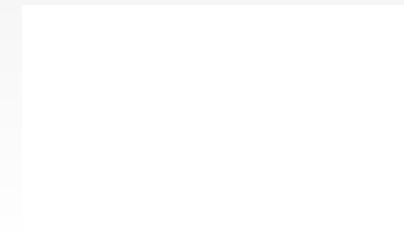


LINKSYS®

A Division of Cisco Systems, Inc.



2.4GHz
802.11g Wireless-G



Internet Video Camera User Guide

Model No. WVC54G V1.1



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How to Use this Guide

Your guide to the Wireless-G Internet Video Camera has been designed to make understanding networking with the Camera easier than ever. Look for the following items when reading this guide:



This checkmark means there is a Note of interest and is something you should pay special attention to while using the Camera.



This exclamation point means there is a Caution or warning and is something that could damage your property or the Camera.



This question mark provides you with a reminder about something you might need to do while using the Camera.

In addition to these symbols, there are definitions for technical terms that are presented like this:

word: definition.

Also, each figure (diagram, screenshot, or other image) is provided with a figure number and description, like this:

Figure 0-1: Sample Figure Description

Figure numbers and descriptions can also be found in the “List of Figures” section in the “Table of Contents”.

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Chapter 1: Introduction

Welcome

Thank you for choosing the Linksys Wireless-G Internet Video Camera. This Camera sends live video through the Internet to a web browser anywhere in the world! This compact, self-contained unit lets you keep an eye on your home, your kids, your workplace—whatever's important to you.

How does the Camera do all of this? Unlike standard “web cams” that require an attached PC, the Internet Video Camera contains its own web server, so it can connect directly to a network, either over Wireless-G (802.11b) networking, or over 10/100 Ethernet cable. The advanced MPEG-4 video compression produces a high-quality, high-framerate, up to 640 x 480 audio/video stream.

The Internet Video Camera's unique form-factor and wireless connectivity allows you to mount it on a wall nearly anywhere, or slip it into its included stand for desktop use. Once it's connected to your home network, you can “see what it sees” from any PC in the house, while the audio/video stream is secured from the outside world, hidden behind your Router. If you want the video to be visible from outside your home network, you can open an appropriate port on the Router, and then create password-protected accounts to manage access to the Camera, or leave it wide open for the world to see. The SoloLink DDNS Service (trial sign-up included) lets you access your Camera using an easy-to-remember “name”, even if your home Internet connection uses a dynamic IP address.

You can also turn on Security Mode, which tells the Camera to send you an e-mail message with a short video attached to up to three e-mail addresses whenever it detects motion in its field of view. You can then log onto the live video stream if the situation warrants. The included Viewer & Recorder utility lets you record the audio/video stream to your local hard drive, “live” or on a predetermined schedule.

Use the instructions in this Guide to help you integrate the Camera into your network. These instructions should be all you need to get the most out of the Wireless-G Internet Video Camera.

802.11g: An IEEE wireless networking standard that specifies a maximum data transfer rate of 54Mbps, an operating frequency of 2.4GHz, and backward compatibility with 802.11b devices.

Ethernet: an IEEE standard network protocol that specifies how data is placed on and retrieved from a common transmission medium.

What's in this Guide?

This user guide covers the steps for setting up and using the Wireless-G Internet Video Camera.

