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## **Cisco Video Surveillance IP Camera User Guide**

Models CIVS-IPC-2500 and CIVS-IPC-2500W

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## Preface

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### Overview

*Cisco Video Surveillance IP Camera User Guide* provides information about installing, configuring, using, and troubleshooting the Cisco Video Surveillance IP camera CIVS-IPC-2500 (wired model) and CIVS-IPC-2500W wireless model).

### Organization

This manual is organized as follows:

<a href="#">Chapter 1, “Introduction”</a>	Provides an overview of the IP camera and its features
<a href="#">Chapter 2, “Basic Set Up”</a>	Provides instructions for installing and performing the initial setup of an IP camera
<a href="#">Chapter 3, “Viewing Live Video”</a>	Explains how to view live video from an IP camera
<a href="#">Chapter 4, “Advanced Viewing Set Up”</a>	Provides information about optional settings and features for viewing video from the IP camera
<a href="#">Chapter 5, “Managing an IP Camera through the Web”</a>	Explains how to configure an IP camera through the web-based interface
<a href="#">Chapter 6, “Troubleshooting”</a>	Provides basic troubleshooting information
<a href="#">Appendix A, “Streaming Video/Audio Solution”</a>	Provides settings required for streaming video and audio from an IP camera

## Obtaining Documentation, Obtaining Support, and Security Guidelines

For information about obtaining documentation, obtaining support, providing documentation feedback, security guidelines, and recommended aliases and general Cisco documents, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

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# CHAPTER 1

## Introduction

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This chapter provides an overview of the IP camera and its features. It also describes what is included with the camera.

This chapter includes these topics:

- [Overview, page 1-1](#)
- [Physical Details, page 1-3](#)
- [Package Contents, page 1-5](#)
- [CS Mount Lens, page 1-5](#)

## Overview

The Cisco Video Surveillance IP Camera provides a high-quality digital solution for a video surveillance system. The camera provides high-quality, bandwidth-efficient video capture and transmission, with support for D1 resolution, motion-triggered viewing, and MPEG-4 encoding. It may be used as a standalone camera or as part of a Cisco Video Surveillance system, with support for wired and wireless deployments, and supports integrated Power over Ethernet (PoE).

The camera provides embedded security and networking capabilities, including 802.1X authentication, hardware-based Advanced Encryption Standard (AES) and Data Encryption Standard/Triple Data Encryption Standard (DES/3DES) encryption, and multicast support.

## Features

- **Stream live video to multiple users**—An MPEG4 encoder built into the camera generates a ready-to-view video stream. Just connect to the camera using your web browser or the provided Windows utility to view live video.
- **Night/day switch support**—Supporting IR-cut filter, the IP camera can obtain better video quality even in the nighttime.
- **Two-way audio communication**—An external microphone and an external speaker (not included), a person in the monitoring office can talk to people on site while viewing images on screen.
- **Suitable for home, business, or public facilities**—Provides features for a variety of applications.
- **Multi-protocol support**—Supporting TCP/IP networking, SMTP (E-mail), HTTP and other Internet-related protocols, the IP camera can be easily integrated into your existing network.

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- **Easy configuration**—A Windows-based wizard is provided for initial set up. Subsequent administration and management can be performed using a standard web browser. The administrator can configure and manage the IP camera through a web browser.
- **Viewing/recording utility**—A user-friendly Windows utility is provided for viewing live video. For periods when you are absent or for scheduled recording, this application also allows you to record video to an ASF file on your PC. The recorded files are in a standard Windows Media format and can be used by a wide variety of programs, if required.
- **Motion Detection**—This feature can detect motion in the field of view. The IP camera compares consecutive frames to detect changes caused by the movement of large objects. Motion detection alarms can be triggered via e-mail, FTP, instant messaging, or an external alarm device.
- **Flexible Scheduling**—You can limit access to the video stream to specified times by using a flexible scheduling system. The motion detection feature can also have its own schedule, so it is active only when required.
- **Syslog support**—The IP camera can send its log data to a Syslog server.
- **Audio support**—Audio is encoded with the video if desired. You can use an external microphone to capture audio.
- **WMM support**—Wi-Fi Multimedia (WMM) is based on the IEEE 802.11e standard. It provides basic Quality of Service (QoS) features to IEEE 802.11 networks. Voice and multimedia traffic are given higher priority than other traffic.
- **IP filter**—Use the IP Filter to block or accept access to the IP addresses.
- **User-definable HTTP/ HTTPS port number**—Allows Internet Gateways to use *port mapping* so that the IP camera and a web server can share the same IP address.
- **DDNS support**—To view video over the Internet, users must know the IP address of the gateway used by the IP camera. But if the gateway has a dynamic IP address, Dynamic DNS (DDNS) is required. Because many gateways do not support DDNS, this function is provided by the IP camera.
- **Network Time Protocol (NTP) support**—NTP allows the IP camera to calibrate its internal clock from an Internet time server. This capability ensures that the time stamp on video from the IP camera will be correct.

## Security Features

- **User authentication**—If desired, access to live video can be restricted to known users. A user must enter a username and password before being able to view the video stream. Up to 10 users can be entered simultaneously.
- **Password-protected configuration**—Configuration data can be password protected so that it be changed only by the IP camera administrator.

## Wireless Features

- **Standards compliant**—The IP camera complies with the IEEE802.11g (DSSS) specifications for Wireless LANs.
- **Supports 802.11b and 802.11g standards**—The IP camera supports both 802.11b and 802.11g standards.
- **Speeds to 54 Mbps**—All speeds up to the 802.11g maximum of 54 Mbps are supported.
- **Wired and wireless network support**—The IP camera supports wired and wireless transmission.



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- **WEP support**—Full WEP support (64/128 Bit) on the wireless interface is provided.
- **WPA/WPA2 support**—The WPA/WPA2 standard is supported, allowing advanced encryption of wireless data.

## Physical Details

Table 1-1 describes the physical details of the IP camera.

**Table 1-1** *IP Camera Physical Details*

Item	Description
<b>Front of Camera</b>	
CS mount lens	The camera uses a standard video surveillance CS mount lens. Ensure that the lens is clean. Any dirt may degrade the image quality.
Microphone	There is a connection for an external microphone on the rear of the device.
Ready LED (amber)	On—Power on. Off—No power. Blinking—Starting up. This process takes 15 to 20 seconds.
Active LED (green)	Off—No user is viewing the camera. Blinking—One or more user is viewing the camera
<b>Rear of Camera</b>	
Antenna	Attach the supplied antennas here. The antennas are adjustable.

**EFT DRAFT – CISCO CONFIDENTIAL****Table 1-1 IP Camera Physical Details**

Item	Description
Reset button	<p>This button is recessed. A pin or paper clip can be used to depress it. It can be activated any time that the camera is in the <i>ready</i> mode and can have these affects:</p> <ul style="list-style-type: none"> <li>• Restore Default IP Address—When this button is pressed and released, the IP camera resets to a static IP address of 192.168.0.100.</li> <li>• Restore Default IP Address, Administrator ID, and Administrator password—When this button is pressed and held for 3 seconds, the IP address, Administrator ID, and Administrator Password settings are set to their default values: <ul style="list-style-type: none"> <li>– IP address: 192.168.0.100.</li> <li>– Administrator ID: admin</li> <li>– Administrator Password: admin</li> </ul> </li> </ul> <p><b>Note</b> After a reset procedure completes, the Ready LED blinks 3 times to confirm that the reset was successful.</p>
LAN port	<p>Use a standard LAN cable to connect the IP camera to a 10/100BaseT hub or switch.</p> <p><b>Note</b> Attaching the LAN cable disables the wireless interface. Only 1 interface can be active at any time.</p> <p>The LAN cable should be connected or disconnected only when the camera is powered off. Attaching or detaching the LAN cable while the camera is powered on does not switch the interface between wired and wireless.</p>
Network LED (amber)	<p>On—Wireless or LAN connection is detected.  Off—Wireless or LAN connection is not detected  Blinking—Data is being transmitted or received via the LAN or wireless connection.</p>
PoE LED (green)	<p>On—PoE connection is detected.  Off—PoE connection is not detected</p>
Power Input	<p>Connect an optional 12 V, 1 amp DC power adapter here.</p> <p><b>Note</b> The camera can also operate using PoE.</p>
GPIO	<p>The GPIIP terminal block includes 1 RS-485 port (2 pins), 2 input ports and 2 output ports.</p>

**EFT DRAFT – CISCO CONFIDENTIAL****Table 1-1** *IP Camera Physical Details*

<b>Item</b>	<b>Description</b>
MIC In	An optional external microphone can be attached here. Microphones designed to be used with PCs are usually compatible with this microphone input.
SPKR out	An optional external speaker can be attached here.

