D-Link

Version 1.0 | 12/19/2011

User Manual

DCS-5211L HD PoE Pan/Tilt Network Camera
DCS-5222L HD Wireless N Pan/Tilt Network Camera

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	December 19, 2011	DCS-5211L/5222L Revision A1 with firmware version 1.00

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Package Contents

DCS-5211L or DCS-5222L Network Camera; and a Remote Control Unit	
Power Adapter	
CAT5 Ethernet Cable	
Quick Installation Guide	
CD-ROM	
Camera Base and Mounting kit	

If any of the above items are missing from your package, please contact your retailer.

Note: *Using a power supply with a different voltage rating than the one included with the DCS-5222L/DCS-5221L will cause damage and void the warranty for this product.*

System Requirements

Network Requirements	• Wired (10/100/1000 Fast Ethernet) network • Wireless 802.11g/n/b network (DCS-5222L only)
CD Setup Wizard Requirements	• An Internet connection • A router connected to your broadband modem **Computer with the following:** • A PC with a wired connection to your router • Windows® XP(32/64bit), Windows® 7(32/64bit), Windows® Vista(32/64bit), MAC OS® X 10.5 or above
Web-based Configuration Utility Requirements	**Computer with the following:** • Windows® based operating system • An installed Ethernet adapter **Browser Requirements:** • Internet Explorer 7 or higher • Firefox 6.5 or higher • Safari 4 or higher • Chrome 8 or higher **Windows® Users:** Make sure you have the latest version of Java installed. Visit www.java.com to download the latest version.
myDlink Website Requirements	• Subscription with an Internet Service Provide (ISP) with 256 Kbps minimum for remote video viewing • Computer with: Microsoft Internet Explorer 6 or higher with ActiveX Support

Introduction

Congratulations on your purchase of the DCS-5211L/DCS-5222L Network Camera. The DCS-5211L/DCS-5222L is a versatile solution for your small office or home. The DCS-5211L/DCS-5222L is a complete system with a built-in CPU and web server that transmits high quality video images for security and surveillance. DCS-5211L/DCS-5222L can be accessed remotely, and controlled from any PC/Notebook over your local network or across the Internet via a web browser. The DCS-5211L included support for Power over Ethernet (PoE), so the camera can be placed in areas where on power outlet is nearby. The DCS-5222L features 802.11n wireless, allowing the camera to be placed anywhere within range of your wireless network. The DCS-5211L/DCS-5222L comes with remote monitoring and motion detection features for a complete and cost-effective home security solution.

Features

- **Simple to Use:** The DCS-5211L/5222L is a stand-alone system with a built-in CPU, requiring no special hardware or software such as PC frame grabber cards. The DCS-5211L/5222L supports both ActiveX mode for Internet Explorer and Java mode for other browsers such as Firefox® and Safari®.
- **Supports a Variety of Platforms:** The DCS-5211L/DCS-5222L supports TCP/IP networking, HTTP, and other Internet related protocols. It can also be integrated easily into other Internet/Intranet applications because of its standards-based features.
- **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-5211L/5222L anytime, anywhere in the world.
- **Broad Range of Applications:** With today's high-speed Internet services, the DCS-5211L/DCS-5222L Network Cameras can provide an ideal solution for live video over the Intranet and for remote monitoring. The DCS-5211L/DCS-5222L allow remote access from a Web browser for live image viewing and management of the network cameras anytime, from anywhere in the world. The network cameras have a wide range of applications, including industrial and public monitoring of homes, offices, banks, hospitals, child-care centers, and amusement parks.
- **802.11n Wireless or Ethernet/Fast Ethernet Support:** The 5222L offers wireless 802.11n and Ethernet/Fast Ethernet connectivity, making the 5222L easy to integrate into your existing network environment. The 5222L 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.
- **Remote Monitoring Utility:** The D-ViewCam application adds enhanced features and functionality for the Network Camera and allows administrators to configure and access the Network Camera from a remote site via Intranet or Internet. Other features include image monitoring, recording images to a hard drive, viewing up to 32 cameras on one screen, and taking snapshots.
- **IR LED for Day and night functionality:** The built-in infrared LEDs enables night time viewing of up to 16 feet (5 meters).

Hardware Overview DCS-5211L

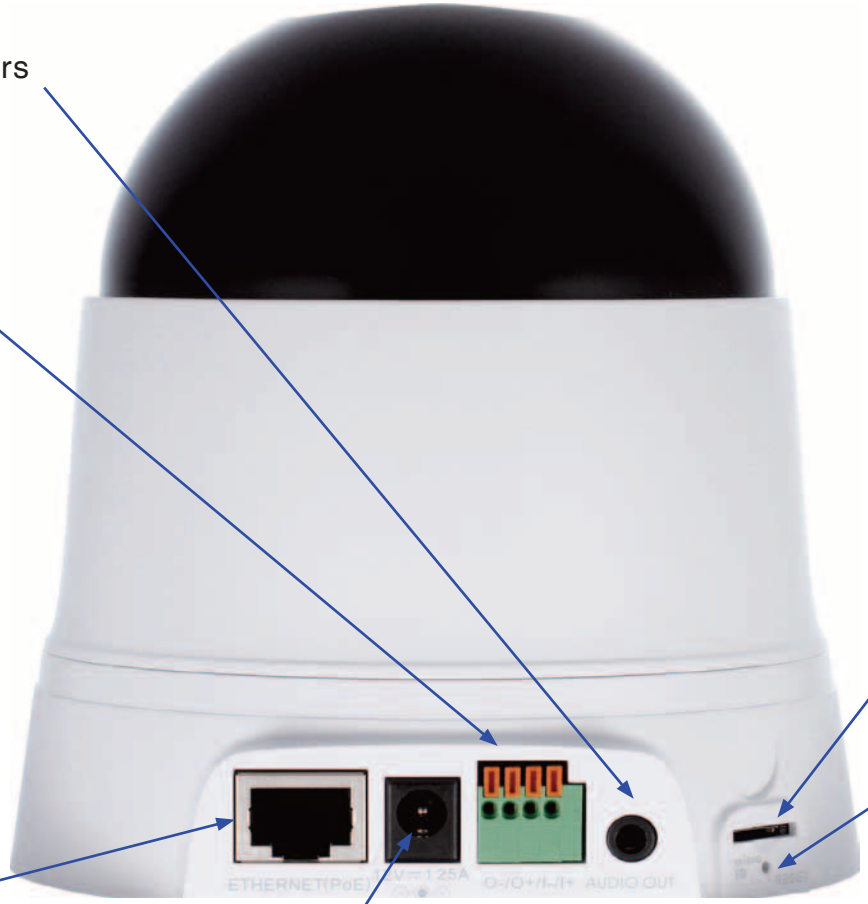
Front

Hardware Overview DCS-5211L

Back

Audio Out
Connect headphones/speakers to provide audio out .

I/O Connector
Connect an I/O cable to the DCS-5211L.



Micro SD
Insert Micro SD card here.

Reset Button
Press and hold to reset to factory standard.

Ethernet port
Connects to a PC or network through an Ethernet connection.

Power jack
Connects to the power adapter.

Hardware Overview DCS-5222L

Front

Hardware Overview DCS-5222L

Back

Wireless Antenna

WPS Button

Audio Out
Connect headphones/speakers to provide audio out .

I/O Connector
Connect an I/O cable to the DCS-5222L.

Micro SD
Insert Micro SD card here.

Reset Button
Press and hold to reset to factory standard.

Ethernet port
Connects to a PC or network through an Ethernet connection.

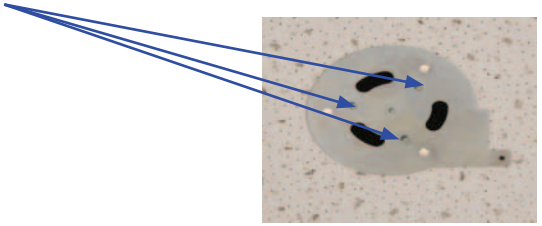
Power jack
Connects to the power adapter.

Hardware Installation

Wall and Ceiling Installation

The device can be mounted on a wall or a partition. To install,

A) select the position that you want the camera to sit on the ceiling or floor. The plate should have the three ball catches facing downwards.



B) Using the provided screws; screw the mount to the wall or ceiling, with the correct tools, where the device is to be placed.

C) Holding the IP camera firmly, place the IP camera in the mount and swivel until secured.

Inserting a Micro SD Card

Insert your Micro SD card into the Micro SD card slot on the DCS-5211L/DCS-5222L.

Attaching a cable to the I/O Terminal.

The 4-pin I/O connector is located at the rear panel and provides an interface for photo-coupled switch output and photo-coupled input. An example of what can be done with a digital input and digital output is the connecting of a motion sensor to the port, signalling the camera to take a snapshot and trigger an alarm connected to the port.*

Connect the Ethernet Cable

Connect one end of the blue Ethernet cables included in your package to the Ethernet port on the back of the DCS-5211L/DCS-5222L camera. Connect the other end of the cable to an available LAN port on your router or broadband modem.

Ethernet port

Connect the Power Adapter

Attach the power adapter to the power jack located on the back of the DCS-5211L/DCS-5222L and connect the power adapter to a power outlet. After connecting the power adapter, you should see the status LED on the front of the camera become red.

The status LED will light red when it receives power, will light green after the camera connects to the network, and will flash green when the camera is being accessed.

Power Jack

Setting up a Wireless Connection with WPS

If your wireless access point or router supports push-button wireless protected setup (WPS), it is possible to quickly configure the wireless network and DCS-5222L camera without using the camera's web interface.

After plugging the power adapter to your camera and the front status LED lights up, hold down the WPS button next to the Micro SD card slot for 3 seconds.

Now press the WPS button on your router or access point within 1 minute to activate WPS and allow your devices to automatically configure a wireless connections.

Note: On some network routers/access points, WPS may need to be activated via the device setup or web-interface. Consult your product's user manual for further assistance.

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 in not in use.

Camera Installation Wizard

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

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

WPS - Push Button Setup

Alternatively, you may create a connection to the camera using Wi-Fi Protected Setup (WPS).

To create a WPS connection:

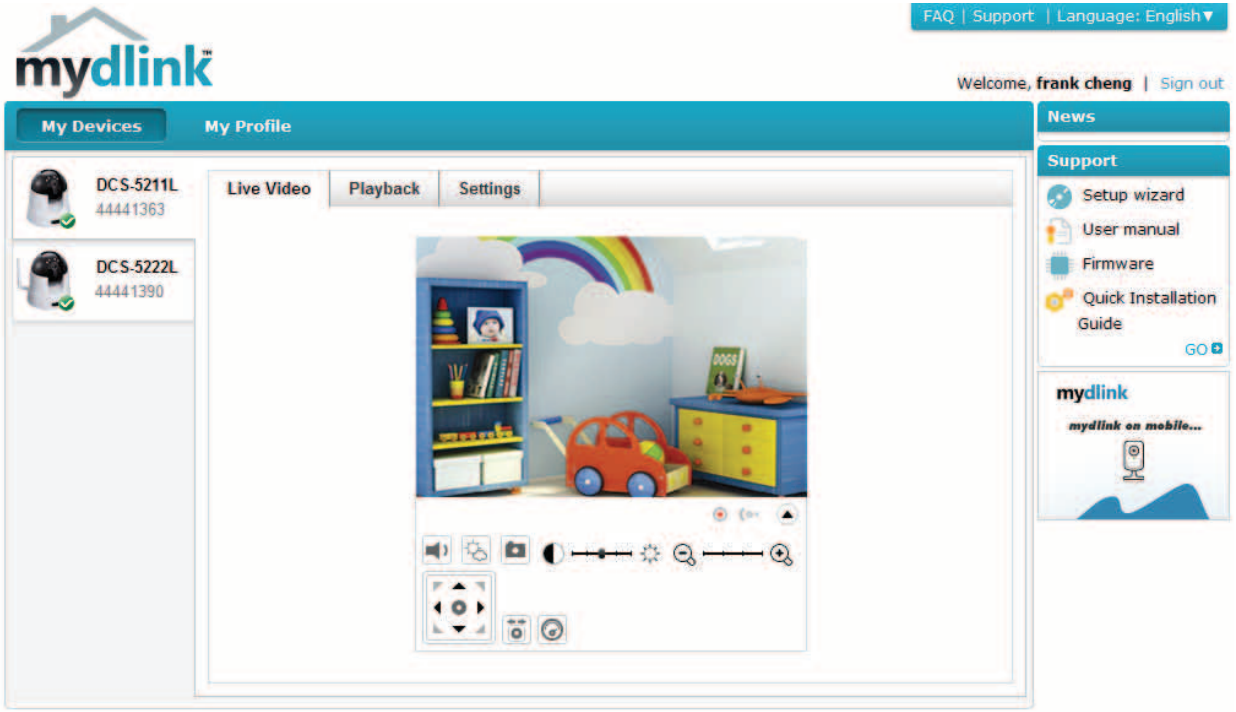
Step 1
Press and hold the WPS button for three seconds. The blue WPS status LED above the button will blink.

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 5222L will automatically create a wireless connection to your router. While connecting, the green LED will flash and your camera will reboot.

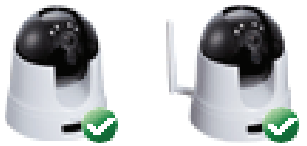
mydlink Portal

After registering your DCS-5211L/5222L camera with a **mydlink** account in the Camera Setup 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:

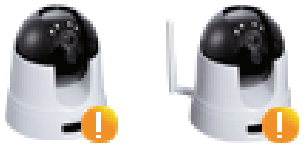


Camera Status

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



A green tick mark 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.