- **Chapter 1: Introduction**
This chapter describes the Camera's applications and this User Guide.
- **Chapter 2: Planning Your Wireless Network**
This chapter discusses a few of the basics about wireless networking.
- **Chapter 3: Getting to Know the Wireless-G Internet Video Camera**
This chapter describes the physical features of the Camera.
- **Chapter 4: Connecting the Wireless-G Internet Video Camera**
This chapter instructs you on how to connect the Camera to your network before you run the Setup Wizard.
- **Chapter 5: Setting up and Mounting the Wireless-G Internet Video Camera**
This chapter instructs you on how to use the Setup Wizard for setup and configuration of the Camera, as well as how to mount the Camera.
- **Chapter 6: Installing and Using the Wireless-G Internet Video Camera Utility**
This chapter explains how to install and use the Wireless-G Internet Video Camera Utility on your PC, so you can view and record video.
- **Chapter 7: Setting up the Linksys SoloLink™ DDNS Service**
This chapter discusses the advantages of the SoloLink DDNS Service and walks you through the setup procedure.
- **Chapter 8: Using the Wireless-G Internet Video Camera Web-based Utility**
This chapter describes the Web-based Utility and the features available, so you can use and alter advanced configuration settings.
- **Appendix A: Troubleshooting**
This appendix describes some problems and solutions, as well as frequently asked questions, regarding installation and use of the Camera.
- **Appendix B: Wireless Security**
This appendix discusses security issues regarding wireless networking and measures you can take to help protect your wireless network.

Wireless-G Internet Video Camera

- **Appendix C: Upgrading Firmware**
This appendix explains how you can upgrade the Camera's firmware.
- **Appendix D: Windows Help**
This appendix describes how you can use Windows Help for instructions about networking, such as installing the TCP/IP protocol.
- **Appendix E: Glossary**
This appendix gives a brief glossary of terms frequently used in networking.
- **Appendix F: Specifications**
This appendix provides the technical specifications for the Camera.
- **Appendix G: Warranty Information**
This appendix supplies the warranty information for the Camera.
- **Appendix H: Regulatory Information**
This appendix supplies the regulatory information regarding the Camera.
- **Appendix I: Contact Information**
This appendix provides contact information for a variety of Linksys resources, including Technical Support.

Chapter 2: Planning Your Wireless Network

Introduction

A wireless local area network (WLAN) is exactly like a regular local area network (LAN), except that each computer in the WLAN uses a wireless device to connect to the network. Computers and other devices, such as peripherals, in a WLAN share the same frequency channel and SSID, which is an identification name for wireless devices.

Ad-Hoc and Infrastructure Modes

Unlike wired networks, wireless networks have two different modes in which they may be set up: infrastructure and ad-hoc. An infrastructure configuration is a WLAN and wired LAN communicating to each other through an access point. An ad-hoc configuration is wireless-equipped computers communicating directly with each other. Choosing between these two modes depends on whether or not the wireless network needs to share data or peripherals with a wired network or not.

If the computers on the wireless network need to be accessed by a wired network or need to share a peripheral, such as a printer, with the wired network computers, the wireless network should be set up in infrastructure mode. The basis of infrastructure mode centers around an access point, which serves as the main point of communications in a wireless network. (A wireless router can also be used because a wireless router incorporates the capabilities of an access point.) Access points transmit data to PCs equipped with wireless network cards, which can roam within a certain radial range of the access point. Multiple access points can be arranged to work in succession to extend the roaming range, and can be set up to communicate with your Ethernet (wired) hardware as well.

If the wireless network is relatively small and needs to share resources only with the other computers on the wireless network, then the ad-hoc mode can be used. Ad-hoc mode allows computers equipped with wireless transmitters and receivers to communicate directly with each other, eliminating the need for an access point. The drawback of this mode is that, in Ad-Hoc mode, wireless-equipped computers are not able to communicate with computers on a wired network. And, of course, communication between the wireless-equipped computers is limited by the distance and interference directly between them.

Network Layout

The Wireless-G Internet Video Camera is compatible with all 802.11b and 802.11g routers, such as model numbers BEFW11S4 and WRT54G, as well as access points, including model numbers WAP11 and WAP54G. The

LAN (Local Area Network): the computers and networking products that make up the network in your home or office.

WLAN (Wireless Local Area Network): A group of computers and associated devices that communicate with each other wirelessly.

Infrastructure: configuration in which a wireless network is bridged to a wired network via an access point.

Ad-hoc: a group of wireless devices communicating directly to each other (peer-to-peer) without the use of an access point.

