Livestream Studio Manual

vimeo · livestream

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Requirements & Recommendations

Recommended Hardware Specifications for Livestream Studio

Below are the recommended hardware specifications for running Livestream Studio, including example workflows that each system type can handle.

Please note that many of these scenarios involve using Livestream Studio's hardware encoding feature. This is when the encoding is done either by a supported graphics card or in a processor that has integrated graphics.

Desktop Computer with Hardware Encoding Enabled

Hardware Component	Recommended Minimum Desktop (with Hardware Encoding)
Processor with Integrated Graphics	Quad Core Intel® i5 (6th Generation) or i7 (4th Generation) Processor or better
Graphics	Quick Sync-enabled CPU or NVIDIA NVENC-enabled GPU
Memory	8 GB or better
Storage	128GB SSD + 512GB HDD or better
Motherboard	Intel compatible motherboard
Example of a supported workflow	• Camera sources: Multiple HD inputs & outputs • Streaming: Up to 1080p multi-bitrate streaming profiles • Graphics: Intermediate graphics templates and layering with picture-in-picture, chroma key, and image overlays

Desktop Computer without Hardware Encoding

Hardware Component	Recommended Specifications (no hardware encoding)
Processor	6 (Hexa) Core Intel® i7 5th Generation Extreme Edition or better
Graphics	NVIDIA GeForce 600 Series or better
Memory	16GB or better
Storage	2TB SSD
Motherboard	Intel compatible motherboard
Example of a supported workflow	• Sources: Multiple HD Inputs/Outputs • Streaming: Up to 720p multi-bitrate streaming or single-bitrate 1080p streaming • Graphics: Intermediate graphics templates and layering with picture-in-picture, chroma key, and image overlays

Advanced Desktop Computer with Hardware Encoding

Hardware Component	Recommended Desktop Specification
Processor	6 (Hexa) Core Intel i7 6th Generation Extreme Edition or better
Graphics	NVENC enabled NVIDIA GPU (Such as Nvidia Geforce GT 730)
Memory	32-64GB DDR4 Memory
Storage	2TB SSD
Motherboard	Intel compatible motherboard
Example of a supported workflow	• Sources: Multiple 4K / HD Inputs and Outputs • Streaming: 4K / 1080p multi-bitrate streaming • Graphics: Advanced graphics templates and layering with picture-in-picture, chroma key, and animated graphic overlays

Minimum Laptop with Hardware Encoding

Hardware Component	Minimum Laptop Specification (with Hardware Encoding)
Processor with integrated graphics	4 (Quad) Core Intel i5 - 6th Generation or better
Memory	8GB or better
Graphics	Quick Sync enabled CPU or NVIDIA NVENC enabled GPU
Storage	500GB HDD (SSD preferred) or better
Example of a supported workflow	• Sources: USB Webcams, USB 3.0 Capture devices and Remote Cameras over LAN/ WLAN • Streaming: Up to 720p multi-bitrate streaming • Graphics: Simple graphics templates with picture-in-picture and static overlays (no chroma key, no animated graphics)

Advanced Laptop with Hardware Encoding

Hardware Component	Advanced Laptop specification (with hardware encoding)
Processor with integrated graphics	4 (Quad) Core Intel i7 - 6th Generation or better
Graphics	Quick Sync enabled CPU or NVIDIA NVENC enabled GPU
Memory	16 GB DDR4 Memory or better
Storage	500 GB SSD or better
Example of a supported workflow	• Sources: USB Webcams and USB 3.0 Capture devices • Streaming: Up to 1080p Multi-bitrate streaming profiles.. • Graphics: Intermediate Graphics templates and layering w/ PiP, Chroma Key, and image overlays.

Additional Notes

- Livestream Studio is not compatible with Windows 32-bit systems.
- macOS must be on High Sierra or later in order to run Studio.
- If you intend to use USB 3.0 capture devices for any video input or output, we recommend your motherboard have an Intel X99 chipset, as X79 chipsets do not support these USB 3.0 devices. Please see Blackmagic's notice regarding USB 3.0 device support.

Supported Capture Devices for Livestream Studio

We generally recommend capture cards by **Blackmagic Design** and **Magewell**. While both of these brands release new cards and devices frequently, only the cards listed below have been tested by our team and/or reported working by our customers. If you've had success with a card that is not listed here, please let us know.

PCIe

- **Blackmagic Decklink SDI

- Blackmagic DeckLink SDI 4K

- **Blackmagic DeckLink Duo

- Blackmagic DeckLink Duo 2

- **Blackmagic DeckLink Quad

- Blackmagic DeckLink Quad 2

- **Blackmagic DeckLink Optical Fiber

- **Blackmagic DeckLink Studio

- Blackmagic DeckLink Studio 4K

- **Blackmagic DeckLink HD Extreme 3D

- Blackmagic DeckLink 4K Extreme

- Blackmagic DeckLink 4K Extreme 12G - Quad SDI

- Blackmagic DeckLink 4K Pro

- Blackmagic DeckLink Mini Recorder (capture only)

- Blackmagic DeckLink Mini Monitor (playback only)

- Blackmagic Intensity Pro 4K

- Blackmagic DeckLink Mini Recorder 4K (capture only)

- Blackmagic DeckLink Mini Monitor 4K (playback only)

- Blackmagic DeckLink SDI Micro

- Blackmagic DeckLink Micro Recorder (capture only)

- *Magewell Pro Capture AIO

- *Magewell Pro Capture HDMI

- *Magewell Pro Capture Quad HDMI

- *Magewell Pro Capture SDI

- *Magewell Pro Capture Quad SDI

- *Magewell Pro Capture Mini HDMI

- *Magewell Pro Capture

- *Magewell Eco Capture Dual HDMI M.2

- *Magewell Eco Capture Dual SDI M.2

- *Magewell Eco Capture 4K M.2

- *Magewell Eco Capture SDI M.2

*Drivers for Magewell Pro cards can be downloaded here; Magewell Eco drivers can be downloaded here.

**Indicates this product has been discontinued. However, it is still compatible with our software if you already own it.*

Thunderbolt

- Blackmagic UltraStudio Mini Recorder (capture only)

- Blackmagic UltraStudio Mini Monitor (playback only)

- **Blackmagic UltraStudio 3D

- Blackmagic UltraStudio 4K

- Blackmagic UltraStudio 4K Extreme

- Blackmagic UltraStudio 4K Extreme 3

- **Blackmagic UltraStudio Express

- Blackmagic Intensity Shuttle for Thunderbolt

- **Blackmagic Intensity Extreme

***Indicates this product has been discontinued. However, it is still compatible with our software if you already own it.*

Please make sure you are plugging Thunderbolt capture devices into a ports that have a Thunderbolt logo; oftentimes, these can be confused with display ports.

USB 3.0

- Blackmagic Intensity Shuttle for USB 3.0

- **Blackmagic UltraStudio Pro

- **Blackmagic ATEM 1 M/E Production Switcher

- **Blackmagic ATEM 2 M/E Production Switcher

- Magewell USB Capture HDMI

- Magewell USB Capture SDI

Indicates this product has been discontinued. However, it is still compatible with our software if you already own it.

The Blackmagic UltraStudio SDI is not supported.

Blackmagic USB 3.0 encoding devices are not supported on all machines. In particular, motherboards with an Intel X79 chipset do not support Blackmagic USB 3.0 devices. Please see Blackmagic Design's notes about USB 3.0 system requirements.

Studio does not utilize the individual inputs on the ATEM production switchers. Studio can ingest the output from these production switchers via USB 3.0.

USB Webcam Adapters

These devices will allow your computer to recognize your camera similarly to how it would recognize a webcam. Studio generally recognizes most webcams. We have tested the following:

- Blackmagic Web Presenter

- Elgato Cam Link

    - The following formats did **not** work: 720p 30, 720p 29.97, 720p 25 and 1080p/720p 23.98, all interlaced formats

- Elgato Cam Link 4K

    - The following formats did **not** work: 720p 30, 720p 29.97, 720p 25 and 4k/1080p/720p 23.98

If you are using an Elgato device, please check their website for supported cameras.

The following Blackmagic Design products connect via USB 2.0 and therefore do not work with Livestream Studio:

- H.264 Pro Recorder
- ATEM Television Studio
- ATEM Production Studio 4K
- ATEM 1 M/E Production Studio 4K
- ATEM 2 M/E Production Studio 4K
- ATEM 2 M/E Broadcast Studio 4K

If you would like to connect one of the ATEM 4K switchers to Studio, it is recommended to utilize one of their video outputs (HDMI, SDI, etc.) into a Blackmagic Capture device that Studio does support.

Once you have a capture card(s) connected to your computer, be sure to install the Blackmagic drivers.

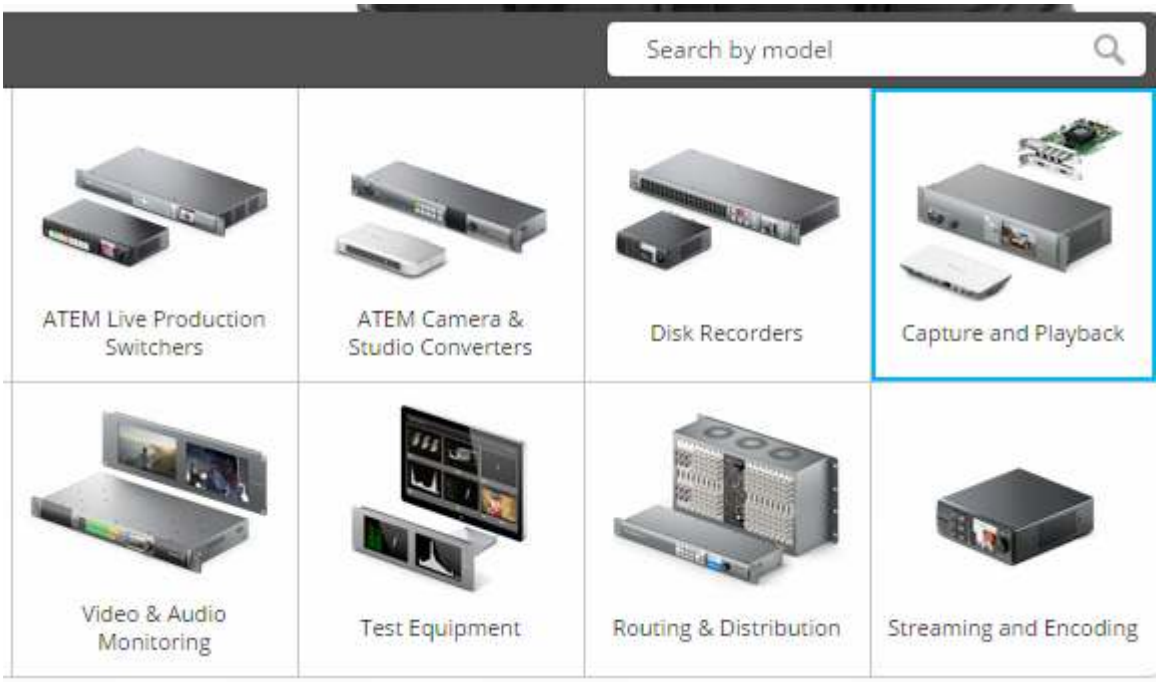
Installing or Updating Blackmagic Design Desktop Video Drivers

Blackmagic Design Desktop Video is the driver that is required in order for Livestream Producer and Livestream Studio software to recognize video inputs coming in through a Blackmagic Design capture device. If you are having an issue seeing your camera source, it could be an issue with the current version of the drivers you have installed.

If you currently have another version, you should first uninstall that version and then install the recommended Desktop Video version.

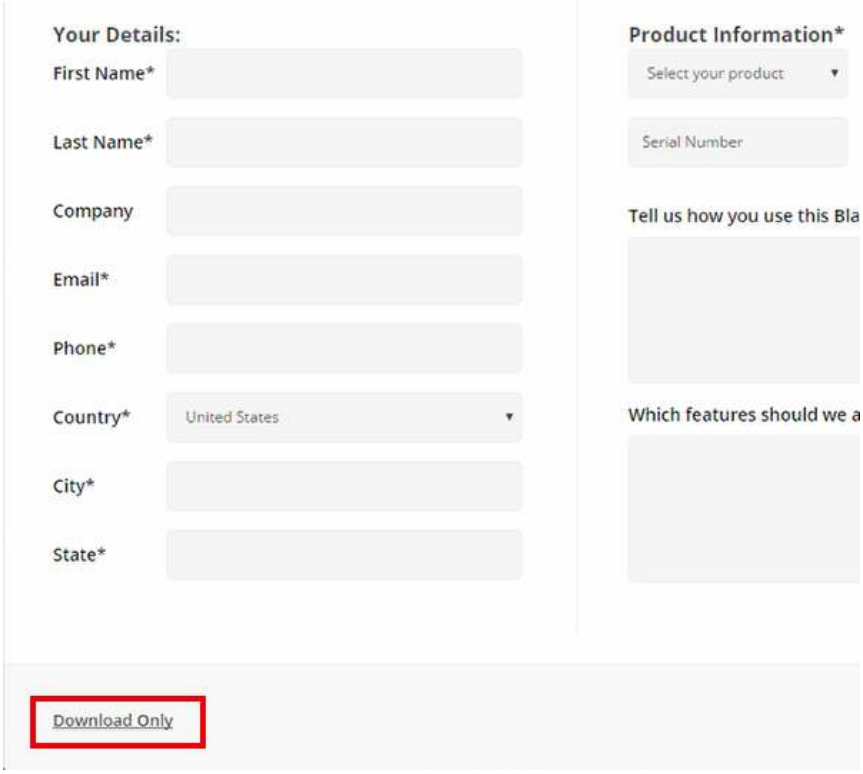
We generally recommend using the most recent version of Desktop Video. However, if you are on **Windows 10 Pro version 1709**, we recommend downloading Desktop Video **10.9.5**.

Go to http://www.blackmagicdesign.com/support. Under **Select a Product Family**, choose **Capture and Playback**.

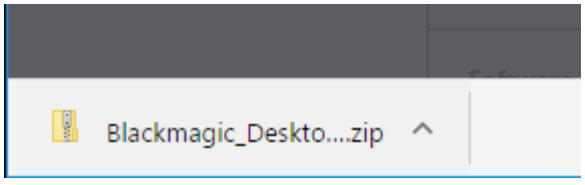


Below on the left side is a column called Latest Downloads. Find the desired version of Desktop Video, and select the operating system you are using (Mac or Windows).

You will be prompted to register. This step is optional. You may skip it by clicking 'Download Only' in the bottom left corner.



When the download is complete, open the .zip folder and run the installer.



Follow the on-screen steps, then restart your computer to complete the installation.

What Cameras Work with Livestream Studio?

Livestream Studio is compatible with USB webcams, consumer HDMI camcorders, and higher end HD-SDI cameras. Older cameras can also connect via component, composite, and S-Video provided you have the proper video capture cards to connect them to your PC.

USB Webcams are ideal for very localized use, as most webcams' cables do not extend beyond six feet.

HDMI cameras range in size and cost and work best for shorter distances. While longer HDMI cables are available, we recommending staying below 20 feet to retain optimal video quality.

HD-SDI cameras are much pricier but can be worth the cost if your production requires long cable runs. SDI cables can transmit audio & video over hundreds of feet without losing video quality.

Livestream Studio does support 4K camera inputs, provided that you install a 4K compatible capture card. Please be advised that not all providers support streaming in 4K at this time.

A Note Regarding PTZ Cameras

If you wish to use a PTZ camera with Livestream Studio, it must either include a video output interface (e.g. SDI) or be NDI compatible. If your PTZ camera does not include either of these specifications, then it will not work with Livestream Studio.

360 Cameras

Livestream Studio does not support 360 cameras and video formats at this time.

Power Requirements for Livestream Studio Hardware Products

The power required to run Livestream Studio will be dependent on the type of system you are running the software on.

The HD51, HD510, and HD550 have the following power requirements:

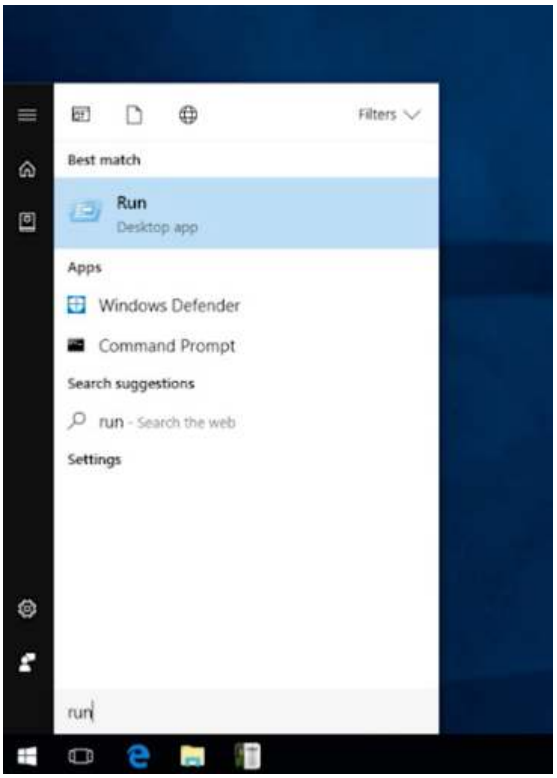
- 230 / 110 Volts
- Approximately 500 watts running at full capacity

Forcing Windows PC to Run Maximum Amount of Cores

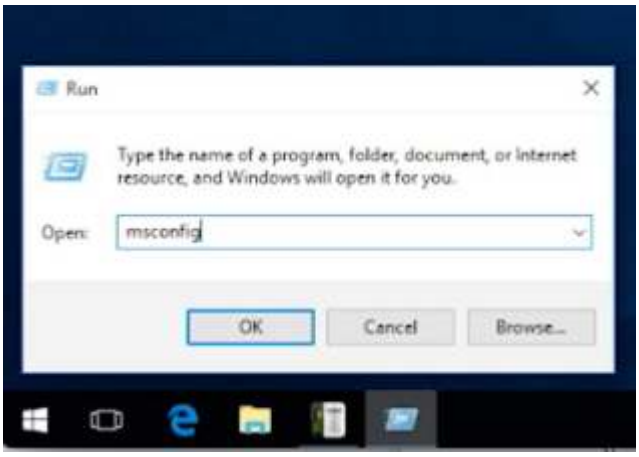
To optimize your computer's performance when using Livestream Studio, we recommend forcing your system to use its maximum amount of cores (usually four or six; the below example has eight).

This does not apply to macOS systems.

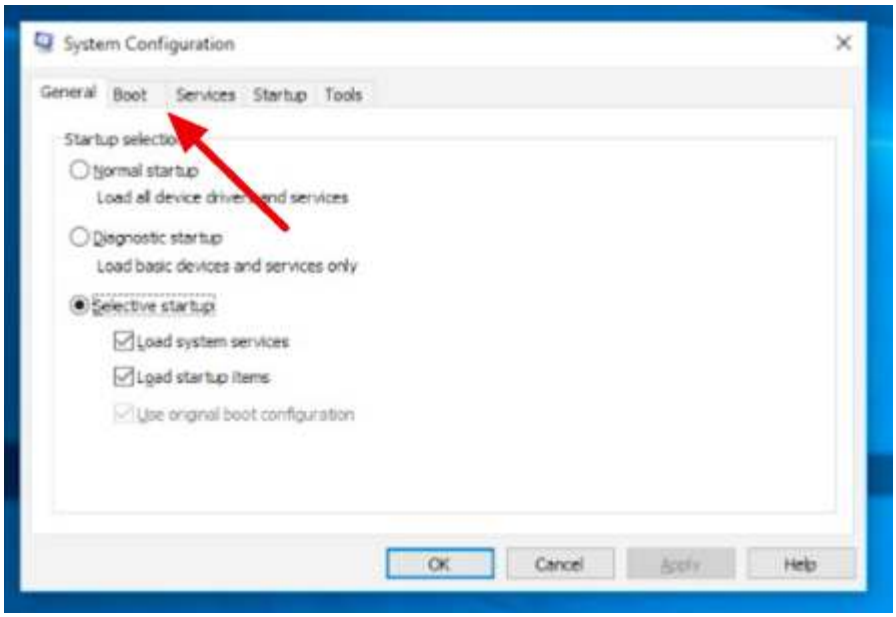
Open the Windows start menu and type "**Run**," then open the Run desktop app.



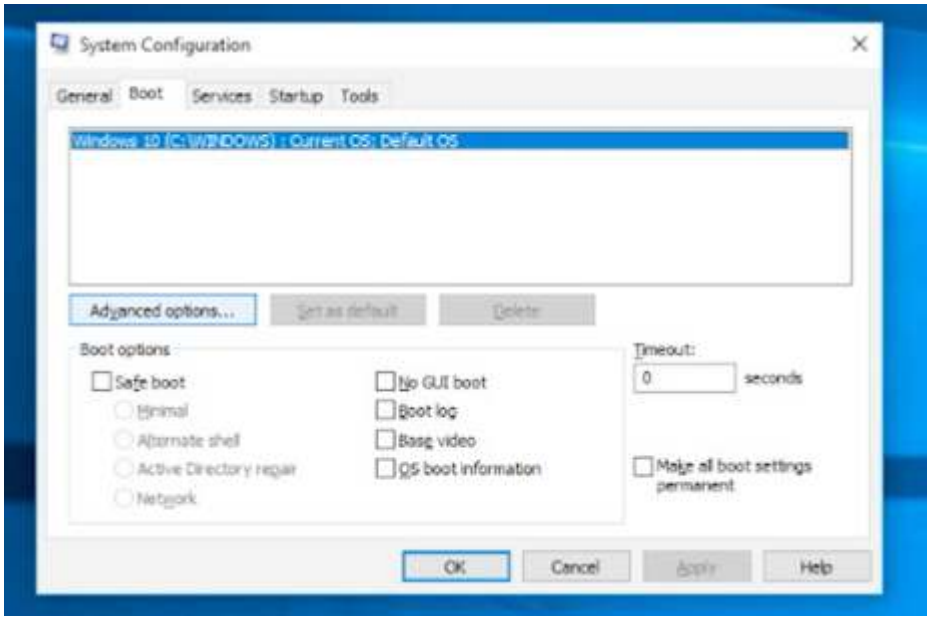
Type **msconfig** into the text field, then click OK.



This window will open up. Navigate to the Boot tab.



Click Advanced options...

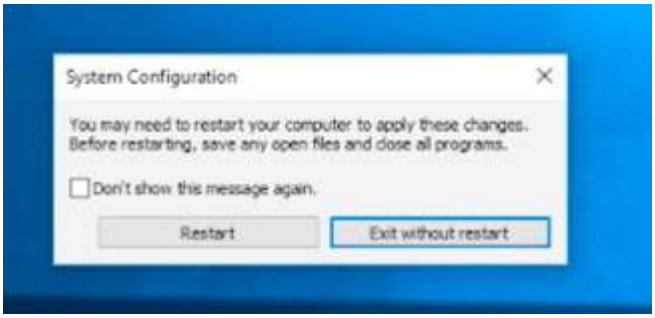


Check Number of processors to enable the dropdown menu.

Select the highest number of processors your system has (in this case, 8). Then click OK.

Apply the settings, then click OK.

You will be advised that you may need to restart your computer to apply your settings. We recommend doing so before launching Studio to ensure the settings have taken effect.

