



Complete Manual for the

# EasyIP 5 ePTZ

AV-over-IP Camera

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# Overview

This manual covers:

EasyIP 5 ePTZ AV-over-IP camera, 999-30150-000 (worldwide)



You'll also find some information about other products you might use in your Vaddio® EasyIP system.

What's in this manual:

- Features
- Installation
- System administration and performance/behavior configuration
- Operation and maintenance
- Command reference
- Troubleshooting

## EasyIP 5 ePTZ camera features

- Motion-tracking ePTZ camera with 5x zoom, ideal for small to medium conference rooms; excellent for providing a view of the whole room, with the ability to zoom in on one person
- Pairs with an EasyIP Decoder or EasyIP Mixer
- IntelliFrame™ intelligent framing algorithm keeps participants in view reliably, without facial recognition
- Up to 1080p/30 video
- Integration-ready control via SSH or Telnet
- Full administrative control via web interface
- Presenter-friendly IR remote control

## The EasyIP ecosystem

Vaddio EasyIP products are designed to be used together.

- EasyIP cameras deliver video in Vaddio's proprietary EasyIP format. A host device is required to convert the cameras' output signal to an IP and/or USB stream.
- EasyIP host devices automatically detect EasyIP cameras on the host device's subnet.
- EasyIP products require PoE+ power. Typically the EasyIP system is powered by a PoE+ switch such as the EasyIP Switch.
- EasyIP microphones and speakers use Dante® networked audio.

## EasyIP host devices

EasyIP audio devices and cameras must be paired to an EasyIP host device.

**The EasyIP Decoder** is the central component of a basic EasyIP installation. Its functions include:

- Camera control and video switching
- Audio – connect analog speakers and CeilingMIC or TableMIC microphones.
- USB and IP streaming
- Macros to automate specific sequences of actions that you use frequently

**The EasyIP Mixer** is the central component of a full-featured EasyIP pro AV room solution. Its functions include

- Camera control and video switching
- PIP, on-screen graphics, and video output management
- Audio – connect analog speakers and microphones to balanced audio inputs and outputs; pair to EasyIP audio devices connected to the network
- USB and IP streaming
- Macros to automate specific sequences of actions that you use frequently

## EasyIP Switch

A PoE+ switch simplifies installation, eliminating the need for PoE+ power injectors and placing all the connected products on the same subnet. The EasyIP Switch is preconfigured for use with EasyIP products.

## A quick look at the EasyIP 5 ePTZ camera

### Front view



- **Camera and zoom lens** – Up to 5x zoom.
- **Status light** – Shows the camera's current state. Can be turned off in the administrative web interface.
- **Adjustable position** – When mounted in its wall bracket, the camera pivots at the attachment points. Manually tilt the camera as needed.

### Connector panel

The network/PoE connector is on the underside of the camera.



- **PoE+** – RJ-45 connector. Connect to a powered port on the PoE+ switch.
- **IP button** – Press to display the camera's IP address on video outputs.

## Installation

This section covers:

- Tips for selecting camera locations
- Cabling notes
- Installing the camera mount and mounting the camera
- System connection diagrams with cameras and audio peripherals

Cameras and network-connected audio peripherals must be paired to the host device after the installation is complete.

Contact Vaddio Technical Support if you have questions or encounter any problems. Phone 800.572.2011 / +1.763.971.4400, email [av.vaddio.techsupport@legrand.com](mailto:av.vaddio.techsupport@legrand.com).

And a required safety note here:

### **Note**

*PoE type networks connected to this equipment are for intra-building use only and should not be connected to lines that run outside of the building in which this product is located.*

## Don't void your warranty!

### **Caution**

*EasyIP products are for indoor use. Do not install these products outdoors or in a humid environment without the appropriate protective enclosure.*

### **Caution**

*Do not install or operate any EasyIP product if it has been dropped, damaged, or exposed to liquids. If any of these things happen, return the product to Vaddio for safety and functional testing.*

## Before you start

**Work with the network administrator to plan your EasyIP deployment. A typical EasyIP system includes network equipment that serves DHCP addresses.**

Do these things before installing any Vaddio product:

- Be sure you can identify all cables correctly.
- Check Cat-5 cables for continuity.
- Talk to the network administrator.
  - Inform the network administrator if you are installing the EasyIP system with a PoE+ switch. The switch sold as part of the EasyIP ecosystem is configured for DHCP operation. The network administrator may need to take steps to ensure a trouble-free installation.
  - If you will be responsible for configuring the devices that you install, ask what hostnames (if any) you should assign to them.

Things to keep in mind when deciding where to install the camera:

- Consider camera viewing angles, lighting conditions, line-of-sight obstructions, and in-wall obstructions where the camera is to be mounted.
- Ensure that the camera will point away from the ceiling and lights. The camera will not perform well if it is pointed toward a light source such as a light fixture or window.

## Cabling notes

### Caution

When building cables for Vaddio products, do not use pass-through RJ-45 connectors. Incorrectly crimped pass-through connectors can damage the connectors on the product, which will void your warranty.



**Intact** – will make reliable contact with cable connector



**Damaged** – Bent contact fingers will NOT make reliable contact with cable connector

Use Cat-5e or better cable. We recommend using high-quality connectors and a high-quality crimping tool. If connectors are crimped incorrectly, they can cause intermittent connections and degrade signal quality.



We recommend shielded cabling if the cables will be coiled, run tightly with other cables, or routed near sources of electromagnetic interference such as power lines or fluorescent light fixtures.

### Caution

Check your cables. Connecting a cable to the wrong port or using the wrong pin-out can result in equipment damage and will void the warranty.

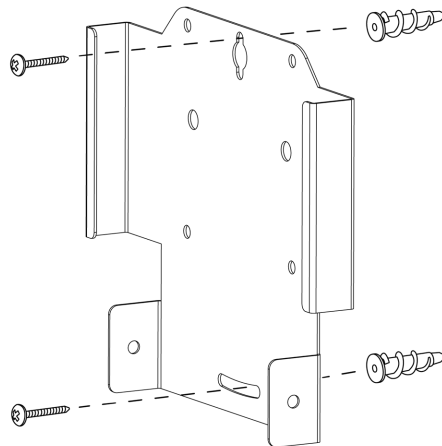
### Pro Tip

Label all cables at both ends.

## Installing the wall mount

The camera is shipped with a wall mount, which can be inverted.

You can install the camera wall mount to a display mount or directly to drywall. If you mount it to drywall, use wall anchors. A drop-down ceiling mount adapter is also available.



## Connecting EasyIP products

EasyIP cameras and audio products require an EasyIP host device to decode the AV-over-IP signal and originate a USB stream.

EasyIP devices can be powered using mid-span PoE+ power injectors (sold separately), or they can be connected to a PoE+ switch such as the EasyIP Switch, which ensures that the room's EasyIP installation is on its own subnet. The EasyIP Switch is preconfigured for use with Vaddio EasyIP products. The connection diagrams in this section each show an EasyIP Switch powering the installation. Make all connections while the PoE+ switch is turned off.

### Caution

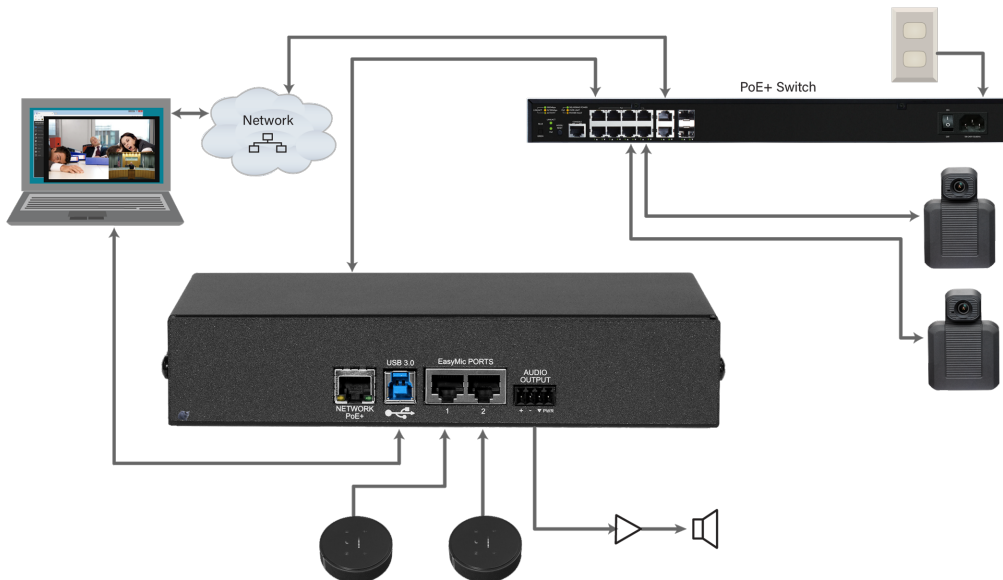
*The EasyIP Switch serves DHCP addresses. Do not connect the EasyIP Switch to the network without guidance from an on-site network specialist.*

## Basic connections for cameras and audio with EasyIP Decoder

Here is an example of a simple EasyIP deployment.

- Each camera connects to a PoE+ port on the switch. This is the only connection that the cameras require.
- The EasyIP Decoder manages up to four EasyIP cameras and provides hard-wired audio connections for two EasyMic microphones and an analog speaker with amplifier.
- The EasyIP Decoder connects directly to a computer as a USB conferencing device.
- Any model of EasyIP camera may be used.
- The microphones may be Vaddio TableMIC or CeilingMIC microphones.

This diagram shows EasyIP 5 ePTZ cameras and TableMIC microphones.



## Basic connections for cameras and audio with EasyIP Mixer

Here is an example of an EasyIP deployment using an EasyIP Mixer.

- Each camera connects to a PoE+ port on the switch. This is the only connection that the cameras require.
- The EasyIP Mixer manages up to four EasyIP cameras.
- The EasyIP Mixer is paired to two network-connected EasyIP CeilingMIC D microphones. It also provides hard-wired audio connections for two microphones and two amplified analog speakers.
- Any model of EasyIP camera may be used.
- EasyIP CeilingMIC D and EasyIP TableMIC D microphones can pair with the EasyIP Mixer.
- A computer connects to the system as a USB conferencing device, and can be connected to the HDMI input as an HDMI content source.



## Installing the camera

### **Caution**

*Check your cables. Connecting a cable to the wrong port or using the wrong pin-out can result in equipment damage and will void the warranty.*

1. Secure the camera in the mount using the two screws provided.
2. Connect all required cables to the camera.
3. Secure the cable cover to the mount.



## About inverted cameras

If you use an inverted mount, set the camera's Image Flip mode ON for inverted operation. This orients the video image correctly and sets the tilt motors to respond appropriately to tilt up and down commands from the remote, web interface, and connected control devices. This control is available to the administrator on the web interface's System page. See [Video and control settings](#).

## Turning on the EasyIP system

Vaddio recommends making all connections while the EasyIP Switch is turned off. To turn on the system, turn on the EasyIP Switch. When the switch finishes booting, it provides power to PoE devices connected to its powered ports. The connected devices then start booting. The system is ready for normal operation when all devices finish booting.

### **Note**

*If a camera has already been in use and is paired with the host device, its status light may change to red when it finishes booting. This happens if the camera is the selected video input and is using the pro A/V color scheme. Pro A/V is the default color scheme for EasyIP 20 and EasyIP 30 ePTZ cameras.*

### **Note**

*No video is available from the EasyIP system until it is configured and at least one camera is paired to the host device.*

## Initial set-up and access to administrative controls

Vaddio devices have a web interface for initial device set-up, administrative control, and operation. When any Vaddio product is shipped from the factory, there is no admin password and the administrative controls are not available. You will need to access the web interface and set the admin password.

Initial device set-up includes setting the password for the `admin` account, and may include additional tasks. The `admin` account then has access to password-protected pages for administrative access to tasks such as configuring network and security settings, customizing device behaviors, and installing firmware updates. The administrator can configure access to the operator's pages.

### Note

*Because restoring factory defaults returns the product to a "like new" condition, you will need to do the initial device set-up again if you restore factory defaults.*

### Note

*Many pages of the web interface are nearly the same across large groups of Vaddio products. Some of the screen shots in this section may be from other EasyIP products.*

## Browser support

We have tested this product with these web browsers:

- Chrome®
- Firefox®
- Microsoft® Edge
- Safari®

We test using the browser version available from the vendor at that time. Other browsers (including older versions of the ones on this list) are likely to work also.

## Access and initial device set-up using the Vaddio Device Controller

The Vaddio Device Controller provides a shortcut to Vaddio products' web interfaces.

### To complete the initial device set-up with the Vaddio Device Controller:

1. Be sure the touch-panel is installed on the same subnet as the products you need to work with – for example, connect both to the same PoE+ switch.
2. Go to the touch-panel's Configuration page (gear icon) and select Scan. You will need to enter the Vaddio Device Controller's PIN to access the Configuration page.
3. Locate the device you need to work with, and select Use.
4. Select Exit to leave the Configuration page and open the device's web interface.

### Note

*The first time you access a device at a specific IP address, the Vaddio Device Controller's screen may remain blank for 20 seconds or more.*

5. Complete the initial set-up.

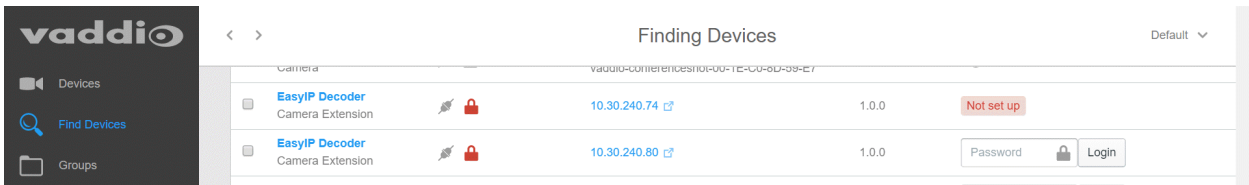
If the Vaddio Device Controller does not find the device, verify that the Vaddio Device Controller and the device are connected to the same subnet.

