vaddio
THE ART OF EASY

Integrator's Complete Guide to

PCC Premier
Precision Camera Controller

Document 342-1135 Rev C

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About this Guide

This guide provides information about the PCC Premier™ precision camera controller:

- PCC Premier, North America – part number 999-5750-000
- PCC Premier, international – part number 999-5750-001

This guide covers

- Unpacking and installing the camera controller
- The camera controller's physical features and user interfaces
- Basic tasks
- Administration tasks
- Telnet commands
- Specifications
- Troubleshooting and maintenance
- Warranty and compliance/conformity information

For your convenience, some of this information is also available in the **Installation Guide for PCC Premier Precision Camera Controller**, which is limited to unpacking, physical features, installation, and initial power-up.

Download manuals, dimensional drawings, and other information from www.vaddio.com/support.

Product Overview

The Vaddio PCC Premier precision camera controller brings PTZ camera control to the network while maintaining the demanding precision control needed for production environments. The PCC Premier eliminates the need to be in the room with the cameras, making it ideal for live production events, remote studios, and campus network operations centers (NOCs).

Precision control for up to 16 PTZ cameras at once, including up to 8 connected locally via RS-232. Instantly access all PTZ camera related functions ranging from image settings to presets to dynamic positioning from a single device. Use the integrated H.264 decoder to view the live IP stream from the currently selected IP camera from the courtesy HDMI output.

Features

Full control of up to 16 PTZ cameras (2 groups of 8 each) at a time:

- Up to 8 PTZ cameras via wired RS-232 connection
- Virtually connect up to 16 RoboSHOT or ClearSHOT cameras at a time, anywhere on the IP network
- Vaddio's CCU scene macros and full preset store/recall functions
- Internal H.264 decoder and courtesy HDMI output to monitor the IP stream of the selected remote camera

Precision controls for the most demanding camera operation environments:

- Three-axis Hall effect joystick
- Pan, tilt, and zoom speed control knobs
- Illuminated pushbuttons for camera selection
- Large knobs for fine focus control and menu navigation, with push-to-select function

Intuitive camera access and addressing through powerful console and web interfaces:

- Full camera image controls via easy-to-read 7 in. touch-panel interface
- Web interface for complete administrative control from anywhere, using your browser
- Store up to 11 camera groups in the Address Book - 10 IP and/or RS-232 control, plus one predefined RS-232-only group
- Individual control of all cameras in any two camera groups for immediate control of up to 16 cameras at a time

Versatile power solution using PoE+ (Power over Ethernet)

Product Compatibility

The PCC Premier is compatible with the following products.

Vaddio Cameras

Product	RS-232	IP
RoboSHOT 12/30 (may use Quick-Connect)	Yes	Yes*
RoboSHOT 12 USB	Yes	Yes*
RoboSHOT 12/30 HDMI	Yes	Yes*
RoboSHOT 12/30 HD-SDI	Yes	Yes*
ClearSHOT 10 USB	Yes	Yes
ClearVIEW HD 20SE	Yes	No
PowerVIEW HD 22/30	Yes	No
ZoomSHOT 20	Yes	No
WideSHOT	Yes	No

* The PCC Premier can control RoboSHOT cameras via the IP network only if the cameras use version 2.0.0 or newer firmware. Control via IP uses the camera's IP address, not the address of its Quick-Connect or OneLINK device.

Non-Vaddio Cameras

Product	RS-232	IP
Sony BRC Z 330	Yes	No
Sony BRC Z 700	Yes	No
Sony BRC H 700	Yes	No
Sony BRC H 900	Yes	No
Sony EVI-H100S	Yes	No
Sony SRG 120	Yes	No
Sony SRG 300	Yes	No
Panasonic AW-HE 40	Yes	No
Panasonic AW-HE 130	Yes	No

Installation

This section covers how to install and connect the controller. It also provides safety information and other guidance related to installing the controller.

Don’t Void Your Warranty!

Caution
This product is for indoor use. Do not install it outdoors or in a humid environment without the appropriate protective enclosure. Do not allow it to come into contact with any liquid.

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

Learn more at www.vaddio.com/products.

Unpacking the Camera Controller

Make sure you received all the items you expected. Here are the packing lists for the PCC Premier camera controller.

North America: PCC Premier, part number 999-5750-000

- PCC Premier, part number 998-5750-000
- Mid-span power injector with US cord set, part number 451-0800-055
- Cat-5e patch cable, 10 ft (3 m), part number 802-3012
- Quick Start Guide, part number 342-1134

International: PCC Premier, part number 999-5750-001

- PCC Premier, part number 998-5750-000
- Mid-span power injector with UK and European cord sets, part number 451-0800-155
- Cat-5e patch cable, 10 ft (3 m), part number 802-3012
- Quick Start Guide, part number 342-1134

Connector Panel

From left to right:

Ethernet/PoE+ connector – PoE+ Gigabit Ethernet port provides access to the controller's web interface and to cameras on the network, and powers the controller.

HDMI connector – Monitor the camera you are currently controlling. Video can only be displayed for cameras with IP streaming capability.

RS-232 ports – Connect up to 8 cameras locally.

Cabling Notes

RS-232 cables may be up to 500 ft (152.4 m).

For RS-232 cabling, use Cat-5e or better cable and standard RJ-45 connectors (568B termination).

We recommend using high-quality connectors and a high-quality crimping tool.

Note

Do not use pass-through RJ-45 connectors. These can cause intermittent connections and degraded signal quality, resulting in problems that may be hard to diagnose. Use standard RJ-45 connectors and test all cables for proper pin-outs and continuity before you connect them to Vaddio products.

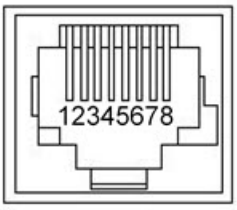
RS-232 Serial Communication Settings and Port Pin-out

The RS-232 serial ports (color-coded blue) on the PCC Premier back panel allow you to connect up to 8 cameras directly.

RS-232 communication parameters are as follows:

Parameter	Value
Communication Speed	9600 bps (default)
Start bits	1
Stop bits	1
Data bits	8
Parity	None
Flow control	None

Connector pin-out:



- Pin 1: Not used
- Pin 2: Not used
- Pin 3: Not used
- Pin 4: Not used
- Pin 5: Not used
- Pin 6: GND
- Pin 7: TXD (to RXD of camera)
- Pin 8: RXD (from TXD of camera)

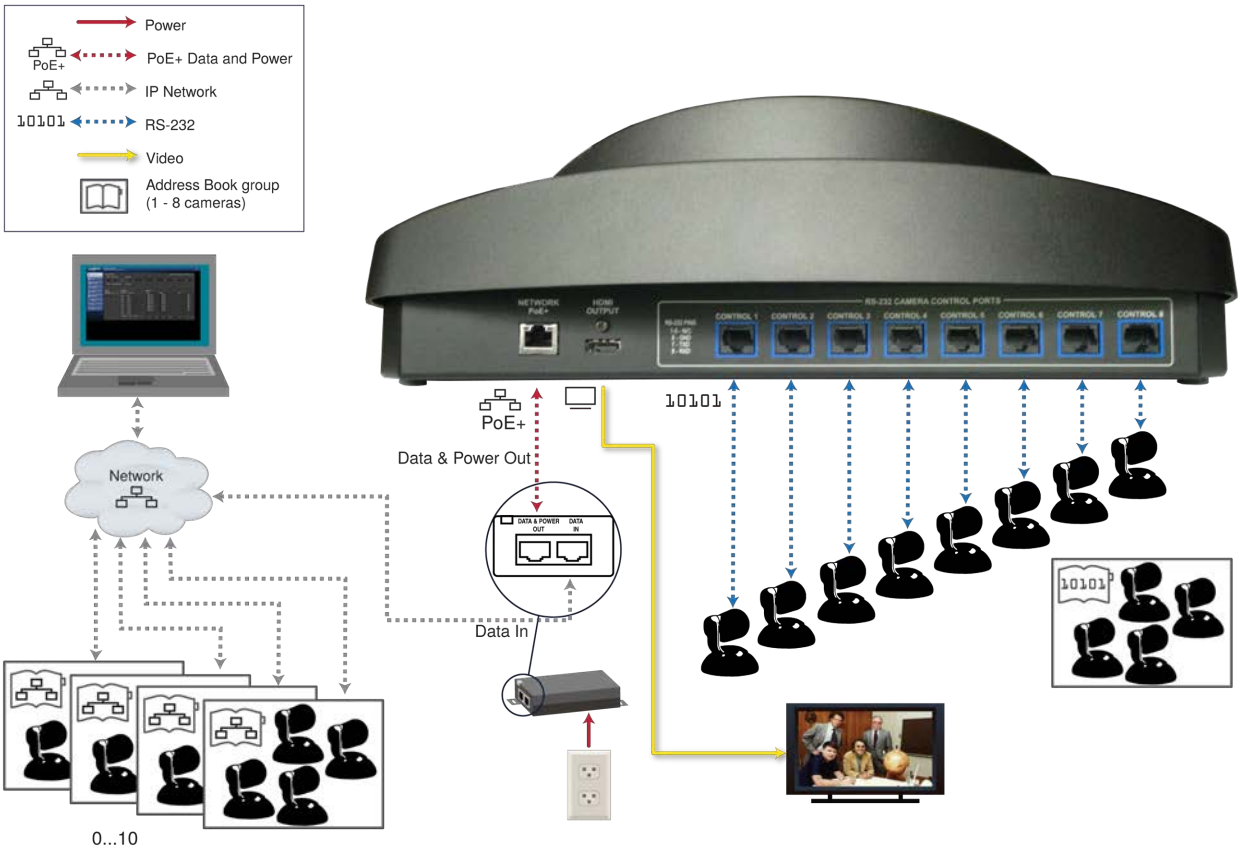
Caution:

Check Cat-5 cables for continuity before using them. Using the wrong pin-out may damage the camera system and void the warranty. Pro tip: Label your cables.

Connecting the Controller

Set up all cameras and make all physical connections first. You will be able to add network-controlled cameras after the cameras and controller are fully operational.

In this example, cameras are directly connected to the RS-232 ports, and the controller is set up to manage several address book groups of cameras remotely via the IP network. A display connected to the courtesy HDMI port allows the operator to monitor the camera currently selected, if it is an IP streaming camera. The mid-span power injector provides power and network connectivity.



Camera Controller Basics

This section covers powering the camera controller and making sure it is able to communicate with its cameras. It also includes a quick tour of the console and information on accessing the controller's web interface.

Powering Up the Cameras and Controller

Power up all cameras to be used with the controller.

When you connect the PCC Premier to the network for the first time, it will only identify supported cameras that are directly connected via RS-232. After the Address Book has been set up, the controller tries to establish contact with all IP-connected cameras in its address book when it powers up.

Control Console Features

The console provides basic address book and other functions in addition to camera control.

Touch-Panel Display

The touch-panel provides:

- Access to the address book, to set up and select camera groups
- Access to camera presets and CCU scenes
- CCU and CCU scene setup
- Network information for the controller
- One-touch standby (controller and selected cameras)

Focus Knob

Press the focus knob to switch between modes – auto-focus (illuminated blue) or manual (illuminated red). In manual focus mode, turn the knob to adjust the focus.

Menu Knob

This knob provides precision in setting slider controls. Dial to the desired setting, then press the menu knob to save it.

You can also use the Menu knob to navigate the touch-panel screens and some of the controls.

Camera Select Buttons

The camera select buttons allow you to select the camera to work with, from the two active camera groups (Control A and Control B). During normal operation, the buttons are illuminated if they are mapped to cameras in the active groups. If a button is not lit, it means one of these things:

- No camera is connected to the RS-232 port assigned to this button.
- No IP-connected camera has been assigned to this button.

Joystick

The joystick provides intuitive control for moving the selected camera to the desired position - left/right to pan, forward/back to tilt. Twist the joystick clockwise or counterclockwise to zoom the camera. Press the center button to return the camera to its home position. The camera controller's web interface allows you to set normal or inverted directional operation, according to the operator's preference.

Pan, Tilt, and Zoom Speed Controls

The three speed control knobs above the joystick allow you to adjust the selected camera's speeds for pan, tilt, and zoom. When you adjust any of these knobs, the touch-panel displays a slider to show the speed range.

Ensuring Compatibility

The camera controller may be unable to communicate with its Vaddio cameras if their firmware is out of date. When you set up the camera controller, be sure its Vaddio cameras have been updated to version 2.0.0 firmware or later. This keeps them playing nicely together.

Indicator Lights Cheat Sheet

Whenever the components of your system don't do what you expect, check the indicator lights first.

Camera Controller Indicators

Location	State	Meaning
Touch-panel virtual indicator: Camera streaming status (indicator in upper right corner)	black	The selected camera is not available. It may be disconnected, rebooting, or updating firmware.
	blue	The selected camera is connected but not streaming to the camera controller. This may mean: ■ The camera does not have IP streaming capability ■ The camera's IP stream is not enabled ■ The camera is connected via RS-232
	yellow (momentary)	The HDMI output stream has paused. This happens when you select a different camera. When the change in selection is complete, the indicator changes to show the newly selected camera's state.
	green	The selected camera's stream is available on the HDMI output.
Control A and Control B camera buttons	Not illuminated	RS-232 connected camera is not available (power is disconnected or the camera's firmware is updating) No camera is mapped to the button (for example, the address book group may have fewer than 8 cameras assigned)
	Blinking blue	A camera is not available at this IP address. This can occur if: ■ The camera is present but not available (for example, a firmware update may be in progress or its power may be disconnected) ■ The camera is present but its standby state is out of sync with the controller (for example, someone placed the camera in standby using its own web UI or remote) ■ The device at this IP address is not a compatible camera ■ There is no device at this IP address.
	Blue	Camera is available
	Red	Camera is selected
Focus knob	Not illuminated	The current camera selection is inactive or absent
	Red	The selected camera is in manual focus mode
	Blue	The selected camera is in auto focus mode.
Menu knob	Blue	Normal operation - able to navigate the touch-panel
Network and PoE+ port	Blinking	Normal operation - receiving power and connected to the network
	Not illuminated	■ The power injector is not connected to the network (Data In connection) ■ The camera controller is not receiving power.

