

USER MANUAL

DCS-930, DCS-930L

VERSION 1.0



D-Link®

SURVEILLANCE

Table of Contents

Product Overview	4	Video Configuration	22
Package Contents	4	Setup > Audio	23
System Requirements	4	Setup > Motion Detect	24
Introduction	5	Setup > Mail.....	25
Features	6	Email Account.....	25
Hardware Overview	7	Time Schedule.....	26
Front View.....	7	Setup > FTP.....	27
Rear View	8	FTP Server	27
Hardware Installation.....	9	Time Schedule.....	28
Installation	10	Setup > Time and Date.....	29
Wireless Installation Considerations.....	10	Maintenance > Admin	30
Starting the Camera Installation Wizard	11	Maintenance > System	31
WPS - Hardware Push Button Setup.....	12	Maintenance > Firmware Upgrade	32
Using the Configuration Menu	13	Status > System.....	33
Configuration	15	Status > Active User	34
Live Video	15	Wireless Security	35
Setup > Wizard	15	What is WEP?	35
Internet Connection Setup Wizard.....	16	What is WPA?	36
Network Setup	18	Using & Configuring the DCS-930.....	37
Setup > Wireless.....	19	Wireless Security	40
Wireless Interface	19	What is WEP?	40
Setup > DDNS	20	What is WPA?	41
Setup > Image Setup	21	Using & Configuring the DCS-930 with a NAT	
Image Settings.....	21	Router	42
Setup > Video	22		

Wireless Basics	49
Networking Basics	54
Check your IP address	54
Statically Assign an IP address	55
Troubleshooting	56
Technical Specifications.....	58

Package Contents

- DCS-930 Network Camera
- CAT5 Ethernet Cable
- Power Adapter
- Manual and Software on CD
- Quick Install Guide
- Camera Stand

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

Introduction

Congratulations on your purchase of the DCS-930 Network Camera. The DCS-930 is a versatile and unique solution for your small office or home. Unlike a webcam, the DCS-930 is a stand-alone system with a built-in CPU that transmits high quality video images for monitoring. The DCS-930 can be remotely accessed, and controlled using a Web browser over the Intranet or Internet. The simple installation procedure and intuitive Web-based interface offer easy integration with your Ethernet/Fast Ethernet or 802.11n wireless network. The DCS-930 also comes with remote monitoring capability for a complete and cost-effective home security solution.

Features

Simple to Use

The DCS-930 is a stand-alone system with a built-in CPU, requiring no special hardware or software such as PC frame grabber cards. The DCS-930 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-930 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-930 offers wireless 802.11n and Ethernet/Fast Ethernet connectivity, making the DCS-930 easy to integrate into your existing network environment. The DCS-930 works with a 10 Mbps Ethernet based network or 100 Mbps 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

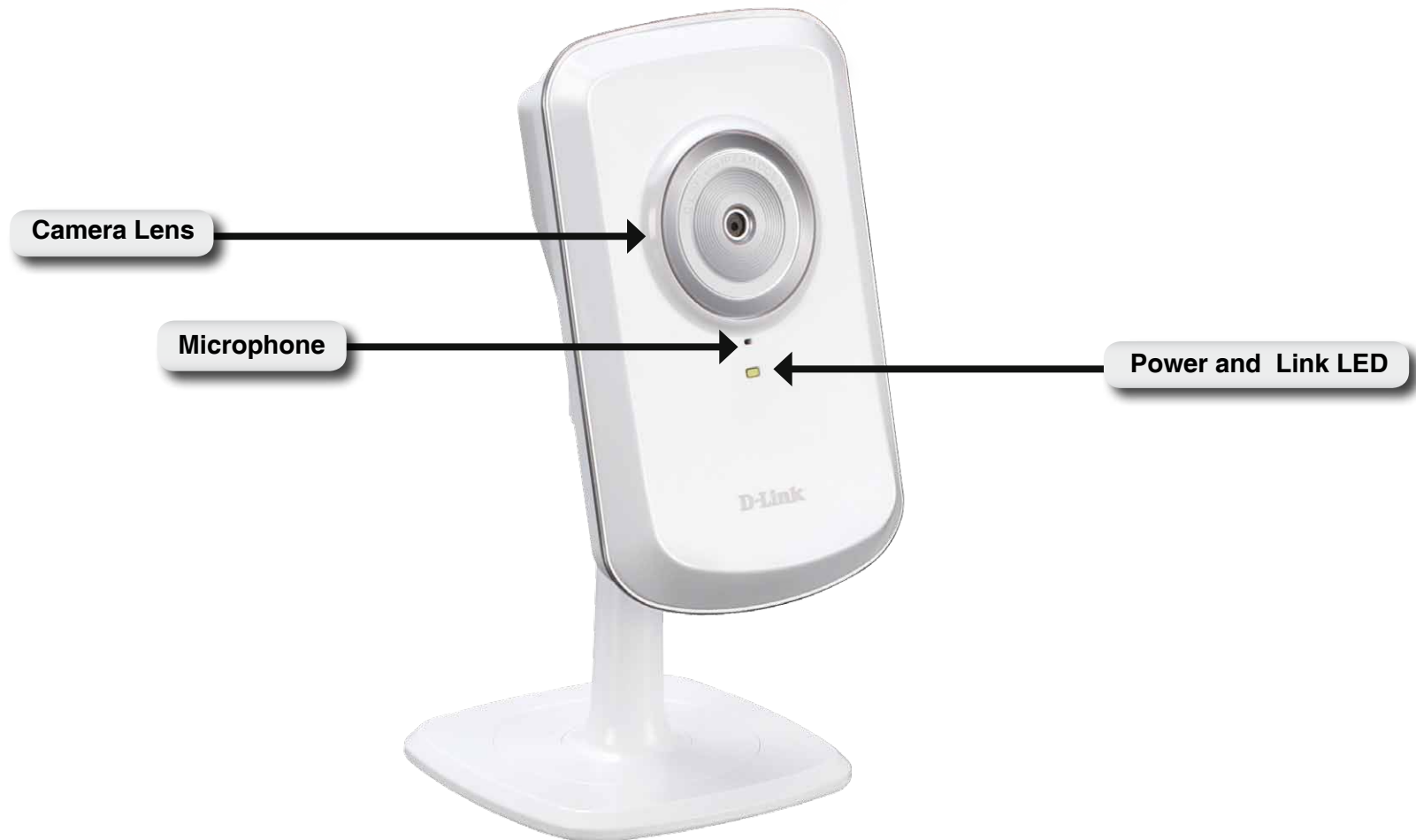
Using a standard Web browser, administrators can configure and manage the Network Camera directly from its own Web page via Intranet or Internet. This means you can access your DCS-930 anytime, anywhere in the world.

