



Integrator's Complete Guide to the

AV Bridge MatrixMIX

Multipurpose AV Switcher

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Overview

This guide provides information about the AV Bridge MatrixMIX multipurpose AV switcher:

- 999-5660-000 – North America
- 999-5660-001 – Europe and UK
- 999-5660-009 – Australia and New Zealand



About this Guide

This guide covers:

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

For your convenience, this information is also available in smaller, limited-purpose manuals:

- **Installation Guide for the AV Bridge MatrixMIX Multipurpose AV Switcher** – unpacking, physical features, switch settings, installation, and initial power-up
- **Configuration and Administration Guide for the AV Bridge MatrixMIX Multipurpose AV Switcher** – physical features, configuration, system administration, operation, and troubleshooting

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

Features

Operator-friendly:

- IP connectivity to controllers for virtualized control across the network
- Intuitive, visually consistent interfaces – web interface or connected TeleTouch Multiviewer
- Basic configuration tasks available from the front panel
- Separate outputs for program, preview, and multiview

Versatile connectivity:

- RS-232 ports for 6 cameras
- HDMI inputs with embedded audio support - video from 6 cameras and 2 additional video sources
- Audio: 2 microphone/line inputs and 2 line outputs
- USB 3.0 port for uncompressed AV streaming, USB 2.0 ports for control (touch-panel or pointing device)
- Network connection for IP H.264 streaming and virtualized control from anywhere

Professional results:

- PIP functions; graphics functions including keys, digital on-screen graphics, and banners
- Automatic echo cancellation and speech lift for crystal-clear audio
- Simultaneous USB and IP streaming outputs

Product Compatibility

The AV Bridge MatrixMIX is compatible with the following products.

Control Devices

- PCC MatrixMIX live production controller
- PCC Premier precision camera controller
- TeleTouch 27 USB touch-screen multiview display

Vaddio Cameras

May require an update to the camera's firmware.

* Includes cameras marked ClearSHOT 10 USB.

Product	RS-232	IP
RoboSHOT Series (may use Quick-Connect or OneLINK device)	Yes	Yes**
ConferenceSHOT Series*	Yes	Yes
ClearVIEW HD 20SE	Yes	No
PowerVIEW HD 22/30	Yes	No
ZoomSHOT 20	Yes	No
WideSHOT	Yes	No

** If the camera is connected via a Quick-Connect or OneLINK device, IP control uses the camera's IP address, not the address of its extension device.

Non-Vaddio Cameras

Product	RS-232	IP
Sony BRC Z330, Z700, H700, H900	Yes	No
Sony EVI-H100S	Yes	No
Sony SRG 120, SRG 300	Yes	No
Panasonic AW-HE 40, AW-HE 130	Yes	No

Unpacking the Switcher

Make sure you received all the items you expected. Here are the packing lists for the AV Bridge MatrixMIX multipurpose AV switcher.

North America: AV Bridge MatrixMIX, part number 999-5660-000

- AV Bridge MatrixMIX, part number 998-5660-000
- Power supply with US cord set
- Quick Start Guide, part number 411-0006-00

International: AV Bridge MatrixMIX, part number 999-5660-001

- AV Bridge MatrixMIX, part number 998-5660-000
- Power supply with Euro and UK cord sets
- Quick Start Guide, part number 411-0006-00

Australia: AV Bridge MatrixMIX, part number 999-5660-009

- AV Bridge MatrixMIX, part number 998-5660-000
- Power supply with Australia/New Zealand cord set
- Quick Start Guide, part number 411-0006-00



A Quick Look at the Switcher



- 8-line illuminated display – View basic operation and configuration menu and system information
- Menu knob – Navigate the operation/configuration menu
- Select and Cancel buttons – Work with the operation/configuration menu
- Program and Preview buttons 1 through 8 – Select the program and preview sources
- Take button – Transition from the program source to the preview source, or vice-versa
- USB 2.0 ports, front and back: Control (TeleTouch 27 USB or pointing device)

Status lights

The Program and Preview buttons illuminate to indicate status:

- Red – Program video source (tally, "on-air")
- Green – Preview video source (next input to take)
- Blue – The video source is connected and in communication with the switcher
- Blinking blue – The video source cannot be detected by the chosen configuration of that camera control
- Not illuminated – No video source is connected

Connector Panel



Connections, left to right, by row:

- External Control: RS-232 port for external control device; trigger inputs for up to 10 presenter-controlled devices
- RS-232 Ports (Camera 1 - Camera 6): Camera control connections
- Audio I/O: Connections for 2 microphones (or other line inputs) and 2 line outputs
- 12 VDC 5.0 Amp: Power connection
- Network: Control, IP streaming, graphics
- USB 3.0: Uncompressed audio and video stream
- USB 2.0 ports, front and back: Control (TeleTouch 27 USB or pointing device)
- HDMI Inputs: Video from connected cameras and other video sources; HDCP support
- HDMI Outputs: Program, preview, and multiview; audio on program and preview

Installation

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

Note

This product is intended for installation and use only in environments where all RS-232 and PoE+ connections originate within the building.

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.

Cabling Notes

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.

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

Note

Use standard RJ-45 connectors and a good crimping tool. Do not use pass-through RJ-45 connectors. Poorly crimped connectors can damage the connectors on the product, cause intermittent connections, and degrade signal quality. Test cable pin-outs and continuity before connecting them.



Intact – Contact fingers will make reliable contact with the cable connector



Damaged – Some contact fingers are bent and will NOT make reliable contact with the cable connector

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

To prevent tragic mishaps, label both ends of every cable.

Basic Connections

The diagram below shows a basic live production setup.



Ensuring Compatibility

The camera controller may be unable to communicate with Vaddio cameras if their firmware is out of date. When you set up the camera controller, be sure the associated Vaddio cameras have been updated to a firmware version that supports the controller.

Powering Up

1. Power up all the cameras to be used.
2. Connect the power supply.
3. Power up the camera controller, if your setup includes one.

Web Interface

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

- Set idle session behavior and passwords
- Manage network and streaming settings
- Add identifying information to the web interface
- Back up, reboot, reset, or update the switcher
- View information about the switcher

When connected to a LAN that has a DHCP server, the multipurpose AV switcher will get its IP address, gateway and routing information automatically and you will be able to browse to it. In the absence of a DHCP server, the switcher's default IP address is 169.254.1.1 and its subnet mask is 255.255.0.0.

You can configure a static IP address either through the network or from a computer connected directly to the Ethernet port. You may need a crossover cable.

To see the current IP address, dial to the Network menu on the front panel and press the Select button.

Compatible Web Browsers

Supported web browsers:

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

Other browsers may also work.

We recommend Chrome or Firefox.

User Access

You can access the web interface using the device's IP address. If your network supports hostname resolution, you can use the hostname instead.

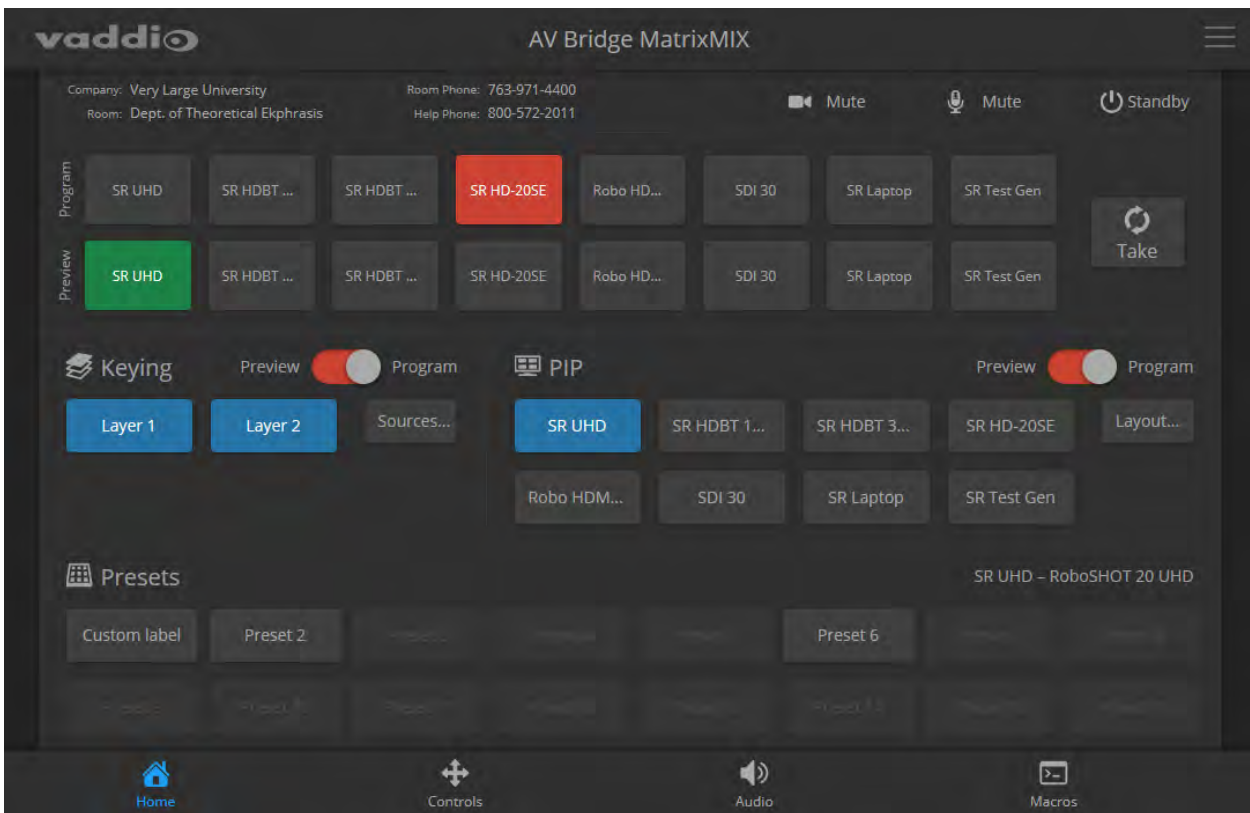
Note

Only the operator's pages are available with guest or user access.

1. The IP address is available on the front panel display. If it is not currently visible, dial to the Network menu on the front panel and press Select.
2. Enter the 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.

If the system is configured for guest access, you will not need to log in.

If a login is required, the username is `user`. Contact the system administrator if you do not know the current password.



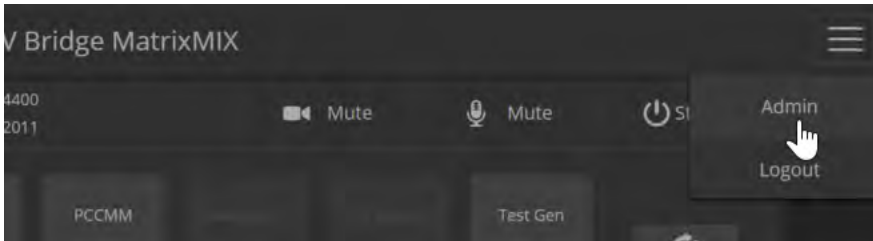
Admin Access

If you are on the operator screen and no other screens are available, you're logged in at the user level, or guest access is enabled and you're not logged in at all. The menu access button provides access to the admin login button. The admin has access to all pages of the web interface.

For administrative access, log in as **admin**. The default password is **password**.

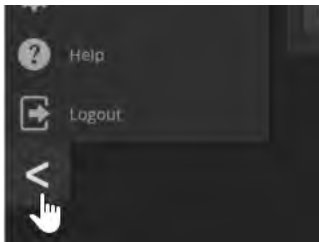
Note

For best security, Vaddio strongly recommends changing the default password(s). Using default passwords leaves the product vulnerable to tampering. See [Managing Access and Passwords](#).



The admin account has access to:

- **Video control pages** – Configure video inputs, outputs, and switching
- **Graphics Library page** – Manage uploaded images for use with graphics functions
- **Audio pages**– Configure audio inputs and outputs
- **Control Devices page** – Create macros and associate them with triggers
- **Streaming page**– Configure USB and IP streaming
- **User Interface page** – Configure standby behavior, audio inputs available from the Operator page, and enable/disable front panel controls
- **Room Labels page** – Display room information on the web interface screens, including the conference room name and phone number and the in-house number for AV assistance
- **Networking page**– Configure date and time settings, hostname, and IP addressing
- **Security page**– Set passwords and manage guest access
- **Diagnostics page**– View or download logs when troubleshooting issues
- **System page**– Reboot, restore factory defaults, run firmware updates, and view firmware version
- **Help page**– Tech support contact information and a link to the product information library on the Vaddio website
- **Logout button**– A graceful way to leave the web interface in a password-protected state



Compact Menu View

By default, the navigation buttons display an icon and a text label. The web interface provides a compact view of the menu buttons along with the default view. The button at the bottom of the menu toggles between the two views.

Web Interface Cheat Sheet

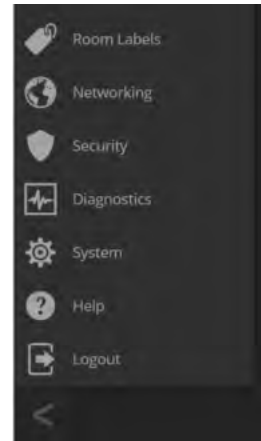
Where to find the controls you need right now.

What do you need?	Go to this page
Audio mute/unmute	Available from any page
All audio functions	Audio
Audio channels available from the operator's interface	User Interface
Video mute/unmute	Available from any page
Camera controls for the currently selected preview source	Video Switching or Video Inputs, when the camera is selected
Video input settings – color space, video mute pattern, source pairing	Video Inputs
Video output resolution, color space, video mute pattern	Video Outputs
Video transition effects, keying, PIP	Video Outputs
Graphics files, placement, and masking	Graphics Library
Video transition style and speed (global)	Video Switching
IP streaming and USB streaming settings	Streaming
Switching mode, keying layer sources, PIP sources and layout	Video Switching
How downstream cameras behave on standby	User Interface
Passwords for admin and user accounts	Security
Disable front panel controls	User Interface
Enable/disable session timeout	Security
Hostname and network settings	Networking
Time and date settings	Networking
Macros and triggers	Control Devices
Reboot or factory reset	System
Backup and restore operations	System
Firmware update and current version	System
Helpdesk phone number for end users	Room Labels
Contact information for Vaddio helpdesk	Help
Diagnostic log	Diagnostics
Information about the camera controller's location	Room Labels
Standby	Available from any page
Logout	Available from any page

System Administration Tasks

System administration for the AV Bridge MatrixMIXmultipurpose AV switcher include:

- Adding information about the equipment's location and relevant phone numbers on the Room Labels page
- Enabling NTP updating to maintain the system time and date and specify the time zone on the Networking page
- Configuring hostname and network settings on the Networking page
- Setting passwords and enabling or disabling idle session timeout on the Security page
- Viewing and downloading diagnostic logs on the Diagnostics page
- Rebooting or starting a factory reset from the System page
- Starting a firmware update from the System page
- Locating the information to contact Technical Support on the Help page



Managing Access and Passwords

SECURITY PAGE

Set up the appropriate level of security to conform to your organization's requirements.

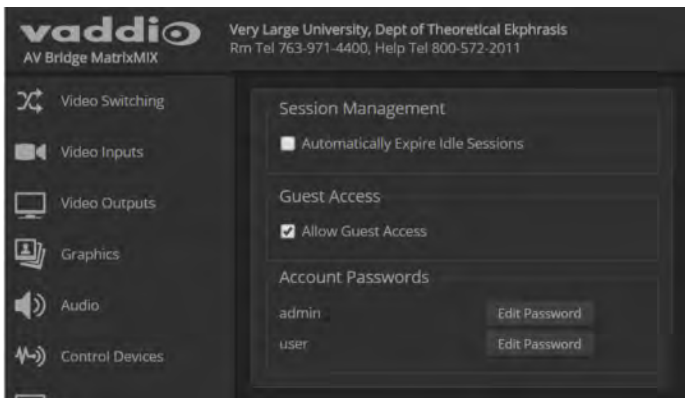
Idle session time-out – check the box labeled Automatically Expire Idle Sessions to automatically log you out of the web interface after 30 minutes without interaction.

Require a password for user access – clear the box labeled Allow Guest Access. (A password is always required for administrative access.)

Change a password – Select Edit Password for the appropriate account (user or admin) to open the Edit Password dialog box.

Note

For best security, Vaddio strongly recommends changing the user and admin passwords. Using the default passwords leaves the product vulnerable to tampering.