Power Injector Indicator

State	Meaning
Illuminated orange	Power connection is good. No connection from the Data and Power Out connector to the camera controller.
Illuminated green	The power connection is good, and the connection from the Data and Power Out connector to the camera controller is good.

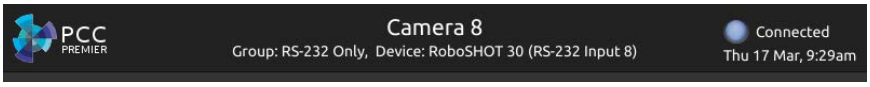
Note
The indicator light does not provide information about the connection from the Data In connector to the network.

Camera Indicators

Indicator light codes vary among models of cameras. Consult the camera documentation.

Touch-Panel Display Tour

The area at the top of each screen shows information about the currently selected camera.



Home screen – Choose the screen you need to see, or put the camera controller in standby mode.

When you tap the Power button, the camera controller presents a confirmation message. When you tap OK to go ahead with the standby operation, the cameras in the currently selected groups may also go to standby mode. This is configurable in the camera controller's web interface. See Setting Camera Controller Behavior.

Cameras in groups that are not currently selected remain in their current state.

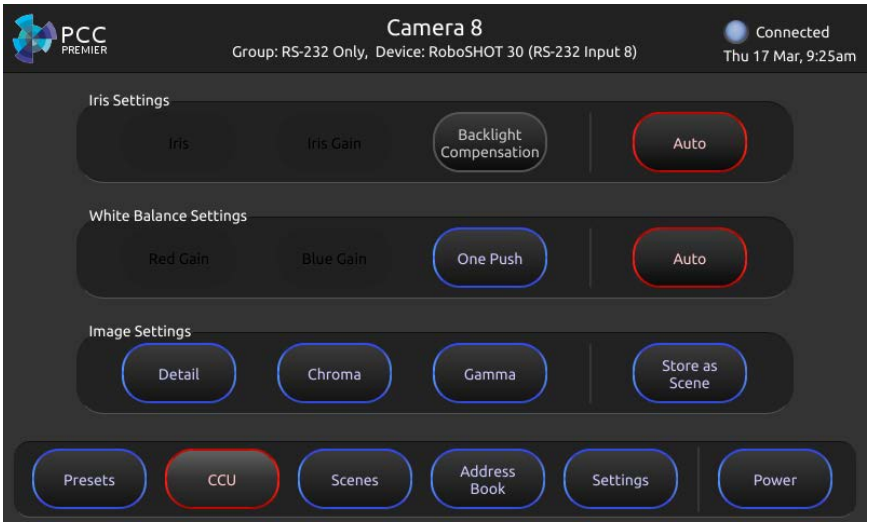
Presets screen – Work with the selected camera's presets. The camera controller does not store presets internally. It accesses the presets stored in the currently selected camera, and can write presets to the camera.

Note

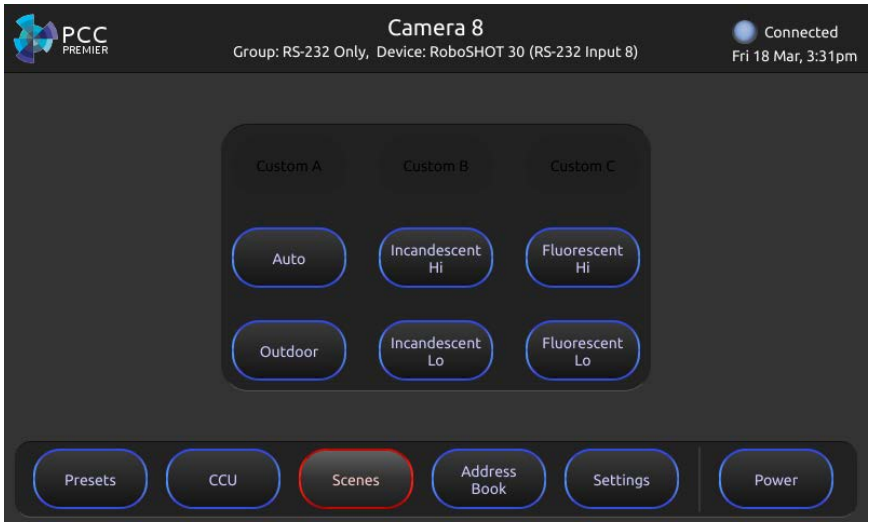
For some older Vaddio cameras, presets may be unavailable to the camera controller if they were set using the IR remote.

Presets may include lighting and color adjustments. See Working with Lighting and Color Settings for information on making these adjustments.

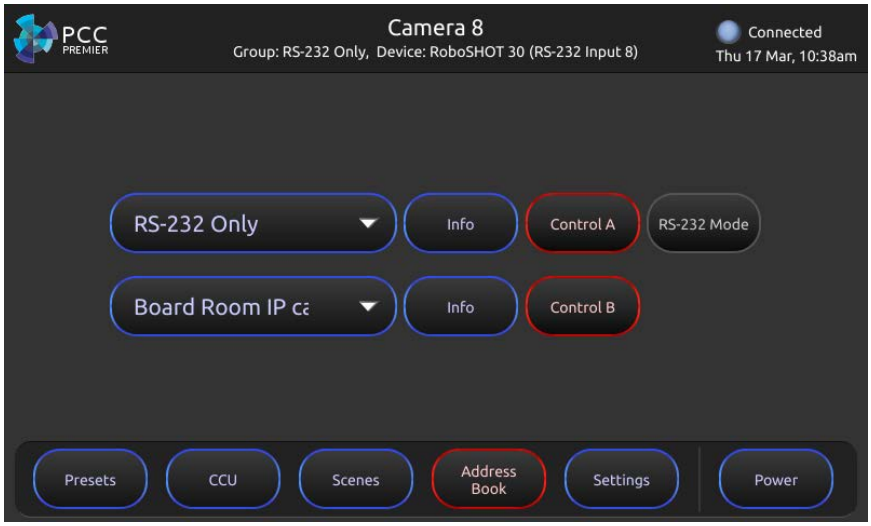
CCU screen – Adjust lighting and color (CCU) settings and store adjustments as CCU scenes. See Working with Lighting and Color Settings for more information.



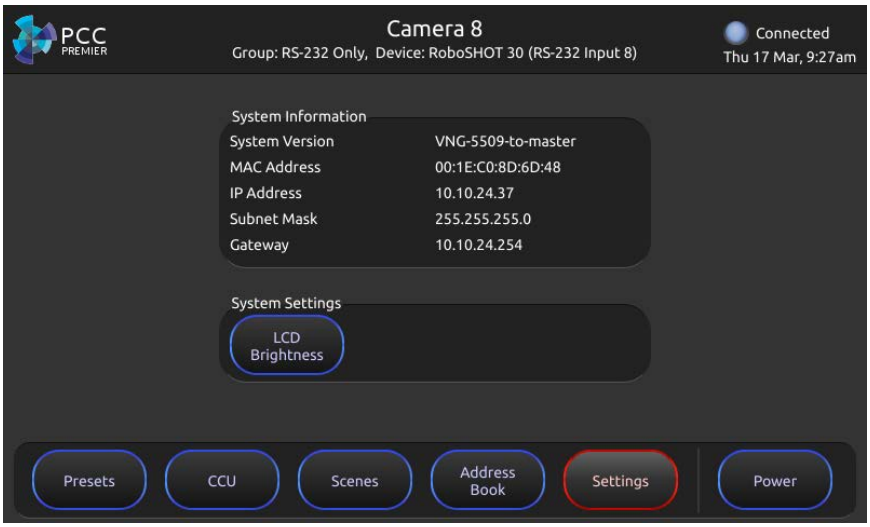
Scenes screen – Choose lighting and color adjustments (CCU scenes) defined for the selected camera.



Address Book screen – Choose the camera groups to control with the Control A and Control B camera select buttons. See Selecting Camera Groups to Control for more information.



Settings screen – View firmware and network information for the camera controller, and set the brightness for the touch-panel display.



Web Interface

The camera controller provides a web interface to allow configuration via the IP network connection, using a browser. The web interface allows you to:

- Manage network settings
- Set up the camera controller's address book
- Specify how the joystick behaves
- Add identifying information to the camera controller's web interface
- Set the password and idle session behavior for the camera controller
- Back up, reboot, reset, or update the camera controller
- View information about the camera controller

If a DHCP server is available, the controller will get its IP address, gateway and routing information automatically.

Compatible Web Browsers

Supported web browsers:

- Chrome®
- Firefox®
- Microsoft® Internet Explorer®
- Safari®
- Microsoft® Edge

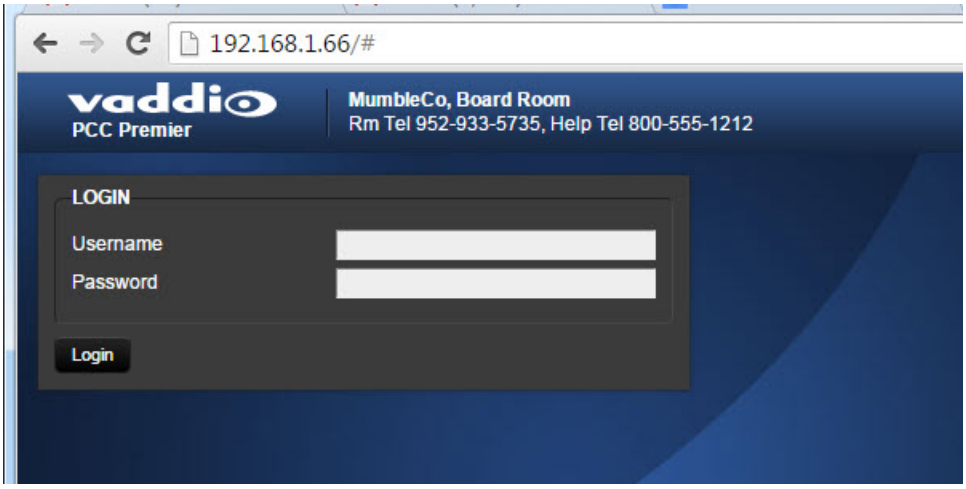
Other browsers may also work.

Opening the web interface

1. Locate the camera controller's IP address on the touch-panel display. This information is on the Settings screen.

   If you know the camera controller's hostname, you can use that instead.
2. Enter the camera controller's IP address or hostname in your browser's address bar.

   If you use the hostname, you may need to enter **`http://`** as a prefix to keep the browser from treating it as a search query.
3. Log in for access to the administrative controls. The username is `admin` and the default password is `password`.



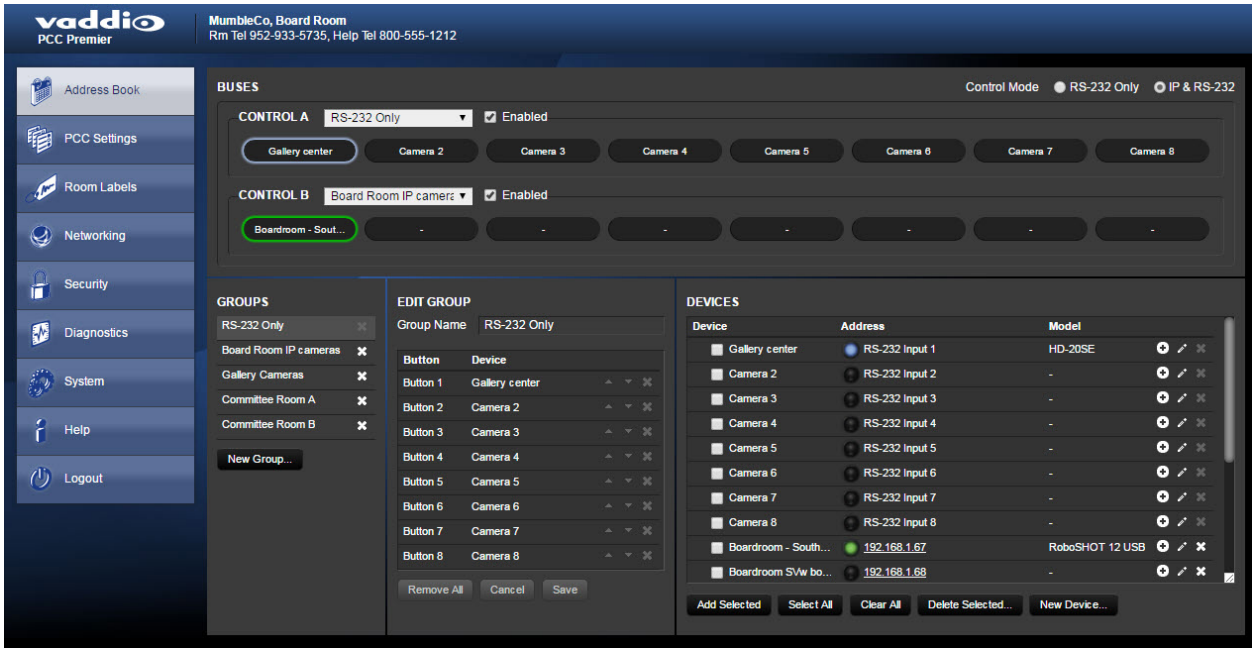
A Quick Tour of the Web Interface

This covers what you can do on each page.