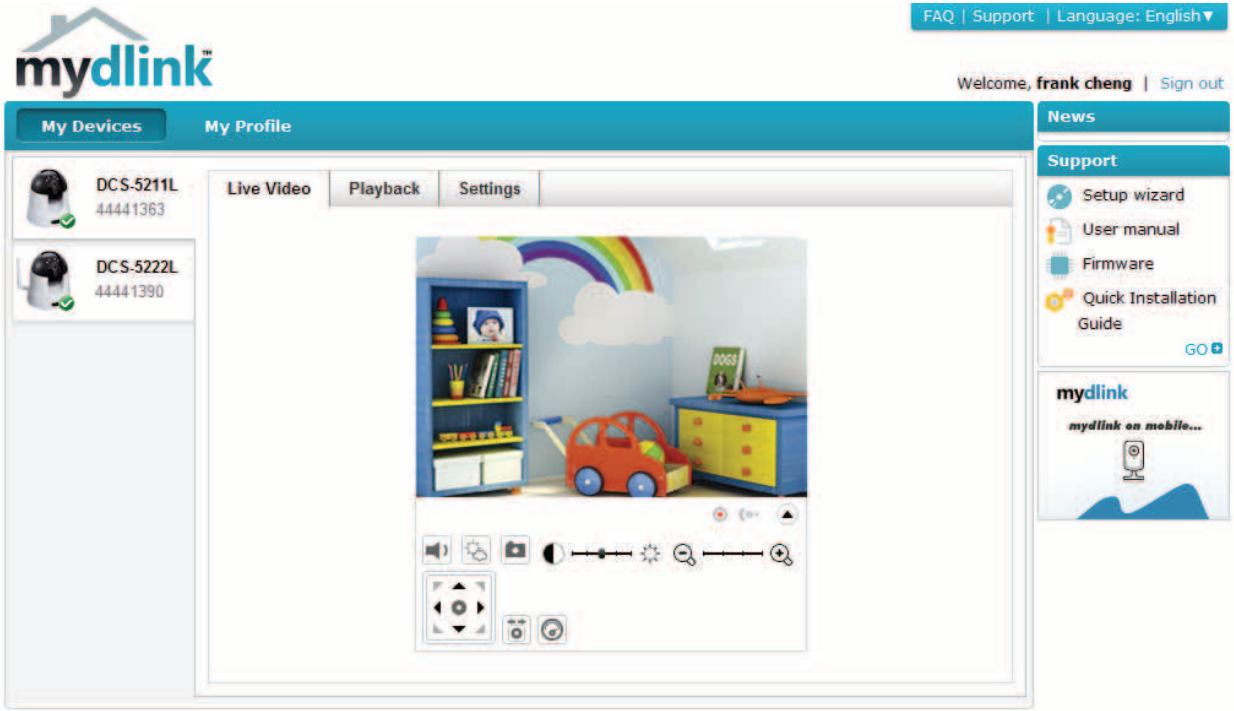
If your camera is offline, try the following:

- 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 power LED on your camera is lit solid red.

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

Live Video

If the camera is available, a Live Video feed will be displayed. Video will be shown at full resolution if viewing your camera from a PC on the same local network, or viewing your camera from a PC on a remote network.



Camera Info/Playback

The Camera Info tab displays various details 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.

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.

Camera activated on: Displays the time and date that your device was added to mydlink.

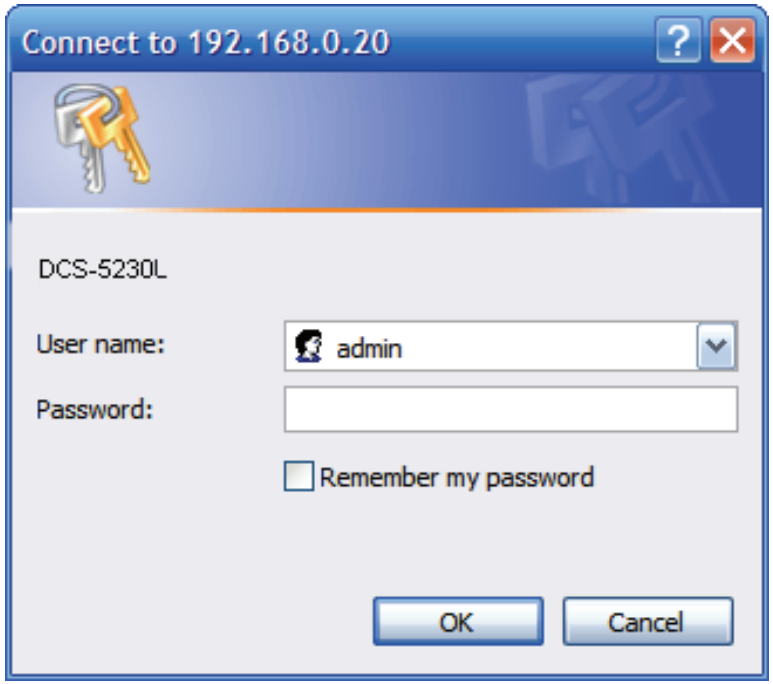
Advanced Setting: You can set up advanced configuration by clicking Advanced Setting Button.

Delete Camera: You can remove your camera by clicking Delete Camera button.

Search for clips to view: Seraching recording time after download or playback.

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-5211L/5222L. At the end of the wizard, click **Go To Camera**, or enter the IP address of your camera into a web browser, such as Mozilla Firefox. 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**.



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 free from Sun's web site (http://www.java.com).

A live feed from the camera is displayed upon logging into the camera's web interface.

P/T/Z Action Pad: Use the **Pan / Tilt / Zoom** Action Pad to control the camera's movement and zoom. The large tree icon controls the zoom-in function. The small tree icon on the right side controls the zoom-out function. The **Home** button will move the camera to the "Home" preset position.

Go To: Select from the preset drop-down list to quickly move the camera to the desired preset position. Please refer to "camera control" setup to create preset positions.

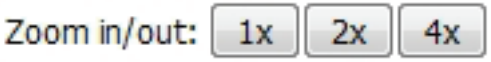
Pan/Tilt Speed: This setting can change the camera's Pan/Tilt speed.

Pan: Press this button and the camera will pan from left-most position to the right-most position and then return to its original position.

Stop: This will stop pan and patrol.

Patrol: Click this button to quickly move the camera to the desired patrol setup according to preset positions. Please refer to "camera control" setup to create preset positions.

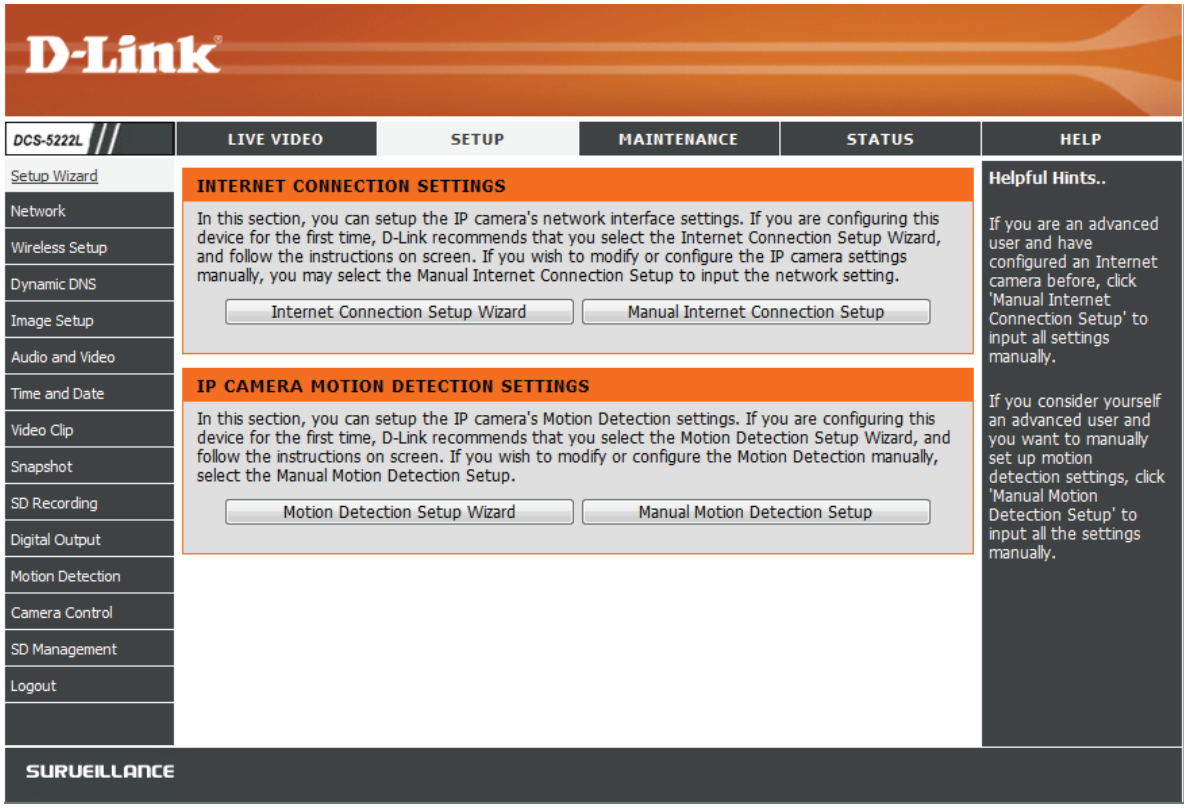
The next page contains several icons which can be used to control the camera's main functions.

Icon	Button Name	Function
	Profile buttons	Use these buttons to switch between video profiles. Refer to page 27 for more information on setting up profiles.
	Full Screen button	Displays the video at full screen.
	Snapshot button	Takes a snapshot of the image currently displayed on the screen and will save it to a file on the hard drive in a folder specified using the Storage folder button.
	Video recording button	Triggers the camera's recording function. This will record the video displayed on the screen and will save it to a file on the hard drive in a folder specified using the Storage folder button.
	Storage folder button	Sets the location to save snapshots and video recordings.
	Listen button	Sends the audio received from the camera's microphone through to the PC's speakers. Click again to turn off.
	Talk button	Sends audio from a microphone connected to your PC through to the speakers connected to the camera.
	Zoom buttons	Zooms in or out.

Setup

Setup Wizard

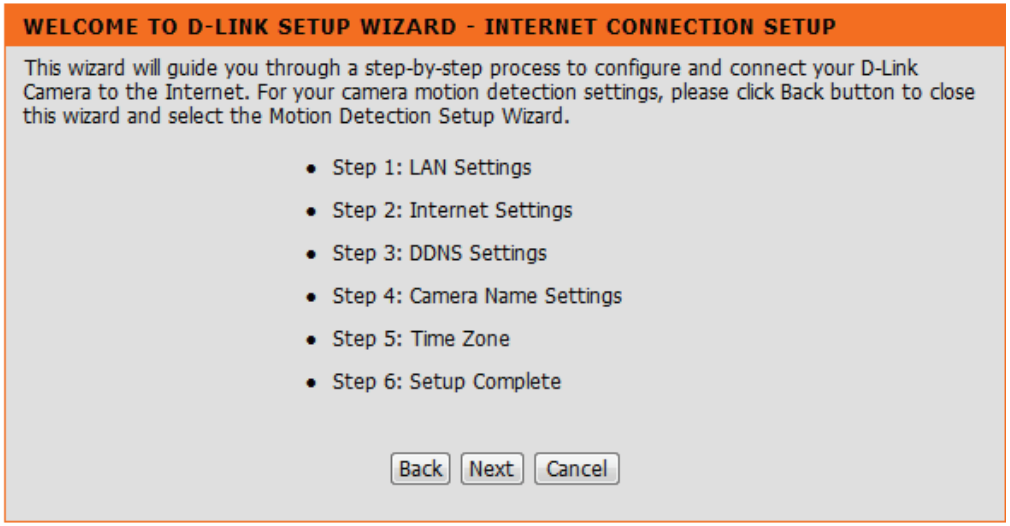
You may choose to configure your network by using the **Internet Connection Setup Wizard** that includes step-by-step instructions to connect your camera to the Internet. Alternatively, you can manually configure your connection by clicking **Manual Internet Connection Setup**.



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. **Note that this wizard will not register your camera with mydlink.com**.

Click **Next** to continue.



Select **Automatic IP Address** if you want your DHCP server (usually enabled on your router) to assign the camera its IP settings. If you want to manually assign the IP settings, select **Static IP Address** and enter the following details:

IP Address: Enter an IP address for your camera.

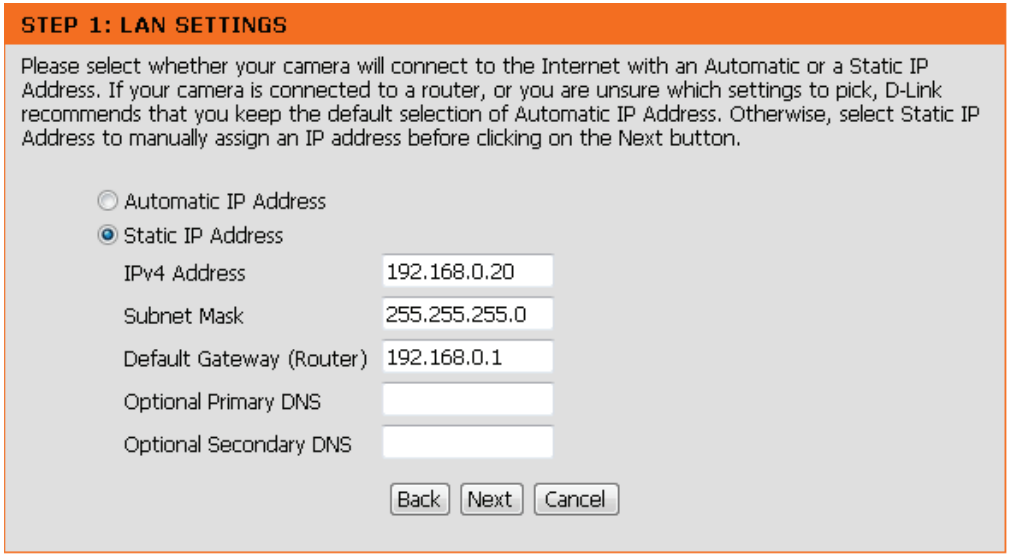
Subnet Mask: Enter the subnet mask of your network.

Default Gateway: Enter the default gateway address. This is usually the IP address of your router.

Primary DNS: Enter the primary DNS server's IP address. This is usually the IP address of your router.