Broad Range of Applications

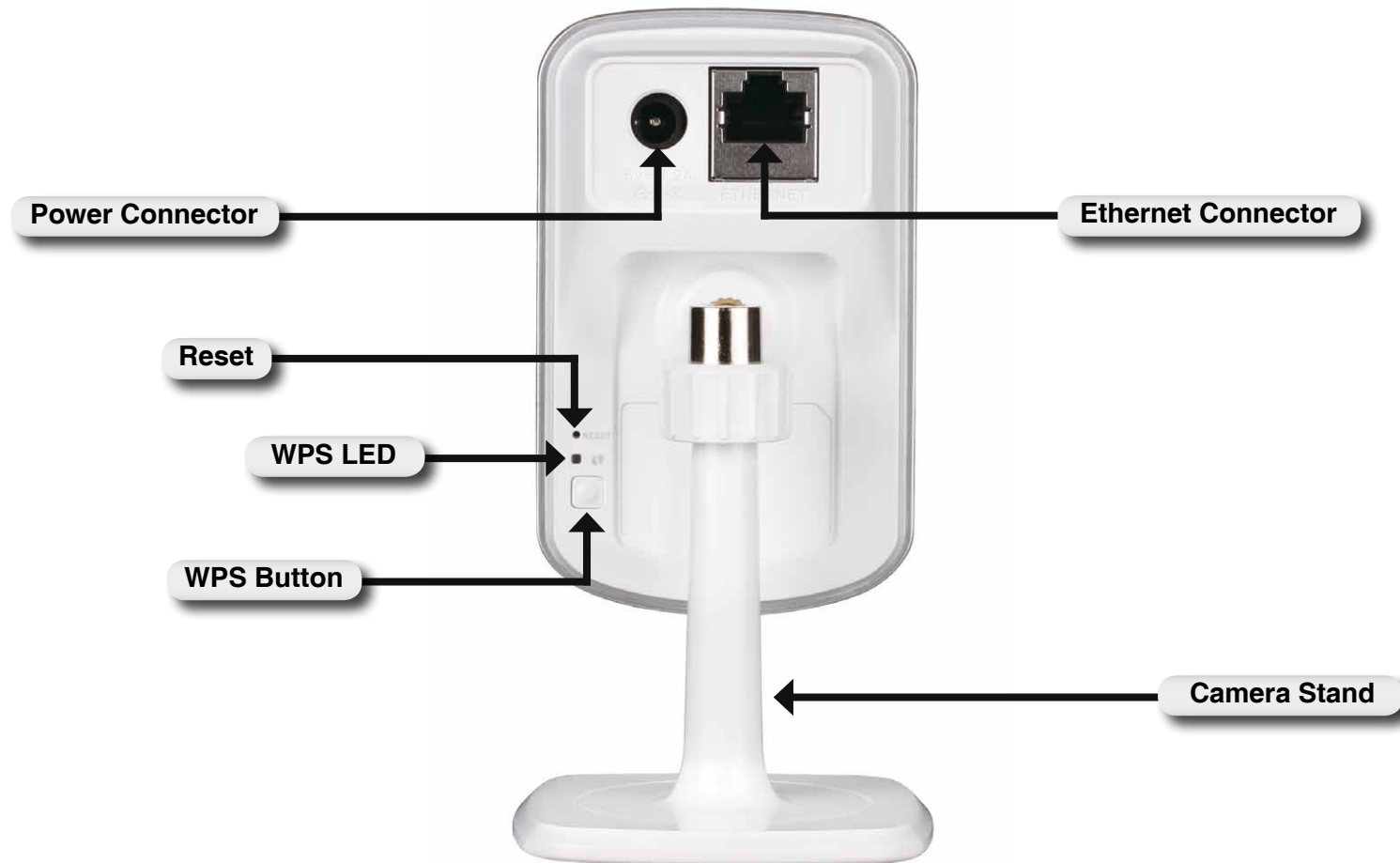
With today's high-speed Internet services, the Network Camera can provide the ideal solution for delivering live video images over the Intranet and Internet for remote monitoring. The Network Camera allows remote access using a Web browser for live image viewing, and allows the administrator to manage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