Address Book

Things you can do on this page:

- Add or delete IP-connected cameras – see Setting Up the Address Book
- Rename cameras
- Create, edit, rename, or delete camera groups – see Setting Up the Address Book
- Select the camera groups to map to the Control A and Control B buttons – see Selecting Camera Groups to Control
- Rename camera presets and CCU scene labels



PCC Settings

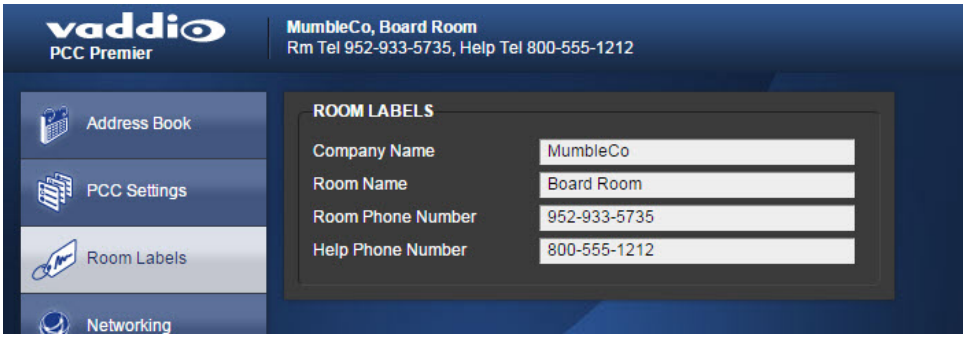
Things you can do on this page:

- Put the camera controller in standby mode
- Specify whether the cameras currently mapped to the camera select buttons also go to standby
- Specify the pattern on the HDMI output when a streaming camera is not selected
- Set the HDMI output resolution and color space
- Adjust the contrast and brightness on the display connected to the HDMI output
- Specify how the joystick behaves

Room Labels

On this page, you can set the camera controller's web interface to display:

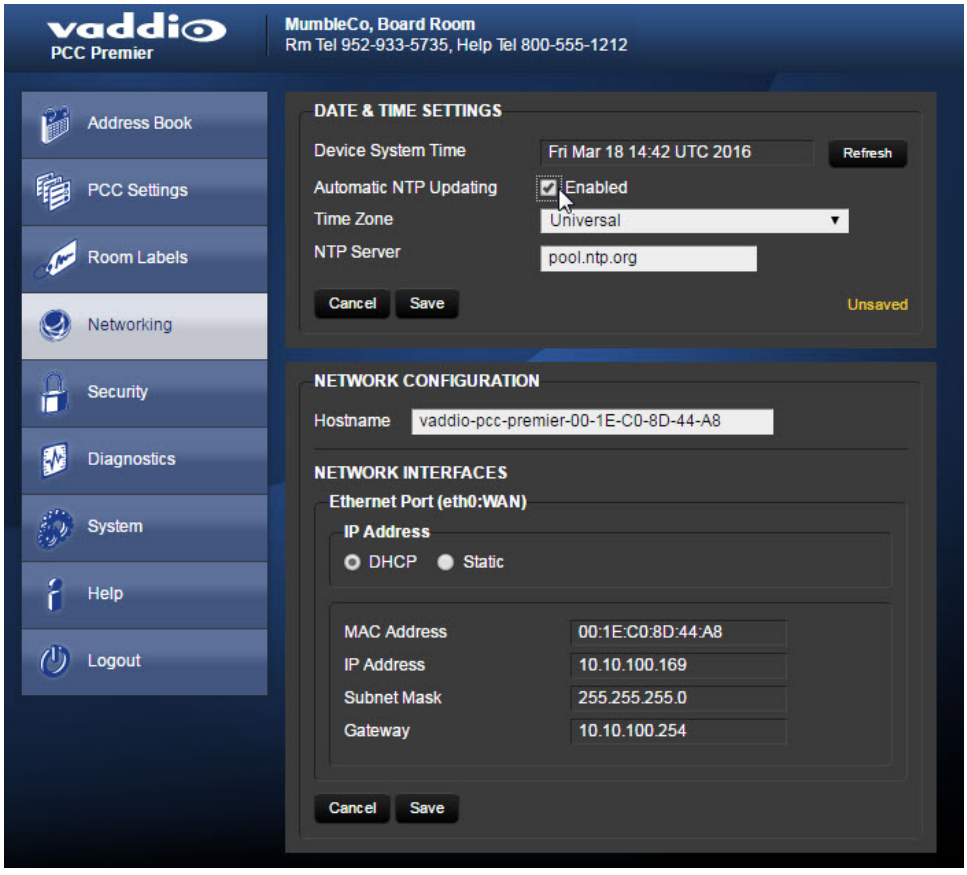
- The name of your organization
- The name and phone number of the room where the camera controller is installed
- The phone number for your in-house A/V or IT support



Networking

Things you can do on this page:

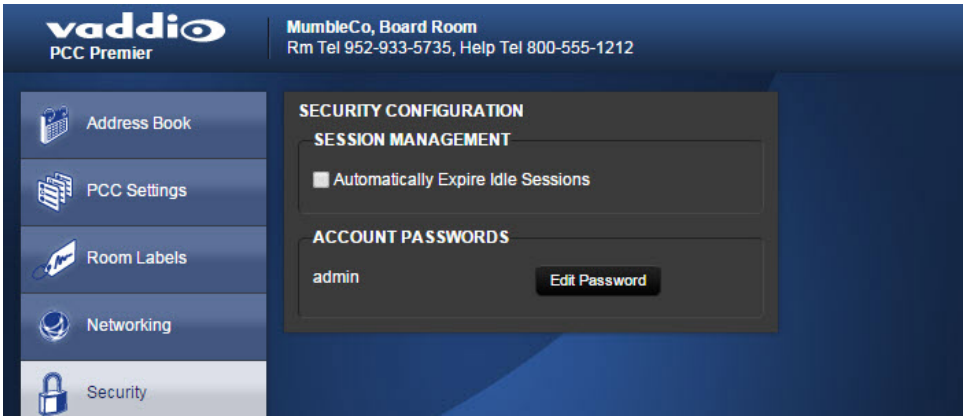
- Set the camera controller to use an NTP server for time and date, and specify the time zone to use
- Assign the camera controller's hostname
- Specify DHCP or static IP addressing
- Set up IP address, subnet mask, and gateway address if static addressing is selected



Security

Things you can do on this page:

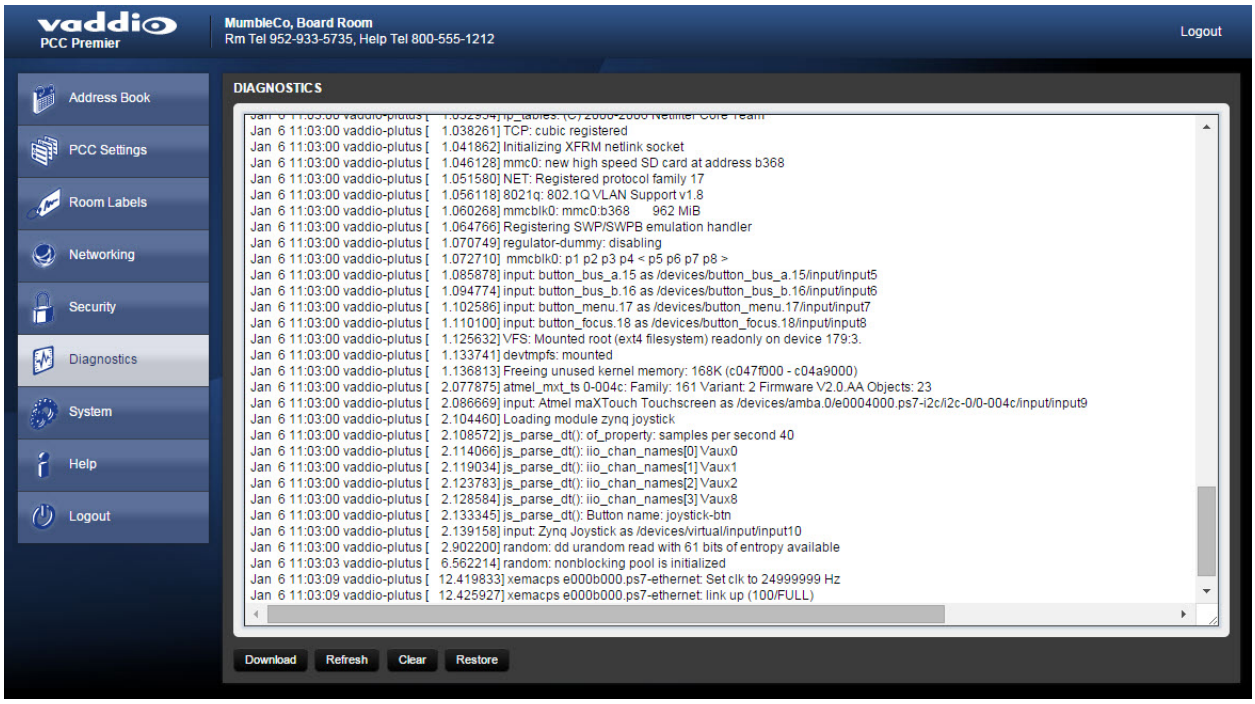
- Set idle web interface sessions to time out – if the check box is checked, users are logged out of the web interface after 30 minutes of inactivity.
- Change the admin password for the web interface.



Diagnostics

Things you can do on this page:

- View and download the diagnostic log
- Clear the display area
- Restore the log information that you cleared

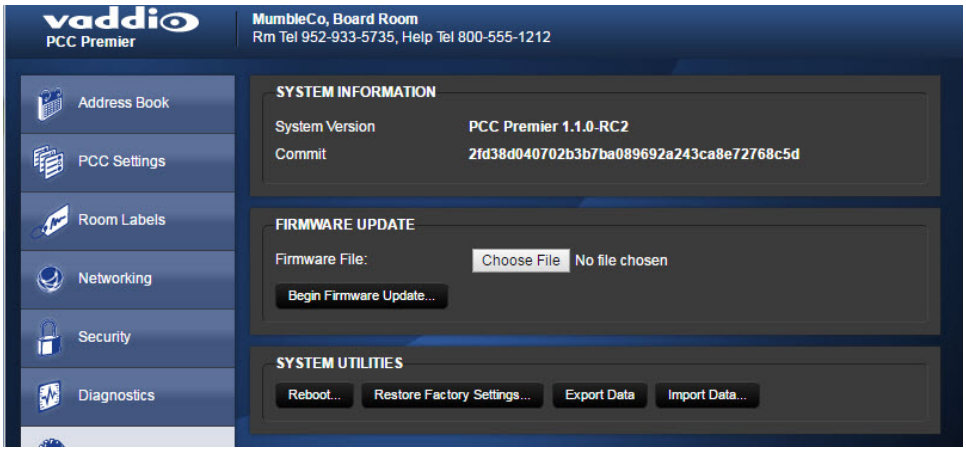


System

Things you can do on this page:

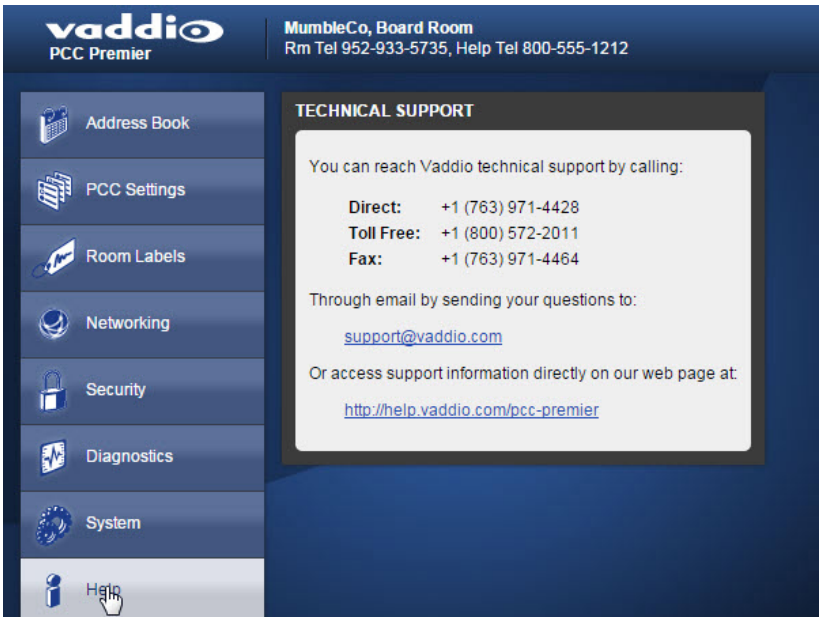
- Reboot the camera controller
- Back up (export) or restore (import) configuration data
- Set the camera controller back to its original factory settings
- Update the firmware

All these operations except exporting data will require you to log in again afterward.



Help

If you can't resolve an issue on your own (see the Troubleshooting table in this manual), we are here to help. You'll find information for contacting Vaddio Technical Support on the Help page.



Working with the Camera Controller

You have the PCC Premier camera controller installed and powered up. You've read Controller Basics, so you know where the controls are and what they do. Now you're ready to start using it.

Touch-Panel Display Cheat Sheet

Where to find the camera and system controls you need right now.

What do you need?	Go to this screen
System IP address and other network information	Settings
Manage Control Bus A and Control Bus B	Address Book
Store or recall presets for the selected camera	Presets
Select a defined set of lighting and color adjustments (recall a CCU scene) for the selected camera	Scenes
Adjust color and lighting settings for the selected camera	CCU
Store your color and lighting adjustments as a CCU scene for the selected camera	CCU: Store as scene
Adjust the touch-panel's brightness	Settings: LCD Brightness
Put the system into standby mode (may also put the cameras mapped to Control A and Control B buttons into standby mode; this is configurable)	Power

Web Interface Cheat Sheet

Where to find the controls you need right now.

What do you need?	Go to this page
Camera controller hostname and network settings	Networking
Cameras and camera groups	Address Book
Camera controller behavior	PCC Settings
Settings for HDMI output	PCC Settings
Password for admin account	Security
Information about the camera controller's location	Room Labels
Backup and restore operations	System
Firmware update and current version	System
Time and date settings	Networking
Reboot or factory reset	System
Helpdesk phone number for end users	Room Labels
Contact information for Vaddio helpdesk	Help
Diagnostic log	Diagnostics
Session timeout	Security
Standby	PCC Settings

Setting up the Address Book

Web interface, Address Book page

Cameras are available if they are in the camera controller's address book.