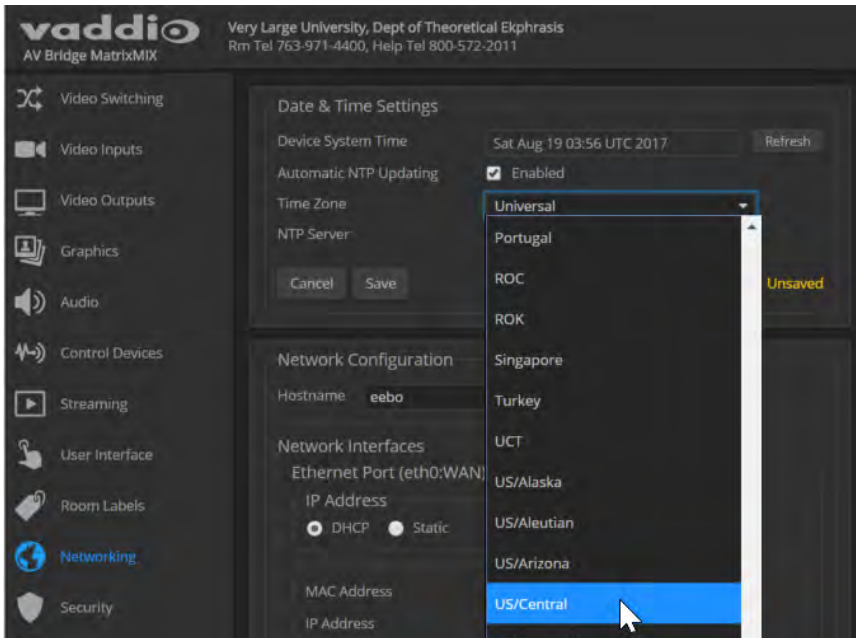


Setting System Time and Time Zone

NETWORKING PAGE

Allowing the switcher to contact a network time protocol (NTP) server ensures that its system time is correct, and makes the time zone editable. You also have the option to specify which NTP server to use.

1. 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.
5. To update the system time immediately, select Refresh. Otherwise, the time will update the next time the switcher contacts the NTP server.



Configuring the Switcher for Your Network

NETWORKING PAGE

Note

DHCP is the default setting, but the switcher will use the default address of 169.254.1.1 if no DHCP server is available.

You will be able to enter the IP address, subnet mask, and gateway only if you set IP Address to Static.

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. Changes in network configuration can result in loss of network contact with the device.

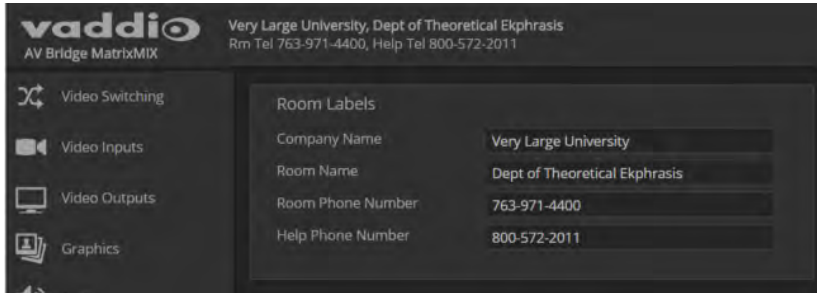
1. Edit the device hostname if necessary. The hostname serves as the device URL. If the network supports hostname resolution, you can use the hostname instead of the device's IP address when you open a web interface session. The hostname is also used as the filename for exported configuration data, so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

The screenshot displays the Vaddio AV Bridge MatrixMIX web interface. The top header includes the Vaddio logo and contact information for Very Large University. A left sidebar contains navigation icons for various settings like Video Switching, Video Inputs, Video Outputs, Graphics, Audio, Control Devices, Streaming, User Interface, Room Labels, Networking (highlighted), Security, Diagnostics, System, Help, and Logout. The main content area is divided into two panels: 'Date & Time Settings' and 'Network Configuration'. The 'Date & Time Settings' panel shows 'Device System Time' as 'Fri Aug 18 22:31 UTC 2017', 'Automatic NTP Updating' as 'Enabled', 'Time Zone' as 'Universal', and 'NTP Server' as 'pool.ntp.org'. The 'Network Configuration' panel shows 'Hostname' as 'vaddio-avbmm-74-DA-EA-08-20-C4'. Under 'Network Interfaces', the 'Ethernet Port (eth0:WAN)' is configured with 'IP Address' set to '10.30.200.153', 'Subnet Mask' as '255.255.255.0', and 'Gateway' as '10.30.200.254'. The 'Static' radio button is selected for IP addressing.

Adding Room Information

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.



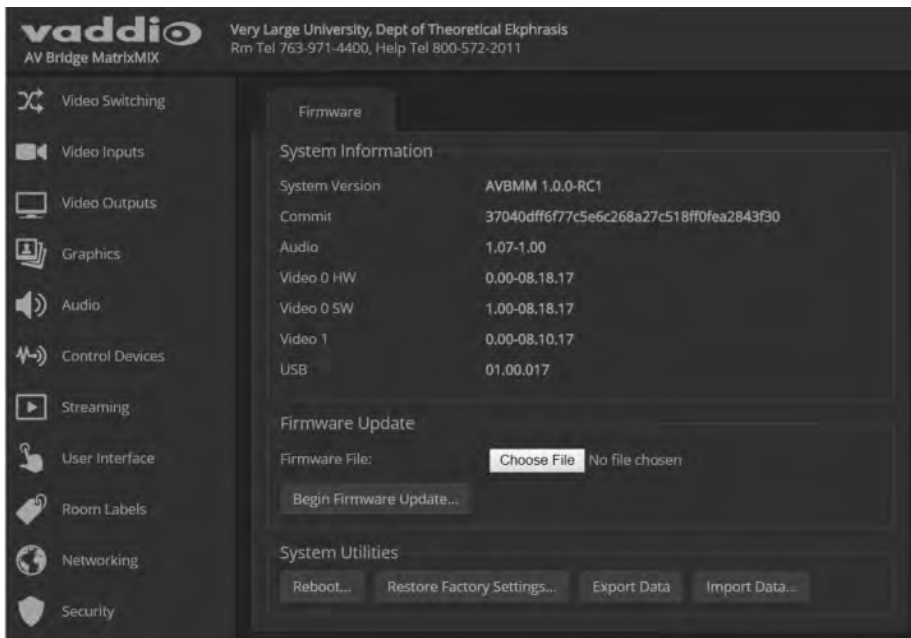
Rebooting

SYSTEM PAGE

This can help if the switcher stops responding as you expect.

In the System Utilities section, select Reboot, then confirm. You will need to log in again after the reboot.

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](#).



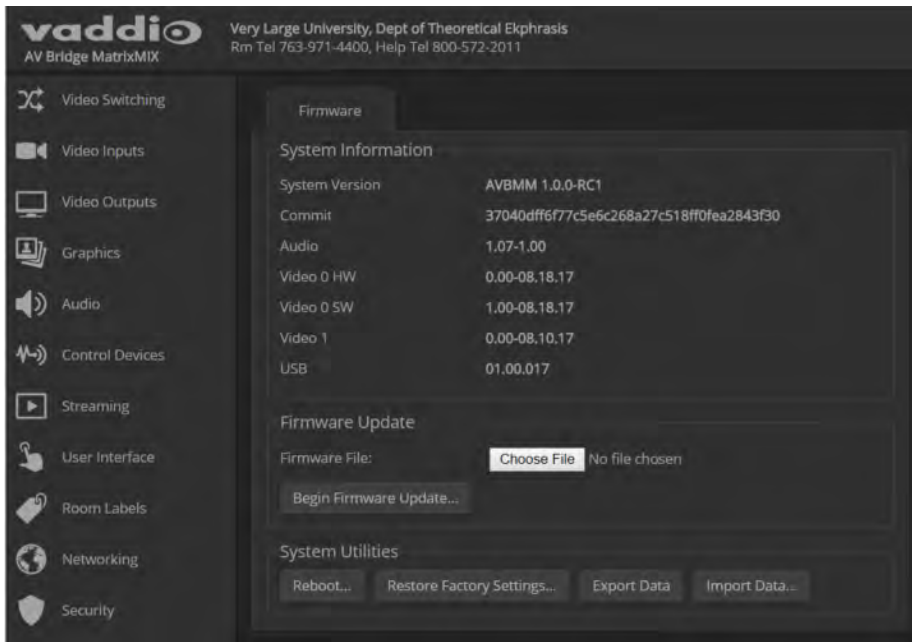
Exporting and Importing Configuration Data

SYSTEM PAGE

If your organization uses several of the same product, you may choose to configure one of them, verify that the configuration is good, and then copy it to the others. Most Vaddio professional AV products and cameras have this capability.

Note

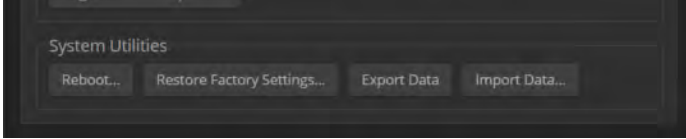
Currently, Vaddio products cannot import a configuration file that was exported from a different version of firmware.



To export a configuration:

To save a copy of the current configuration, select Export Data.

The configuration exports as a .dat file and downloads to your default file download location. The filename is the unit's hostname followed by the .dat file extension. If you only need to back up the configuration, you're done.



Note

This operation does not copy device-specific data such as hostname or sensitive data such as passwords.

To import a configuration:

1. Select Import. The Import Data box opens.
2. Select Choose File, and browse to the .dat file to be imported.
3. Select Begin Importing Data. When the import is complete, the device reboots and you will need to log in again.

Note

Currently, Vaddio products cannot import a configuration file that was exported from a different version of firmware.

Updating the Firmware

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.

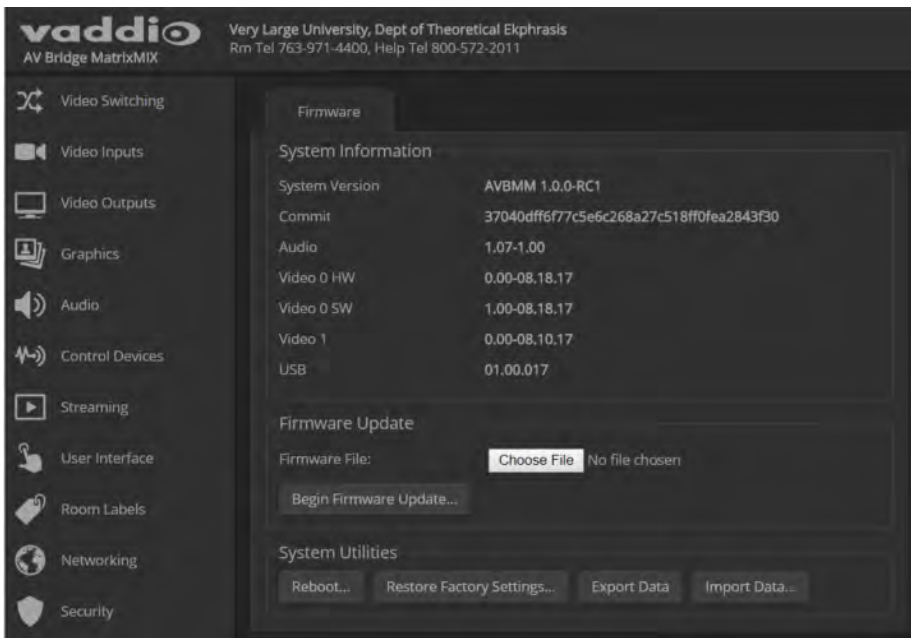
Firmware updates do not change the configuration or password.

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 or window, go to the appropriate product page, or to the software updates section of support.vaddio.com and download the appropriate update file.
2. In the Firmware Update pane, select Choose File. Then browse to the update file and select it.
3. Select 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, select Continue. The device reboots as the last step in the update process.

We recommend checking for firmware updates for your Vaddio cameras when you update other products that work with them.



Restoring Factory Defaults

SYSTEM PAGE

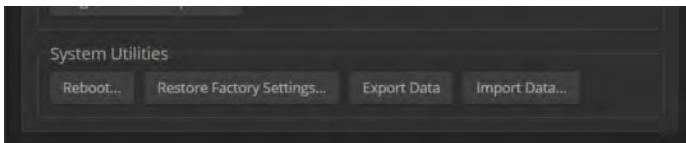
Restoring factory settings will overwrite anything you have added or customized, such as the admin password, graphics library, video, and audio configurations. (If you export a known good configuration, you can import it again after restoring factory settings. See [Exporting and importing configuration data.](#))

To restore the original factory settings:

Select 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.

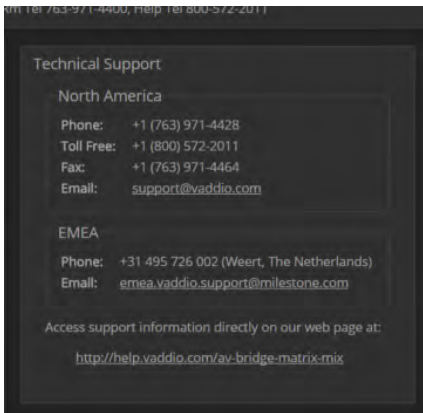
This operation logs you out and resets the admin password to its factory default value of `password`.



Contacting Vaddio Technical Support

HELP PAGE

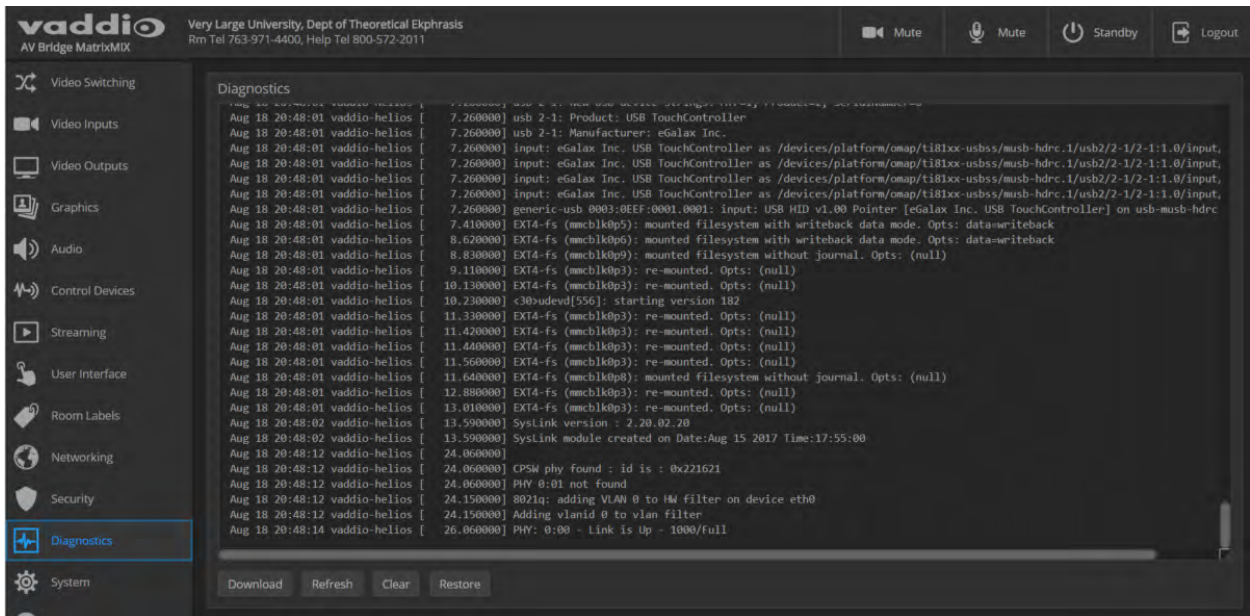
If you can't resolve an issue using your troubleshooting skills (or the [Troubleshooting](#) table in this manual), we are here to help. You'll find technical support contact information on the Help page.