Wireless-G Internet Video Camera

Camera will also communicate with network adapters, such as the Wireless-B and Wireless-G Notebook Adapters (model numbers WPC11 and WPC54G) for your laptop computers, Wireless-B and Wireless-G PCI Adapters (model numbers WMP11 and WMP54G) for your desktop PCs, and Wireless-B and Wireless-G USB Adapters (model numbers WUSB11 and WUSB54G) for your computers when you want to enjoy USB connectivity.

With these, and many other Linksys products, your networking options are limitless. Go to the Linksys website at www.linksys.com for more information about products that work with the Wireless-G Internet Video Camera.

Chapter 3: Getting to Know the Wireless-G Internet Video Camera

Camera LCD Screen and Built-in Microphone

The Camera has a LCD screen that indicates the Camera's current IP address and whether it is a fixed or dynamic address. If the Camera uses a fixed IP address, then the screen will display the word "FIXED." If the Camera uses a dynamic IP address, then the screen will display the word "DHCP."

The built-in microphone is located approximately one inch below the LCD screen, in the middle of the Camera's front panel. It has a range of approximately 9 feet (3 meters), depending on environmental conditions.

Camera LEDs

The Camera has four LEDs to let you know how the Camera is functioning.

- | | |
|-----------------|--|
| READY | Green. The READY LED lights up when the Camera is powered on. It flashes while the Camera is initializing and is steadily lit when the Camera is ready for use. |
| ACT/LINK | Green. The ACT/LINK LED flashes when there is activity. |
| ETHERNET | Green. The ETHERNET LED lights up when there is a connection to a wired network. It flashes when data is transmitted to or received from the wired network. |
| WIRELESS | Green. The WIRELESS LED lights up when there is a connection to a wireless network. It flashes when data is transmitted to or received from the wireless network. |

Camera Head

The Camera head and its focus ring allow you to modify the aim and focus of the Camera.

To alter the Camera's aim, swivel the Camera head.

To adjust the Camera's focus, rotate the dark gray focus ring.

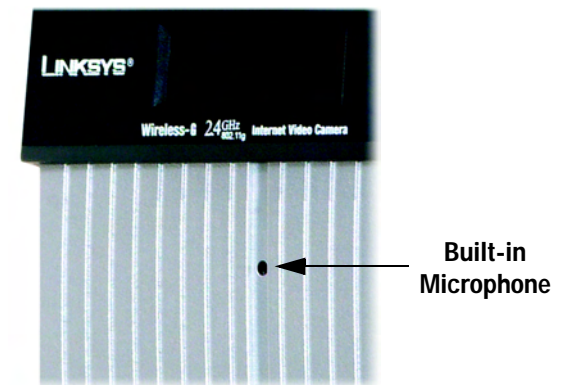


Figure 3-1: Camera LCD Screen and Built-in Microphone

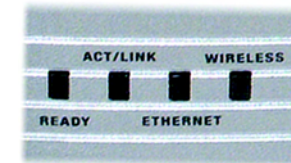


Figure 3-2: Camera LEDs



Figure 3-3: Camera Head

Camera Ports

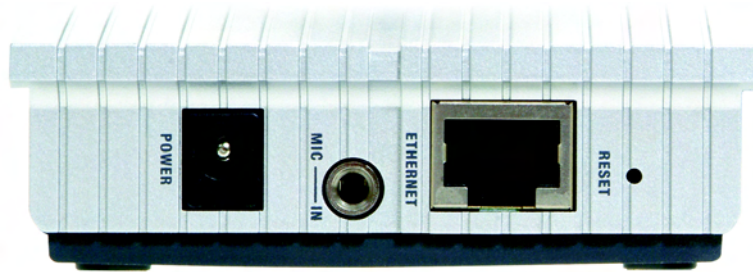


Figure 3-4: Camera Ports

The Camera features three ports and a Reset button on the bottom panel.

- POWER** The **POWER** port is where you will connect the power adapter.
- MIC IN** The **MIC IN** port is where you will connect the 2.5 mm input jack of your external microphone (optional).
- ETHERNET** The **ETHERNET** port is where you will connect the Ethernet network cable.
- RESET** The **RESET** button is what you will press if you need to reset the Camera. Insert a paper clip into the opening next to the Ethernet port. Then press the button and hold it in for five seconds.



