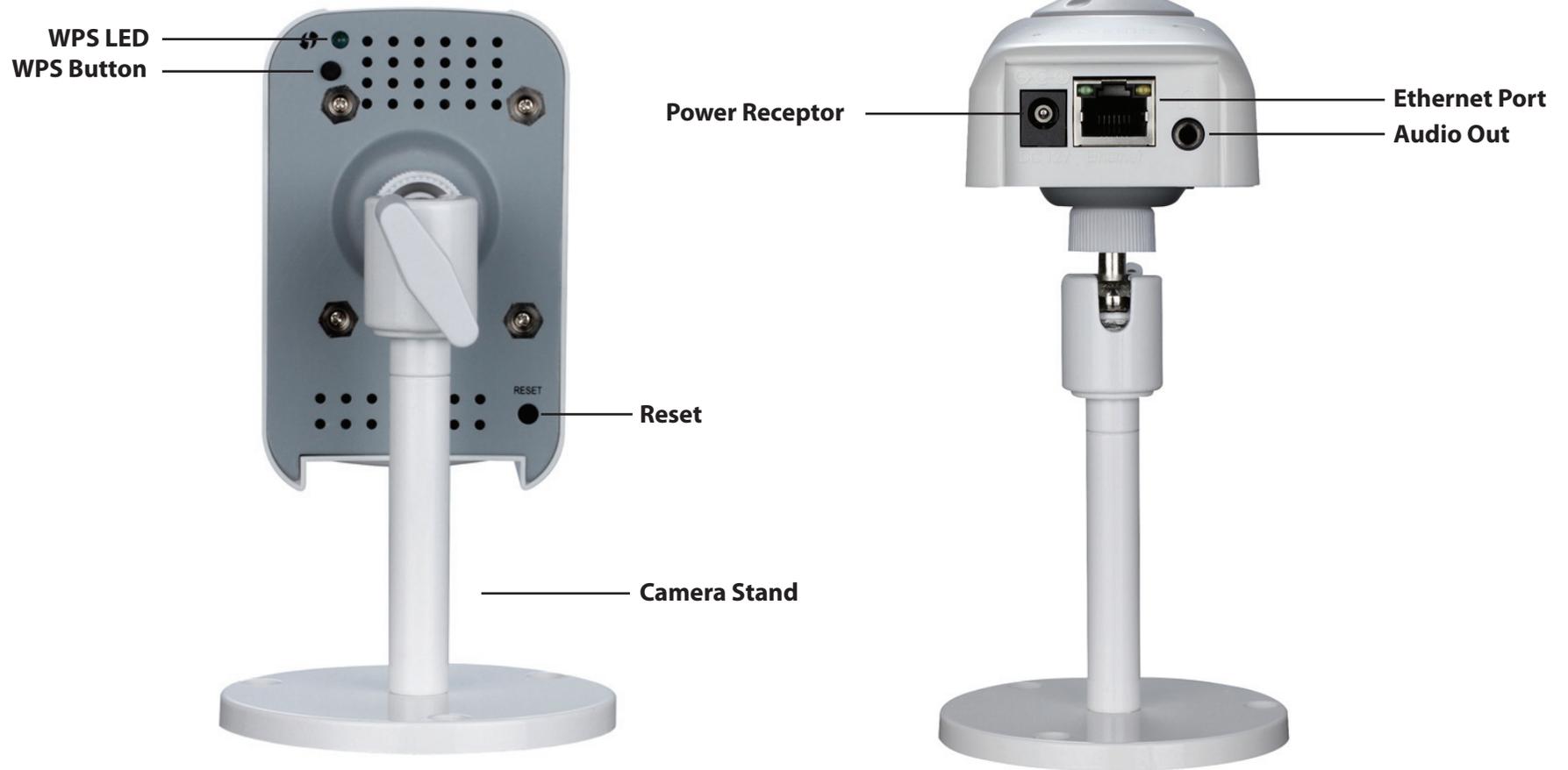
With today's high-speed Internet services, the Network Camera can provide the ideal solution for delivering live video images over the Intranet and Internet for remote monitoring. The Network Camera allows remote access using a Web browser for live image viewing, and allows the administrator to manage 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.

Hardware Overview

Front View



Rear View



Installation

Hardware Installation

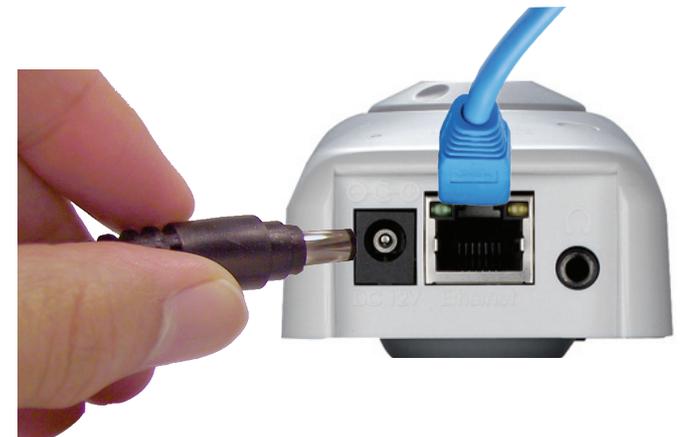
Connect the Ethernet Cable

Connect the included Ethernet cable to the network cable connector located on the bottom panel of the DCS-940L and attach it to the network.



Attach the External Power Supply

Attach the external power supply to the power receptor located on the rear back panel of the DCS-940L 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-940L is illuminated.



Wireless Installation Considerations

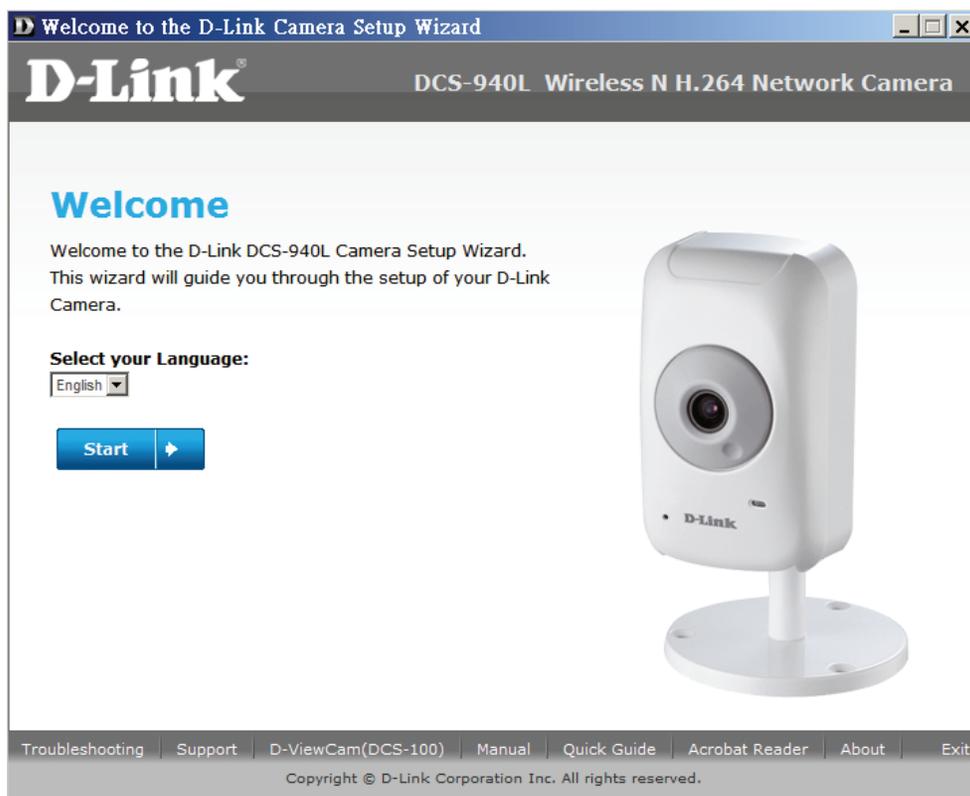
The D-Link Wireless Network Camera lets you access your network using a wireless connection from anywhere within the operating range of your wireless network. However, the number, thickness and location of walls, ceilings, or other objects that the wireless signals must pass through, may limit the range. 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 automatically connect to your WPS-enabled wireless router or access point 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