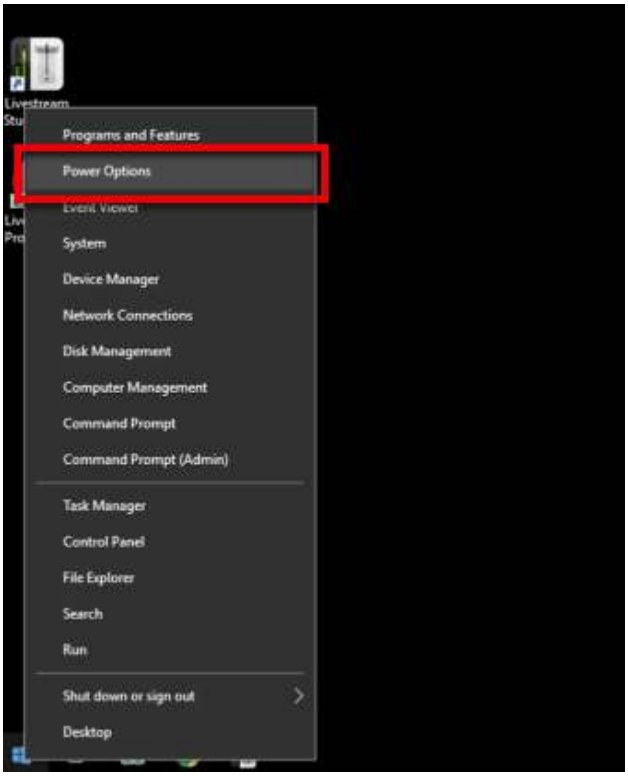

System Configuration
You may need to restart your computer to apply these changes.
Before restarting, save any open files and close all programs.
Don't show this message again.
Restart
Exit without restart

Recommended Power Settings For Running Studio on a Windows Laptop

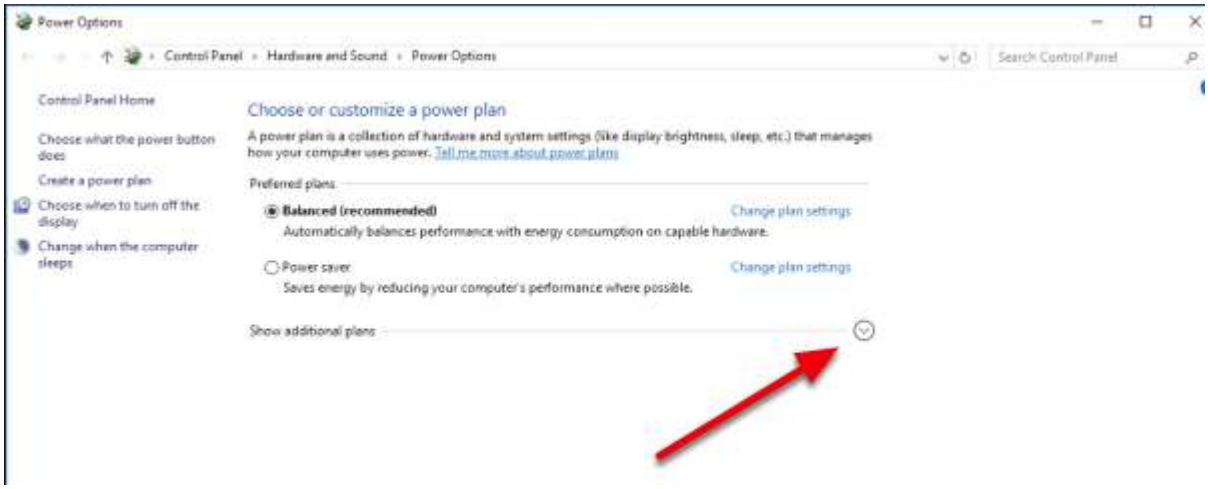
There are some settings in Windows to help optimize Studio's performance when activating hardware encoding.

This does not apply to macOS systems.

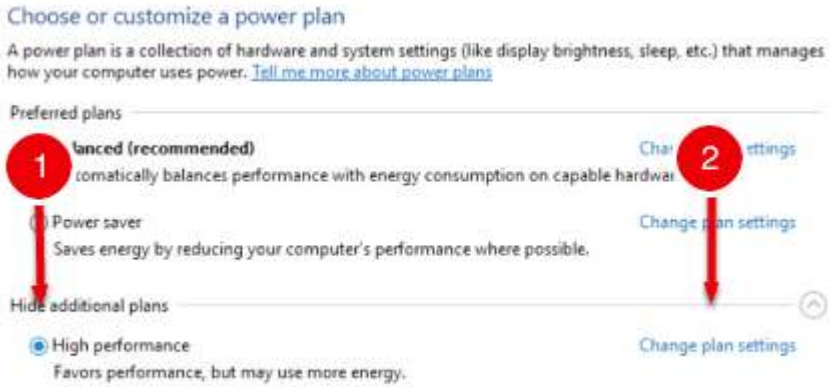
Go to the Start Menu and navigate to **Power Options**. (This can also be found within the Control Panel.)



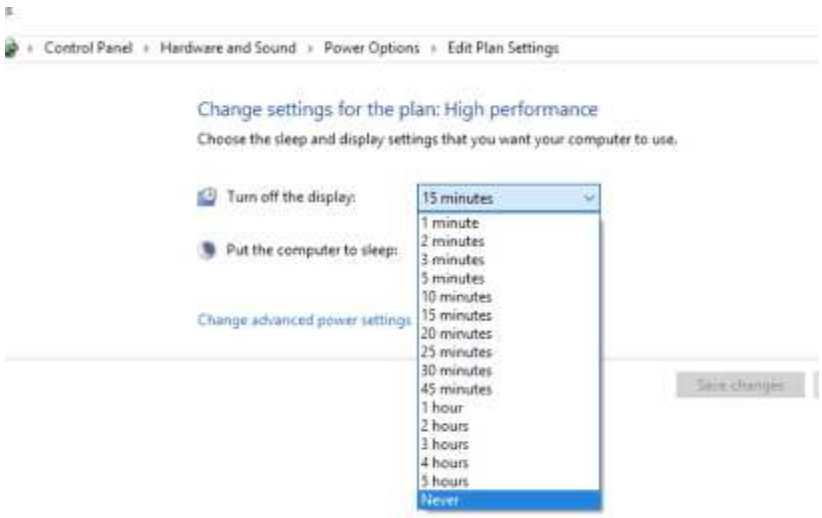
Click the dropdown arrow next to **Show additional plans**.



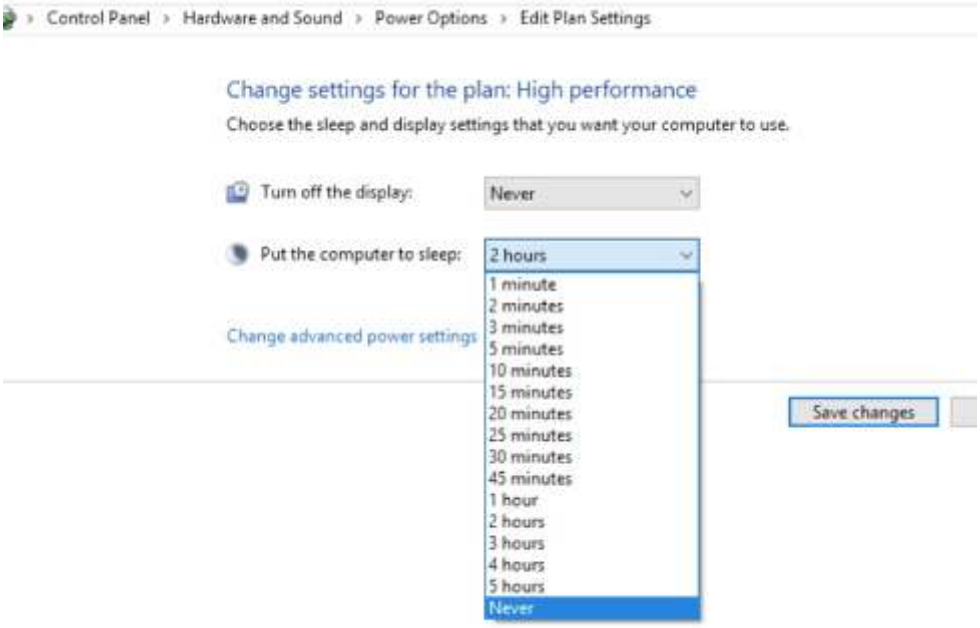
High performance will appear as an option. Click the corresponding radio button to select it. After doing so, click Change plan settings.



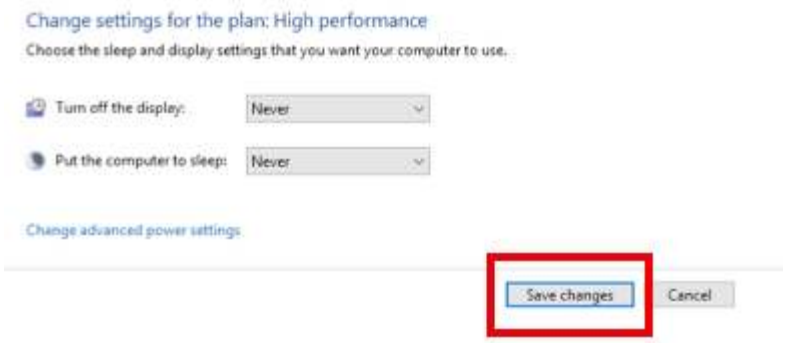
Under Turn off the display, select Never.



Under Put the computer to sleep, select Never.



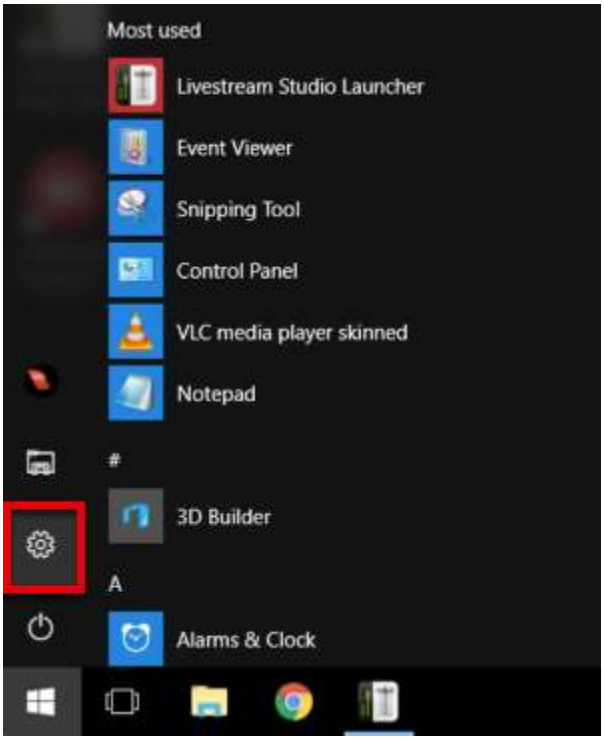
Click Save changes.


Change settings for the plan: High performance
Choose the sleep and display settings that you want your computer to use.
Turn off the display:
Never
Put the computer to sleep:
Never
Change advanced power settings
Save changes
Cancel

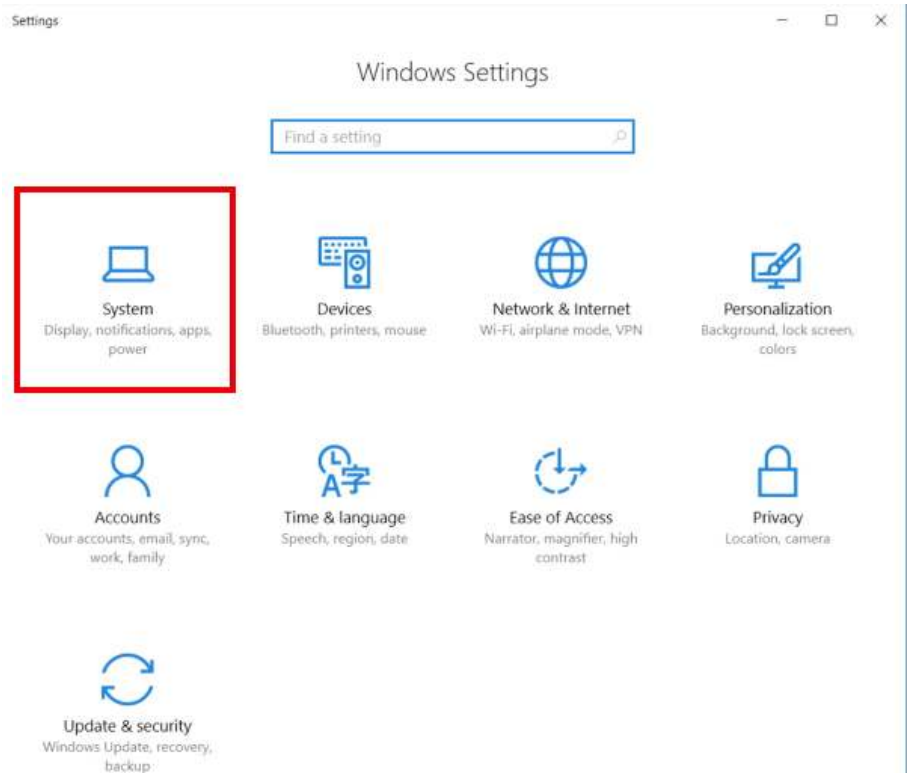
Fix Font Sizing Issues in Windows 10

Scaling Windows font to 100% will make it easier to use Studio with Windows 10.

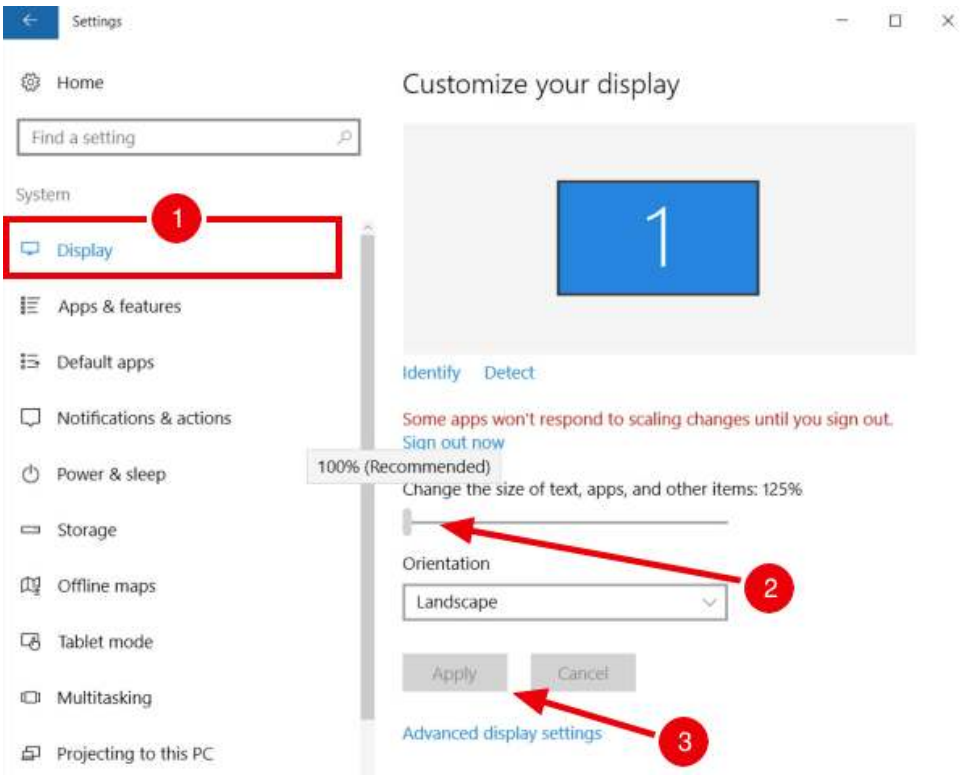
Navigate to **Windows Settings**.

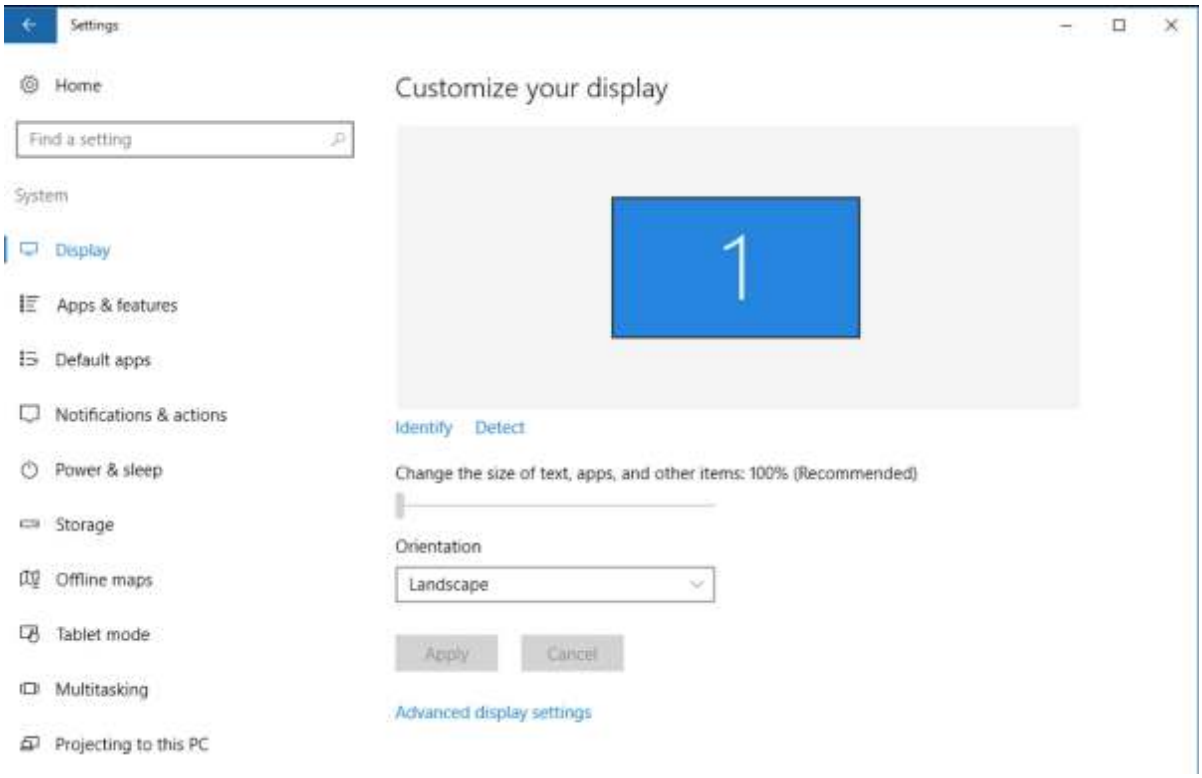


Select **System**.



Select Display, and drag the scale all the way to the left so it reads 100%. Then click Apply to save the settings, which will then take effect immediately.


Settings
Home
Find a setting
System
Display
Apps & features
Default apps
Notifications & actions
Power & sleep
Storage
Offline maps
Tablet mode
Multitasking
Projecting to this PC
Customize your display
1
Identify
Detect
Some apps won't respond to scaling changes until you sign out.
Sign out now
100% (Recommended)
Change the size of text, apps, and other items: 125%
Orientation
Landscape
Apply
Cancel
Advanced display settings
1
2
3

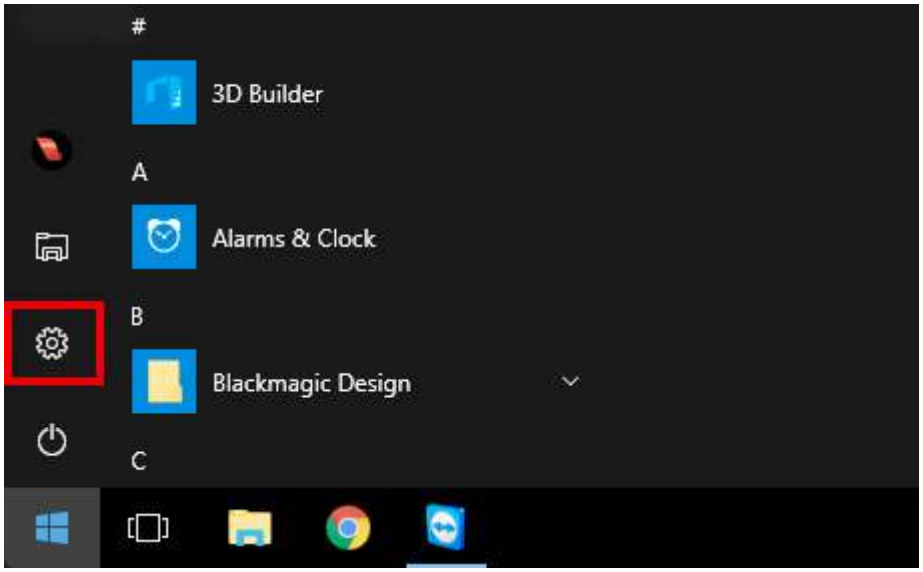

Settings
Home
Find a setting
System
Display
Apps & features
Default apps
Notifications & actions
Power & sleep
Storage
Offline maps
Tablet mode
Multitasking
Projecting to this PC
Customize your display
1
Identify
Detect
Change the size of text, apps, and other items: 100% (Recommended)
Orientation
Landscape
Apply
Cancel
Advanced display settings

Prevent Automatic Windows Updates

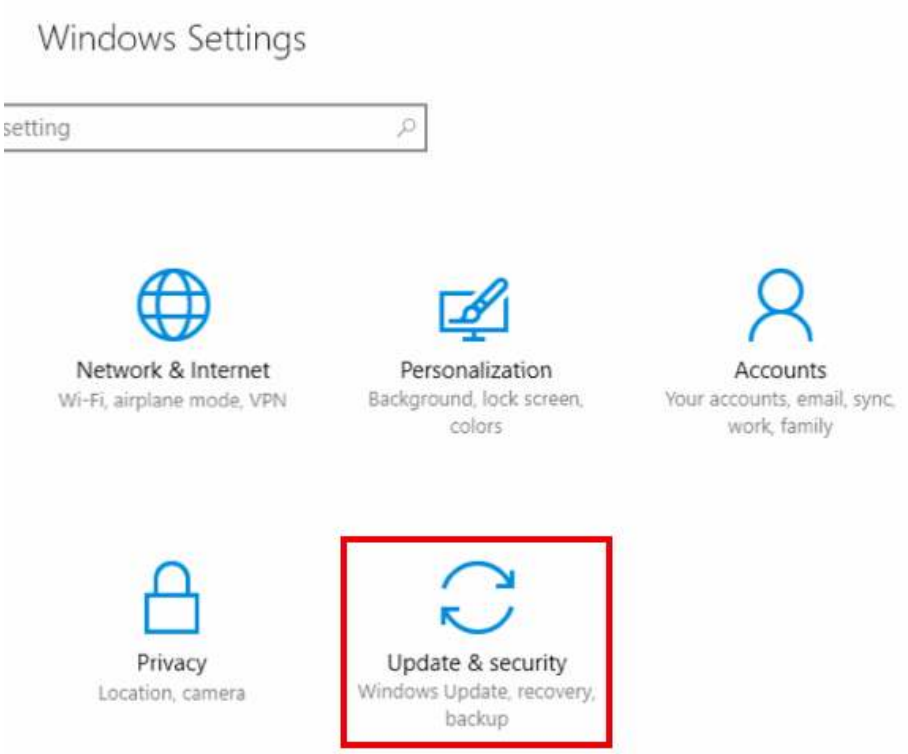
The last thing you want right before or during an event is to be forced to update Windows, which could postpone your setup or interrupt your stream. While there is no way to turn off updates entirely, you can configure Windows settings to run updates only at certain times.

Since macOS does not automatically restart or force updates, this article only applies to Windows systems.