IMPORTANT: Resetting the Camera will erase all of your settings, such as encryption information, and replace them with the factory defaults. Do not reset the Camera if you want to retain these settings.

Chapter 4: Connecting the Wireless-G Internet Video Camera for Setup

Overview

Before you set up the Camera, connect it to a wired or wireless network. Proceed to the appropriate section for your setup.

If you need to move the Camera from a wired network to a wireless network, or vice versa, go to this section, "Moving the Camera to a Different Network."

Connection to a Wired Network for Setup

1. Attach the antenna.
2. Connect the Ethernet network cable to your router, switch, or computer.
3. Connect the other end of the cable to the Ethernet port on the Camera. See Figure 4-1.
4. Connect the power adapter to the Power port on the Camera.
5. Plug the power adapter into an electrical outlet.

The Camera's Ready LED flashes while the Camera is initializing. The Camera is ready for use when the Ready and Ethernet LEDs are solidly lit.

Proceed to "Chapter 5: Setting up and Mounting the Wireless-G Internet Video Camera."

Connection to a Wireless Ad-Hoc Network for Setup

1. Make sure your computer has the following wireless settings:
 - SSID - linksys
 - Network Mode - Ad-Hoc
 - Channel - 6
 - WEP - Disabled
2. Attach the antenna.

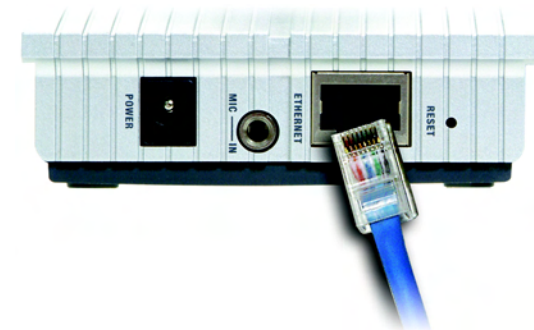


Figure 4-1: Connect the Ethernet Network Cable



NOTE: You **MUST** connect the Camera to a PC, router, or switch using the Ethernet network cable **BEFORE** powering on the Camera. Otherwise, the Camera will not function.

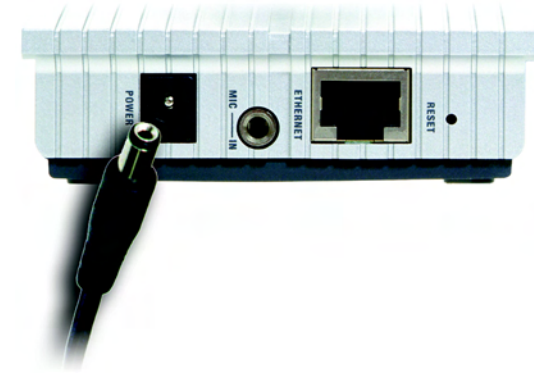


Figure 4-2: Connect the Power Adapter

3. Connect the power adapter to the Power port on the Camera.
4. Plug the power adapter into an electrical outlet.

The Camera's Ready LED flashes while the Camera is initializing. The Camera is ready for use when the Ready and Wireless LEDs are solidly lit.

Proceed to "Chapter 5: Setting up and Mounting the Wireless-G Internet Video Camera."

Moving the Camera to a Different Network

When you move the Camera from a wired network to a wireless network, or vice versa, you must power off the Camera before connecting to the new network. Proceed to the appropriate instructions.

To move the Camera from a wired network to a wireless network, follow these instructions:

1. Unplug the power adapter from the Camera.
2. Unplug the Ethernet network cable from the Camera.
3. Re-connect the power adapter to the Power port on the Camera.

The Camera's Ready LED flashes while the Camera is initializing. The Camera is ready for use when the Ready and Wireless LEDs are solidly lit.

Proceed to "Chapter 5: Setting up and Mounting the Wireless-G Internet Video Camera."