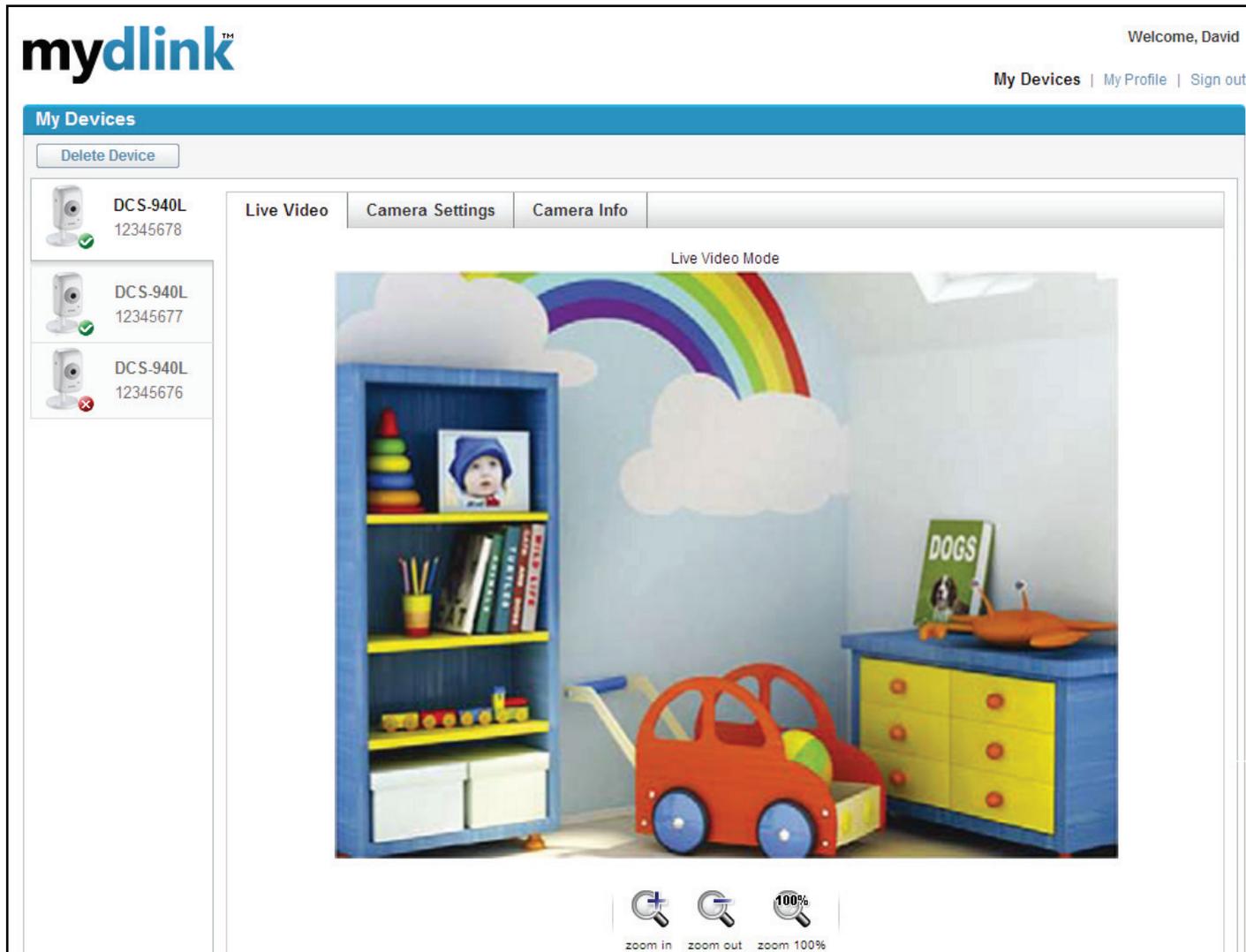
Press the WPS button on your router within 60 seconds. The WPS button is usually on the front or side of your router. On some routers, you may need to log in to the web interface and click on an on-screen button to activate the WPS feature. If you are not sure where the WPS button is on your router,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

The DCS-940L 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-940L 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.