Viewing Diagnostic Logs

DIAGNOSTICS PAGE

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



Performance and Behavior Settings

Performance and behavior settings for the AV Bridge MatrixMIX multipurpose AV switcher include:

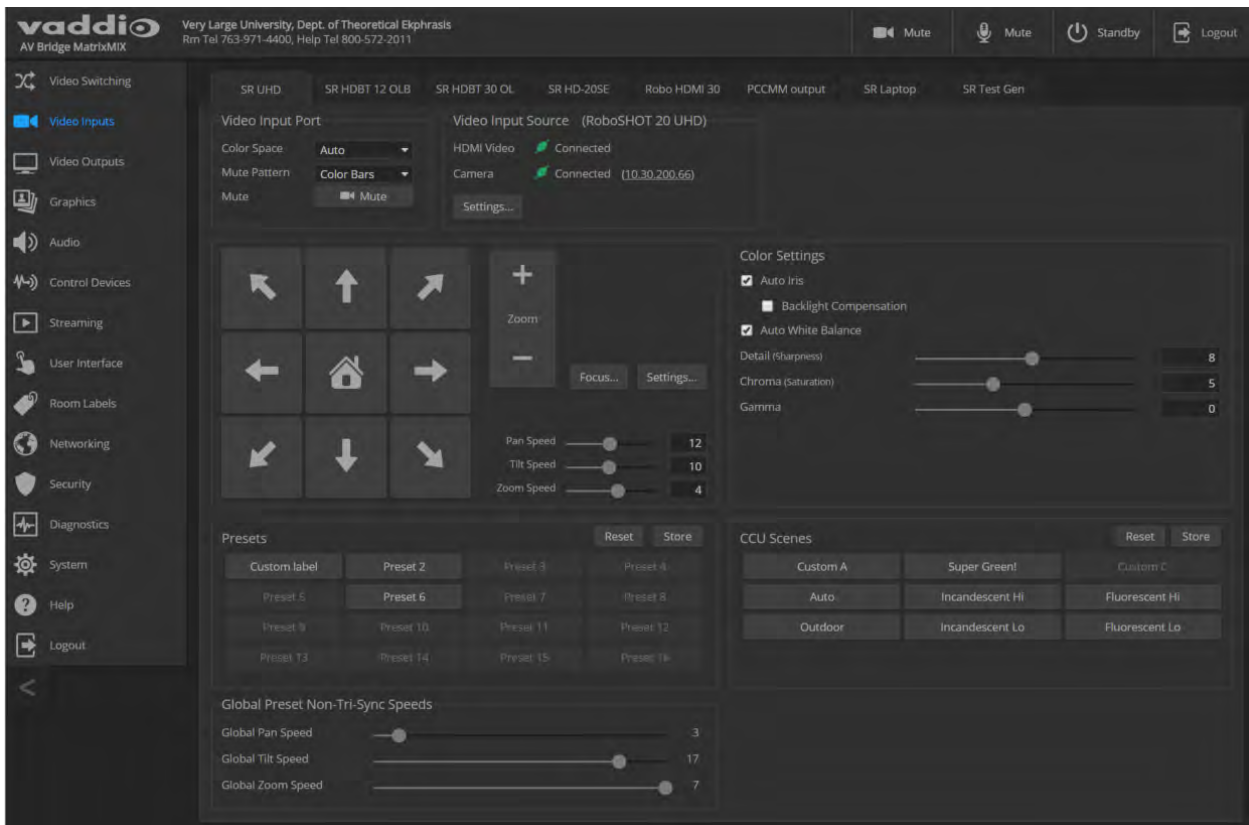
- Configuring video inputs, outputs, and switching behavior
- Uploading graphics and managing the graphics library
- Adjusting audio inputs and outputs
- Configuring the audio matrix
- Creating macros and associating them with triggers
- Configuring USB streaming and IP streaming
- Specifying what happens when the switcher goes to standby mode
- Specifying which audio inputs are available from the operator's interface (web or multiviewer)
- Locking the front panel controls



Working with Video Inputs

VIDEO INPUTS PAGE

The web interface provides a control page with tabs for each camera and other video input device, allowing you to control the connected cameras without accessing their individual web interfaces. The tabs for connected Vaddio cameras present the same controls present in the cameras' own web interfaces.



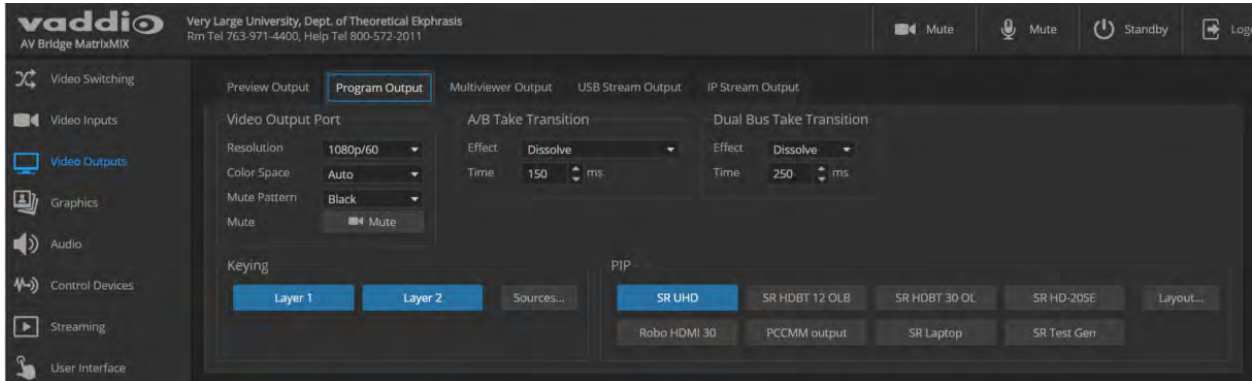
Configuring Video Outputs

The Video Outputs page provides controls to configure each video output.

Controls available for the Program and Preview outputs include:

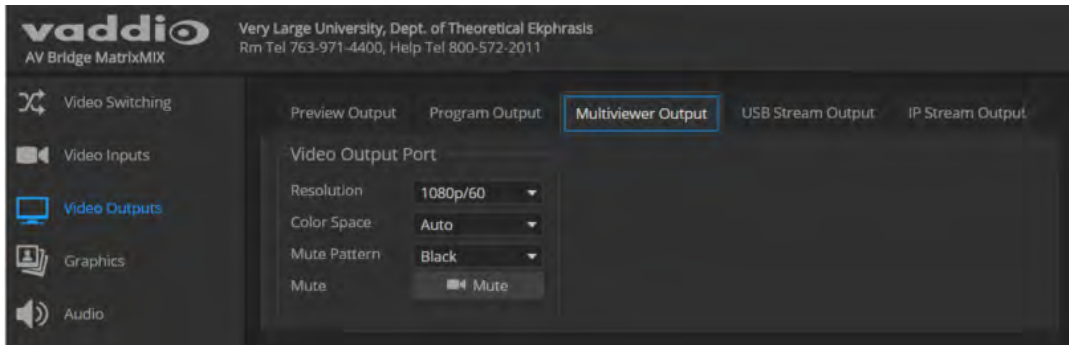
- Output resolution/frame rate
- Color space
- Video mute pattern
- Video transition (take) effect and time for A/B switching mode and dual-bus mode
- Keying control and sources
- PIP source and layout

Graphics for keying operations are managed on the Graphics page. See [Working with Graphics](#).

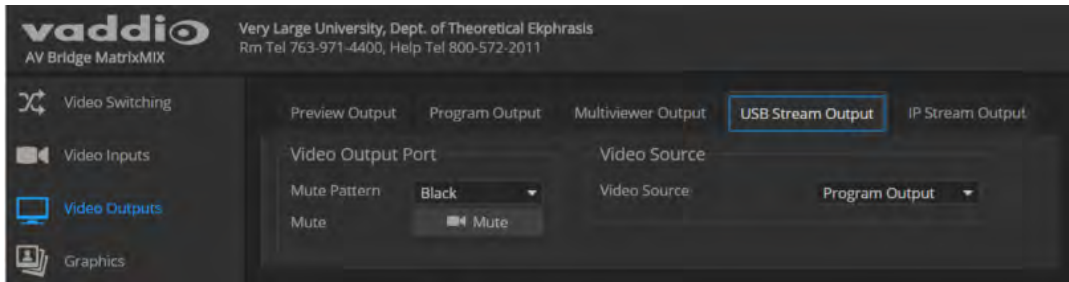


Controls for the multiviewer output include:

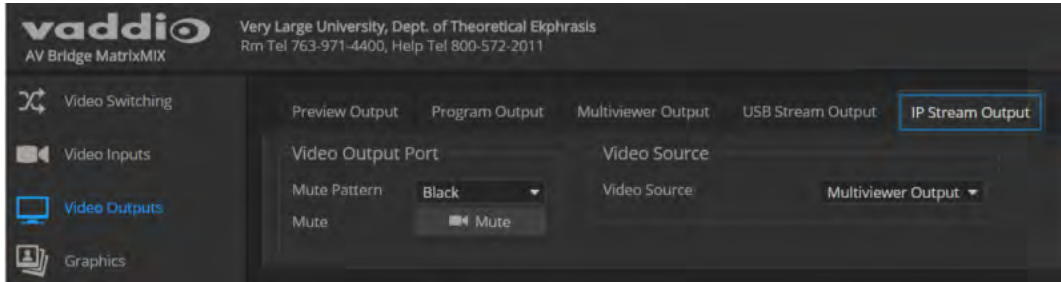
- Resolution/frame rate
- Color space
- Video mute pattern



Controls for the USB Stream and IP Stream outputs include the video mute pattern and the video source.

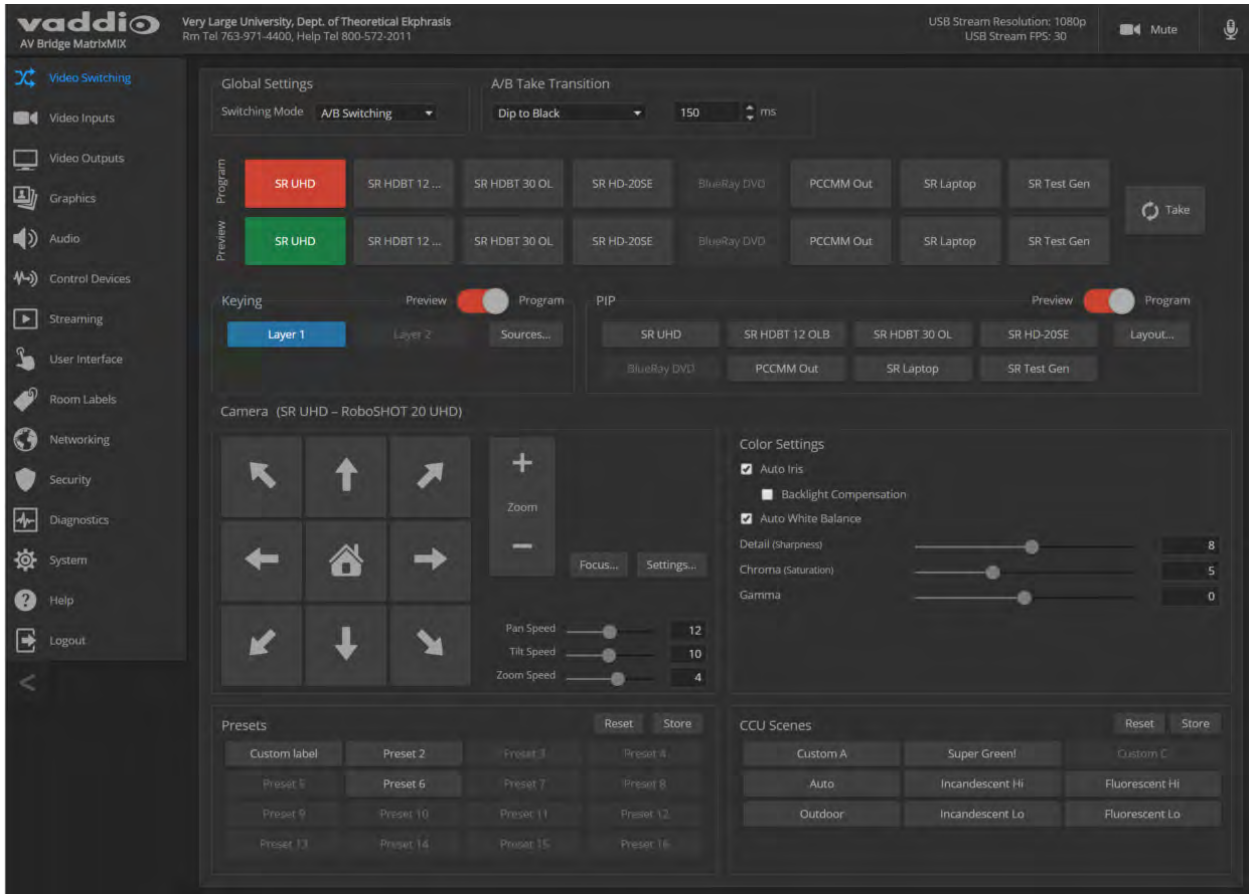


Set the multiviewer output as the source for the IP stream for remote live operation.



Operating the Switcher from the Admin Interface

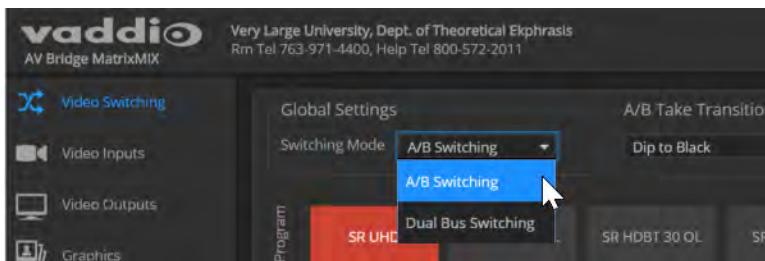
The Video Switching page provides most of the same controls available on the operator's pages (guest access or user account login).



Changing the Switching Mode

VIDEO SWITCHING PAGE

In the Global Settings area of the Video Switching page, select the desired switching mode – A/B switching or dual-bus switching.

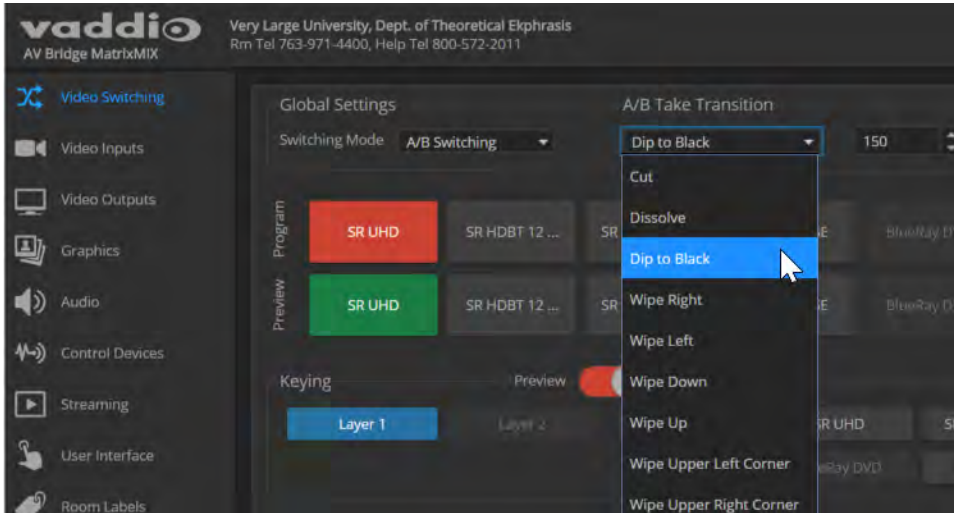


After changing from A/B switching to dual-bus mode or vice-versa, the controller(s) associated with the switcher may need to be rebooted.

Setting Current Transition Type and Speed

VIDEO SWITCHING PAGE

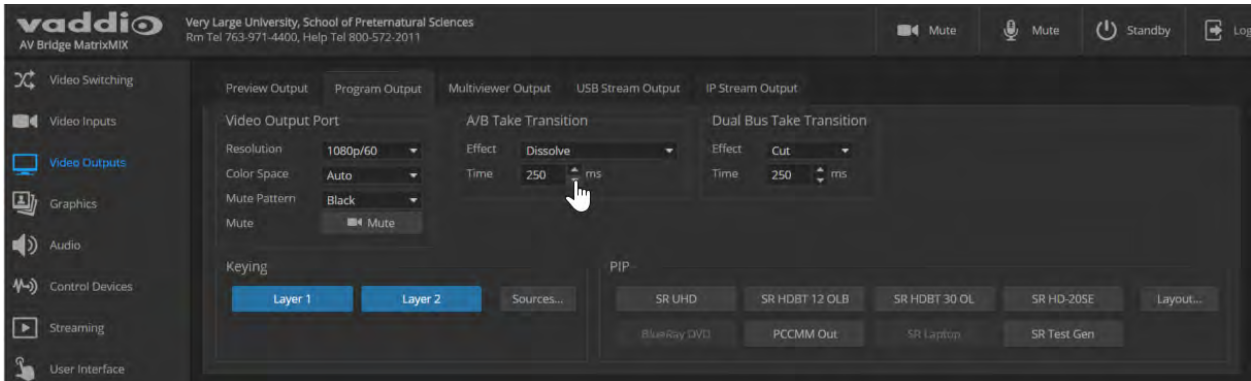
In the Global settings area, select the transition type for the currently selected switching mode. If necessary, adjust the transition time.