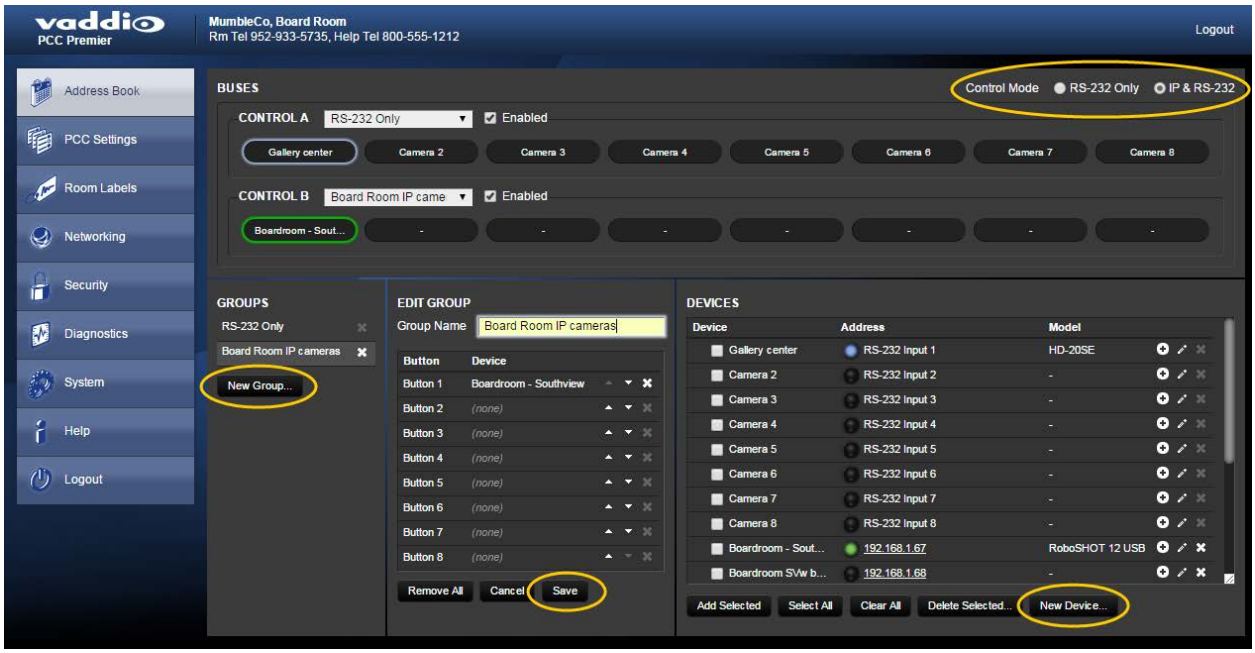
Log in to the camera controller's web interface to set up the address book.

The PCC Premier organizes cameras into groups, and allows you to work with two groups at a time. The predefined RS-232 group contains all cameras connected directly via RS-232. You can add other groups, which you may define as RS-232 only or IP and RS-232. Cameras may belong to more than one group each, so you can organize the cameras in the way that works best for you.

Note

The PCC Premier camera controller may be unable to communicate with its cameras if their firmware is out of date. When you set up the camera controller, be sure its Vaddio cameras have been updated to version 2.0.0 firmware or later.

When you power the camera controller, it auto-detects the cameras connected via RS-232 if they are able to communicate. You do not need to do any setup for RS-232 connected cameras. If Vaddio cameras are not detected, update their firmware to the latest version available under Software Updates on Vaddio's support page.



The general process for setting up the address book is:

Define at least one group.

1. Under Groups, click New Group.
2. In the Add New Group box, give the group a name and save it. The new group appears in the list of groups.
3. Under Groups, click the name of the group you just created. Its name appears in the Edit Group pane.
4. In the upper right part of the page, set the Control Mode to IP & RS-232.

Collect the hostnames or IP addresses of the cameras to be added to the Address Book.

You may wish to add IP-connected cameras using their hostnames rather than their IP addresses. This way, the camera controller automatically locates and connects to the camera even if the camera's IP address changes - for example, if you move it to a different room.

If you don't have a list of hostnames or camera IP control addresses – the addresses for the cameras' internally served web interface pages – you can get any Vaddio camera's IP control address using its remote. Press the Data Screen button to display this.

Add the cameras.

1. Under Devices, click New Device.
2. In the Add New Device box, enter the camera's IP control address, give it a device label, and save it.
3. Repeat this until you have added all the cameras you want to assign.

Assign the cameras to groups.

1. Under Groups, click the name of the group you want to populate. Its name appears in the Edit Group pane.
2. Under Devices, locate the name of a camera you want to add to this group. (You can add any camera to more than one group.)
3. Do one of these things:
   - Drag a camera name to the desired button in the Edit Group pane, repeating as needed, OR
   - Check the box to the left of each camera that you want to add to the group, then click Add Selected to add all of them to the group.
4. Save your changes.

You can now select the defined groups and control the cameras in them from the console.

Selecting Camera Groups to Control

After you have set up the address book, you can select the groups to work with. You can do this either from the web interface or from the console's touch-panel display.

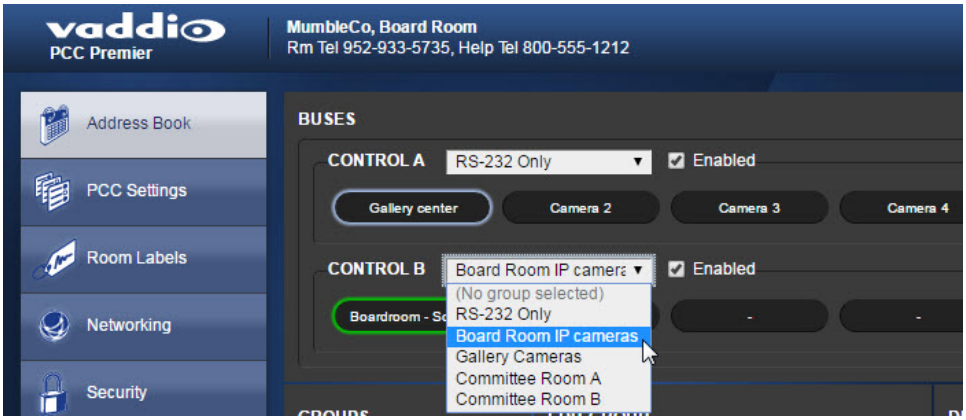
By default, the buttons on the Control A bus are mapped to the RS-232 cameras. You can change this.

Selecting Camera Groups from the Touch-Panel Display

1. On the touch-panel display, open the Address Book screen to select camera groups.
2. Choose the camera control bus to define – Control A (the top row of buttons) or Control B (the lower row) – and tap its control to make it active.
3. Tap the group name to open the list of available groups, and tap the name of the group you want. The controls become inactive for a few seconds while the camera controller maps control bus buttons to the cameras in the selected group.
4. If you need to verify that you have chosen the group you want, tap the Info button. This opens a list of cameras in the group. Tap the Back button to return to the Address Book screen; or tap the Home button to go to the Home screen.
5. The camera select buttons on this control bus are now mapped to the cameras in the group you selected.
6. Repeat this for the other control bus, if necessary.

Selecting Camera Groups from the Web Interface

1. On the Address Book page of the web interface, click the down-arrow in the group name box for the desired control bus - Control A or Control B. This displays a list of available camera groups.
2. Select the group you want.
3. Check the Enabled checkbox for this control bus. The buttons show the names of the cameras in this group.



Now you're ready to work with the cameras.

Working with Lighting and Color Settings

The camera controller gives you access to the selected camera's defined lighting and color settings (scenes) and its lighting and color (CCU) adjustments. You don't need to access each camera's web interface separately to adjust for consistent video across entire camera groups.

Selecting Lighting and Color Settings

Touch-panel, Scenes screen

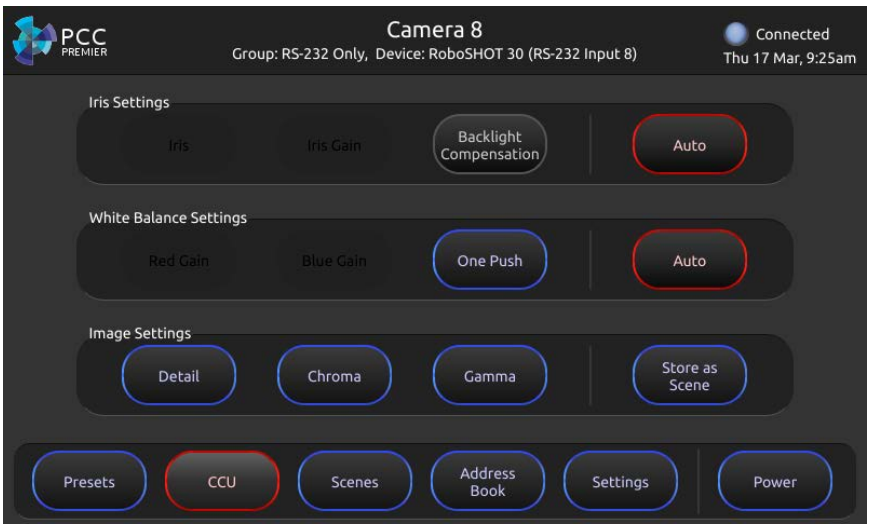
If the lighting or color balance doesn't look right in the video from the selected camera, go to the Scenes screen and choose the appropriate lighting setting. These are good starting points if you are not experienced with lighting and camera painting/shading.

If none of the available scenes produce the desired results, you can create custom settings.

Adjusting Lighting and Color (CCU) Settings

Touch-panel, CCU screen

If none of the lighting selections on the Scenes screen produce the desired results, adjust the image using the controls on the CCU screen.



You may need to experiment to find the best combination of image adjustments.

If you are not experienced in this area, here are some tips.

What do you need to correct?	Change this:	How:
The image is too dark	Iris	Increase
	Iris Gain	Increase
The image looks washed out or faded	Iris	Decrease
	Iris Gain	Decrease
	Chroma	Increase
	Gamma	Decrease
The subject is silhouetted against a bright background	Backlight Compensation	On
Colors look less vivid than they should	Chroma	Increase
Colors look too vivid	Chroma	Decrease
Highlights and shadows look right, but mid-tones are too dark.	Gamma	Increase
The mid-tones are too light.	Gamma	Decrease
The image looks grainy	Detail	Decrease
	Iris Gain	Decrease
"Soft focus" effect; the image looks unrealistically smooth	Detail	Increase
Colors look wrong; white objects do not appear white	Auto	On
	One Push	(tap)
	Red Gain (less red/less green)	Dial down/up
	Blue gain (less blue/less yellow)	Dial down/up

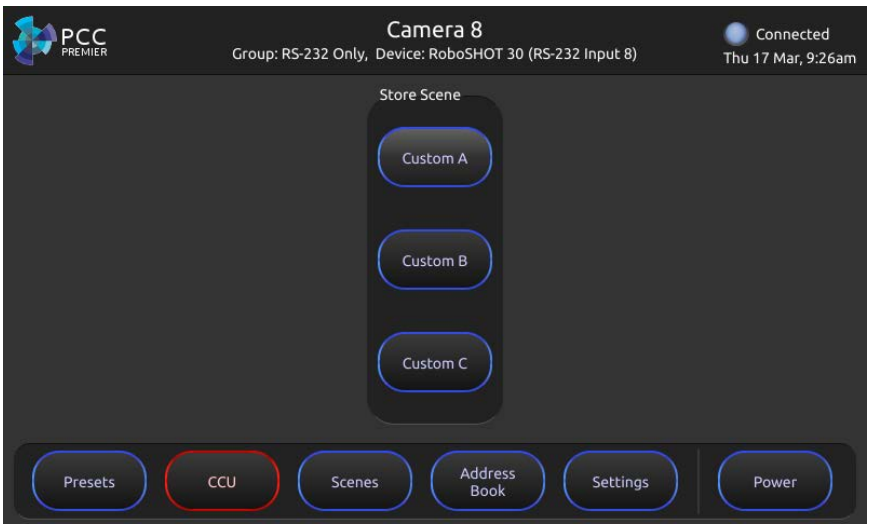
Too much red | Not enough red | Too much blue | Not enough blue | Balanced

If you are adjusting for lighting conditions that are likely to recur, you can save your adjustments as a custom scene.

Saving Lighting and Color Adjustments

Touch-panel, CCU screen

When the lighting and color look good, tap Store as Scene to save the adjustments. The screen prompts you to store the scene as Custom A, Custom B, or Custom C.



After you store the scene, it is available on the Scenes screen.

If it is a Vaddio camera, you can rename custom scenes in the camera's web interface.

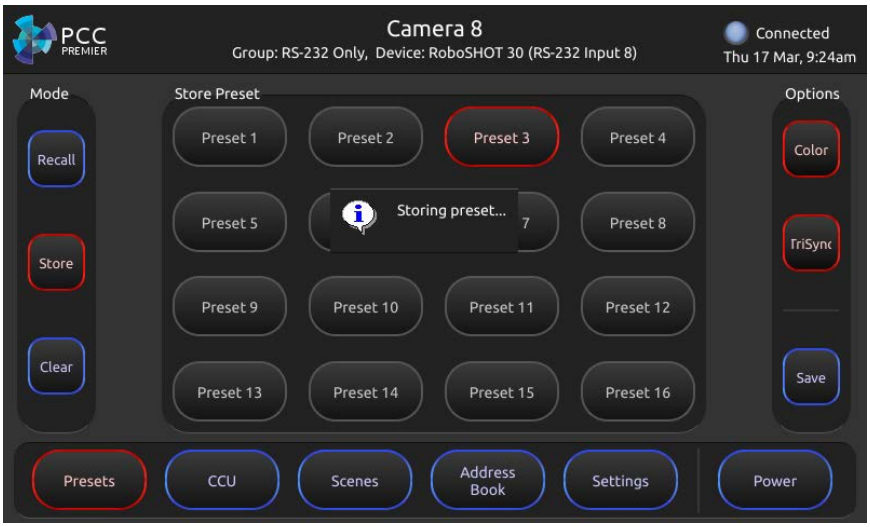
Working with Camera Presets

Touch-panel, Presets screen

The camera controller does not store presets internally. It accesses the presets stored in the currently selected camera, and can write presets to the camera.

To store a new preset to the selected camera:

1. Set up the shot, including all adjustments.
2. On the Preset screen, tap Store.
3. Tap the preset button to assign. If you choose a preset that is already assigned, you will overwrite the existing preset when you save the new one.
4. Optional: Tap the Color button or TriSync button (or both) if you want to save them as part of the preset.
5. Tap Save.



When you tap Back to return to the main Recall Preset screen, the new preset is available.