## Initial device set-up and access using the Vaddio Deployment Tool

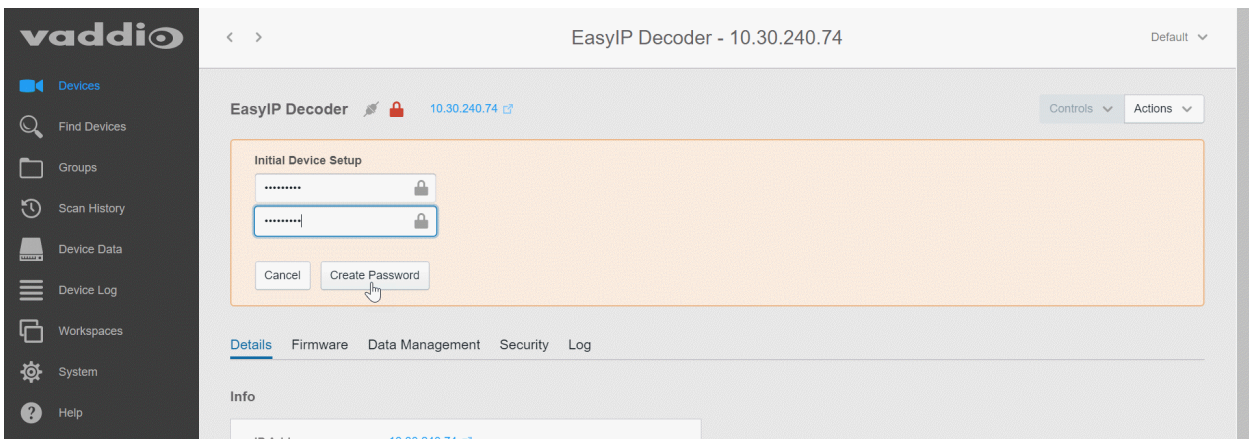
As Vaddio introduces new products, we issue updates to the Vaddio Deployment Tool. Be sure you have the latest version of the tool, to ensure that it supports the products you are working with. This tool is available as a free download at <https://info.legrandav.com/VaddioDeploymentTool>.

### To complete the initial device set-up with the Vaddio Deployment Tool:

1. Turn on the EasyIP system if you have not done so already.
2. On the Find Devices page of the Vaddio Deployment Tool, click Scan. If the scan does not locate the EasyIP devices, click Advanced and specify the appropriate portion of the network to scan – your computer may be on a different subnet from the EasyIP devices.
3. In the list of equipment that the scan discovers, locate the EasyIP devices marked Not Set Up.



4. For each device, click the Not Set Up button. The device detail page opens.
5. Set the admin password. If there are other initial set-up tasks, they are also available here.



The device now shows up as unlocked.

### **Pro tip**

*On the Groups page of the Vaddio Deployment Tool, you can create a group containing only the EasyIP products.*

### To access EasyIP devices' web interfaces from the Vaddio Deployment Tool:

Select the device's IP address from any page where it appears. The Vaddio Deployment Tool logs you in to the web interface as `admin`.

## Manual access and initial device set-up

If you do not use a Vaddio Device Controller or the Vaddio Deployment Tool, you will need to complete the initial device set-up manually, which requires you to discover the host device's IP address and browse to its web interface.

After you complete the initial set-up for the host device, you can access the cameras' web interfaces from the device.

We have tested this product with these web browsers:

- Chrome®
- Firefox®
- Microsoft® Edge
- Safari®

We test using the browser version available from the vendor at that time. Other browsers (including older versions of the ones on this list) are likely to work also.

## Access the camera's web interface manually

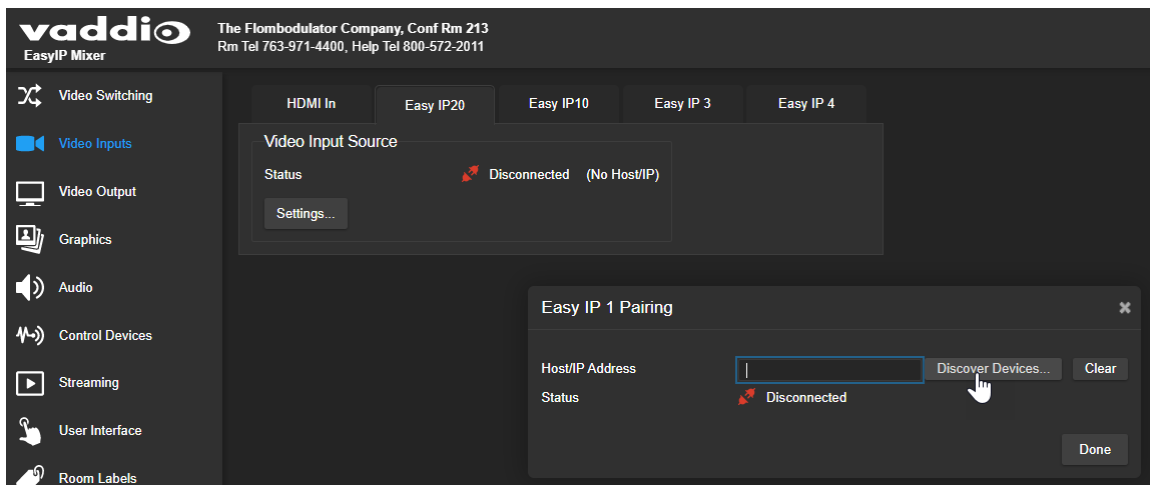
After you have done the initial device set-up for the host device, you will be able to use its web interface to locate and browse to your EasyIP cameras.

### To access a camera's web interface from an EasyIP Decoder:

1. Go to the Directory page.
2. To do initial device set-up for the camera, you will need to add it to the EasyIP Decoder directory.
3. When the camera is in the directory, select its IP address to go directly to its web interface.

### To access a camera's web interface from an EasyIP Mixer:

1. Go to the Video Inputs page.
2. If the system is already in service and you need to discover a paired camera's IP address or access its web interface, select the appropriate EasyIP tab to display its information.
3. If the camera is not already paired to the device (for example, if you are in the process of doing initial set-up and system administration for a new installation), select an EasyIP tab.
4. Select Settings to open the pairing dialog.
5. Select Discover Devices.



- The web interface returns a list of EasyIP cameras on the EasyIP Mixer's subnet.
6. Select the camera's IP address to go directly to its web interface.

## System administration

System administration tasks define how each device behaves on your network. Although you may change device passwords regularly, other system administration tasks are usually needed only when installing the equipment.

The tasks in this chapter must be done separately on each device.

### Note

Many pages of the web interface are nearly the same across large groups of Vaddio products. Some of the screen shots in this section may be from other EasyIP products.

## Configuring access and other security settings

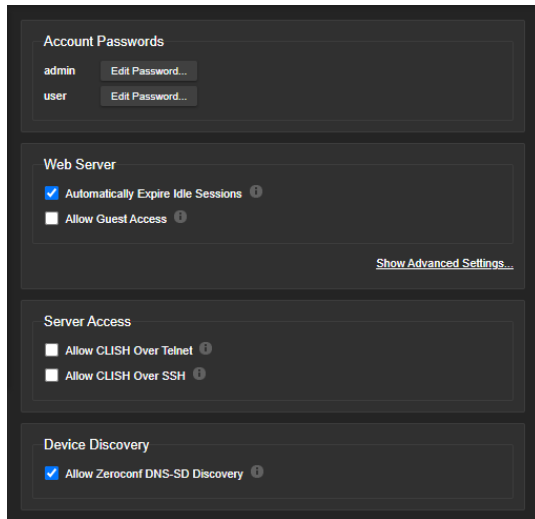
### SECURITY PAGE

The Account Passwords and Web Server areas of the Security page provide basic security for the web interface:

- **Admin password** – Required for access to the admin pages of the web interface and for Telnet access to the device.
- **User password** – When set, allows password-protected, non-administrative access to the operator’s web interface.
- **Automatically expire idle sessions** – By default, the web interface automatically logs you out after 30 minutes of inactivity.
- **Allow guest access** – When enabled, allows non-administrative access to the operator’s web interface without the user password.

### Note

If using the Vaddio Device Controller with this product, users will be required to enter a password unless Allow guest access is enabled.



Other security settings include:

- **Allow CLISH over Telnet** – disabled by default. When selected, the device accepts Telnet connections.
- **Allow CLISH over SSH** – disabled by default. When selected, the device accepts SSH connections.
- **Allow Zeroconf DNS-SD discovery** – allowed by default.
- Advanced Settings – **HTTP Access Enabled** (disabled by default ) and **Manage SSL Certificate**.

#### Note

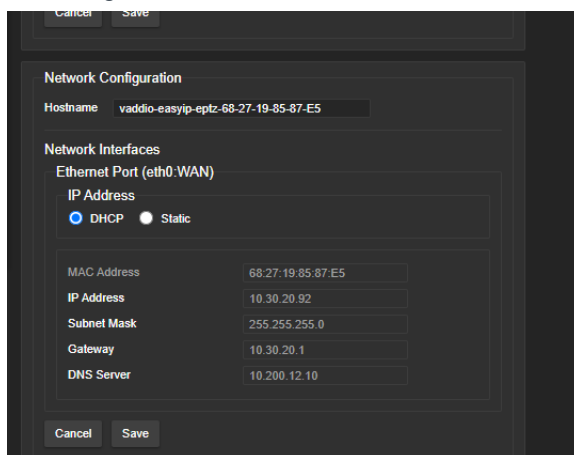
*Consult your network security specialist before changing any of these settings. Seek explicit guidance concerning the SSL certificate.*

## Changing the device hostname

### NETWORKING PAGE

*Do not change network settings without guidance from an on-site network specialist.*

If your network supports hostname resolution, you may find it convenient to change each device's hostname to something easy to remember. Work with your IT department to ensure that new hostnames conform to the organization's naming conventions.



If additional network changes are required, work with the site's network specialist to configure the EasyIP environment, including the PoE+ switch.

## Other network settings

### NETWORKING PAGE

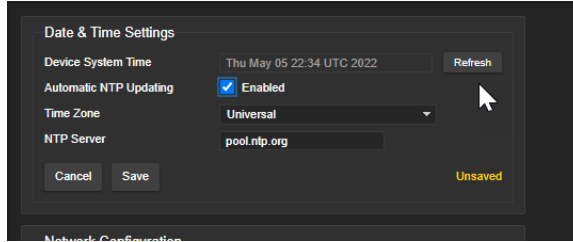
If you use an EasyIP Switch for power and network connectivity, the host device and cameras do not typically need any additional network configuration; however, if the switch is rebooted, connected devices may receive new IP addresses. To prevent this, set a static IP address. Work with your organization's network specialist to determine what changes are required on this page.

## Specifying time zone and NTP server

### NETWORKING PAGE

Using automatic NTP updating on each device ensures that the timestamps in the device's diagnostic log are accurate. Specifying your time zone may make it easier to match logged events with other actions and external events.

1. To make the time zone and NTP server editable, enable Automatic NTP Updating.
2. Select the desired time zone from the list.
3. If desired, specify the NTP server to use. If you are not sure about this, use the default.
4. Save your changes. You may also need to refresh the system time display.

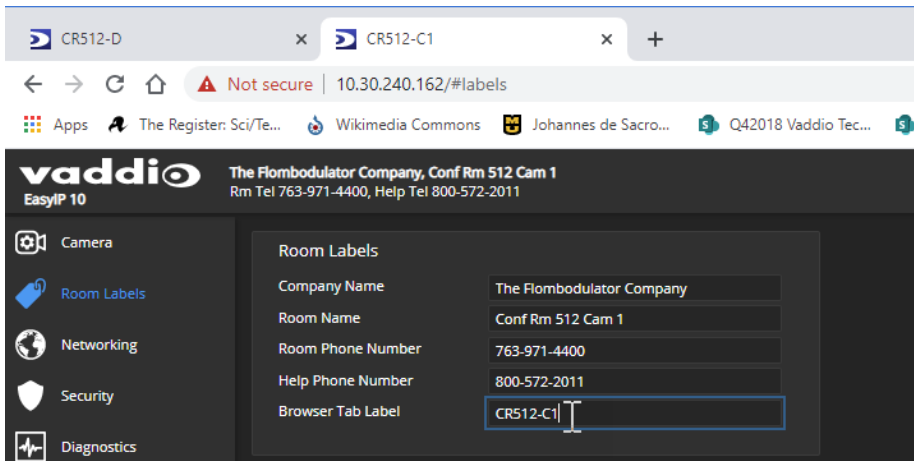


## Adding room information to the web interface

### ROOM LABELS PAGE

The information you enter on this page is displayed on every page of the device's web interface. You may also wish to specify what appears on the device's browser tab. Set this information separately for each EasyIP device. The room label is also helpful for identifying the device in the Vaddio Deployment Tool.

This screen shot is from an EasyIP 10 camera. This page of the web interface looks virtually the same on all Vaddio devices.



## Configuring and adjusting the camera

Image-related settings and adjustments are on the Camera page of the camera's administrative web interface. Autoframing settings and adjustments are on the Autoframing page. Video and control settings are available from the System page.

### Note

Many pages of the web interface are nearly the same across large groups of Vaddio products. Some of the screen shots in this section may be from other Vaddio cameras.

## About pairing cameras and configuring streaming

The camera becomes part of an EasyIP system when it is paired to a host device – EasyIP Decoder or EasyIP Mixer. The host device originates the stream, using the video from the camera and audio from connected microphones.