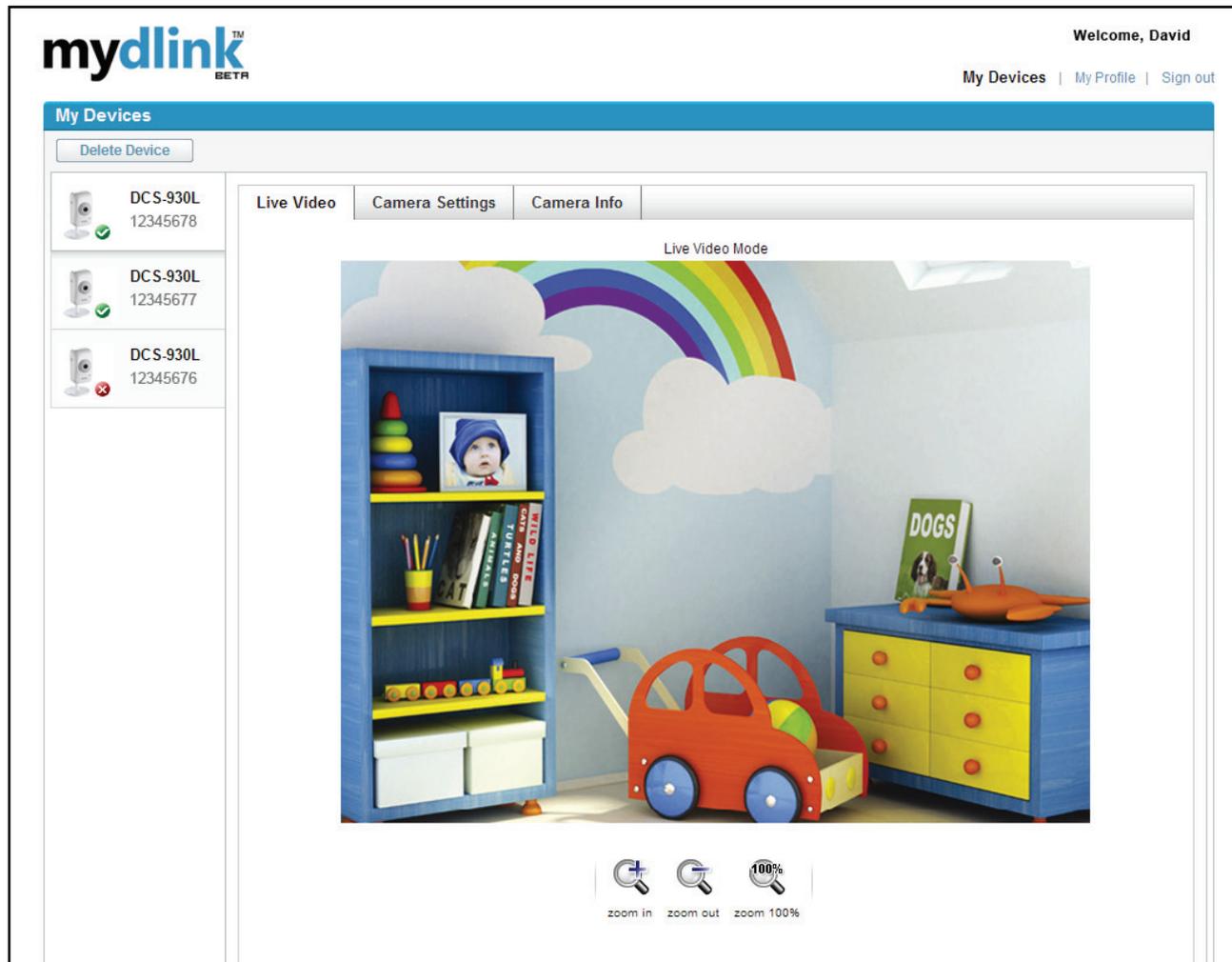
If your camera is offline, try the following:

- 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.



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 portal interface. At the top left is the mydlink logo. At the top right, it says "Welcome, David" and provides navigation links for "My Devices", "My Profile", and "Sign out". The main content area is titled "My Devices" and includes a "Delete Device" button. A list of three DCS-940L cameras is shown, each with a unique ID (12345678, 12345677, and 12345676) and a status icon (green checkmark or red X). The "Camera Settings" tab is selected for the first camera. The settings panel contains a message: "Please use the following password to sign in to the Camera Utility after clicking Camera web page." Below this, 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. At the bottom of the page, there are links for "Global D-Link", "About mydlink", "Terms of Use", "Privacy Policy", and "Contact Us", along with a copyright notice: "Copyright©2008-2011 mydlink/D-Link Corporation Inc. All rights reserved."

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 web 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. Below this, there is a list of three devices, each with a camera icon, a model name "DCS-940L", and a mydlink number. The first two have green checkmarks, and the third has a red X. The "Camera Info" tab is selected, showing the following information:

Live Video	Camera Settings	Camera Info
Basic Information		
Device Name:	DCS-940L	
Camera Password:	***** <input type="checkbox"/> Show Password	
mydlink No.:	12345678	
Model Name:	DCS-940L	
MAC:	IC5D7852DF8E	
Device activated on:	2011-01-04 19:25:47	
Support		
Download		
FAQ		

At the bottom of the page, there are links for "Global D-Link | About mydlink | Terms of Use | Privacy Policy | Contact Us" and a copyright notice: "Copyright©2008-2011 mydlinkD-Link Corporation Inc. All rights reserved."

Configuration

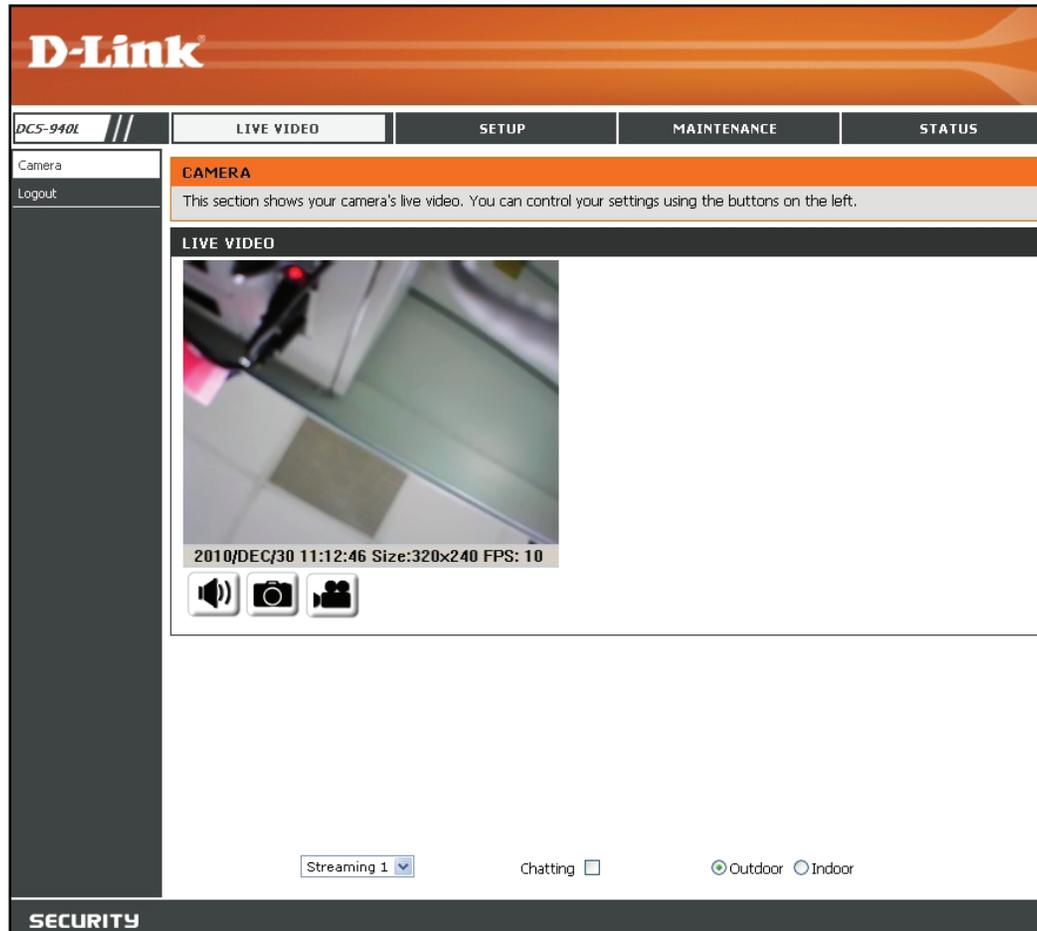
Using the Configuration Menu

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-940L. 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**.



When you connect to the home page of your camera, you will be prompted to download ActiveX.



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: 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.

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DCS-940L // LIVE VIDEO SETUP MAINTENANCE STATUS

NETWORK SETUP

You can configure your LAN and internet settings from here.