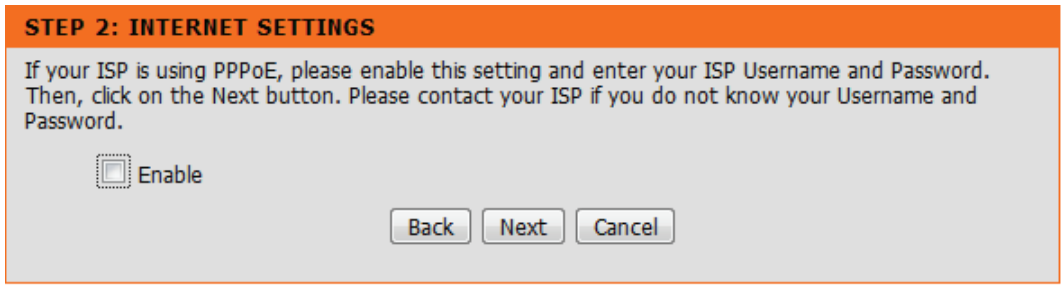
Secondary DNS: Enter the secondary DNS server's IP address. This is optional.

Click **Next** to continue.

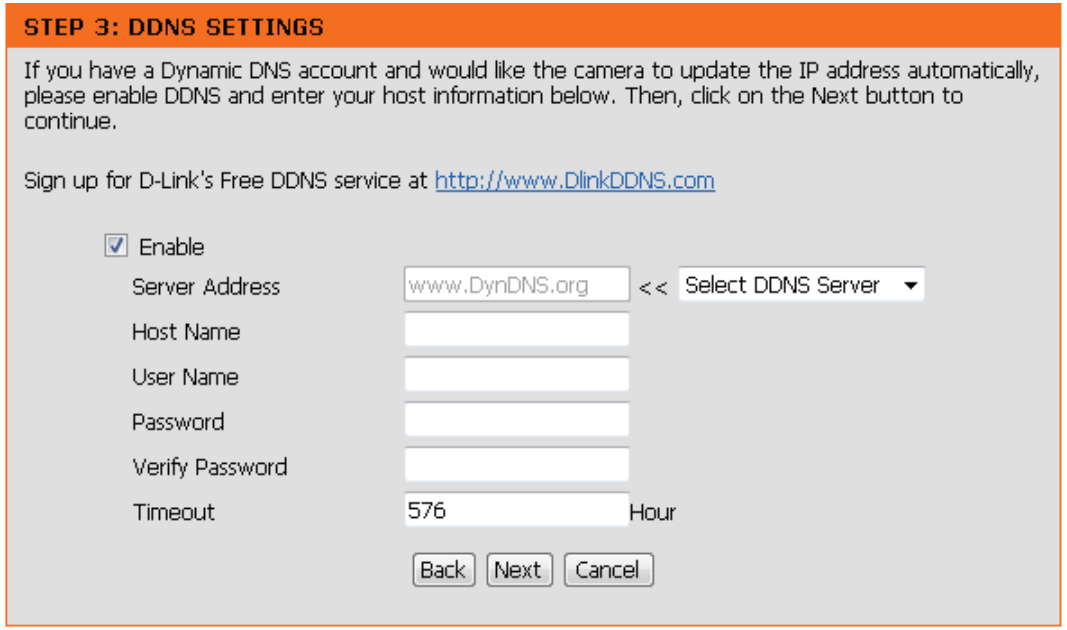


If you are required to connect using PPPoE, select **Enabled** and enter the Username and Password for your PPPoE connection. Only select this option if your camera is directly connected to your broadband modem. If it is on a network with a router or gateway, do not select.

Click **Next** to continue.



A Dynamic DNS account allows you to access your camera over the Internet when you have an IP address that changes each time you connect to the Internet. If you have a Dynamic DNS account, click **Enable** and enter the following details:



Enable: Click to enable the DDNS function.

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.

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

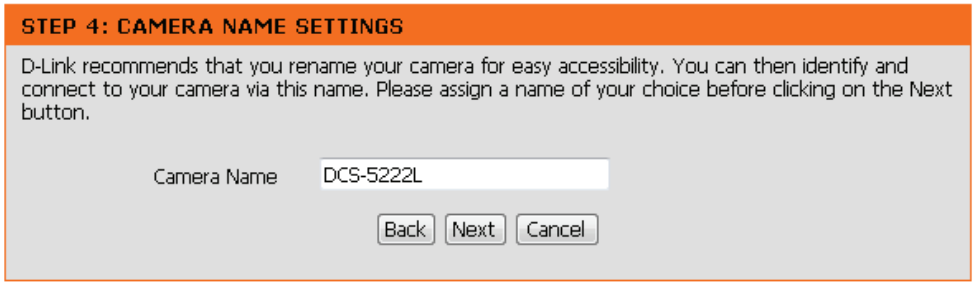
Host Name: Enter the host name of the DDNS server.

User Name: Enter your username or email address used to connect to the DDNS.

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

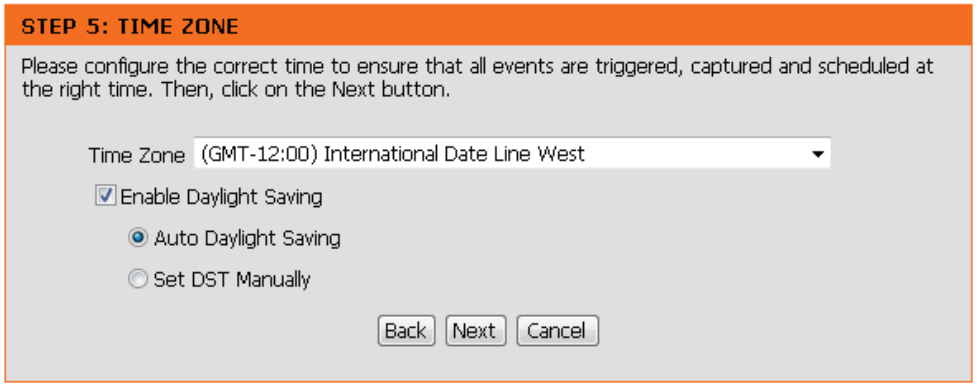
Timeout: You can setup how often the camera notifies the DDNS server of its current global IP address by entering a whole number in hours.

Create a unique name for your camera. Click **Next** to continue.

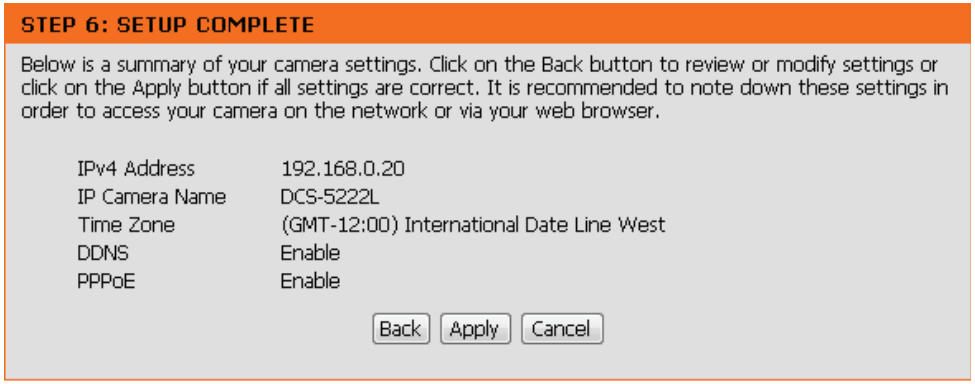


Select the time zone that the camera is in so that scheduled events occur at the correct time. If your time zone observes daylight saving, check the **Enable Daylight Saving** box and select **Auto Daylight Saving** to have DST set automatically or select **Set date and time manually** to enable drop-down menus so that you can set the start and end time of daylight saving yourself.

Click **Next** to continue.



A summary of the options you selected is displayed for confirmation. If you are happy with the selected configuration, click **Apply** otherwise click **Back** to make the required changes.



Network

This section allows you to configure your LAN and Internet configuration.

Automatic IP Address Select: This option is used if you would like an IP address assigned to your camera automatically by the DHCP server (router). If the DHCP server does not exist you will need to manually configure this setting should no DHCP server exist.

Static IP Address: This option is used to manually configure your Camera's IP settings.

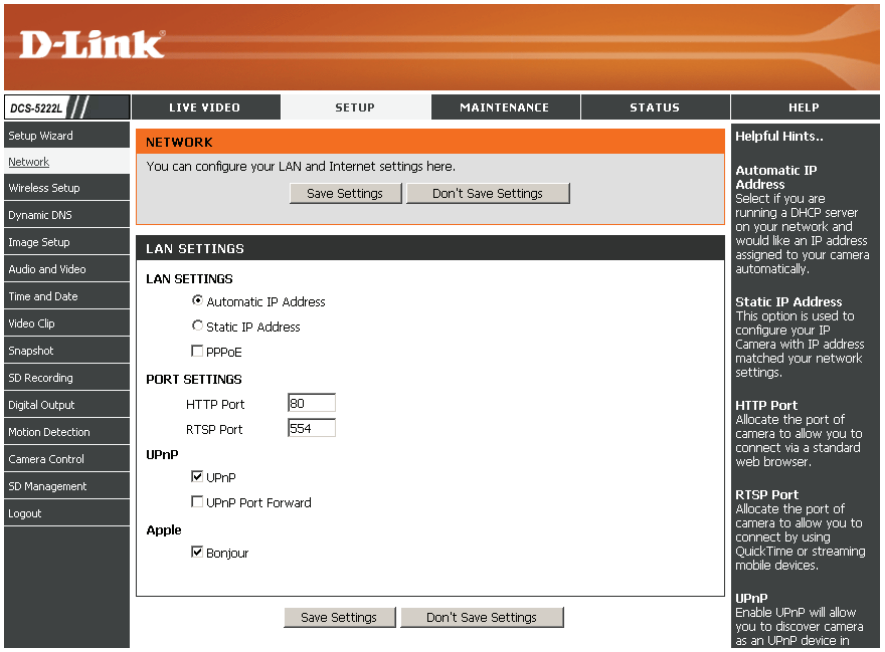
HTTP Port: This option allocates the HTTP port of the camera.

RTSP Port: This option allocates the RTSP port of the camera, the RSTP port allows connections using QuickTime or other supported media players.

UPnP Enable: UPnP™ (Universal Plug & Play) can be used to allow discovery of a camera as a UPnP device in your network.

UPnP Port Forward: If your router supports UPnP, your camera and router can communicate allowing the router to discover which ports are used by each camera automatically without the need to open ports or port forward.

Bonjour: Enabling Bonjour will allow discovery of cameras by Mac computers.



Note: *You MUST also set up your router/gateway for Port Forwarding/Mapping; this will enable remote viewing of your camera via the Internet. Please refer to your router's instruction manual on how to open up ports (port forward). For additional help on configuring your camera to work with your router, please refer to* ***Appendix A: Installing the DCS-5211L/DCS-5222L on a Router Without UPnP****. For installing multiple cameras, ONE port per camera must be opened on your router, the Web server (HTTP) port. Also, some browsers may restrict some ports, such as 1 or 22, for security purposes. If you have problems accessing your camera through HTTP, try using a port higher than 1024.*

After making any changes, click the **Save Settings** button to save your changes, or click the **Don't Save Settings** button to discard your changes.

Wireless

To set up your Network camera's wireless network interface settings, enable **Wireless Settings** in this window first. Then continue the further configuration next.

Site Survey: Click the **Rescan** button to scan for available wireless networks. After scanning, select a wireless network from the drop-down box that you want to connect to.

SSID: The name of the wireless network.

Wireless Mode: Use the drop-down box to select the mode of the wireless network you wish to connect to. **Infrastructure** is normally used to connect to an access point or router. **Ad-Hoc** is usually used to connect directly to another computer.

Channel: If you are using Ad Hoc mode, select the channel of the wireless network you wish to connect to, or select **Auto**.

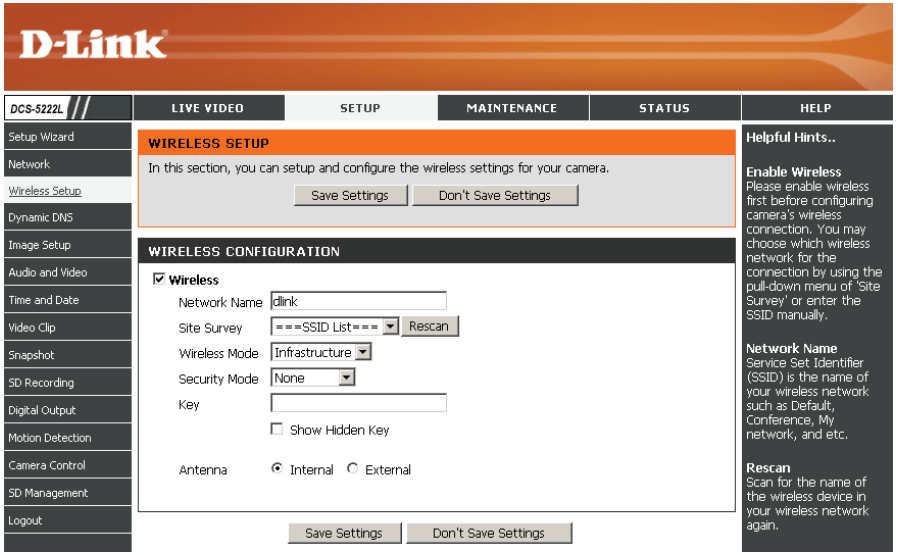
Security Mode: Select the type of authentication you are using on your wireless network (**Open**, **Shared (WEP)**, **WPA-PSK**, or **WPA-PSK2)**.

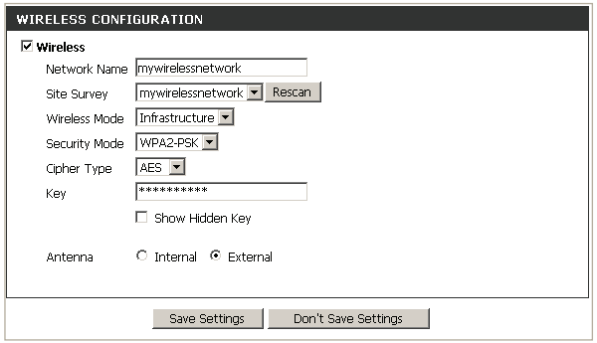
Cypher Type: If you are using **WPA-PSK** or **WPA-PSK2** authentication, you will need to specify whether your wireless network uses TKIP or AES encryption. If you use **Open** or **Shared** authentication, this setting will be automatically set for you.

Key: Enter the key or passphase to access a secure network.

Show Hidden Key: Check this box to display the key.

Antenna: Select to use the internal or external wireless antenna.