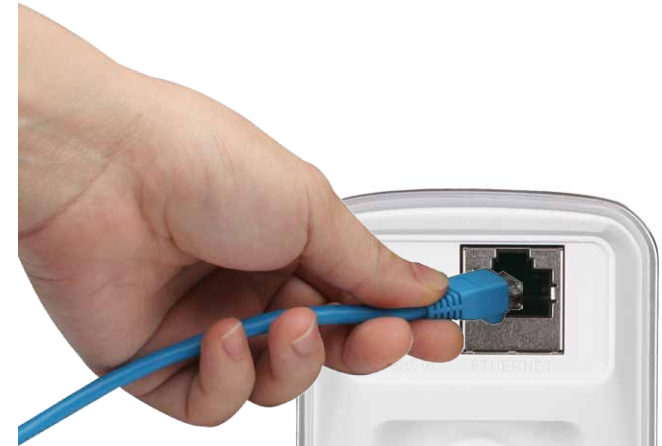
Rear View



Hardware Installation

Connect the Ethernet Cable

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



Attach the External Power Supply

Attach the external power supply to the DC power input connector located on the bottom panel of the DCS-930 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-930 is illuminated.



Installation

Wireless Installation Considerations

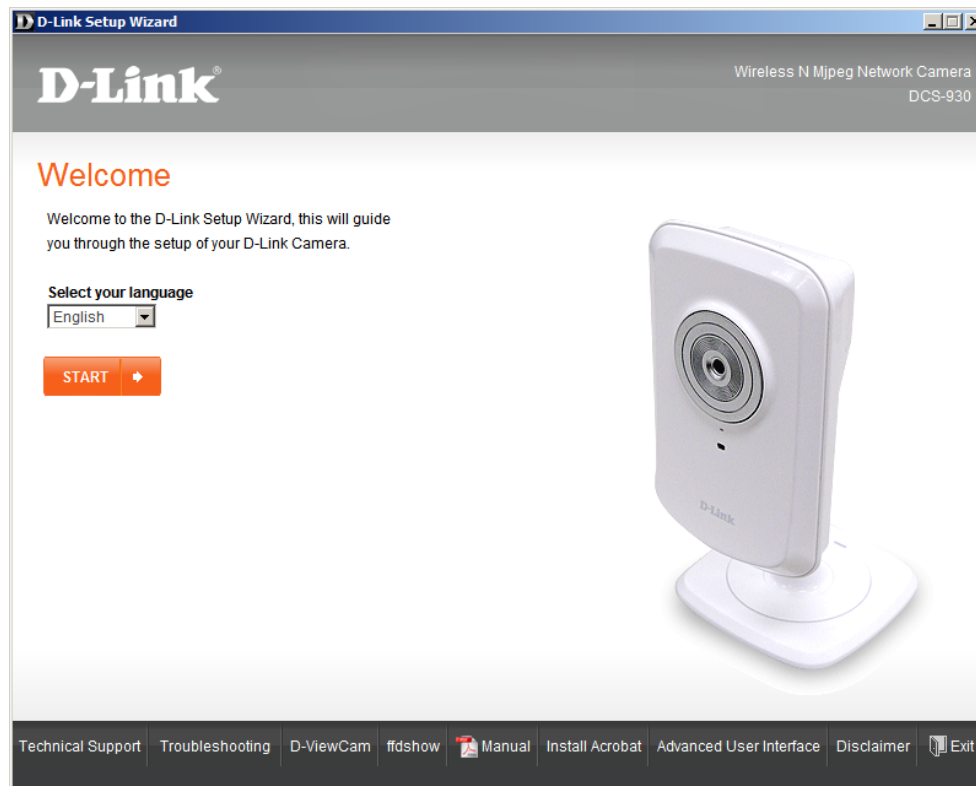
The D-Link Wireless Network Camera lets you access your network using a wireless connection from anywhere within the operating range of your wireless network. However, the number, thickness and location of walls, ceilings, or other objects that the wireless signals must pass through, may limit the range.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

Starting the 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 - Hardware 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 on the side of the camera 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 then click on an onscreen 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.

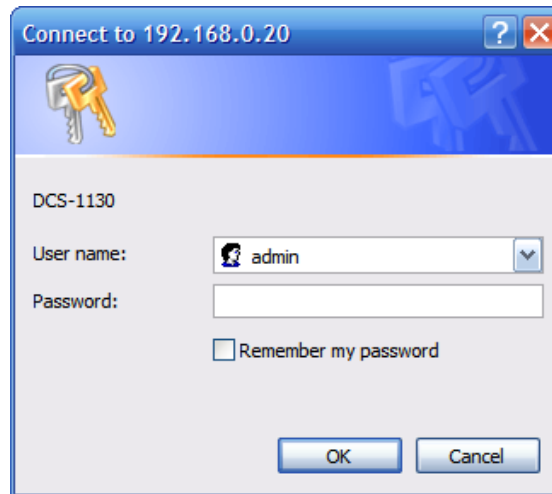
The DCS-930 will automatically create a wireless connection to your router. While connecting, the green LED will flash and your camera will reboot.