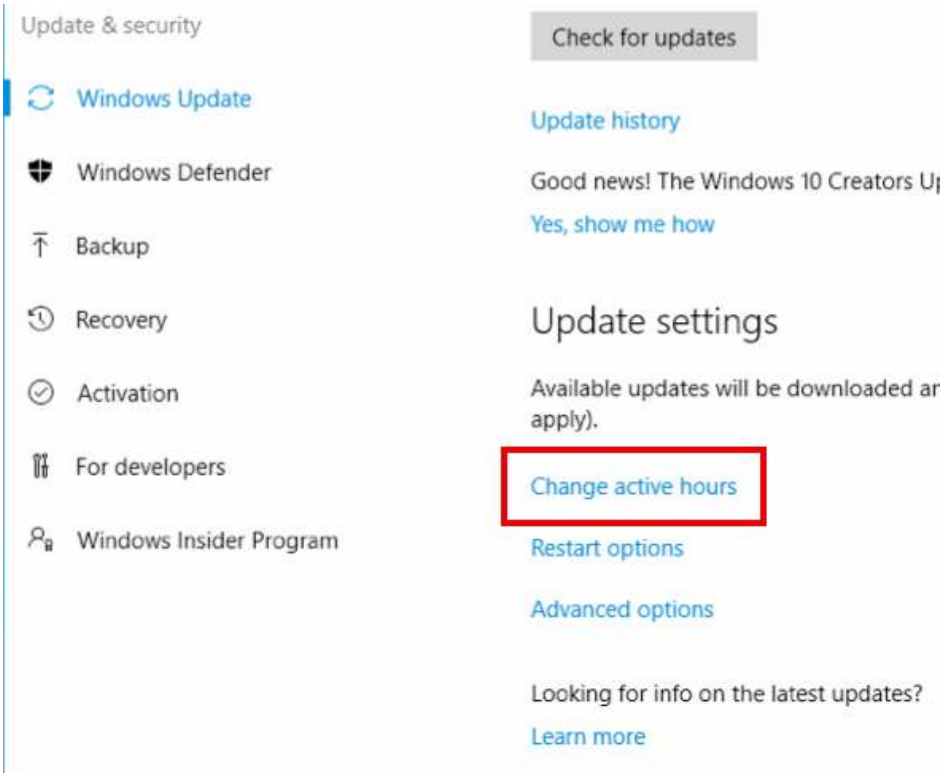
Open the Start menu and click the gearwheel to open Settings.



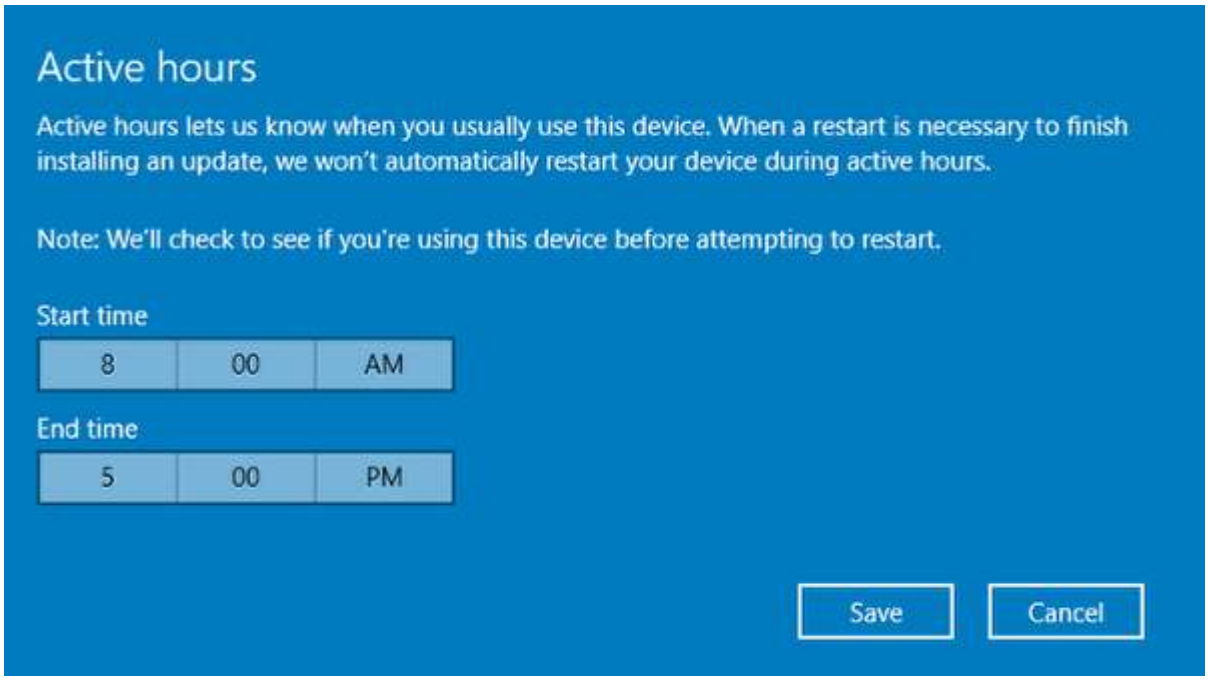
Select Update & security.



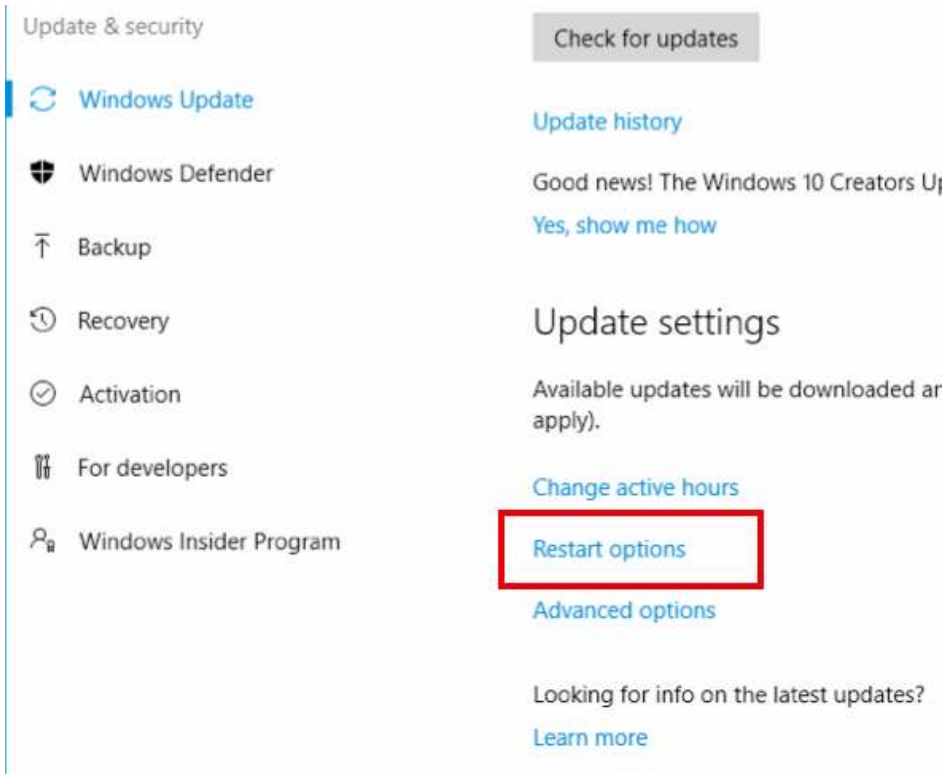
Under the **Windows Update** tab, click **Change active hours**.

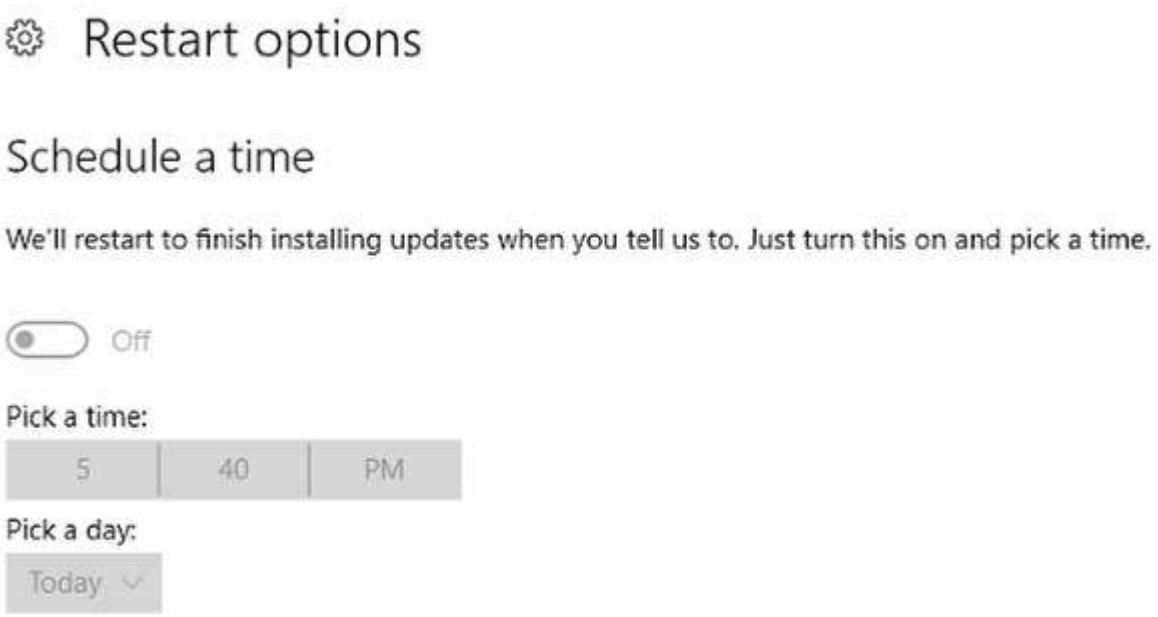


You can choose a 12-hour time range during which Windows will not automatically update. If an update becomes available during that time frame, a notification will appear letting you know that your computer will restart outside of active hours.



If you do see the notification and feel your event is going to run longer, you can select Restart Options and tell Windows when to restart your computer to install updates.



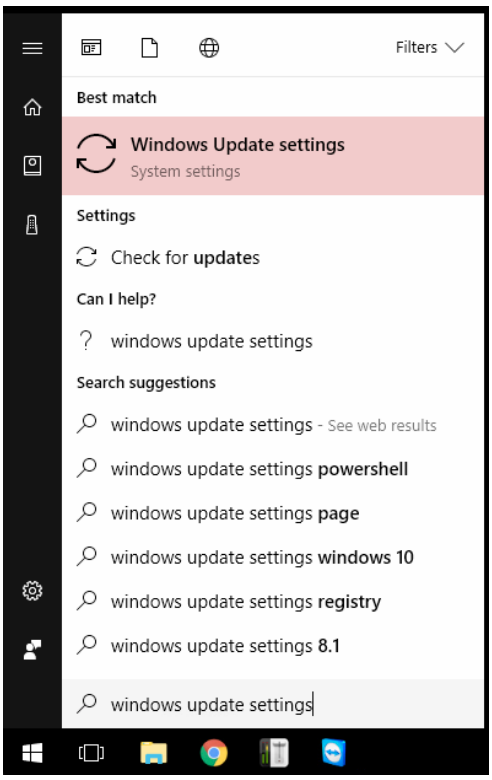

Restart options
Schedule a time
We'll restart to finish installing updates when you tell us to. Just turn this on and pick a time.
Off
Pick a time:
5
40
PM
Pick a day:
Today

Prevent Windows Update Sharing

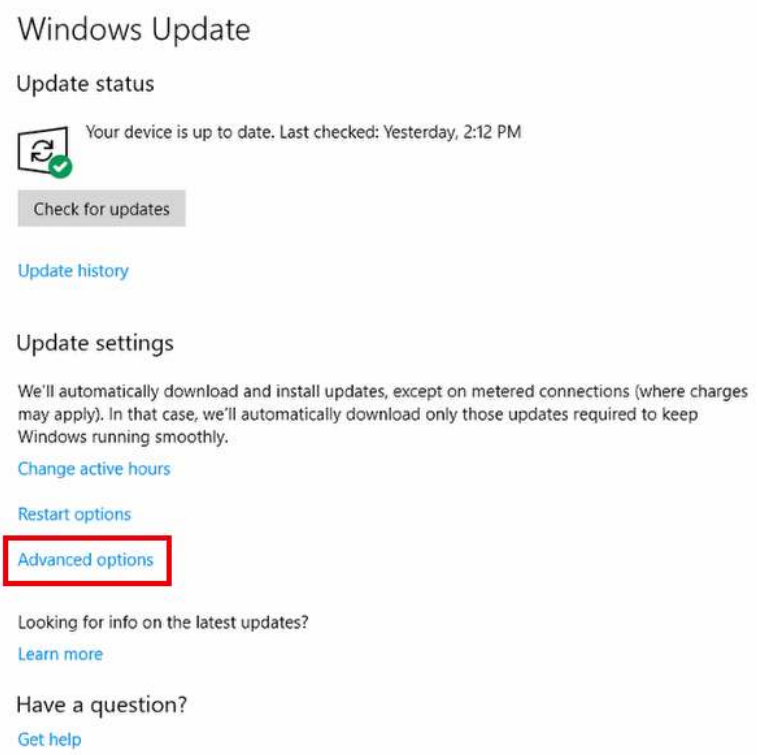
Included with Windows 10 is the ability to send and receive software updates from other nearby PC's automatically. While this may be convenient in other use-cases, it can take up bandwidth and CPU resources that you would rather preserve for Livestream Studio, so we recommend disabling this feature while using Studio.

This does not apply to macOS systems.

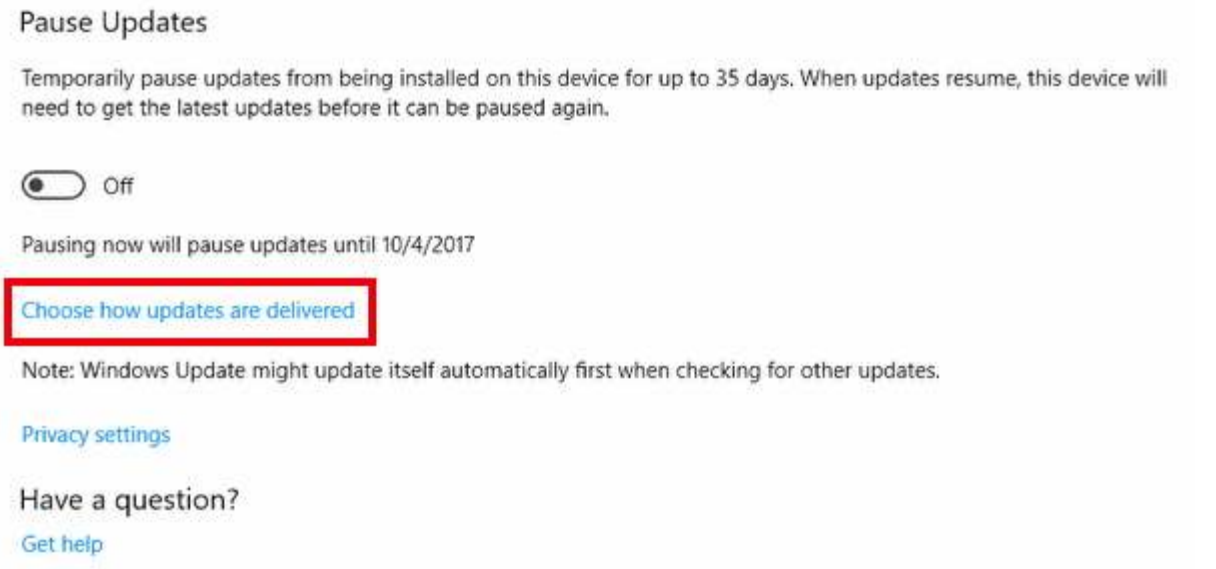
Open the Start menu and type in Windows Update settings. When this option appears in the menu, select it.



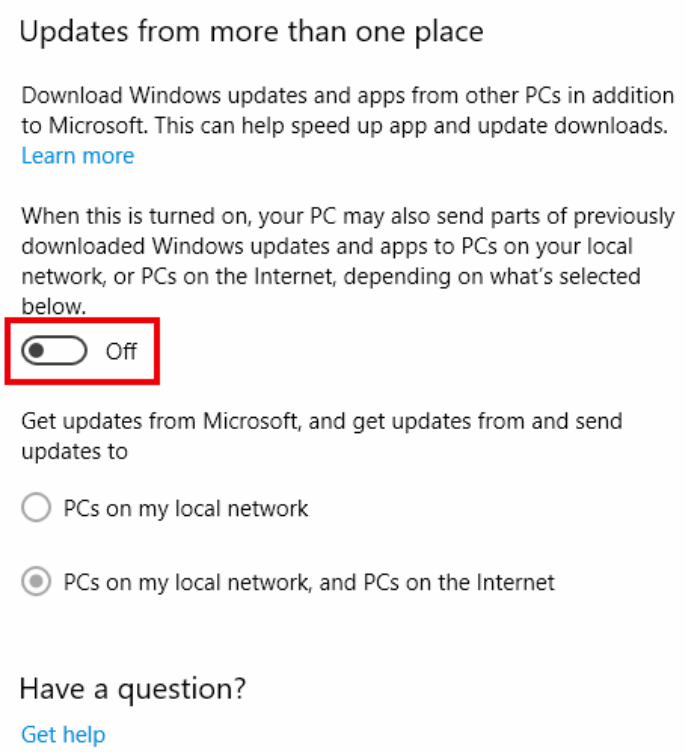
Under the Update settings section, select Advanced options.



Scroll down to the bottom of the window to the Pause Updates section and select Choose how updates are delivered.



Toggle the switch to Off.


Updates from more than one place
Download Windows updates and apps from other PCs in addition to Microsoft. This can help speed up app and update downloads.
Learn more
When this is turned on, your PC may also send parts of previously downloaded Windows updates and apps to PCs on your local network, or PCs on the Internet, depending on what's selected below.
Off
Get updates from Microsoft, and get updates from and send updates to
PCs on my local network
PCs on my local network, and PCs on the Internet
Have a question?
Get help

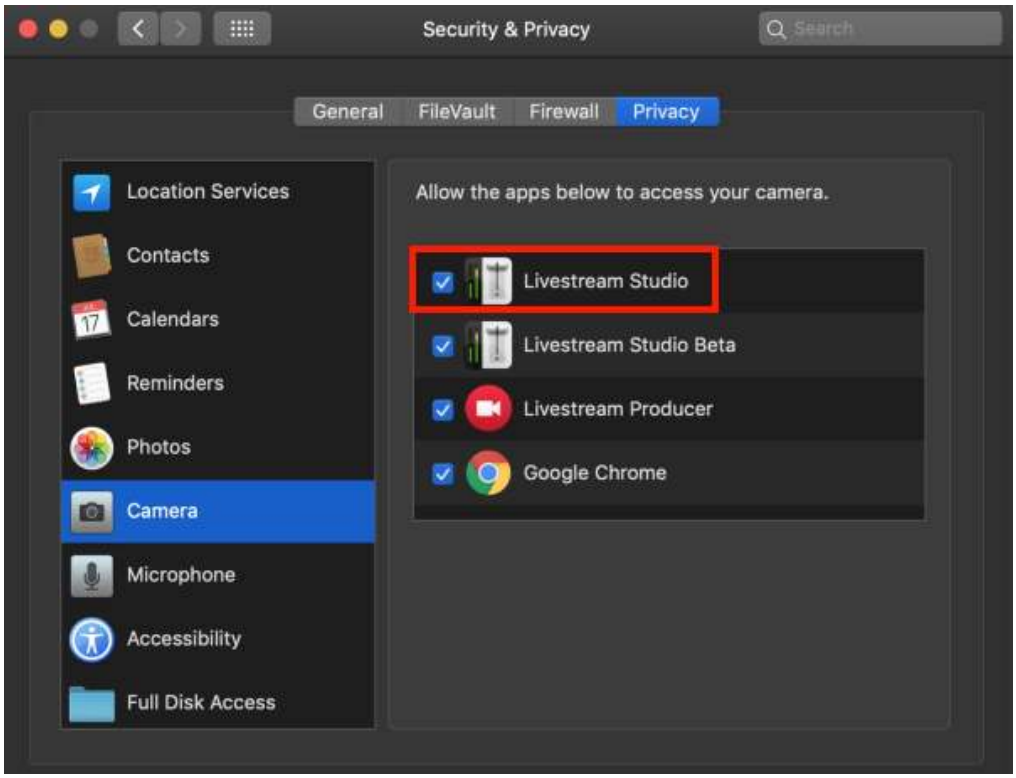
MacOS Mojave Permission Requirements for Studio

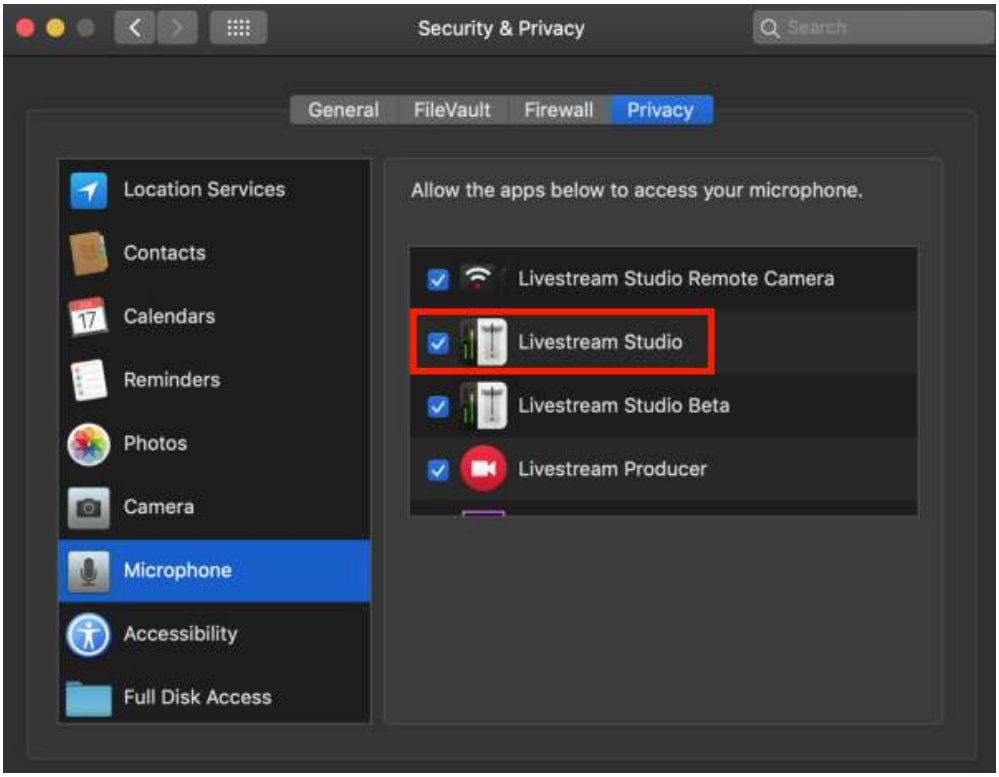
If you are using Livestream Studio on macOS Mojave, we recommend checking your Security & Privacy settings to ensure that Studio can run and all your video and audio sources are properly recognized.