Save Settings Don't Save Settings

LAN SETTING

DHCP Connection Static IP Address

IP Address: 192.168.40.205

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.1.254

Primary DNS: 168.95.1.1

Secondary DNS: 168.95.192.1

PPPoE SETTING

Enable Disable

Username: _____ (e.g. name@isp.com)

Password: _____

Send mail after dialed:

Subject: PPPoE From IP Camera

PORT DETAIL SETTING

HTTP Port: 80

HTTPS Port: 443

RTSP Port: 554

RTP Start Port: 5000 [1024..10000]

RTP End port: 9000 [1025..10000]

Helpful Hints...

Select 'DHCP Connection' if you are running a DHCP server on your network and would like an IP address assigned by your camera.

Port Detail Settings allow you to specify the ports that you reserve for HTTP and RTSP Streaming

HTTP Port is the port you allocate in order to connect to the camera via a standard web browser.

RTSP Port is the port you allocate in order to connect to streaming mobile devices such as mobile phone or PDA.

Wireless

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

Wireless Settings: Select **Enable** to connect your camera to a wireless network.

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

Channel: Select the Channel you would like to use.

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-940L is directly connecting to your PC. This is done using the on-board wireless adapter on the DCS-940L connected to a wireless adapter on the PC.

Operation Mode: Allows the user to select the wireless protocol, 11g, 11b or auto detection.

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.

Pre-Shared Key: A shared secret which was previously shared between the two sides using some secure channel before it is used.

The screenshot shows the D-Link web interface for the DCS-940L camera. The main 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 'Wireless Setup' page is active, displaying the following configuration options:

- WIRELESS SETUP:** In this section, you can setup and configure the wireless settings on your camera. Buttons: Save Settings, Don't Save Settings.
- WIRELESS SETTINGS:** Enable Disable
- BASIC WIRELESS SETTINGS:**
 - SSID:
 - Channel:
 - Connection Mode: Infrastructure Ad-Hoc
 - Site survey button
- WIRELESS SECURITY MODE:** Security Mode: None WEP WPA-PSK / WPA2-PSK
- WPA-PSK / WPA2-PSK SETTINGS:**
 - Pre-Shared Key: (8-63 ASCII or 64 HEX characters)
 - Buttons: Save Settings, Don't Save Settings

Helpful Hints: You may enable the wireless setting on your camera and connect to a wireless network by entering the SSID (unique name of your wireless network), or click the Site Survey button to select an available wireless network. Then you may choose a channel number. When there is interference from the wireless networks that overlap with one another, you may change the channel to obtain maximum performance from your connection. There are two connection modes. **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, which connects the PC directly to the DCS-940L. **WPS** - The WPS (Wi-Fi Protected Setup) wizard will allow you to easily connect the camera to your wireless network.

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-940L web interface. The top navigation bar includes 'LIVE VIDEO', 'SETUP', 'MAINTENANCE', and 'STATUS'. The left sidebar lists various setup options, with 'Dynamic DNS' selected. The main content area is titled 'DYNAMIC DNS' and contains an introductory paragraph about the feature, a link to sign up for D-Link's Free DDNS service, and two buttons: 'Save Settings' and 'Don't Save Settings'. Below this is the 'DYNAMIC DNS SETTING' section, which includes radio buttons for 'Enable' and 'Disable' (with 'Disable' selected), a 'Server Address' dropdown menu set to 'dyndns.org', and input fields for 'Host Name', 'User Name or Key', and 'Password or Key'. The 'Schedule Update' is set to '30 Minutes'. The status is 'Idle'. A detailed explanation of the 'Schedule Update' field is provided at the bottom of the settings section, along with two more 'Save Settings' and 'Don't Save Settings' buttons.

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.

Privacy Mask: User can setup three masking areas by clicking “Blue”, “Green” and “Red” area buttons.

Brightness: Allows you to adjust the brightness level.

Contrast: Allows you to adjust the contrast level.

Saturation: Allows you to adjust the saturation level.

Exposure: Allows you to adjust the exposure level.

Sharpness: Allows you to adjust the sharpness level.

Automatic Gain Control: Allows you to click drop down list to adjust the AGC level.

Back Light Compensation: Allows you to click drop down list to adjust the BLC level.

Night Mode: Allows you to click drop down list to adjust the Night Mode level.

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.



Video

Video Configuration

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

Video System: This section allows you to change the system. NTSC or PAL

Video Encryption: Allows you to select “Server Push” or “RTSP” encryption types.

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.

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

Video Format: Frame Rate: 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. The compression format used when viewing your camera.

RTSP Path: Fill in the RTSP path and allows the user to connect by rtsp mode.

3GPP Path: Fill in the 3GPP path and allows the user to connect by 3GPP mode.

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DCS-940L // LIVE VIDEO SETUP MAINTENANCE STATUS

AUDIO AND VIDEO

This section allows you to configure the sound and video of your camera. You can configure different settings depending on whether you are viewing content from a PC or a Mobile Phone / PDA.

Save Settings Don't Save Settings

VIDEO

Video System: NTSC

Video Encryption: Server Push RTSP

Encryption Key: [Change Encryption Key](#) (ASCII format, 0~10)

STREAMING 1 SETTING

Basic Mode Advanced Mode

Resolution: QVGA - 320x240

Quality: Low

Video Frame Rate: 10 FPS

Video Format: H.264

RTSP Path: ex:rtsp://IP_Address/ Audio:G.711

STREAMING 2 SETTING

Basic Mode Advanced Mode Close

Resolution: VGA - 640x480

Quality: Standard

Video Frame Rate: 30 FPS

Video Format: JPEG

RTSP Path: v2 ex:rtsp://IP_Address/v2 Audio:G.711

3GPP STREAMING SETTING

Enable Disable (Resolution=176x144, FPS=5, Video Format=MPEG4)

3GPP Path: 3g ex:rtsp://IP_Address/3g Audio:AMR

Helpful Hints...

Higher frame size, frame rate, and bit rate gives better video quality. At the same time, it requires more network bandwidth.

Best view on mobile phone we suggest is set to 5 fps and 20kpps.

Higher audio bit rate gives better sound quality. At the same time, it requires more network bandwidth.

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.



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: 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 AND FTP

This section enable you to specify the camera email and FTP settings. Only modify these settings if your details change or you are experiencing issues with alert notifications.

MAIL AND FTP SETTINGS

Login Method: Account

Username:

Password:

SMTP (mail) Server:

Sender's Address:

Receiver's Address:

Bcc Address:

Mail Port: 25 (Default 25)

Secure Connection

 TLS
 SSL

FTP SETTINGS

Username:

Password:

Host Name:

Path: /

Port: 21

Mode: PORT

Create the folder: Yes (ex:Path/20100115/121032m.avi)

FTP

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

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.

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

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

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

Create the folder: Allows the user to create the folder or not.

FTP SETTINGS	
Username	<input type="text"/>
Password	<input type="password"/>
Host Name	<input type="text"/>
Path	<input type="text" value="/"/>
Port	<input type="text" value="21"/>
Mode	<input type="button" value="PORT"/>
Create the folder	<input type="button" value="Yes"/> (ex:Path/20100115/121032m.avi)
	<input type="button" value="Test"/>

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 10.