Configuring A/B Mode and Dual-Bus Mode Transitions Separately

VIDEO OUTPUTS PAGE, PREVIEW AND PROGRAM TABS

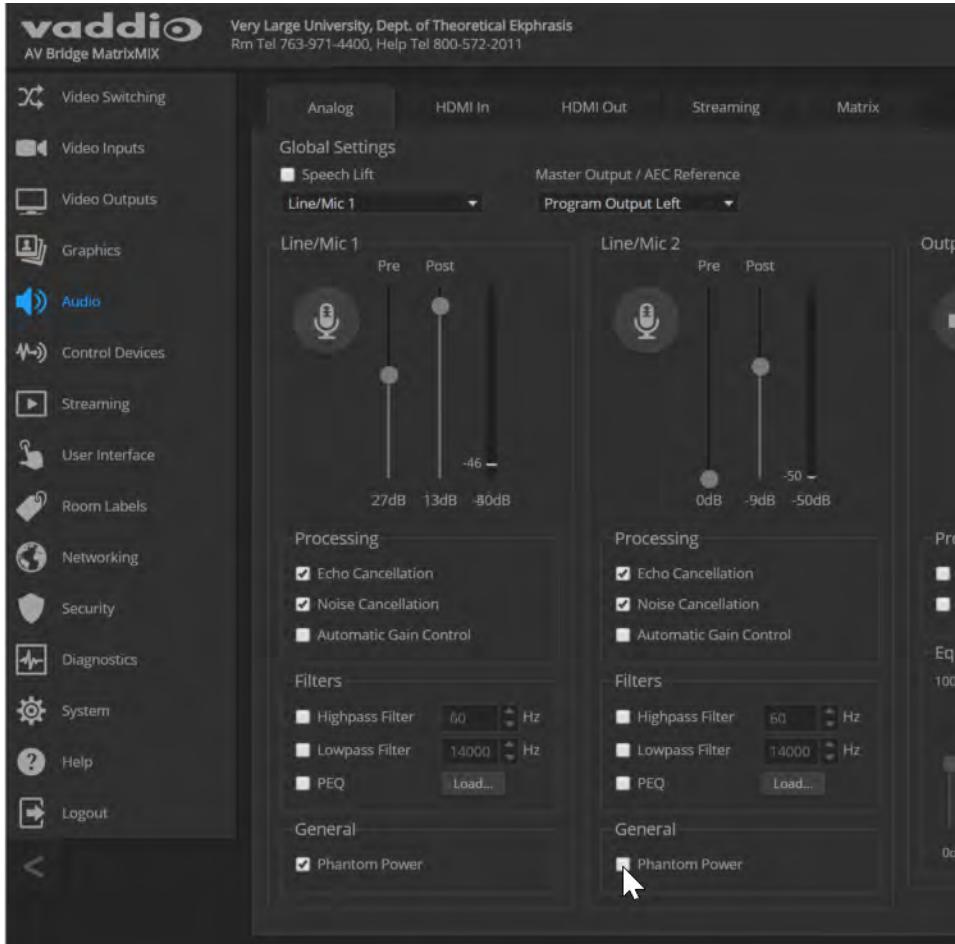
Set transition effects and times separately for A/B and dual-bus modes. The take transition controls are available on both the Preview and Program tabs.



Enabling Phantom Power to Microphones

AUDIO PAGE, ANALOG TAB

To supply 48 VDC phantom power to a connected microphone, check the Phantom Power checkbox below the controls for the Line/Mic input.

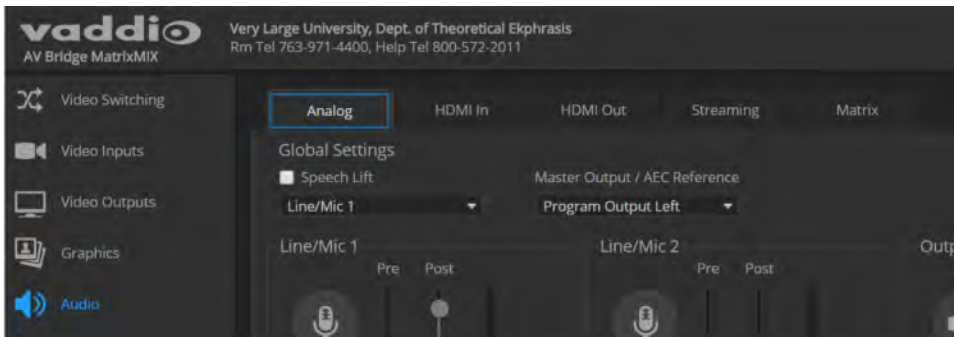


Configuring Audio Settings

AUDIO PAGE

The web interface provides separate controls for each of the audio inputs and outputs:

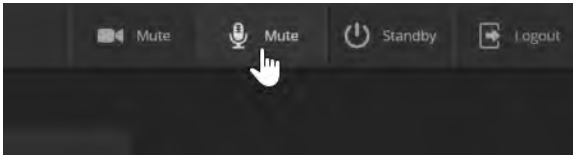
- Analog (corresponding to the Audio I/O area of the connector panel) – Line/Mic inputs 1 and 2; audio line out 1 and 2
- HDMI Inputs (corresponding to the HDMI Inputs area of the connector panel) – Left and right channels for each of the eight HDMI inputs
- HDMI Outputs (corresponding to the HDMI Outputs area of the connector panel) – Left and right channels for the Program, Preview, and Multiview outputs
- Streaming (corresponding to the Network and USB 3.0 connectors) – Left and right channels for IP Stream, USB Playback, and USB Record.



The Matrix tab of the Audio page defines audio routing.

Muting the Microphones

Use the microphone mute control at the top of any page.



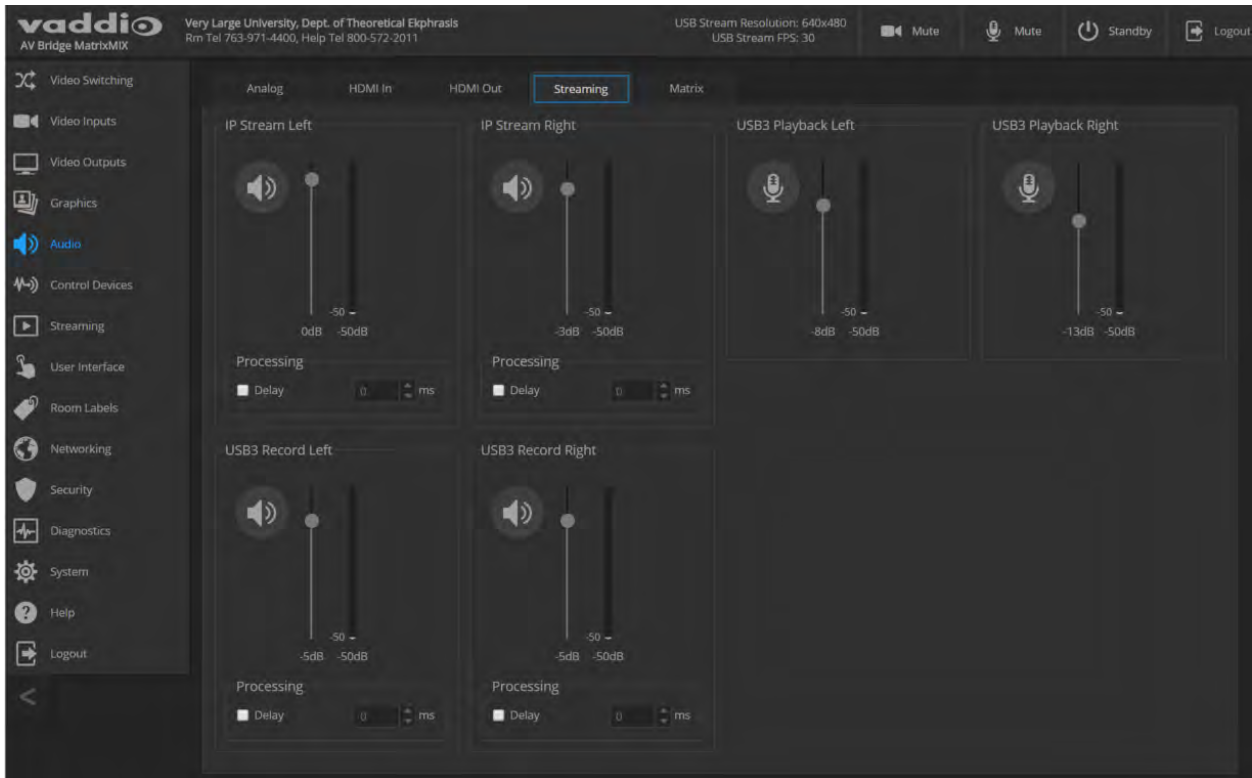
Controlling Volume on Individual Inputs or Outputs

AUDIO PAGE, ANALOG, HDMI IN/OUT, AND STREAMING TABS

Use the button to mute the desired audio input or output. Use the slider to set the volume.

Note

For best performance with most computers, we recommend setting the USB Record volume high.



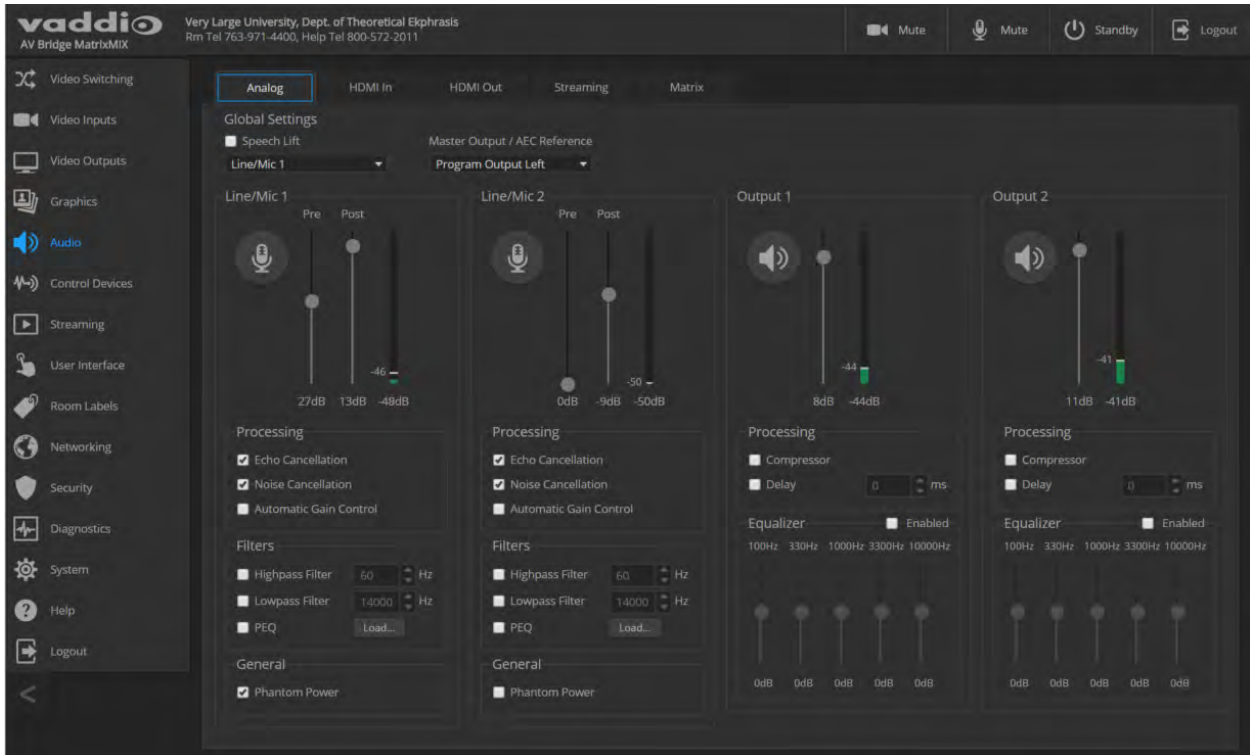
Default Microphone Settings

AUDIO PAGE, ANALOG TAB

Acoustic Echo Cancellation – Enabled; prevents audio feedback by cancelling the specified output signal out of the line/mic input.

Noise Cancellation – Enabled; suppresses ambient noise.

Automatic Gain Control – Disabled; adjusts gain to compensate for differences in volume as different people speak.



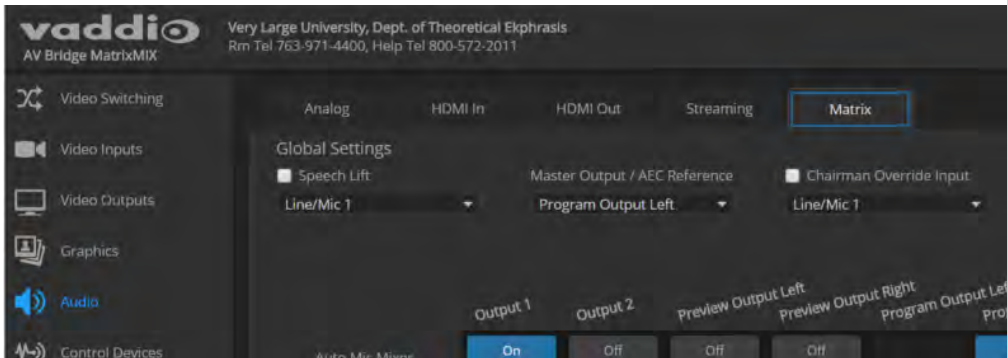
Microphone Settings for Environments with Audiences

AUDIO PAGE, ANALOG AND MATRIX TABS

Speech Lift: Feeds the signal from the specified microphone to the speakers in the room, so that people in the back of the room can hear the person who is speaking.

Master Output/AEC Reference: Specifies the audio output that will be used as the reference for acoustic echo cancellation.

Chairman Override: Gives priority to the specified microphone when more than one person is speaking. (Matrix tab only)



Microphone Adjustments

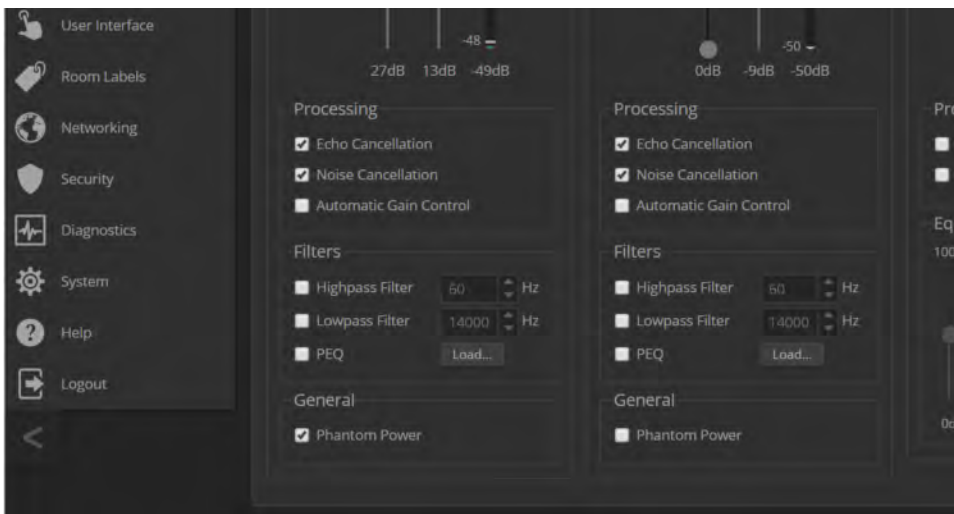
AUDIO PAGE, ANALOG TAB

To adjust for more natural speech reproduction:

- **High-pass filter** – Specify the lowest frequency that the microphone should pick up. Use this setting to reduce low-frequency background noise such as heating/air conditioning systems.
- **Low-pass filter** – Specify the highest frequency that the microphone should pick up. Use this setting to reduce hissing sounds and make speech sound natural.
- **PEQ** (parametric equalizer) – Increase or reduce the volume of specific frequency ranges to compensate for the audio challenges unique to the situation.

Note

As a best practice, use the equalizer to attenuate undesirable frequency ranges rather than to boost the desirable frequencies.



Speaker Adjustments

AUDIO PAGE, ANALOG AND STREAMING TABS

To sync the sound with the video:

If the video lags noticeably behind the audio, check the Delay box for the appropriate audio outputs (Analog or Streaming tab) and enter a delay value in msec. The delay may differ from one output to another.

To compensate for differing speech volumes:

If some people on the far end are inaudible while others are too loud, check the Compressor box to reduce the dynamic range from the connected speakers. (Analog tab only.)

To compensate for specific audio issues on the far end:

Use the equalizers for the analog outputs to attenuate specific frequency ranges. This can help if the far-end audio includes unwanted elements such as a rumbling HVAC system or a cricket in the room.