After making any changes, click the **Save Settings** button to save your changes, or click the **Don't Save Settings** button to discard your changes.

Dynamic DNS

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.

DDNS: Click to enable the DDNS function.

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

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

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

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

Confirm Password: Enter your password again for verification.

Timeout: You can setup how often the camera notifies the DDNS server of its current global IP address by entering a whole number in hours.

Status: Displays the connection status of your DDNS account.

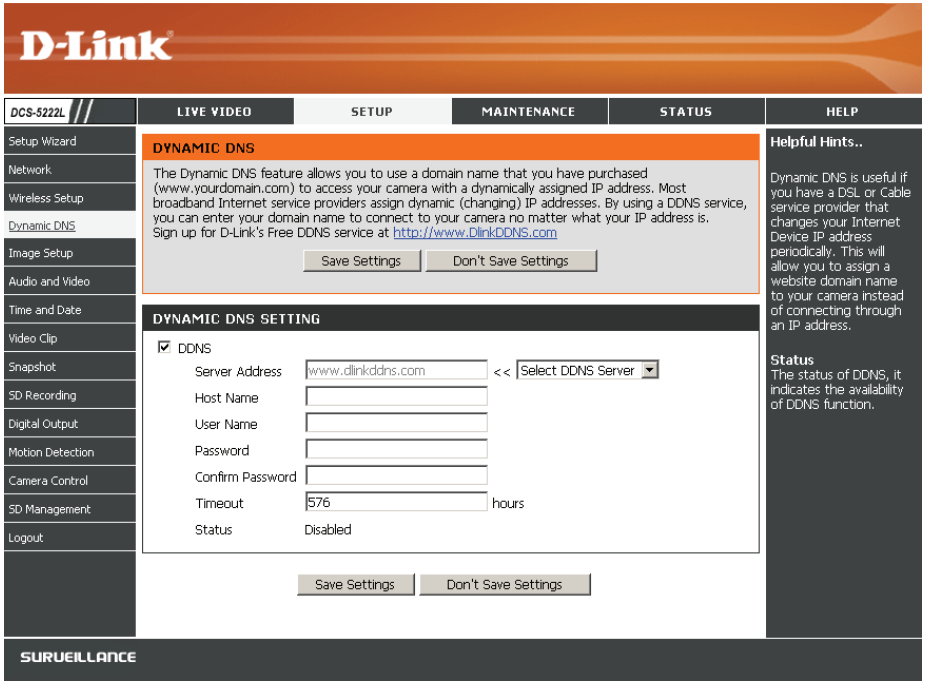


Image Setup

This section allows you to adjust the image and sensor settings for your camera.

Brightness: This adjusts the brightness of the camera image.

Saturation: This adjusts the color saturation. Saturation controls the strength of color in the image.

Contrast: This adjusts the contrast of the camera image, making a dull image sharper or a bright image smoother.

Hue: The Hue controls the different degree of color stimulation in the camera image.

Frequency: This option adjusts the camera sensor's setting to avoid the image flickering under certain light sources, such as florescent lights. This is set to **Auto** by default.

White Balance: You can change the white balance of the camera image by selecting a setting from the drop-down box. This is set to **auto** by default.

B/W: Click this checkbox to change the camera image into black and white.

Flip: This will flip the image vertically.

Mirror: This will flip the image horizontally.

Slow Shutter: This can be used to allow manual control of the shutter speed. Select slower shutter speeds when environment is dimly lit, faster speeds are required when in brighter lighting.

***Note: Mirror** and **Flip** can be used if you have mounted the DCS-5222L on the ceiling.*

Audio and Video

You may configure four video profiles with different settings for your camera. You may also set up different profiles for your computer and mobile display. In addition, you may configure the audio (speakers and microphone) settings for your camera.

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 the drop-down menu. 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.

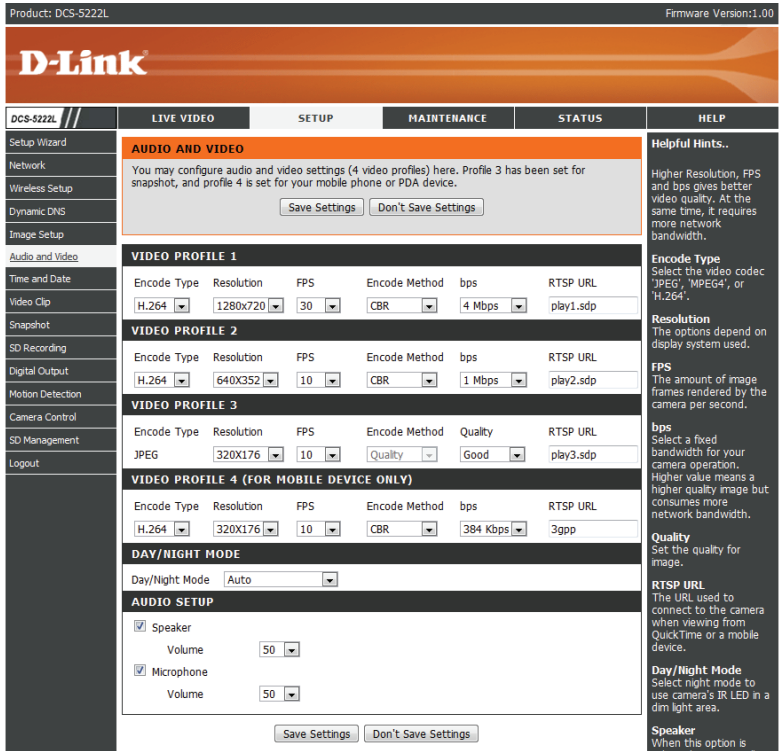
bps: Select the bitrate to assign the video. This is a constant bitrate. A higher bitrate will result in better looking video at the expense of a larger file size.

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

RTSP URL: The URL used to connect to the camera when viewing from QuickTime or a mobile device.

Day/Night Mode: Allows you to control the IR LEDs on the front of the camera. Note that when this option is enabled, live feed video will be in black and white, and ICR filter will be activated.

Audio Setup: Allows you to enable or disable and adjust the volume level of the speaker and microphone. If you select speaker, you must attach external speakers to the audio port on the camera.



Note: *Video Profile 3 is always set to MJPEG as the Encode Type to ensure that at least one of the Video Profiles are viewable by non-IE browsers. Video Profile 4 is for mobile devices only, and always uses MPEG-4 as the Encode Type.*

Note: Higher frame size, frame rate and bit rates will give you better video quality, but they will also require more network bandwidth. For best viewing results on a mobile phone, we suggest setting the frame rate to 5 fps and the bit rate to 20 Kbps.

After making any changes, click the **Save Settings** button to save your changes, or click the **Don't Save Settings** button to discard your changes.

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.

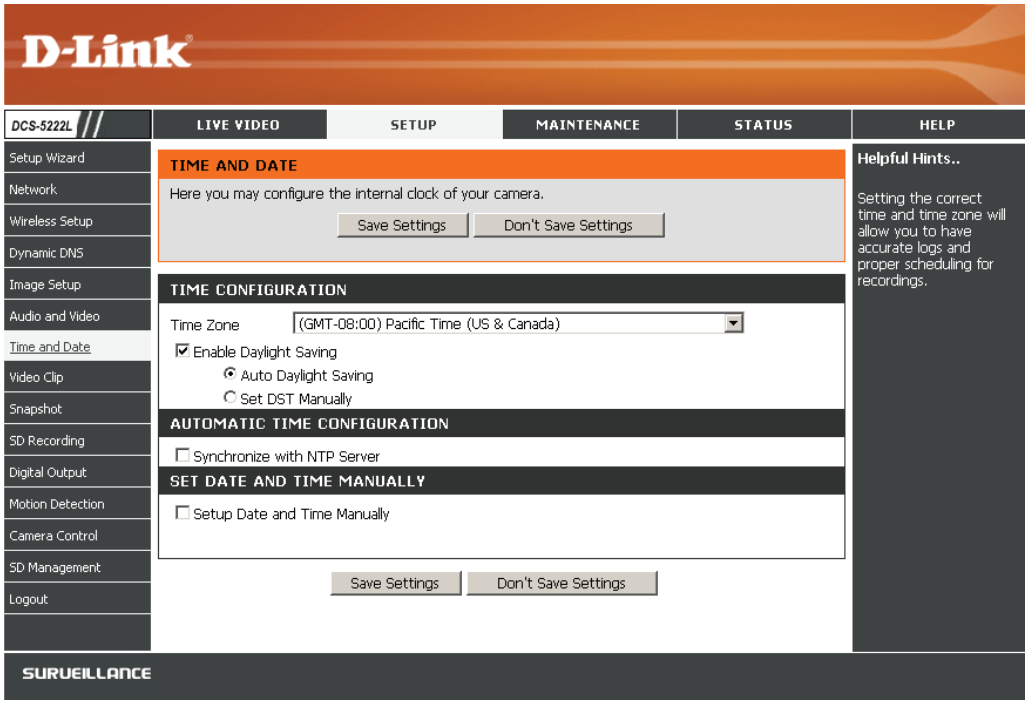
Enable Daylight Saving: Check this if the camera is in a region where daylight saving is observed.

Auto Daylight Saving: This option will adjust Daylight Saving Time automatically.

Synchronize NTP Server: Network Time Protocol will synchronize your camera with an Internet time server. You can enter an IP address of a server or select from the drop-down menu.

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

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



After making any changes, click the **Save Settings** button to save your changes, or click the **Don't Save Settings** button to discard your changes.

Video Clip

Video Clip is a feature to send video clips via FTP or E-MAIL when a trigger is activated.

Video Clip: Check this box to enable the Video Clip function.

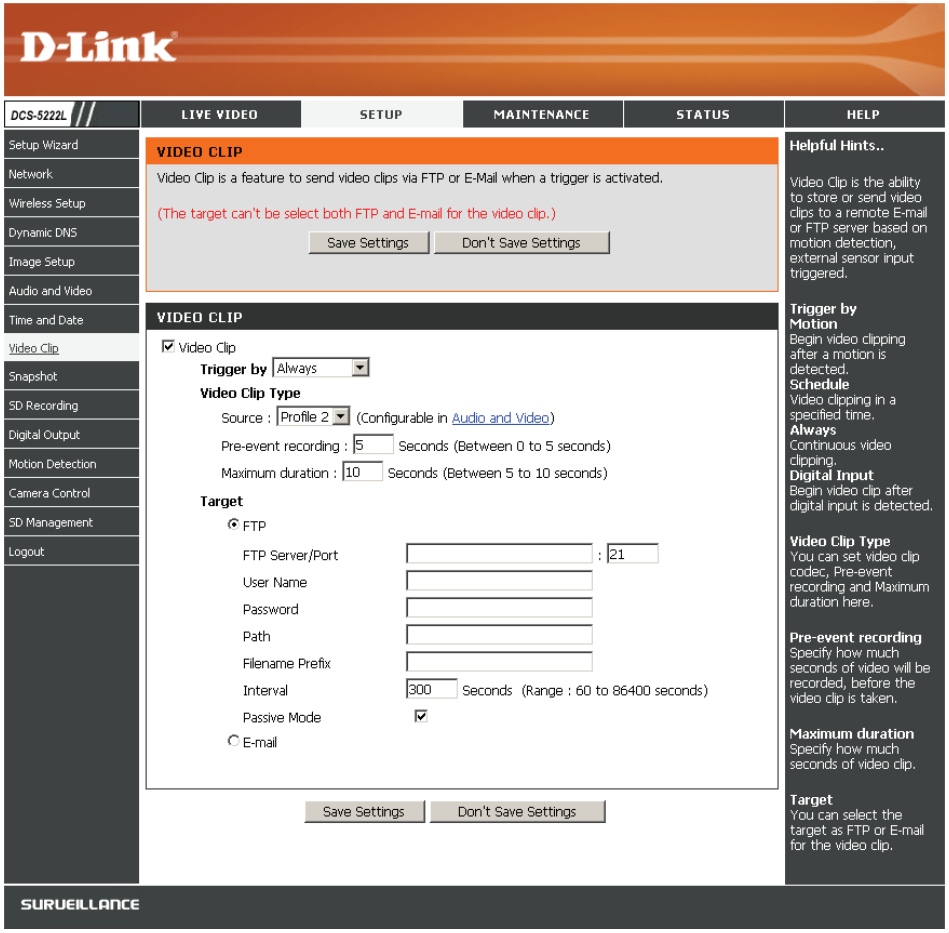
Trigger By: Select whether the event is triggered by **Motion, Schedule** or if the video is **Always** recording.

Video Clip Type: Displays the profile used for the recording and allows you to specify whether to start recording up to 5 seconds before the event to ensure the event is captured and the maximum duration of the video clip.

Target: Select where you want the video clip to be sent. It may be uploaded to an FTP or emailed to an email address.

You will need to enter your FTP or email server/ account settings.

After making any changes, click the **Save Settings** button to save your changes, or click the **Don't Save Settings** button to discard your changes.



Snapshot

Here, you can set the camera to take snapshots when motion is detected. Snapshots can be sent to an e-mail address or to an FTP server.

Trigger by: Select the trigger event from the drop-down menu. **Motion** begins a snapshot after a motion is detected; **Schedule** sends "snapshots" at a specified time; **Always** provides continuous snapshots.

Snapshot Type: Select whether to take a single snapshot or to take 6 snapshots with a 1 second interval between them.

Target: Select where you want the snapshot to be sent. It may be uploaded to an FTP or emailed to an email address.

You will need to enter your FTP or email server/account settings.

After making any changes, click the **Save Settings** button to save your changes, or click the **Don't Save Settings** button to discard your changes.

SD Recording

This option allows you to configure and scheduling the recording of your camera. You can record video to the local SD Card.

Enable recording: Check this checkbox to enable the recording feature. After enabling recording, you will need to select a scheduling method.

DS Card: Select this option if you have inserted an available SD card into the camera.