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

File Format: When motion is triggered, there are three sorts of file format can be selected.

1. AVI File (With Record File Setting)
2. Multi-JPEG (With Record File Setting), only with JPEG compression format.
3. Single JPEG (Single File with Interval Setting)

Pre and Post Alarm Record: Pre Alarm and Post Alarm setups for video start and end time when motion detected.

The screenshot displays the 'MOTION DETECTION' configuration page for the DCS-940L camera. The interface includes a navigation menu on the left with options like Network Setup, HTTPS, Dynamic DNS, Image Setup, Audio and Video, Mail and FTP, Motion Detection (selected), Time and Date, Schedule, and Logout. The main content area is titled 'MOTION DETECTION' and contains a video preview window showing a camera view of a door. Below the preview, there are three 'Area Setting' buttons labeled Area 1 (blue), Area 2 (green), and Area 3 (red). Each area has a 'Sensitivity' dropdown menu set to '5'. There are also checkboxes for 'Area 1', 'Area 2', and 'Area 3', each with sub-options for 'E-mail' and 'FTP'. A 'Subject' field contains 'IP Camera Warning!'. The 'Interval' is set to '10 sec' with a note 'a period of time between every two motions detected.' and a checkbox for 'Based on the Schedule'. Below this is the 'RECORD FILE' section, where 'File Format' is set to 'AVI File(with Record Time Setting)', 'Pre Alarm Record' is '5 sec', and 'Post Alarm Record' is '5 sec'. At the bottom, there are 'Save Settings' and 'Don't Save Settings' buttons. A 'Helpful Hints...' sidebar on the right explains that the Sensitivity Bar indicates the level of sensitivity for motion detection, with red bars showing the level will rise depending on the frequency of movement.

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 correct time on 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.

OSD SETTING

Enable
 Disable

SETTING TIME CONFIGURATION

Current Server Time 30/12/2010 11:56:44 A.M.

Time Zone

NTP

Update Hour

Synchronize with PC's time

Time

Manual

Time

The date and time remain the same

Schedule

Snapshot “Enable” or “Disable” snapshot function.
Function:

Snapshot: Allows the user to select sending snapshot image types. (E-Mail or FTP)

Interval: The frequency of the snapshot interval can also be configured from 1 to 50000 seconds.

File Name: The user could edit the file name while sending the snapshot image via E-Mail or FTP.

The screenshot shows the D-Link DCS-940L web interface. The main content area is titled "SCHEDULE" and contains a "Schedule" section with "Save Settings" and "Don't Save Settings" buttons. Below this is a calendar grid showing the schedule for the current month. The grid has columns for days 0-23 and rows for days of the week (Mon., Tue., Wed., Thu., Fri., Sat., Sun.). Green cells indicate the schedule is active. A legend below the grid shows a green square with the text "With schedule setup.".

The "SNAPSHOT" section below the calendar has the following settings:

- Enable (selected) / Disable
- Snapshot: E-mail FTP
- Interval: 10 Second(s) [1..50000]
- File Name: Snapshot

At the bottom of the "SNAPSHOT" section are "Save Settings" and "Don't Save Settings" buttons.

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.

Anonymous User The user could login to the camera without inserting
Login: username and password while activating this function.

Add User Create new user for accessing the video image. Enter the user
Account: 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.

Language: There are "Traditional Chinese", "Simplified Chinese" and "English" three options can be selected.

DEVICE MANAGEMENT

You can change to camera's administrative password as well as adding more user accounts for accessing the camera.

ANONYMOUS USER LOGIN

Yes No Setting

ADD USER ACCOUNT

Username	<input style="width: 60%;" type="text"/>
Password	<input style="width: 60%;" type="password"/>
Retype Password	<input style="width: 60%;" type="password"/>

Add/Set

USER LIST

Username	UserGroup	Modify	Remove
admin	Administrator	Edit	

DEVICE SETTING

Device Name	<input style="width: 60%;" type="text" value="DCS-940L"/>
Language	<input checked="" type="radio"/> English <input type="radio"/> 繁體中文 <input type="radio"/> 简体中文

Apply

Backup and Restore

In this section, you may backup, restore and reset the settings as well as reboot your camera.

Save To Local Hard Drive: You may save and document your current configuration settings into your computer.

Local From Local Hard Drive: Locate a pre-saved configuration by clicking and then restore the pre-defined settings to your camera by clicking.

Restore To Factory Default: You may reset your camera and restore the factory settings to your camera by clicking.

Reboot Device: This will restart your camera.

The screenshot displays the D-Link web interface for a DCS-940L camera. The top navigation bar includes 'LIVE VIDEO', 'SETUP', 'MAINTENANCE', and 'STATUS'. The 'SETUP' menu is expanded to show 'BACKUP AND RESTORE'. The main content area is titled 'SYSTEM' and contains the following options and instructions:

- Save To Local Hard Drive:** Right click the mouse button on [Setting Download](#) and then select Save As to save current system's setting in the PC.
- Load From Local Hard Drive:** Includes a 'Browse...' button and a 'Restore Configuration From File' button.
- Restore To Factory Default:** Includes a 'Restore Factory Defaults' button.
- Reboot The Device:** Includes a 'Reboot The Device' button.

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

When your camera is configured to your desired settings, you can save them to a configuration file. You will need this file to load your configuration when the camera is restored back to default settings.

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-940L, 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-940L device. At the top, the D-Link logo is visible. Below it, a navigation bar contains tabs for LIVE VIDEO, SETUP, MAINTENANCE, and STATUS. The MAINTENANCE tab is selected. On the left, a sidebar menu lists Device Management, Backup and Restore, Firmware Update (which is highlighted), and Logout. The main content area is titled 'FIRMWARE UPDATE' and contains the following text:

FIRMWARE UPDATE

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

To upgrade the firmware on your device, 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.

FIRMWARE INFORMATION

Firmware Version: V1.0.22

FIRMWARE UPGRADE

File Path:

Helpful Hints...
Firmware updates are released periodically to improve the functionality of your Device and also to add features. If you run into a problem with a specific feature of the Device, check our support site by clicking on the **Click here to check for an upgrade on our support site** link and see if an updated firmware is available for your Device.

Status

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-940L
Time	30/12/2010 12:19:11 P.M.
Firmware Version:	V1.0.22
IP Address	192.168.40.205
IP Subnet Mask	255.255.255.0
Default Gateway	192.168.1.254
Primary DNS	168.95.1.1
Secondary DNS	168.95.192.1
PPPoE	OFF
DDNS	OFF

Logs

Logs Sort by System Logs, Motion Detection Logs and I/O Logs. In addition, System Logs and I/O Logs won't lose data due to power failure.