## Package Contents

The following items should be included.

- IP camera
- Antennas
- Installation CD-ROM
- Registration card

## CS Mount Lens

There are other CS mount lens can be used by the IP camera. For more information, contact your Cisco representative.

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## CHAPTER 2

# Basic Set Up

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This chapter provides instructions for installing and performing the initial setup of the IP camera.

This chapter includes these topics:

- [System Requirements, page 2-1](#)
- [Installing the IP Camera, page 2-1](#)
- [Performing the Initial Set Up of the IP Camera, page 2-2](#)

## System Requirements

To use the wired LAN interface, a standard 10/100BaseT hub or switch and network cable is required.

To use the wireless interface on the IP camera, other wireless devices must be compliant with the IEEE802.11b or IEEE802.11g specifications. All wireless stations must use compatible settings.



### Note

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The default wireless settings are:

- Mode—Infrastructure
  - ESSID—ANY
  - Wireless Security—Disabled
  - Domain—USA
  - Channel No.—Auto
- 

## Installing the IP Camera

To install the IP camera, follow these steps:

### Procedure

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- Step 1** Assemble the Camera
- Screw the supplied antenna to the mounting point on the rear of the camera.

**EFT DRAFT – CISCO CONFIDENTIAL****Step 2** Connect the LAN Cable

Connect the IP camera to a 10/100BaseT hub or switch using a standard LAN cable.



**Note** This step disables the wireless interface on the camera because only one interface can be active.

The LAN cable should be connected or disconnected only when the camera is powered off. Attaching or detaching the LAN cable while the camera is powered on does not switch the interface between wired and wireless.

**Step 3** Power on the camera.

Connect the a 12V power adapter to the IP camera and power up.

**Step 4** Check the LEDs:

- The Ready LED turns on briefly then starts blinking. It blinks during start up, which takes 15 to 20 seconds. After startup completes, the Ready LED should remain on.
- The Network LED should be on.

For more information about the LEDs on the camera, see the [“Physical Details” section on page 1-3](#).

## Performing the Initial Set Up of the IP Camera

You perform the initial set up of the IP camera using the supplied Windows-based setup wizard. This program can locate the IP camera even if its IP address is invalid for your network. You can then configure the IP camera with appropriate TCP/IP settings for your LAN.

Subsequent administration can be performed through your web browser, as explained in [Chapter 5](#), [“Managing an IP Camera through the Web.”](#)

To perform the initial set up of the IP camera, follow these steps:

### Procedure

**Step 1** Put the supplied CD-ROM into the disk drive.

If the setup program does not start automatically, navigate to the root folder on the disk and click **wvc2300.exe**.

**Step 2** In the Welcome window, click **Click Here to Start**.**Step 3** In the License Agreement window, read the license agreement and click **Next** if you agree with the terms and want to continue with the installation.

If you do not agree with the terms, click **Cancel** to stop the installation.

**Step 4** Follow the instructions in the Connection 1 window to connect a network cable to your network router or switch and click **Next**.**Step 5** Follow the instructions in the Connection 2 window to connect the other end of the network cable to the Ethernet port on the camera and click **Next**.**Step 6** Follow the instructions in the Connection3 window to connect the included power adapter to the power port on the camera and plug the other end of the cable into an electrical outlet, then click **Next**.

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- Step 7** Follow the instructions in the Connection 4 window to make sure that the LED is lit on the front panel of the camera and click **Next**.
- If the LED is not lit, make sure that the cables are properly connected to the camera.
- Step 8** In the Connection 5 window, which lists all IP cameras on your network, take these actions:
- Select the desired camera from the Selection area.  
The current settings for the selected camera appear.
  - Click **Next**.
- Step 9** In the Verify Password window, take these actions:
- Enter the administrator name and password in the Administrator Name and Administrator Password fields.  
If you are using the default values, enter **admin** in both fields.
  - Click **OK**.
- Step 10** In the Basic Settings window, take these actions:
- In the Description field, enter a brief description of the camera.
  - From the Time Zone drop-down list, choose the time zone of the location in which the camera is being installed.
  - In the Date and Time fields, enter the current date and time of the location in which the camera is being installed.
  - Click **Next**.
- Step 11** In the Network Settings window, take these actions:
- Choose one of these options:
    - Static IP address—Recommended option and can be used in any installation.
    - Automatic Configuration—Can be used in if the LAN has a DHCP server.
  - Click **Next**.  
If you chose Static IP address, continue to [Step 12](#). Otherwise, go to [Step 13](#).
- Step 12** In the IP Settings window, take these actions:
- In the IP Address field, enter an unused IP address from the address range used on your LAN.
  - In the Subnet Mask field, enter the subnet mask used by PCs on your LAN.
  - In the Default field, enter the information used by PCs on your LAN.
  - In the Primary DNS field, enter the DNS (Domain Name Server) address that is recommended by your ISP.  
This address is required to use the e-mail alert or dynamic DNS features.
  - (Optional) In the secondary DNS field, enter the DNS address of a DNS server to use if the primary DNS is unavailable.
  - Click **Next**.
- Step 13** If the information in the window that displays camera setting details is correct, click **Next**.  
If the settings are not correct, click **Back** and modify incorrect values.
- Step 14** To save your settings, click **OK**.  
If you do not want to save the settings, click **Cancel**.

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**Step 15** (Optional) Take either of both of these actions:

- Click **Online Registration** to register the camera using your web browser.
- Click **Install Viewer & Recorder Utility** to install the Viewing/Recording utility.

**Step 16** Click **Exit** to exit the set up wizard.

Setup is now complete.

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## CHAPTER 3

# Viewing Live Video

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After you install and set up the IP camera as described in [Chapter 2, “Basic Set Up,”](#) all LAN users can view live video using Internet Explorer. This chapter describes how to do so.

The camera administrator can adjust the video stream and can restrict access to the video stream to known users by requiring viewers to supply a username and password. For more detailed information, see [Chapter 4, “Advanced Viewing Set Up.”](#)

To make live video from the camera available via the Internet, your Internet gateway or router must be configured correctly. For more detailed information, see the [“Making Video Available from the Internet” section on page 4-2.](#)

This chapter includes these topics:

- [System Requirements, page 3-1](#)
- [Connecting to a Camera on Your LAN, page 3-1](#)
- [Connecting to a Camera Via the Internet, page 3-2](#)
- [Controlling the Display Live Video, page 3-3](#)

## System Requirements

To view a live video stream generated by the IP camera, need a PC that meets the following requirements:

- Operating system—Windows 98/98SE, Windows 2000, or Windows XP
- Browser—Internet Explorer 5.5 or later.