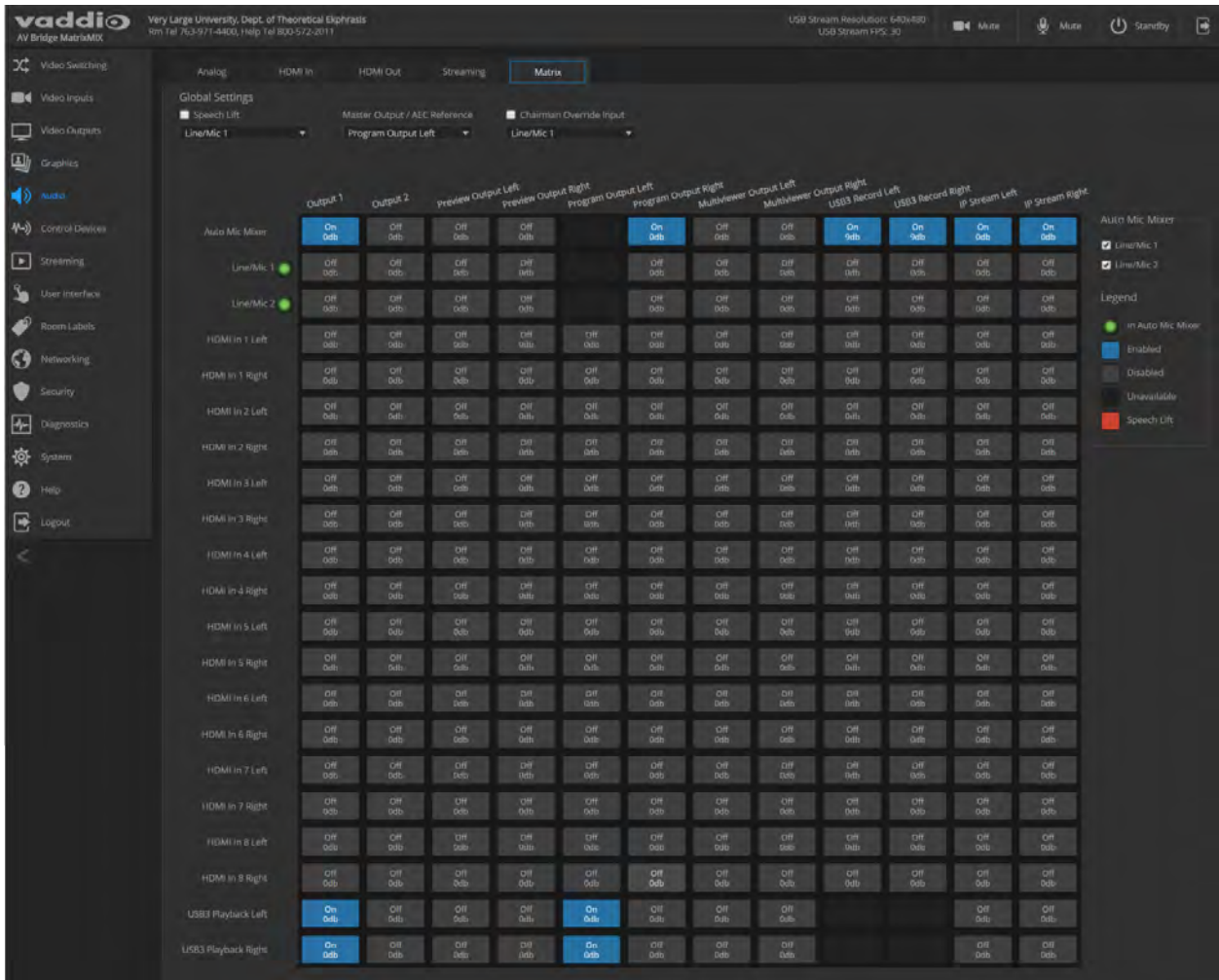


Routing Audio

AUDIO PAGE, MATRIX TAB

The audio matrix shows where each audio output originates. Each column of the matrix shows one audio output, and each row shows one audio input. Table cells highlighted in blue mean that the input represented in that row is routed to the output represented in that column.

To specify how the AV Bridge MatrixMIX uses a given audio input, locate its row. Locate the column representing the desired output and select the table cell where the desired row and column intersect. Example: In the screen shot below, the auto mic mixer is the source for all the active audio outputs.



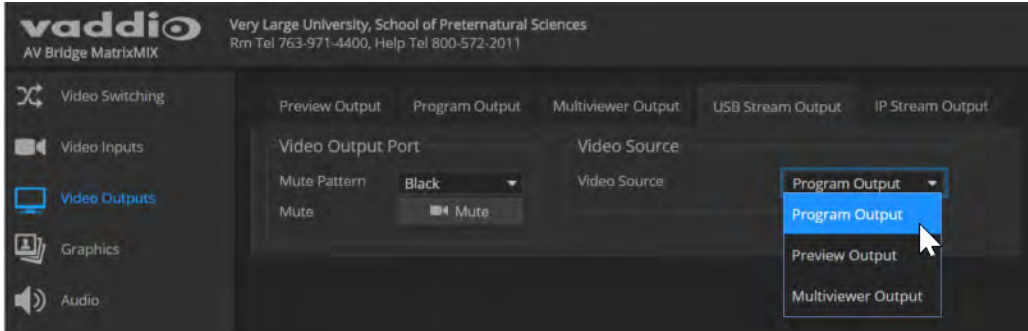
Selecting Stream Sources

VIDEO OUTPUTS PAGE, USB STREAM OUTPUT AND IP STREAM OUTPUT TABS

By default, the USB stream and IP stream both use the Program output as their source.

To change the source for the USB stream or IP stream, select the corresponding tab of the Video Outputs page. Then select the desired video output.

Equivalent PCC MatrixMIX operation: Select the desired source for each stream on the Streaming page.



Configuring Streaming Settings

STREAMING PAGE

Note

After making changes on this page, save them.

Edit the USB Device Name

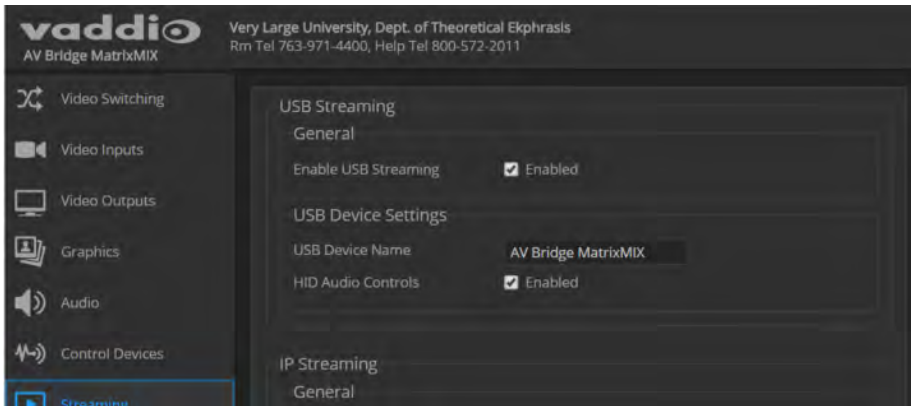
To change the way the camera shows up in your soft client's camera selection list, edit the USB Device Name.

Allow Soft Client Control of the System

To allow conferencing applications to control the audio, check the Enabled box for HID Audio Controls.

Note

USB streaming settings are automatically negotiated with the conferencing application.



Enable or Disable Streaming

IP and USB streaming are enabled by default. Use the Enable USB Streaming and Enable IP Streaming checkboxes to change this. You may need to reboot the device for your change to take effect.

Set IP Streaming Settings

If you are not sure about these settings, start with the defaults.

1. Select the video Quality Mode: Easy or Custom. Easy automatically sets the recommended frame rate; Custom provides additional control.
2. Select the desired IP streaming resolution.
3. Easy quality mode only: Select Video Quality.
4. Custom quality mode only: Select the desired IP streaming frame rate.
5. Custom quality mode only: Select the desired Max Bandwidth. Check with your IT staff, as this setting can affect network performance.



Advanced IP Streaming Settings

RTSP port: We recommend using the default RTSP port number unless you need to change it.

Streaming URL: Edit the path to change the portion of the streaming URL that appears after the IP address.

Setting up Macros and Triggers

CONTROL DEVICES PAGE

Macros may use any of the commands listed in the [Telnet Serial Command API](#) chapter.

To edit an existing macro:

Select the Edit button associated with the macro, or select the macro name. The macro opens in the Macro Editor.

The screenshot displays the Vaddio AV Bridge MatrixMIX web interface. The top navigation bar includes the Vaddio logo, contact information for Very Large University, and system status icons (Mute, Standby, Logout). The left sidebar lists various control categories: Video Switching, Video Inputs, Video Outputs, Graphics, Audio, Control Devices (highlighted), Streaming, User Interface, Room Labels, Networking, Security, Diagnostics, System, Help, and Logout. The main content area is divided into three sections:

- Macros:** A table listing three macros:

ID	Name	Test	Edit	✕
1	Camera Dance	Test	Edit	✕
2	3 CAM Simultaneous Dance	Test	Edit	✕
3	CAM 1 Camera Dance	Test	Edit	✕
- Macro Editor:** The selected macro 'CAM 1 Camera Dance' is shown with the following commands:


```
camera 1 pan right 20
sleep 3000
camera 1 pan left 20
sleep 5000
camera 1 pan right 20
sleep 2000
camera 1 pan stop
camera 1 tilt up 15
sleep 1000
camera 1 tilt down 15
sleep 2000
camera 1 home
```
- Macro Execution Log:** Shows a single entry for '3 CAM Simultaneous Dance' with a status of 'Succeeded'.

At the bottom, there is a 'Trigger Status' section with buttons for 'Hardware' through 'Hardware 10' and a 'Test Mode' toggle set to 'off'.

To write and test a macro:

1. In the Macro Editor area, select New.
2. Give the macro a brief, descriptive name.
3. Enter the commands to perform the desired actions.
4. Save the macro.
5. Select Test to verify that the macro does what it needs to do. The Macro Execution Log displays each command as it executes, and indicates any syntax errors that may be present.
6. Make changes as needed, saving and testing until you get the desired results.

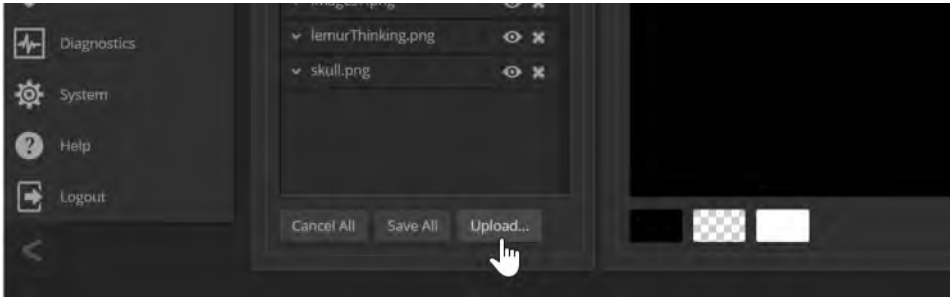
Working with Graphics

GRAPHICS LIBRARY PAGE

Use the graphics library to set up keying and placement for on-screen graphics.

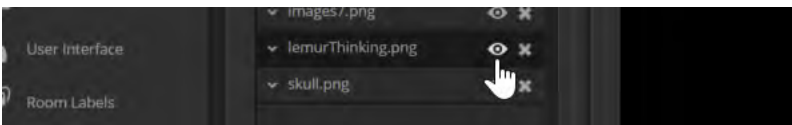
To upload a graphics file:

1. Select Upload. The Upload Graphics box opens.
2. Select Choose Files and browse to the file(s). File type may be .png or .jpg.

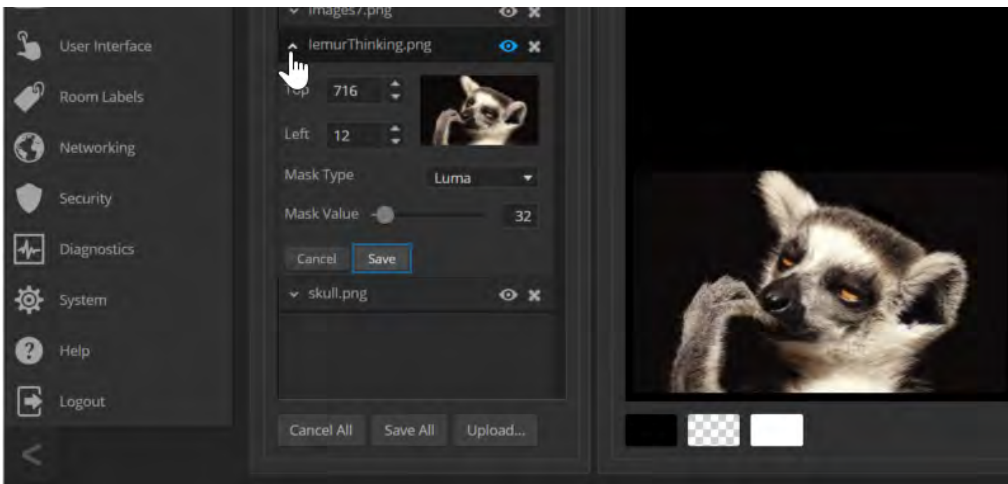


To place the graphic on the canvas and work with it:

1. Select the View icon associated with the filename. Initially the image is placed at the top left corner of the canvas (coordinates 0,0).



2. Drag the image to the desired location on the canvas, or enter the desired offset from top left.
3. Select the expand/collapse arrow associated with the filename to open the file information.
4. Select the desired mask type – alpha, luma, chroma, or opaque.
5. After making changes, save your work and select the up arrow to close the file information dialog box.



Note

Chroma keying is expected to be supported in version 1.0.1 and subsequent firmware releases.

To manage the graphics library:

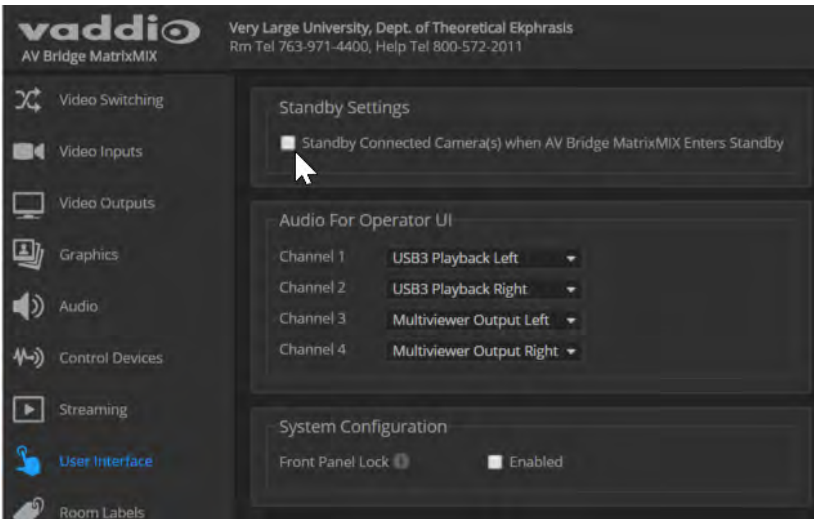
Right-click the filename to edit it.
Select the X to delete the file.

Configuring Standby Behavior

USER INTERFACE PAGE

To place the cameras in standby mode along with the switcher, check the box marked "Standby Connected Cameras when AV Bridge MatrixMIX Enters Standby."

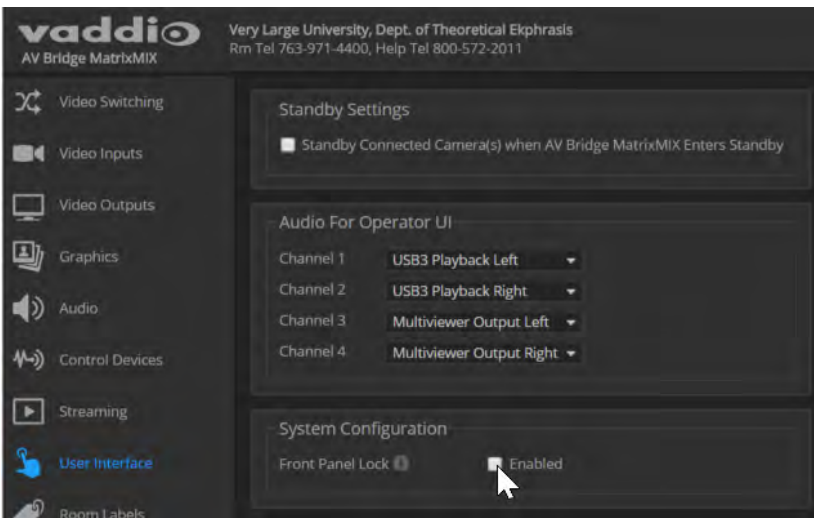
Leave this check box unchecked if all cameras should remain powered up when the switcher goes to standby mode.



Locking the Front Panel Controls

USER INTERFACE PAGE

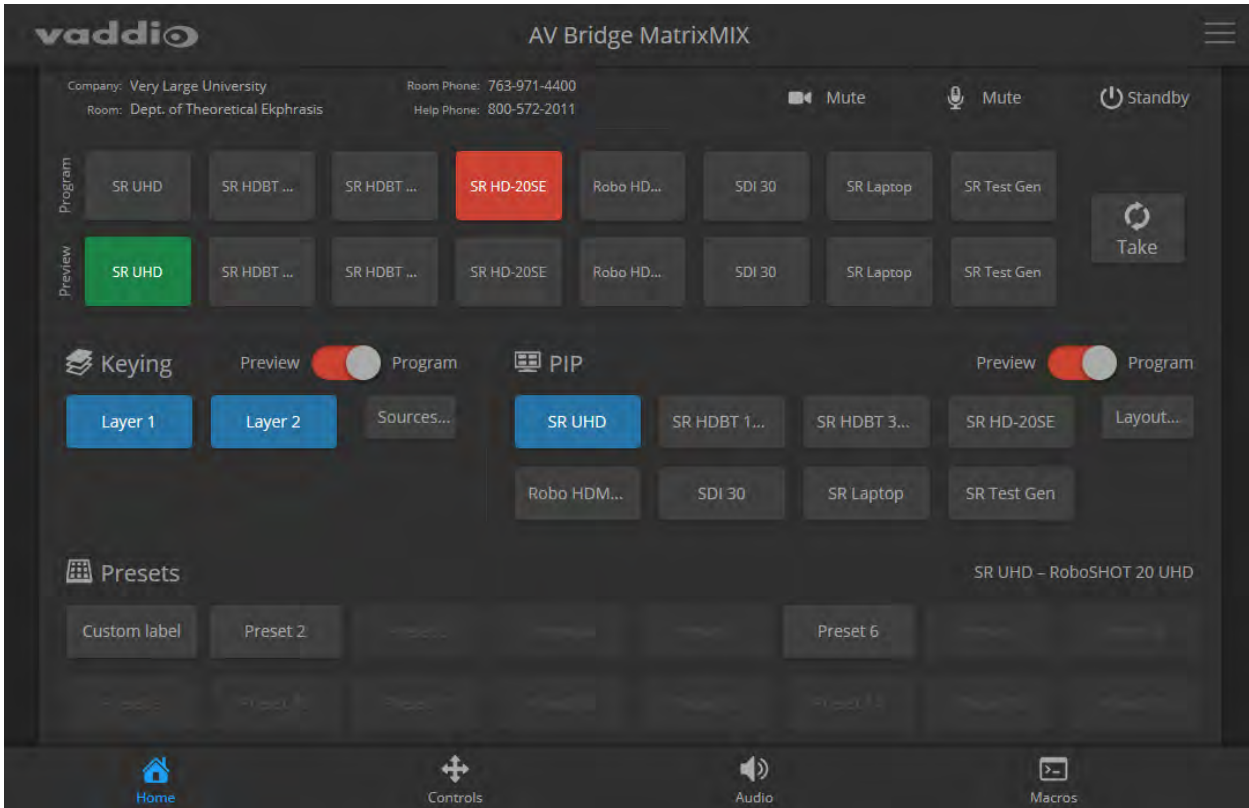
To disable the front panel controls, check the Front Panel Lock box in the System Configuration section of the User Interface page. The front panel message shows that the controls are locked, and displays the switcher's IP address.