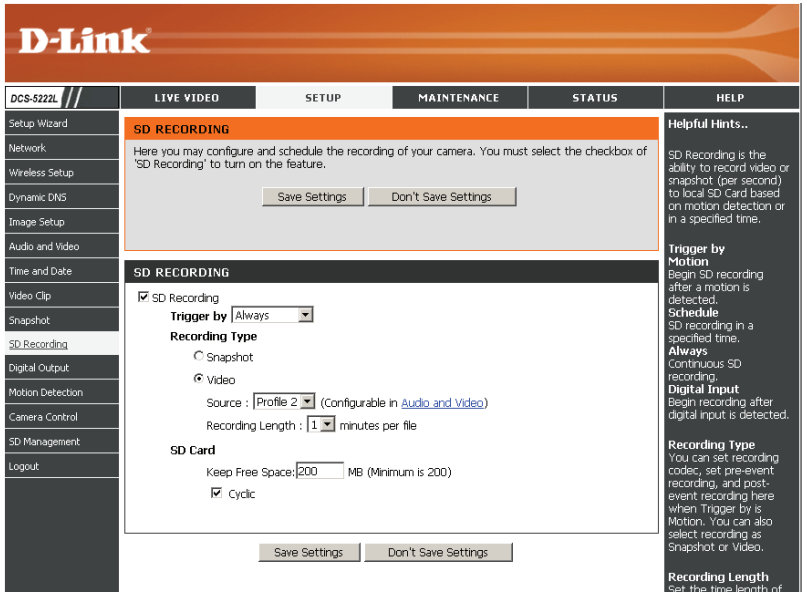
Trigger by: Select the type of trigger event from the drop-down menu. **Motion** begins recording video/snapshot after a motion is detected; **Schedule** records video/takes snapshots at a specified time; **Always** will record video/take snapshots continuously.

Recording Type: Select to record video or take a snapshot.

Recording Length: Select the length of time for each video file.

Keep Free Space: This sets the capacity of your local SD Card to prevent the system from becoming unstable.

Cyclic: When this option is selected, it will cause the oldest file to be deleted when the system requires storage space for new files.



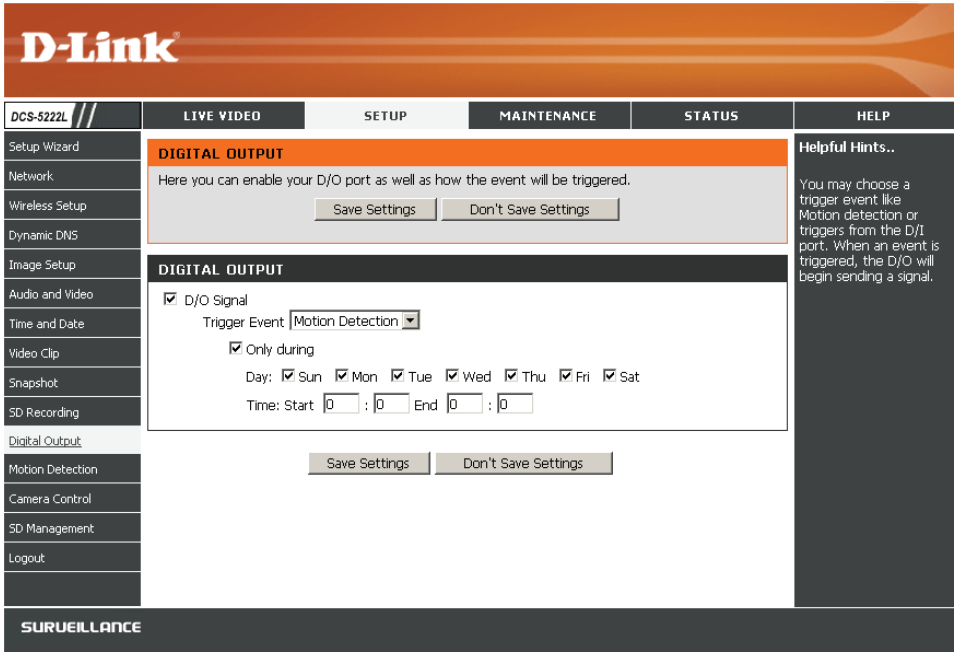
After making any changes, click the **Save Settings** button to save your changes, or click the **Don't Save Settings** button to discard your changes.

Digital Output

You can enable the digital output port as well as configure a trigger event.

Motion Detection: When a motion detection is triggered.

D/I Signal: A trigger from the Digital Input port.



Motion Detection

This option allows you to set up Motion Detection on your network camera. In order to use motion detection, first check the **Enable Video Motion** checkbox. Next, click on the video window and draw motion detection zones by clicking and dragging the mouse cursor. Red areas indicate areas that will be monitored for motion. The camera also has a PIR sensor which is used to detect motion using a special infrared sensor. PIR is good at detecting motion from live subjects such as people and animals.

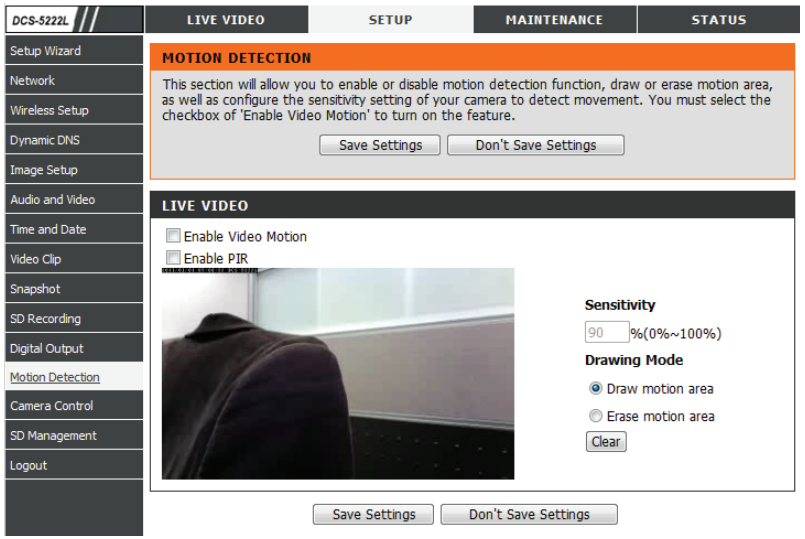
Enable Video Motion: Check this box to enable the motion detection feature of your camera.

Enable PIR: When this option is selected, use PIR (passive infrared) to detect motion.

Sensitivity: This setting adjusts how sensitive the camera will be to motion, where 100% will be the most sensitive setting and 0% will be the least sensitive setting.

Drawing Mode: Select **Draw Motion Area** to select the area of the picture to monitor for movement to trigger recording or snapshot. Use your mouse to click on the blocks that you would like to monitor for motion. Select **Erase Motion Area** to remove the blocks and stop the camera from monitoring that area of the picture.

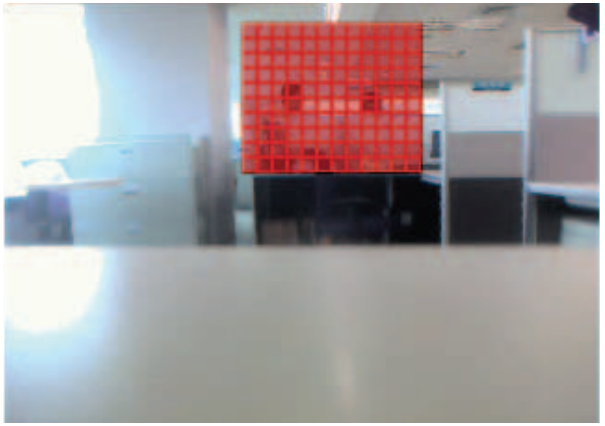
Clear: Clicking this button will clear all motion detection zones.



After making any changes, click the **Save Settings** button to save your changes, or click the **Don't Save Settings** button to discard your changes.

Note: *If the camera is set to SXGA mode in Audio and Video, Motion Detection is disabled.*

The red grid on the right indicates an area that has been selected for motion detection. When motion is detected, the LIVE VIDEO page will display a blinking orange motion video icon like the one below.



No Motion

Motion

The motion notification will continue to blink as long as motion is detected. If no additional motion is detected, it will return to its original state after eight seconds.

Camera Control

Select the **Preset Position** from the drop-down menu to access settings that affect how the Internet Camera can pan and move to preset locations.

Set As Home: Click to set the current position as Home.

Default Home: Click to set the Home position with the default setting.

Pan Step: Select the speed at which the camera will pan for a full cycle from the drop-down list. Select a value between 0 and 10, 0 being the slowest setting.

Tilt Step: Select the speed at which the camera will tilt for a full cycle from the drop-down menu. Select a value between 0 and 10, 0 being the slowest.

Preset Name: Enter a name for your camera location and click **Add**.

Present Position: Select created presets from the drop-down menu.

Patrol Selection: If you want to delete an entry, select it and then click **Delete**.

To use the Auto Patrol feature, select the desired preset positions from the *Preset Locations* list and add them to the *Patrol Positions* list by clicking **Select**. You can then select the order in which the camera will patrol through the preset locations by selecting a location and clicking **Up** or **Down**. Click **Remove** to remove a location from the list. Click **Save** when finished.

SD Management

This page allows you to browse and manage the recorded files on an SD card which is inserted into the camera.

Format SD Card: Click to automatically format the SD Card and create folder for video. Formatting your SD Card will erase all data currently saved.

Delete: Click the checkbox in front of the Delete button to select all the files and catalogs below. The Delete button is used to delete the files or catalogs which are selected.

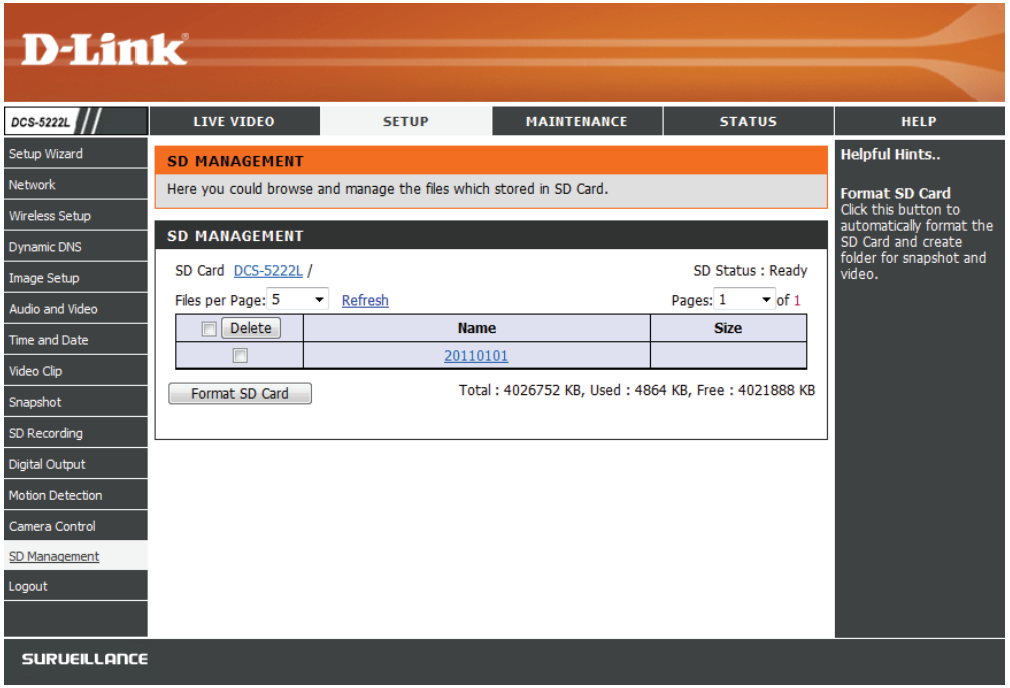
Name: The name of file or catalog.

Size: The file's size.

Refresh: Click to refresh the page.

Files per page: Select the number of files to be displayed on a single page. The maximum is 100 files.

Pages: Show the current and total pages.



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.

Admin Password Setting: This section lets you change the admin password used to log into the camera and change settings. After installing the camera for the first time, it is highly recommended that you change the admin password for security purposes.

Enter the existing password, then enter your new password. Click **Save** to apply your new settings.

Add User Account: You may create user accounts to allow others to log into your camera to view the live camera feed. Users cannot change any settings.

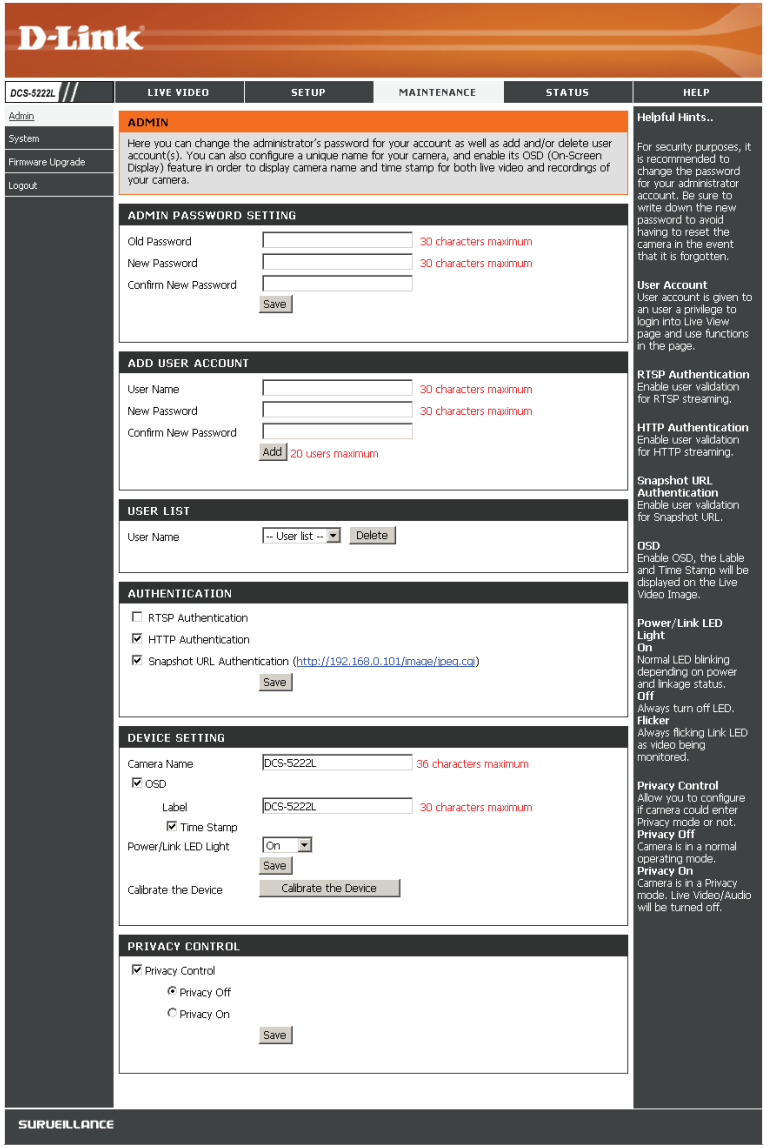
Enter the User Name you wish to use for the new user account and then create a password for that account. Click Add to save your account.