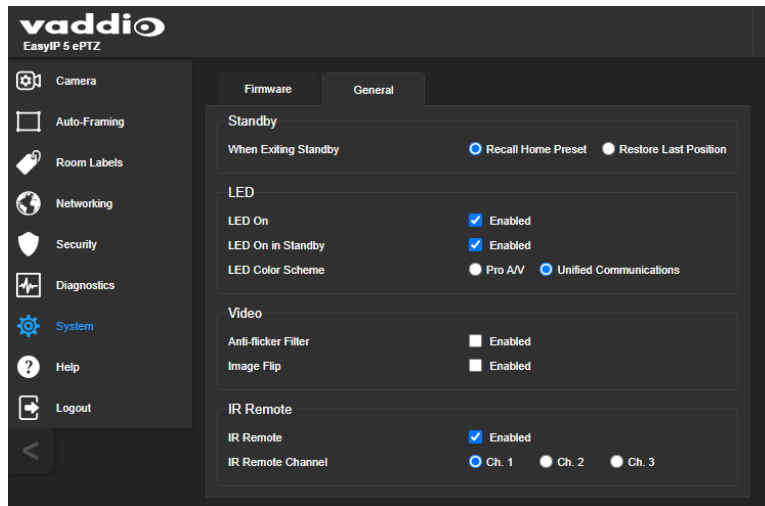
Refer to the manual for your host device for information on camera pairing and streaming settings.

## Setting the camera's IR channel

The camera's remote can control up to three cameras, using different IR channels. By default, Vaddio cameras with IR control use channel 1. If you already have a camera set up to use channel 1, you can change the IR channel for other cameras, and then select the appropriate channel using the buttons on the remote.

### To set the camera's IR channel:

On the System page's General tab, select the desired channel in the IR Remote section.



## Setting the home position and other presets

### CAMERA PAGE

Presets are saved shots that you expect to use repeatedly. They work the same way they do on conventional PTZ cameras – you store and recall presets either with the remote or using the web interface. A preset may include color and lighting adjustments, and specifies whether the camera cuts to the shot or emulates camera motion to arrive at the preset.

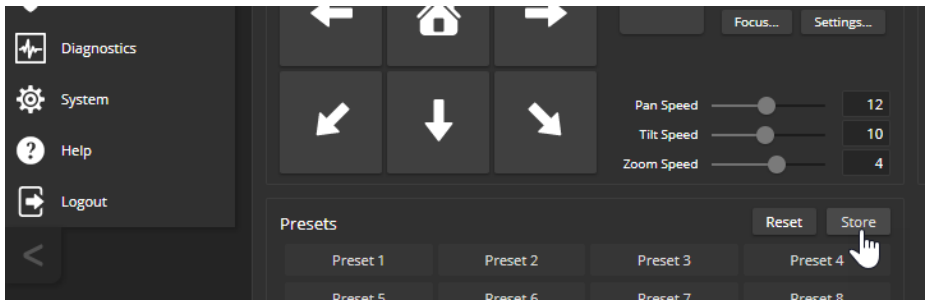
Home and presets 1 through 8 are available with the remote; the others are only available from the web interface.

#### Note

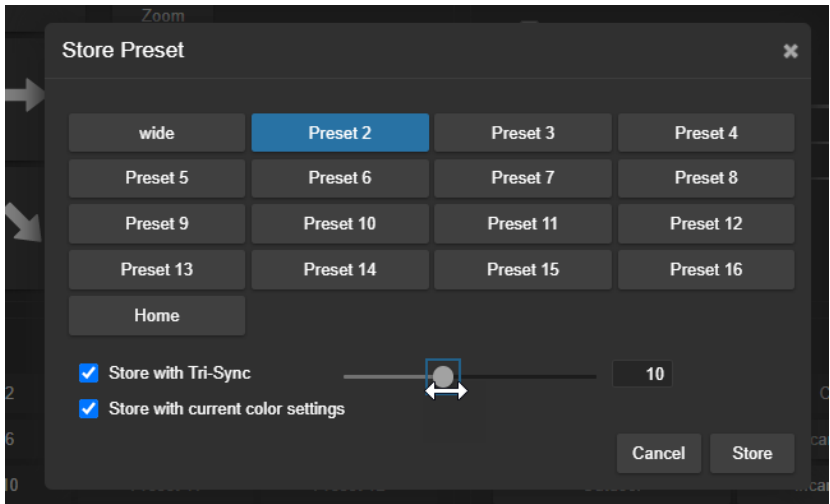
The main display dims the preset buttons if they have no preset information stored. This is the only indication of whether a preset already exists.

#### To store a preset:

1. When you have set up the shot, select Store to open the Store Preset dialog.



2. Select the preset to store. The preset button changes color and the window presents additional options.
3. To save the current color settings along with the camera position, check Store with Current Color Settings.
4. To emulate mechanical camera motion to the preset, select Store with Tri-Sync. When this is not selected, the camera cuts to the preset.
5. If you select Store with Tri-Sync, you can use the speed slider to set the overall speed.



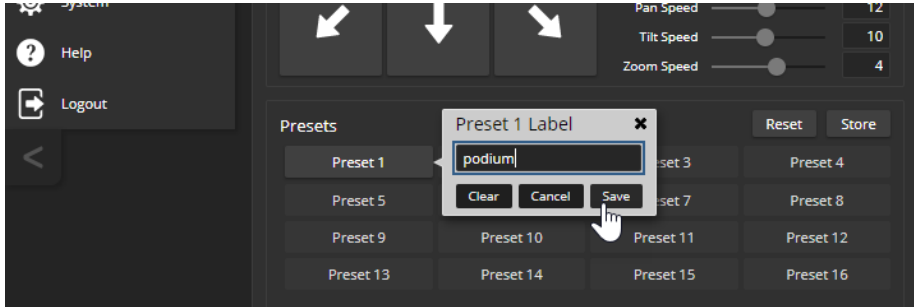
6. Store the preset.

## Renaming presets

### CAMERA PAGE

You can rename presets to identify them. This also helps you avoid overwriting them when you store new ones.

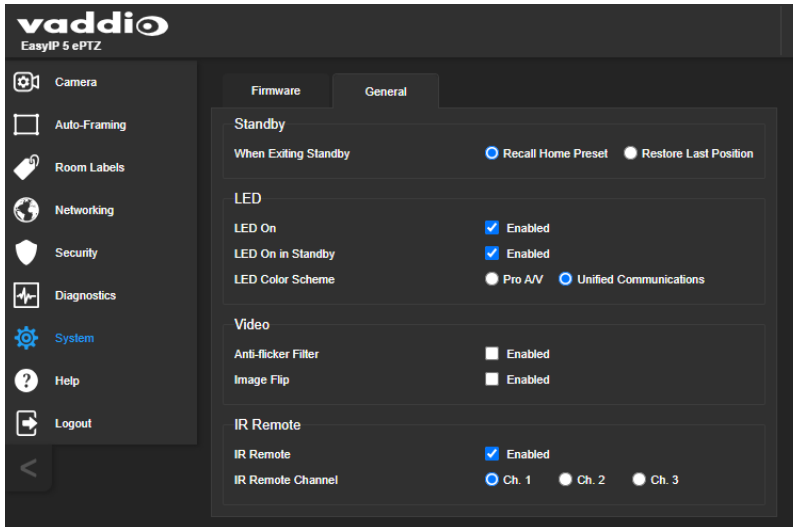
Right-click the button for the preset, and edit the label.



## Specifying the camera's initial position

### SYSTEM PAGE, GENERAL TAB

By default, the camera returns to its last known position and zoom level when it turns on or comes out of standby. You can set the camera to initialize to its home preset instead, using the When Exiting Standby setting on the System page, General tab.



## Fine-tuning Autoframing behavior

The Autoframing feature can be tuned to your specific installation. This includes defining areas where the camera does not evaluate motion (masking), adjusting the area where Autoframing occurs, and adjusting speed, sensitivity, and responsiveness. You can also disable Autoframing.

### How it works: Digital zoom

Optical Zoom and Electronic Zoom are the names of two Autoframing adjustments, in addition to being simple terms for the two ways that a camera can zoom. This section talks about how zooming works.

The lenses in a camera control how much of the room can be in the shot – the image area. Zooming in optically makes the image area smaller by moving the lenses. Zooming in digitally makes the image area smaller by using the pixels from a smaller portion of the image sensor. Either way, the effect is the same: When the image area is smaller, everything in the shot looks bigger.

### How it works: Digital pan and tilt

Digital pan and tilt work when the camera is zoomed in. If some image area is available outside the shot, the camera can pan and tilt by moving the image area to use pixels outside the current shot. As the camera zooms in, the image area is a smaller part of the total field, so more pan and tilt is available. But if the current shot uses all the pixels, there's no room to pan or tilt.

The unmasked portion in each frame of the diagram represents the zoomed image while the camera pans from the Mars globe to Dr. Sagan.



## How it works: Autoframing

Vaddio's Autoframing is based on motion detection. It won't mistake pictures for people, it still works if you turn away from the camera, and you don't have to wear a special device. But with no special device to follow, Autoframing does not necessarily keep the shot on its original subject.

Autoframing uses digital pan, tilt, and zoom to center the source of motion, so the image is almost always zoomed in at least slightly.

- Autoframing is enabled by default.
- The camera tries to keep the frame centered on the source of motion.
- If the motion is small, the camera zooms in.
- When the camera does not detect any motion, by default it zooms out. This behavior is configurable.
- If the motion is near the edge of the field of view, it can't be centered in the frame.
- If the motion is mostly outside the field of view, the camera can only detect the small part of the motion within its field of view.

In this diagram, the unmasked area represents the framed area. The area of motion is large (which limits the zoom) and the two people on the left are near the edge of the total field of view, so the camera cannot pan far enough to center the people in the frame.



## Basic Autoframing adjustments

### AUTOFRAMING PAGE

When making adjustments, compare the Visualizer's image to the video output.

**Autoframing Presets** – Factory configurations. "Conservative" settings are less sensitive and track at lower speeds than "responsive" settings. Select the one closest to the room's requirements, then make other adjustments if needed.

### Note

*In many cases, the camera delivers good Autoframing performance with no adjustments beyond setting the optical zoom and selecting the appropriate Autoframing preset.*

Camera

Autoframing

Autoframing Enabled  Enabled

Autoframing Paused  Paused

Presets...

Basic

Sensitivity 90 %

Noise Threshold 20 %

Persistence 25 %

Shot Margin 7 %

Max ePTZ Speed 6

Advanced

Max Electronic Zoom 3.0 x

Initial Persistence 25 %

Responsiveness 90 %

Buffer Zone 3 %

Tri-Sync Motion  Enabled

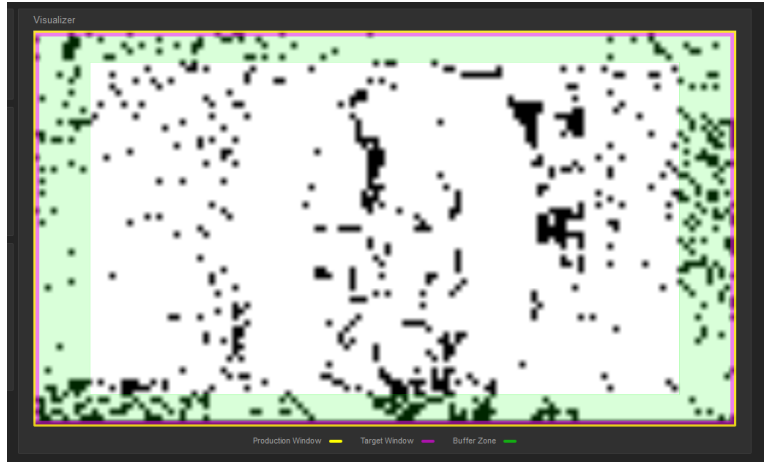
Forced Wait Time 0 sec

Visualizer

Production Window Target Window Buffer Zone

**Sensitivity** – How quickly the camera responds to new motion. High sensitivity may respond to brief, unwanted motion, such as people walking past an open door. Typically 70% to 90% for conferencing, 95% or higher for lecture capture.

**Noise Threshold** – The minimum change recognized as motion. Default value is 20%. If Noise Threshold is high, the Visualizer shows less movement data (white dots). If Noise Threshold is too low, the Visualizer shows pixel changes that are not motion, such as individual pixels' color values being reinterpreted in each frame – which is typical camera behavior. This screen shot is an example.



**Persistence** – How long the camera remembers motion and stays on its source after other trackable motion starts. Typically 25% to 100% for conferencing, below 15% for lecture capture.

**Shot Margin** – Controls how tight or wide the shot will be around the people in the camera's field of view. A high value will result in a wider shot and a low value results in a tighter shot around the person or group of people. Default value is 7% for conferencing and 13% for lecture capture.

## Advanced Autoframing adjustments

### AUTOFRAMING PAGE

**Max Electronic Zoom** – Sets the default size of the frame relative to the area defined by Optical Zoom. Default value is 3x for all Autoframing presets.

**Initial Persistence** – How the camera remembers motion when it starts; similar to Persistence. Typically 25% to 100% for conferencing, 0 for lecture capture or presenter framing.

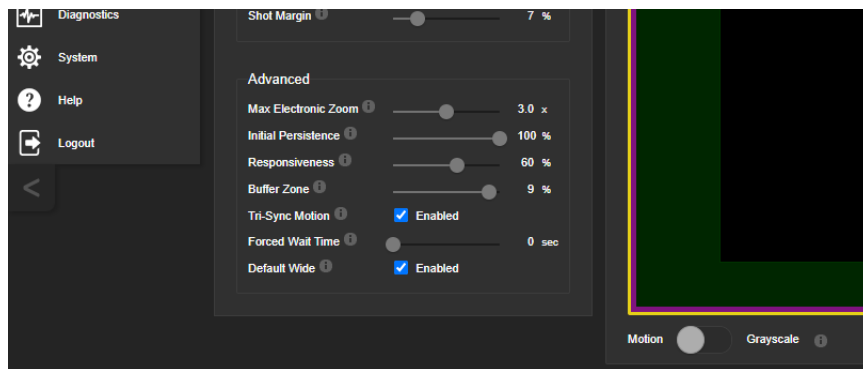
**Responsiveness** – How quickly Autoframing reacts to new motion. Typically 70% to 90% for conferencing, 95% or higher for lecture capture.