## Connecting to a Camera on Your LAN

To establish a connection from your PC to the IP camera, follow these steps:

### Procedure

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- Step 1** Use the Windows utility to obtain the IP address of the IP camera.  
The default IP address is 192.168.0.100.
- Step 2** Start Internet Explorer 5.5 or later.

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- Step 3** In the Address field, enter the following address, where *IP\_Address* is the IP address of the IP camera from which you want to view video:
- HTTP://IP\_Address**
- Step 4** Enter the user name and password for the camera when prompted and then click **OK**.  
If the default user name and password have not been changed, enter **admin** in both fields.
- Step 5** If you are prompted to install an ActiveX component (OCX or CAB file), click **Yes** to install it.  
You are prompted to install an ActiveX component (OCX or CAB file) the first time that you connect to the camera. You must install it to view the Video stream in Internet Explorer.  
Video starts playing automatically. There may be a delay of a few seconds while the video stream is buffered.  
For information about controlling the video view, see the [“Controlling the Display Live Video” procedure on page 3-3](#).
- 

## Connecting to a Camera Via the Internet

To connect to a camera via the Internet, the Camera administrator must configure the camera and the Internet gateway or router that is used by the camera to provide for this access. For configuration instructions, see the [“Making Video Available from the Internet” section on page 4-2](#).

In addition, a broadband Internet connection is required to view video effectively. Dial-up connections are not supported.

To establish a connection from your PC to the IP camera via the Internet, follow these steps:

### Procedure

- Step 1** Obtain the following information from the administrator of the camera that you wish to connect to:
- Internet IP Address or Domain Name of the camera
  - Port number for HTTP connections
  - Login with a user name and password, if required
- Step 2** Start Internet Explorer.
- Step 3** In the Address field, enter the following address, where *Internet\_address* is the IP address or domain name of the camera, and *Port\_number* is the port number used for HTTP (web) connections to the camera:
- HTTP://Internet\_address:Port\_number**
- Examples:
- Enter the following if the IP address is 203.70.212.52 and the HTTP port number is 1024:  
**HTTP://203.70.212.52:1024**
  - Enter the following if the Domain name (using DDNS in this example) is mycamera.dyndns.tv and the HTTP port number is 1024:  
**HTTP://mycamera.dyndns.tv:1024**

When you connect to the camera, the Home window appears.

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**Step 4** If you are prompted for a user name and password, enter the user name and password that are provided by your IP camera administrator.

You are prompted for a user name and password if your administrator has restricted access to known users.

**Step 5** If you are prompted to install an ActiveX component (OCX or CAB file), click **Yes** to install it.

You are prompted to install an ActiveX component (OCX or CAB file) the first time that you connect to the camera. You must install it to view the Video stream in Internet Explorer.









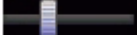

Video starts playing automatically. There may be a delay of a few seconds while the video stream is buffered.

For information about controlling the video view, see the “[Controlling the Display Live Video](#)” procedure on page 3-3.

## Controlling the Display Live Video

You view live video in the Video window. [Table 3-1](#) describes the video controls in this window.

**Table 3-1 Video Window Controls**

Control	Description
	On button—Sets the output I/O ports to On mode.
	Off button—Sets the output I/O ports to Off mode.
	Day button—Improves video quality during the daytime.
	Night button—Improves video quality during the nighttime.
	Resolution drop-down list—Selects the desired video resolution format.
	Zoom button—Accesses the digital zoom feature if available. To zoom in on a section of the window, click this button. Then use your mouse to select the section you want to magnify. Click the icon again to disable the zoom feature.
	Snapshot button—Captures a snapshot image of the current video image, in JPEG format.
	Audio On button—Appears if audio is On. Click the button to turn audio Off.
	Volume slider—If audio is enabled, use this slider to adjust the volume
	Setup drop-down list—Selects the desired setup format.

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## CHAPTER 4

# Advanced Viewing Set Up

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This Chapter provides information about the optional settings and features for viewing video via the IP camera. This information is intended for the camera Administrator.

This chapter includes these topics:

- [Adjusting the Video Image, page 4-1](#)
- [Making Video Available from the Internet, page 4-2](#)
- [Viewing Live Video via the Internet, page 4-4](#)
- [Motion Detection Alerts, page 4-4](#)

## Adjusting the Video Image

If necessary, the IP camera administrator can adjust the video image. To do so, follow these steps:

### Procedure

---

- Step 1** Connect to the web-based interface of the IP camera.  
For instructions, see [Chapter 5, “Managing an IP Camera through the Web.”](#)
- Step 2** Choose **Video**.  
The Video screen appears.
- Step 3** Configure the options that are described in [Table 4-1](#) as needed, and then save your changes.

**Table 4-1** Video Screen Options

Option	Description
<b>MPEG-4 Settings</b>	
Resolution	Select the desired video resolution format. The default resolution is 720 x 480.
Video Quality Control	<ul style="list-style-type: none"><li>• Constant Bit Rate—Select the desired bit rate. The default value is 1.2 Mbps.</li><li>• Fixed Quality—Select the desired option. The default fixed quality is Normal.</li></ul>

**EFT DRAFT – CISCO CONFIDENTIAL****Table 4-1 Video Screen Options (continued)**

<b>Option</b>	<b>Description</b>
Max. Frame Rate	Select the desired maximum bandwidth for the video stream. You can specify either the bandwidth or the frame rate, but not both. If the bandwidth is defined, the frame rate is adjusted as necessary to achieve the specified frame rate.  The default values for bandwidth is Unlimited, which allows you to specify the desired frame rate.
<b>Video Adjustment</b>	
Power line frequency	Select the power line frequency (50Hz or 60Hz) used in your region, to improve the picture quality under florescent lighting.
White Balance	Select the desired option to match the current environment and lighting.
Brightness	If necessary, adjust the brightness to obtain a better image. For example, if the camera is facing a bright light, the image may be too dark. In this case, you can increase the brightness.
Sharpness	Select the desired value for the sharpness.
Contrast	Select the desired value for the contrast.
Saturation	Select the desired value for the saturation.
<b>Options</b>	
Time Stamp	If enabled, the current time displays on the video image.
Text Display	Enable this setting if you want text to display on the video, and enter the desired text, which can contain up to 20 characters. This feature is often used to identify each camera when multiple cameras are installed.
Image Overlay	If you want an image to be displayed on the video, check this check box. Select a bitmap image file (smaller than 64Kb) you define and set its position (X: 0 through 639, Y: 0 through 479) and its transparent color (RGB hexadecimal color code, for example, 5272B3) for displaying on the video.
<b>Day/Night Switch</b>	
Enable Night Vision Schedule	Check this check box to enable a day/night filter during a specified period.

## Making Video Available from the Internet

If your LAN is connected to the Internet, typically by a broadband gateway or router and a broadband modem, you can make the IP camera available via the Internet. You must configure your router or gateway to allow connections from the Internet to the camera.

### Router or Gateway Setup

Your router or gateway must be configured to pass incoming TCP (HTTP) connections from Internet viewers to the IP camera. A router or gateway uses the port number to determine which incoming connections are intended for the IP camera.

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This feature is normally called *port forwarding* or *virtual servers*. The port forwarding/virtual server entry tells the router or gateway that incoming TCP connections on port 1024 should be passed to the IP camera. If necessary, refer to the user manual for your router gateway for further details.

**Note**

The Port for the Port Forwarding / Virtual Server entry is the Secondary Port number that is specified on the Network screen of the IP camera.

## IP Camera Setup

The IP camera configuration does not need to be changed unless:

- You wish to change the port number from the default value (1024).
- You wish to use the DDNS (Dynamic DNS) feature of the IP camera.