To move the Camera from a wireless network to a wired network, follow these instructions:

1. Unplug the power adapter from the Camera.
2. Connect the Ethernet network cable to your PC, router, or switch.
3. Connect the other end of the cable to the Ethernet port on the Camera.
4. Re-connect the power adapter to the Power port on the Camera.

The Camera's Ready LED flashes while the Camera is initializing. The Camera is ready for use when the Ready and LAN LEDs are solidly lit.

Proceed to "Chapter 5: Setting up and Mounting the Wireless-G Internet Video Camera."

Chapter 5: Setting up and Mounting the Wireless-G Internet Video Camera

Setup Wizard

The Wireless-G Internet Video Camera Setup Wizard will guide you through the installation and configuration procedure.

1. Insert the Setup CD-ROM into your CD-ROM drive. The Setup Wizard should run automatically, and the *Welcome* screen should appear. If it does not, click the **Start** button and choose **Run**. In the field provided, enter `D:\wvc54g.exe` (if "D" is the letter of your CD-ROM drive).
 - **Setup**. Click the **Setup** button to begin the installation process.
 - **Install Viewer & Recorder Utility**. Click this button to install the Camera's Viewer & Recorder Utility on your PC.
 - **Setup SoloLink DDNS Service**. Click the **Setup SoloLink DDNS Service** button to configure and use Linksys's Dynamic Domain Name System (DDNS) service.
 - **User Guide**. Click this button to open the PDF file of this User Guide.
 - **Exit**. Click the **Exit** button to exit the Setup Wizard.
2. To install the Camera, click the **Setup** button on the *Welcome* screen.
3. When you see the screen shown in Figure 5-2, make sure the Camera is properly connected to either a wired or wireless network. Then click the **Next** button to continue.



Figure 5-1: Setup Wizard - Welcome Screen



Figure 5-2: Connection for Setup Screen

- The screen shown in Figure 5-3 displays a list of Wireless-G Internet Video Cameras on your network, along with the status information for the Camera whose name is highlighted. In the *Selection* box, click the name of the Camera you are currently installing. Write down the IP address of the Camera, so you can use it to access the Web-based Utility later. Click the **Next** button.

- For security purposes, you will be asked to enter a name and password in order to have administrator access to the Camera. In lowercase letters, enter **admin** in the *Administrator Name* and *Administrator Password* fields (later you can change these through the Web-based Utility). Then click the **OK** button.

- On the *Basic Settings* screen, you can alter the following settings:
 - Camera Name.** You can give the Camera a unique name. Memorable names are helpful, especially if you are using multiple Cameras on the same network. It should have 15 characters or fewer.
 - Description.** You may enter additional information, such as location, in this field. It has a maximum length of 32 characters.
 - Time Zone.** Select the time zone for the Camera's location.
 - Date.** Enter today's date in the fields provided.
 - Time.** Enter the current time in the fields provided.

When you have finished making your changes, click the **Next** button.