Setting Camera Controller Behavior

Web interface, PCC Settings page

On this page, you can set:

- What happens when the camera controller goes into standby mode
- What happens when no video stream is available on the HDMI output
- HDMI video settings
- Joystick direction

Standby Settings

To place the cameras in standby mode along with the camera controller, check the box marked "Standby Connected Cameras when PCC Enters Standby."

Note

This setting only applies to the cameras in the groups currently selected as Control A and Control B. Other cameras in the address book are not affected.

Leave this check box unchecked if all cameras should remain powered up when the camera controller goes to standby mode.

Mute Settings

This specifies how the HDMI output behaves when a non-streaming camera is selected, or when no camera is selected. If you select a streaming camera that is muted, the HDMI output is that camera's mute pattern. For example, the stream from a Vaddio camera in the RoboSHOT series is a blue screen.

Select color bars or black.

Video Output Port and Picture Mode

If necessary, change the resolution and color space to suit the capabilities of the display connected to the HDMI output port.

Note

The H.264 decoder provides a 1080P30 signal. The UI output setting is to configure for your monitor's abilities.

You can also adjust the display's brightness and contrast as needed.

Joystick Settings

Select Normal or Inverted for joystick pan and tilt axes.

Powering Down and Returning from Standby

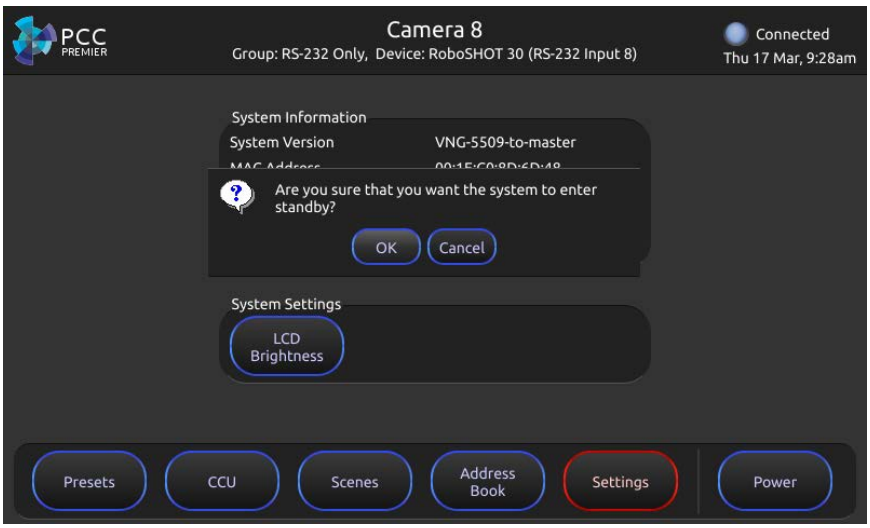
You can do this from the touch-panel display or from the web interface.

Note

Depending on the standby settings configured in the web interface, the cameras currently mapped to the Control A and Control B buttons may also go to standby mode with the camera controller. Cameras in other groups remain in their normal operating states. See Setting Camera Controller Behavior for more information.

From the touch-panel display:

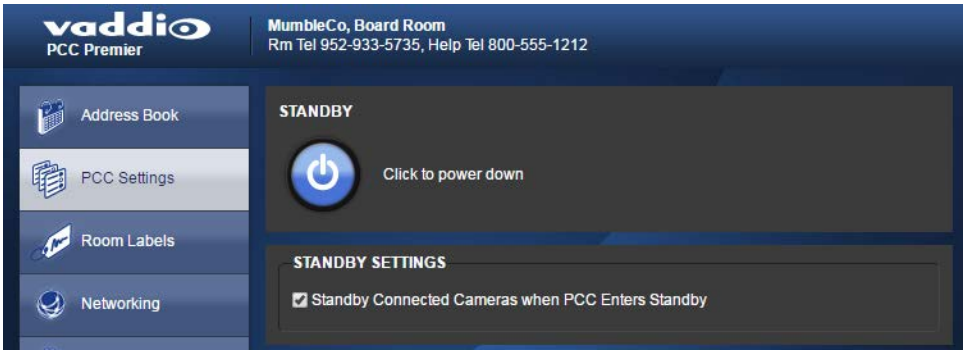
Tap Power to enter standby mode. You'll get a confirmation prompt.



When the camera controller is in standby, you can tap the touch-panel to return to normal operation.

From the web interface:

On the PCC Settings page, click Standby. The button and its label show the controller's current state, and what will happen when you click the button.



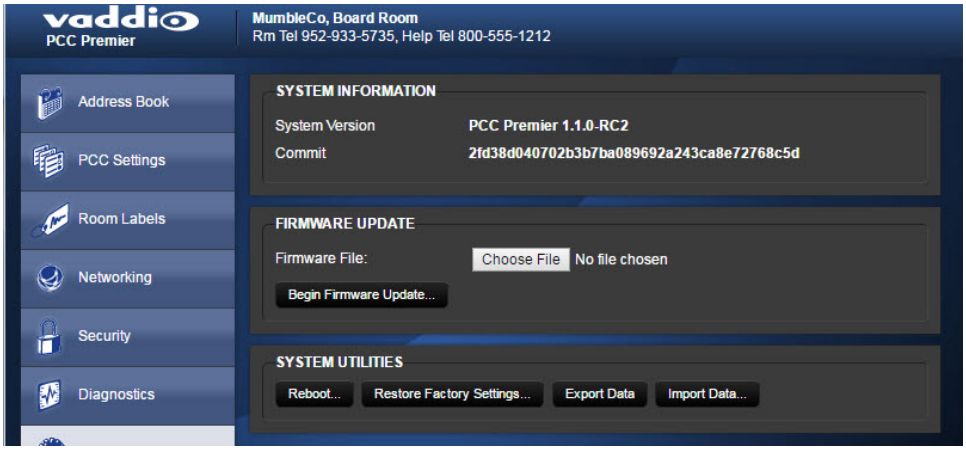
Rebooting the Camera Controller

Web interface, System page

This can help if the camera controller stops responding as you expect.

In the System Utilities section, click Reboot. Then confirm that you want to reboot. You will need to log in again after the reboot finishes.

If rebooting the camera controller doesn't fix the problem, you may need to reset to factory defaults. But before you take that step, back up the configuration.

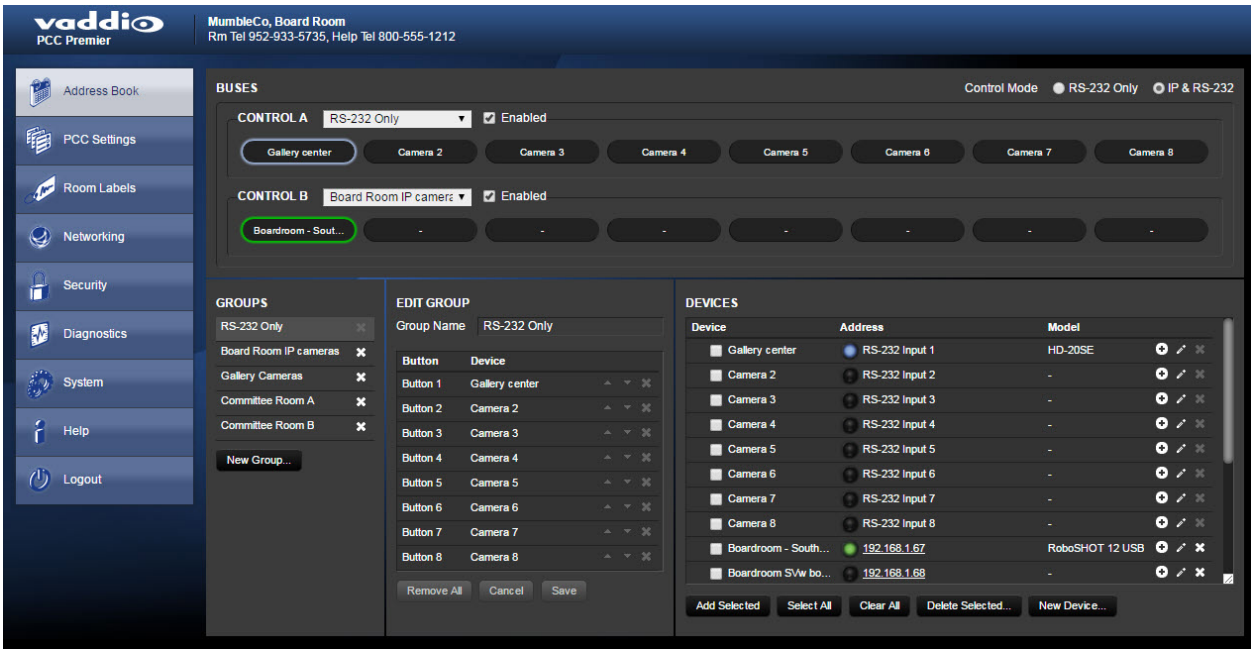


Device Administration

The web interface provides access to all administrative tasks.

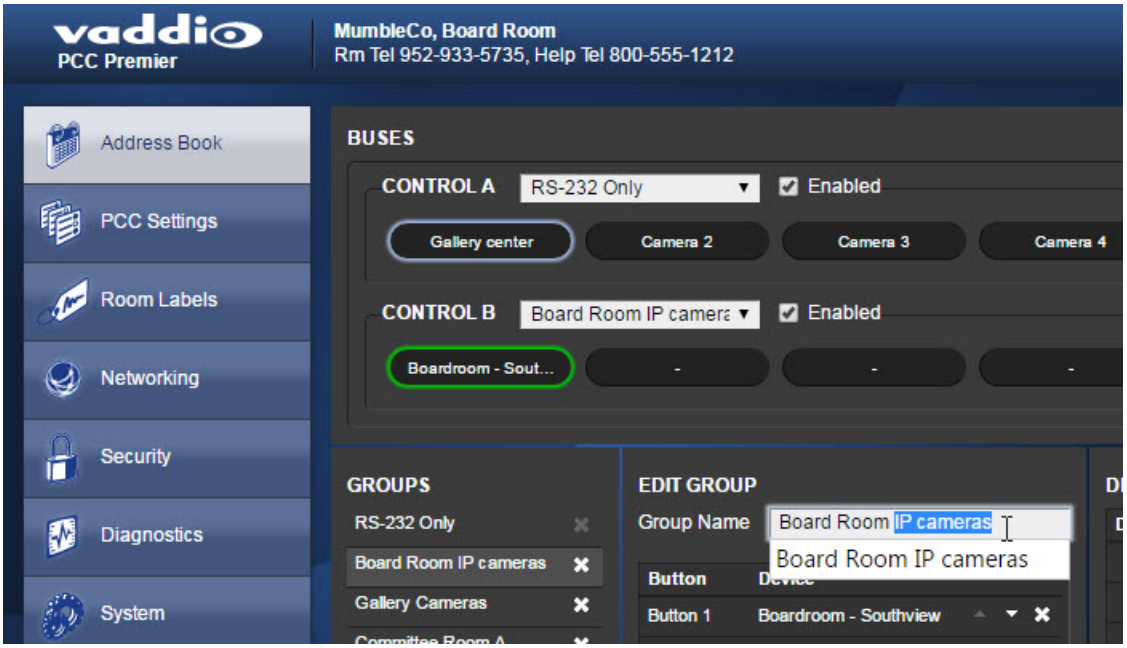
Renaming Cameras and Camera Groups

Web interface, Address Book page



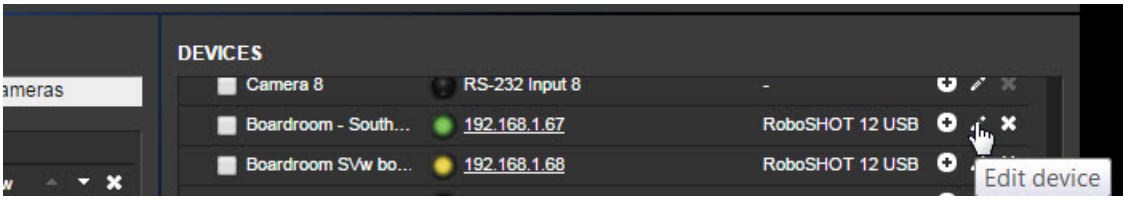
To rename a group:

1. Click the group name from the Groups list. The Edit Group pane displays the group name and details.
2. In the Group Name box, change the name.