## HTTP Port Configuration

Normally, HTTP (web) connections use port 80. Because the IP camera uses HTTP, but port 80 is likely to be used by a web server, you can use a different port for the IP camera. This port is called the *alternative port*.

The default alternative port is 1024. If you prefer to use a different port number, you can specify the port number on the IP camera Advanced Setup window. (For detailed information about the Advanced Setup window, see the [“Advanced Setup Window”](#) section on page 5-6.)

**Note**

users need to know this port number to connect and view live video, so you must inform users of the correct port number.

## DDNS (Dynamic DNS)

Many internet connections use a dynamic IP address, where the IP address is allocated whenever the Internet connection is established. In this situation, other Internet users do not know the IP address so they cannot establish a connection.

DDNS is designed to solve this problem by allowing users to connect to your LAN using a domain name instead of an IP address.

To use DDNS, follow these steps:

### Procedure

- Step 1** Register for the DDNS service with a supported DDNS service provider.  
You can then apply for, and be allocated, a Domain Name.
- Step 2** Enter and save the correct DDNS settings on the IP camera DDNS window.  
After you configure these settings, operation is automatic:
  - The IP camera automatically contacts the DDNS server whenever it detects that the IP address has changed and inform the DDNS server of the new IP address.

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- Internet users can then connect to the camera using the domain name that is allocated by the DDNS service provider.
- 

## **Viewing Live Video via the Internet**

To view live video via the Internet, a user should have a broadband connection. Dial-up connections are not recommended.

## **Viewing Live Video Using a Web Browser**

If using a web browser to view live video, you must know the IP address or the domain name of the camera's router or gateway, and the correct port number of the router or gateway.

To view live video in a web browser, enter the IP address and the port number of the router or gateway in the Address (or Location) field of your browser.

### **Examples**

- Enter the following if the router or gateway IP address is 203.70.212.52 and the Secondary Port number on the IP camera is 1024:  
**HTTP://203.70.212.52:1024**
- Enter the following if the router or gateway domain name is mycamera.dyndns.tv and the Secondary Port number on the IP camera is 1024:

**HTTP://mycamera.dyndns.tv:1024**

## **Viewing Live Video with the Viewing/Recording Utility**

If using the Windows Viewing/Recording utility, the details of the IP camera must be entered in the Camera Setup window.

## **Motion Detection Alerts**

The motion detection feature can generate an alert when motion is detected.

To detect motion, the IP camera compares consecutive frames to detect changes caused by the movement of large objects.

The motion detector can also be triggered by:

- Sudden changes in the level of available light
- Movement of the camera itself.

Try to avoid these situations. The motion detection feature works best in locations where there is good steady illumination and the camera is mounted securely.

To use motion detection alerts, follow these steps:



***EFT DRAFT – CISCO CONFIDENTIAL*****Procedure**

- 
- Step 1** Access the web-based interface for the IP camera and display the Motion Detection window.
- Step 2** Take these actions:
- a. Enable the Motion Detection feature.
  - b. Set the areas of the video image to be examined for movement. You can define the full screen or up to three areas, and set the motion threshold individually for each area.
  - c. If using a schedule, define the desired schedule in the Event window.
  - d. Save your changes.
- Step 3** (Optional) To receive alerts if motion is detected, take these actions:
- a. In the Event window, enable Trigger Event and check the Motion Detection check box.
  - b. Configure the desired options for sending the alerts.
-

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## CHAPTER 5

# Managing an IP Camera through the Web

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This Chapter provides information about configuring an IP camera through the web-based interface. This information is intended for the camera Administrator.

To configure a camera in this way, the camera must have an IP address that is compatible with your PC. To configure this IP address, use the supplied Windows-based Wizard, as described in [Chapter 2, “Basic Set Up.”](#)

This chapter includes these topics:

- [Connecting to an IP Camera, page 5-2](#)
- [Basic Setup Window, page 5-3](#)
- [Advanced Setup Window, page 5-6](#)
- [IP Filter Window, page 5-8](#)
- [Users Window, page 5-8](#)
- [Maintenance Window, page 5-9](#)
- [Firmware Window, page 5-9](#)
- [Video Window, page 5-10](#)
- [Audio Window, page 5-11](#)
- [Mail Window, page 5-11](#)
- [Motion Detection Window, page 5-12](#)
- [Event Window, page 5-12](#)
- [SNMP Window, page 5-13](#)
- [DDNS Window, page 5-14](#)
- [I/O Ports Window, page 5-14](#)
- [RS-485 Window, page 5-15](#)
- [System Window, page 5-16](#)
- [Image Window, page 5-17](#)
- [Network Window, page 5-17](#)
- [Syslog & Log Window, page 5-18](#)
- [View Video Log Window, page 5-18](#)

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# Connecting to an IP Camera

If you have run the Windows-based setup wizard, the final screen provided the **Web UI** button. Clicking this button connects to the IP camera through your web browser.

To connect to a camera directly through your web browser, perform the following steps. After you connect to the camera, you can bookmark the camera for easy access in the future.

## Procedure

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**Step 1** Use the Windows utility to obtain the IP address of the camera.

The default IP address is 192.168.0.100.

**Step 2** Start Internet Explorer.

**Step 3** In the Address field, enter the following address, where *IP\_Address* is the IP address of the IP camera to which you want to connect:

**HTTP://IP\_Address**

**Step 4** Enter the user name and password for the camera when prompted.

The user name and password are configured in the Users window. If the default user name and password have not been changed, enter **admin** in both fields.

The Home window appears. This window includes these links:

- **Home**—Lets you view live video using your web browser. For more information, see [Chapter 3, “Viewing Live Video.”](#)
- **Setup**—Accesses the Setup menu.

The Setup menu provides access to the following options:

- Setup
  - Basic Setup
  - Advanced Setup
  - IP Filter
- Administration
  - Users
  - Maintenance
  - Firmware
- Audio/Video
  - Video
  - Audio
- Application
  - Mail & FTP
  - Instant Messaging
  - Motion Detection
  - Event
  - SNMP

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- DDNS
- I/O Ports
- RS-485
- Status
  - System
  - Image
  - Network
  - Syslog & Log
- View Video Log
  - View Video Log

## Basic Setup Window

The Basic Setup window provides options for configuring various device, network, and security settings for an IP camera. To access this window, connect to the camera as described in the “[Connecting to an IP Camera](#)” section on page 5-2 and then choose **Setup > Basic Setup**.

Table 5-1 describes the options in the Basic Setup window. The wireless options appear only for wireless cameras.

**Table 5-1 Basic Setup Window Options**

Option	Description
<b>Device Settings</b>	
Device ID	Displays the ID for the camera.
Camera Name	Enter the name for the camera.
Description	Enter a description, such as the location of the camera.
Enable LED Operations	If disabled, the LED of the camera will be in off state.
Current	Displays the current date and time on the camera.
Date/Time	Click this button to modify the date/time settings. This button opens a window that lets you take either of these options: <ul style="list-style-type: none"> <li>• Set the camera date and time to match the date and time of your PC.</li> <li>• Enter a date and time.</li> </ul>
Timezone	Choose the Timezone for your location from the drop-down list. If your location uses daylight saving time, check the <b>Adjust for Daylight Saving Time</b> check box.
Check here if you want to update...	Enable or disable the Time Server feature as required. If enabled, the camera contacts a network time server at regular intervals and update its internal timer.