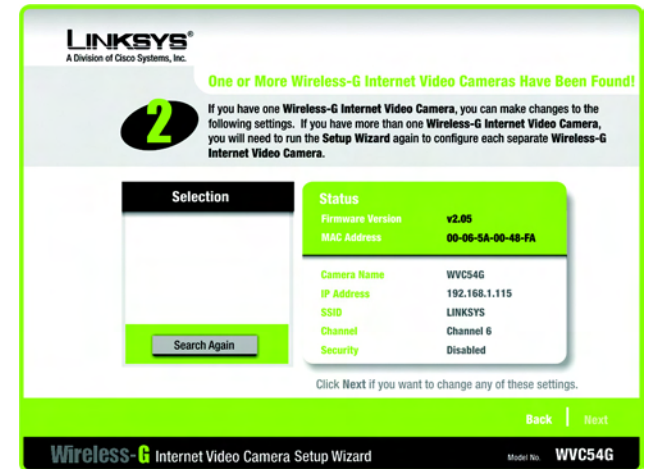


Figure 5-3: Cameras Found Screen



Figure 5-4: Login Screen

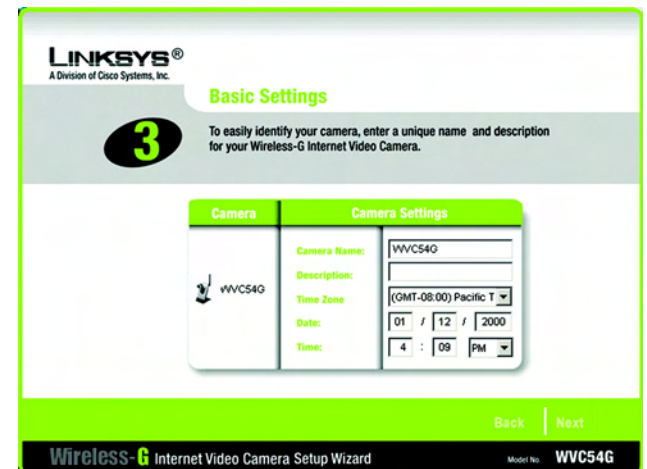


Figure 5-5: Basic Settings Screen

7. If your network has a DHCP server, such as a router with DHCP enabled, click the **Automatic Configuration-DHCP** radio button. If you need to assign a static IP address to the Camera, keep the default setting, **Static IP address**.

Then click the **Next** button.

8. If you selected Automatic Configuration-DHCP in step 7, then proceed to step 9.

If you selected Static IP Address, then the *IP Settings* screen will appear. Enter an IP Address, Subnet Mask, and Default Gateway appropriate for your network. You must specify an IP Address and Subnet Mask on this screen. If you are unsure about the Default Gateway, it is better to leave this field blank. Then complete the *Primary DNS* and/or *Secondary DNS* fields. You must enter at least one DNS address, which can be obtained from your ISP. Click the **Next** button.

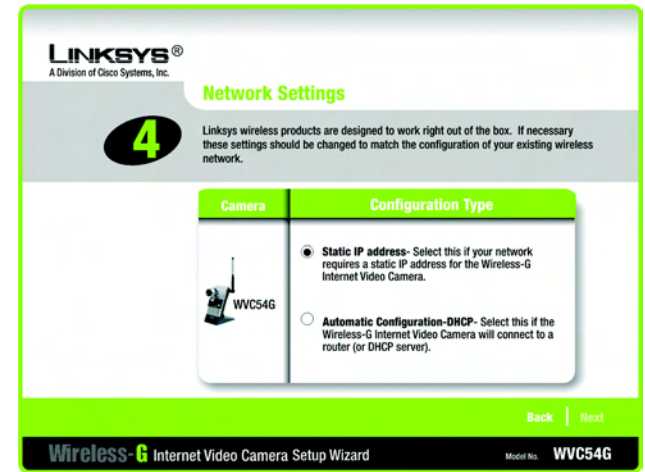


Figure 5-6: Network Settings Screen

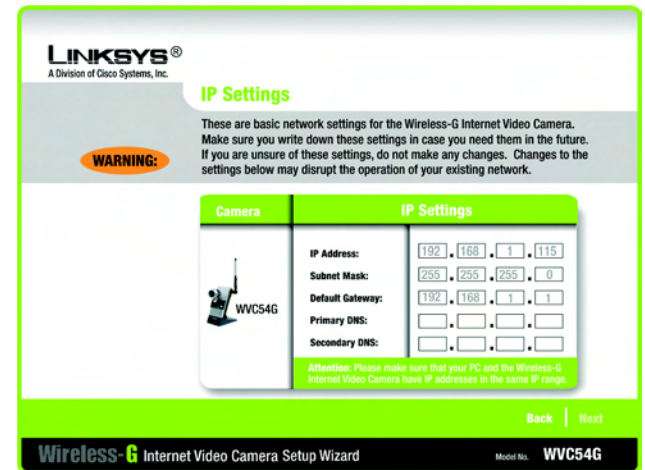


Figure 5-7: IP Settings Screen