The screenshot displays the D-Link DCS-940L web interface. At the top, there is a navigation bar with the following tabs: LIVE VIDEO, SETUP, MAINTENANCE, and STATUS. On the left side, there is a sidebar menu with options: Device Info, Logs, and Logout. The main content area is titled 'LOGS' and contains a summary box stating 'View a summary of device information here.' Below this is a section titled 'LOG INFORMATION' which lists four categories of logs: System Logs, Motion Detection Logs, I/O Logs, and All Logs. Each category has a corresponding blue link labeled 'Logs'. To the right of the main content area, there is a 'Helpful Hints...' section with the text: 'Check the log frequently to detect unauthorized network usage.'

Wireless Security

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

The DCS-940L 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-940L with a Router

D-Link's DCS-940L 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-940L 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-940L 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-940L for Use Behind a Router

Installing a DCS-940L 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-940L, follow the steps outlined in the Quick Installation Guide.

After you have completed the setup of the DCS-940L 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.

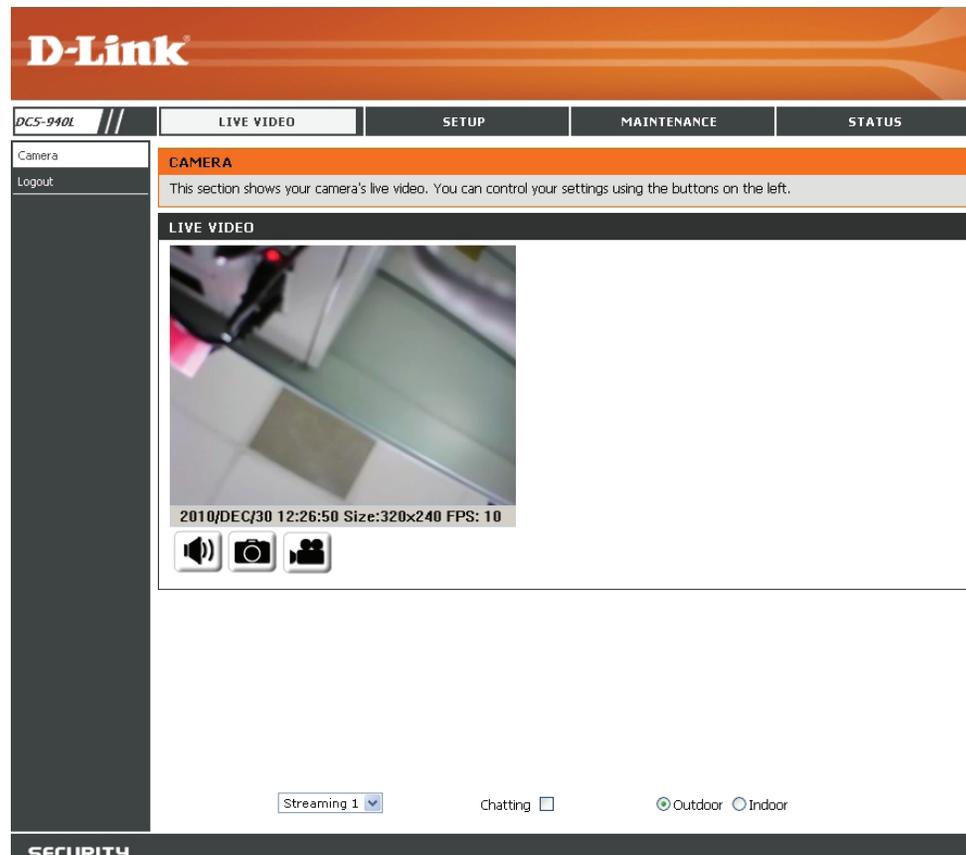
1. Assign a Local IP Address to Your Camera

Run the setup wizard from the CD included with the DCS-940L. Follow the steps in the Quick Installation Guide to configure the DCS-940L. 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-940L 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 **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-940L.

Product: DCS-940L
Firmware Version: V1.0.22

D-Link

DCS-940L
LIVE VIDEO
SETUP
MAINTENANCE
STATUS

- Network Setup
- HTTPS
- Dynamic DNS
- Image Setup
- Audio and Video
- Mail and FTP
- Motion Detection
- Time and Date
- Schedule
- Logout

NETWORK SETUP

You can configure your LAN and internet settings from here.

LAN SETTING

DHCP Connection Static IP Address

IP Address:

Subnet Mask:

Default Gateway:

Primary DNS:

Secondary DNS:

PPPOE SETTING

Enable Disable

Username: (e.g name@isp.com)

Password:

Send mail after dialed:

Subject:

PORT DETAIL SETTING

HTTP Port:

HTTPS Port:

RTSP Port:

RTP Start Port: [1024..10000]

RTP End port: [1025..10000]

Helpful Hints...

Select 'DHCP Connection' if you are running a DHCP server on your network and would like an IP address assigned by your camera.

Port Detail Settings allow you to specify the ports that you reserve for HTTP and RTSP Streaming

HTTP Port is the port you allocate in order to connect to the camera via a standard web browser.

RTSP Port is the port you allocate in order to connect to streaming mobile devices such as mobile phone or PDA.

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 D-Link web interface for a DCS-940L camera. The top navigation bar includes 'LIVE VIDEO', 'SETUP', 'MAINTENANCE', and 'STATUS'. The 'STATUS' menu is selected, leading to the 'DEVICE INFO' page. The page contains a 'DEVICE INFO' section with a 'BASIC INFORMATION' table. The table lists the following details:

BASIC INFORMATION	
Camera Name	DCS-940L
Time	30/12/2010 1:25:47 P.M.
Firmware Version:	V1.0.22
IP Address:	192.168.40.205
IP Subnet Mask:	255.255.255.0
Default Gateway:	192.168.1.254
Primary DNS:	168.95.1.1
Secondary DNS:	168.95.192.1
PPPoE:	OFF
DDNS:	OFF

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-940L over the Internet. The router connects to the Internet over a series of numbered ports. The ports normally used by the DCS-940L 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

2-4-- VIRTUAL SERVERS LIST

	Name	IP Address	Port	Traffic Type	Schedule
<input checked="" type="checkbox"/>	DCS-940L << HTTP	192.168.0.120 << Computer Name	Public 80	Protocol TCP	Schedule Always
<input checked="" type="checkbox"/>	DCS-940L << Application Name	192.168.0.120 << Computer Name	Private 80	6	Inbound Filter Allow All
<input type="checkbox"/>	<< Application Name	<< Computer Name	Public 554	Protocol TCP	Schedule Always
	<< Application Name	<< Computer Name	Private 554	6	Inbound Filter Allow All
	<< Application Name	<< Computer Name	Public 0	Protocol TCP	Schedule Always
	<< Application Name	<< Computer Name	Private 0	6	Inbound Filter Allow All

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-940L.

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-940L: <http://DCS-940L.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.

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-940L 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.