**EFT DRAFT – CISCO CONFIDENTIAL****Table 5-1 Basic Setup Window Options (continued)**

Option	Description
<b>Network Settings</b>	
Configuration Type	<p>Includes these options:</p> <ul style="list-style-type: none"> <li>• Obtain Address Automatically—If selected, the camera obtains its IP address and related information from a DHCP server. Select this option only if your LAN has a DHCP server.</li> <li>• Fixed IP Address—If selected, you must assign the following data to the camera: <ul style="list-style-type: none"> <li>– IP Address—Enter an unused IP address from the address range used on your LAN.</li> <li>– Subnet Mask—Use the same value as used for the PCs on your LAN.</li> <li>– Gateway—Use the same value as used for the PCs on your LAN.</li> <li>– Primary DNS server—Use the same value as used for the PCs on your LAN. Typically, your ISP provides this address.</li> <li>– Secondary DNS server—(Optional) Enter DNS server to be used if the primary DNS server does not respond.</li> </ul> </li> </ul>
<b>Wireless Settings</b>	
SSID	<p>Enter the same SSID value as used by other devices on your wireless LAN.</p> <p><b>Note</b> The SSID is case sensitive.</p>
Network Type	Specify the network type of wireless communication used by the camera.
Channel No	<ul style="list-style-type: none"> <li>• In Infrastructure mode, you cannot set the Channel. The camera will use the channel that is set on the access point.</li> <li>• For Ad-hoc mode, select the Channel that you wish to use on your camera. This channel should match the channel that is used on the other Wireless Stations.</li> </ul> <p>If you experience interference (shown by lost connections or slow data transfers) you may need to experiment with different channels to see which is the best.</p>
Enable WMM	WMM (Wi-Fi Multimedia) is a standard to define Quality of Service (QoS) in Wi-Fi networks.

**EFT DRAFT – CISCO CONFIDENTIAL****Table 5-1 Basic Setup Window Options (continued)**

Option	Description
<b>Security</b>	
Security	<p>Click the <b>Edit Security Settings</b> button to select the desired option:</p> <ul style="list-style-type: none"> <li>• Disabled—No security is used. Anyone using the correct SSID can connect to your network.</li> <li>• WEP—The 802.11b standard. Data is encrypted before transmission, but the encryption system is not very strong.</li> <li>• WPA/WPA2 Persona—This method, sometimes called <i>Mixed Mode</i>, allows clients to use EITHER WPA-PSK (with TKIP) OR WPA2-PSK (with AES).</li> <li>• WPA/WPA2 Enterprise—EITHER WPA or WPA2 require a Radius Server on your LAN to provide the client authentication according to the 802.1x standard. Data transmissions are encrypted using EITHER WPA or WPA2 standard.</li> </ul> <p>If you choose a security method, configure the appropriate options as described in the <a href="#">“Wireless Security Window”</a> section on page 5-5.</p>

## Wireless Security Window

If you enable security as described in the Security row in [Table 5-1](#), the Wireless Security window appears.

[Table 5-2](#) describes the options in the Wireless Security window.

**Table 5-2 Wireless Security Window Options**

Option	Description
<b>WEP Security Mode Options</b>	
TX Key	Select the desired WEP key from the drop-down list.
WEP Encryption	Select the WEP Encryption level: <ul style="list-style-type: none"> <li>• 64 Bit Keys (10 hexadecimal characters)</li> <li>• 128 Bit Keys (26 hexadecimal characters)</li> </ul>
Passphrase	Enter a word or group of printable characters and click <b>Generate</b> button to automatically configure the WEP key or keys. If encryption strength is set to 64 bit, each of the four key fields is populated with key values. If encryption strength is set to 128 bit, only the selected WEP key field is given a key value.
WEP Keys	Use the radio buttons to select the default key. Enter the key value you wish to use. Other stations must have the same key values. Keys must be entered in hexadecimal format (digits 0 through 9 and letters A through F).

**EFT DRAFT – CISCO CONFIDENTIAL****Table 5-2 Wireless Security Window Options (continued)**

Option	Description
Authentication Type	Select the appropriate value: Open System or Shared Key. Refer to your wireless card's documentation to determine which method to use.  <b>Note</b> In Infrastructure mode, either setting typically works, because most access points can use both methods.
<b>WPA/WPA2 Personal Mode Options</b>	
Shared Key	Enter the key value. Data is encrypted using a key derived from the network key. Other wireless stations must use the same network key. The PSK must be from 8 to 63 characters in length
<b>WPA/WPA2 Enterprise Mode Options</b>	
Protocol Type	Select the desire protocol type and enter the required date in the fields. <ul style="list-style-type: none"> <li>• EAP-TLS <ul style="list-style-type: none"> <li>– User ID—The user ID used for logging in to your Radius server.</li> <li>– Root CA—Click <b>Browse</b> and browse to the location on your PC where you stored the Root CA file. Then click <b>Upload</b>.</li> <li>– User CA: Click <b>Browse</b> browse to the location on your PC where you stored the User CA file. Then click <b>Upload</b>.</li> <li>– Password—Enter the camera's client log in to the Radius server. This entry must match the key that is stored on the Radius server.</li> </ul> </li> <li>• EAP-TTLS <ul style="list-style-type: none"> <li>– Process Method—Choose an authentication method as required that used for processes and transmits CA to your Radius server.</li> <li>– User ID—User ID used for logging in to your Radius server.</li> <li>– Password—Enter the camera's client log in to the Radius server. This entry must match the key that is stored on the Radius server.</li> <li>– Anonymous ID—The unsigned public ID used for logging in to your Radius server.</li> <li>– Root CA—Click <b>Browse</b> and browse to the location on your PC where you stored the Root CA file. Then click <b>Upload</b>.</li> </ul> </li> </ul>

## Advanced Setup Window

The Advanced Setup window provides options for configuring various network and protocol settings for an IP camera. To access this window, connect to the camera as described in the “[Connecting to an IP Camera](#)” section on page 5-2 and then choose **Setup > Advanced Setup**.

[Table 5-3](#) describes the options in the Advanced Setup window.



**EFT DRAFT – CISCO CONFIDENTIAL****Table 5-3 Advanced Setup Window Options**

Option	Description
<b>Advanced Setup</b>	
HTTP/HTTPS	<p>HTTP Alternative Port—If enabled, you can connect using either port 80 or the secondary port. You must enter the secondary port number (1024 through 65535) in the field provided.</p> <p>HTTPS Alternative Port—If enabled, you can connect using either port 80 or the secondary port. You must enter the secondary port number (1024 through 65535) in the field provided.</p> <p>Note that when using a port number that is not 80, you must specify the port number in the URL. For example, if the camera IP address is 192.168.1.100 and the secondary port is 1024, you would specify the URL for the Camera as http://192.168.1.100:1024.</p>
RTP/RTSP	<p>The RTSP (Real Time Streaming Protocol) is a standard for connected client to control streaming data (MPEG-4) over the web. Enter the RTSP port number (1024 through 65535) in the field provided. The default RTSP Port is 554.</p> <p>The RTP (Real Time Transport Protocol) is an Internet protocol for transmitting real-time data such as audio and video.</p> <p>Max RTP Data Packet field lets users limit the size of the file. Enter the desired value 400 through 1400.</p>
Enable Multicast	If enabled, enter the data in the following fields.
Video Address	Enter the address of video.
Video Port	Enter an even value from 1024 to 65534.
Audio Address	Enter the address of the audio.
Audio Port	Enter an even value from 1024 to 65534.
Time to Live	Enter a value 1 though 255 for the time to live.
<b>UpNp</b>	
Enable Discovery	If enabled, the camera broadcasts its availability through UPnP. UPnP compatible systems such as Windows XP will then be able to detect the presence of the camera.
Enable Traversal	If enabled, HTTP connections (from your web browser or the Viewer and Recorder utility) can use secondary port instead of port 80 (the standard HTTP port) to access the camera.
<b>QoS</b>	
Enable QoS Mode	If enabled, the throughput level for video or audio is guaranteed through QoS (Quality of Service).
<b>CoS</b>	
Enable CoS Mode	Check this check box if you want to use the CoS (Class of Service) feature.
Priority	Select the desired option from the list.
VLAN ID	Enter value from 0 to 4095.