**Buffer Zone** – The area around the edge of the frame where new motion causes the image to re-center. Typically 3% for conferencing, 7% for lecture capture. Adjust this value higher to make the camera move less.

**Tri-Sync Motion** – Smooth pan/tilt/zoom. When Tri-Sync Motion is disabled, the camera snaps to preset shots. Enabled by default.

**Forced Wait Time** – Minimum number of seconds between camera movements. Default is 0. Increasing Persistence often provides better performance than setting a Forced Wait Time.

**Default Wide** – In Default Wide mode, the camera widens the shot (zooms out) when it detects no motion. This is best for conferencing or other situations with low motion. When Default Wide is not enabled, the camera remains where it last detected motion. We recommend disabling Default Wide mode for lecture capture.



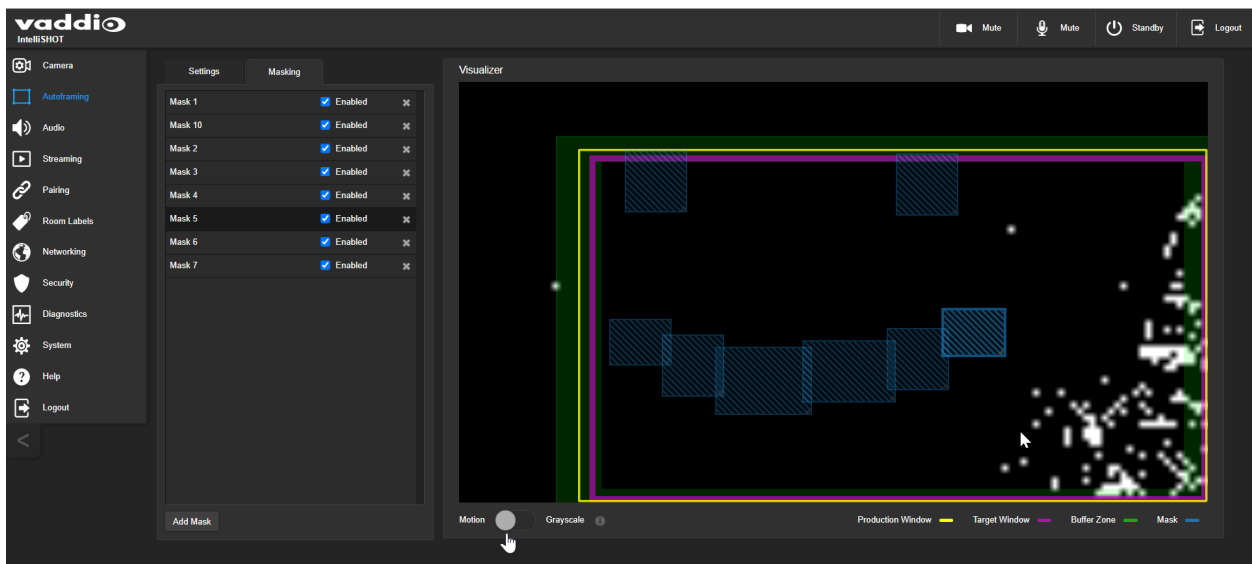
## Masking unwanted motion

### AUTOFRAMING PAGE, MASKING TAB

Masks are areas where the camera ignores motion. For example, if a door is within the camera's field of view, a mask can prevent the camera from responding to the movement of the door or people in the doorway. You can create multiple masks to fine-tune the camera's performance.

#### Things to know about masks:

- When you select the Masking tab, the Autoframing Visualizer mode automatically switches to a view of the room, so you can see what part of the room each mask affects.
- After you select Add Mask, drag the new mask to the desired location. Adjust its dimensions by dragging its corners or edges.
- Right-click the mask name to rename it.
- Clear a mask's Enabled check box to disable the mask without deleting it.
- Set the Visualizer mode to Motion to test the mask.



## Autoframing adjustment quick reference

Set Optical Zoom and select the Autoframing preset that is most similar to the room's requirements. Then adjust Autoframing to meet the unique demands of your space. These tables may help.

### Not Responding Enough

To correct this	Do this	For this effect
Autoframing isn't working	Resume Autoframing; avoid using manual controls	Manual controls override Autoframing
Autoframing takes too long to start	Increase Responsiveness and Sensitivity	"Notice" motion sooner
	Decrease Initial Persistence	Respond to motion sooner
The camera only frames participants who move frequently	Increase Sensitivity	Recognize smaller movements, such as participants who don't gesture or fidget
	Decrease Noise Threshold	Recognize brief motion
The presenter moves faster than the camera	Increase Shot Margin	Pan, tilt, and zoom faster
The presenter keeps moving out of the frame	Increase Responsiveness	"Notice" motion sooner
	Decrease Initial Persistence	Respond to motion sooner

### Responding Too Much

To correct this	Do this	For this effect
The camera keeps moving away from the person who is speaking	Increase Persistence	Stay on the last source of motion longer
	Increase Noise Threshold	Require movements to be bigger before they are evaluated
Movement seems jumpy	Increase Buffer Zone	Fewer camera movements
The camera keeps zooming in too far	Reduce Max Electronic Zoom	Limits how far the camera can zoom in while framing
The camera recenters even when the presenter is still within the frame	Increase the Buffer Zone	Enlarges the area where new movement does not cause the camera to recenter

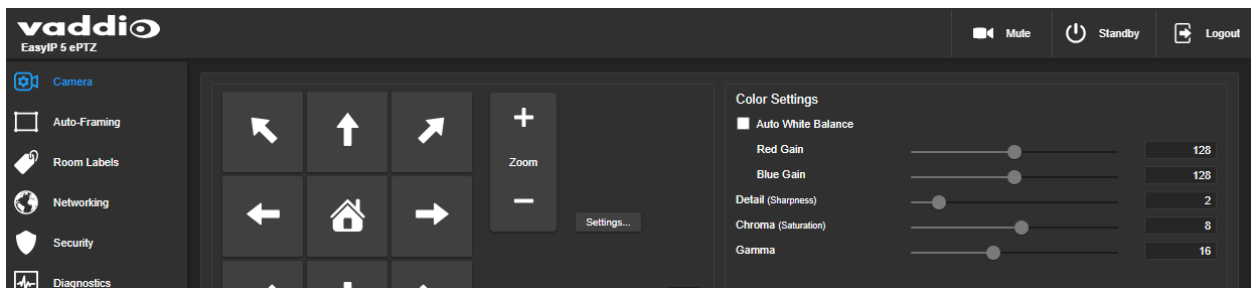
## Color and image quality adjustments

### CAMERA PAGE

EasyIP cameras provide several color and lighting adjustments. Fine-tune the color and lighting as needed using the Color Settings controls.

- **Auto White Balance** adjusts color automatically. Clear this box to adjust red gain and blue gain manually.
- **Red Gain** and **Blue Gain** (available when Auto White Balance is not selected) provide manual color adjustment.
- **Detail** adjusts the image sharpness. If the video looks grainy or “noisy,” try a lower Detail setting.
- **Chroma** adjusts the color intensity.
- **Gamma** adjusts the range (gray density) between bright areas and shadows.

The [Lighting and Image Quality Quick Reference](#) and [Color Adjustment Quick Reference](#) may be helpful. If you make a change that you don't like, start over by selecting and then deselecting Auto White Balance.








## Lighting and image quality quick reference

Here are some tips for using the lighting and image quality settings.

What do you need to correct?	Make this adjustment:
The image looks washed out or faded	Increase Chroma
	Decrease Gamma
Highlights and shadows look right, but mid-tones are too dark.	Increase Gamma
Shadows are too dark	Decrease Gamma
The image looks grainy	Decrease Detail
"Soft focus" effect; the image looks unrealistically smooth	Increase Detail

## Color adjustment quick reference

Here are some tips for using the color settings.

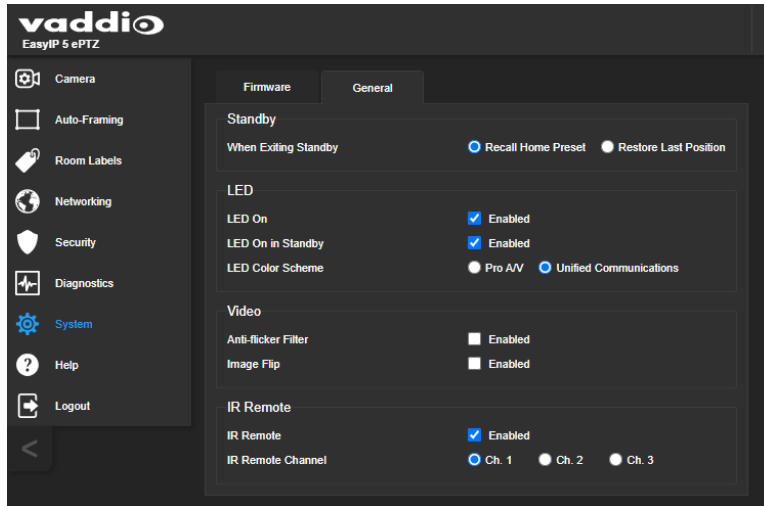
What do you need to correct?	Make this adjustment:
Colors look less vivid than they should	Increase Chroma
Colors look too vivid	Decrease Chroma
Colors look wrong; white objects do not appear white	Enable Auto White Balance
	Disable Auto White Balance and... <ul style="list-style-type: none"> <li>▪ adjust Red Gain (decrease for less red, increase for less green)</li> <li>▪ adjust Blue Gain (decrease for less blue, increase for less yellow)</li> </ul>
<div style="display: flex; justify-content: space-around; text-align: center;"> <div>Too much red</div> <div>Not enough red</div> <div>Too much blue</div> <div>Not enough blue</div> <div>Balanced</div> </div> <div style="display: flex; justify-content: space-around; text-align: center;">      </div>	

## Video and control settings

### SYSTEM PAGE, GENERAL TAB

Video and control settings for the EasyIP 5 ePTZ camera are:

- **Anti-Flicker Filter** – If the lighting uses 50 Hz mains power and the image flickers, enabling this setting may help.
- **Image Flip** provides a non-inverted image from an inverted camera.

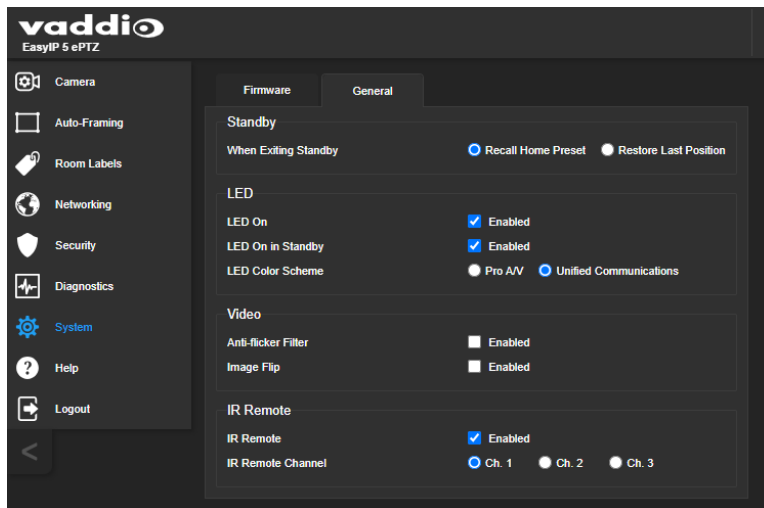


## Status light behavior

### SYSTEM PAGE, GENERAL TAB

Status light behaviors include:

- **LED On** – By default the light is on when the camera has power.
- **LED On In Standby** – By default the light remains on while the camera is in standby (low-power mode).
- **LED Color Scheme** – By default the camera uses the Unified Conferencing color scheme; its light is blue when it is active.



## System maintenance

This chapter covers maintenance tasks for EasyIP cameras and host devices. Most of these are done from the affected device.

### Note

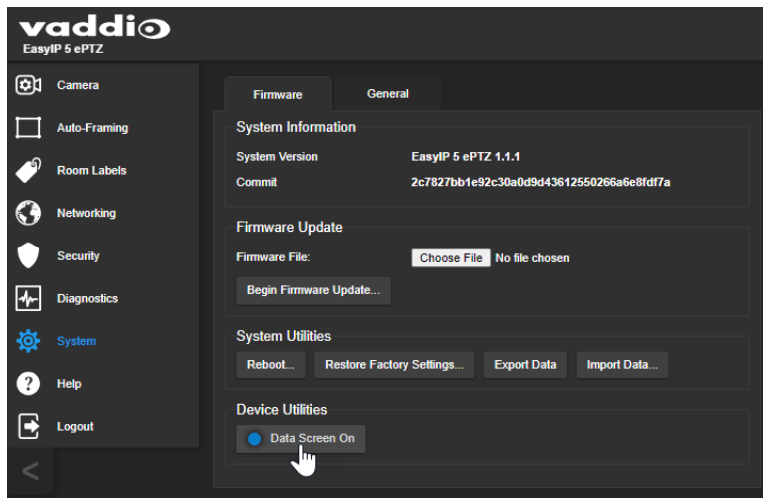
Many pages of the web interface are nearly the same across large groups of Vaddio products. Some of the screen shots in this section may be from other EasyIP products.

## Turning the IP address display on or off

SYSTEM PAGE, FIRMWARE TAB

Vaddio cameras have a Data Screen function to overlay the camera's IP and MAC addresses on the display output. In an EasyIP system, this is not often needed. But it's easy for someone using the remote to turn on the Data Screen display unintentionally.