User List: Select a user from the drop-down menu and click **Delete** to remove the user account from having access to the camera images.

RTSP Authentication: Check to enable RTSP streaming.

HTTP Authentication: Check to enable HTTP streaming.

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



Camera Name: Enter the name of your camera. This is useful if you have multiple cameras.

Enable OSD: This will enable the information bar On Screen Display (OSD) to appear when viewing video.

Label: This is the text label that will appear on the OSD.

Time Stamp: If checked, the current time will be displayed on the OSD.

LED Light: This will turn the camera's front LED indicator on or off.

Calibrate the Device: Clicking this button will calibrate the camera so that the P/T/Z apparatus functions correctly. The camera is automatically calibrated whenever it is powered on and initialized or reset. Should the camera's pan, tilt, and zoom functions begin to behave incorrectly, or if the device has been jarred or handled improperly, you may need to recalibrate the camera manually by pressing this button.

Privacy Mode: Select on/off or schedule the privacy mode for your camera to ensure the privacy. When the privacy mode is turned on, the camera hides the lens by rolling it back into the unit.

After making any changes, click the **Save** button to save your changes.

System

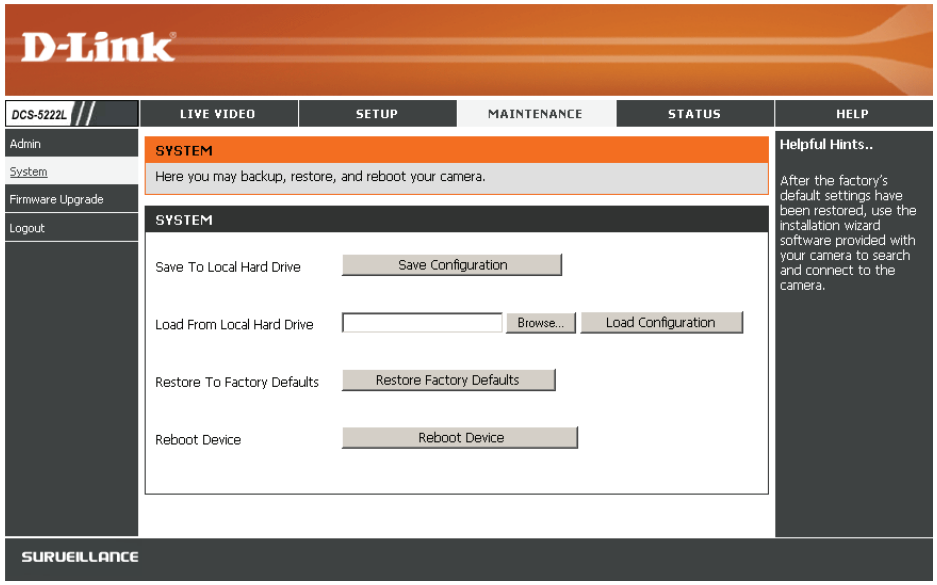
This screen allows you to save and restore the camera's current configuration. You can also reset all settings to factory default or reboot the device.

Save to Local Hard Drive: Click on the **Save Configuration** button to save the current configuration to your hard drive.

Load from Local Hard Drive: To load a saved configuration, click on the **Browse** button to select a configuration file from your hard drive. Then, click the **Load Configuration** button to load the new configuration.

Restore to Factory Defaults: Click this button to reset all settings to their factory defaults. If you select to reset your settings, you will need to set up your camera again.

Reboot Device: Clicking the **Reboot** button will reboot your device.

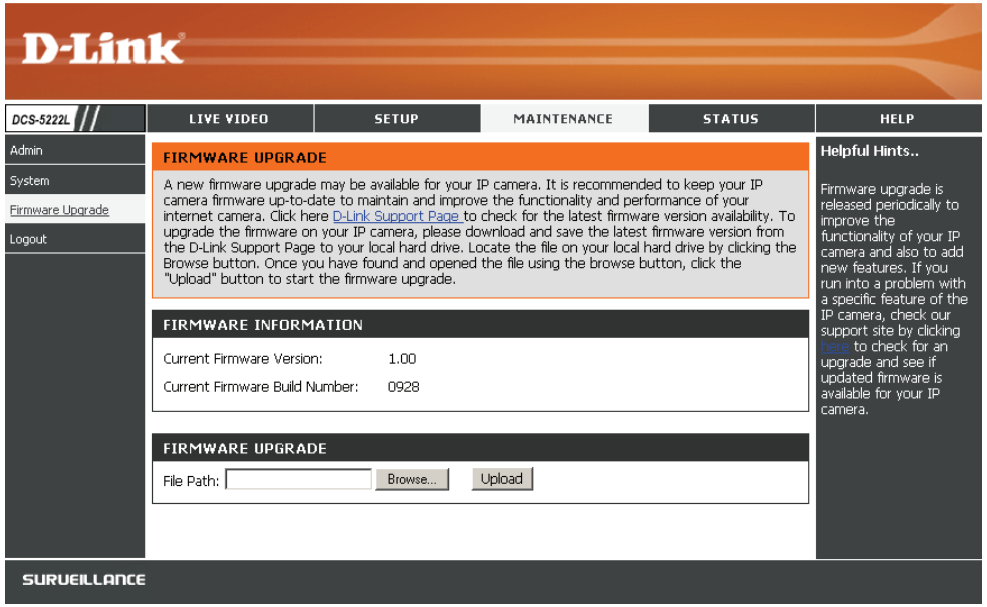


Firmware Upgrade

Your current firmware version and date will be displayed on this page. You can also upgrade your firmware with a new version.

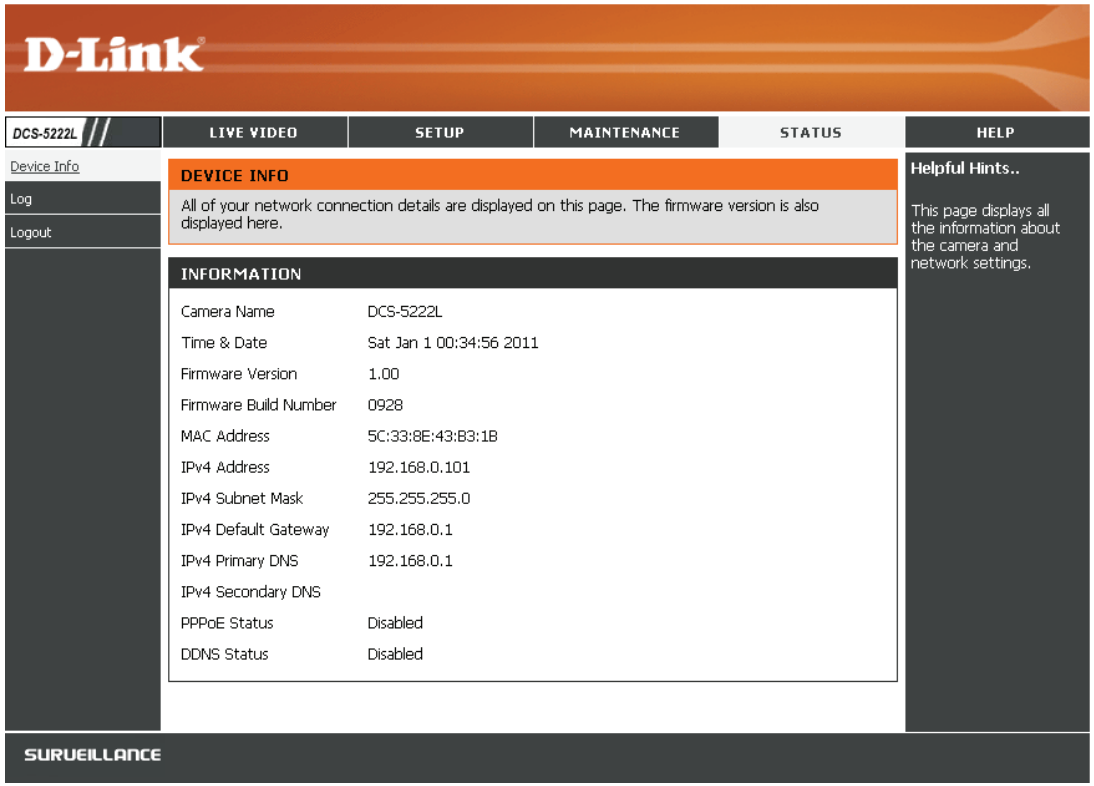
To upgrade your firmware, go to **support.dlink.com** and download the latest firmware to your computer's hard drive. Click on **Browse**, select the firmware file, then click the **Upload** button. While the firmware is being upgraded, do not turn off your computer or camera, and do not disconnect your network connection from your computer or camera. Upgrading the firmware will not change any of your system settings, but it is recommended that you save your system configuration before doing a firmware upgrade.

Note: *It is recommended that you use a wired connection for your computer and camera when upgrading the firmware.*



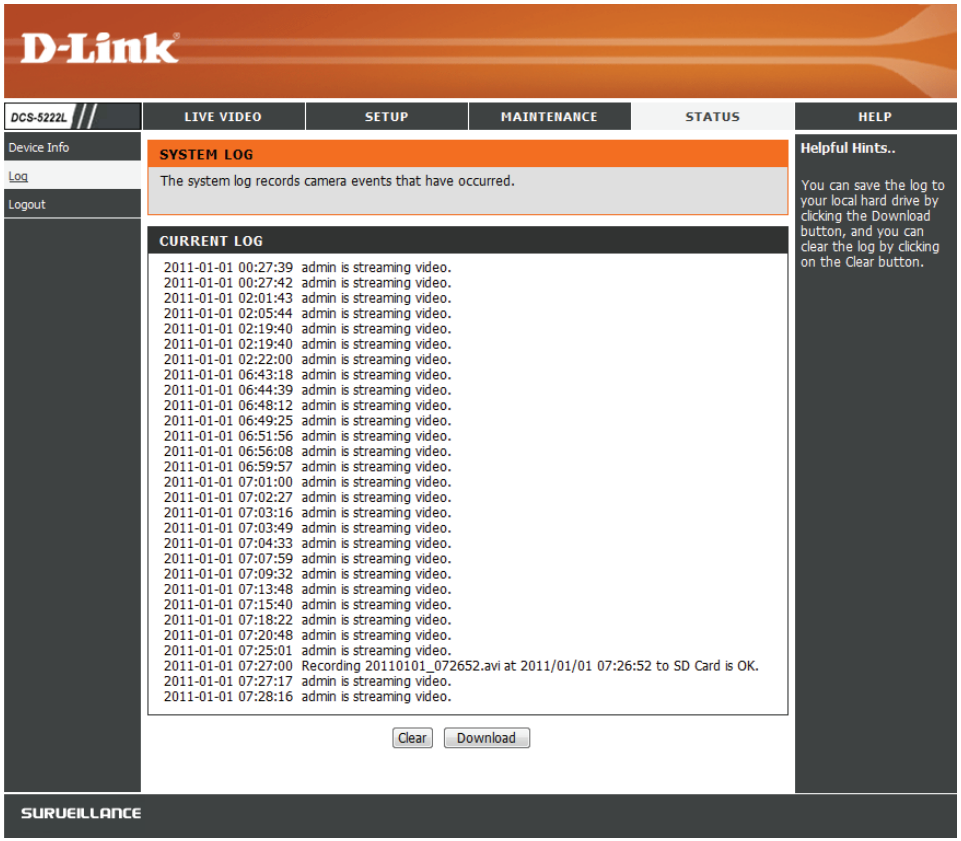
Status
Device Info

This screen displays various information about your camera and its current settings.

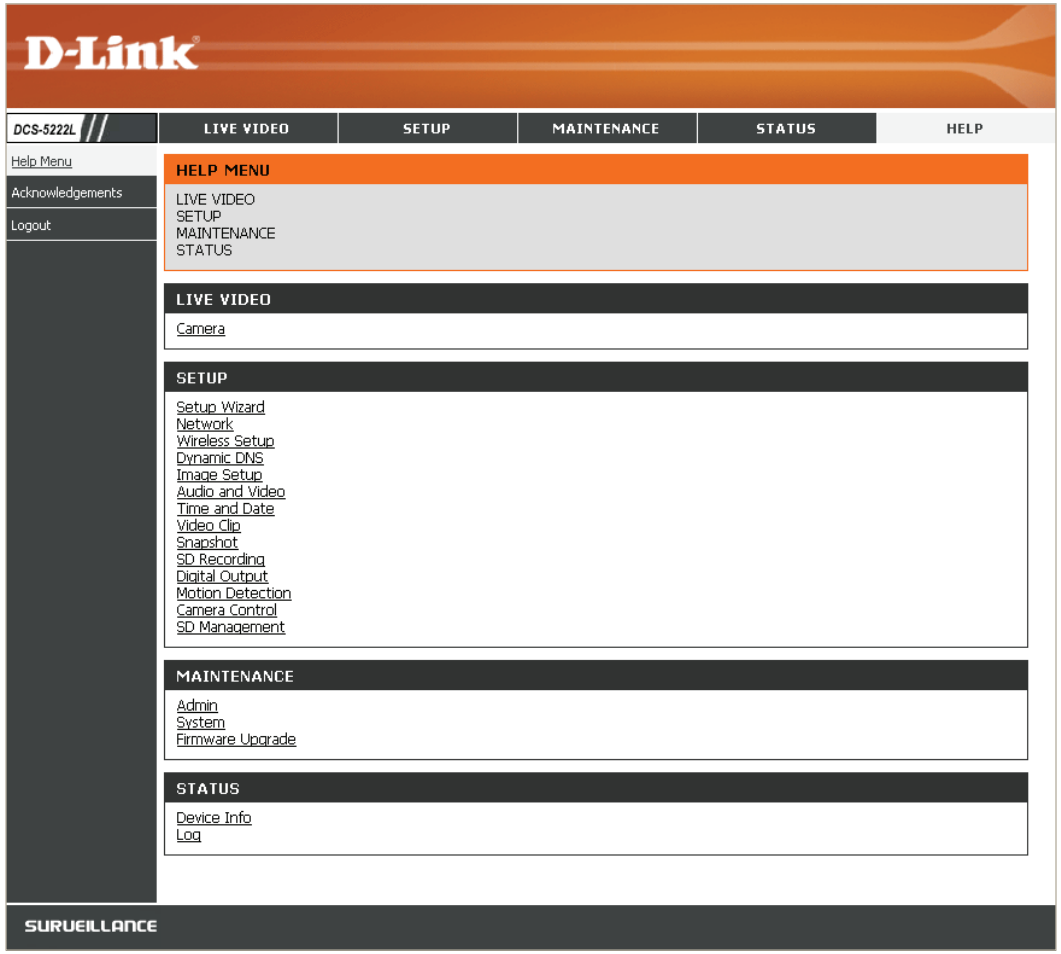


Log

The log shows you a list of events that have happened recently. You can download the log by clicking the **Download** button, or you can empty the log by clicking the **Clear** button.