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## IP Filter Window

The IP Filter window provides options for configuring the IP addresses from which a camera can be accessed. To access this window, connect to the camera as described in the “[Connecting to an IP Camera](#)” section on page 5-2 and then choose **Setup > IP Filter**.

Table 5-4 describes the options in the IP Filter window.

**Table 5-4 IP Filter Window Options**

Option	Description
Options	The IP Filter feature allows administrators to control camera access by filtering IP address. Select the desired option from the drop-down list.
Single/Range	Enter an IP address or a range of IP addresses that you would like to allow or deny access to the camera.

## Users Window

The Users window provides options for configuring administrators and users who can access the camera. To access this window, connect to the camera as described in the “[Connecting to an IP Camera](#)” section on page 5-2 and then choose **Administration > Users**.

Table 5-5 describes the options in the Users window.

**Table 5-5 Users Window Options**

Option	Description
<b>Administrator</b>	
User Name	Enter a unique name for the administrator. The name can include only letters and numbers. The name is not case sensitive.
Password	Enter the password for the administrator.
Confirm Password	Re-enter the password for the administrator.
<b>Demo</b>	
User Name	Enter a unique name for the user. The name can include only letters and numbers. The name is not case sensitive.
Password	Enter the password for the user.
Confirm Password	Re-enter the password for the user.
<b>User List</b>	
User Name	Enter a unique name for the user. The name can include only letters and numbers. The name is not case sensitive.
Password	Enter the password for the user.

**EFT DRAFT – CISCO CONFIDENTIAL****Table 5-5** *Users Window Options (continued)*

Option	Description
Confirm Password	Re-enter the password for the user.
Privilege Level	Select the desired privilege level for the. <ul style="list-style-type: none"> <li>Administrator Level—Same as Administrator user, allows the user to setup and control the camera.</li> <li>Monitor Level—Allows the user to control camera (manually pan and tilt, switch between day and night vision, and trigger output ports).</li> <li>Viewer Level—Same as Demo user, allows the user to view video only.</li> </ul>

## Maintenance Window

The Maintenance window provides options for resetting or restarting the camera. To access this window, connect to the camera as described in the [“Connecting to an IP Camera”](#) section on page 5-2 and then choose **Administration > Maintenance**.

[Table 5-6](#) describes the options in the Maintenance window.

**Table 5-6** *Maintenance Window Options*

Option	Description
Restore	Click this button to reload the default settings for the camera.
Restart	Click this button to restart the camera.
Save	Click this button to save the current configuration information to a text file.
Upload	Click this button after loading the upgrade file to reinitialize the camera with the updated software.

## Firmware Window

The Firmware window lets you view information about the current firmware on the camera and upgrade the firmware. To access this window, connect to the camera as described in the [“Connecting to an IP Camera”](#) section on page 5-2 and then choose **Administration > Firmware**.

[Table 5-7](#) describes the options in the Firmware window.

**Table 5-7** *Firmware Window Options*

Option	Description
Firmware Version	Displays the firmware version that is loaded on the camera.
Upgrade	Click this button to upgrade the firmware. When the upgrade completes, the camera restarts. The connection to the camera is not available while the camera restarts.

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# Video Window

The Video window provides options for configuring the video from a camera. To access this window, connect to the camera as described in the “Connecting to an IP Camera” section on page 5-2 and then choose **Audio/Video > Video**.

Table 5-8 describes the options in the Video window.

**Table 5-8 Video Window Options**

Option	Description
<b>MPEG-4 Settings</b>	
Resolution	Select the desired video resolution format. The default resolution 720 x 480.
Video Quality Control	Constant Bit Rate—Select the desired bit rate. The default value is 1.2 Mbps. Fixed Quality—Select the desired option. The default fixed quality is Normal.
Max. Frame Rate	Select the desired maximum bandwidth for the video stream. You can specify either the bandwidth or the frame rate, not both. If the bandwidth is defined, the frame rate is adjusted as necessary to achieve the specified frame rate.  The default values for bandwidth is Unlimited, which allows you to specify the desired frame rate.
<b>Video Adjustment</b>	
Video System	Choose NTSC/60 Hz or PAL/50 Hz.
White Balance	Select the option to match the current environment and lighting.
Brightness	If necessary, you can adjust the brightness to obtain a better image. For example, if the camera is facing a bright light, the image may be too dark. In this case, you can increase the brightness.
Sharpness	Select the value for the sharpness.
Contrast	Select the value for the contrast.
Saturation	Select the value for the saturation.
<b>Options</b>	
Time Stamp	If enabled, the current time is displayed on the video image.
Text Display	Enable this setting if you want text to display on the video, and enter the desired text of up to 20 characters. This feature is often used to identify each camera when several cameras are installed.
Image Overlay	If you want an image to display on the video, enable this feature by checking the check box. Select a bitmap image file (smaller than 64 Kb) you define and set its position (X: 0 through 639, Y: 0 through 479) and its transparent color (RGB hexadecimal color code, for example, 5272B3) for displaying on the video.
<b>Day/Night Switch</b>	
Enable Night Vision Schedule	Check this check box to enable a day/night filter during a specified period.

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## Audio Window

The Audio window provides options for configuring the audio from a camera. To access this window, connect to the camera as described in the “[Connecting to an IP Camera](#)” section on page 5-2 and then choose **Audio/Video > Audio**.

Table 5-9 describes the options in the Audio window.

**Table 5-9 Audio Window Options**

Option	Description
Enable Audio	Check this check box and select the desired audio option.
Enable Microphone	Check these check boxes to enable person in the monitoring office yo talk to people on site while viewing images on screen.
Enable Speaker	
Audio Type	Select the desired audio type from the drop-down list.

## Mail Window

The Mail window provides options for configuring e-mail to which a message is sent when an event is triggered on the camera. To access this window, connect to the camera as described in the “[Connecting to an IP Camera](#)” section on page 5-2 and then choose **Applications > Mail and FTP**.

Table 5-10 describes the options in the Mail window.

**Table 5-10 Mail Window Options**

Option	Description
<b>Primary/Secondary SMTP Server</b>	
Primary SMTP	Check this check box to identify the primary SMTP server.
SMTP Server Address	Enter the IP address of the SMTP server to be used to send e-mail.
Authentication	Select the desired authentication type for the SMTP server.
Account Name	Enter the login name for the SMTP server.
Password	Enter the password for the SMTP server.
POP Server Name	Enter the name of the POP Server.
Secondary SMTP	Check this check box to user a secondary SMTP server.
<b>E-Mail Setup</b>	
Send To	Enter at least 1 e-mail address. The second and third addresses are optional. The e-mail alert is sent to the e-mail address or addresses specified here.
Show “From” as	Enter the e-mail address to be shown in the From field.
Subject	Enter the text to be shown as the Subject for the e-mail. The subject can contain up to 48 alphanumeric characters.
<b>Primary/Secondary FTP</b>	
Primary FTP	Check this check box to upload an event file to the primary FTP server.
FTP Server	Enter the IP address of the FTP server.

**EFT DRAFT – CISCO CONFIDENTIAL****Table 5-10 Mail Window Options (continued)**

Option	Description
Port	Enter the port number of the FTP server to be connected.
Login name	Enter the login name for the FTP Server.
Password	Enter the password for the FTP Server.
File Path Name	Enter path where the file is stored on the FTP server.
Enable Passive Mode	Check this check box to enable the passive mode feature of the FTP server.
Secondary FTP	Check t his check box to use a secondary FTP server.