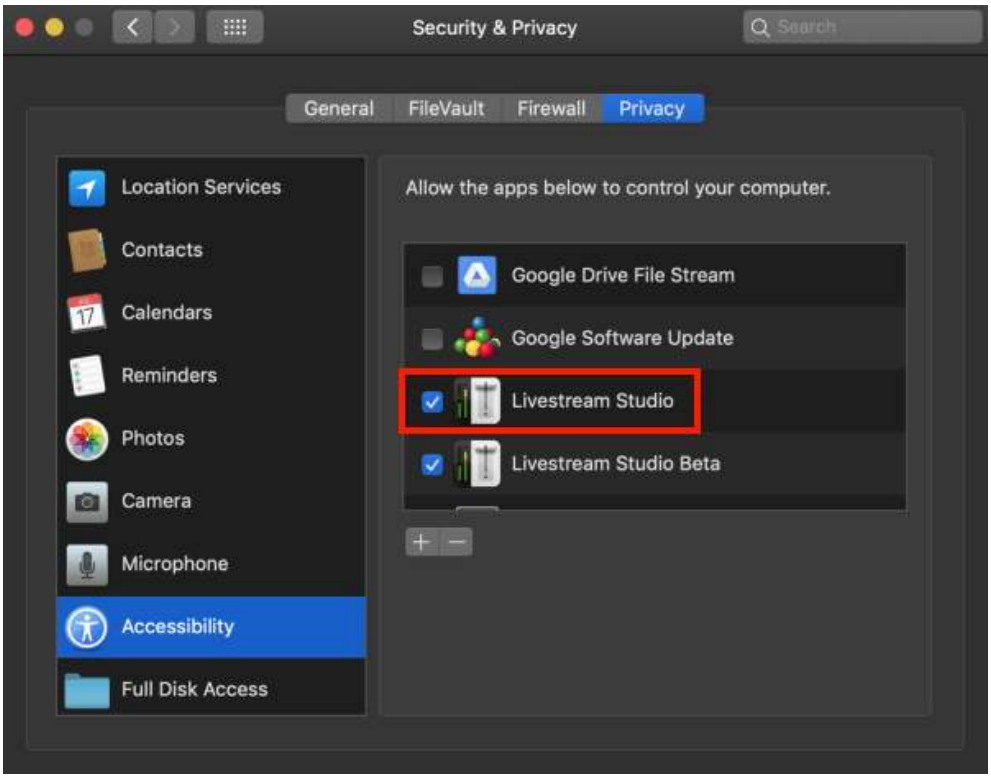
In System Preferences, navigate to Security & Privacy. Select the Privacy tab in the window that opens.

There are three permissions you will need to ensure has Livestream Studio enabled: Camera, Microphone, and Accessibility. Highlight each of these and make sure Livestream Studio is checked.

These permission settings do not apply to earlier versions of macOS.




Security & Privacy
Search
General
FileVault
Firewall
Privacy
Location Services
Contacts
Calendars
Reminders
Photos
Camera
Microphone
Accessibility
Full Disk Access
Allow the apps below to access your microphone.
Livestream Studio Remote Camera
Livestream Studio
Livestream Studio Beta
Livestream Producer


Security & Privacy
Search
General
FileVault
Firewall
Privacy
Location Services
Contacts
Calendars
Reminders
Photos
Camera
Microphone
Accessibility
Full Disk Access
Allow the apps below to control your computer.
Google Drive File Stream
Google Software Update
Livestream Studio
Livestream Studio Beta

Can I Run Anti-Virus Software on my Studio Computer?

Running anti-virus software that includes real-time protection while using Livestream Studio can use up CPU resources and possibly even interrupt your stream's connection.

As a best practice, anti-virus software, Windows Firewall, and similar real-time protections should be disabled while you are running Livestream Studio, and if possible, your system should be dedicated to just using Studio. Do not download files from sources you do not trust onto your Studio computer.

Getting Started with Livestream Studio

What is Livestream Studio?

Livestream Studio is a live production switcher that incorporates many elements of a professional live multi-camera production into one desktop software. Think of it as a live production truck or a TV station's master control room on your computer.

Its most basic features include:

- Connect multiple camera inputs: Plug in your cameras directly into your PC to get as many angles as you need.
- Live video outputs: Output your video to projectors or monitors; ideal for auditoriums, conferences, and houses of worship.
- Three graphics overlay tracks: Build graphics (GFX) overlays to countdown to your event start, identify people, loop tweets using your event hashtag, or display a scoreboard.
- Media playback modules: Bring in pre-recorded video clips to incorporate into your production, such as sponsored content or montages.
- Built-in audio mixer and audio filters: Embed audio from your cameras or connect a USB mixer or microphone and control all the audio for your event directly from Studio.
- Capture up to four high-resolution isolated (ISO) recordings: Record your event or individual camera angles in broadcast quality for post-production editing or replay.
- Basic replay: Playback an ISO recording as your broadcast is happening, giving viewers a different angle of your event (e.g. a goal score).
- Chroma key: Eliminate a colored background to incorporate different background images into your event (e.g. a weather map, virtual studio)
- Stream to Vimeo and other providers: Go live to Vimeo, Livestream, Facebook, YouTube, Periscope, Twitch, and more. Choose one or stream to multiple simultaneously.

Studio supports up to three (3) GFX tracks, eight (8) audio-only sources, and one (1) interview. All other sources (local inputs, remote cameras, media bins, RTMP inputs, etc.) are flexible, and all inputs may total up to 50.

What Equipment Do I Need In Order to Use Livestream Studio?

First and foremost, you need cameras. Studio is compatible with most SDI, HDMI, component, composite, S-video, and USB web cameras that output broadcast standard formats. If you do not own any cameras and need some suggestions, we have some here. Keep in mind you will also need the proper cables to output these cameras' video signals into Studio (HD-SDI camera = HD-SDI cable, etc.)

Next, you need to be able to connect these cameras to the computer that is running Studio. This is done using a **capture device**. These can connect to your computer via PCIe, USB 3.0, or Thunderbolt, and convert your camera's video into a signal your PC can read. Read more about what a capture device is and which capture devices Livestream Studio supports.

With few exceptions, you will need one capture device per camera. Webcams do not require a capture device.

Finally, you need a PC running Windows 64-bit version 7 or later or macOS High Sierra or later.

Studio requires a robust computer in order to run with all of its features successfully. We have a comprehensive guide of recommended hardware specifications depending on your workflow needs.

> If you have already purchased a Livestream Studio hardware product (e.g. HD31, HD51, HD550), capture devices are already built into your machine. There is no need to purchase additional capture devices or an additional PC.

How Do I Get Livestream Studio?

Get started with a demo or learn how to access Studio.

How To Access Livestream Studio

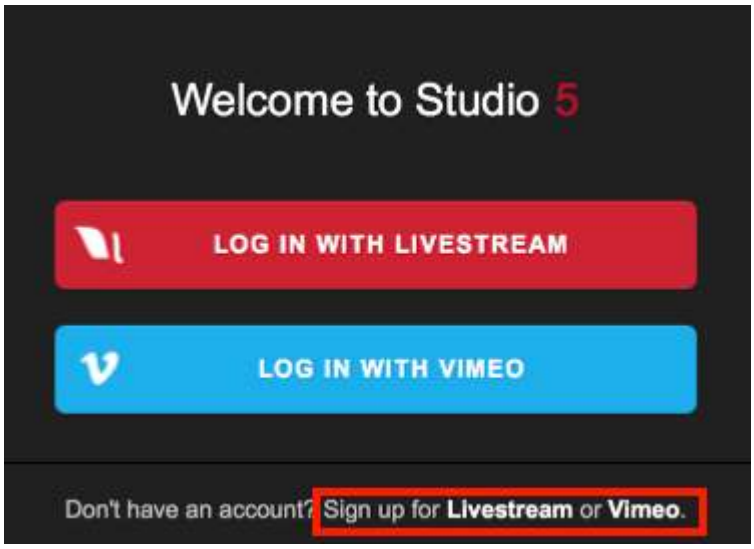
Full access to two (2) licenses of Livestream Studio is available with a paid Livestream or Vimeo Enterprise account; Vimeo Premium users have access to one (1) license.

Download Livestream Studio on your computer.

- Download onto Windows
- Download onto Mac

Follow the on-screen steps to install the software, after which it will automatically launch.

Studio will prompt you to log into either a Livestream or Vimeo account. If you do not have an account, you can sign up for either by clicking the desired provider at the bottom of the prompt.



Once your account is created and paid for, you may then log into Studio using your account credentials. Studio will indicate that your full access has been unlocked.

A few things to note:

- Because Studio needs to authenticate your login, you will need an internet connection to access the software. If you lose your internet connection, you can continue to use Studio in offline mode for up to 7 days before being required to reconnect your account.

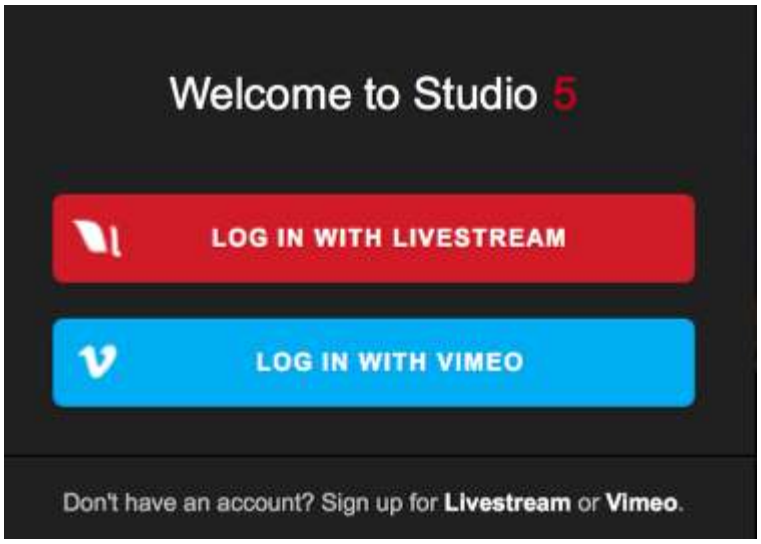
- If you exceed your Studio license limit (i.e. try to run more Studio instances simultaneously than your subscription allows), you will get a warning message every five minutes within Studio to close other instances. Not following your Studio license limit may lead to account suspension.
- While Livestream Studio has the ability to stream to various providers, a paid Livestream account does not allow you to stream to Vimeo, and a Vimeo account does not include the ability to stream to Livestream.
- If you purchased a Livestream or Vimeo Enterprise account, you will have a phone support PIN for the length of your membership. Phone support is not available with Vimeo Premium.

If you have the previously-sold USB Dongle and want to use your subscription to access Studio instead, close Studio, then disconnect your dongle. After disconnecting the dongle, re-launch Studio and you will see the prompt to log in.

Demo Livestream Studio Before Buying

There is a short demo option with Livestream Studio that allows you to try the software prior to purchasing.

Download and install Livestream Studio. When the installation is complete, the software will launch and you will see the following screen.

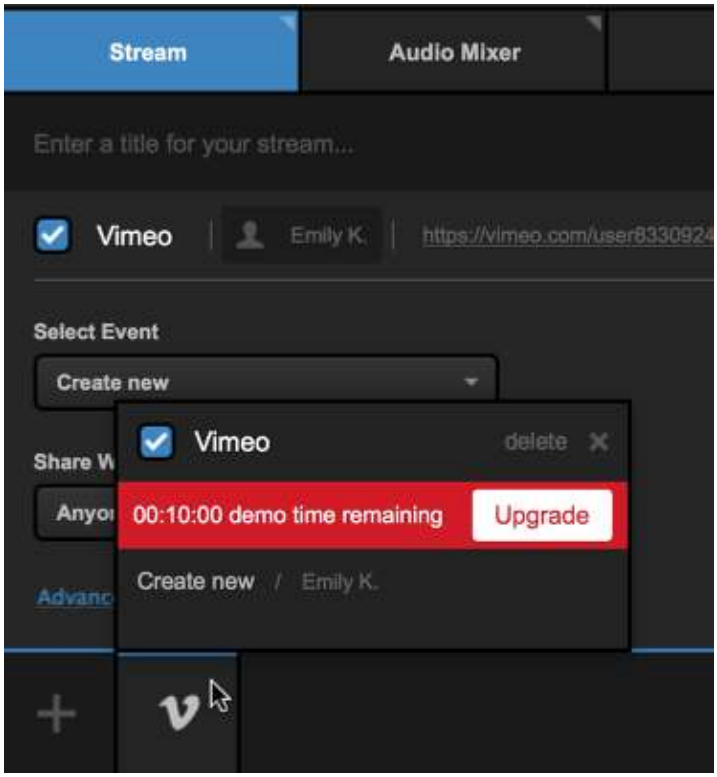


A demo of Studio is available by signing up for Vimeo. Signing up for Vimeo gives you access to a 10-minute live demo. This means you have full access to Livestream Studio and may broadcast for a total of 10 minutes before the demo expires.

A countdown of your demo time remaining will appear when you navigate to the Stream tab and hover the cursor over the Vimeo icon at the bottom of the interface.

All video recordings and outputs will include a watermark during this demo period.

Your demo will expire after you have streamed for a total of 10 minutes.



To continue using Livestream Studio when your demo expires, you will need to purchase a subscription.

How to Install Livestream Studio

Livestream Studio software can be downloaded onto a Windows or Mac computer from here:

- Download for Windows
- Download for Mac

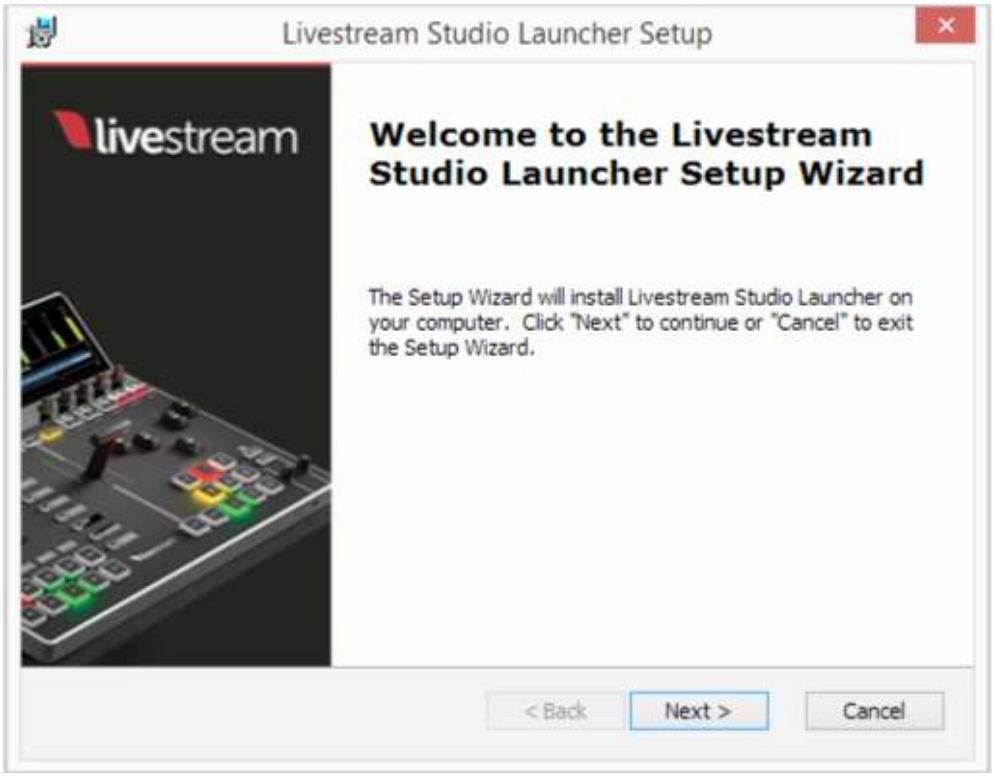
If you are using Windows, you must be logged in as an Admin user in order to install and run Livestream Studio. You will also need an Internet connection for this entire process.

If you purchased a Livestream Studio hardware product (HD31, HD51, HD550, etc.), Livestream Studio software is already pre-installed on your unit.

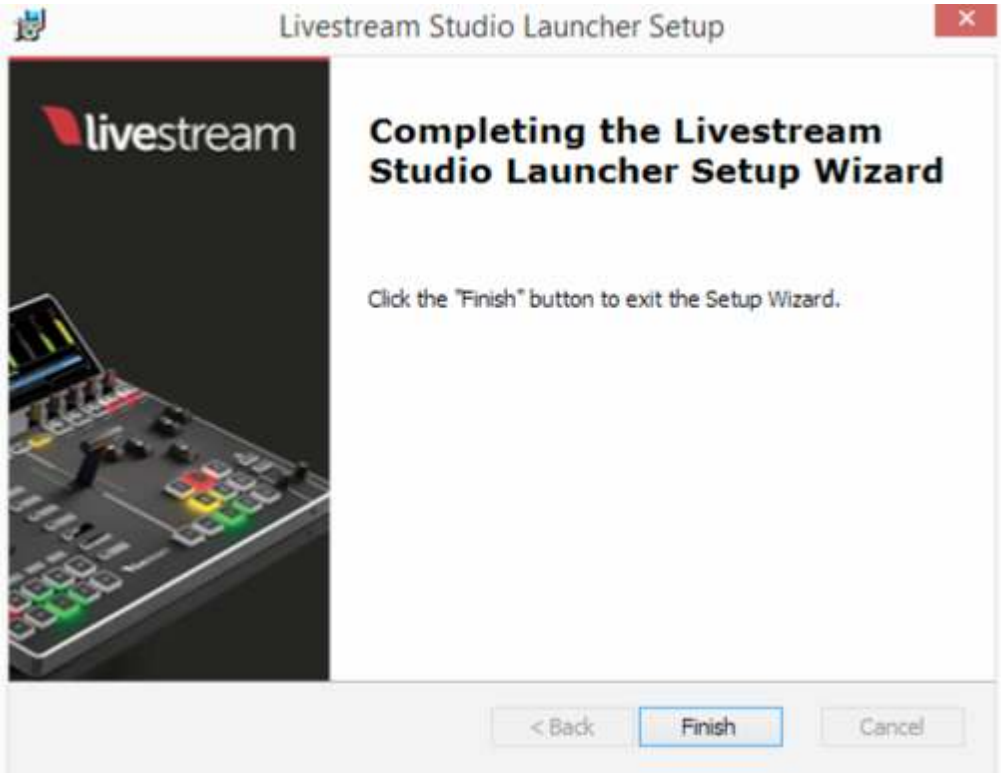
Installing on Windows

The download will begin automatically. Open the .exe file.

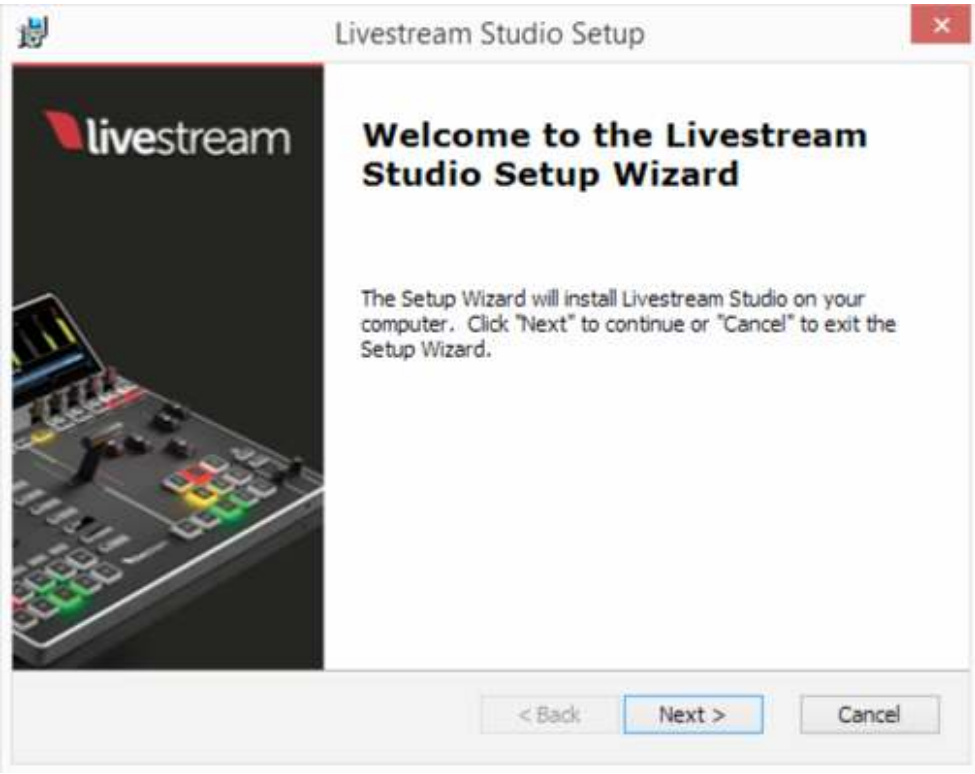
It will bring you to the installation wizard for the Livestream Studio Launcher.



Agree to the license terms and follow the on-screen steps to complete the installation process, then click Finish in the wizard.



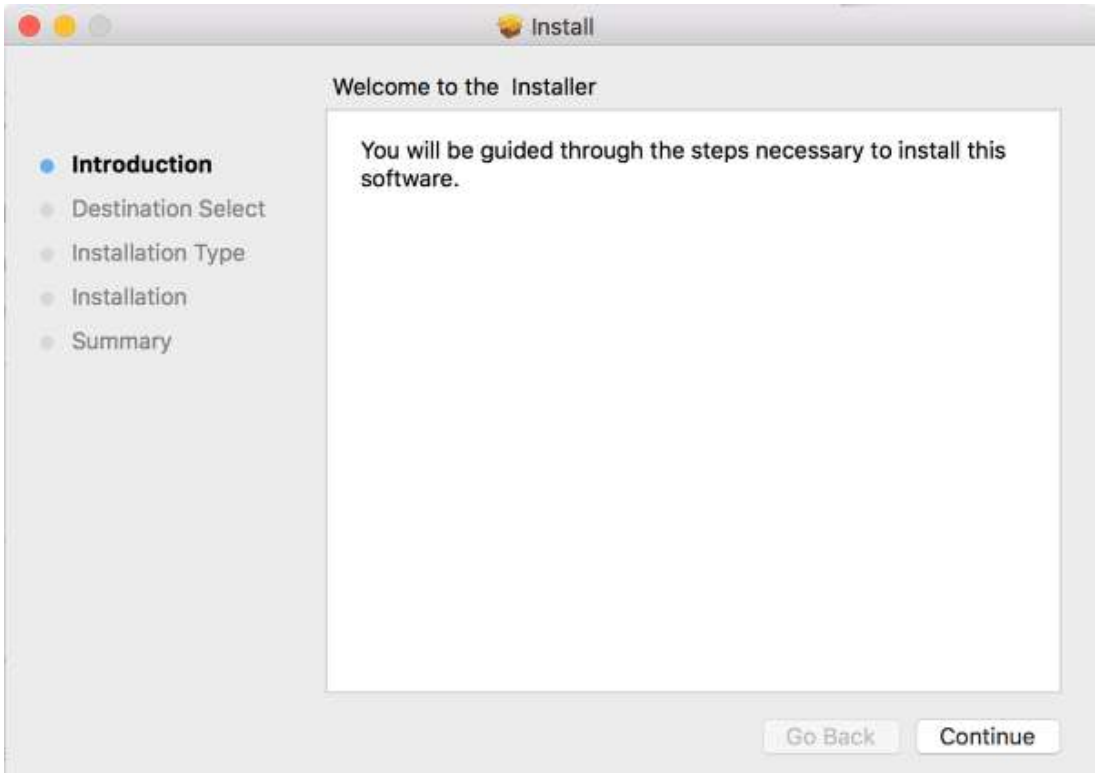
The Livestream Studio Launcher will open, download the Studio software, and prompt you to install the software via another installation wizard.



When the installation is finished, the most recent version of Livestream Studio will launch on your system.

Installing on Mac

After the .pkg file downloads, click it to open it. The install wizard will open. Follow the on-screen steps to complete the installation. Upon completion, Livestream Studio will launch automatically.


Install
Welcome to the Installer
Introduction
Destination Select
Installation Type
Installation
Summary
You will be guided through the steps necessary to install this software.
Go Back
Continue

Using the Livestream Studio USB Dongle

If you made a one-time purchase of Livestream Studio for your own Windows computer, you will receive a USB dongle which will give you access to your full Studio license.

You should first download and install the Studio software onto your PC.

By plugging this dongle into a USB 2.0 port, you'll be able to access all of the paid features of Livestream Studio without the need for a paid Livestream or Vimeo Premium account.

The dongle must be connected to your PC at all times while using Livestream Studio in order to use the software. If you have multiple computers that require full access to Livestream Studio simultaneously, then you will need one dongle per system.

Additional Notes about Using the Dongle

- The Studio Dongle is not compatible with MacOS systems; you must use it with a Windows computer.
- The Studio Dongle does not include the ability to stream to the Livestream Platform; if you wish to use Livestream as your streaming destination, you will need to purchase a Livestream subscription.
- Livestream Studio hardware units (HD31, HD51, HD550, etc.) do not require an additional software dongle. The license will already be unlocked when you launch Livestream Studio on those systems.
- We urge you to keep your Studio dongle in a safe place. If you are building a custom computer to run Studio, consider building it so that the dongle is on the inside of the unit.