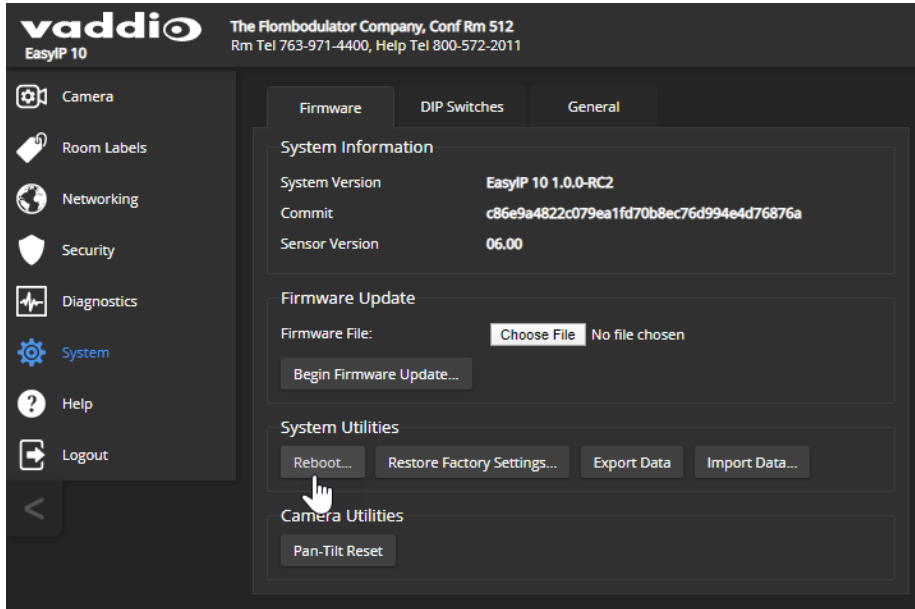
Use the Data Screen button on the System page to turn off the data screen display.



## Rebooting the device

### SYSTEM PAGE

This can help if a camera or other device stops responding as you expect. In the device's System Utilities section, select Reboot.



## Saving (exporting) or restoring (importing) a configuration

### SYSTEM PAGE, FIRMWARE TAB

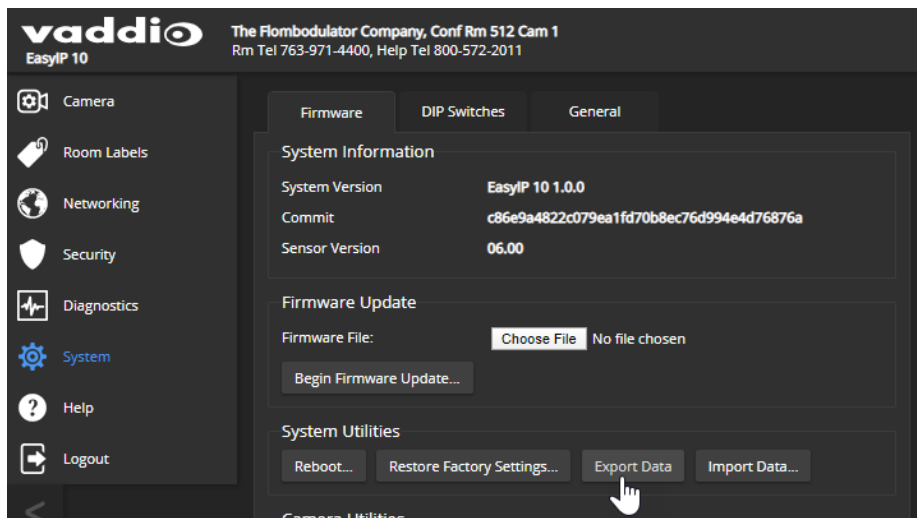
You can save and restore configuration data for any Vaddio device with a web interface. This lets you import a configuration to several devices of the same model, or save a configuration to restore after returning the device to its factory default settings.

To import a configuration from another device, the devices must be of the same model and must have compatible firmware versions installed.

Exported configuration data for cameras includes Home and other presets, color settings, speed settings, room labels, and date/time settings.

#### To save and restore a configuration:

1. Configure the device.
2. Export the configuration (Export Data button). The export downloads to your computer as a .dat file. The filename is the device's hostname.



3. *When you are ready to restore the configuration, select Import Data.* The web interface prompts you to browse to the .dat file that will be imported.

To copy the configuration to a different device, do this step from the web interface of the device you need to configure.

## Installing a firmware update

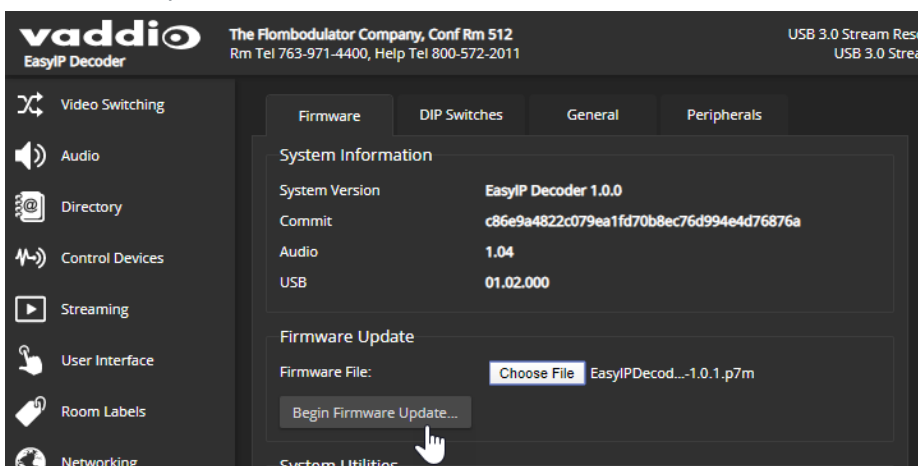
SYSTEM PAGE, FIRMWARE TAB

We release firmware updates from time to time. Some of them will be of interest to your organization; others might not be. The release notes provided with each update can help you to decide whether to install the update. The latest firmware and release notes are available on the product's web page at [www.legrandav.com](http://www.legrandav.com).

### Caution

*The device must remain connected to power and to the network during the update. Interrupting the update could make the device unusable.*

1. Read the release notes and download the firmware.
2. Select Choose File, then browse to the downloaded firmware and select it. The filename ends with .p7m.
3. Select Begin Firmware Update.



4. Read and understand the information in the Confirm dialog box.
5. Select Continue. A progress message box opens. If you are updating a camera, the status light on the front of the camera turns yellow. If the update process presents warnings or error messages, read them carefully.

The device reboots when the update is complete, and the web interface prompts you to log in again. Contact Vaddio Technical Support if you encounter any problems with the update.

## Operating the camera

For most people, most of the time, you don't need to control the camera manually. Autoframing evaluates and tracks motion, so it stays on the person who's presenting or speaking.

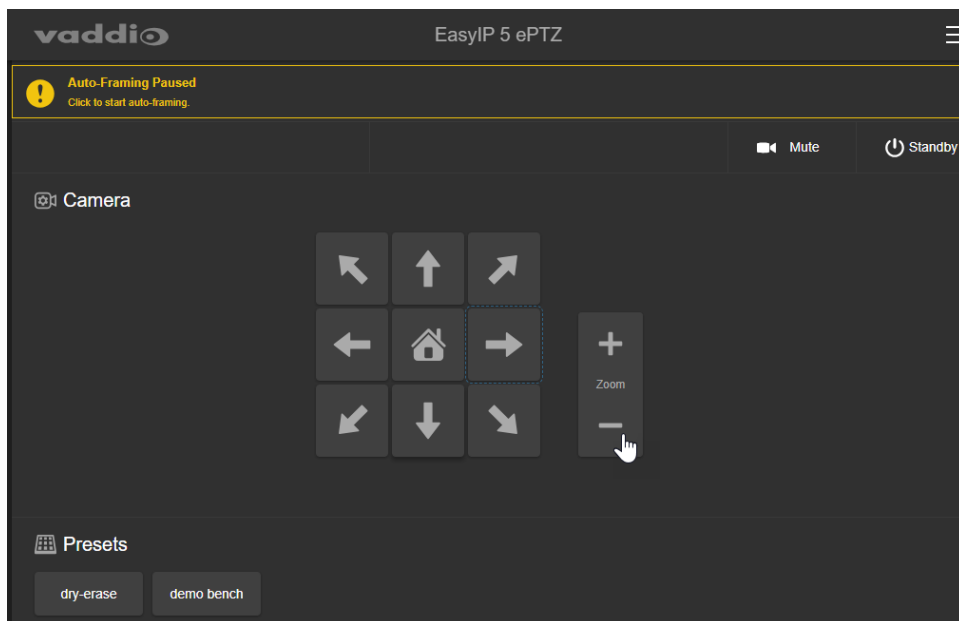
If you need to control the camera in manual mode rather than using Autoframing, you can use

- The remote
- The web interface (accessible from your computer's browser or using a Vaddio Device Controller)
- A third-party control device

When you use stored presets or other controls for framing the shot, Autoframing pauses. It's similar to tapping the brake pedal while using cruise control in a car: The camera remains under manual control until you resume Autoframing.

If you use the remote, press the Home button to resume Autoframing.

The web interface provides a control to resume Autoframing.



## About the remote

The camera is shipped with an IR remote. The user guide for the remote is available from the same web page as this manual.

- The camera needs to "see" the remote. Make sure nothing opaque is between the camera and the remote.
- The remote can control up to three cameras on different channels. If the camera does not respond to the remote, press the Camera 1 button. If that doesn't work, try the other Camera buttons.

## About the operator's web interface

By default, the operator's page of the web interface is not available. The administrator must set a password for the `user` account or enable guest access; this provides access to the operator's page only. The web interface is available on the Vaddio Device Controller touch panel (if your installation uses one) or from a web browser.

The operator's Camera page provides most of the same controls as the remote:

- Video mute
- Camera standby
- Pan, tilt, and zoom
- Camera presets, if any have been stored

## Stopping or resuming video

Use the video mute button to temporarily stop video from the camera without placing it in standby.

### **Note**

*Remember that the video mute button does not mute audio.*

## Managing the camera ready state

Use the Standby button to switch between low-power (standby) and ready states.

## Moving the camera to a preset

Presets 1 through 8 can also be set and recalled using the camera's remote.

Use the Preset buttons (if available) to move the camera to any of its programmed positions. Presets are only available if they have been set in the administrative interface or with the remote.

## Moving the camera manually

Use the Zoom + button to zoom in and the Zoom – button to zoom out. Use the arrow buttons for camera pan and tilt. The center button moves the camera to the home position.

## Command Line Interface SHell (CLISH) reference

The Vaddio serial command API allows an external device such as an AMX or Crestron presentation system to control Vaddio products.

### Notes

By default, Telnet and SSH access are disabled. Enable them on the Security page of the web interface.

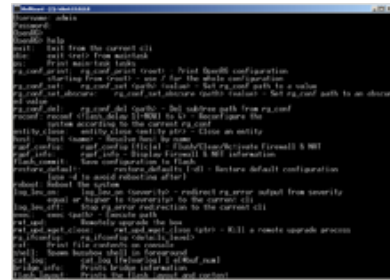
When you start a CLISH session, you must log in using the admin account.

## Requirements

- SSH (recommended) or Telnet must be enabled on the Security page of the device's web interface.
- Your computer or third-party control system must have a suitable SSH or Telnet client.
- Your computer or third-party control system must be able to connect to the device over the network.

Usage notes:

- The > character is the command prompt.
- In addition to the control commands, session management commands are available – help, history, and exit.
- CTRL-5 clears the current serial buffer on the device.



## Getting more information

Use a question mark as a command or command parameter to

display a list of available commands, subcommands, or command

parameters. For example, ? returns all top-level commands; **system ?** returns the valid subcommands for the **system** command; and **system reboot ?** returns the parameter available for the **system reboot** command.

Firmware updates sometimes implement new command parameters. We do not update the manuals for every firmware update. Querying will help you discover the command parameters that have been added since the last update.

Typographical conventions:

- { x | y | z } – Choose x, y, or z.
- <variable> – Substitute the desired value here.
- < x - y > – Valid range of values is from x through y.
- [optional] – Parameter is not required.

## Autoframing commands

Commands to manage and adjust Autoframing fall roughly into three categories.

Status commands:

- autoframer enabled
- autoframer paused

Shot definition commands:

- camera optical-zoom
- autoframer shot-margin
- autoframer max-electronic-zoom
- autoframer buffer-zone

Autoframing behavior adjustment commands:

- autoframer sensitivity
- autoframer responsiveness
- autoframer initial-persistence
- autoframer persistence
- autoframer max-speed
- autoframer noise-threshold
- autoframer tri-sync-motion
- autoframer forced-wait-time

### autoframer enabled

Enable or disable Autoframing. This is normally on. Use the `autoframer paused` command to switch to manual mode with the intent of resuming Autoframing.

Synopsis	<code>autoframer enabled { get   off   on   toggle }</code>	
Options	<code>get</code>	Returns the current enable state for Autoframing.
	<code>off</code>	Turns off Autoframing.
	<code>on</code>	Turns on Autoframing.
	<code>toggle</code>	Changes the Autoframing state.
Examples	<pre>&gt;<b>autoframer enabled off</b> OK &gt;  Stops Autoframing, placing the camera in manual mode.  &gt;<b>autoframer enabled get</b> autoframer enabled:    false OK &gt;  Returns the current state of Autoframing.</pre>	

## autoframer buffer-zone

Get or set the size of the Autoframing buffer zone.

Synopsis	autoframer buffer-zone { get   set <value> }	
Options	get	Returns the current value for the Autoframing buffer zone.
	set <value>	Sets the Autoframing buffer zone. <value> is an integer from 0 to 10.
Examples	<pre>&gt;autoframer buffer-zone set 10 OK &gt;  Sets the buffer zone to 10.  &gt;autoframer buffer-zone get autoframer buffer-zone:      10 OK &gt;  Returns the current size of the buffer zone.</pre>	

## autoframer default-wide

Specify how the camera behaves when it detects no motion. This setting is on by default.