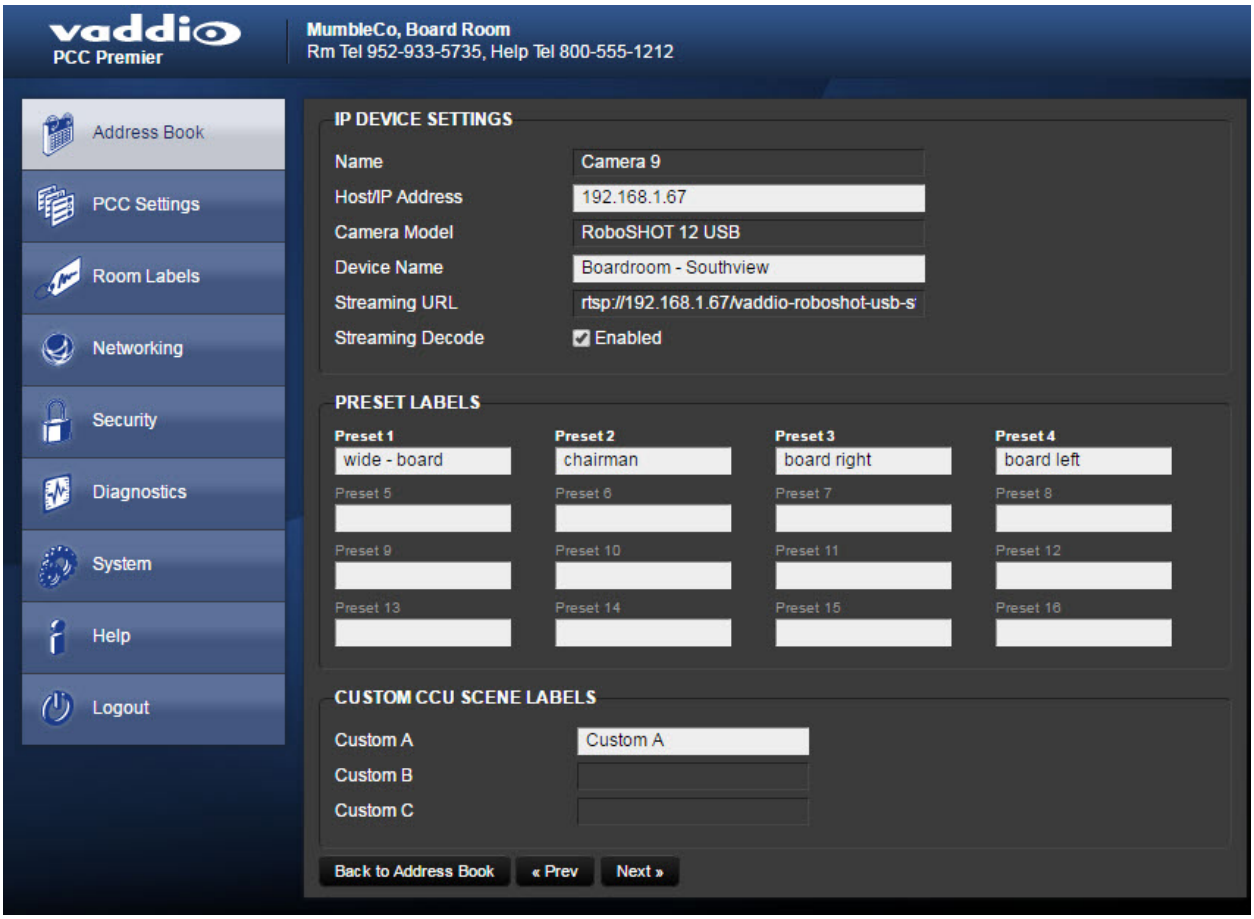


To rename a camera:

1. Locate the camera in the Devices list.
2. Click the pencil icon associated with that camera.



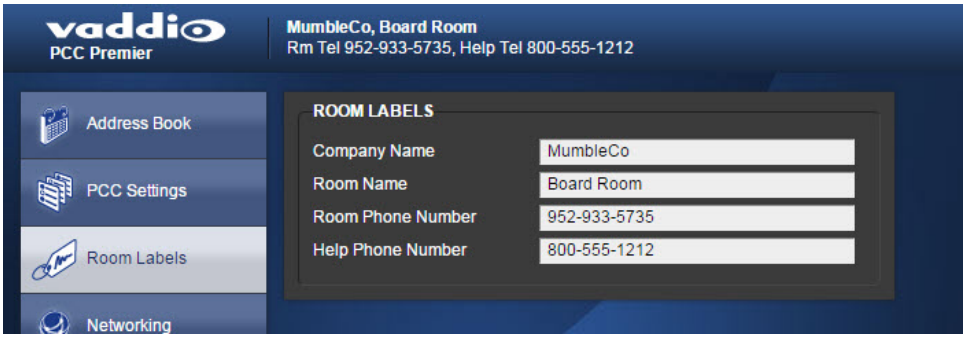
The Device Settings box opens, allowing you to edit the camera information.



Adding Room Information

Web interface, Room Labels page

Enter information about the location of the equipment and the local IT or A/V help line. This information will be displayed on all pages of the web interface.



Configuring the Camera Controller for Your Network

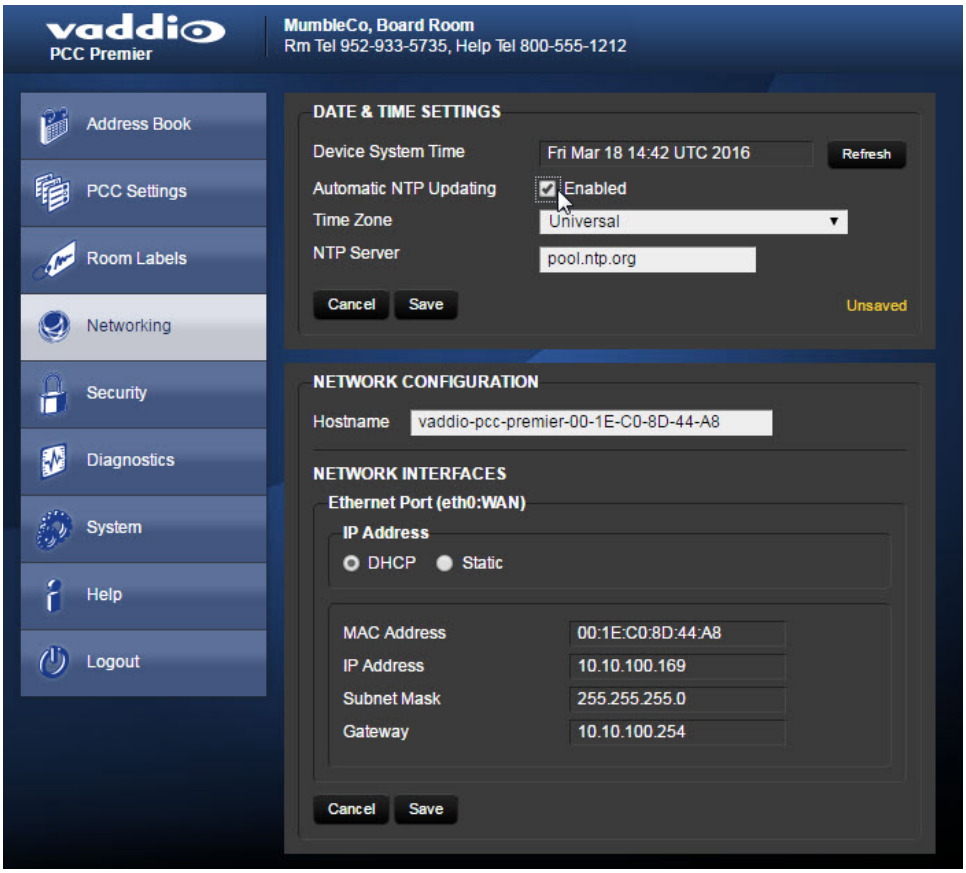
Web interface, Networking page

The camera controller uses DHCP addressing by default. If no DHCP server is available, the default IP address is 169.254.1.1.

Note

If you don't completely understand all the implications of the steps below, please contact your IT staff or Vaddio Technical Support for assistance.

1. Edit the device hostname if necessary. The hostname serves as the device URL, so you can use it instead of the device's IP address when you open a web interface session. The hostname is also used as the filename for exported configuration data, so it can help you identify the source of an exported data file.
2. If the camera controller needs to use static IP addressing, select Static.
3. For static IP addressing, enter the appropriate IP address, subnet mask, and gateway address.

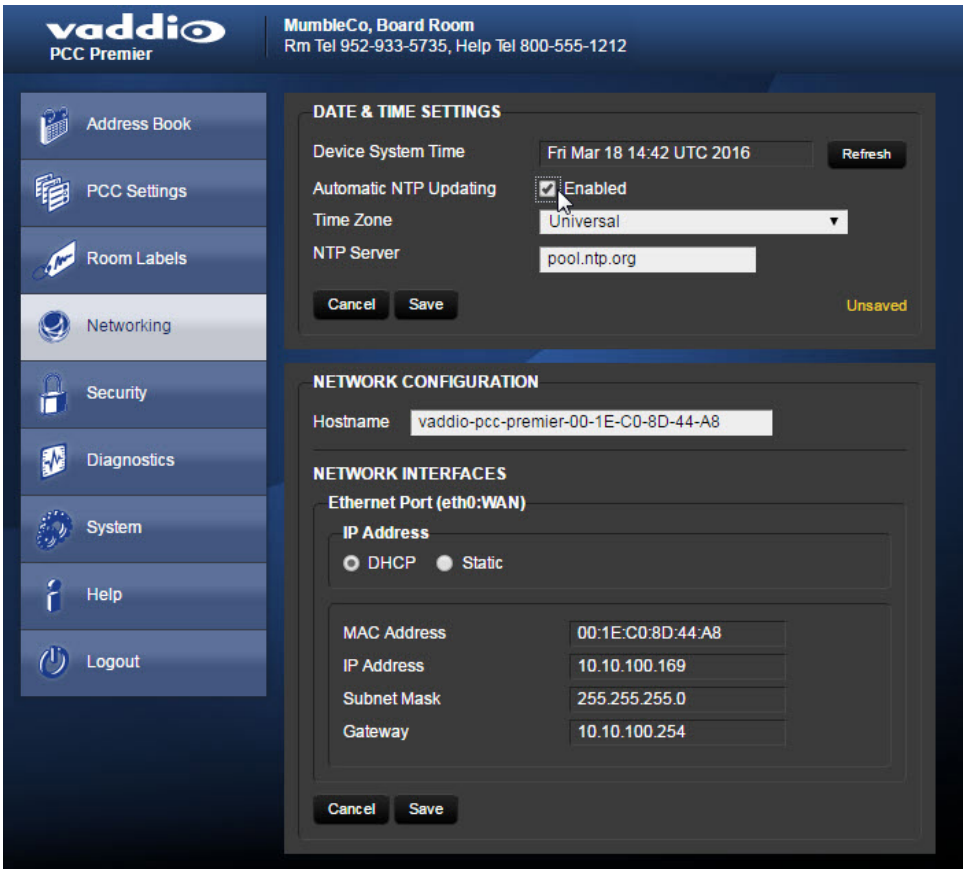


Setting Date and Time

Web interface, Networking page

1. To set the camera controller to get date and time from a time server:
2. Check the box to enable Automatic NTP Updating.
3. Select your time zone from the list.
4. Leave the default NTP server information, or change it to the server you want to use.

After you save changes, it may take a few seconds for the system time display to update. Click the Refresh button if you're impatient.

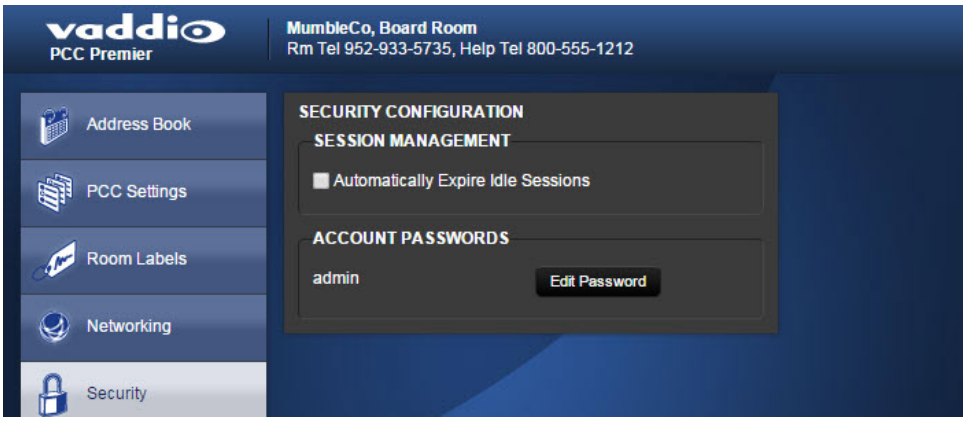


Changing the Admin Password

Web interface, Security page

The default password for the `admin` account is `password`.

1. To change this, click Edit Password.
2. In the Edit Password dialog, enter the new password in the two password boxes. A prompt appears while you type If you don't type it exactly the same way both times.

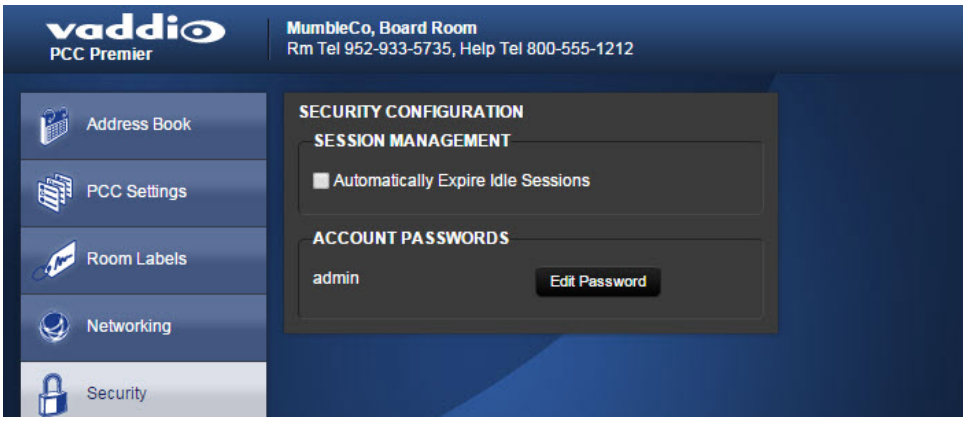


Managing Web Interface Sessions

Web interface, Security page

For security, users are logged out of the web interface after 30 minutes of inactivity.

To keep inactive sessions from expiring, clear the checkbox labeled Automatically Expire Idle Sessions. Once you are logged in, your session remains open until you log out or restart your computer.



Backing Up or Copying a Configuration: Exporting Data

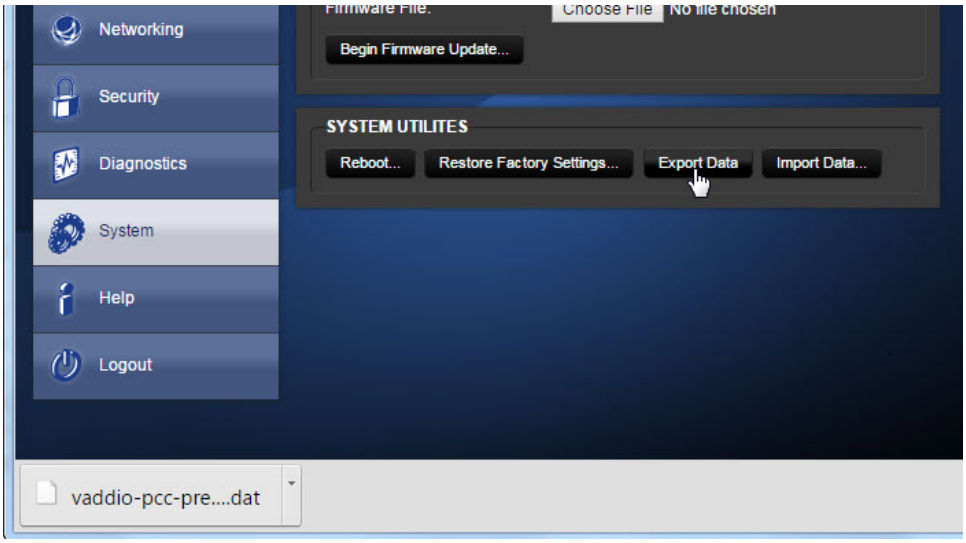
Web interface, System page

If your organization uses several PCC Premier camera controllers, you may choose to configure one of them, verify that the configuration is good, and then copy it to the camera controllers.