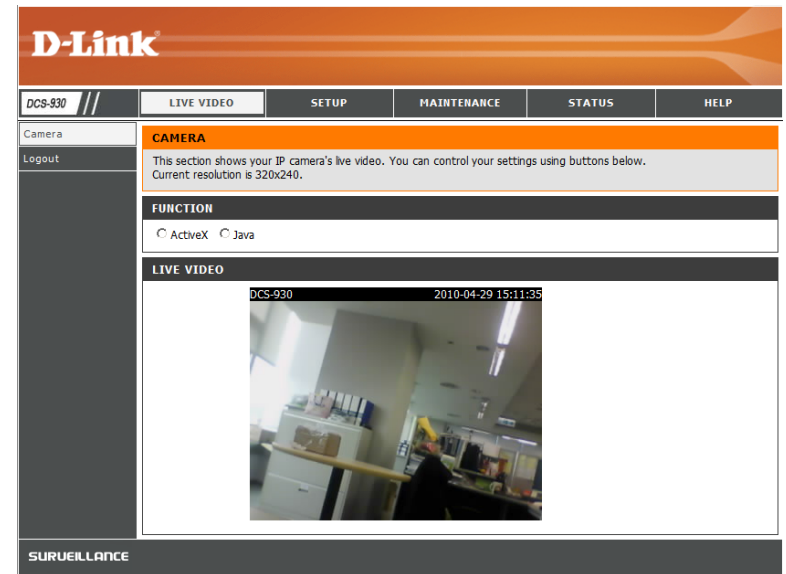
Using the Configuration Menu

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-930. 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**.



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



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.

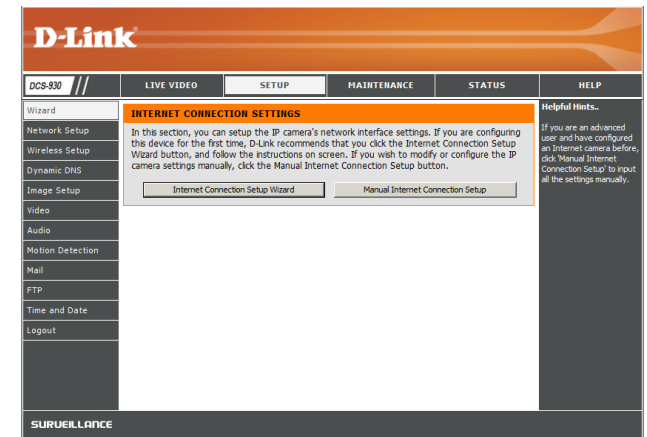
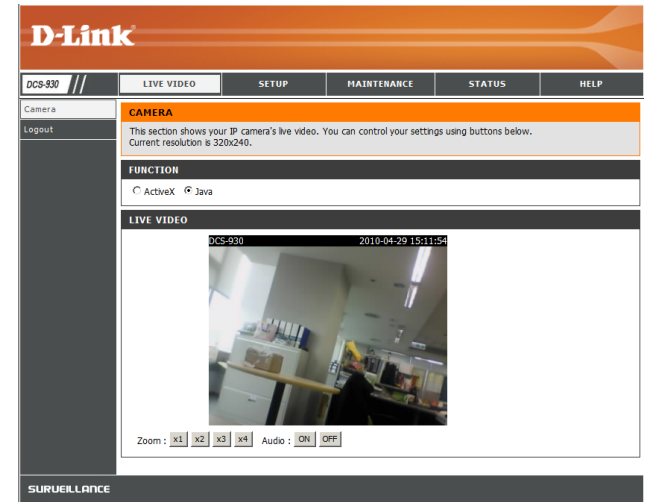
Configuration Live Video

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

WELCOME TO D-LINK SETUP WIZARD - INTERNET CONNECTION SETUP

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.

- **Step 1:** Setup LAN Settings
- **Step 2:** Setup DDNS Settings
- **Step 3:** Server Name Settings
- **Step 4:** Setup Time Zone

Next Cancel

You may configure your camera using

- **DHCP Connection** (by default), where your DHCP server will automatically assign dynamic IP to your device.
 - **Static IP Address** if your ISP has already assigned an IP address to you.
 - **PPPoE connection**, where your camera is directly connected to the Internet through a DSL modem.
- * Input the DNS information if you have chosen and assigned a Static IP Address for your camera.

Click Next

STEP 1: SETUP LAN SETTINGS

Please select whether your camera will connect to the Internet with a DHCP connection, Static IP address or PPPoE. If your camera is connected to a router, or you are unsure which settings to pick, D-Link recommends that you keep the default selection of DHCP connection. Otherwise, click on Static IP address to manually assign an IP address before clicking on the **Next** button.

DHCP Connection
 Static IP Address

IP Address
 Subnet Mask
 Default Gateway

PPPoE

User ID
 Password

Primary DNS
 Secondary DNS

Next Cancel

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**

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

Enter a name for your camera.

Click **Next**

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

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

Click **Next**

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

Time Zone

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

Click **Apply**

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-930
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: 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 in the web browser “http://192.168.0.100:1010” instead of “http://192.168.0.100”.

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.