- We do not support plugging the USB dongle into the USB 3.0 port due to inconsistent results. If you have done this and were able to load Studio successfully, please let us know by contacting us and providing your system's hardware specifications.

What Happens If I Lose My Studio Dongle?

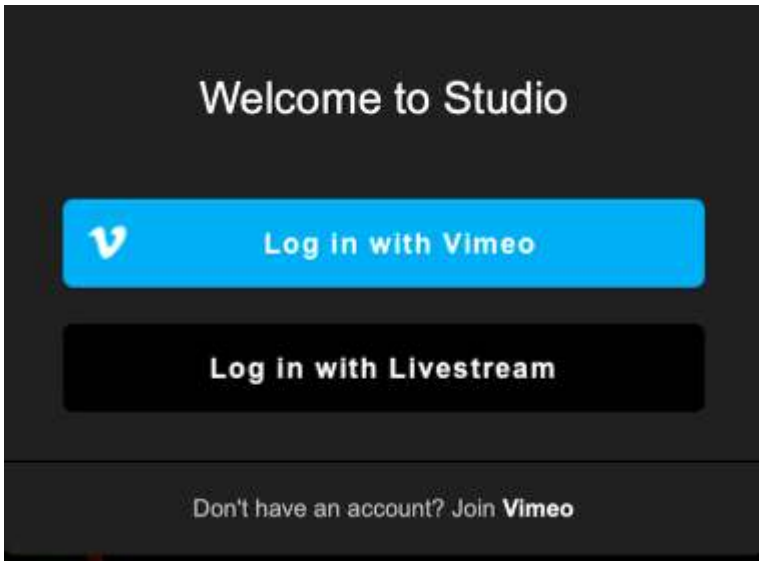
If your Studio USB dongle is lost or stolen, you are responsible for reporting the loss and may be charged a replacement fee. See Livestream Studio terms for proper contact information.

We urge you to keep your Studio dongle in a safe place. If you are building a custom computer to run Studio, consider building it so that the dongle is on the inside of the unit.

Log Into Livestream Studio via a Subscription

If you have already purchased a Livestream or Vimeo Live subscription, you also have full access to Livestream Studio.

After you have installed and launched the Livestream Studio software, a welcome window will pop up prompting you to log in via Vimeo or Livestream. Select the provider you are using to log in.



If you select Livestream, enter your email and password in the next window, then select Log In With Email. If you select Vimeo, a browser window will open. If you are already logged into a Premium account, you will then be logged into Studio. Otherwise, enter your account credentials to log in.

Please be advised that subscription access to Livestream Studio will require an internet connection in order to log in. Offline access is available for up to 7 days after you log in before you are prompted to reauthenticate.

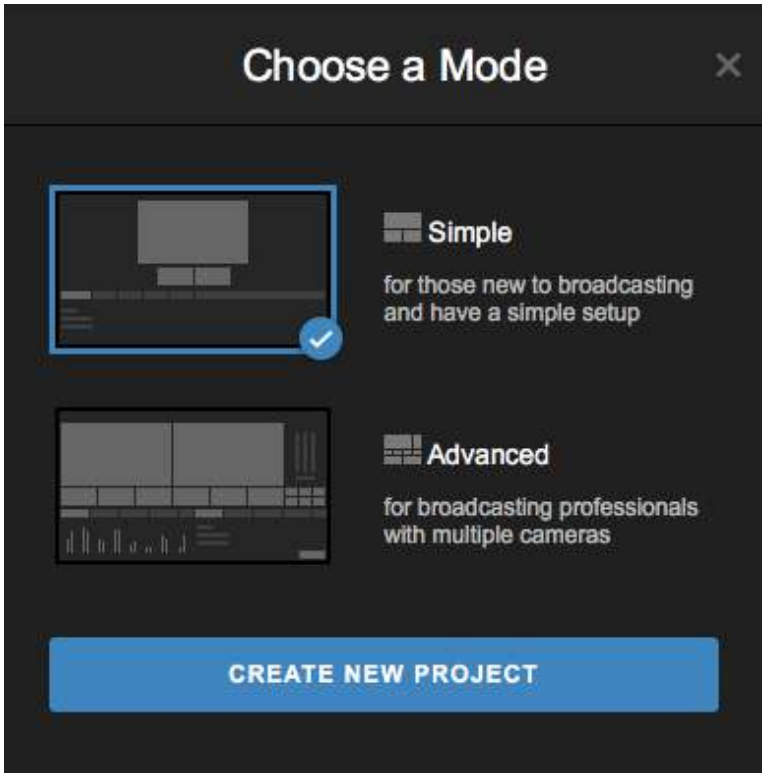
If you have the previously-sold USB Dongle and want to use your subscription to access Studio instead, close Studio, then disconnect your dongle. After disconnecting the dongle, re-launch Studio and you will see the prompt to log in.

Arranging & Simplifying the Livestream Studio Interface

While Livestream Studio maintains a generally consistent layout, there are a few ways you can customize the interface to best fit your needs.

Select Your Interface Mode

When you first log into Livestream Studio, you will be given the option to Choose a Mode, as shown below.



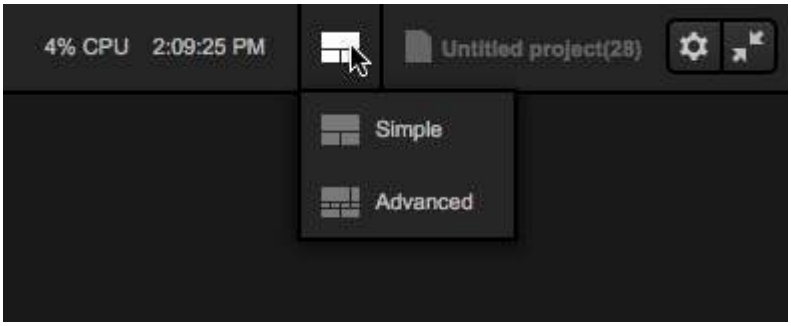
Simple is ideal for beginners and producers with smaller workflows (1-2 cameras, few graphics, some video playback). This will display one Output window and a multiview where you will click each source to select what is shown in the Output. By default, this mode displays a single column of producer tool

tabs (e.g. Audio Mixer, Graphics, Media, etc.). Selecting Simple will quickly remove a lot of clutter from the Studio interface that smaller scale productions may not need.

Advanced is best for producers with larger scale workflows (multiple camera inputs, multiple graphics channels, picture-in-picture, etc.). This features the traditional Preview/Program monitor setup and transition controls normally used in a multi-camera production, in addition to two columns of producer tool tabs by default so you can see more on your screen.

Select one, then click Create New Project to start using Studio.

You can easily switch your project from one mode to the other by clicking the interface icon in the upper right corner and choosing your interface mode.



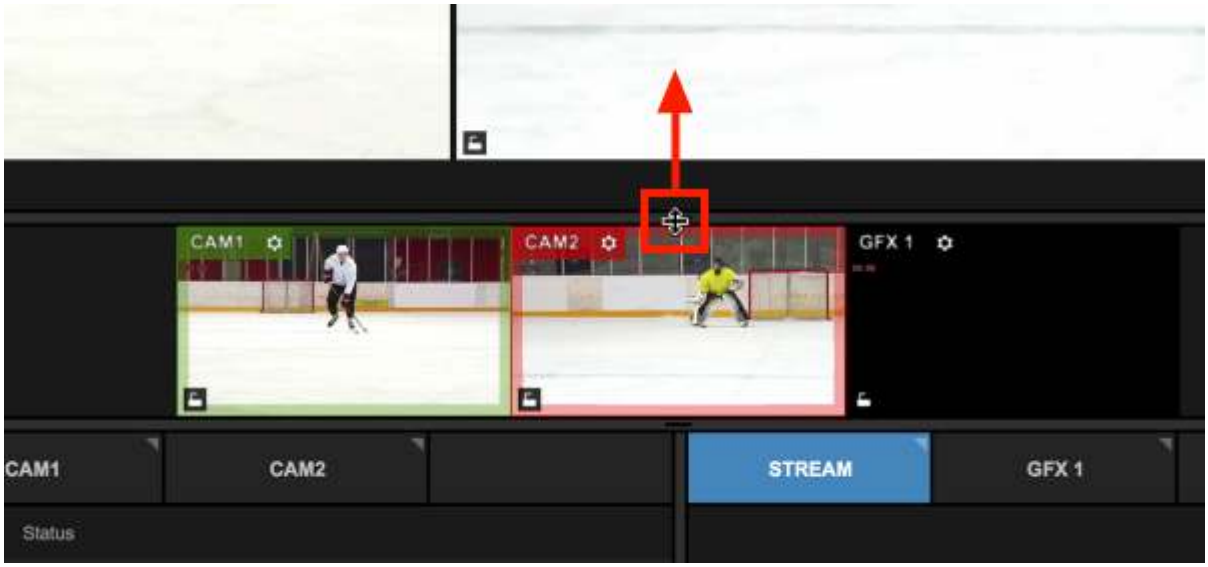
Most demonstrations will feature the interface in Advanced mode. Instructions on how elements specific to Simple Mode work are available here.

Resize Three Main Sections

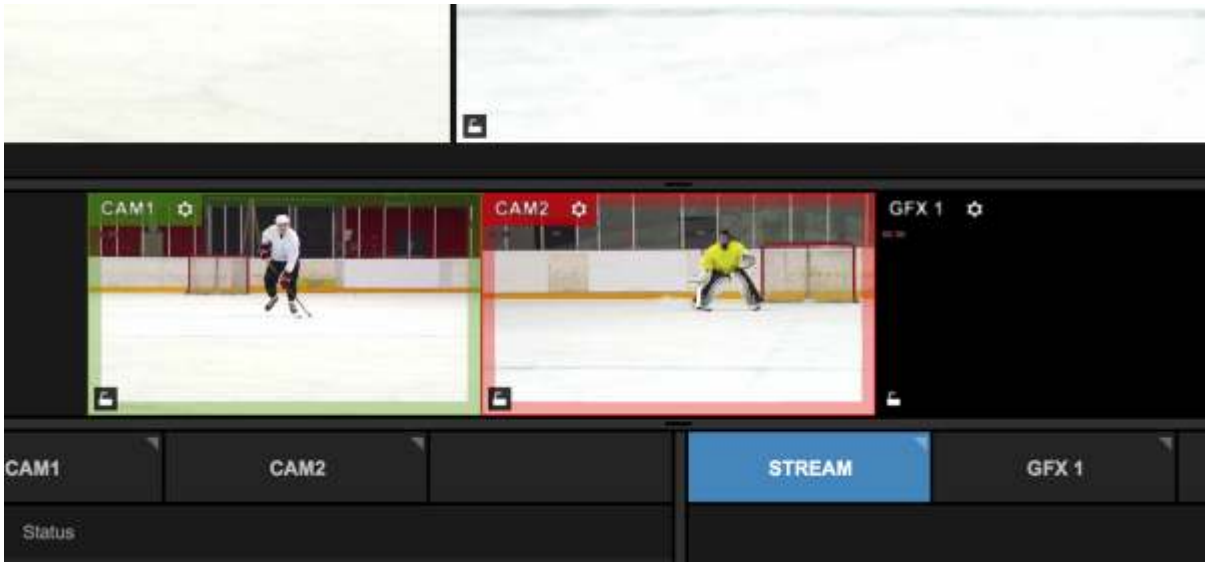
Studio's interface consists of the Preview & Program or Output monitors on top, the multi-view in the middle, and production element modules on the bottom third of the interface. This general layout cannot change, but you do have the ability to adjust the sizing of these three main sections by dragging and dropping the two section dividers up and down as you see fit.

In the example shown below, we raised the top divider to make the multiview section larger.

Before:



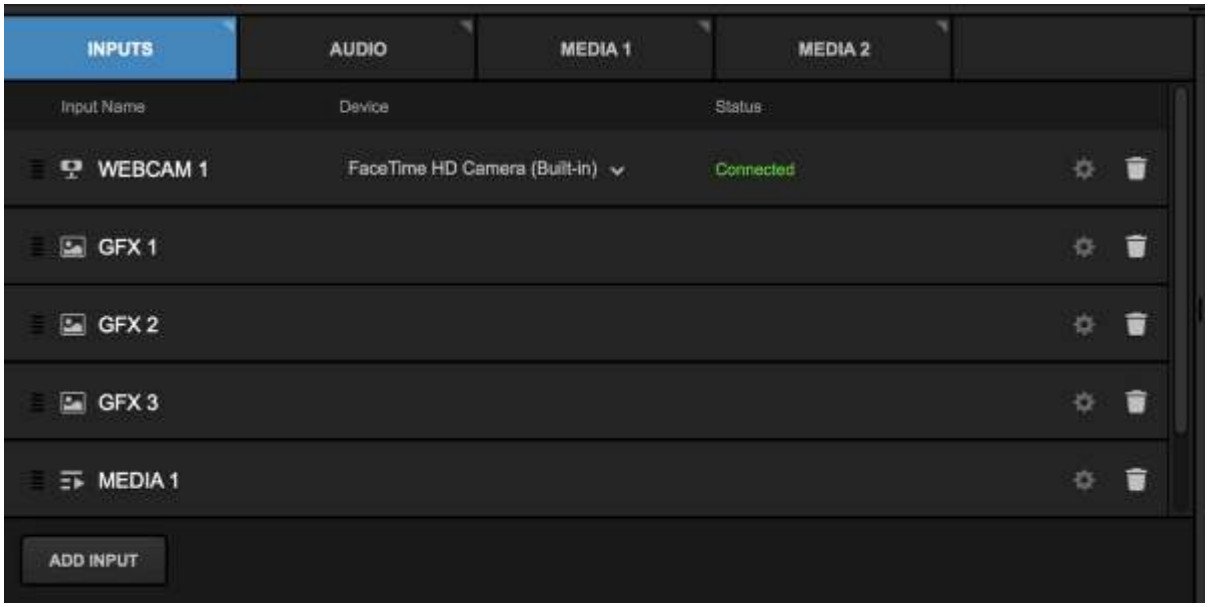
After:



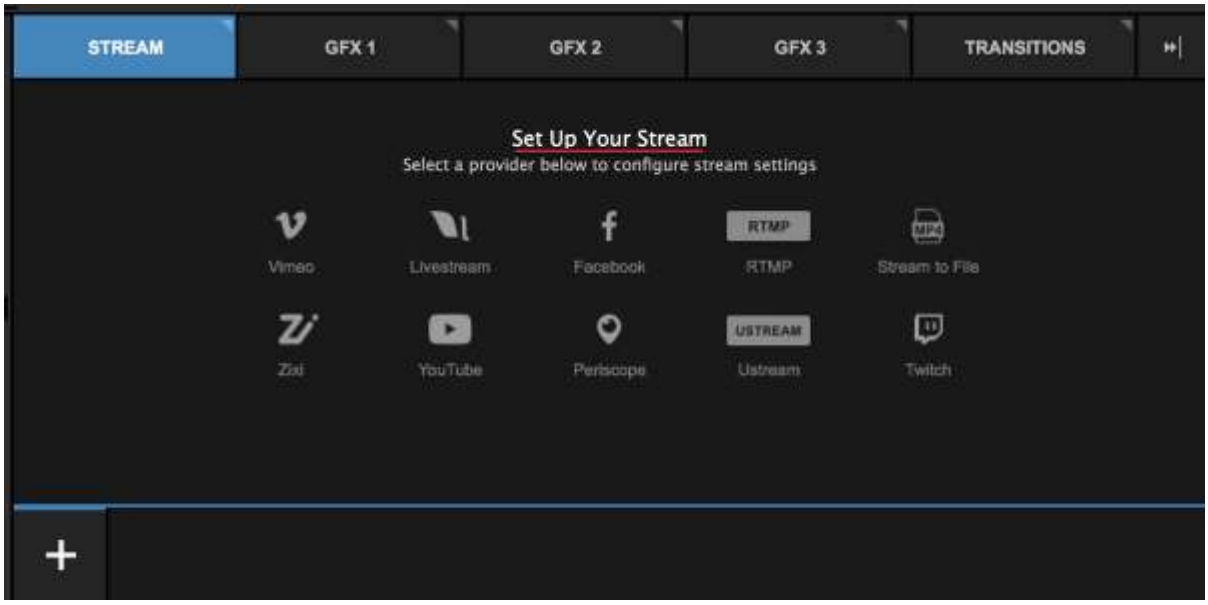
Rearrange Lower Modules

When you first open Studio and add your inputs, the lower-third portion of the interface includes all your additional production elements (audio mixer, remote cameras, graphics, media, stream configuration, etc.). These have a default arrangement, separated into two columns.

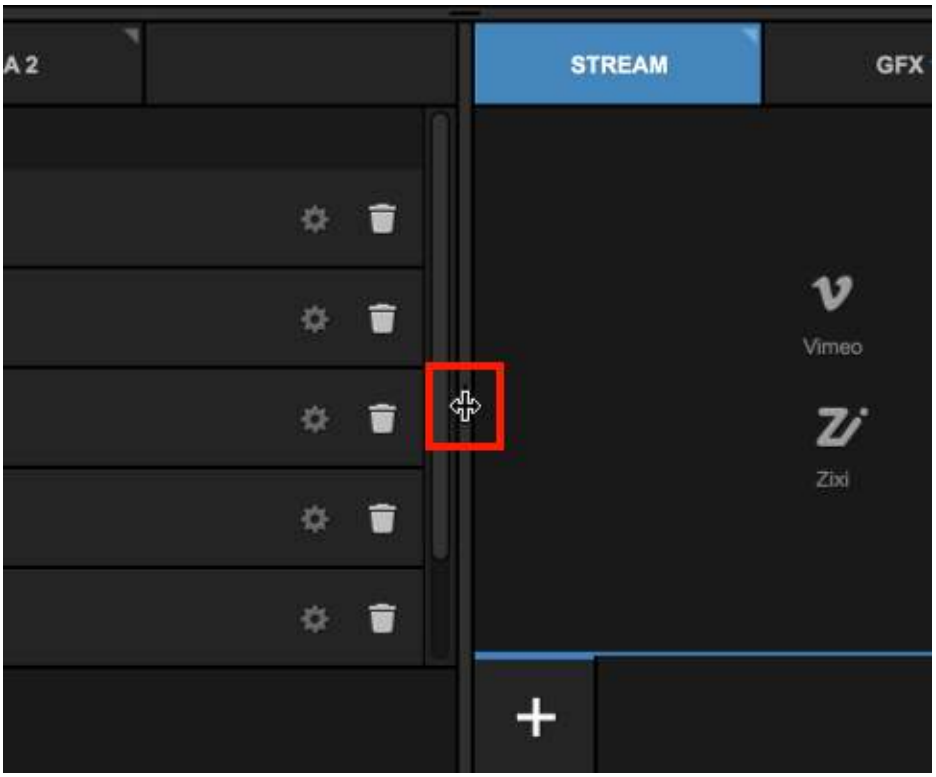
Example left column:



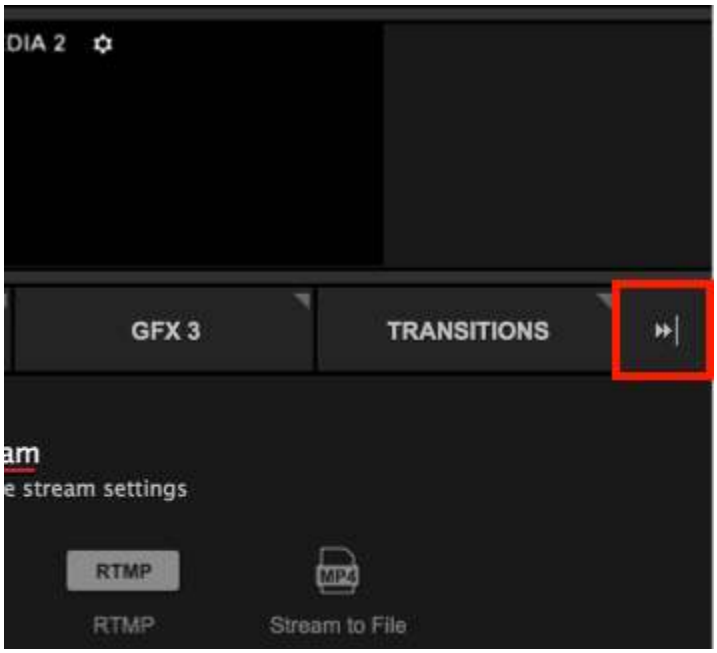
Example right column:

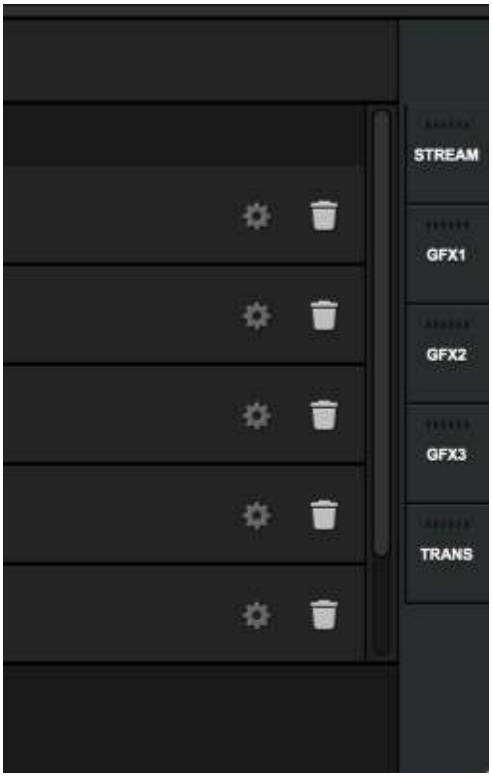


When using advanced mode, each column splits the screen evenly by default. If you prefer one to be larger than the other, drag and drop the middle divider the desired location.



You can also collapse the entire right column by clicking the collapse button on the far right side. Click it again to expand the column.





In addition to adjusting the width of each column, you can also rearrange the modules by dragging and dropping each tab between the two columns.

For example, if you need to monitor audio and media playback at the same time, drag the media bin tab(s) to the right column so you can see both the audio mixer and the media player simultaneously.

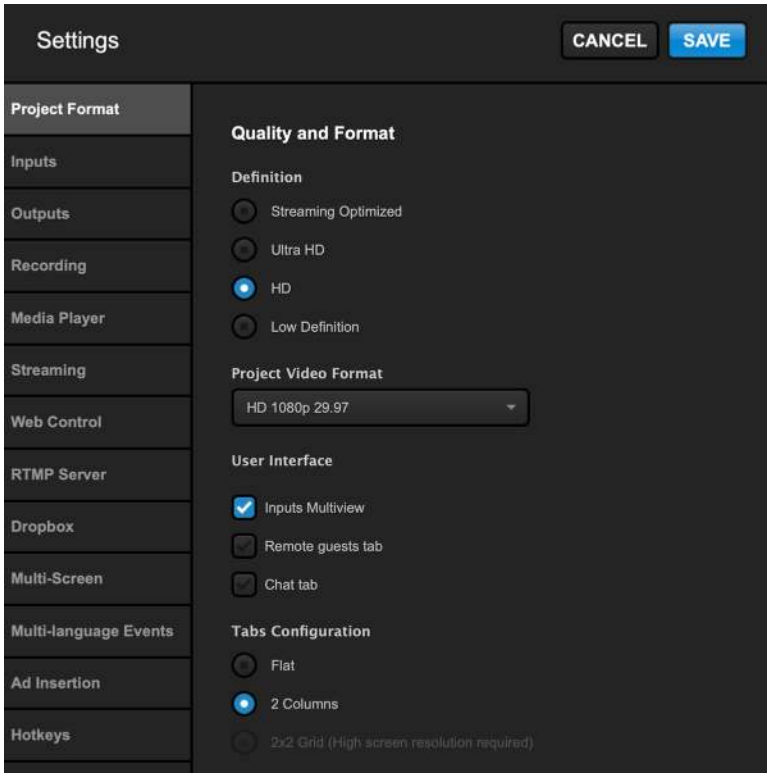
If you are using a limited number of additional elements or simply wish to not have two separate columns, select the gearwheel button in the upper right corner to go to the Settings: Project Format menu. Under the Tabs Configuration setting, select Flat.