Help


D-Link
DCS-5222L
LIVE VIDEO
SETUP
MAINTENANCE
STATUS
HELP
Help Menu
Acknowledgements
Logout
HELP MENU
LIVE VIDEO
SETUP
MAINTENANCE
STATUS
LIVE VIDEO
Camera
SETUP
Setup Wizard
Network
Wireless Setup
Dynamic DNS
Image Setup
Audio and Video
Time and Date
Video Clip
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SD Recording
Digital Output
Motion Detection
Camera Control
SD Management
MAINTENANCE
Admin
System
Firmware Upgrade
STATUS
Device Info
Log
SURVEILLANCE

Wireless Security

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

The DCS-5222L 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-5211L/DCS-5222L with a Router

D-Link's DCS-5211L/DCS-5222L 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-5211L/DCS-5222L 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-5211L or DCS-5222L 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-5211L/DCS-5222L for Use Behind a Router

Installing a DCS-5211L/DCS-5222L 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-5211L/DCS-5222L, follow the steps outlined in the Quick Installation Guide.

After you have completed the setup of the DCS-5211L/DCS-5222L 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.

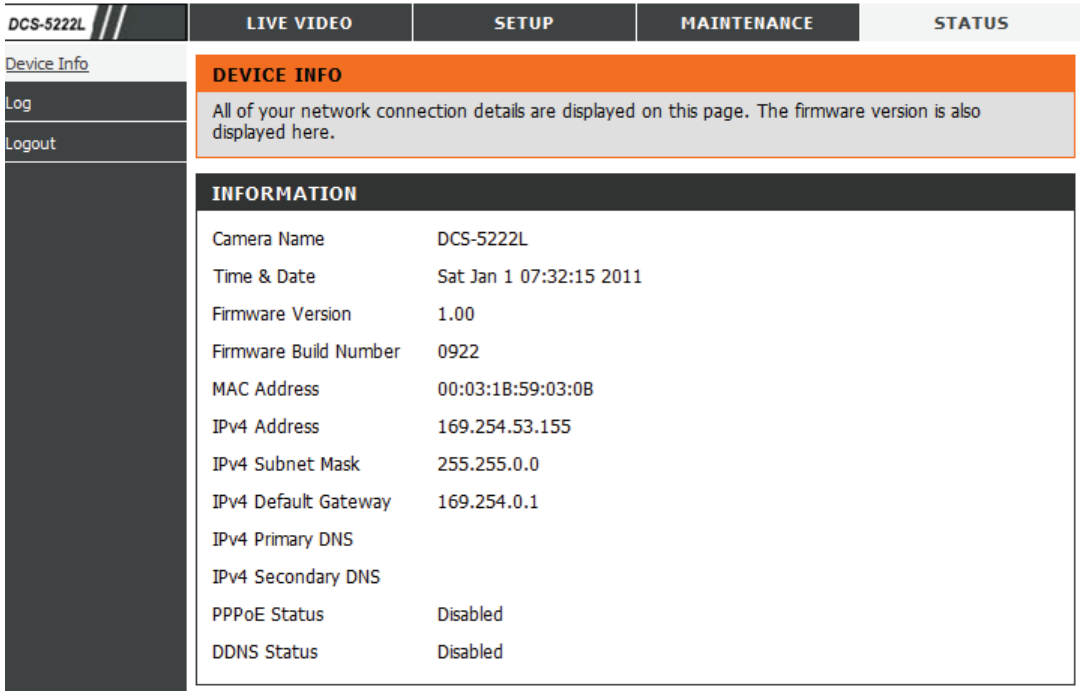
1. Assign a Local IP Address to Your Camera

Run the setup wizard from the CD included with the DCS-5211L/DCS-5222L. Follow the steps in the Quick Installation Guide to configure the DCS-5211L/DCS-5222L. 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

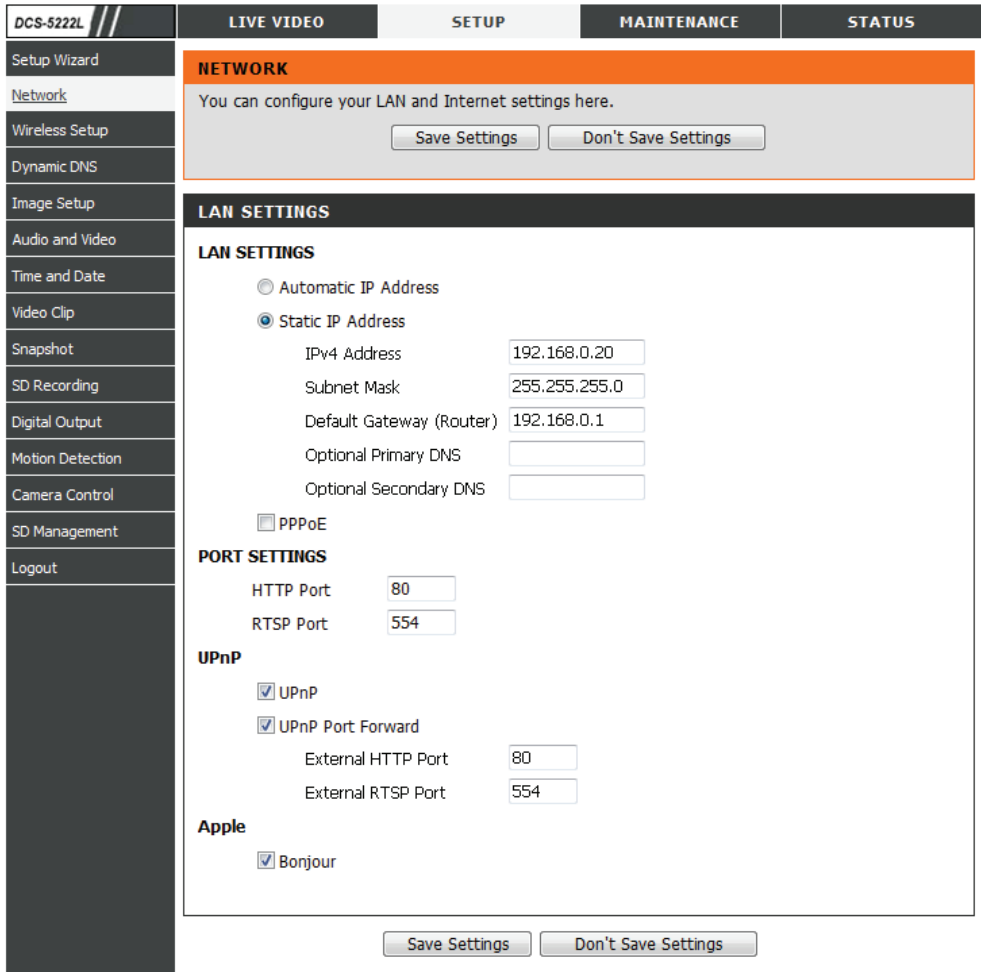
Run your Internet Explorer Web browser. In the address bar, type in the IP Address that was assigned to the Network Camera by the DCC program. The DCS-5211L/DCS-5222L Live Video Page appears with a window displaying live video from the camera. You are able to view this screen from any PC running Internet 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** 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-5211L/DCS-5222L.



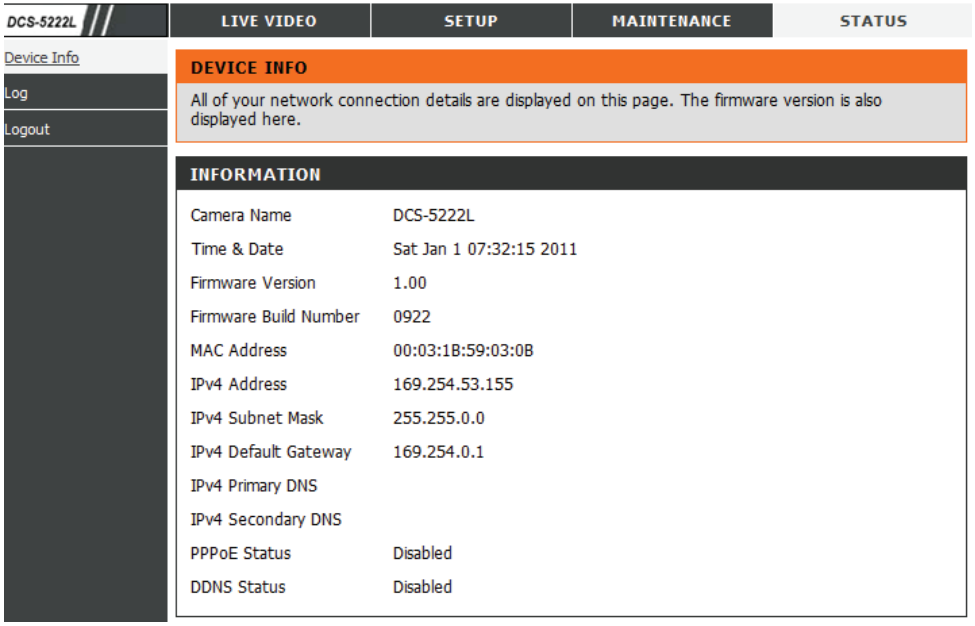
Router Set-Up and Installation

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.



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.

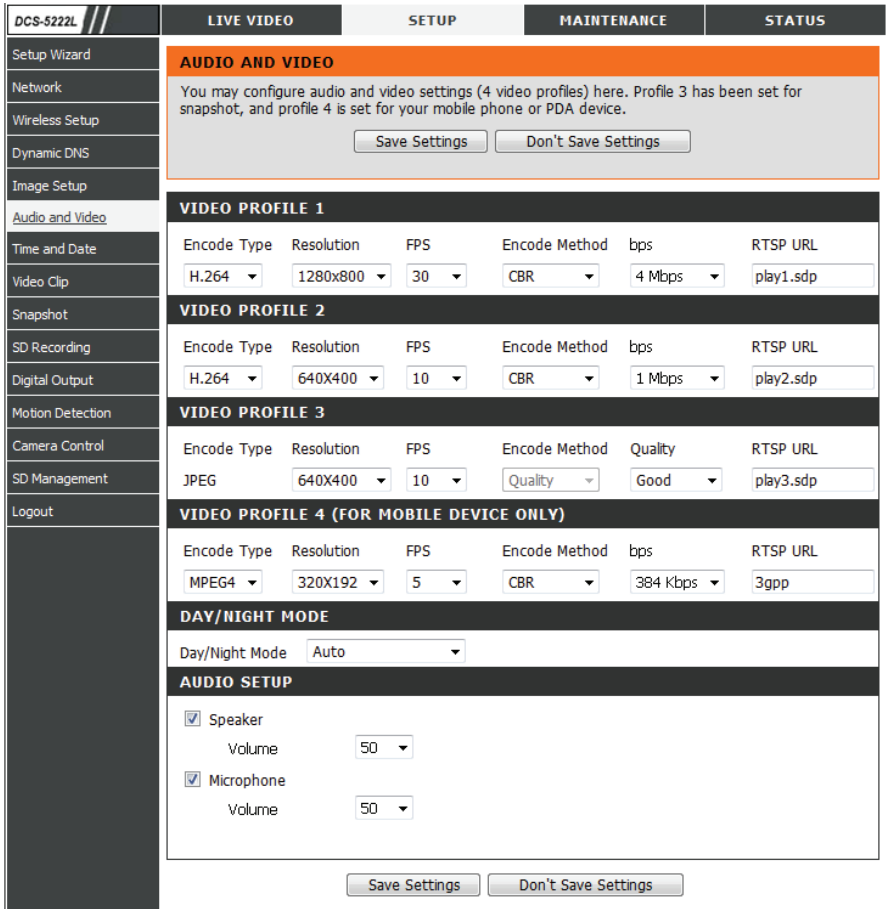
4. Open Virtual Server Ports to Enable Remote Image Viewing

The firewall security features built into the DIR-655 router prevent users from accessing the video from the DCS-5211L/DCS-5222L over the Internet. The router connects to the Internet over a series of numbered ports. The ports normally used by the DCS-5211L/DCS-5222L 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.



Troubleshooting

This chapter provides solutions to problems that can occur during the installation and operation of the DCS-5211L/DCS-5222L. 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-5211L/DCS-5222L: http://DCS-5211L/DCS-5222L.mydlink.com

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

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

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

...your Internet connection is working

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

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

...your router can get a public IP

...your router is upgraded to the latest firmware

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

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

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

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

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

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

Yes, you can access your camera over the Internet through the following URL after successfully installing your camera through the Camera Installation Wizard:
http://[mydlink No.].mydlink.com
For example, if your camera's mydlink No. was 12345678, you would be able to access your camera remotely by opening your web browser and going to http://12345678.mydlink.com
This URL will open a webpage where you will be asked to log in by entering your camera's password. After entering your password, your camera's Live View window will open, and you will be able to configure your camera as well.

4. Why does the LED not light up?
The power supply might be faulty. Confirm that you are using the provided DC 5V power supply for this network camera. Verify that the power supply is correctly connected. If the camera is functioning normally, the LED may have been disabled. See page 36 for information about how to enable the LED.