## Motion Detection Window

The Motion Detection window allows you to configure how a camera triggers events for motion. To access this window, connect to the camera as described in the “[Connecting to an IP Camera](#)” section on page 5-2 and then choose **Applications > Motion Detection**.

Table 5-11 describes the options in the Motion Detection window.

**Table 5-11 Motion Detection Window Options**

Option	Description
Set Detection Areas	You can set the full screen or areas of the video image to be examined.  <b>Note</b> Motion detection can be triggered by rapid changes in lighting condition or by moving objects.
Threshold	Adjust the threshold of detection for each area.
Apply	Click this button to save the settings that you make.

## Event Window

The Event window provides options for configuring events. To access this window, connect to the camera as described in the “[Connecting to an IP Camera](#)” section on page 5-2 and then choose **Applications > Event**.

Table 5-12 describes the options in the Event window.

**EFT DRAFT – CISCO CONFIDENTIAL****Table 5-12 Event Window Options**

Option	Description
<b>Event Schedule</b>	
Schedule List	The Event Schedule shows all of the event types that are configured in the camera, and provides information about the configuration: Name—Descriptive event name set by the user. Effective Time Frame—When the event will be triggered. Trigger by—Shows what kind trigger activates the event. Action—Shows what kind of the actions are issued when the event is triggered
<b>New Schedule</b>	
Effective Time Frame	Choose the desired option for the period.
Start Time	Choose the desired start time using a 24 hour clock.
End Time	Choose the desired end time using a 24 hour clock.
<b>Trigger Event</b>	
Enable	Check this check box to perform all of the events that are configured and scheduled.
Interval	Select the desired option for the events interval.
Trigger by	<ul style="list-style-type: none"> <li>Input 1 / 2—Describes the states that the inputs must be in for an event to be triggered. Only one input can be used. The states for all the inputs used must be reached before the event will be triggered.</li> <li>Motion Detection—Movement in a motion detection window can be used to trigger events.</li> </ul>
Actions	<ul style="list-style-type: none"> <li>E-Mail—If checked, an e-mail (with attachment) is delivered to the SMTP server. (The SMTP server must be configured in the Mail window as described in the <a href="#">“Mail Window” section on page 5-11.</a>)</li> <li>FTP—If checked, an FTP upload will be activated to the FTP server. (FTP servers must be configured in the FTP page in the <a href="#">“Mail Window” section on page 5-11.</a>)</li> <li>Output 1 / 2—If checked, the output ports state is activated as configured. (Output ports must be configured in the I/O Ports window as described in the <a href="#">“I/O Ports Window” section on page 5-14</a>)</li> </ul>

## SNMP Window

The SNMP window allows you to configure SNMP. To access this window, connect to the camera as described in the [“Connecting to an IP Camera” section on page 5-2](#) and then choose **Applications > SNMP**.

[Table 5-13](#) describes the options in the SNMP window.

**EFT DRAFT – CISCO CONFIDENTIAL****Table 5-13** SNMP Window Options

Option	Description
SNMP Enable/Disable	Enable or disable the SNMP function.
System Object ID	Displays the system object ID.
System Contact	Enter the system contact information.
SysLocation	Enter the location of the system contact.
Read Community String	Enter the SNMP community string. The default is Public.
Primary Trap Receiver	Enter the IP address of the primary receiver for SNMP traps.
Secondary Trap Receiver	Enter the IP address of the secondary receiver for SNMP traps.

## DDNS Window

The DDNS window allows you to configure DDNS. To access this window, connect to the camera as described in the “[Connecting to an IP Camera](#)” section on page 5-2 and then choose **Applications > DDNS**.

[Table 5-14](#) describes the options in the DDNS window.

**Table 5-14** DDNS Window Options

Option	Description
DDNS Enable/Disable	Enable or disable the DDNS function, as required. Enable this feature only if you have registered for the DDNS service with a DDNS server provider.
Service Provider	Choose a DDNS service provider.
Web Site Button	Click this button to open a new window and connect to the web site for the selected DDNS service provider.
Host Name	Enter the domain name (Host Name) allocated to you by the DDNS server provider.
Account	Enter the login name or the e-mail address for the DDNS account.
Password	Enter the password for the DDNS account.
Check WAN IP Address	Set the schedule for checking if the IP address has changed. If the IP address has changed, the DDNS server is notified.  <b>Note</b> If the DDNS Service provided software to perform this IP address update or notification, do not use that software. The update is performed by the camera.

## I/O Ports Window

The I/O Ports window allows you to configure input and output ports of the camera. To access this window, connect to the camera as described in the “[Connecting to an IP Camera](#)” section on page 5-2 and then choose **Applications > I/O Ports**.

[Table 5-15](#) describes the options in the I/O Ports window.



**EFT DRAFT – CISCO CONFIDENTIAL****Table 5-15 I.O Ports Window Options**

Option	Description
<b>Input Ports</b>	
Current State	Indicates the current state of the input port. When the configured state occurs, the event actions are triggered.
Triggered When	Select the desired state: <ul style="list-style-type: none"> <li>• High</li> <li>• Low</li> </ul>
<b>Output Ports</b>	
Current State	Indicates the current state of the output port.
Default State	Select the desired option from the drop-down list.
Output State	If an event happens the alert is triggered.
Action Definition	Select the option to control the output state.

## RS-485 Window

The RS-485 window allows you to configure the RS-485 protocol for the camera. To access this window, connect to the camera as described in the [“Connecting to an IP Camera”](#) section on page 5-2 and then choose **Applications > RS-485**.

Table 5-16 describes the options in the RS-485 window.

**Table 5-16 RS-485 Window Options**

Option	Description
<b>RS-485</b>	
Enable RS-485	Check this check box to enable RS-485.
Baud Rate	Select the Baud rate.
Date Bits	Select the date bits.
Parity	Select the parity type.
Stop Bits	Select the stop bits.
Address	Enter the value for the address.
<b>Preset Position</b>	
Set Preset Position	Click this button to define the preset point position. Define positions in the Pan/Tilt window as described in the <a href="#">“Pan/Tilt Window”</a> section on page 5-16.

**EFT DRAFT – CISCO CONFIDENTIAL****Table 5-16 RS-485 Window Options (continued)**

Option	Description
<b>Patrol Sequence</b>	
Patrol Sequence	<p>This feature determines how the camera moves when it is set to Rotate. You can set a number of preset positions. The camera goes to the first position, then moves through the list of present positions until it is finished. The camera stops at the last position in the list.</p> <p>To create the preset sequence, select the desired preset position in the left column, and click <b>Add &gt;&gt;</b>. Repeat until the desired sequence is complete. You can add the same Preset Position more than once, which causes the camera to stay longer at one position.</p> <p>To delete a position from the Sequence, select the desired position and click <b>Remove</b>.</p>
Time	Designate how long, in seconds, the camera remains at each position while executing the sequence.

## Pan/Tilt Window

If you click the **Set Preset Position** button as described in [Table 5-16](#), the Pan/Tilt window appears. This window provides options for configuring the pan and tilt actions of the camera.

[Table 5-17](#) describes the options in the Pan/Tilt window.

**Table 5-17 Pan/Tilt Options**

Option	Description
Set Position	Set the desired position through adjusting the control panel.
Set Home	Set the desired position and then click this button to set the home position.
Preset List	Select the desired preset. The screen updates with the current data for the selected preset position.
Preset Name	If no name is entered, the preset has a number only.
Pan Speed	Select the desired speed for the panning action.
Tilt Speed	Select the desired speed for the tilting action.

## System Window

The System window displays information about the camera. To access this window, connect to the camera as described in the [“Connecting to an IP Camera”](#) section on [page 5-2](#) and then choose **Status > System**.