Other interface options

There are a few other adjustments to the interface you can make by navigating to Settings: Project Format.

Under the User Interface section, you can adjust the following:

- Inputs Multiview: Enabled by default. This option will show or hide the inputs multiview you see in the middle of the screen. If you are using more than one input, it's best to leave this checked.
- Remote guests tab: If you intend to use the remote guests feature, you can check this option to enable it quickly.
- Chat tab: Users streaming to Vimeo can enable this to moderate and participate in Vimeo live chat during their event directly from Studio.


Settings
CANCEL
SAVE
Project Format
Inputs
Outputs
Recording
Media Player
Streaming
Web Control
RTMP Server
Dropbox
Multi-Screen
Multi-language Events
Ad Insertion
Hotkeys
Quality and Format
Definition
Streaming Optimized
Ultra HD
HD
Low Definition
Project Video Format
HD 1080p 29.97
User Interface
Inputs Multiview
Remote guests tab
Chat tab
Tabs Configuration
Flat
2 Columns
2x2 Grid (High screen resolution required)

Studio: First Steps

There are a variety of directions you can take when getting started with the software. Below are a few starting points to help guide you:

Arranging & Simplifying the Livestream Studio Interface

Connect Cameras to Livestream Studio computer

Adding Camera Inputs in Studio

Creating & Saving Projects

Introduction to the Multi-View

Use a Mouse to Switch Sources

Use a Keyboard to Switch Sources

Add Audio Sources

Control the Audio Mixer

Monitoring Audio

Adding Graphic Overlay Modules

Mixing Graphic Overlays into Program

Importing Videos into the Media Playback Module

Set up a High-Resolution Recording

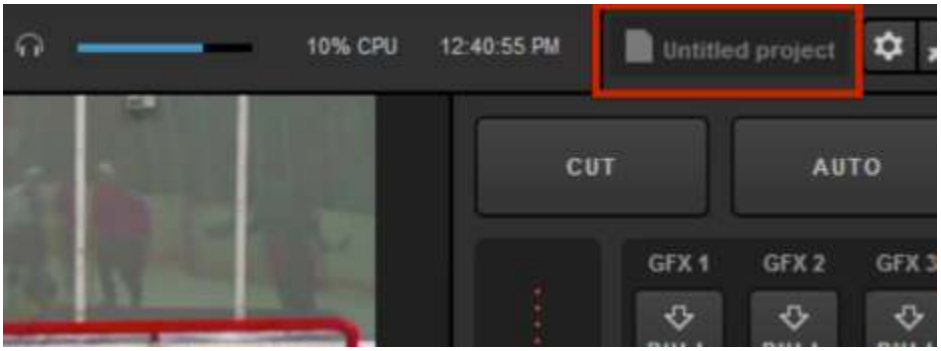
Go Live to any provider such as Vimeo or Livestream

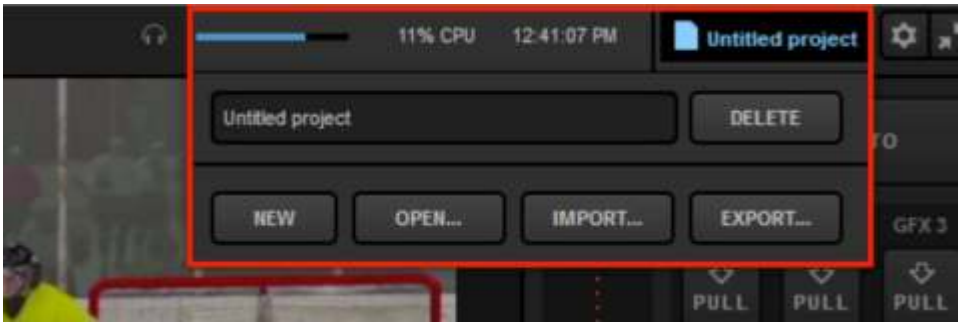
These only scratch the surface of Livestream Studio's capabilities. Look for more advanced walkthroughs in the help center or download the Livestream Studio User Manual.

Creating, Importing, and Exporting Projects

Livestream Studio has the ability to save, load, import, and export Livestream Project files, allowing you to keep configurations saved on your system so you can use them whenever you need to, without starting from scratch.

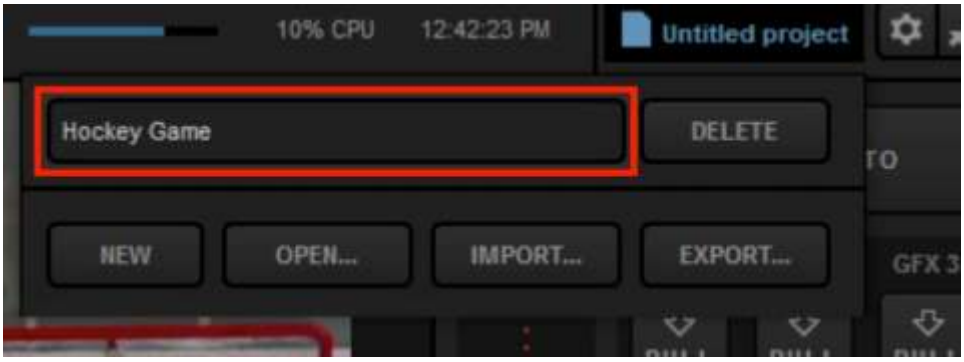
When you open Livestream Studio, by default you will be working on your previous project (or Untitled Project if it is your first time launching Studio). Click on the title in the upper right corner to see more options.



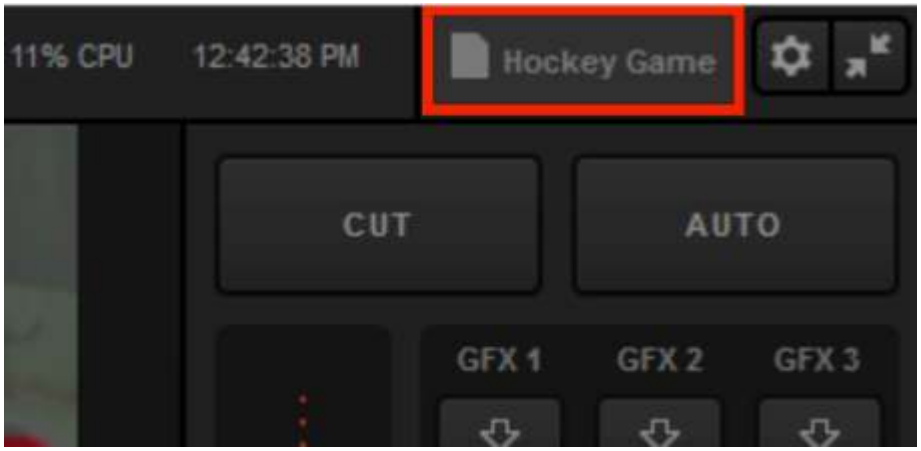


To rename your project, simply type the name into the text box. When you click out of the window, the project will automatically be renamed.

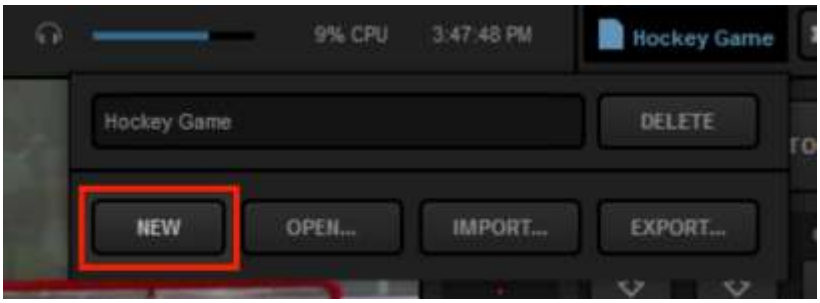
Best practice: Consider making a template project with standard production elements you intend to use regularly, give it a clear name, and export it to a place you will easily find it (e.g. Desktop). Exporting is discussed below.



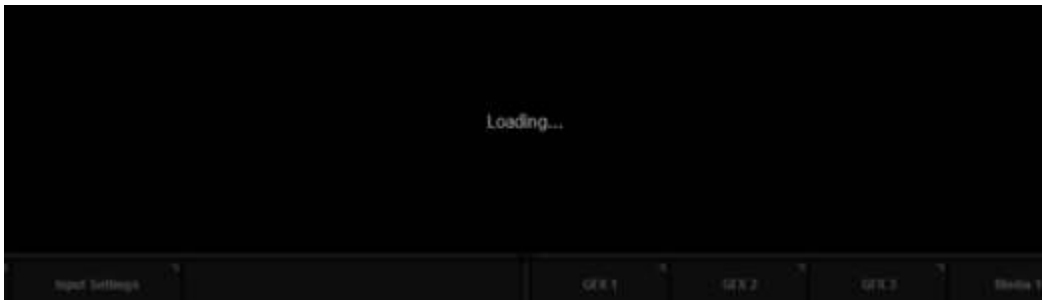
Now your project is renamed. As you configure it (e.g. add graphics templates, import media clips, arrange inputs, etc.), it will save automatically. This occurs regardless of the project being renamed, but now you can identify it.



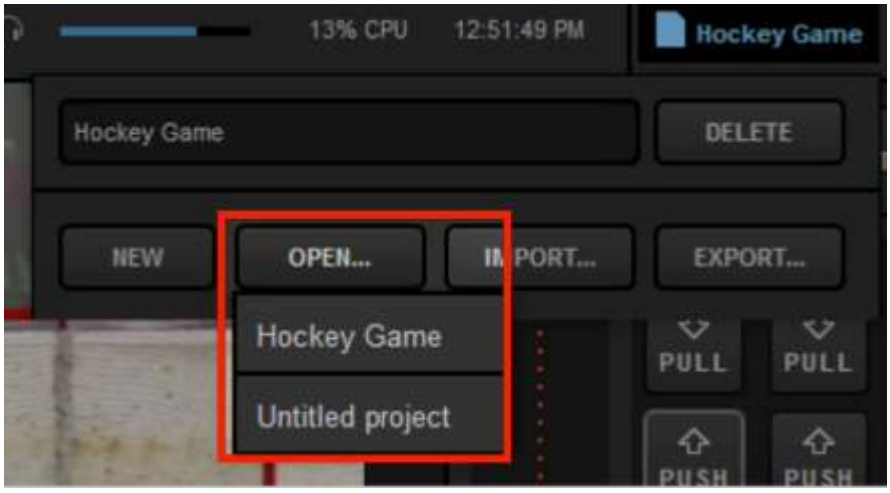
You can create a new project at any time by clicking on your project title and selecting New.



A new untitled project will open with default configurations. As mentioned above, you can rename the new project by clicking on the title.

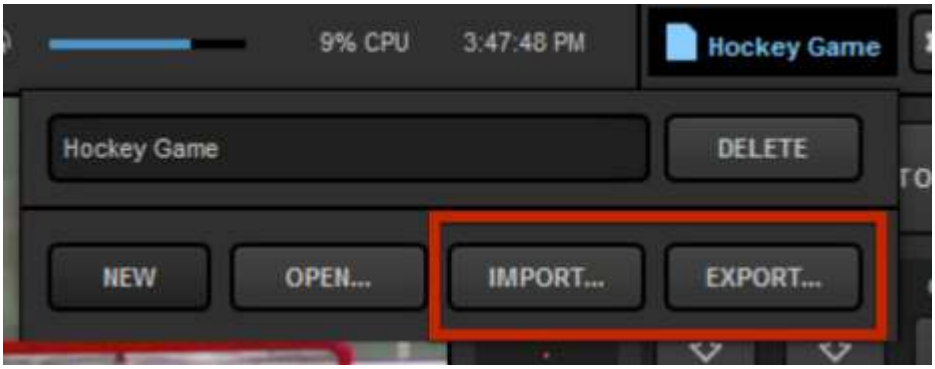


To go back to working on a previously saved project, click on the project title and click Open. A dropdown list of your projects will appear. Click the project that you want to work on.

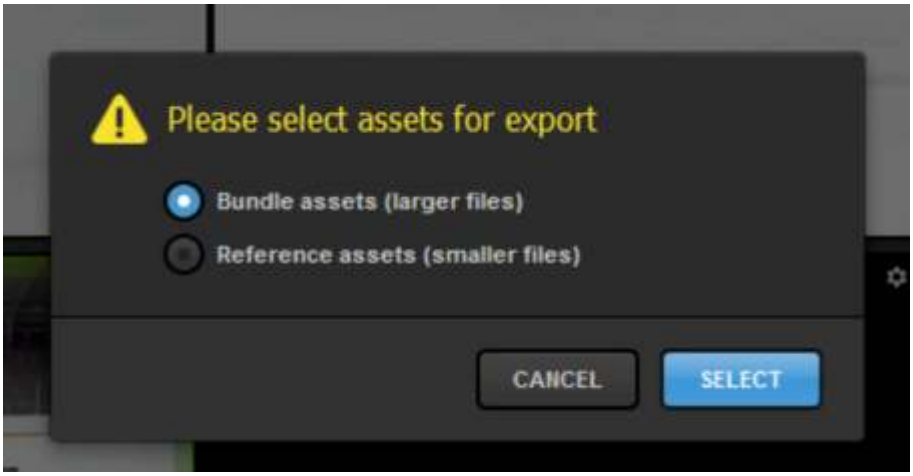


The selected project will then open as it last appeared in Livestream Studio.

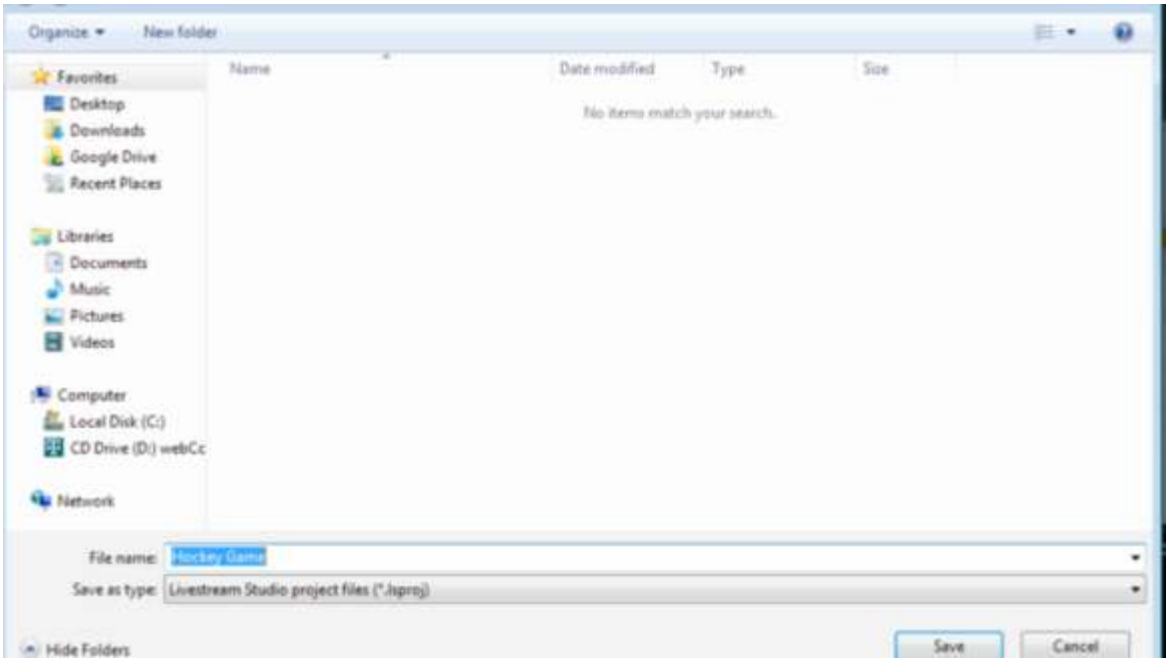
You may want to keep a Studio project configuration saved on your hard drive if you intend to use it often or move it to another Studio system. For this case, we created the Import/Export feature. When your Studio project is configured the way you like it, click the project title, then Export.



You will have the option to bundle or reference assets. Bundle is ideal if you need to move the file to a different hard drive or system, but creates a larger file. Reference is a smaller file, but will not move any associated assets (media clips, etc.) After selecting your preferred option, click Select.



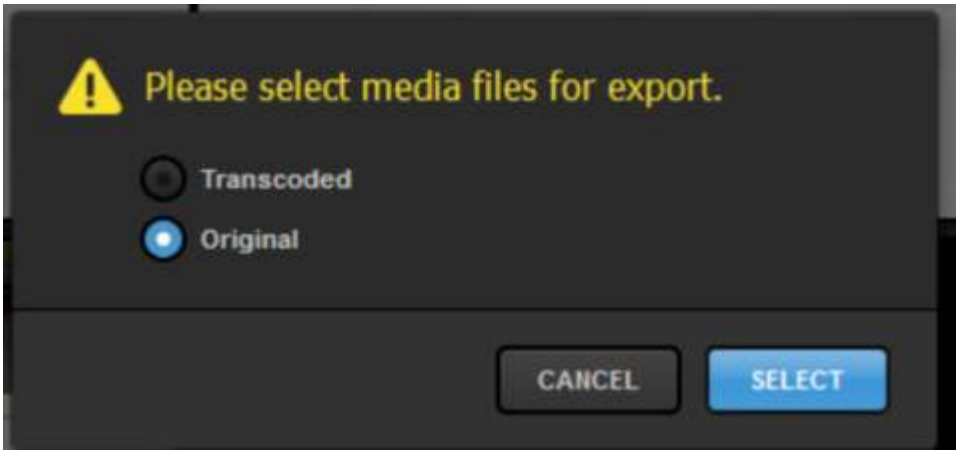
Choose where on your system you want to save the Livestream Project file (.lsproj). By default, your operating system will open a newly created Livestream Studio Export Projects folder under Documents, but you can save the file anywhere you want where you know you will quickly be able to locate it. Then, click Save.



Your system will warn if you already have a .lsproj of the same name and give you the option of replacing it. If you click No, you will have the option to rename it in your save location.

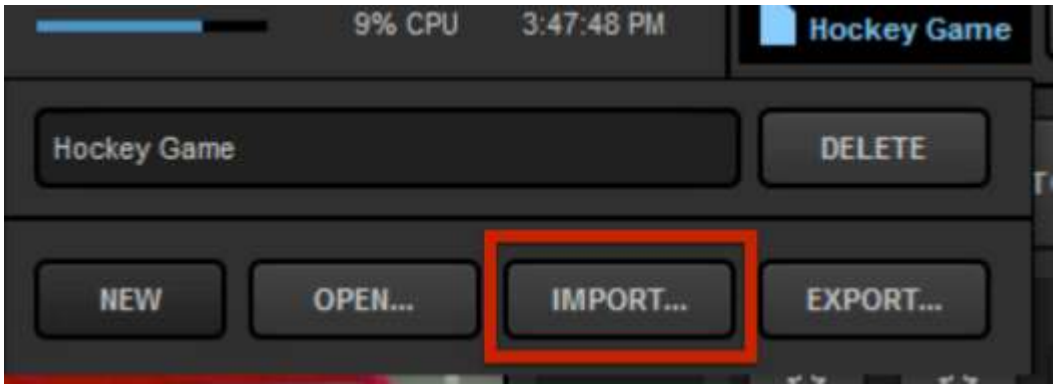
If you imported media files into your media bin, you will be asked whether to save the original video files or their transcoded versions (i.e., the files created after they were brought into Studio).

If you select Transcoded then those videos will not need to be re-transcoded upon opening your project, which can help save time.

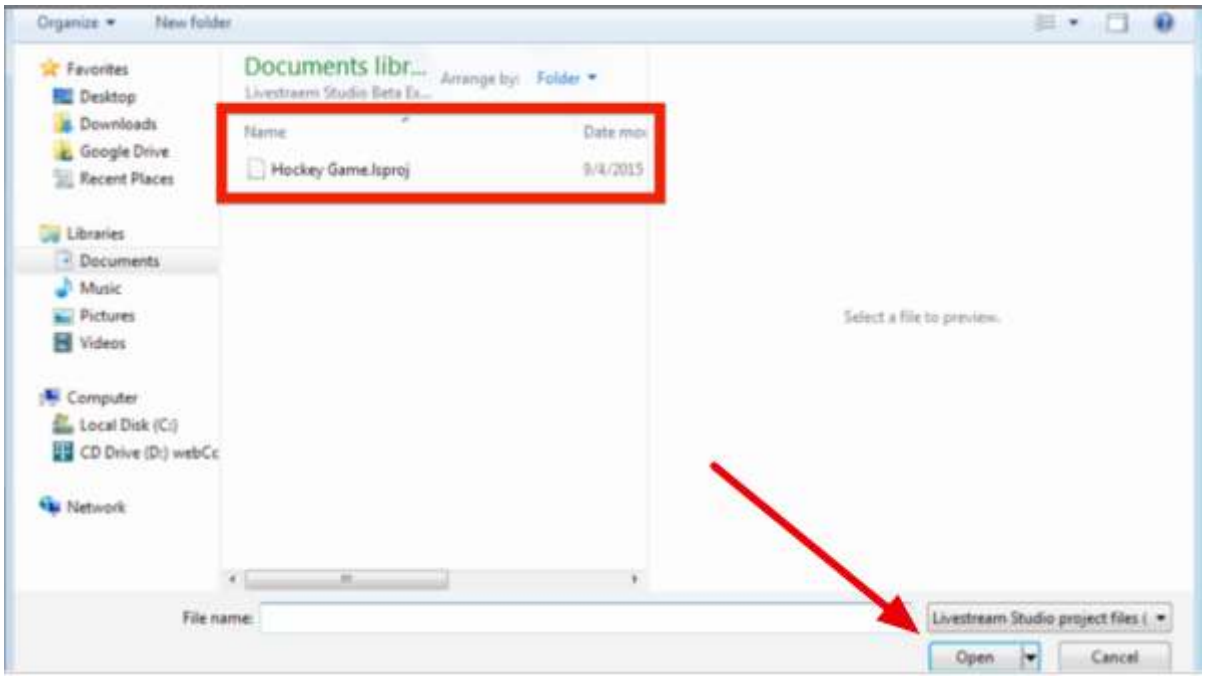


When you are ready to use that particular project file, you can click on the project title and then on Import.

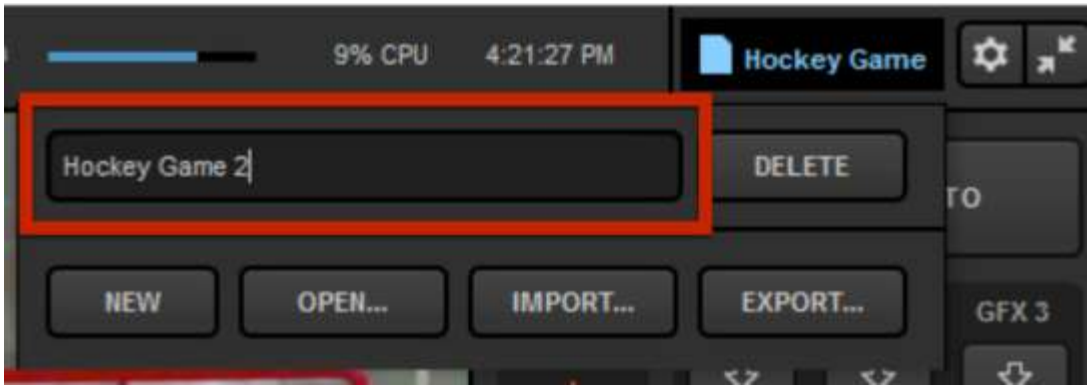
> Shortcut: You can also launch that project if you find it in your system (e.g. on your desktop) and double-click it to open Studio to that project.