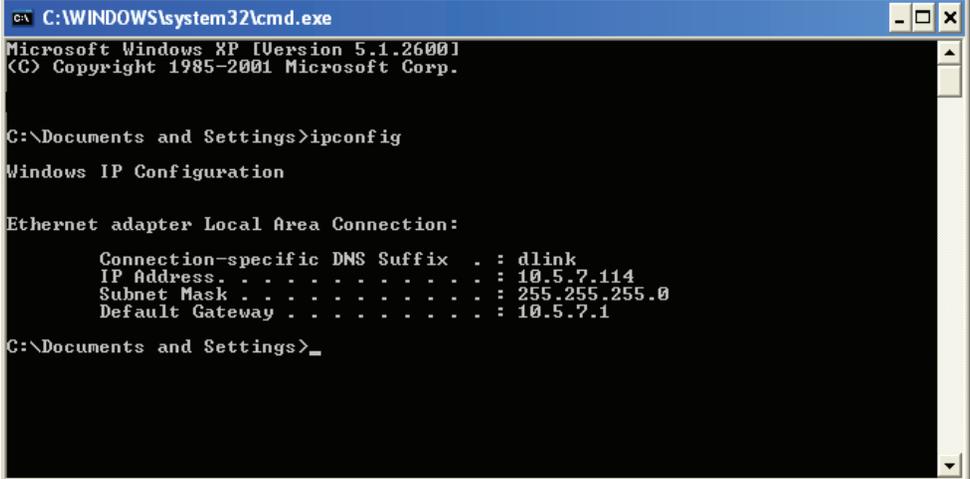
Click on **Start > Run**. In the run box type **cmd** and click **OK**.

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

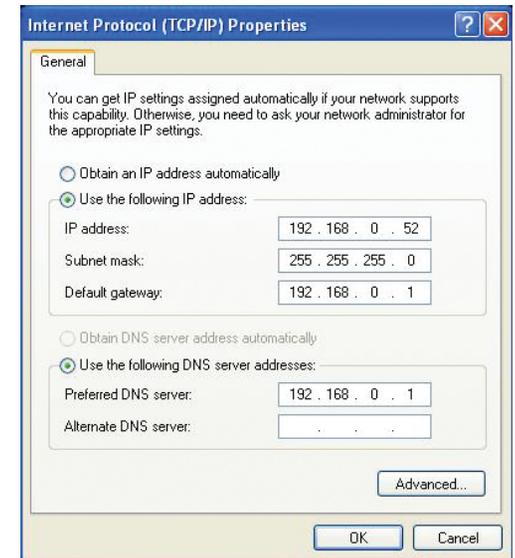
Click **Use the following IP address** and enter an IP address that is on the same subnet as your network or the LAN IP address on your router.

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

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
- Cell Phone/PDA/3GPP

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

- 17.5 dbm for 11b, 14 dbm for 11g,
17.5 dbm for 11n (typical)

SDRAM

- 128 MB

FLASH MEMORY

- 16 MB

RESET BUTTON

- Reset to factory default

VIDEO CODECS

- H.264
- MJPEG
- MPEG4(for 3GPP only)
- 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 30 fps
- 320 x 240 at up to 30 fps
- 160 x 120 at up to 30 fps

LENS

- Focal length: 4.3 mm, F2.0

SENSOR

- VGA 1/4 inch CMOS Sensor

MINIMUM ILLUMINATION

- 1.5 lux@F2.0

VIEW ANGLE

- Horizontal: 44.8°
- Vertical: 34°

3A CONTROL

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

POWER

- Input: 100-240 V AC, 50/60 Hz
- Output: 12 V DC, 1.25 A
- External AC-to-DC switching power adapter

DIMENSIONS (W X D X H)

- Camera only:
59 x 93.7 x 45.5 mm

WEIGHT

- 182 g (without bracket and stand)

MAX POWER CONSUMPTION

- 2.5 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
- CE

Contacting Technical Support

U.S. and Canadian customers can contact D-Link technical support through our web site or by phone.

Before you contact technical support, please have the following ready:

- Model number of the product (e.g. DCS-940L)
- Hardware Revision (located on the label on the bottom of the Network Camera (e.g. rev A1))
- Serial Number (s/n number located on the label on the bottom of the Network Camera).

You can find software updates and user documentation on the D-Link website as well as frequently asked questions and answers to technical issues.

For customers within the United States:

Phone Support:

(877) 453-5465

Internet Support:

<http://support.dlink.com>

Warranty

Subject to the terms and conditions set forth herein, D-Link Systems, Inc. (“D-Link”) provides this Limited Warranty:

- Only to the person or entity that originally purchased the product from D-Link or its authorized reseller or distributor, and
- Only for products purchased and delivered within the fifty states of the United States, the District of Columbia, U.S. Possessions or Protectorates, U.S. Military Installations, or addresses with an APO or FPO.

Limited Warranty:

D-Link warrants that the hardware portion of the D-Link product described below (“Hardware”) will be free from material defects in workmanship and materials under normal use from the date of original retail purchase of the product, for the period set forth below (“Warranty Period”), except as otherwise stated herein.

- Hardware (excluding power supplies and fans): One (1) year
- Power supplies and fans: One (1) year
- Spare parts and spare kits: Ninety (90) days

The customer’s sole and exclusive remedy and the entire liability of D-Link and its suppliers under this Limited Warranty will be, at D-Link’s option, to repair or replace the defective Hardware during the Warranty Period at no charge to the original owner or to refund the actual purchase price paid. Any repair or replacement will be rendered by D-Link at an Authorized D-Link Service Office. The replacement hardware need not be new or have an identical make, model or part. D-Link may, at its option, replace the defective Hardware or any part thereof with any reconditioned product that D-Link reasonably determines is substantially equivalent (or superior) in all material respects to the defective Hardware. Repaired or replacement hardware will be warranted for the remainder of the original Warranty Period or ninety (90) days, whichever is longer, and is subject to the same limitations and exclusions. If a material defect is incapable of correction, or if D-Link determines that it is not practical to repair or replace the defective Hardware, the actual price paid by the original purchaser for the defective Hardware will be refunded by D-Link upon return to D-Link of the defective Hardware. All Hardware or part thereof that is replaced by D-Link, or for which the purchase price is refunded, shall become the property of D-Link upon replacement or refund.

Limited Software Warranty:

D-Link warrants that the software portion of the product (“Software”) will substantially conform to D-Link’s then current functional specifications for the Software, as set forth in the applicable documentation, from the date of original retail purchase of the Software for a period of ninety (90) days (“Software Warranty Period”), provided that the Software is properly installed on approved hardware and operated as contemplated in its documentation. D-Link further warrants that, during the Software Warranty Period, the magnetic media on which D-Link delivers the Software will be free of physical defects. The customer’s sole and exclusive remedy and the entire liability of D-Link and its suppliers under this Limited Warranty will be, at D-Link’s option, to replace the non-conforming Software (or defective media) with software that substantially conforms to D-Link’s functional specifications for the Software or to refund the portion of the actual purchase price paid that is attributable to the Software. Except as otherwise agreed by DLink in writing, the replacement Software is provided only to the original licensee, and is subject to the terms and conditions of the license granted by D-Link for the Software. Replacement Software will be warranted for the remainder of the original Warranty Period and is subject to the same limitations and exclusions. If a material non-conformance is incapable of correction, or if D-Link determines in its sole discretion that it is not practical to replace the non-conforming Software, the price paid by the original licensee for the non-conforming Software will be refunded by D-Link; provided that the non-conforming Software (and all copies thereof) is first returned to D-Link. The license granted respecting any Software for which a refund is given automatically terminates.