[Table 5-18](#) describes the options in the System window.

**EFT DRAFT – CISCO CONFIDENTIAL****Table 5-18 System Window Options**

Option	Description
Firmware Version	Version of the firmware installed on the camera.
MAC Address	MAC address of the camera.
Camera Name	Name of the camera.
Description	Description of the camera, such as location.
Date/Time	Current date and time on the camera.

## Image Window

The Image window displays information about the video stream camera. To access this window, connect to the camera as described in the “[Connecting to an IP Camera](#)” section on page 5-2 and then choose **Status > Network**.

[Table 5-19](#) describes the options in the Network window.

**Table 5-19 Network Window Options**

Option	Description
<b>MPEG-4</b>	
Resolution	Image size of the video stream.
Image Quality	Image quality of the video stream.
Frame Rate	Frame rate of the video stream.

## Network Window

The Network window displays information about the network. To access this window, connect to the camera as described in the “[Connecting to an IP Camera](#)” section on page 5-2 and then choose **Status > Network**.

[Table 5-20](#) describes the options in the Network window.

**Table 5-20 Network Window Options**

Option	Description
<b>Network</b>	
Network Type	Type of network in use.
IP Address	IP Address of the camera.
Subnet Mask	The subnet mask that is associated with the camera IP address.
Gateway	IP Address of the remote gateway that is associated with the camera IP address.
Primary DNS	Primary DNS (Domain Name Server) address recommended by your ISP.
Secondary DNS	Secondary DNS (Domain Name Server) address.

**EFT DRAFT – CISCO CONFIDENTIAL****Table 5-20 Network Window Options (continued)**

Option	Description
<b>Wireless</b>	
SSID	Wireless SSID.
Channel	Wireless channel currently used.
Security	Security setting for wireless connections.

## Syslog & Log Window

The Syslog & Log window displays information about system logs. To access this window, connect to the camera as described in the [“Connecting to an IP Camera”](#) section on page 5-2 and then choose **Status > Syslog & Log**

[Table 5-21](#) describes the options in the Syslog & Log window.

**Table 5-21 Syslog & Log Window Options**

Option	Description
Log Type	Select the log type that you want to view on the log list.
Enable Syslog Server	Check this check box to enable the system log server feature.
Syslog Server Address	Enter the address of the Syslog server.
Log List	Log of system activity.
Refresh	Click this button to update the data shown on screen.
Clear Log	Click this button to clear the log and restart it.

## View Video Log Window

The View Video Log window lets you display the video log. To access this window, connect to the camera as described in the [“Connecting to an IP Camera”](#) section on page 5-2 and then choose **View Video Log > View Video Log**

[Table 5-22](#) describes the options in the View Video Log window.

**Table 5-22 View Video Log Window Options**

Option	Description
Video Log	The list is empty if there are no video logs. Click <b>Delete</b> or <b>Delete All</b> erase entries in the video log.



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## CHAPTER 6

# Troubleshooting

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This chapter describes some common problems that may be encountered while using an IP camera and provides possible solutions.

**Symptom** Cannot connect to an IP camera with a web browser to configure the camera.

**Solution** The IP address of your PC may not be compatible with the IP address of the IP camera. Use the Windows utility to configure the IP camera with a valid IP address.

**Symptom** The Windows utility does not list any IP cameras.

**Solution** Check the following:

- Ensure that the camera is installed, LAN connections are OK, the camera is powered on, and startup is complete.
- Ensure that your PC and the IP camera are on the same network subnet.
- Ensure that your PC has the TCP/IP network protocol loaded. In Windows, load this protocol in the Control Panel > Network window.
  - If an entry for TCP/IP -> Network card is not listed, choose **Add > Protocol > Microsoft > TCP/IP** to add it.
  - You then need to select the new entry (**TCP/IP > Network card**), click **Properties**, and configure the IP Address tab.
  - If your LAN has a DHCP Server, you can choose **Obtain an IP Address automatically**. Otherwise, you must select **Specify an IP Address**, and enter values for IP address, subnet mask, and gateway. All devices on your LAN must use compatible values. Each device must have a unique IP address and the same subnet mask.

**Symptom** When I try to connect to the IP camera, I am prompted for a user name and password.

**Solution** You should be prompted for a user name and password if you are trying to access the Setup menu.

Enter the administrator ID and password set that are on the Users screen.

If you are just trying to view video, the User Name and Password prompts indicate that the administrator has restricted access to specified users. Ask the administrator for your user name and password.

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**Symptom** I cannot connect to the IP camera using a wireless connection.

**Solution** If a LAN cable is connected to the LAN port, the wireless interface is disabled. Only one interface can be active.

Check that your PC and the IP camera have compatible Wireless settings:

- Mode (Infrastructure or Ad-hoc) must be correct.
- ESSID must match.
- WEP settings must match.
- In Ad-hoc mode, the channel should match.

**Symptom** Video quality suddenly deteriorates.

**Solution** This situation can occur when an additional viewer connects to the IP camera, overloading the camera or the available bandwidth. The image size and quality can be for the required number of viewers and the available bandwidth.

**Symptom** The motion detection feature does not send e-mail alerts.

**Solution** The SMTP (Simple Mail Transport Protocol) server used by the camera to send the e-mail may not accept mail (to prevent spam from being sent from the server). Try using a different SMTP server, or contact your ISP to see if SMTP access is being blocked.

**Symptom** Using the motion detection feature, I receive e-mail messages that do not show any moving objects.

**Solution** The motion detection feature does not actually detect motion. It compares frames to see if they are different. Major differences between frames are assumed to be caused by moving objects. But the motion detector can also be triggered by:

- Sudden changes in the level of available light
- Movement of the camera itself.

Try to avoid these situations. The motion detection feature works best in locations where there is good steady illumination, and the camera is mounted securely. This feature may not work properly if the camera is outdoors.

**Symptom** The image is blurry.

**Solution** Try cleaning the lens, or adjusting the image settings on the video screen. Video created with lower settings contains less detail, which is a trade-off for using less bandwidth.



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## APPENDIX **A**

# Streaming Video/Audio Solution

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Streaming video is a sequence of “moving images” that are sent in compressed form over the Internet and displayed by a viewer as they arrive. With streaming, a web user does not have to wait to download a large file before seeing the video or hearing the sound. Instead, the media is sent in a continuous stream and is played as it arrives.

To snapshot a JPEG image from the Internet Camera with specified resolution and quality:

**`http://<ip>/img/snapshot.cgi?[size=<value>]&[quality=<value>]`**

Where:

- *ip* is the IP address of the camera
- *value* for size is a number 1 through 3, where:
  - 1—320 x 240
  - 2—640 x 480
  - 3—720 x 480
- *value* for quality is a number 1 through 5, where:
  - 1—Very high
  - 2—High
  - 3—Normal
  - 4—Low
  - 5—Very low

To stream video through the RTP/RTSP protocol from Internet Camera (MPEG-4 mode only):

**`http://<ip>/img/media.sdp`**

**`rtsp://<ip>/img/media.sav`**

Where *ip* is the IP address of the camera



### Note

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Users need to specify the desired protocol in the players.

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## **Federal Communication Commission Interference Statement**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

### **IMPORTANT NOTE:**

#### **FCC Radiation Exposure Statement:**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

**Industry Canada statement:**

This device complies with RSS-210 of the Industry Canada Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

**IMPORTANT NOTE:****Radiation Exposure Statement:**

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This device has been designed to operate with an antenna having a maximum gain of 1.94 dB. Antenna having a higher gain is strictly prohibited per regulations of Industry Canada. The required antenna impedance is 50 ohms.