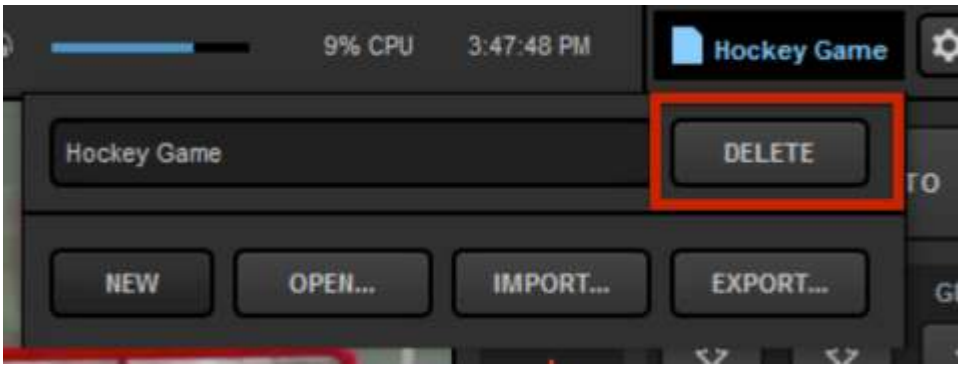
Find your .lsproj file in Windows, select it, and click Open.



This will create a new project in Livestream Studio with the proper configurations set. You can rename this by clicking the project title if desired.



If you no longer intend to use the project you are working on, you can click the project title and then Delete. This will not delete an exported file, but you will no longer be able to select it from the Open menu.


9% CPU
3:47:48 PM
Hockey Game
Hockey Game
DELETE
NEW
OPEN...
IMPORT...
EXPORT...

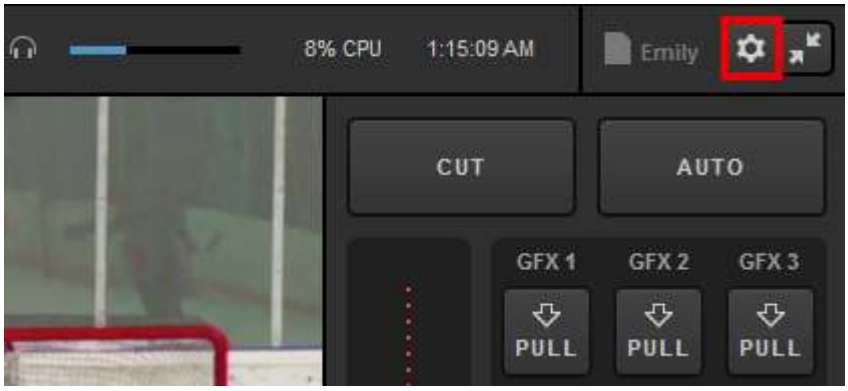
Importing & Exporting Projects via Dropbox

You have the option to save your Livestream Studio project files to a Dropbox folder rather than a local folder if you wish. You can also import .lsproj files from Dropbox into any Livestream Studio system using the same integration.

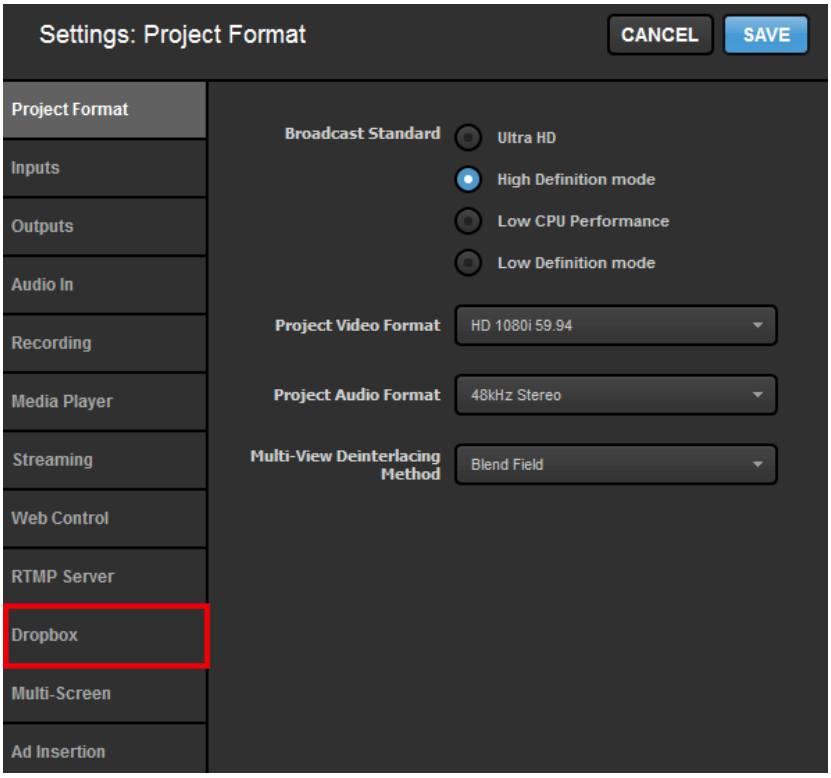
For the best experience, we recommend simplifying your Dropbox folder structure to no more than 1 or 2 subfolders. Multiple subfolders can cause extended sync times with Dropbox.

Connect Dropbox to Livestream Studio

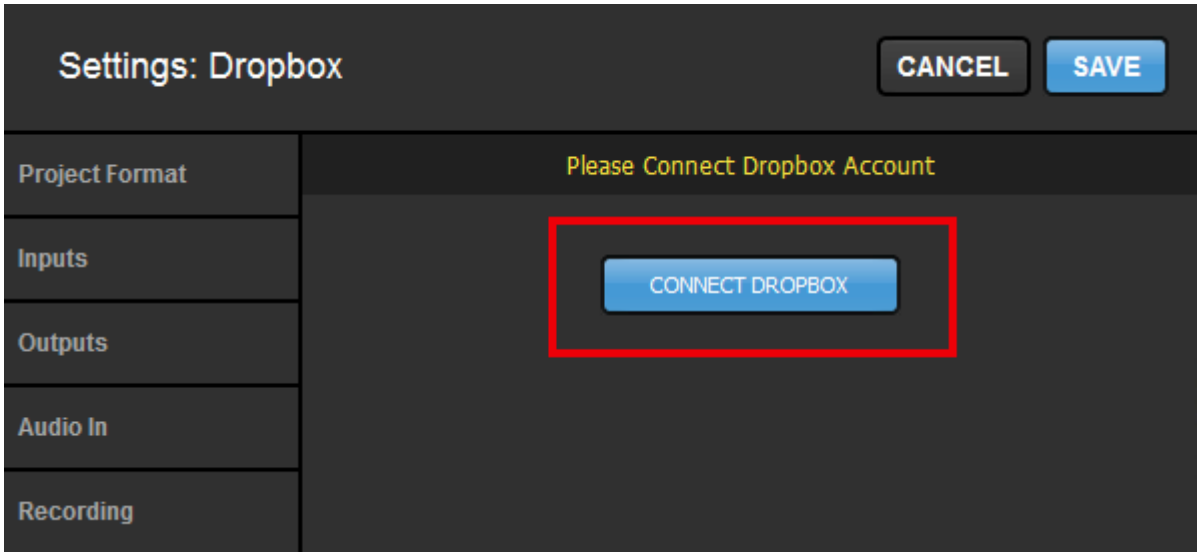
To configure Dropbox, navigate to settings by clicking the gearwheel icon in the upper right corner of Studio.



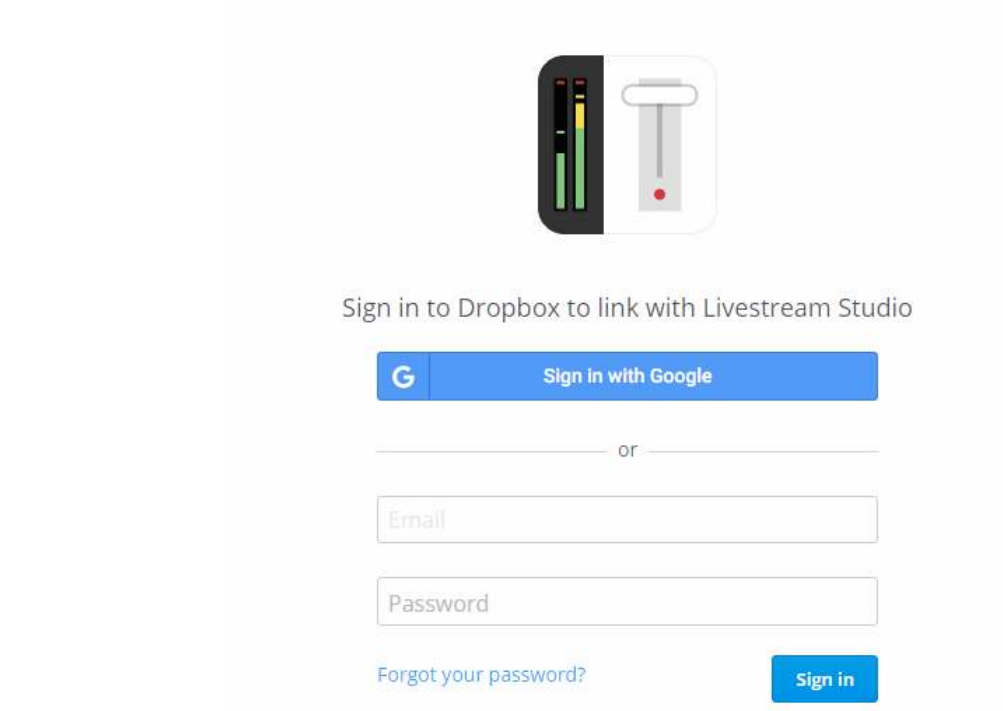
Navigate to the **Dropbox** tab.



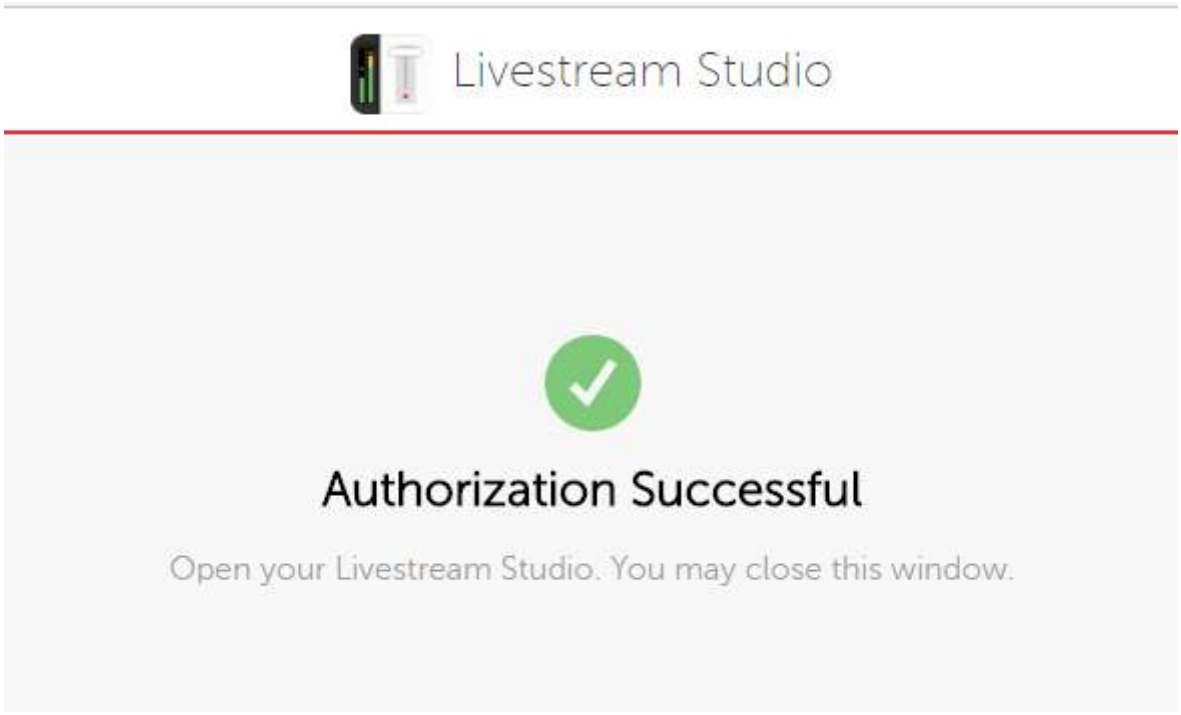
Click Connect Dropbox.



A browser window will open. Log in to your Dropbox account to connect it with Livestream Studio.

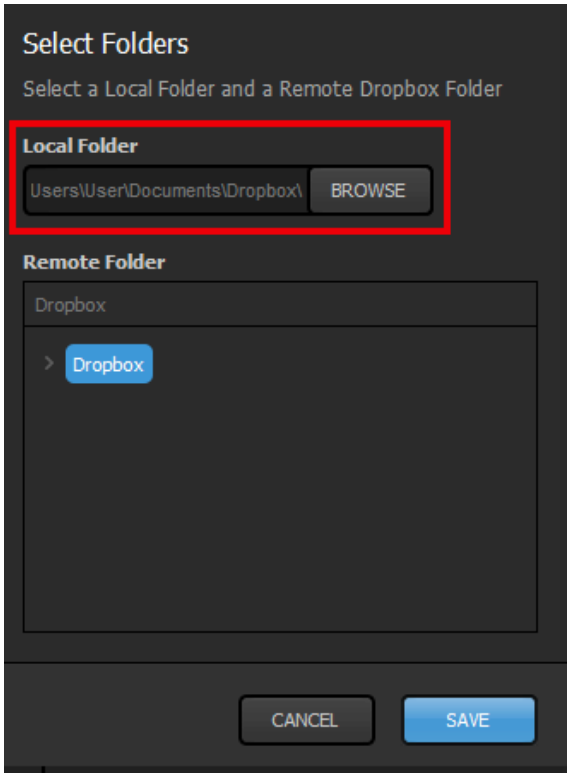


The browser will indicate that authorization was successful. Return to Livestream Studio.



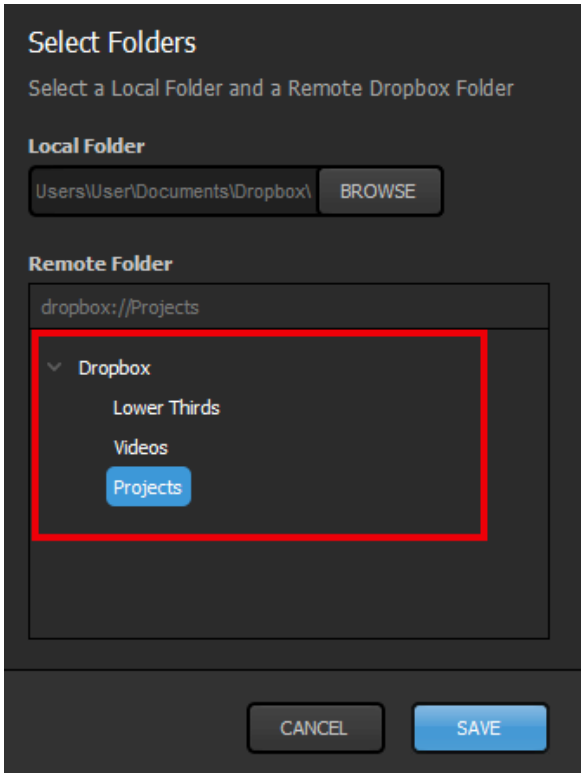
The Settings: Dropbox window will indicate that your account is connected. Click Select Folders to choose which folder to use with Livestream Studio.

Choose a local folder, which will include copies of anything you save to Dropbox on the local hard drive as well. By default, this will be set to Documents > Dropbox, but you can click BROWSE to choose a different location.

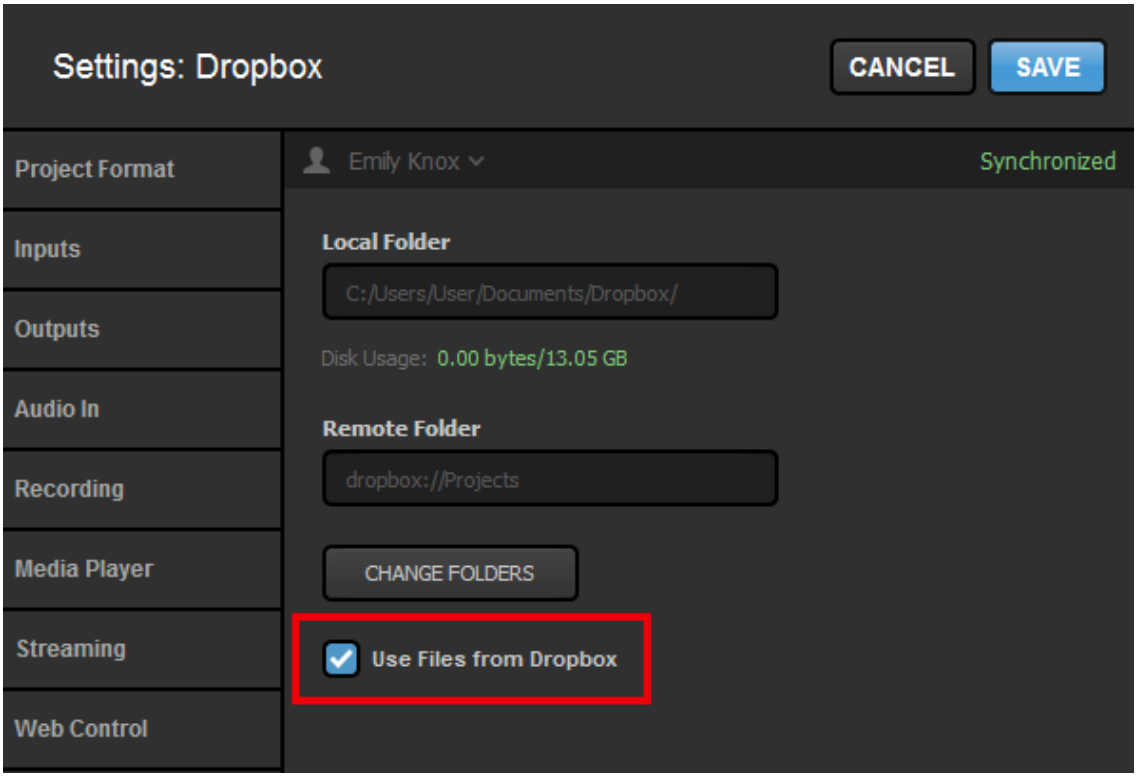


Next, choose the Dropbox folder you want to work out of. This can either be a generic "Dropbox" folder (as selected above) or you can expand into any folders within your Dropbox account (e.g. "Projects," seen below).

When you are done selecting your folders, click Save.

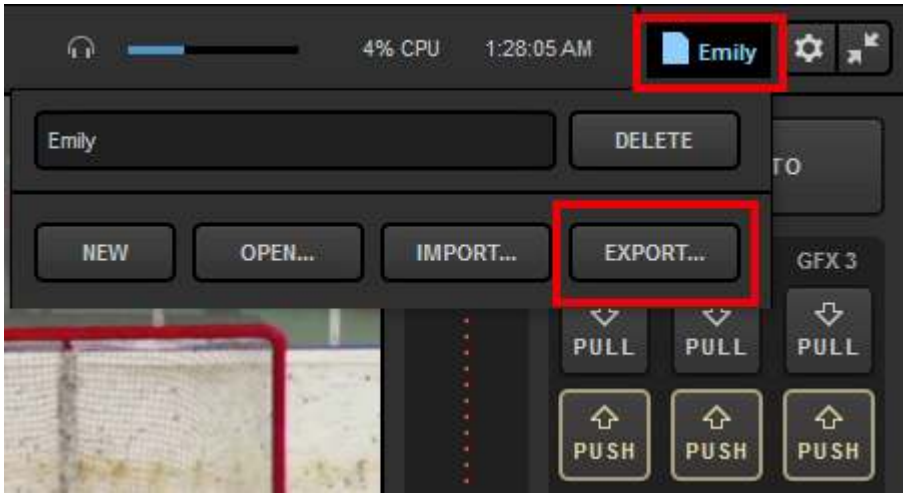


Your Dropbox account will sync with Livestream Studio. Make sure Use Files from Dropbox is checked. Then save your settings.

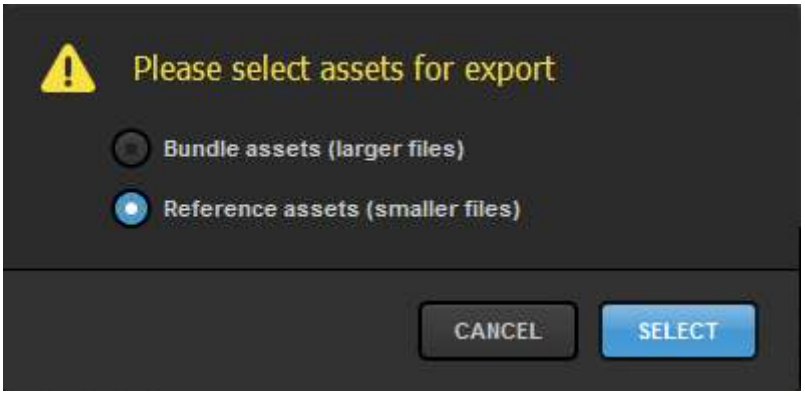


Save Project to Dropbox

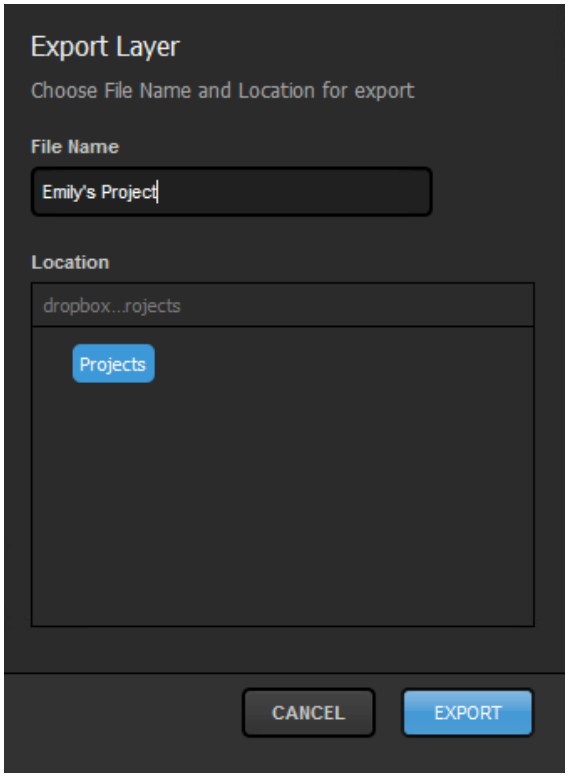
When you want to save your project to Dropbox, click the project name from the upper right corner, then click Export...



Select whether to **bundle** your assets into the project (e.g. graphics, media clips, etc.) or if the project should simply **reference** their file paths.



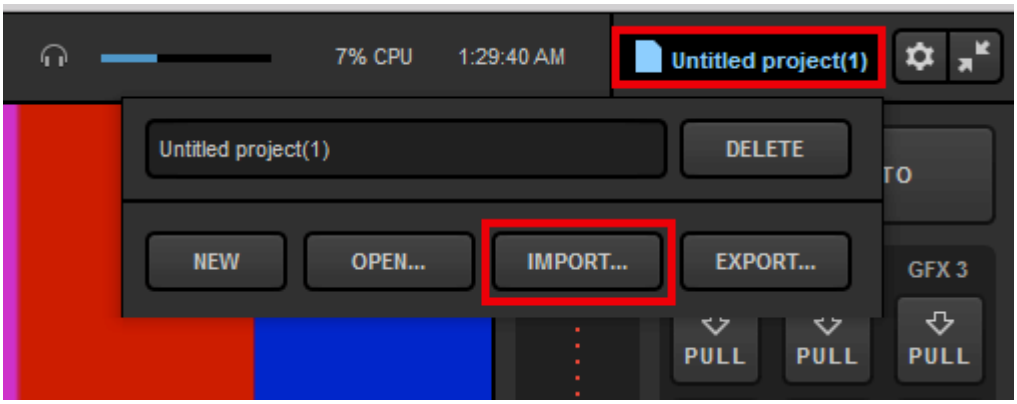
Give your project a name and make sure your folder is selected. Then click **Export**.