Operating the Switcher

The AV Bridge MatrixMIX web interface provides an operator interface for basic functions; however, to take advantage of the full range of the switcher's capabilities, we recommend using it with the TeleTouch 27 USB multiviewer and PCC MatrixMIX live production controller. This chapter covers the AV Bridge MatrixMIX operator's interface only.

To access the operator's pages of the web interface, you may need to log in with the User account credentials, depending on how the switcher is configured. The admin login is not required.



Before You Start

If you are not using a TeleTouch 27 USB multiviewer with the switcher, you will need additional information and software to control the connected cameras, other video sources, and audio equipment.

- You will need to view the switcher's multiview output. If you are not using a TeleTouch 27 USB multiviewer (for example, if operating the switcher remotely), you will need to view the multiviewer output as an IP stream.
- To view the IP stream, the switcher must be configured to enable IP streaming.
- To view the IP stream, you will need a stream viewer application such as VLC Media Player.
- You will need to know the streaming URL for the switcher's IP stream. This information is available on the Streaming page; the admin login is required.
- When viewing the multiviewer stream, keep in mind that the stream will lag perceptibly – there is network-dependent latency in addition to 400 ms of inherent latency.

Selecting Cameras

HOME PAGE, OPERATOR'S WEB INTERFACE

The front panel, web interface, and multiviewer show the program (on-air) camera in red on the Program row, and the preview camera in green on the Preview row. Select the desired video source.

Select the Take button to swap the Preview camera for the Program camera.

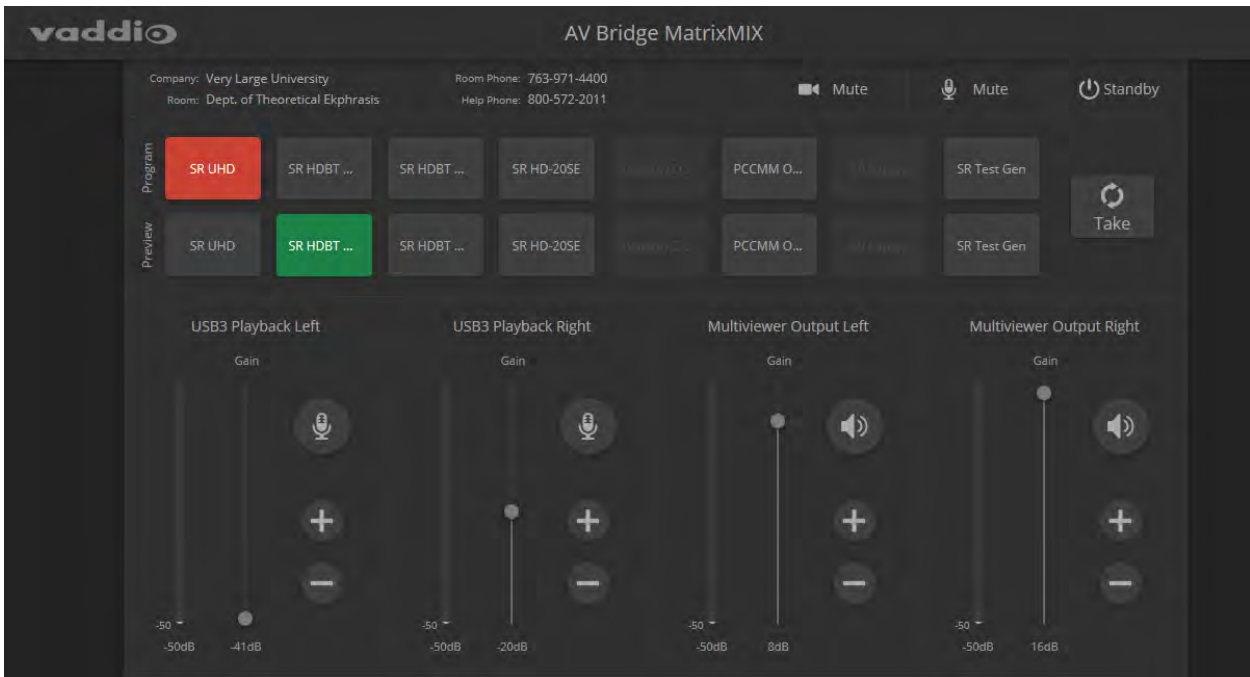


Working with Audio

OPERATOR'S AUDIO PAGE

Up to four audio channels may be available on the operator's Audio page. Each provides a mute/unmute button, volume read-out, and volume slider control.

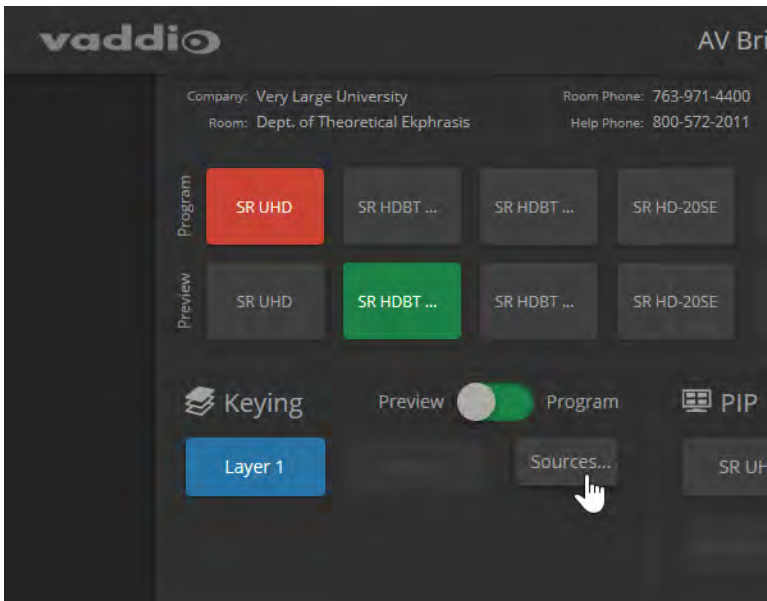
The audio channels available on the Audio screen depend on how the connected switcher is configured. Changing this requires administrative access to the switcher's web interface.



Working with On-Screen Graphics

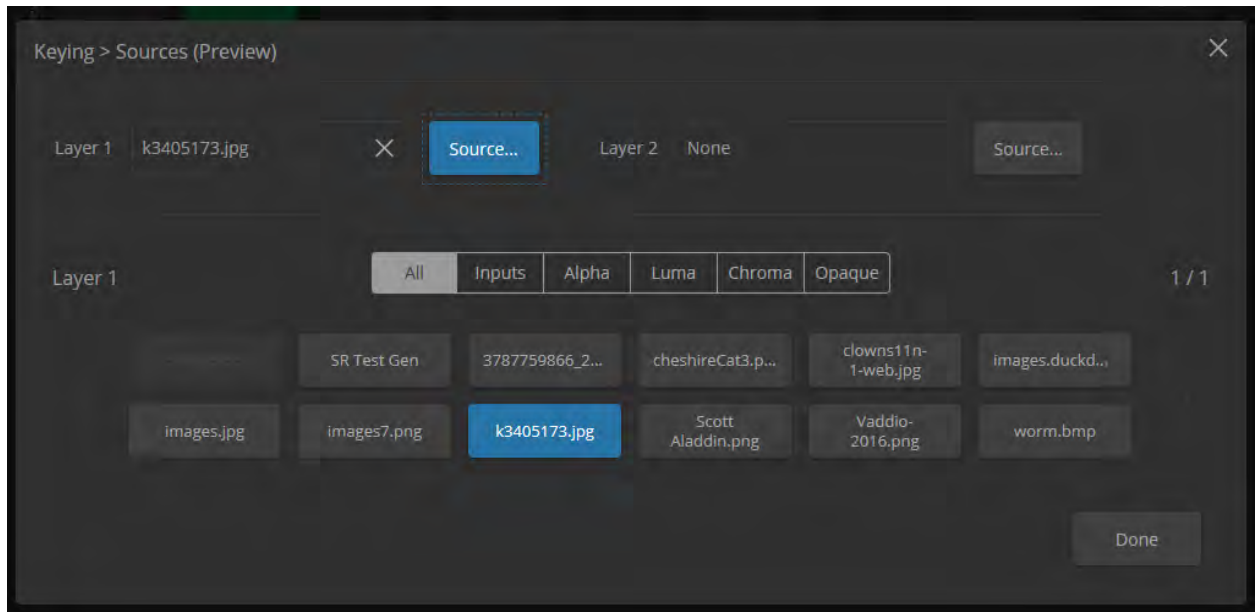
Select the output to work with – Preview or Program.

To add or remove an existing graphic, select or deselect the Layer button associated with it.



To associate a graphic with a layer:

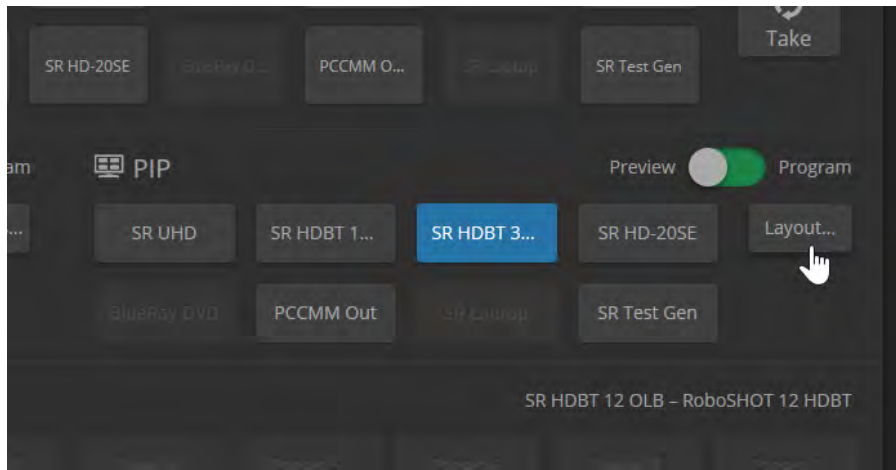
1. Select Sources. The Keying > Sources box displays the filename of the graphic (if any) associated with each layer.
2. To delete a graphic from a layer, select the X to the right of the filename.
3. To add a graphic or change the graphic associated with a layer, select the Source button associated with the layer.
4. Optional: Select one of the file search filters to display only the graphics of the desired mask type or source. If there are more graphics files and sources than will fit on the screen, the left and right navigation arrows become active.



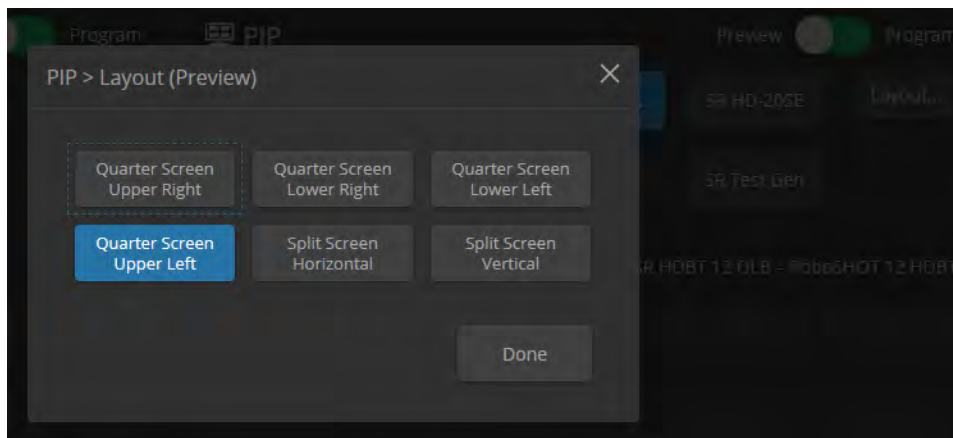
5. Select the desired graphics file or source.
6. Select the X in the upper right corner to return to the main screen.

Selecting a PIP Source and Layout

1. Select the output to work with – Preview or Program.
2. Select the camera or other video source to use as the PIP source.



3. Select Layout to open the layout selection box.
4. Select the desired screen layout.
5. Select the Done button to dismiss the layout selection box.



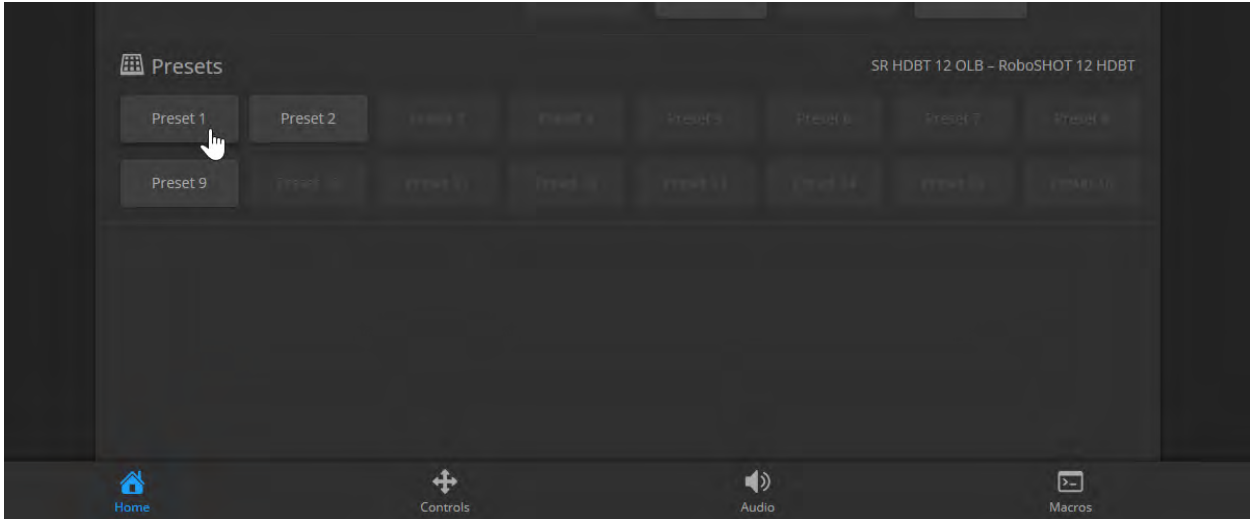
Using Camera Presets

OPERATOR'S HOME PAGE

To move the preview camera to a preset position, select the desired preset.

Depending on the camera and the preset definition, presets may include zoom, speed, and lighting information along with the pan, tilt, and focus.

Presets are stored in the cameras.



Using Macros

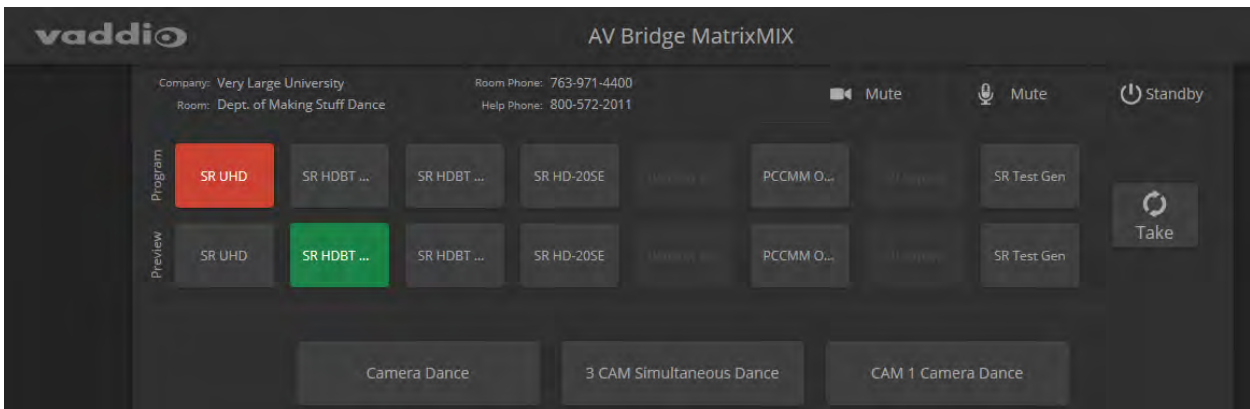
OPERATOR'S MACROS PAGE

Macros are defined in the switcher's administrative interface. Some may be specific to connected equipment rather than outputs.