Product: DCS-930 Firmware version: 0.80

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DCS-930 // LIVE VIDEO SETUP MAINTENANCE STATUS HELP

Wizard

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

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.

Setup > Wireless

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

Wireless Interface

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-930 is directly connecting to your PC. This is done using the on-board wireless adapter on the DCS-930 connected to a wireless adapter on the PC.

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

WPA-PSK / WPA2PSK

Settings: An appropriate **Preshared Key**, which is needed in order to connect to the wireless network..

Setup > 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.

DYNAMIC DNS SETTING
 Enable Disable
Server Address <<
Host Name
User Name
Password
Timeout hours

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.

Setup > Image Setup

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

IMAGE SETUP

In this section, you can configure the image settings for your camera.

Save Settings Don't Save Settings

IMAGE SETTINGS

Enable Anti Flicker

Flip Image

Mirror

Brightness Control +0 ▼

Contrast Control +0 ▼

Saturation Control +0 ▼

Save Settings Don't Save Settings

Image Settings

Enable

Antiflicker: Select this box to enable antiflicker.

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

Mirror: Horizontally rotates 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.

Setup > 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: Choose 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.

Setup > 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-930 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' option is selected, leading to the 'AUDIO' configuration page. This page contains an introductory message, 'AUDIO SETTINGS' with radio buttons for 'Enable' (selected) and 'Disable', and 'VOLUME SETTINGS' with a dropdown menu set to '100'. There are 'Save Settings' and 'Don't Save Settings' buttons at the bottom of the configuration area. A 'Helpful Hints...' sidebar on the right provides additional information and a note about waiting for the camera to adjust the audio.

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DCS-930 // LIVE VIDEO SETUP MAINTENANCE STATUS HELP

Wizard
Network Setup
Wireless Setup
Dynamic DNS
Image Setup
Video
Audio
Motion Detection
Mail
FTP
Time and Date
Logout

AUDIO

In this section, you can configure the audio settings for your camera.

Save Settings Don't Save Settings

AUDIO SETTINGS

Enable Disable

VOLUME SETTINGS

100

Save Settings Don't Save Settings

Helpful Hints...

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.

SURUEILLANCE

Setup > 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 shows the D-Link web interface for the DCS-930 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, Video, Audio, Motion Detection (highlighted), Mail, FTP, Time and Date, and Logout. The main content area is titled 'MOTION DETECTION' and contains the following settings:

- MOTION DETECTION:** In this section, you can configure the motion detection settings for your camera.
 - 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.

At the bottom of the settings section, there are two buttons: 'Save Settings' and 'Don't Save Settings'. The bottom of the page features the 'SURVEILLANCE' logo.

Setup > Mail

Email Account

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

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

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

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

SMTP Server Port (Default is 25)

Sender E-mail Address

Receiver E-mail Address

User Name

Password

TLS Authentication

TIME SCHEDULE

Enable emailing images to email account

Always

Schedule

Day Mon Tue Wed Thu Fri Sat Sun

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

Stop : (Example : 22:30:00)

Motion Detection

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

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.

Setup > FTP

FTP Server

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

In this section, you may configure a FTP server to receive the images.

FTP SERVER

Host Name

Port (Default is 21)

User Name

Password

Path

Passive Mode Yes 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 Frames/Second

Seconds/Frame

Base File Name

File Overwrite

Date/Time Suffix

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.

Video 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: If **Overwrite** is selected, only a few images will be constantly refreshed, depending on how many snapshots you choose to have sent. Select **Date/Time Suffix** and the pictures will be named with a date and time also. An example of this can be seen above under the **Base file name** category. Select a **Sequence Number Suffix** up to 1024 and all the pictures will be numbered from 1-1024. Up to 1024 pictures can be configured. Picture number 1025 will reset to number 1.

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.

Setup > Time and Date

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

Test FTP Server: Select the time zone for your region from the pull-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		

Maintenance > System

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

SYSTEM

Here you can save and restore your configuration, restore the factory settings, and/or restart the camera.

SYSTEM

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"/>

Maintenance > 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-930, 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, open the file and click the **Upload** button to start the firmware upgrade.

The screenshot shows the D-Link web interface for the DCS-930 camera. The top navigation bar includes 'DCS-930', '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 the text is a section titled 'FIRMWARE INFORMATION' showing:

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, an input field, a 'Browse...' button, and an 'Upload' button.

On the right side, 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.

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-930
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

Status > 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-930 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.

Using & Configuring the DCS-930

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

Materials Needed:

- 1 DCS-930 Network Camera
- 1 Ethernet Cable
- A Wired or Wireless router such as the D-Link DI-624 Wireless Router
- Ethernet based PC for system configuration

Setting Up the DCS-930 For Use Behind a Router

Installing a DCS-930 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

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-930, follow the steps outlined in the Quick Installation Guide.

After you have completed the setup of the DCS-930 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 program from the CD included with the DCS-930. Follow the steps in the Quick Installation Guide to configure the DCS-930. 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.