5. Why is the camera's network connection unreliable?
There might be a problem with the network cable. To confirm that the cables are working, PING the address of a known device on the network. If the cabling is OK and your network is reachable, you should receive a reply similar to the following (…bytes = 32 time = 2 ms). Another possible problem may be that the network device such as a hub or switch utilized by the Network Camera is not functioning properly. Please confirm the power for the devices are well connected and functioning properly.

6. Why does the Network Camera work locally but not remotely?
This might be caused by the firewall protection. Check the Internet firewall with your system administrator. The firewall may need to have some settings changed in order for the Network Camera to be accessible outside your local LAN. For more information, please refer to the section about installing your camera behind a router.
Make sure that the Network Camera isn't conflicting with any Web server you may have running on your network.
The default router setting might be a possible reason. Check that the configuration of the router settings allow the Network Camera to be accessed outside your local LAN.

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

8. The camera is producing noisy images. How can I solve the problem?
The video images might be noisy if the Network Camera is used in a very low light environment.

9. The images are poor quality, how can I improve the image quality?
Make sure that your computer's display properties are set to at least 6-bit color. Using 16 or 256 colors on your computer will produce dithering artifacts in the image, making the image look as if it is of poor quality.
The configuration on the Network Camera image display is incorrect. The Web Configuration Video section of the Web management allows you to adjust the related-parameters for improved images such as: brightness, contrast, hue and light frequency. Please refer to the Web Configuration section for detailed information.

10. Why are no images available through the Web browser?
ActiveX might be disabled. If you are viewing the images from Internet Explorer make sure ActiveX has been enabled in the Internet Options menu. You may also need to change the security settings on your browser to allow the ActiveX plug-in to be installed.
If you are using Internet Explorer with a version number lower than 6, then you will need to upgrade your Web browser software in order to view the streaming video transmitted by the Network Camera.

11. The PIR is no operation well, how can I improve the PIR quality?
- For the Passive Infrared Sensor (PIR) to function properly it is required to have direct line of site to the object. When the room has many obstacles or the line of site is obstructed by glass, the PIR will not function properly.
- When the environment temperature is too high, the PIR detection will slow down and should not be mistaken for a faulty PIR.
- This Network Camera can only be installed indoors. Do not install this camera in a place where IR interference can be a problem. IR interference can be found close to glass doors or windows, where direct sunlight can cause interference or in the path of car headlights.

- Do not install this camera next to or in front of an air conditioner outlet or vent.
- Do not install this camera close to wireless devices with high frequencies as the PIR is easily affected by RF radiation.
- The PIR functions at best when detecting lateral movements. Radial movements cannot be detected as well as lateral movements.
- Do not install this camera directly under an extreme bright light. The PIR cannot fully suppress a bright white light.
- Any movements from an object with a normal body temperature, like humans or animals, can be detected. To avoid any malfunctions, install this camera at the proper height.
- To avoid any malfunctions, install this camera in an environment with an average temperature of 25°C. Only within a distance of 2.5 meters can smaller movements of an object, with the average adult human's height, be detected. Between a distance of 2.5 and 5 meters, a larger movement of an object is required for detection.
- Install this camera on a firm, static, anti-shock surface.

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 as 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-5222L 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.

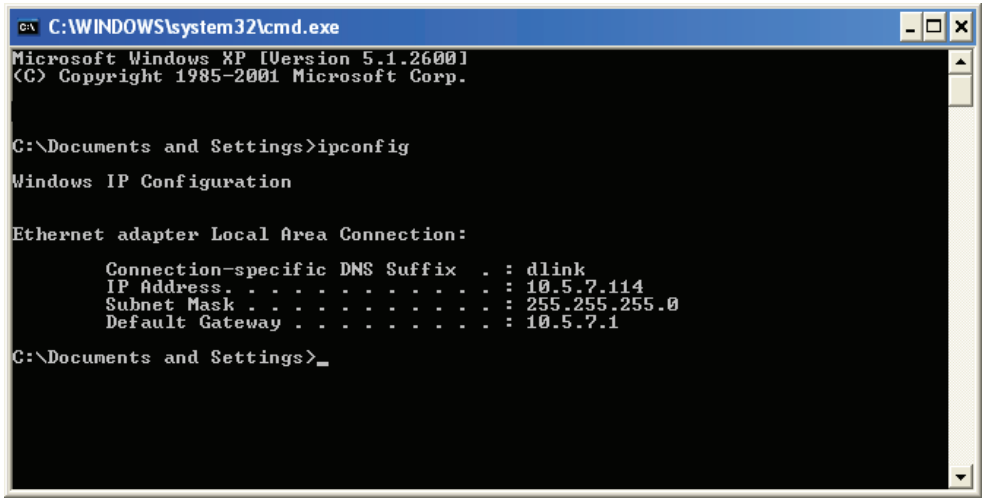
Click on **Start** > **Run**. In the run box type **cmd** and click **OK**.

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.



Statically Assign an IP Address

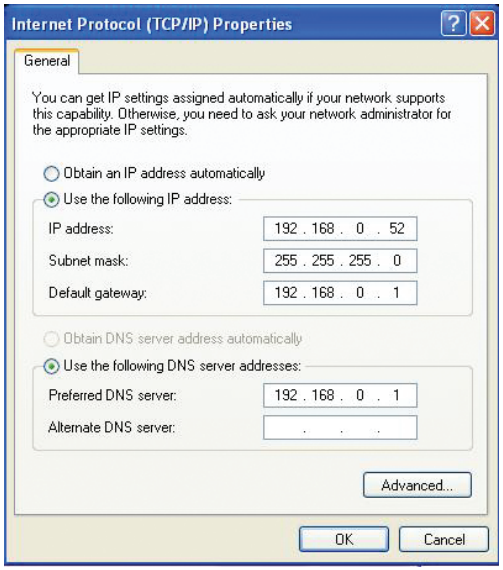
If you are not using a DHCP capable gateway/router, or you need to assign a static IP address, please follow the steps below:

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.

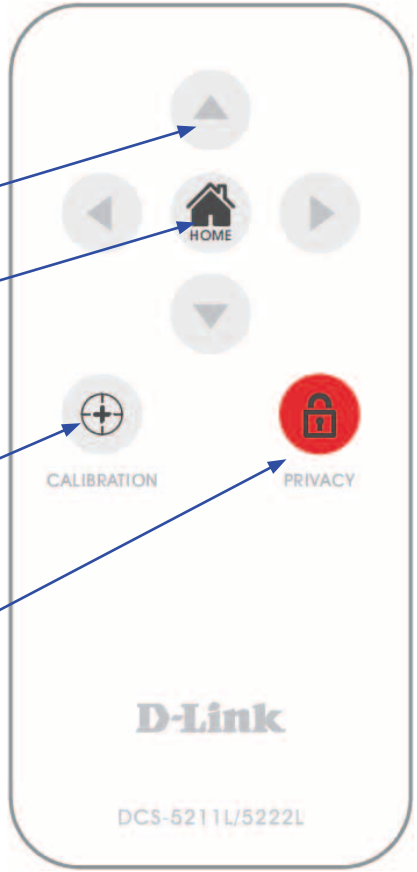


Step 5
Click **OK** twice to save your settings.

Technical Specifications - Remote Control Unit

Feature

- Remote Controller : 3x3 key matrix
- Code system: NEC
- IR transmitter frequency: 38KHz
- Outline drawing below:



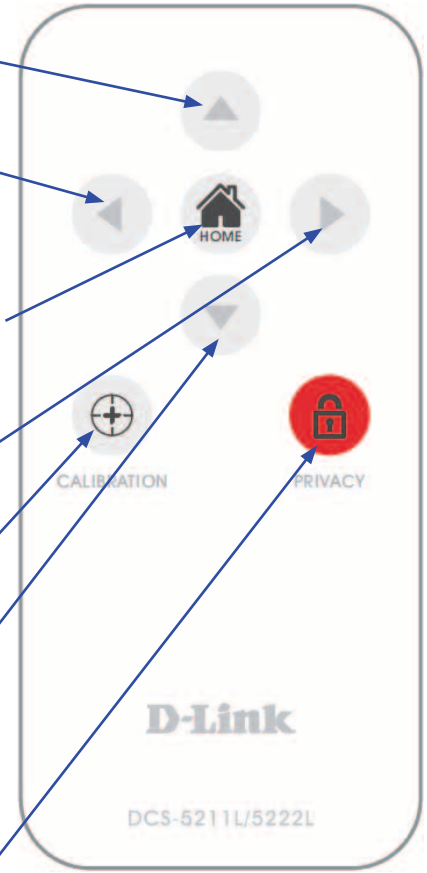
Pan/ tilt direction key
Pressing pan/tilt direction key will move camera to the direction for a few steps.

Home key
Pressing Home key will move camera to the home position, i.e., the center position calibrated last time or the position set by user.

Calibrate key
Pressing Calibrate key will do calibration of both pan and tilt position by moving from end to end where a position sensor is located and go to the corrected home position.

Privacy key
Pressing privacy key will tilt to privacy position where camera is hidden in cover (privacy mode). Pressing again privacy key in privacy mode will tilt back to the previous position.

Matrix Index	Key Name	Key Code	Function
(1,2)	Up	44	Tilt move up
(2,1)	Left	4C	Pan move to the left
(2,2)	Home	06	Return to home position
(2,3)	Right	40	Pan move to the right
(3,1)	Calibrate	07	Calibrate home position
(3,2)	Down	48	Tilt move down
(3,3)	Privacy	0E	Tilt to privacy position.



Technical Specifications - I/O Terminal Application

Typically used in association with programming scripts for developing applications for motion detection, event triggering, alarm notification via e-mail, and a variety of external control functions. The 4-pin I/O Terminal Block is located on the rear panel and provides the interface of a photo-
coupled switch output and a photo-coupled input.

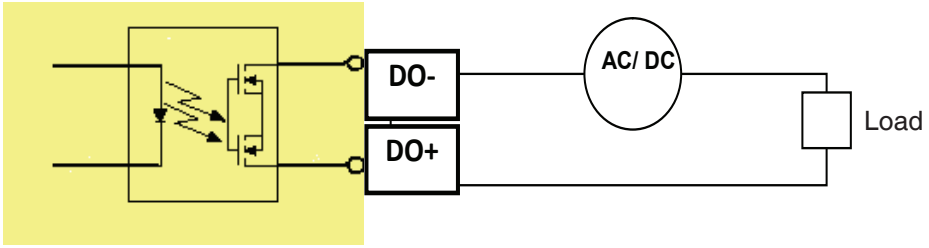
Connector Pin Assignment

Sign	FUNCTION	SPECIFICATION
DO-	Photo-Relay OUTPUT (Normal Open)	Close circuit current max. 70 mA AC, or 100 mA DC. On-Resistance max. 30 Ohm. Open circuit blocking voltage max. 240VAC or 340VDC
DO+	Photo-Relay OUTPUT(Common)	
DI-	Photo-Relay INPUT (-)	Active High voltage 2.5~25VDC Inactive Dropout voltage 0~1.5 VDC Internal on-current has limit at 7mA to protect the photo-relay.
DI+	Photo-Relay INPUT (+)	

Monitoring and Controlling

By entering http requests in your browser's URL field, it is possible to:

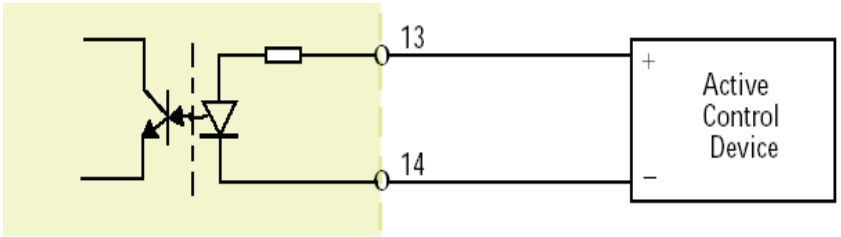
- Monitor the status of digital input.
- Drive the output switch on or off.



Interface Schematic

Output device (load) is driven by an external AC or DC power supply.

Input device (active control device) has an independent power supply.



Technical Specifications

Networking Protocol

- IPv4, ARP, TCP, UDP, ICMP
- DHCP Client
- NTP Client(D-Link)
- DNS Client
- DDNS Client(D-Link)
- SMTP Client
- FTP Client
- HTTP Server
- UPNP Port Forwarding
- LLTD
- PPPoE
- RTP (Real Time Protocol)
- RTCP (Real Time Control Protocol)
- RTSP (Real Time Streaming Protocol)
- 3GPP(Video only)

LAN

- 10/100BASE-TX port
- IEEE 802.3 compliant
- IEEE 802.3u compliant
- Supports Full-Duplex operation
- MDI/MDIX auto-negotiation
- 802.3x Flow Control support for Full-Duplex mode

Wireless Connectivity (DCS-5222L only)

- 802.11g/n Wireless with WEP/WPA/WPA2 Security
- WPS Support

Sensor

- 1/4 inch WXGA (1280x800)

Lens

- Focal length: 4.57mm, F1.9

Microphone

- Signal/noise ratio: 40dB +/- 3dB, Omni-directional

Reset Button

- Reset to factory default

Video Codec

- H.264/MPEG4/MJPEG triple format compression simultaneously
- JPEG for still image

Video Features

- Adjustable image size and quality
- Time stamp and text overlay
- Flip and Mirror
- Fully configurable motion detection window

Maximum Resolution

- 1280x720

Audio Codec

- PCM/ADPCM

Light Sensitivity

- 1 lux@F1.9

Digital Zoom
- Up to 4X

3A Control
- AGC (Auto Gain Control)
- AWB (Auto White Balance)
- AES (Auto Electronic Shutter)

Power
- Input: 100-240VAC, 50/60Hz
- Output: 12VDC, 1.25A
- Powered by an external power adapter
- Maximum power consumption

DCS-5222L: 10.5W @motor on ; 8.2W @motor off
DCS-5211L : 9W @motor on ; 6.1W @motor off

Dimensions (WxDxH)
- 114.0mm x 114.0mm x 125.0mm

(without bracket and stand)

Weight
- 540g (without bracket and stand)

Operation Temperature
- 0˚ to 40˚C (32˚ to 104˚F)

Storage Temperature
- -20˚ to 70˚C (-4˚ to 158˚F)

Humidity
- 20-80% RH non-condensing

Emission (EMI), Safety & Other Certifications
- FCC Class B
- IC
- C-Tick
- CE