Note

Currently, the camera controller cannot import a .dat file that was exported from a different version of software than the controller is on. Example: You cannot currently import a 1.0.0 configuration to a 1.1.0 controller, or vice versa.

1. To save a copy of the camera controller's current configuration, click Export Data. The file downloads to your default file download location. The filename is the camera controller's hostname followed by the `.dat` file extension. If you only need to back up the configuration, you're done.
2. If you need to copy the configuration to other PCC Premier camera controllers, see Importing a Configuration.



Restoring Factory Defaults

Web interface, System page

Restoring factory settings will overwrite anything you have added or customized, such as IP cameras and address book groups. (If you export a known good configuration from this camera controller or another PCC Premier, you can import it again after restoring factory settings.)

To restore the original factory settings:

1. Click Restore Factory Settings. A confirmation message informs you that the action cannot be undone. This is your cue to make sure you have successfully exported the configuration.
2. When you click Continue, the camera controller reboots and the web interface presents a message that the device has been rebooted.

This operation logs you out and resets the admin password to its factory default value of `password`.

Importing Configuration Data

Web interface, System page

If you have already exported a known good configuration, you can import it back to the camera controller, or copy it to other PCC Premier camera controllers.

Note
Currently, the camera controller cannot import a .dat file that was exported from a different version of software than the controller is on. Example: You cannot currently import a 1.0.0 configuration to a 1.1.0 controller, or vice versa.

To restore an exported configuration:

1. Click Import.
2. In the Import box, click Choose File.
3. Browse to the `.dat` file for the PCC Premier and select it.
4. Click Begin Importing Data. The Import Data box displays progress messages, the touch-panel displays its reboot sequence, and you get a message that the device has been rebooted.

You will need to log in again after importing the data. You will need to use the admin password that was in use when the data was exported - it is part of the configuration data.

Updating the Firmware

Web interface, System page

From time to time, we issue new firmware to introduce new features and other product improvements, and to fix issues that turn up. We recommend keeping all your Vaddio products up to date, to get the most out of them.

Firmware updates do not change the camera controller's configuration. When you log in again after the update finishes, the password is unchanged.

Note
It is rare for an update to generate errors. If this happens, please read them carefully and record them. Screen shots of the error message may be very helpful in troubleshooting the problem. If the update does not finish successfully, contact Vaddio technical support immediately.

1. In a separate browser tab, go to support.vaddio.com and download the appropriate update file.
2. In the Firmware Update pane, click Choose File. Then browse to the update file and select it.
3. Click Begin Firmware Update.
4. READ the information in the Confirm dialog box and be sure you understand it.
5. When you are ready to start the update, click Continue. The web interface and the touch-panel both display messages showing that an update is in progress. The camera controller reboots as the last step in the update process.

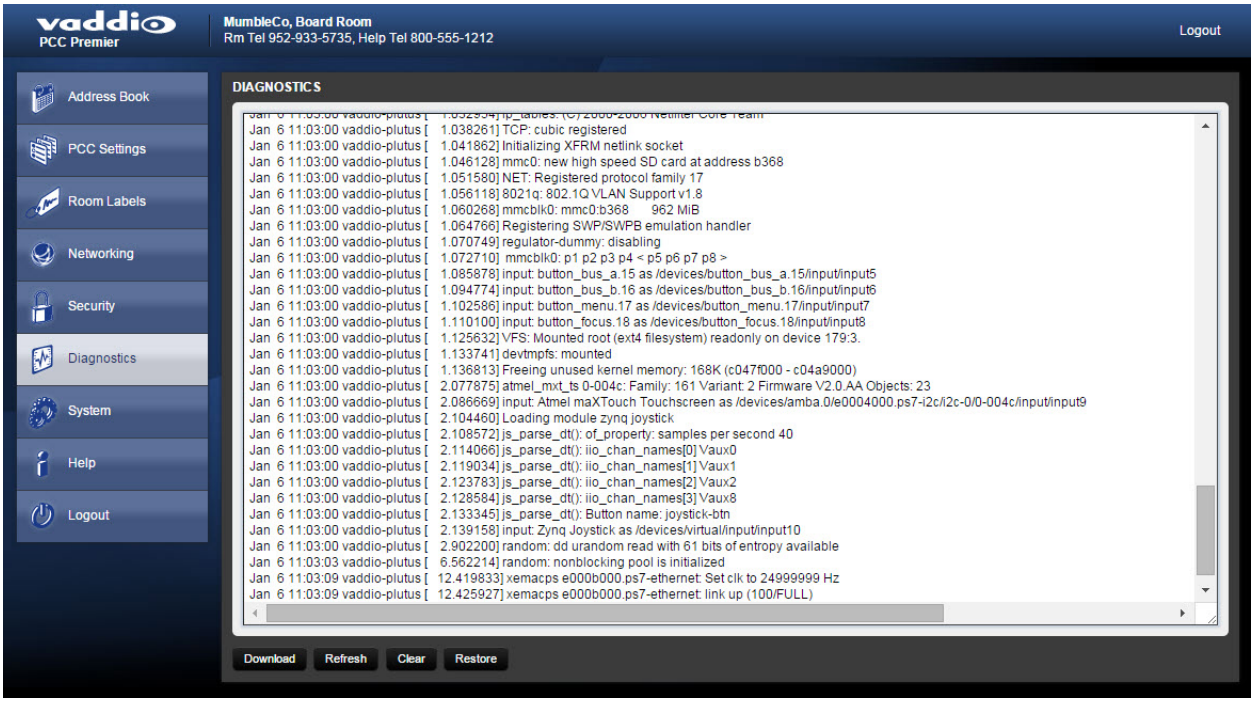
We recommend checking for firmware updates for your Vaddio cameras when you update the camera controller firmware.

Downloading the Diagnostic Log

Web interface, Diagnostics page

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

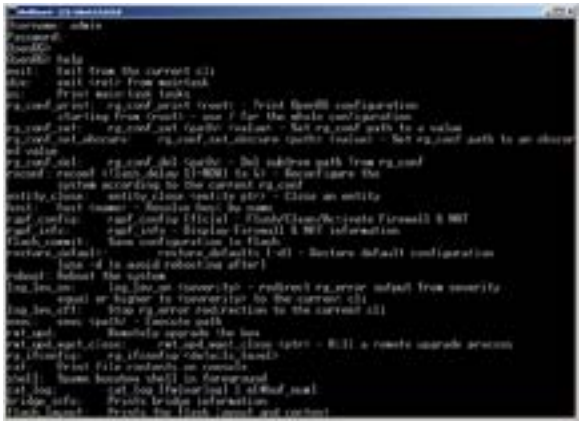
Click the download button. The name of the file will be the camera controller's hostname followed by `.tar.gz`.



Telnet Command API

The Vaddio serial command protocol is a high-level, text-based command line interface supported via Telnet session on the camera. The API is accessed by a telnet client on the Ethernet port; the default Telnet port is 23. Telnet sessions require the administrator account login.

The command application protocol interface allows an external device such as AMX or Crestron to control the PCC Premier and its cameras. The protocol is based upon ASCII format following the VT100 terminal emulation standard and uses an intuitive text command nomenclature for ease of use.



General format usage follows a get/set structure. Usage examples for each type are:

Set Example

COMMAND: > **`camera 3 pan right`**

RESPONSE: > `OK`

Get Example

COMMAND: > **`camera ccu get iris`**

RESPONSE: > `iris 11`

Syntax Error Example

COMMAND: > **`camera right pan`**

RESPONSE: > `ERROR`

Note

Using a question mark as a command parameter will bring up a list of available commands for the menu you are in. For example:

```
camera 1 focus ?
near    Focus the camera near
far     Focus the camera far
stop    Stop the camera focus
mode    Camera focus mode
```

Things to know about control via Telnet session:

- All ASCII characters will be echoed to terminal program and appended with VT100 string `-ESC[J` (hex 1B 5B 4A).
- Command lines are terminated with a carriage return. After the carriage return, the VT100 appends with `-ESC[J`.
- Most terminal programs automatically strip the VT100 string.
- `[CTRL] 5` Clears the current serial buffer on the device.

The PCC Premier supports the Telnet commands in the following sections.

camera focus

Changes the camera focus.

Synopsis	camera <1 - 16> focus {{ near [<speed>] | far [<speed>]} | {mode [auto | manual | get]} | stop }	
Required	<1 - 16>	Cameras 1 – 8 are on the Control A bus. Cameras 9 – 16 are on the Control B bus.
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 [1 - 8]	Optional: integer 1 - 8 specifies the speed for changing focus
	`stop`	Stops the camera's focus movement
	`mode [auto | manual | get]`	Specifies automatic or manual focus mode, or returns the current focus mode.
Examples 	**`camera 3 focus near`** Brings the focus of camera 3 near at the default speed	
	`camera 5 focus far 7` Moves the focus of camera 5 farther from the camera at a speed of 7	
	`camera 12 focus mode auto` Sets camera 12 in auto-focus mode	
	`camera 3 focus stop` Stops the focus motion of camera 3	
	`camera 2 focus mode get` returns the current focus mode for camera 2 in a form like this:	

camera home

Moves the specified camera to its home position.

Synopsis	camera <1 - 16> home	
Required	<1 - 16>	Cameras 1 – 8 are on the Control A bus. Cameras 9 – 16 are on the Control B bus.
Example	**`camera 3 home`** Moves camera 3 to its home position	

camera pan

Moves the specified camera horizontally

Synopsis	camera <1 - 16> pan { left [<speed>] | right [<speed>] | stop }	
Required	<1 - 16>	Cameras 1 – 8 are on the Control A bus. Cameras 9 – 16 are on the Control B bus.
Options	`left`	Moves the camera left
	`right`	Moves the camera right
	`stop`	Stops the camera's horizontal movement
	speed [1 - 24]	Optional - integer 1 - 24 specifies the speed for right or left movement Default speed is 12
Examples	**`camera 3 pan left`** Pans camera 3 left at the default speed	
	`camera 3 pan right 20` Pans camera 3 right using a speed of 20	
	`camera 3 pan stop` Stops camera 3's horizontal motion	

camera tilt

Moves the specified camera vertically.

Synopsis	camera <1 - 16> tilt{ up [<speed>] | down [<speed>] | stop }	
Required	<1 - 16>	Cameras 1 – 8 are on the Control A bus. Cameras 9 – 16 are on the Control B bus.
Options	`up`	Moves the camera up
	`down`	Moves the camera down
	`stop`	Stops the camera's vertical movement
	speed [1 - 20]	Optional - integer 1 - 20 specifies the speed for up or down movement Default speed is 10
Examples	**`camera 3 tilt up`** Tilts camera 3 up at the default speed	
	`camera 5 tilt down 20` Tilts camera 5 down using a speed of 20	
	`camera 5 tilt stop` Stops camera 5's vertical motion	

camera zoom

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

Synopsis	camera <1 - 16> zoom { in [<speed>] | out [<speed>] | stop }	
Required	<1 - 16>	Cameras 1 – 8 are on the Control A bus. Cameras 9 – 16 are on the Control B bus.
Options	`in`	Moves the camera in
	`out`	Moves the camera out
	`stop`	Stops the camera's zoom movement
	speed [1 - 7]	Optional - integer 1 - 7 specifies the speed for zoom movement Default speed is 3
Examples	**`camera 3 zoom in`** Zooms camera 3 in at the default speed	
	`camera 5 zoom out 7` Zooms camera 5 out using a speed of 7	
	`camera 5 zoom stop` Stops camera 5's zoom motion	

video mute pattern

Sets the pattern output that will be used for the HDMI output when the selected camera does not support streaming or when no camera is selected.

Synopsis	video mute pattern { get | set { color_bars | black_screen }}	
Required	`get`	Returns the name of the video mute pattern currently set.
	`set [ color_bars | black_screen ]`	Sets the video mute pattern - either color bars or a black screen.

Example	**`video mute pattern set color_bars`**
	Sets the HDMI output to a color bars pattern when no video stream is available.
	`video mute pattern get`
	`pattern color_bars`
	`OK`
	`>`
	Returns the name of the video mute pattern that is currently set (`color_bars` or `black_screen`).	

network ping

Sends an ICMP ECHO_REQUEST to the specified IP address.

Synopsis	network ping [count <count>] [size <size>] <destination-ip>	
Options	`count`	The number of ECHO_REQUEST packets to send. If this is not specified, the default is five packets.
	`size`	The size of each ECHO_REQUEST packet. If this is not specified, the default is 56 bytes.
	<destination-ip>	The IP address where the ECHO_REQUEST packets will be sent.
Examples	**`network ping 192.168.1.1`** Sends five ECHO_REQUEST packets of 56 bytes each to the host at 192.168.1.1.	
	`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.	

network settings get

Returns the device's current network settings, including MAC addres, IP address, netmask, and gateway.

Synopsis	network settings get

Example	**`network settings get`**
	`MAC Address: 00:04:a3:85:0a:ee`
	`IP Address: 10.10.8.116`
	`Netmask: 255.255.255.0`
	`VLAN: Disabled`
	`Gateway: 10.10.8.100`

streaming info dump

Displays IP streaming information for all streaming-capable cameras in the currently selected address book groups.