Synopsis	autoframer default-wide { get   off   on   toggle }	
Options	get	Returns the state of the Default Wide setting (on or off).
	off	Turns off Default Wide mode. The camera remains on the shot where it last detected motion.
	on	Turns on Default Wide mode. The camera zooms all the way out when it detects no motion.
	toggle	Changes the default-wide status.
Examples	<pre>&gt;autoframer default-wide off OK &gt;  Turns off Default Wide mode. The camera does not zoom out to "search" for motion.  &gt;autoframer default-wide get default wide:  false OK &gt;  Returns the current state of the Default Wide setting.</pre>	

### autoframer forced-wait-time

Get or set the value for the Autoframing forced wait time. This sets a minimum time to hold the shot before responding to new motion. Increasing persistence and reducing responsiveness may produce more satisfactory results.

Synopsis	autoframer forced-wait-time { get   set <value> }	
Options	get	Returns the current value for forced wait time.
	set <value>	Sets the forced wait time. <value> is an integer from 0 to 360.
Examples	<pre>&gt;autoframer forced-wait-time set 0 OK &gt;  Sets the forced wait time to 0 (the default value).  &gt;autoframer forced-wait-time get autoframer forced-wait-time: 0 OK &gt;  Returns the current forced wait time.</pre>	

### autoframer initial-persistence

Get or set the initial persistence value.

Synopsis	autoframer initial-persistence { get   set <value> }	
Options	get	Returns the current value for initial persistence.
	set <value>	Sets initial persistence. <value> is an integer from 0 to 100.
Examples	<pre>&gt;autoframer initial-persistence set 15 OK &gt;  Sets the initial persistence to 15.  &gt;autoframer initial-persistence get autoframer initial-persistence: 15 OK &gt;  Returns the current initial persistence value.</pre>	

## autoframer mask

Changes the camera focus.

Synopsis	autoframer mask { get   { <ID> { on   off } } }	
Options	get	Returns the states of all masks.
	<ID>	Specifies the mask to turn on or off. <ID> is an integer from 1 to 32.
	on	Turns the specified mask on.
	off	Turns the specified mask off.
Example	<pre> <b>autoframer mask get</b> ID      Name      Enabled 1       Mask 1    True 2       Mask 2    True OK &gt;                 </pre> <p>Returns the current states of the masks that have been set.</p>	
Example	<pre> <b>autoframer mask 2 off</b> OK &gt;                 </pre> <p>Turns off mask 2.</p>	

## autoframer max-electronic-zoom

Get or set the value for the Autoframing maximum electronic zoom. This limits how far the camera zooms in for Autoframing.

Synopsis	autoframer max-electronic-zoom { get   set <value> }	
Options	get	Returns the current value for the maximum electronic zoom.
	set <value>	Sets the maximum electronic zoom. <value> is a floating-point value between 1.00 and 5.00.
Examples	<pre> &gt;<b>autoframer max-electronic-zoom set 4</b> OK &gt;                 </pre> <p>Sets the maximum electronic zoom to 4.</p> <pre> &gt;<b>autoframer max-electronic-zoom get</b> autoframer max-electronic-zoom:      4 OK &gt;                 </pre> <p>Returns the current maximum electronic zoom.</p>	

### autoframer noise-threshold

Get or set the value for the Autoframing noise threshold. This helps the camera to identify motion.

Synopsis	autoframer noise-threshold { get   set <value> }	
Options	get	Returns the current value for the noise threshold.
	set <value>	Sets the noise threshold. <value> is an integer from 0 to 100.
Examples	<pre>&gt;autoframer noise-threshold set 4 OK &gt;  Sets the noise threshold to 10.  &gt;autoframer noise-threshold get autoframer noise-threshold:    10 OK &gt;  Returns the current noise threshold.</pre>	

### autoframer paused

Pause or resume Autoframing. Autoframing pauses automatically when the camera receives a pan, tilt, zoom, or preset recall command from any source.

Synopsis	autoframer paused { get   off   on   toggle }	
Options	get	Returns the pause state for Autoframing.
	off	Turns off the pause state (restarts Autoframing).
	on	PausesAutoframing.
	toggle	Changes the Autoframing pause state.
Examples	<pre>&gt;autoframer paused on OK &gt;  Pauses Autoframing, placing the camera in manual mode.  &gt;autoframer paused get autoframer paused:    true OK &gt;  Returns the current pause state of Autoframing.</pre>	

## autoframer persistence

Get or set Autoframing persistence.

Synopsis	autoframer persistence { get   set <value> }	
Options	get	Returns the current value for persistence.
	set <value>	Sets persistence. <value> is an integer from 0 to 100.
Examples	<pre>&gt;autoframer persistence set 15 OK &gt;  Sets persistence to 15.  &gt;autoframer persistence get autoframer persistence:      15 OK &gt;  Returns the current persistence value.</pre>	

## autoframer responsiveness

Get or set Autoframing responsiveness.

Synopsis	autoframer responsiveness { get   set <value> }	
Options	get	Returns the current value for responsiveness.
	set <value>	Sets Autoframing responsiveness. <value> is an integer from 0 to 100.
Examples	<pre>&gt;autoframer responsiveness set 95 OK &gt;  Sets responsiveness to 95.  &gt;autoframer responsiveness get autoframer responsiveness:    95 OK &gt;  Returns the current responsiveness value.</pre>	

## autoframer sensitivity

Get or set Autoframing sensitivity.

Synopsis	autoframer sensitivity { get   set <value> }	
Options	get	Returns the current value for sensitivity.
	set <value>	Sets Autoframing sensitivity. <value> is an integer from 0 to 99.
Examples	<pre>&gt;autoframer sensitivity set 95 OK &gt;  Sets the sensitivity to 95.  &gt;autoframer sensitivity get autoframer sensitivity:      95 OK &gt;  Returns the current sensitivity value.</pre>	

## autoframer shot-margin

Get or set the size of the Autoframing shot margin.

Synopsis	autoframer shot-margin { get   set <value> }	
Options	get	Returns the current value for the Autoframing shot margin.
	set <value>	Sets the Autoframing shot margin. <value> is an integer from 0 to 30.
Examples	<pre>&gt;autoframer shot-margin set 15 OK &gt;  Sets the shot margin to 15.  &gt;autoframer shot-margin get autoframer shot-margin:      15 OK &gt;  Returns the current size of the shot margin.</pre>	

## autoframer tri-sync-motion

Enable or disable Tri-Sync Motion. This allows the camera to pan, tilt, and zoom smoothly. When Tri-Sync Motion is off, the camera snaps to the new position.

Synopsis	autoframer tri-sync-motion { get   off   on   toggle }	
Options	get	Returns the current state for Tri-Sync Motion.
	off	Turns off Tri-Sync Motion.
	on	Turns on Tri-Sync Motion.
	toggle	Changes the state of Tri-Sync Motion.
Examples	<pre>&gt;autoframer tri-sync-motion on</pre> <p>OK &gt;</p> <p>Turns on Tri-Sync Motion, so the video pans, tilts, and zooms like a motorized camera.</p> <pre>&gt;autoframer tri-sync-motion get</pre> <pre>autoframer tri-sync-motion:  on</pre> <p>OK &gt;</p> <p>Returns the current state of Tri-Sync Motion.</p>	

## Camera control commands

The following commands can be sent to the camera; some can also be sent to the host device, which forwards them to the specified camera:

- camera home
- camera pan
- camera tilt
- camera zoom
- camera ptz-position
- camera focus
- camera preset
- camera ccu
- camera led
- video mute
- camera standby

*When sending any of these commands to the host device, you must specify the camera input. Valid inputs vary from one host device to another.*

*EasyIP Decoder: Cameras are specified in the command as **camera 1** through **camera 4**.*

*EasyIP Mixer: Cameras are specified in the command as **camera 2** through **camera 5**. (The HDMI input is input 1.)*

### camera home

Moves the camera to its home position.

Synopsis	camera home
Example	<pre>camera home OK &gt;</pre> <p>Moves the camera to its home position.</p>

## camera pan

Moves the shot horizontally. The amount of pan available depends on the zoom level.

Autoframing pauses when the camera receives this command.

Synopsis	camera pan { { left [<speed>] [no_wait] }   { right [<speed>] [no_wait] }   stop   get   { set <position> } }	
Options	left	Moves the camera left.
	right	Moves the camera right.
	<speed>	Optional: Specifies the pan speed (integer). Not used with the <code>set</code> option.
	no_wait	Optional – allows the command to return the command prompt and respond to new commands immediately, while the command is in progress. Not used with the <code>set</code> option.
	stop	Stops the camera's horizontal movement.
	get	Returns the camera's pan position.
	set	Centers the shot as close as possible to the specified column of pixels on the image sensor; snaps to the specified position if no speed is given. No error is generated if the command specifies a pixel column that exists.
	<position>	The pixel column to center the shot on. Range may vary by model.
Examples	<pre>&gt;camera pan left OK &gt;</pre> <p>Pans the camera left at the default speed.</p> <pre>&gt;camera pan right 6 no-wait OK &gt;</pre> <p>Pans the camera right using a speed of 6. The command prompt is available immediately.</p> <pre>&gt;camera pan stop OK &gt;</pre> <p>Stops the camera's horizontal motion.</p> <pre>&gt;camera pan set 400 OK &gt;</pre> <p>Attempts to re-center the image on pixel column 400, which is right of center.</p>	

## camera tilt

Moves the shot vertically. The amount of tilt available depends on the zoom level.

Autoframing pauses when the camera receives this command.

Synopsis	camera tilt { { up [<speed>] [no_wait] }   {down [<speed>] [no_wait] }   stop   get   { set <position> } }	
Options	up	Moves the shot up at the default speed or the specified speed.
	down	Moves the shot down at the default speed or the specified speed.
	<speed >	Optional: Specifies the tilt speed (integer). Not used with the <code>set</code> option.
	no_wait	Optional – allows the command to return the command prompt and respond to new commands immediately, while the command is in progress. Not used with the <code>set</code> option.
	stop	Stops the tilt movement.
	get	Returns the camera's tilt position.
	set	Centers the shot as close as possible to the specified row of pixels on the image sensor; snaps to the specified position if no speed is given. No error is generated if the command specifies a pixel row that exists.
	<position>	The pixel row to center the shot on. Range may vary by model.
Examples	<pre>&gt;camera tilt up OK &gt; Tilts the camera up at the default speed.  &gt;camera tilt down 4 no-wait OK &gt; Tilts the camera down at a speed of 4. The command prompt is available immediately.  &gt;camera tilt set -560 OK &gt; Attempts to re-center the shot at pixel row -560, which is below center.</pre>	

## camera zoom

Moves the camera in toward the subject or out away from the subject.

Autoframing pauses when the camera receives this command.

Synopsis	camera zoom { in [<speed>]   out [<speed>]   stop   get   set <position> [<speed>] [no_wait] }	
Options	in	Zooms the camera in.
	out	Zooms the camera out.
	speed [1 - 7]	Optional: Specifies the zoom speed as an integer.
	stop	Stops the camera's zoom movement.
	get	Returns the camera's zoom setting.
	set <zoom>	Sets the camera's zoom level; snaps to the requested zoom unless speed is specified.
	no_wait	Optional; when camera zoom set specifies a speed, allows the command to return the command prompt immediately, while the command is still in progress.
Examples	<pre>&gt;camera zoom in OK &gt;  Zooms the camera in at the default speed.  &gt;camera zoom out 7 no_wait OK &gt;  Zooms the camera out using a speed of 7. The command prompt is available immediately.  &gt;camera zoom stop OK &gt;  Stops the camera's zoom motion.  &gt;camera zoom set 3 OK &gt;  Sets the camera's zoom to 3x. The camera snaps to this zoom level because no speed is given, so the no_wait parameter is not needed.</pre>	

## camera ptz-position

Specifies a shot by zoom and pan/tilt coordinates. The amount of pan and tilt available depend on the zoom level. Pan, tilt, and zoom may be specified in any order.

Autoframing pauses when the camera receives this command.

Synopsis	camera ptz-position pan <position> tilt <position> zoom <position> [<speed>] [no_wait]	
Options	pan <position>	The pixel column to center the shot on. Range may vary by model.
	tilt <position>	The pixel row to center the shot on. Range may vary by model.
	zoom <position>	<position> is a floating-point value; range varies by model.
	<speed>	Optional; speed of movements (integer) if the camera should not snap to the specified position.
	no_wait	Optional; when speed is specified, allows the command to return the command prompt immediately, while the command is in progress.
Examples	<pre>&gt;camera ptz-position pan -150 tilt 200 zoom 3 OK &gt;</pre> <p>Centers the shot at pixel column -150, row 200, at a zoom level of 3. The camera snaps to the shot, because no speed is specified. At this zoom level, the shot can be centered exactly as requested.</p> <pre>&gt;camera ptz-position pan -1470 tilt 200 zoom 2 speed 5 no_wait OK &gt;</pre> <p>Attempts to center the shot at pixel column -1470, row 200, at a zoom level of 2. The camera moves at speed 5 and returns the command prompt before the motion is finished. The shot cannot be centered exactly as requested, because it is relatively wide and the requested center is close to the leftmost column of pixels.</p>	

## camera preset

Moves the camera to the specified preset, or stores the current camera position.

Synopsis	camera preset { recall   store } [1 - 16] [save-ccu]	
Options	recall <1 - 16>	Moves the camera to the specified preset.
	store <1 - 16>	Stores the current camera position as the specified preset.
	save-ccu	Optional: Saves the current CCU (color and lighting) settings as part of the preset. If not specified, the last color settings are used when recalled.
	tri-sync <1 - 24>	Optional: Saves the preset with a Tri-Sync speed to emulate mechanical motion.
Example	<pre>&gt;camera preset recall 3 OK &gt;</pre> <p>Moves the camera to preset 3.</p>	

## camera focus

Changes the camera focus.