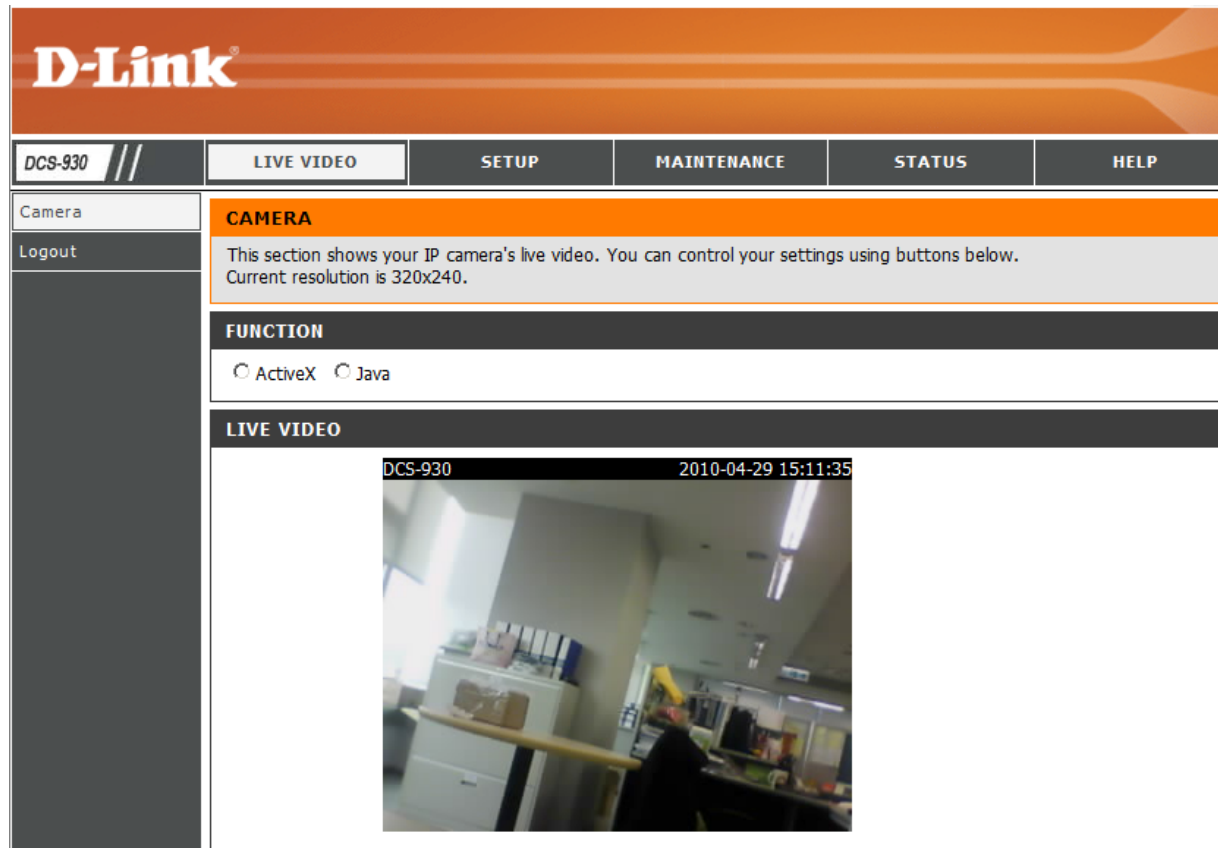
This is the IP Address assigned to your camera (192.168.0.120 is only an example). You will probably have a different IP Address.



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 Installation Wizard program. The DCS-930 Home 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 Configuration button on the left side of the display. Scroll to the bottom of the Network Configuration page to display the ports used by HTTP and Streaming video.



The screenshot displays the D-Link DCS-930 web interface. At the top, the D-Link logo is visible on an orange background. Below the logo is a navigation bar with buttons for "DCS-930 //", "LIVE VIDEO", "SETUP", "MAINTENANCE", "STATUS", and "HELP". The main content area is divided into sections: "Camera" and "Logout" on the left sidebar; "CAMERA" with a description of live video and resolution; "FUNCTION" with radio buttons for "ActiveX" and "Java"; and "LIVE VIDEO" which contains a video feed. The video feed shows an indoor office environment with a desk, a chair, and a person in the background. The video feed is labeled "DCS-930" and "2010-04-29 15:11:35".

Wireless Security

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

The DCS-930 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.

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The 2 major improvements over WEP:

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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.

Using & Configuring the DCS-930 with a NAT Router

D-Link's DCS-930 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-930 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.

Materials Needed:

- 1 DCS-930 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-930 for Use Behind a Router

Installing a DCS-930 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

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-930, follow the steps outlined in the Quick Installation Guide.

After you have completed the setup of the DCS-930 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.