Select the desired macro. Allow time for the macro to complete before starting another action.

Note

Some macros enforce a delay to allow time for completion. The delay can be a minute or more in some cases.



Telnet Serial Command API

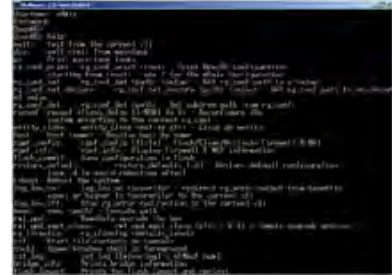
The Vaddio Telnet command API allows an external device such as an AMX or Crestron presentation system to control the device. It is also used for device macros.

Note

When you connect via Telnet, you must log in using the admin account.

The command format follows a get/set structure. Here are some examples:

Command	<code>camera 3 pan right</code>
Response	OK >
Command	<code>camera 3 focus mode auto</code>
Response	OK >
Command	<code>camera 3 ccu get iris</code>
Response	iris 6 OK >



Use a question mark as a command parameter to bring up a list of commands, subcommands, or command parameters. For example:

> camera focus ?

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

Things you might need to know about control via Telnet session:

- Command lines are terminated with a carriage return.
- All ASCII characters (including carriage returns) are echoed to the terminal program and appended with the VT100 string `ESC[J` (hex 1B 5B 4A), which most terminal programs automatically strip.
- `CTRL-5` clears the current serial buffer on the device.

Typographical conventions:

- `n{x|y|z}` – Choose x, y, or z.
- `n<variable>` – The named variable (such as `<ip address>`) is required.
- `n<x..y>` – A value in the range of x through y is required.
- `n[optional]` – This parameter (such as `[speed<1..7>]`) is not required.

audio mute

Gets or sets the mute status of the specified audio channel.

Synopsis	audio [channel] mute {get on off toggle}	
Channels	master	Gets or sets the mute status of master audio mute, the emergency mute for all channels.
	line_out_1 line_out_2	Gets or sets the mute status of the specified Line Out port.
	line_in_1 line_in_2	Gets or sets the mute status of the specified Line In port.
	usb3_recond_left usb3_record_right	Gets or sets the mute status of the USB3 Record Left/Right channel.
	usb3_playback_left usb3_playback_right	Gets or sets the mute status of the USB3 Playback Left/Right channel.
	hdmi_in_<1..8>_left hdmi_in_<1..8>_right	Gets or sets the mute status of the left/right channel of the specified HDMI input.
	ip_out_left ip_out_right	Gets or sets the mute status of the left/right channel of the IP stream's audio.
	program_out_left program_out_right	Gets or sets the mute status of the left/right channel of the program audio.
	preview_out_left preview_out_right	Gets or sets the mute status of the left/right channel of the preview audio.
	multiviewer_out_left multiviewer_out_right	Gets or sets the mute status of the left/right channel of the multiviewer audio.
Options	get	Returns the current mute state of the specified channel.
	on	Mutes the audio for the specified channel.
	off	Unmutes the audio for the specified channel.
	toggle	Changes the mute state for the specified channel – unmutes if it was muted, mutes if it was not.
Examples	<pre>> audio master mute get mute: off OK ></pre> <p>Returns the current mute state of master mute. It is off, so audio is not globally muted. Some audio channels may be muted, however.</p> <pre>>audio line_out_1 mute on OK ></pre> <p>Mutes the Line Out 1 port.</p>	

audio volume

Gets or sets the volume of the specified audio channel. The valid range depends on the channel.

Synopsis	audio [channel] volume { get up down set <level> }	
Channels	master	Get or set the volume for the channel currently designated as master/AEC reference.
	line_in_1 line_in_2	Get or set the volume for the specified Line In.
	line_out_1 line_out_2	Get or set the volume for the specified Line Out.
	usb3_record_left usb3_record_right	Get or set the volume for the USB3 Record Left/Right output channel.
	hdmi_in_<1..8>_left hdmi_in_<1..8>_right	Get or set the volume for the left/right channel of the specified HDMI input.
	usb3_playback_left usb3_playback_right	Get or set the volume for the USB3 Playback Left/Right input channel.
	ip_out_left ip_out_right	Get or set the volume for the left/right channel of the IP stream's audio.
	program_out_left program_out_right	Get or set the volume for the left/right program output.
	preview_out_left preview_out_right	Get or set the volume for the left/right preview output.
	multiviewer_out_left multiviewer_out_right	Get or set the volume for the left/right multiviewer output.
Options	get	Returns the current volume of the specified channel.
	up	Increases the volume of the specified channel by 1 dB.
	down	Reduces the volume of the specified channel by 1 dB.
	set <level>	Sets the volume of the specified channel in dB. Valid ranges: Line in, line out, master/AEC reference: -50.0 to 20.0 dB USB, IP, and HDMI: -42.0 to 6.0 dB
Examples	<pre>audio line_in_1 volume up OK ></pre> <p>Increases the volume for Line In 1 by 1 dB.</p>	
	<pre>audio line_out_1 volume get volume -10.0 dB OK ></pre> <p>Returns the current volume for the speaker connected to the line out port.</p>	

audio route

Gets or sets the input routed to the specified output.

Note

The designated master (AEC reference) output must have speech lift in its route list if it's enabled. The designated master output cannot have the `auto_mic_mix` input in its route list. The designated master output can only have line inputs in its route list if they are the enabled speech lift, or are not included in the auto mic mix.

Synopsis	audio <channel> route {get set <inputs>}	
Outputs	usb3_record_left usb3_record_right	Get or set the inputs routed to the USB3 Record Left/Right channel. Not permitted to have USB3 Playback Left/Right in its route list.
	ip_out_left ip_out_right	Get or set the inputs routed to the left/right channel of the IP stream.
	program_out_left program_out_right	Get or set the inputs routed to the left/right channel of the program output.
	preview_out_left preview_out_right	Get or set the inputs routed to the left/right channel of the preview output.
	multiviewer_out_left multiviewer_out_right	Get or set the inputs routed to the left/right channel of the multiviewer output.
	line_out_1 line_out_2	Get or set the inputs routed to the specified Line Out port.
Options	get	Returns the routing for the specified output.
	set	Sets the routing for the specified output.
Inputs	auto_mic_mix	Automatic mic mixer
	line_in_1 line_in_2	Line In 1 or Line In 2
	usb3_playback_left usb3_playback_right	USB Playback Left/Right channel. Not permitted to be routed to USB Record.
	hdmi_in_<1..8>_left hdmi_in_<1..8>_right	HDMI input 1 through 8, left or right channel
Examples	<pre>> audio usb3_record_left route get [auto_mic_mix] OK ></pre> <p>Returns the current source of the left channel of USB3 Record. The auto mic mixer is currently routed to the left channel of the USB3 Record output.</p> <pre>> audio ip_out_right route set line_in_1</pre> <p>Routes Line Input 1 to the right channel of the outbound IP stream.</p>	

audio crosspoint-gain

Returns or sets the input routing gain, in dB, for a given output and input.

Synopsis	audio <output> crosspoint-gain <input> {get set <level>}	
Outputs	usb3_record_left usb3_record_right	Gets or sets the gain for the input routed to the USB3 Record Left/Right channel.
	ip_out_left ip_out_right	Gets or sets the gain for the input routed to the left/right IP stream output.
	program_out_left program_out_right	Gets or sets the gain for the input routed to the left/right program output.
	preview_out_left preview_out_right	Gets or sets the gain for the input routed to the left/right preview output.
	multiviewer_out_left multiviewer_out_right	Gets or sets the gain for the input routed to the left/right multiviewer output.
	line_out_1 line_out_2	Gets or sets the gain for the input routed to Line Out 1/Line Out 2.
Inputs	auto_mic_mix	Routing gain of the auto mic mixer for the chosen output.
	usb3_playback_left usb3_playback_right	Routing gain of USB Playback Left/Right for the chosen output.
	line_in_1 line_in_2	Routing gain of Line In 1/Line In 2 for the chosen output.
	hdmi_in_<1..8>_left hdmi_in_<1..8>_right	Routing gain of the specified HDMI input, left or right channel, for the chosen output
Options	get	Returns the routing gain from the specified input to the specified output.
	set <-12.00 .. 12.00>	Sets the routing gain from the specified input to the specified output. Valid range is -12.00 dB to 12.00 dB.
Examples	<pre>> audio line_out_1 crosspoint-gain hdmi_in_1_left get 3.95 OK ></pre> <p>Returns the current gain setting of the crosspoint between Line Output 1 and HDMI Input 1 Left in dB.</p> <pre>> audio usb3_record_left crosspoint-gain auto_mic_mix set 6.00 OK ></pre> <p>Sets the crosspoint gain of USB Record Left and the auto mic mixer to 6 dB.</p>	

camera home

Moves the specified camera to its home position.

Synopsis	camera <1 - 8> home	
Required	<1..8>	Specify the camera to move.
Example	camera 3 home Moves camera 3 to its home position.	

camera pan

Moves the specified camera horizontally

Synopsis	camera <1..8> pan { left [<speed>] right [<speed>] stop }	
Required	<1..8>	Specify the camera to pan.
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..8> tilt { up [<speed>] down [<speed>] stop }	
Required	<1..8>	Specify the camera to tilt.
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 2 tilt down 20 Tilts camera 2 down using a speed of 20.	
	camera 3 tilt stop Stops camera 3's vertical motion.	

camera zoom

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

Synopsis	camera <1..8> zoom { in [<speed>] out [<speed>] stop }	
Required	<1..8>	Specify the camera to zoom.
Options	in	Zooms the camera in.
	out	Zooms 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 2 zoom out 7 Zooms camera 2 out using a speed of 7.	
	camera 2 zoom stop Stops camera 2's zoom motion.	

camera focus

Changes the camera focus.

Synopsis	camera <1..8> focus {{ near [<speed>] far [<speed>]} {mode [auto manual get]} stop }	
Required	<1..8>	Specify the camera to focus.
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	<p>camera 3 focus near</p> <p>OK ></p> <p>Brings the focus near at the default speed.</p> <p>camera 3 focus far 7</p> <p>OK ></p> <p>Moves the focus farther from the camera at a speed of 7.</p> <p>camera 3 focus mode get</p> <p>auto_focus: on OK ></p> <p>Returns the current focus mode.</p>	




camera preset

Moves the camera to the specified preset, or stores the current camera position and optionally CCU information, either with or without specifying that Tri-Synchronous Motion is to be used when moving to this position.

Synopsis	camera <1..8> preset { recall store } <1..16> [tri-sync <1..24>] [save-ccu]	
Options	recall <1..16>	Moves the camera to the specified preset, using Tri-Synchronous Motion if this was saved with the preset. If CCU information was saved with the preset, the camera switches to the CCU setting associated with the preset.
	store <1..16>	Stores the current camera position as the specified preset.
	tri-sync <1..24>	Optional: Specifies that the camera uses Tri-Synchronous Motion to move to this position, using the specified speed.
	save-ccu	Optional: Saves the current CCU settings as part of the preset. If not specified, the last color settings are used when recalled.
Examples	<pre>>camera 2 preset recall 3 OK ></pre> <p>Moves camera 2 to its stored preset 3.</p> <pre>>camera 2 preset store 1 OK ></pre> <p>Saves camera 2's current position as its preset 1.</p> <pre>>camera 2 preset store 4 tri-sync 15 OK ></pre> <p>Stores camera 2's current position as preset 4. The camera will use Tri-Synchronous Motion at speed 15 when it is recalled to this preset.</p> <pre>>camera 2 preset store 2 tri-sync 10 save-ccu OK ></pre> <p>Stores camera 2's current position as preset 2. The camera applies the current CCU settings and uses Tri-Synchronous Motion at speed 10 when it is recalled to this preset.</p>	


camera ccu get

Returns or sets CCU (lighting) information for the specified camera.

Synopsis	camera <1..8> ccu get <param>	
	auto_white_balance	Returns the current state of the auto white balance setting (on or off).
	red_gain	Returns the red gain value as an integer (0 to 255).
	blue_gain	Returns the blue gain value as an integer (0 to 255).
	backlight_compensation	Returns the current state of the backlight compensation setting (on or off).
	iris	Returns the iris value as an integer (0 to 11).
	auto_iris	Returns the current auto-iris state (on or off).
	gain	Returns the gain value as an integer (0 to 11).
	detail	Returns the detail value as an integer (0 to 15).
	chroma	Returns the chroma value as an integer (0 to 14).
	wide_dynamic_range	Returns the current state for Wide Dynamic Range (on or off). Returns <code>null</code> if the camera does not support this feature.
	all	Returns all current CCU settings.
Examples	<pre>>camera 3 ccu get iris iris 6 OK > Returns the current iris value. >camera 3 ccu get red_gain red_gain 201 OK > Returns the current red gain value. >camera 3 ccu get all auto_iris on auto_white_balance on backlight_compensation off blue_gain 193 chroma 2 detail 8 gain 3 iris 11 red_gain 201 wide_dynamic_range off OK > Returns all current CCU settings.</pre>	

camera ccu set

Sets the specified CCU (lighting) information.

Synopsis	camera <1..8> ccu set <param> <value>	
Options 	auto_white_balance {on off}	Sets the current state of the auto white balance setting (on or off). Auto white balance overrides red gain and blue gain manual settings.
	red_gain <0..255>	Sets the red gain value as an integer (0 to 255). Can only be used when auto white balance is off.
	blue_gain <0..255>	Sets the blue gain value as an integer (0 to 255). Can only be used when auto white balance is off.
	backlight_compensation {on off}	Sets the current state of the backlight compensation setting (on or off). Can only be used when wide dynamic range mode is off.
	iris <0..11>	Sets the iris value as an integer (0 to 11). Can only be used when auto-iris is off.
	auto_iris {on off}	Sets the auto-iris state (on or off). Auto-iris disables manual iris and gain when it is on.
	gain <0..11>	Sets gain value as an integer (0 to 11). Can only be used when auto-iris is off.
	detail <0..15>	Sets the detail value as an integer (0 to 15).
	chroma <0..14>	Sets the chroma value as an integer (0 to 14).
	wide_dynamic_range {on off}	Sets Wide Dynamic Range mode on or off. Can only be used when backlight compensation is off.
Examples	<pre>>camera 2 ccu set auto_iris off OK > Turns off auto-iris mode for camera 2, returning the camera to manual iris control. >camera 2 ccu set red_gain 10 OK > Sets camera 2's red gain value to 10.</pre>	

camera ccu scene

Stores the current CCU scene to the specified camera, or recalls the specified ccu scene for the specified camera.

Synopsis	camera <1..8> ccu scene {recall {factory <1..6> custom <1..3>} store custom <1..3>}	
Options	recall factory <1..6>	Recalls the camera to the specified scene (factory 1 – 6 or custom 1 – 3).
	recall custom <1..3>	
Options	store custom <1..3>	Saves the current scene as the specified custom scene.
Examples	<pre>>camera 2 ccu scene recall factory 2 OK > Sets camera 2 to use factory CCU scene 2. >camera 2 ccu scene store custom 1 OK > Saves the current CCU scene to camera 2 as its custom CCU scene 1.</pre>	

camera standby

Set or change standby status for the specified camera.

Synopsis	camera <1..8> standby { off on toggle get }	
Required	<1..8>	Specify the camera to place in standby (low-power) mode.
Options	off	Brings the camera out of standby 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."
	get	Returns the camera's current standby state.
Examples	<pre>camera 3 standby off Brings camera 3 out of standby mode. camera 2 standby on Puts camera 2 in standby mode. camera 2 standby get Returns the standby status of camera 2 in a form like this: standby: off OK ></pre>	

video mute

Gets or sets the video mute status of the specified channel. When video is muted, the device sends a mute pattern such as blue or black video with an on-screen message stating that video mute is on. This can be desirable when preparing the room or when privacy is needed.

Synopsis	<code>video <channel> mute { get off on toggle }</code>	
Channels	<code>master</code>	All video channels.
	<code>input1 through input8</code>	Video from the specified HDMI video input.
	<code>program</code>	Video to the program output.
	<code>preview</code>	Video to the preview output.
	<code>usb_stream</code>	Video portion of the USB stream.
	<code>ip_stream</code>	Video portion of the IP stream.
Options	<code>get</code>	Returns the current video mute status.
	<code>off</code>	Unmutes the video. (Normal video resumes.)
	<code>on</code>	Mutes the video. (Black screen with message)
	<code>toggle</code>	Changes the camera's video mute status.
Examples	video mute get Returns video mute status in a form something like this: <code>mute: off</code>	
	video mute on Transmits black video.	

video source

Gets or sets the source for the specified video output.