Synopsis	camera focus { near [<speed>]   far [<speed>   stop   mode {get   auto   manual} ] }	
Options	near	Brings the focus nearer to the camera. Can only be used when camera is in manual mode.
	far	Moves the focus farther from the camera. Can only be used when camera is in manual mode.
	<speed>	Optional: integer (1 to 8) specifies the focus speed.
	mode { get   auto   manual }	Returns the current focus mode, or specifies automatic or manual focus.
	stop	Stops the camera's focus movement.
Example	<pre>camera focus near 2 OK &gt;</pre> <p>Brings the focus near at a speed of 2.</p>	



## camera ccu get

Returns CCU (lighting and color) information.

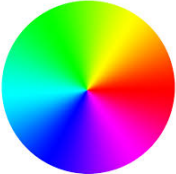
*When sending the command to a host device, you must specify the camera input.*

Synopsis	camera ccu get <param>	
	auto_white_balance	Returns the auto white balance state (on or off).
	red_gain	Returns the red gain value (integer 0 to 255).
	blue_gain	Returns the blue gain value (integer 0 to 255).
	detail	Returns the detail value (integer 0 to 15).
	chroma	Returns the chroma value (integer 0 to 14).
	gamma	Returns gamma (integer -16 to 64)
	all	Returns all current CCU settings.
Example	<pre>&gt;camera ccu get all auto_white_balance      on blue_gain                0 chroma                   5 detail                   8 gamma                    -4 red_gain                 0 OK &gt;</pre> <p>Returns current CCU settings for the camera.</p>	
Example	<pre>&gt;camera ccu get chroma chroma 5 OK &gt;</pre> <p>Returns the current chroma value.</p>	

## camera ccu set

Sets the specified CCU (lighting) information.

*When sending the command to a host device, you must specify the camera input.*

Synopsis	camera ccu set <param> <value>	
Options 	auto_white_balance {on   off}	Sets auto white balance on or off. Auto white balance overrides red gain and blue gain manual settings.
	red_gain <0..255>	Sets red gain (integer 0 to 255). Can only be used when auto white balance is off.
	blue_gain <0..255>	Sets blue gain (integer 0 to 255). Can only be used when auto white balance is off.
	chroma <0..15>	Sets chroma (integer 0 to 15).
	detail <0..15>	Sets detail (integer 0 to 15).
	gamma <-16..64>	Sets gamma (integer -16 to 64)
Example	<pre>&gt;camera ccu set red_gain 10 OK &gt;</pre> <p>Sets red gain to 10 for the camera.</p>	

## camera led

Set or change the behavior of the status light.

Synopsis	camera led { get   off   on }	
Options	get	Returns the status light's current state (on or off).
	off	Disables the status light.
	on	Enables the status light.
Examples	<pre>&gt;camera led off OK &gt;</pre> <p>Disables the status light. When the LED is off, you cannot tell by looking at the camera whether it is sending video.</p> <pre>&gt;camera led get led:  on OK &gt;</pre> <p>Returns the current state of the status light.</p>	

## video mute

Gets or sets the video mute status. Muted video displays as a blue screen. This can be desirable when preparing the room, or when privacy is needed.

Synopsis	video mute { get   off   on   toggle }	
Options	get	Returns the current video mute status.
	off	Unmutes the video. (Normal video resumes.)
	on	Mutes the video. (Blue screen)
	toggle	Changes the video mute status.
Examples	<pre>&gt;video mute get mute:  off OK &gt;</pre> <p>Returns video mute status.</p> <pre>&gt;video mute on OK &gt;</pre> <p>Transmits blue or black video.</p>	

## camera standby

Set or change camera standby status.

Synopsis	camera standby { get   off   on   toggle }	
Options	get	Returns the camera's current standby state.
	off	Brings the camera out of standby (sleep) mode.
	on	Stops video and puts the camera in standby mode.
	toggle	Changes the camera's standby state - if it was not in standby mode, it enters standby; if it was in standby mode, it "wakes up."
Example	<pre>&gt;<b>camera standby get</b> standby:      on OK &gt;</pre> <p>Returns the current standby state of the camera.</p>	
Example	<pre>&gt;<b>camera standby off</b> OK &gt;</pre> <p>Brings the camera out of standby mode.</p>	

## Maintenance and troubleshooting commands

The following commands are available:

- network ping
- system reboot
- system factory-reset
- version

### video osd

Gets or sets the status of the on-screen data display of the device's IP address and MAC address.

Synopsis	video osd { get   off   on }	
Options	get	Returns the current state of the on-screen data display.
	off	Turns off the on-screen data display.
	on	Turns on the on-screen data display.
Examples	<pre>&gt;video osd get osd:  off OK &gt;</pre> <p>Returns the on-screen data display status.</p> <pre>&gt;video osd ooff OK &gt;</pre> <p>Turns off the on-screen data display.</p>	

## network ping

Sends an ICMP ECHO\_REQUEST to the specified hostname or IP address.

Synopsis	network ping [count <count>] [size <size>] <string>	
Options	count	The number of ECHO_REQUEST packets to send. Default is five packets.
	size	The size of each ECHO_REQUEST packet. Default is 56 bytes.
	<string>	The hostname or IP address where the ECHO_REQUEST packets will be sent.
Examples	<pre>&gt;network ping 192.168.1.66 PING 192.168.1.66 (192.168.1.66): 56 data bytes 64 bytes from 192.168.1.66: seq=0 ttl=64 time=0.476 ms 64 bytes from 192.168.1.66: seq=1 ttl=64 time=0.416 ms 64 bytes from 192.168.1.66: seq=2 ttl=64 time=0.410 ms 64 bytes from 192.168.1.66: seq=3 ttl=64 time=0.410 ms 64 bytes from 192.168.1.66: seq=4 ttl=64 time=3.112 ms --- 192.168.1.66 ping statistics --- 5 packets transmitted, 5 packets received, 0% packet loss round-trip min/avg/max = 0.410/0.964/3.112 ms &gt;</pre> <p>Sends five ECHO_REQUEST packets of 56 bytes each to the host at 192.168.1.66.</p>	
	<pre>&gt;network ping count 10 size 100 192.168.1.1  Sends 10 ECHO_REQUEST packets of 100 bytes each to the host at 192.168.1.1. The command returns data in the same form as above.</pre>	

## network settings get

Returns the device's MAC address, IP address, and current network settings.

Synopsis	network settings get
Example	<pre>network settings get Name          eth0:WAN MAC Address   00:1E:C0:F6:CA:7B IP Address    192.168.1.67 Netmask       255.255.255.0 VLAN          Disabled Gateway       192.168.1.254 OK &gt;</pre>

## system reboot

Reboots the device either immediately or after the specified delay.


Synopsis	system reboot [<seconds>]	
Options	<seconds>	The number of seconds to delay the reboot.
Examples	<pre>&gt;system reboot OK &gt; The system is going down for reboot NOW!p-decoder-D8-80-39-62-A7-C5  Reboots the device immediately.  &gt;system reboot 30  Reboots the system in 30 seconds. The response is in the same form; the system message appears at the end of the delay.</pre>	

## system factory-reset

Gets or sets the factory reset status. When the factory reset status is on, the device resets to factory defaults on reboot.

### Note

Factory reset does not affect settings managed in the Dante Controller application.

Synopsis	system factory-reset { get   on   off}	
Options	get	Returns the device's current factory reset status.
	on	Enables factory reset on reboot and returns the device's current factory reset status.
	off	Disables factory reset on reboot and returns the device's current factory reset status.
Examples	 <pre>&gt;system factory-reset get factory-reset (software):    off factory-reset (hardware):    off OK &gt;  Returns the factory reset status. This evaluates the most recent system factory-reset on or off command, if one has been received.  &gt;system factory-reset on factory-reset (software):    on factory-reset (hardware):    off OK &gt;  Enables factory reset upon reboot.  <b>Note</b> This command does not initiate a factory reset. The factory reset takes place on the next reboot.</pre>	

## version

Returns the current firmware version.

Synopsis	version
Example	<pre>&gt;version Audio          1.04 Commit         c867266822c63caa1fd2a6cec76f641068af509 System Version EasyIP Decoder 1.0.0 USB            01.02.00 OK &gt;</pre>

## Information and session management commands

The following commands are available:

- history
- help
- exit

### history


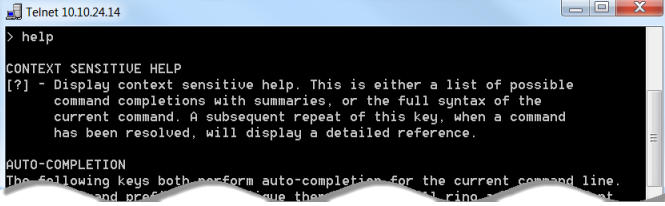
Returns the most recently issued commands from the current Telnet session. Since many of the programs read user input a line at a time, the command history is used to keep track of these lines and recall historic information.

Synopsis	history <limit>	
Options	<limit>	Integer value specifying the maximum number of commands to return.
Examples	<p><b>history</b> Displays the current command buffer.</p> <p><b>history 5</b> Sets the history command buffer to remember the last 5 unique entries.</p>	
Additional information	<p>You can navigate the command history using the up and down arrow keys. This command supports the expansion functionality from which previous commands can be recalled from within a single session. History expansion is performed immediately after a complete line is read.</p> <p>Examples of history expansion:</p> <ul style="list-style-type: none"> <li>* !! Substitute the last command line.</li> <li>* !4 Substitute the 4th command line (absolute as per 'history' command)</li> <li>* !-3 Substitute the command line entered 3 lines before (relative)</li> </ul>	



## help

Displays an overview of the CLI syntax.

Synopsis	help
Example 	<b>help</b> 

## exit

Ends the command session and closes the socket.

Synopsis	exit
Example	<b>exit</b>

## Troubleshooting and care

When the system doesn't behave as you expect, check the status lights first. If this does not help you to resolve the issue, use the troubleshooting tables to determine whether it's time to call Vaddio Technical Support.

### System and power issues

What is it doing?	Possible causes	Check and correct
All the devices in the EasyIP system are unresponsive.	The PoE+ switch is turned off or not connected to power.	Make sure the PoE+ switch has power and is turned on.
	The PoE+ switch is bad.	Contact your reseller or Vaddio Technical Support.
The camera is unresponsive and not available in the Vaddio Deployment Tool.	The cable is bad.	Check using a known good cable.
	The camera is connected to a bad port on the PoE+ switch. Try another PoE+ port.	Contact your reseller or Vaddio Technical Support.
	The camera is bad.	Contact your reseller or Vaddio Technical Support.
The camera has power but the host device is unresponsive.	The host device is connected to a bad port on the PoE+ switch. Try another PoE+ port.	Contact your reseller or Vaddio Technical Support.

## Camera issues

What is it doing?	Possible causes	Check and correct
The status light is off but the camera responds to controls.	The status light is turned off. This is normal.	Turn the light on from the General tab of the System page, or with the <b>camera led on</b> command.
The camera is not responding to controls and the light is yellow.	A firmware update is in progress. This is normal.	Wait a few minutes, and try again when the light turns white.
The camera does not respond to the remote, but can be controlled using the web interface.	The remote is not using the same IR channel as the camera.	Push the Camera Select 1 button on the remote. Try Camera Select 2 or 3 if that doesn't work.
	The batteries in the remote are dead.	Put new batteries in the remote.
	The batteries were installed incorrectly in the remote.	Install the batteries as shown in the diagram inside the remote.
All the cameras in the room respond to the remote at the same time.	All the cameras are set to respond on the same frequency.	Set each camera to a different IR channel. See <a href="#">Setting the camera's IR channel</a> .
The camera does not appear in the host device's list of inputs.	The camera is not paired to the host device.	Pair the camera. Refer to the host device's manual.

## Status light

The light in the camera's head indicates its current state.

- White – Camera is active
- Purple – Standby mode or booting
- Yellow – Firmware update is in progress
- Blinking red – Video mute is on (UC color scheme)

### Caution

*Do not disconnect the camera cable while the status light is yellow, showing a firmware update in progress. Interrupting a firmware update can make the camera unusable.*

### Note

*The camera's status light can be configured to remain off when the camera is powered up. The camera may be sending video even if the light is off.*

## Restoring factory default settings

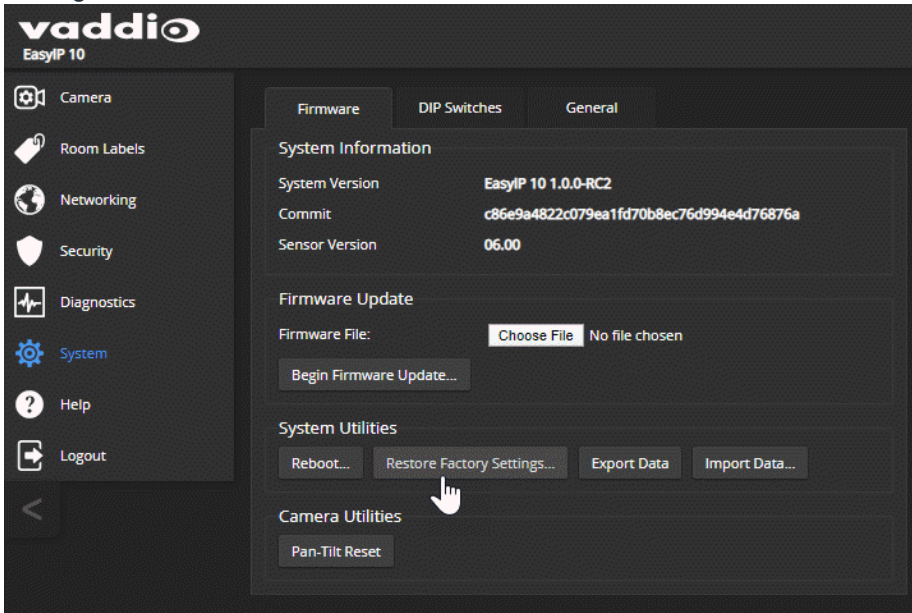
This returns the device to its original state. If you export the device's configuration before restoring factory defaults, you will be able to restore the room label, time zone information, and home information by importing the configuration afterward.