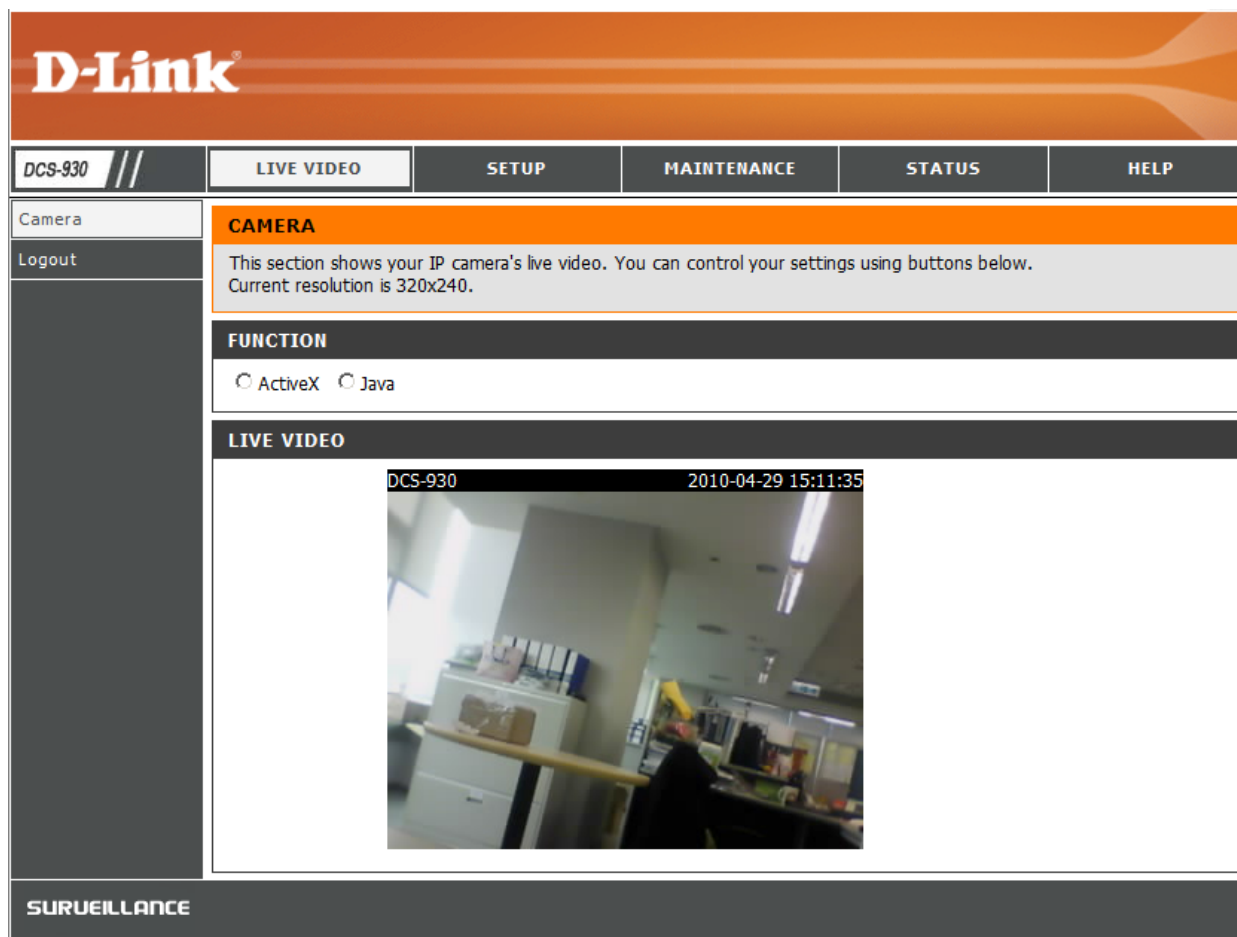
1. Assign a Local IP Address to Your Camera

Run the setup wizard from the CD included with the DCS-930. Follow the steps in the Quick Installation Guide to configure the DCS-930. 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-930 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 (see page 18) to display the ports used by HTTP and Streaming audio and video.



The screenshot displays the D-Link DCS-930 web interface. At the top, the D-Link logo is visible on an orange background. Below the logo is a navigation bar with tabs for DCS-930, LIVE VIDEO, SETUP, MAINTENANCE, STATUS, and HELP. The main content area is divided into several sections:

- Camera**: A sidebar menu with options for Camera and Logout.
- CAMERA**: A section with an orange header containing the text: "This section shows your IP camera's live video. You can control your settings using buttons below. Current resolution is 320x240."
- FUNCTION**: A section with a dark header containing radio buttons for ActiveX and Java.
- LIVE VIDEO**: A section with a dark header containing a live video feed. The video feed shows an indoor scene with a person and a counter. The video title is "DCS-930" and the timestamp is "2010-04-29 15:11:35".

At the bottom of the interface, the word "SURVEILLANCE" is displayed in a dark bar.

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-930.

Product: DCS-930		Firmware version: 0.80	
D-Link			
DCS-930 //	LIVE VIDEO	SETUP	MAINTENANCE
STATUS	HELP		
Wizard	NETWORK SETUP		Helpful Hints..
Network Setup	You can configure your LAN and Internet settings here.		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.
Wireless Setup	<input type="button" value="Save Settings"/> <input type="button" value="Don't Save Settings"/>		
Dynamic DNS	LAN SETTINGS		
Image Setup	<input checked="" type="radio"/> DHCP Connection <input type="radio"/> Static IP Address <input type="radio"/> PPPoE		
Video	IP Address <input type="text" value="192.168.0.20"/> User ID <input type="text"/>		
Audio	Subnet Mask <input type="text" value="255.255.255.0"/> Password <input type="text"/>		
Motion Detection	Default Gateway <input type="text"/>		
Mail	Primary DNS <input type="text"/>		
FTP	Secondary DNS <input type="text"/>		
Time and Date	PORT SETTINGS		
Logout	HTTP Port <input type="text" value="80"/>		
	UPnP SETTINGS		
	UPnP <input checked="" type="radio"/> Enable <input type="radio"/> Disable		
	UPnP Port Forwarding <input type="radio"/> Enable <input checked="" type="radio"/> Disable		
	<input type="button" value="Save Settings"/> <input type="button" value="Don't Save Settings"/>		