Synopsis	streaming info dump	
Settings returned	IP address of the camera	
	full_url	The URL of the camera's IP stream.
	resolution	The camera's IP streaming video resolution.
	protocol	The camera's streaming protocol. Only RTSP is supported at this time.
	url	The path for the camera's IP stream.
	supported	Returns `true` if it is a supported camera, `false` if it is not.
	port	The port number that the camera's IP stream uses. Port 554 is typical.
	dev_enabled	Returns `true` if streaming is enabled on this camera, `false` if it is not.
	frame_rate	The camera's IP streaming frame rate.
	active	Returns `true` if the camera is currently selected, `false` if it is not.
	vid_input_ids	The button(s) to which the camera is mapped. Buttons 0 through 7 are on the Control A bus; buttons 8 through 15 are on the Control B bus.

Example	**`streaming info dump`**
	Returns the current streaming settings in a form something like this:
	`"192.168.1.67":`
	`"full_url": "rtsp://192.168.1.67/vaddio-roboshot-usb-stream",`
	`"resolution": "1080p",`
	`"protocol": "RTSP",`
	`"url": "vaddio-roboshot-usb-stream",`
	`"supported": true,`
	`"port": 554,`
	`"dev_enabled": true,`
	`"frame_rate": 30,`
	`"active": true,`
	`"vid_input_ids": 0`
	`OK`	

system standby

Gets, sets, or toggles the camera controller's current standby status.

Cameras currently mapped to the camera select buttons also go to standby when you set `system standby on`.

Synopsis	system standby { get | on | off | toggle }	
Options	`get`	Returns the camera controller's current standby status.
	`on`	Sets the camera controller to standby mode.
	`off`	Brings the camera controller out of standby mode.
	`toggle`	Changes the camera controller's standby status.
Examples	**`system standby get`** Returns the factory reset status in this form: `standby:  off` (the camera controller is not in standby mode.)	
	`system standby on` Immediately sets the camera controller to standby mode.	

system reboot

Reboots the camera controller either immediately or after the specified delay. This also reboots the cameras currently mapped to the camera select buttons.

Synopsis	system reboot [<seconds>]	
Options	<seconds>	The number of seconds to delay the reboot
Examples	**`system reboot`** Reboots the system immediately.	
	`system reboot 30` Reboots the system in 30 seconds.	

system factory-reset

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

Synopsis	system factory-reset{ get | on | off}	
Options	`get`	Returns the camera's current factory reset status.
	`on`	Enables factory reset on reboot.
	`off`	Disables factory reset on reboot.

Examples	**`system factory-reset get`**
	Returns the factory reset status in this form:
	`factory-reset (software):  off`
	`factory-reset (hardware):  off`
	The first line returned evaluates the most recent `system factory-reset` on or off command, if one has been received. The second line evaluates whether hardware settings will result in a factory reset on reboot.	

	`system factory-reset on`
	Enables factory reset upon reboot. Returns current status in this form:
	`factory-reset (software):  on`
	`factory-reset (hardware):  off`	

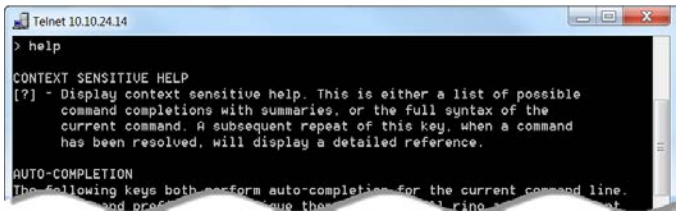
sleep

Pauses for the specified number of milliseconds.

Synopsis	sleep <milliseconds>	
Options	<milliseconds>	The number of milliseconds (1 - 10000) to pause
Example	**`sleep 7000`** Pause for 7 seconds (7000 milliseconds) before returning.	

help

Displays an overview of the CLI syntax.

Synopsis	help
Example	**`help`** 

Note:
Use ? as a command parameter to see information about a given command's syntax.

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	**history** Displays the current command buffer.	
	history 5 Sets the history command buffer to remember the last 5 unique entries.	
Additional information 	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. Examples of history expansion: *** !!** Substitute the last command line. *** !4** Substitute the 4th command line (absolute as per 'history' command) *** !-3** Substitute the command line entered 3 lines before (relative)	

version

Returns the current firmware version.

Synopsis	version

Example	**version**
	Returns current firmware version information in a form something like this:
	`Commit: d033ddb2378357a871011eb820706dcaa64ec0e2`
	`System Version: PCC Premier 1.0.0`

exit

Ends the command session and then closes the Telnet socket.

Synopsis	exit
Example	**exit**

Specifications

Camera Management and Video Output

Control via RS-232	Up to 8 cameras 1 address book group	**Control via IP network**	Up to 80 cameras 10 address book groups
Image Control Parameters	■ Iris, Iris Gain ■ Backlight compensation ■ Red Gain, Blue Gain ■ Detail, Chroma, Gamma ■ Auto White Balance/One-Push White Balance (depends on camera's capabilities)	**HDMI Output** **IP streaming decoder**: H.264 **Protocol** : RTSP **Supported HDMI display resolutions**: 1080p/60, 1080p/50, 720p/60, 720p/50	

Hardware

System I/O	■ 8 RS-232 camera control ports on RJ-45 connectors ■ Gigabit Ethernet port with PoE+ support ■ HDMI output
Control console	■ 7" capacitive touch panel display – Camera presets and administrative menu ■ Illuminated rotary knobs – Focus (control, auto/manual) and Menu (display panel navigation) ■ Rotary knobs – Pan, tilt, and zoom speed ■ Illuminated pushbuttons – Group A and Group B camera selection ■ 3-axis Hall effect joystick, single-button – Pan, tilt, and zoom

Power, Physical and Environmental

Power Requirements	PoE+ (Power over Ethernet)	**Power Consumption**	< 25W
Height	5.125 in. (12.6 cm)	**Operating temperature**	0° to +40°C (32° to 104°F)
Width	17 in. (43.2 cm)	**Operating humidity**	20% to 80% RH
Depth	11 in. (27.9 cm)	**Storage temperature**	-5° to +60° C (23° to 140°F)
Weight	7.0 lb (3.18 kg)	**Storage humidity**	20% to 80% RH

Specifications are subject to change without notice.

Troubleshooting and Care

Check the Indicator Lights Cheat Sheet first. If there is an issue, use this table to determine whether to call Vaddio Technical Support.

What is it doing?	Possible causes	Check and correct
Nothing. The display is off and the buttons do not light up.	Power is not connected.	Connect the mid-span power injector's power cord.
	The network/PoE+ cable between the controller and the mid-span power injector is bad.	Check using known good cables.
	The wall outlet is not active. (Check by finding out if it powers something else, such as a laptop or phone charger.)	Use a different outlet.
	The camera controller or its mid-span power injector is bad.	Contact your reseller or Vaddio Technical Support.
No communication with any IP-connected cameras (buttons for all IP cameras blink blue)	The camera controller is not connected to the network.	Can you access the cameras' web interfaces with your browser? If so, check the connection from the power injector to the rest of the network. Ensure that the cable is connected to an active network port.
	The cable on the network side of the power injector is bad.	Try a different cable. Contact your network administrator if the problem persists.
No communication with a specific IP-connected camera (button blinks blue)	The camera is not available.	Wait a few minutes. This happens during camera firmware updates. Check whether the camera's power is connected.
	The camera is not at that IP address.	Ask someone in the room with the camera to press the Data Screen button on the camera's remote, and read the IP address off the display screen. Then update the camera's IP address in the address book.
	The camera requires a firmware update to communicate with the camera controller.	If the camera has not been updated to version 2.0.0 or later, download and install the latest firmware for the camera.
The display connected to the camera controller's HDMI output shows a pattern of color bars	No camera is selected. No video stream is available from the selected camera - this may mean:	This is normal.

What is it doing?	Possible causes	Check and correct
	■ The camera is connected via RS-232 ■ The camera does not have IP streaming capability ■ IP streaming is not enabled on the camera	
The display connected to the camera controller's HDMI output shows a black screen.	The display is powered off.	Power on the display.
	The camera controller's video mute pattern is set to "black screen" and no video stream is available from the selected camera (always true for RS-232 connected cameras), or no camera is selected.	This is normal.
The display connected to the camera controller's HDMI output shows a blue screen.	The selected IP-connected camera's video is muted, and the camera is streaming a blue screen as its video mute pattern.	Unmute the camera's video.
The display connected to the camera controller's HDMI output shows random colored lines.	The color space or resolution is set to a value that the display does not support.	Change the resolution or color space for the video output port (web interface, PCC Settings page).

Operation, Storage, and Care

For smears or smudges on the product, wipe with a clean, soft cloth. 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 40°C (104°F) or below 0°C (32°F)
- High humidity, condensing or wet environments
- Inclement weather
- Severe vibration
- Dry environments with an excess of static discharge

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

Compliance Statements and Declarations of Conformity

Compliance testing was performed to the following regulations:

FCC Part 15 (15.107, 15.109), Subpart B	Class A
ICES-003, Issue 54: 2012	Class A
EMC Directive 2004/108/EC	Class A
EN 55022: December 2010	Class A
EN 55024: November 2010	Class A
KN22 2008 (CISPR 22: 2006)	Class A
KN24 2008 (CISPR 24: 1997 + A1: 2000 + A2: 2002)	Class A
IEC 60950-1:2005 (2nd Edition); Am 1: 2009 + Am 2: 2013	Safety
EN 60950-1: 2006 + A11: 2009 + A1: 2010 + A12: 2011 + A2: 2013	Safety

FCC Part 15 Compliance

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15, Subpart B, of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

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

Changes or modifications not expressly approved by Vaddio can affect emission compliance and could void the user's authority to operate this equipment.

ICES-003 Compliance

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'emet pas de bruits radioélectriques dépassant les limites applicables aux appareils numeriques de la classe A préscrites dans le Règlement sur le brouillage radioélectrique édicte par le ministère des Communications du Canada.

European Compliance

This product has been evaluated for Electromagnetic Compatibility under the EMC Directive for Emissions and Immunity and meets the requirements for a Class A digital device. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Standard(s) To Which Conformity Is Declared:

CE

EMC Directive 2004/108/EC	
EN 55022: December 2010	Conducted and Radiated Emissions
EN 55024: November 2010	Immunity
EN 61000-4-2: 1995 + Amendments A1: 1998 + A2: 2001	Electrostatic Discharge
EN 61000-4-3: 2006 + A1: 2008	Radiated Immunity
EN 61000-4-4: 2004 + Corrigendum 2006	Electrical Fast Transients
EN 61000-4-5: 2006	Surge Immunity
EN 61000-4-6: 2009	Conducted Immunity
EN 61000-4-8: 2010	Power Frequency Magnetic Field
EN 61000-4-11: 2004	Voltage Dips, Interrupts and Fluctuations
KN22 2008 (CISPR 22: 2006)	Conducted and Radiated Emissions
KN24 2008 (CISPR 24: 1997 + A1: 2000 + A2: 2002)	IT Immunity Characteristics
EN 61000-4-2	Electrostatic Discharge
EN 61000-4-3	Radiated Immunity
EN 61000-4-4	Electrical Fast Transients
EN 61000-4-5	Surge Immunity
EN 61000-4-6	Conducted Immunity
EN 61000-4-8	Power Frequency Magnetic Field
EN 61000-4-11	Voltage Dips, Interrupts and Fluctuations
IEC 60950-1: 2005 (2nd Edition); Am 1: 2009 + Am 2: 2013	Safety
EN 60950-1: 2006 + A11: 2009 + A1: 2010 + A12: 2011 + A2: 2013	Safety

Warranty Information

See Vaddio Warranty, Service and Return Policies posted on support.vaddio.com for complete details.

Hardware* warranty: Two (2) year limited warranty on all parts and labor for Vaddio manufactured products. Vaddio warrants its manufactured products against defects in materials and workmanship for a period of two years from the day of purchase, to the original purchaser, if Vaddio receives notice of such defects during the warranty. Vaddio, at its option, will repair or replace products that prove to be defective. Vaddio manufactures its hardware products from parts and components that are new or equivalent to new in accordance with industry standard practices.

Exclusions: The above warranty shall not apply to defects resulting from improper or inadequate maintenance by the customer, customers applied software or interfacing, unauthorized modifications or misuse, mishandling, operation outside the normal environmental specifications for the product, use of the incorrect power supply, modified power supply or improper site operation and maintenance. OEM and special order products manufactured by other companies are excluded and are covered by the manufacturer's warranty.

Vaddio Service Department: Vaddio will test, repair, or replace the product or products without charge if the unit is under warranty. If the product is out of warranty, Vaddio will test then repair the product or products. The cost of parts and labor charge will be estimated by a technician and confirmed by the customer prior to repair. All components must be returned for testing as a complete unit. Vaddio will not accept responsibility for shipment after it has left the premises.

Vaddio Technical Support: Vaddio technicians will determine and discuss with the customer the criteria for repair costs and/or replacement. Vaddio Technical Support can be contacted by email at support@vaddio.com or by phone at one of the phone numbers listed on support.vaddio.com.

Return Material Authorization (RMA) number: Before returning a product for repair or replacement request an RMA from Vaddio's technical support. Provide the technician with a return phone number, e-mail address, shipping address, product serial numbers and original purchase order number. Describe the reason for repairs or returns as well as the date of purchase. See the General RMA Terms and Procedures section for more information. RMAs are valid for 30 days and will be issued to Vaddio dealers only. End users must return products through Vaddio dealers. Include the assigned RMA number in all correspondence with Vaddio. Write the assigned RMA number clearly on the shipping label of the box when returning the product. All products returned for credit are subject to a restocking charge. Special order product are non-cancelable and not returnable.

Voided varranty: The warranty does not apply if the original serial number has been removed or if the product has been disassembled or damaged through misuse, accident, modifications, use of incorrect power supply, use of a modified power supply or unauthorized repair.

Shipping and handling: Vaddio will not pay for inbound shipping transportation or insurance charges or accept any responsibility for laws and ordinances from inbound transit. Vaddio will pay for outbound shipping, transportation, and insurance charges for all items under warranty but will not assume responsibility for loss and/or damage by the outbound freight carrier. If the return shipment appears damaged, retain the original boxes and packing material for inspection by the carrier. Contact your carrier immediately.

Products not under warranty: Payment arrangements are required before outbound shipment for all out of warranty products.

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