Non-Applicability of Warranty:

The Limited Warranty provided hereunder for Hardware and Software portions of D-Link’s products will not be applied to and does not cover any refurbished product and any product purchased through the inventory clearance or liquidation sale or other sales in which D-Link, the sellers, or the liquidators expressly disclaim their warranty obligation pertaining to the product and in that case, the product is being sold “As-Is” without any warranty whatsoever including, without limitation, the Limited Warranty as described herein, notwithstanding anything stated herein to the contrary.

Submitting A Claim (USA):

The customer shall return the product to the original purchase point based on its return policy. In case the return policy period has expired and the product is within warranty, the customer shall submit a claim to D-Link as outlined below:

- The customer must submit with the product as part of the claim a written description of the Hardware defect or Software nonconformance in sufficient detail to allow DLink to confirm the same, along with proof of purchase of the product (such as a copy of the dated purchase invoice for the product) if the product is not registered.
- The customer must obtain a Case ID Number from D-Link Technical Support at 1-877-354-6555, who will attempt to assist the customer in resolving any suspected defects with the product. If the product is considered defective, the customer must obtain a Return Material Authorization (“RMA”) number by completing the RMA form and entering the assigned Case ID Number at <https://rma.dlink.com/>.

- After an RMA number is issued, the defective product must be packaged securely in the original or other suitable shipping package to ensure that it will not be damaged in transit, and the RMA number must be prominently marked on the outside of the package. Do not include any manuals or accessories in the shipping package. DLink will only replace the defective portion of the product and will not ship back any accessories.
- The customer is responsible for all in-bound shipping charges to D-Link. No Cash on Delivery (“COD”) is allowed. Products sent COD will either be rejected by D-Link or become the property of D-Link. Products shall be fully insured by the customer and shipped to D-Link Systems, Inc., 17595 Mt. Herrmann, Fountain Valley, CA 92708. D-Link will not be held responsible for any packages that are lost in transit to D-Link. The repaired or replaced packages will be shipped to the customer via UPS Ground or any common carrier selected by D-Link. Return shipping charges shall be prepaid by D-Link if you use an address in the United States, otherwise we will ship the product to you freight collect. Expedited shipping is available upon request and provided shipping charges are prepaid by the customer. D-Link may reject or return any product that is not packaged and shipped in strict compliance with the foregoing requirements, or for which an RMA number is not visible from the outside of the package. The product owner agrees to pay D-Link’s reasonable handling and return shipping charges for any product that is not packaged and shipped in accordance with the foregoing requirements, or that is determined by D-Link not to be defective or non-conforming.

What Is Not Covered:

The Limited Warranty provided herein by D-Link does not cover:

Products that, in D-Link's judgment, have been subjected to abuse, accident, alteration, modification, tampering, negligence, misuse, faulty installation, lack of reasonable care, repair or service in any way that is not contemplated in the documentation for the product, or if the model or serial number has been altered, tampered with, defaced or removed; Initial installation, installation and removal of the product for repair, and shipping costs; Operational adjustments covered in the operating manual for the product, and normal maintenance; Damage that occurs in shipment, due to act of God, failures due to power surge, and cosmetic damage; Any hardware, software, firmware or other products or services provided by anyone other than D-Link; and Products that have been purchased from inventory clearance or liquidation sales or other sales in which D-Link, the sellers, or the liquidators expressly disclaim their warranty obligation pertaining to the product.

While necessary maintenance or repairs on your Product can be performed by any company, we recommend that you use only an Authorized D-Link Service Office. Improper or incorrectly performed maintenance or repair voids this Limited Warranty.

Disclaimer of Other Warranties:

EXCEPT FOR THE LIMITED WARRANTY SPECIFIED HEREIN, THE PRODUCT IS PROVIDED "AS-IS" WITHOUT ANY WARRANTY OF ANY KIND WHATSOEVER INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.

IF ANY IMPLIED WARRANTY CANNOT BE DISCLAIMED IN ANY TERRITORY WHERE A PRODUCT IS SOLD, THE DURATION OF SUCH IMPLIED WARRANTY SHALL BE LIMITED TO THE DURATION OF THE APPLICABLE WARRANTY PERIOD SET FORTH ABOVE. EXCEPT AS EXPRESSLY COVERED UNDER THE LIMITED WARRANTY PROVIDED HEREIN, THE ENTIRE RISK AS TO THE QUALITY, SELECTION AND PERFORMANCE OF THE PRODUCT IS WITH THE PURCHASER OF THE PRODUCT.

Limitation of Liability:

TO THE MAXIMUM EXTENT PERMITTED BY LAW, D-LINK IS NOT LIABLE UNDER ANY CONTRACT, NEGLIGENCE, STRICT LIABILITY OR OTHER LEGAL OR EQUITABLE THEORY FOR ANY LOSS OF USE OF THE PRODUCT, INCONVENIENCE OR DAMAGES OF ANY CHARACTER, WHETHER DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL (INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF GOODWILL, LOSS OF REVENUE OR PROFIT, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, FAILURE OF OTHER EQUIPMENT OR COMPUTER PROGRAMS TO WHICH D-LINK'S PRODUCT IS CONNECTED WITH, LOSS OF INFORMATION OR DATA CONTAINED IN, STORED ON, OR INTEGRATED WITH ANY PRODUCT RETURNED TO D-LINK FOR WARRANTY SERVICE) RESULTING FROM THE USE OF THE PRODUCT, RELATING TO WARRANTY SERVICE, OR ARISING OUT OF ANY BREACH OF THIS LIMITED WARRANTY, EVEN IF D-LINK HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. THE SOLE REMEDY FOR A BREACH OF THE FOREGOING LIMITED WARRANTY IS REPAIR, REPLACEMENT OR REFUND OF THE DEFECTIVE OR NONCONFORMING PRODUCT. THE MAXIMUM LIABILITY OF D-LINK UNDER THIS WARRANTY IS LIMITED TO THE PURCHASE PRICE OF THE PRODUCT COVERED BY THE WARRANTY. THE FOREGOING EXPRESS WRITTEN WARRANTIES AND REMEDIES ARE EXCLUSIVE AND ARE IN LIEU OF ANY OTHER WARRANTIES OR REMEDIES, EXPRESS, IMPLIED OR STATUTORY.

Governing Law:

This Limited Warranty shall be governed by the laws of the State of California. Some states do not allow exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the foregoing limitations and exclusions may not apply. This Limited Warranty provides specific legal rights and you may also have other rights which vary from state to state.

Trademarks:

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FCC Statement:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. 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 communication. 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 or more 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.

FCC Caution:

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

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.

If this device is going to be operated in 5.15 ~ 5.25GHz frequency range, then it is restricted in indoor environment only.

IMPORTANT NOTICE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The availability of some specific channels and/or operational frequency bands are country dependent and are firmware programmed at the factory to match the intended destination. The firmware setting is not accessible by the end user.

For detailed warranty information applicable to products purchased outside the United States, please contact the corresponding local D-Link office.

Registration

Register your product online at registration.dlink.com



Product registration is entirely voluntary and failure to complete or return this form will not diminish your warranty rights.

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