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 displays the 'DIR-655' web interface with a navigation menu on the left and a main content area. The 'DEVICE INFO' menu item is selected, leading to the 'DEVICE INFORMATION' page. The page has a top navigation bar with 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The main content area is divided into several sections:

- GENERAL:** Shows 'Time : 2007/10/10 PM 10:10:33' and 'Firmware Version : 1.02, 2006/10/13'.
- WAN:** Shows 'Connection Type : DHCP Client', 'QoS Engine : Active', 'Cable Status : connected', 'Network Status : connected', and 'Connection Up Time : N/A'. It also includes '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', and 'Secondary DNS Server : 0.0.0.0'.
- LAN:** Shows 'MAC Address : 00:19:5B:03:04:E8', 'IP Address : 192.168.0.1', 'Subnet Mask : 255.255.255.0', and 'DHCP Server : Enabled'.
- WIRELESS LAN:** Shows 'Wireless Radio : Enabled', 'WISH : Active', 'MAC Address : 00:19:5B:03:04:E8', 'Network Name (SSID) : dlink', 'Channel : 4', 'Security Mode : Disabled', and 'Wi-Fi Protected Setup : Enabled/Not Configured'.
- LAN COMPUTERS:** A table with columns 'IP Address', 'Name (if any)', and 'MAC'. It lists '192.168.0.155' for 'end_user' with MAC '00:05:5d:ce:b3:8d'.
- IGMP MULTICAST MEMBERSHIPS:** Shows 'Multicast Group Address : 239.255.255.250'.

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-930 over the Internet. The router connects to the Internet over a series of numbered ports. The ports normally used by the DCS-930 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.

Product Page: DIR-655 Hardware Version: A1 Firmware Version: 1.02

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

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-930 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.

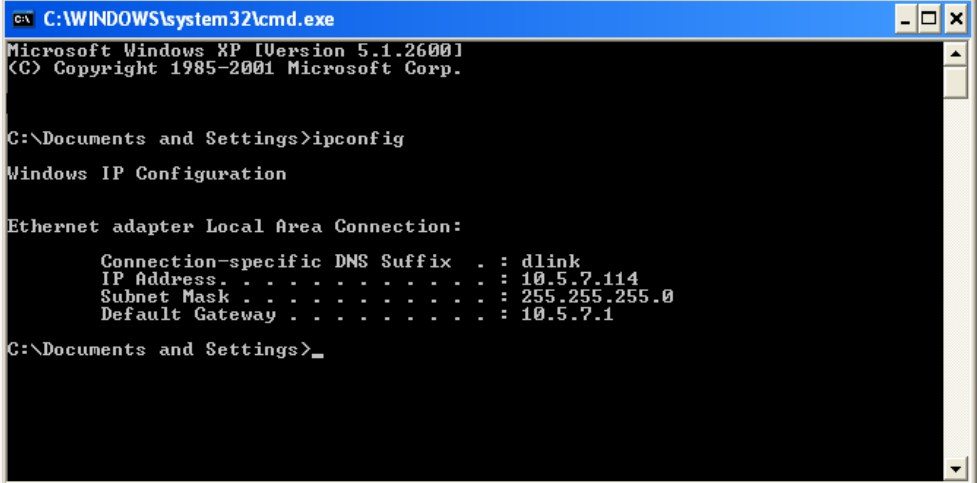
Click on **Start > Run**. In the run box type **cmd** and click **OK**.

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

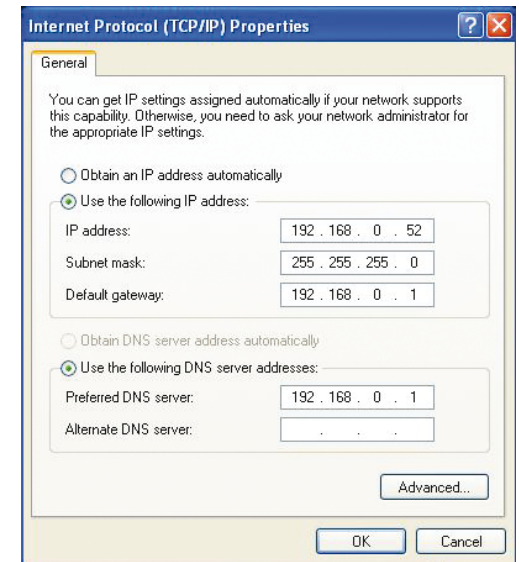
Click **Use the following IP address** and enter an IP address that is on the same subnet as your network or the LAN IP address on your router.

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.



Troubleshooting

1. 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 30 for information about how to enable the LED.

2. 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.

3. 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.

4. 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.

5. 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.

6. 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.

7. 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.

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
- LLTD
- UPnP-X1

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

FCC Notices

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.

CAUTION: Change or modification not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

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 communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one 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.

CAUTION:

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

RF exposure warning

This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provide with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance."

Canada Notices

Industry Canada regulatory information

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

The user is cautioned that this device should be used only as specified within this manual to meet RF exposure requirements. Use of this device in a manner inconsistent with this manual could lead to excessive RF exposure conditions.