### Note

*Because restoring factory defaults returns the product to a "like new" condition, you will need to do the initial device set-up again if you restore factory defaults.*

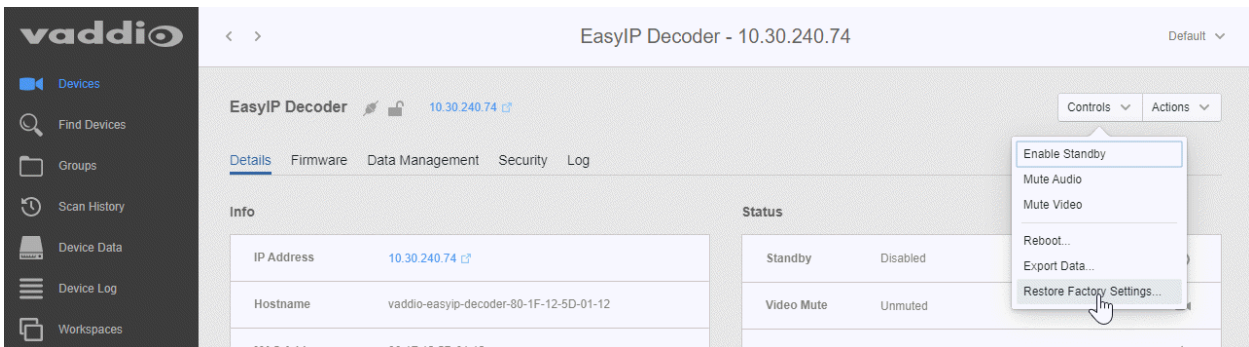
### From the web interface:

Log on using the admin account, go to the System page's Firmware tab, and select Restore Factory Settings.



### From the Vaddio Deployment Tool:

Locate the device, select it in the Name column to open its detail page, and select Restore Factory Defaults from the Controls list.



This tool is available as a free download at <https://info.legrandav.com/VaddioDeploymentTool>.

### Locally (any EasyIP device with an IP Address button):

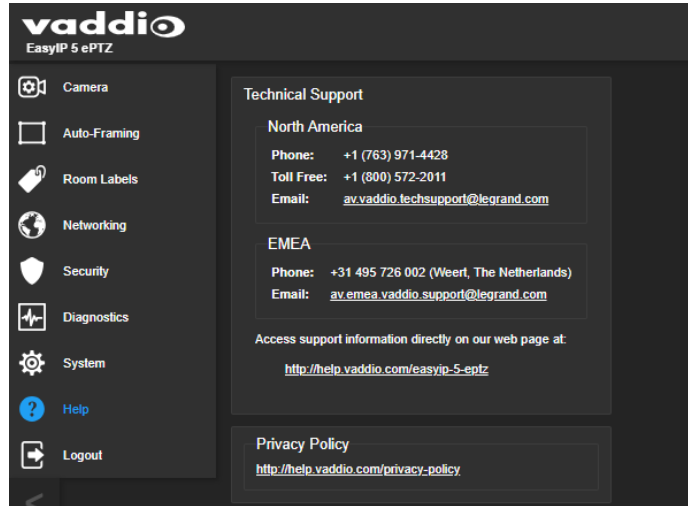
Press and hold the IP address button while disconnecting and then reconnecting the network/PoE+ cable.

## Contacting Vaddio Technical Support

HELP PAGE, ANY VADDIO DEVICE

If you can't resolve an issue using your troubleshooting skills (or the [Troubleshooting](#) table in this manual), we are here to help.

You'll find information for contacting Vaddio Technical Support on the Help screen.



## Viewing diagnostic logs

DIAGNOSTICS PAGE, EACH EASYIP DEVICE

If you encounter a problem that you can't solve, your Vaddio technical support representative may ask you to download and email the event log file available from the Diagnostics screen.

### Note

The log may include large numbers of internal events even when no errors have occurred. Rebooting generates over 100 log entries.

The screenshot shows the Vaddio EasyIP 5 ePTZ web interface. The main content area is titled "Diagnostics" and displays a list of system logs. The logs are timestamped and include kernel messages. The interface also features a sidebar with navigation options and control buttons at the top and bottom.

```

Mar 23 11:11:59 vaddio-easyip-5-eptz-18-45-16-D2-16-37 kernel: [ 1.887061] remoteproc@vdev0buffer: assigned reserved memory i
Mar 23 11:11:59 vaddio-easyip-5-eptz-18-45-16-D2-16-37 kernel: [ 1.906298] remoteproc1@vdev0buffer: assigned reserved memory i
Mar 23 11:11:59 vaddio-easyip-5-eptz-18-45-16-D2-16-37 kernel: [ 1.914950] virtio_rpmsg_bus virtio0: rpmsg host is online
Mar 23 11:11:59 vaddio-easyip-5-eptz-18-45-16-D2-16-37 kernel: [ 1.928498] vpe 489d0000.vpe: loading firmware vpdma-1b8.bin
Mar 23 11:11:59 vaddio-easyip-5-eptz-18-45-16-D2-16-37 kernel: [ 1.938354] remoteproc@vdev0buffer: registered virtio0 (type :
Mar 23 11:11:59 vaddio-easyip-5-eptz-18-45-16-D2-16-37 kernel: [ 1.944554] remoteproc remoteproc0: remote processor 55020000.i
Mar 23 11:11:59 vaddio-easyip-5-eptz-18-45-16-D2-16-37 kernel: [ 1.953296] virtio_rpmsg_bus virtio0: creating channel rpmsg-rpc
Mar 23 11:11:59 vaddio-easyip-5-eptz-18-45-16-D2-16-37 kernel: [ 1.960321] rpmsg_rpc virtio0.rpmsg-rpc.-1.101: probing service
Mar 23 11:11:59 vaddio-easyip-5-eptz-18-45-16-D2-16-37 kernel: [ 1.969334] vip 48970000.vip: loading firmware vpdma-1b8.bin
Mar 23 11:11:59 vaddio-easyip-5-eptz-18-45-16-D2-16-37 kernel: [ 1.975130] virtio_rpmsg_bus virtio0: creating channel rpmsg-rpc
Mar 23 11:11:59 vaddio-easyip-5-eptz-18-45-16-D2-16-37 kernel: [ 1.984035] rpmsg_rpc virtio0.rpmsg-rpc.-1.102: probing service
Mar 23 11:11:59 vaddio-easyip-5-eptz-18-45-16-D2-16-37 kernel: [ 1.994686] rpmsg_rpc virtio0.rpmsg-rpc.-1.101: published funct
Mar 23 11:11:59 vaddio-easyip-5-eptz-18-45-16-D2-16-37 kernel: [ 2.002210] rpmsg_rpc virtio0.rpmsg-rpc.-1.102: published funct
Mar 23 11:11:59 vaddio-easyip-5-eptz-18-45-16-D2-16-37 kernel: [ 2.009651] virtio_rpmsg_bus virtio1: rpmsg host is online
Mar 23 11:11:59 vaddio-easyip-5-eptz-18-45-16-D2-16-37 kernel: [ 2.015877] remoteproc1@vdev0buffer: registered virtio1 (type :
Mar 23 11:11:59 vaddio-easyip-5-eptz-18-45-16-D2-16-37 kernel: [ 2.027168] remoteproc remoteproc1: remote processor 40800000.d
Mar 23 11:11:59 vaddio-easyip-5-eptz-18-45-16-D2-16-37 kernel: [ 2.038802] virtio_rpmsg_bus virtio1: creating channel rpmsg-pr
Mar 23 11:11:59 vaddio-easyip-5-eptz-18-45-16-D2-16-37 kernel: [ 2.045962] vip 48970000.vip: VPDMA firmware loaded
Mar 23 11:11:59 vaddio-easyip-5-eptz-18-45-16-D2-16-37 kernel: [ 2.050903] vpe 489d0000.vpe: Device registered as /dev/video2
Mar 23 11:11:59 vaddio-easyip-5-eptz-18-45-16-D2-16-37 kernel: [ 2.057356] vni1a: Port A: Using subdev dummy_v4l2.dummy_v4l2@2
Mar 23 11:11:59 vaddio-easyip-5-eptz-18-45-16-D2-16-37 kernel: [ 2.066392] vni1a-0: device registered as video3
Mar 23 11:12:02 vaddio-easyip-5-eptz-18-45-16-D2-16-37 watchdog[542]: starting daemon (5.16):
Mar 23 11:12:03 vaddio-easyip-5-eptz-18-45-16-D2-16-37 kernel: [ 9.468639] vivid-000: using single planar format API
Mar 23 11:12:03 vaddio-easyip-5-eptz-18-45-16-D2-16-37 kernel: [ 9.530221] vivid-000: V4L2 capture device registered as video4
Mar 23 11:12:05 vaddio-easyip-5-eptz-18-45-16-D2-16-37 kernel: [ 10.808477] cpsw 48484000.ethernet: initializing cpsw version 1.
Mar 23 11:12:05 vaddio-easyip-5-eptz-18-45-16-D2-16-37 kernel: [ 10.900821] TI DP83867 48485000.mdio:00: attached PHY driver [T
Mar 23 11:12:05 vaddio-easyip-5-eptz-18-45-16-D2-16-37 kernel: [ 10.991599] 8021q: adding VLAN 0 to HW filter on device eth0
Mar 23 11:12:09 vaddio-easyip-5-eptz-18-45-16-D2-16-37 kernel: [ 15.110592] cpsw 48484000.ethernet eth0: Link is Up - 1Gbps/Full

```

## Operation, storage, and care

For smears or smudges on the product, wipe with a clean, soft cloth. Use a lens cleaner on the lens. Do not use any abrasive chemicals.

Keep this device away from food and liquids.

Do not operate or store the device under any of the following conditions:

- Temperatures above 104° F (40° C) or below 32° F (0° C)
- High humidity, condensing or wet environments
- Inclement weather
- Severe vibration
- In a paint can shaker
- Dry environments with an excess of static discharge

Do not attempt to take this product apart. There are no user-serviceable components inside.

## Glossary

### auto white balance

A setting that allows the camera to manage color adjustments automatically.

### Camera ID (setting)

Specifies which of the IR remote's three frequencies the camera responds to. Use the Camera Select buttons on the remote to change frequency.

### chroma

A setting that adjusts color intensity.

### detail

A setting that adjusts image sharpness. If detail is set too low, the image may appear unrealistically smooth.

### DHCP

Dynamic Host Configuration Protocol. A network management protocol that assigns an IP address to a device automatically when it is connected to the network.

### Field of View (FOV)

How wide the video image is. Vaddio measures horizontal field of view. Some manufacturers use diagonal field of view, which yields a bigger number for the same actual image area. Tilt your head to one side and diagonal FOV will make sense.

### flombodulator

A technically complex item the name of which you can't recall at the moment.

### full-duplex

Simultaneous two-way (or multi-way) audio; conference participants at the near end can talk and still hear the participants at the far end(s), as in a face-to-face meeting.

### gamma

A setting that adjusts the range (gray density) between bright areas and shadows.

### home (camera)

A preset shot to which the camera can be set to return after a reboot or on exiting standby mode. Depending on the camera's capabilities, home may include zoom, color and lighting settings, and pan/tilt position.

### HTTP

HyperText Transfer Protocol. The magic that makes websites work.

### HTTPS

HyperText Transfer Protocol Secure. The magic that uses encryption to make websites work securely. See SSL certificate for more information.

### IP address

Where a given device is on the IP network, logically. The IP address enables the network to route data to the right device – and that's the reason IP address conflicts are bad.

### IP address conflict

Two or more devices attempting to use the same IP address on a network. Results are unpredictable but never good. You don't need to worry about this if you're using DHCP.

### LED

Light-Emitting Diode. A status light.

### NTP

Network Time Protocol. Ensures that NTP-enabled devices on the network all show the same system time, so timestamps are accurate.

### pairing

The process of "teaching" two specific devices to recognize each other. Pair cameras to the host device from the host device. If the camera uses an RF remote, pair the remote from the camera.

### PoE, PoE+, PoE++

Power over Ethernet; a means of powering a device using its network connection. Requires a PoE (+) (++) switch or a mid-span power injector. PoE+ and PoE++ deliver more power than PoE.

### preset

A stored camera shot. Contains pan, tilt, and zoom position; may also include color and speed settings.

### Richard

The reason there are cats (well, pictures of cats) in this manual.

### soft conferencing client

A conferencing application (such as Zoom, Google Hangouts, or Skype for Business) that uses a computer rather than requiring a conferencing codec.

### SSL certificate

A file used with HTTPS proving that a web page really originates from its purported source. If you enable or require HTTPS on a camera or other device without installing an SSL certificate, your browser will pop up security warnings when you try to browse to the device's web interface.

### UCC, UC conferencing

Unified Communications Conferencing; refers to soft-client conferencing (such as Zoom or Skype for Business) using a computer with USB-connected peripherals.

### USB 3

A high-speed USB protocol, capable of handling high-quality video and audio as in conferencing applications. USB 3 products should be connected to USB 3 ports; performance may be degraded otherwise.

## Photo credits

This guide may include some or all of these photos.

European Space Agency (ESA) astronaut Samantha Cristoforetti, a Flight Engineer with Expedition 42, photographs the Earth through a window in the Cupola on the International Space Station

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Sleeping goose

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Author's own cats, photos by author, you're welcome.

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