Synopsis	<code>video <output channel> source {get set} <source channel></code>	
Output channels	<code>program</code>	The program output, or the bus A output in dual-bus mode. Source may be any of the HDMI inputs (input1..input8).
	<code>preview</code>	The preview output, or the bus B output in dual-bus mode. Source may be any of the HDMI inputs (input1..input8).
	<code>usb_stream</code>	The video portion of the outbound USB stream. Source may be program (bus A), preview (bus B), or multiviewer.
	<code>ip_stream</code>	The video portion of the outbound IP stream. Source may be program (bus A), preview (bus B), or multiviewer.
Options	<code>get</code>	Returns the current source for the specified output.
	<code>set</code>	Sets the source for the specified output.
Source channels	<code>input1 to input8</code>	Video from HDMI inputs (Input 1 – Input 8). Valid sources for <code>program</code> and <code>preview</code> outputs.
	<code>program</code>	The program output, or bus A in dual-bus mode. Valid source for <code>usb_stream</code> and <code>ip_stream</code> outputs.
	<code>preview</code>	The preview output, or bus B in dual-bus mode. Valid source for <code>usb_stream</code> and <code>ip_stream</code> outputs.
	<code>multiviewer</code>	The multiviewer output. Valid source for <code>usb_stream</code> and <code>ip_stream</code> outputs.
Examples	video program source get Returns the video source in a form something like this: <pre>source: input3 OK ></pre> The camera at Input 3 is the current source for the program output.	
	video usb_stream source set program Sets the outbound video portion of the USB stream to use the program output as its source.	

video pip

Get or set the state of a graphics layer on the program or preview output.

Synopsis	<code>video { program preview } pip { get off source <input1..input8> }</code>	
Channels	<code>program</code>	Get, disable, or set the PIP on the program output.
	<code>preview</code>	Get, disable, or set the PIP on the preview output.
Options	<code>get</code>	Returns the current source of the PIP on the specified output.
	<code>off</code>	Disables the PIP on the specified output.
	<code>source <input1..input8></code>	Enables the PIP on the specified output, and specifies its source. Any of the 8 video inputs may be a PIP source.
Examples	<pre>video preview pip get source: input2 OK ></pre> <p>Returns the source of the PIP on the preview output.</p> <pre>video preview pip source input1 OK ></pre> <p>Sets the camera connected to Input 1 as the source for the PIP on the preview output.</p>	

graphics enable

Get or set the state of a graphics layer on the program or preview output.

Synopsis	<code>graphics <channel> enable <layer> { get on off toggle }</code>	
Channels	<code>program</code>	Get or set the state of a layer on the program output.
	<code>preview</code>	Get or set the state of a layer on the preview output.
Layers	<code>layer1</code>	Get or set the state of layer 1.
	<code>layer2</code>	Get or set the state of layer 2.
Options	<code>get</code>	Returns the state of the specified layer on the specified output.
	<code>on</code>	Enables the specified layer on the specified output.
	<code>off</code>	Disables the specified layer on the specified output.
	<code>toggle</code>	Changes the specified layer's state – if it was disabled, it changes to enabled, and vice-versa.
Examples	<pre>graphics preview enable layer1 get enabled: on OK ></pre> <p>Returns the current state of layer 1 on the preview output. Layer 1 is on.</p> <pre>graphics preview enable layer1 off OK ></pre> <p>Turns off layer 1 on the preview output.</p>	

graphics source

Get or set the state of a graphics layer on the program or preview output.

Synopsis	<code>graphics <channel> source <layer> { get set <selection> }</code>	
Channels	<code>program</code>	Get or set the state of a layer on the program output.
	<code>preview</code>	Get or set the state of a layer on the preview output.
Layers	<code>layer1</code>	Get or set the state of layer 1.
	<code>layer2</code>	Get or set the state of layer 2.
Options	<code>get</code>	Returns the current source of the specified layer on the specified output.
	<code>set <selection></code>	Enables the specified layer on the specified output.
Selections	<code>input7</code>	Set the device at input 7 as the source for the specified graphic.
	<code>input8</code>	Set the device at input 8 as the source for the specified graphic.
	<code><filename></code>	Use the specified file as the specified graphic. The file must be available in the switcher's Graphics Library.
Examples	<pre>graphics preview source layer1 get source: 120px-Stop_Sign.png OK ></pre> <p>Returns the source of the graphic currently in use as layer 1 on the preview output. Layer 1 on the preview output is currently a graphics file called 120px-Stop_Sign.png.</p> <pre>graphics preview source layer2 set input7 OK ></pre> <p>Sets the device connected to Input 7 as the source for the layer 2 graphic on the preview output.</p>	

switch mode

Get or set the current switching mode – a/b switching or dual-bus mode.

Note

After changing switching mode, we recommend rebooting the connected controller(s).

Synopsis	<code>switch mode { get a_b dual_bus }</code>	
Options	<code>get</code>	Returns the current switching mode.
	<code>a_b</code>	Sets a/b switching mode.
	<code>dual_bus</code>	Sets dual-bus switching mode.
Examples	<pre>switch mode get mode: a_b OK > Returns the current switching mode. switch mode dual_bus OK > Sets the switching mode to dual-bus.</pre>	

switch take

Execute a video take.

Synopsis	<i>In a/b switching mode:</i> <code>switch take</code> <i>In dual-bus switching mode:</i> <code>switch { preview program } take</code>	
Bus	<code>program</code>	In dual-bus mode, swaps the selected inputs on the program bus.
	<code>preview</code>	In dual-bus mode, swaps the selected inputs on the preview bus.
Examples	<pre>switch take OK > Returns the current state of layer 1 on the preview output. Layer 1 is on. switch preview take OK > Turns off layer 1 on the preview output.</pre>	

trigger

Turn an existing trigger on or off. This command has no effect if the specified trigger has not been defined.

Note

If the web interface's macro/trigger test mode is in use, this command is disabled.

Synopsis	<code>trigger <1..10> {off on block <seconds> }</code>	
Required	<code><1..10></code>	The trigger index (identifier) – triggers 1 through 10 are available.
	<code>{off on}</code>	Set the state of the trigger.
Optional	<code>block</code>	Block execution of subsequent command to allow macros to finish executing (similar to <code>sleep</code>). The default time to block is 60 seconds.
	<code><seconds></code>	Number of seconds to block.
Example	<pre>trigger 3 on Turns trigger 3 on. trigger 1 off block 10 Turns off trigger 1, and blocks for up to 10 seconds while any macros in progress finish.</pre>	

streaming settings get

Returns current IP and USB streaming settings.

Synopsis	streaming settings get	
Parameters	IP Custom_Frame_Rate	Frame rate selected in Custom quality mode.
	IP Custom_Resolution	Resolution selected in Custom quality mode.
	IP Enabled	May be <code>true</code> or <code>false</code> . Specifies whether IP streaming is enabled.
	IP Port	The RTSP port number used for IP streaming. Default is 554.
	IP Preset_Quality	Video quality selected in Easy video quality mode.
	IP Preset_Resolution	Resolution selected in Easy video quality mode.
	IP Protocol	The IP streaming protocol in use.
	IP URL	The URL where the stream is available.
	IP Video_Mode	Video quality mode selected (<code>preset</code> or <code>custom</code>).
	USB Enabled	Specifies whether USB streaming is enabled.
Example	<pre>>streaming settings get IP Custom_Frame_Rate 30 IP Custom_Resolution 1080p IP Enabled true IP Port 554 IP Preset_Quality High Quality (Best) IP Preset_Resolution 720p IP Protocol RTSP IP URL vaddio-avbmm-stream IP Video_Mode preset USB Enabled true</pre>	

network settings get

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

Synopsis	network settings get
Example	<pre>network settings get Name: eth0:WAN 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 OK ></pre>

network ping

Sends an ICMP ECHO_REQUEST to the specified IP address or hostname.

Synopsis	<code>network ping [count <count>] [size <size>] <destination-ip></code>	
Options	<code><count></code>	The number of ECHO_REQUEST packets to send. Default is five packets.
	<code><size></code>	The size of each ECHO_REQUEST packet. Default is 56 bytes.
	<code><destination-ip></code>	The IP address where the ECHO_REQUEST packets will be sent.
Examples	<pre>>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 ></pre> <p>Sends five ECHO_REQUEST packets of 56 bytes each to the host at 192.168.1.66.</p>	
	<pre>>network ping count 10 size 100 192.168.1.1</pre> <p>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.</p>	


system reboot

Reboots the system either immediately or after the specified delay. Note that a reboot is required when resetting the system to factory defaults (system factory-reset).

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

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	<code>system factory-reset { get on off }</code>	
Options	<code>get</code>	Returns the device's current factory reset status.
	<code>on</code>	Enables factory reset on reboot.
	<code>off</code>	Disables factory reset on reboot.
Examples 	<pre>>system factory-reset get factory-reset (software): off factory-reset (hardware): off OK ></pre> <p>Returns the factory reset status.</p> <p>This evaluates the most recent <code>system factory-reset on</code> or <code>off</code> command, if one has been received, then reads the rear panel DIP switches and returns the status <code>on</code> if they are all in the down position.</p> <pre>>system factory-reset on factory-reset (software): on factory-reset (hardware): off OK ></pre> <p>Enables factory reset upon reboot.</p> <p>Note <i>This command does not initiate a factory reset. The factory reset takes place on the next reboot.</i></p>	

sleep

Pauses for the specified number of milliseconds.

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

version

Returns the current firmware version.

Synopsis	<code>version</code>
Example	<pre>version Returns current firmware version information in a form something like this: Audio 1.07-1.00 Commit 289e985e9557617497005bde771a9922c153cdec System Version AVBMM 1.0.0 USB 01.00.017 Video 0 HW 1.00-08.24.17 Video 0 SW 0.01-08.24.17 Video 1 0.00-08.24.17 OK ></pre>

history

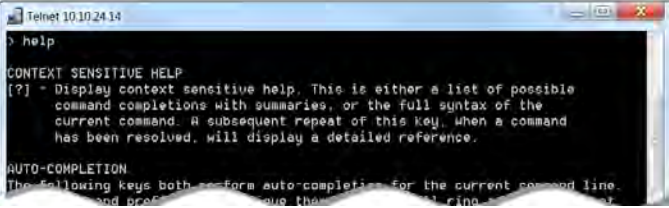
Returns the most recently issued commands from the current Telnet session. Since many of the programs read user input a line at a time, the command history is used to keep track of these lines and recall historic information.

Synopsis	<code>history <limit></code>	
Options	<code><limit></code>	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	<p>You can navigate the command history using the up and down arrow keys.</p> <p>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"> * !! 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) 	



help

Displays an overview of the CLI syntax.

Synopsis	help
Example	<p>help</p>  <pre> Telnet 10.10.24.14 > help CONTEXT SENSITIVE HELP [?] - Display context sensitive help. This is either a list of possible command completions with summaries, or the full syntax of the current command. A subsequent repeat of this key, when a command has been resolved, will display a detailed reference. AUTO-COMPLETION The following keys both perform auto-completion for the current command line. The following keys both perform auto-completion for the current command line. </pre>

Note:

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

exit

Ends the command session and then closes the Telnet socket.

Synopsis	exit
Example	exit

Specifications

Camera and Video HDMI Inputs		Program, Preview, and Multiview HDMI Outputs	
Color Space	YCbCr or sRGB	Color Space	YCbCr or sRGB
Resolution (Inputs 1-6)	720p/50 to 1080p/60	Resolution	720p/50 to 1080p/60
Resolution (Inputs 7, 8)	720p/50 to 2048x1152/60	HDCP Support	Program and Preview
IP Streaming		USB Streaming	
Channels	1 video+audio	Channels	1 video, 2 audio
Format	RTSP	Drivers	UVC, UAC
Encoding	H.264	Resolution	180p/15 to 1080p/30, autonegotiated
Resolutions	360p/15 to 1080p/30		
Audio Line Inputs (Balanced)		Audio Line Outputs (Balanced)	
Frequency Response	20Hz to 20 KHz	Frequency Response	20Hz to 20 KHz
Dynamic Range	>90 dB	Dynamic Range	>90 dB
THD + Noise	< 0.1% (Mic Level)	THD + Noise	< 0.2%
Impedance	10 Kohm	Impedance	< 50 ohms
HDMI Audio		IP and USB Streaming Audio	
Channels	Stereo	Channels	Stereo
Sample Rate	48 KHz	Sample Rate	48 KHz
Resolution	16 bit	Resolution	16 bit

Power, Physical and Environmental

Input Power	12 VDC, 5 A	Audio line in phantom power	48 VDC, 10 mA
Height	2 RU; 3.47 in. (8.8 cm)	Width	16.7 in. (42.5 cm)
Depth	8 in. (20.3 cm)	Weight	9.15 lb (4.15 kg)
Temperature	Operating: 32° to 104° F (0° to 40° C); Storage: 23° to 140° F (-5° to 60° C)		
Humidity	Operating and Storage: 15% to 80% RH non-condensing		

Specifications are subject to change without notice.

Troubleshooting and Care

If the equipment does not behave as you expect, 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 from 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 device or its mid-span power injector is bad.	Contact your reseller or Vaddio Technical Support.
Unable to log in successfully.	The web interface is out of sync with the unit. This can happen if more than one person is controlling the unit.	Use the browser's page refresh button.
	The password has been changed.	Contact your system administrator.
Unable to access the switcher's stream.	Streaming is not enabled on the switcher.	Log in to the switcher's web interface as admin and enable the appropriate stream.
The switcher is behaving in unexpected ways.	More than one operator has control of the switcher.	
The program and preview indicators are blinking on the front panel and on the Video Switching page of the web interface. (This may be visible on the controller as well.)	A take is in progress. If the indicators keep blinking but no take occurs, the controller's T-bar is not at either end of its travel.	Have the operator complete the take using the controller's T-bar.

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 55032: 2015	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'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique édicté 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:



EMC Directive 2004/108/EC

EN 55022: December 2010

EN 55024: November 2010

EN 61000-4-2: 1995 + Amendments A1: 1998 + A2: 2001

EN 61000-4-3: 2006 + A1: 2008

EN 61000-4-4: 2004 + Corrigendum 2006

EN 61000-4-5: 2006

EN 61000-4-6: 2009

EN 61000-4-8: 2010

EN 61000-4-11: 2004

KN22 2008 (CISPR 22: 2006)

KN24 2008 (CISPR 24: 1997 + A1: 2000 + A2: 2002)

EN 61000-4-2

EN 61000-4-3

EN 61000-4-4

EN 61000-4-5

EN 61000-4-6

EN 61000-4-8

EN 61000-4-11

IEC 60950-1: 2005 (2nd Edition); Am 1: 2009 + Am 2: 2013

EN 60950-1: 2006 + A11: 2009 + A1: 2010 + A12: 2011 + A2: 2013

Conducted and Radiated Emissions

Immunity

Electrostatic Discharge

Radiated Immunity

Electrical Fast Transients

Surge Immunity

Conducted Immunity

Power Frequency Magnetic Field

Voltage Dips, Interrupts and Fluctuations

Conducted and Radiated Emissions

IT Immunity Characteristics

Electrostatic Discharge

Radiated Immunity

Electrical Fast Transients

Surge Immunity

Conducted Immunity

Power Frequency Magnetic Field

Voltage Dips, Interrupts and Fluctuations

Safety

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 warranty: 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.

Photo Credits

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

By NASA - https://blogs.nasa.gov/ISS_Science_Blog/2015/03/06/women-in-space-part-two-whats-gender-got-to-do-with-it/, Public Domain, <https://commons.wikimedia.org/w/index.php?curid=38834990>

Carl Sagan, Bruce Murray, Louis Friedman (founders) and Harry Ashmore (advisor), on the occasion of signing the papers formally incorporating The Planetary Society

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Main Control Room / Mission Control Room of ESA at the European Space Operations Centre (ESOC) in Darmstadt, Germany

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Expedition 42 on orbit crew portrait, International Space Station, Mar. 7, 2015 – Barry Wilmore (Commander) Top, Upside down, to the right cosmonaut Elena Serova, & ESA European Space Agency Samantha Cristoforetti. Bottom center US astronaut Terry Virts, top left cosmonauts Alexander Samokutyaev and Anton Shkaplerov.

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European Space Agency astronaut Luca Parmitano, Expedition 36 flight engineer, outside the International Space Station

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Chris Cassidy, Luca Parmitano, and Karen Nyberg, ISS, 2013. Photo Credit: NASA

Nicolas Altobelli, Rosetta Scientist at ESA's European Space Astronomy Centre, Villanueva de la Cañada, Madrid, Spain

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The logo for Vaddio, featuring the word "vaddio" in a bold, blue, lowercase sans-serif font. The final letter "o" is stylized as a circle with a smaller solid circle inside it, resembling an eye or a lens. A registered trademark symbol (®) is located at the top right of the "o".

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