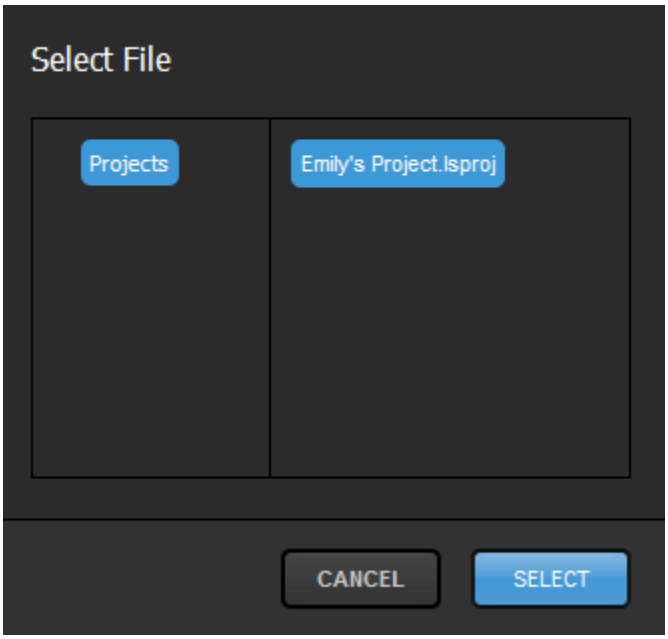
The .lsproj file will now be saved in your Dropbox folder as well as the local folder you selected in settings.

Import Project from Dropbox

To import your project into Livestream Studio, click the project name in the upper right corner, then click Import...



Click on your .lsproj file from the Dropbox folder, then click Select. Your project will open up in Studio.



Video Inputs

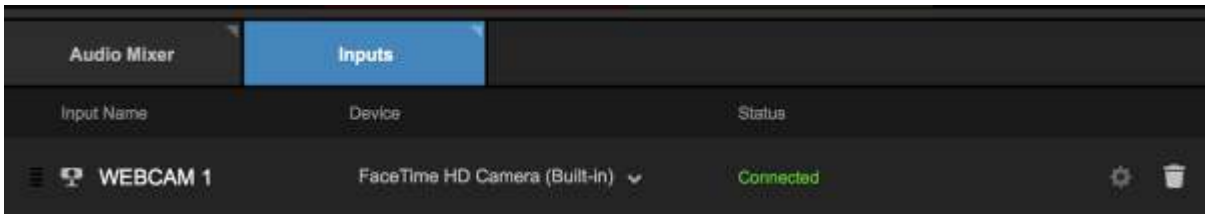
Connect Cameras to Your Studio PC or Mac

To connect your cameras to Livestream Studio, you must have a supported capture device (unless you are using a webcam), a video cable that is compatible with your camera (HD-SDI cable, HDMI cable, etc.), and any necessary cables to connect your capture device to your computer.

Webcams

Livestream Studio should recognize any USB webcam once its drivers are installed. Typically webcam drivers will download and install automatically once you connect the camera to a USB port on the computer.

Built-in webcams will also be recognized automatically.



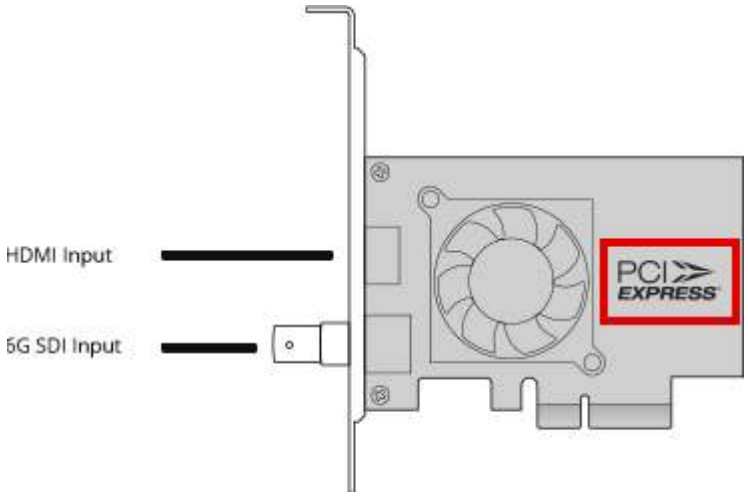
Camcorders & Video Cameras

For other cameras, you will need a Blackmagic Design in order for Livestream Studio to recognize the input. Magewell devices are also compatible.

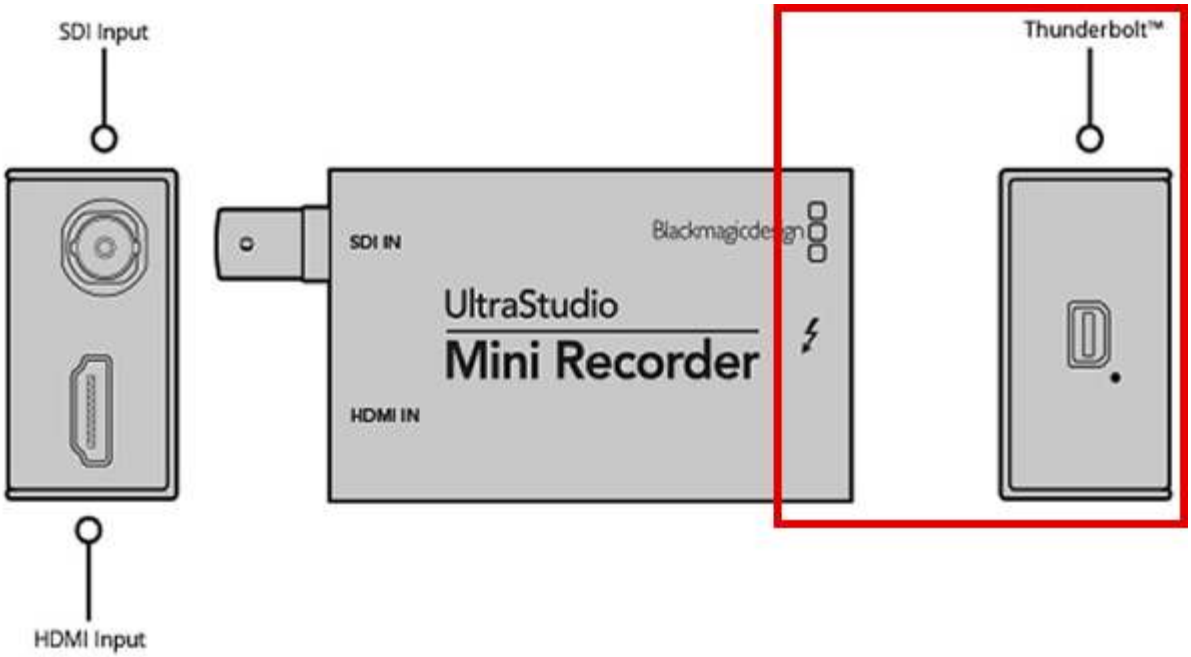
Studio hardware products (HD31, HD51, HD550, etc.) all have capture devices and drivers pre-installed. These driver installation steps should be executed by customers who are running Studio on their own computer with their own Blackmagic Design devices.

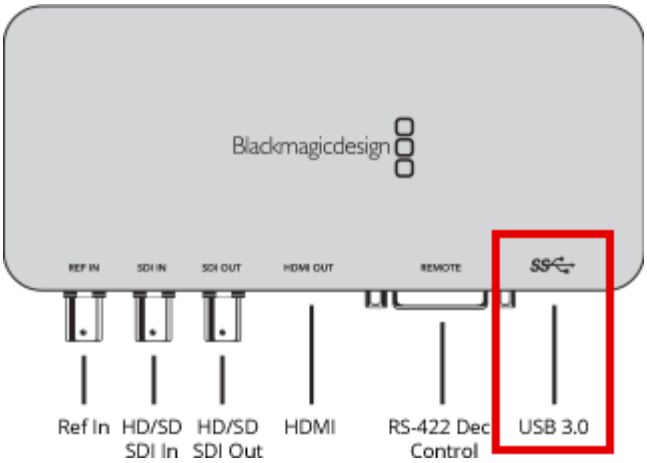
PCIe cards, Thunderbolt products, and USB 3.0 devices are certified to work with Livestream Studio. See our full list of compatible devices.

Please note that USB 2.0 capture devices are not compatible with Livestream Studio.



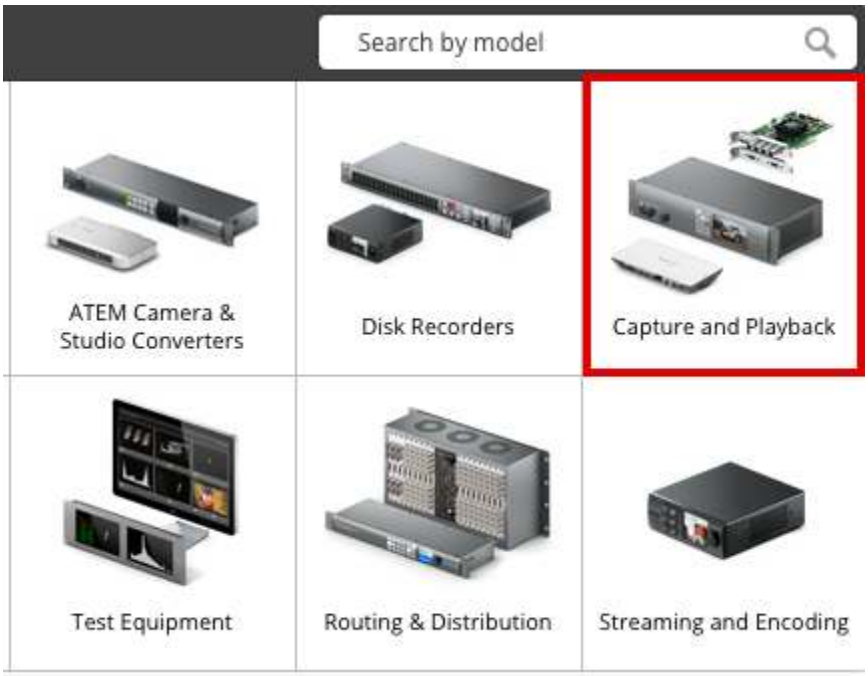
PCI Express cards are cards installed directly into the motherboard inside the computer.





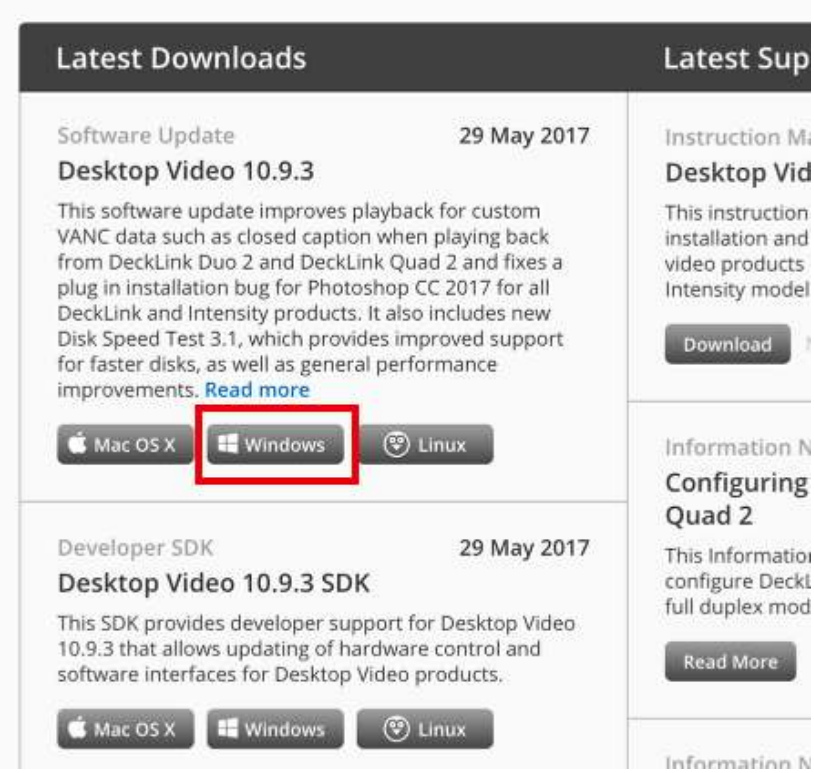
Connect the capture device to your computer if the device is not already installed. This example shows a USB 3.0 device (Blackmagic Design UltraStudio SDI).

Go to Blackmagic Design's website. To install the devices drivers, click Capture and Playback on the right side.

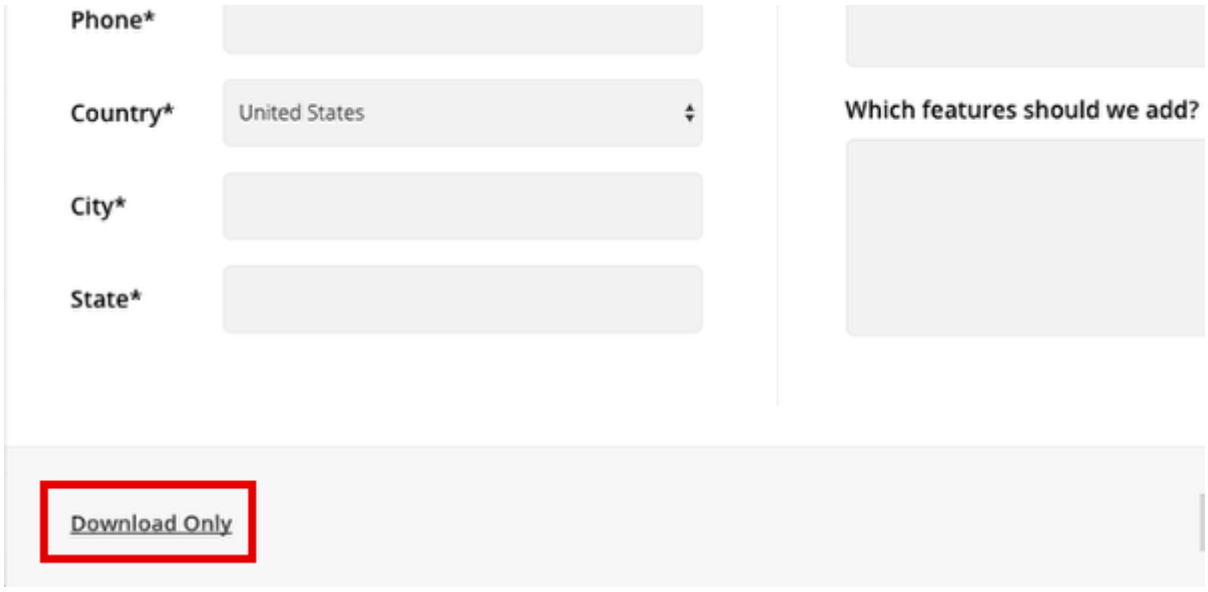


Below the product menu on the left side is the Latest Downloads menu. Desktop Video is the device driver that you will need. Find the latest, then click the button that corresponds to your operating system (Mac OSX or Windows) to start the download.

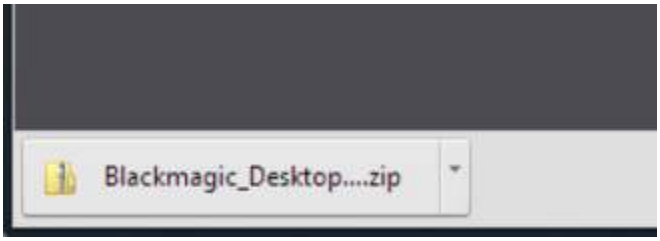
If you are on Windows 10 Pro version 1709, we recommend downloading Desktop Video 10.9.5.



You will be prompted to register your device, which is not required. If you wish to skip registration, click Download Only in the bottom left corner.

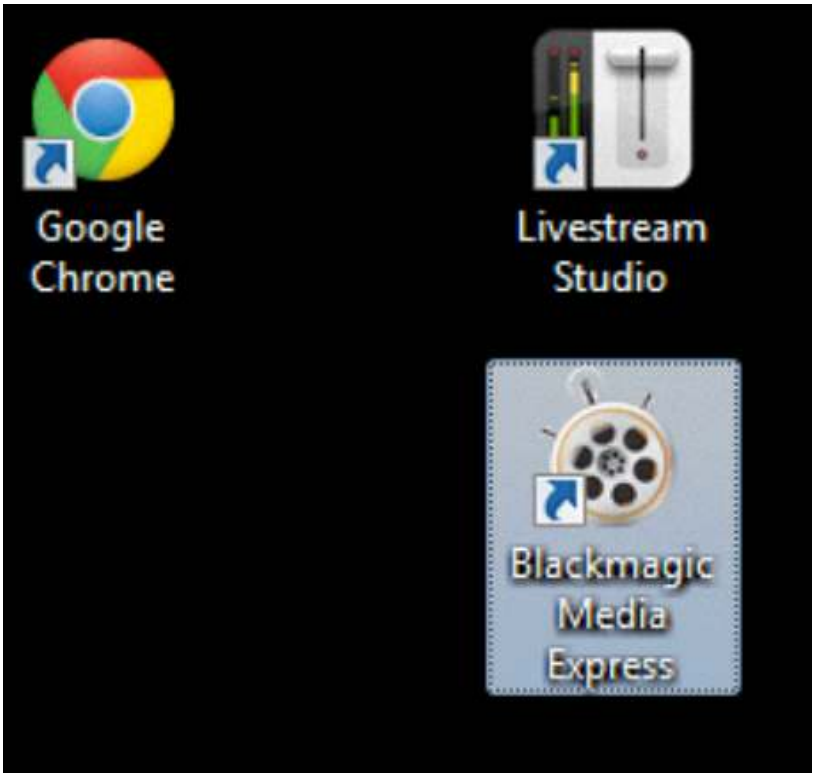


When the download completes, open the file and follow the simple on-screen steps to install. Once the installation is complete, restart your computer.



Now that the drivers are installed, turn on your cameras and connect them to your Blackmagic devices.

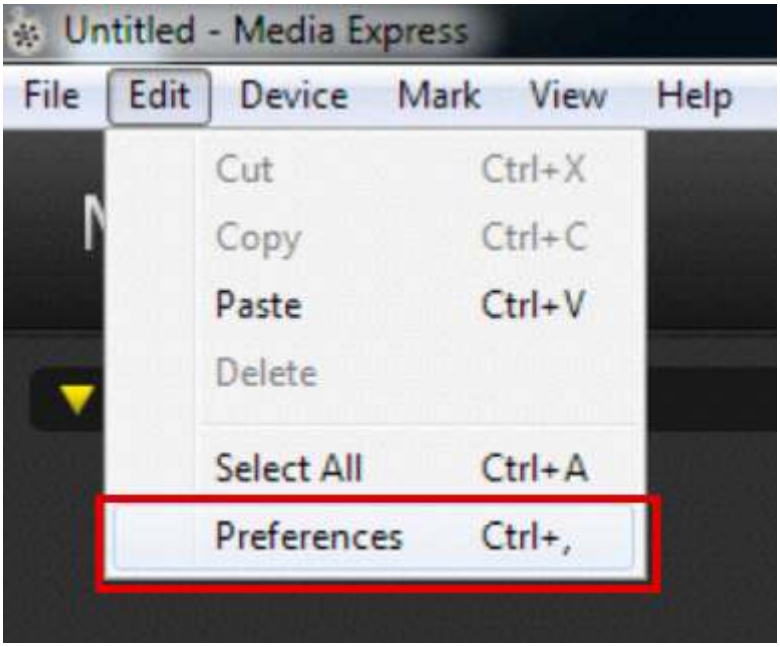
To check that your system is receiving a video in through the device, open Blackmagic Media Express *before* launching Livestream Studio. This program was installed with the Desktop Video driver.



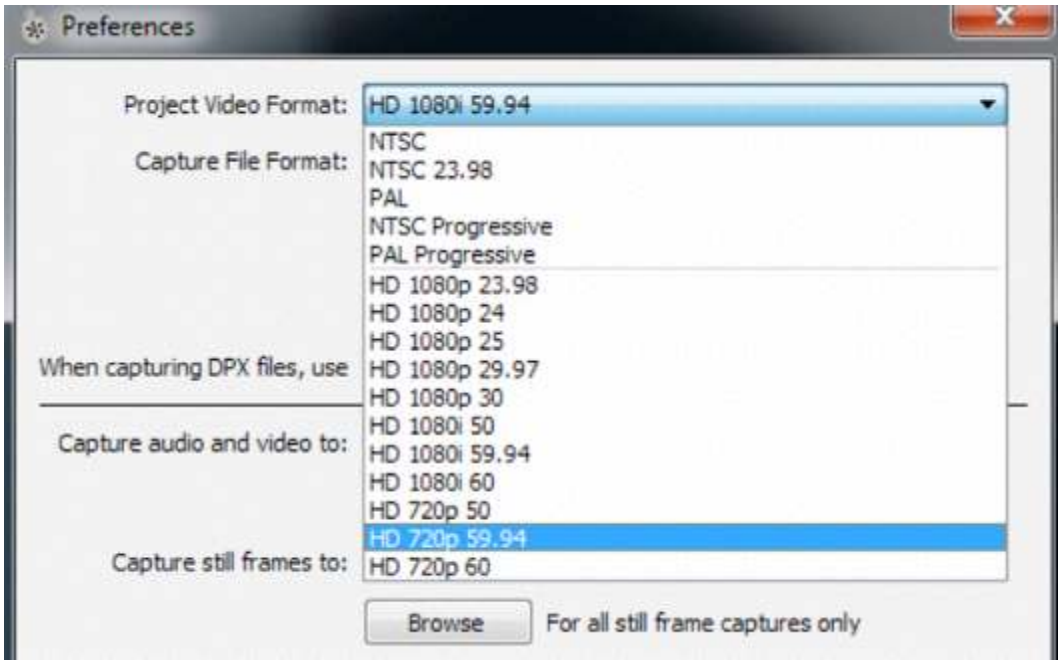
Click on the Log and Capture tab underneath the player.

Select the device you want to check on the Devices menu.

Next, go to Edit and select the Preferences menu.



Under Project Video Format, select the format your camera is outputting, then click OK at the bottom of the window.



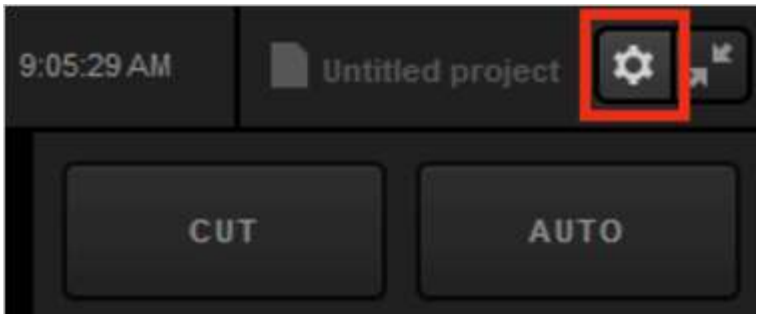
If you noticed your video signal come in before selecting Edit > Preferences, simply take note of the currently configured project video format. You will need to know this in order to see your cameras in Livestream Studio.

Your video signal should now appear in the Media Express player, confirming that you have a video signal coming into your system. Be sure to close Media Express *before* launching Studio.

00.00.00.00
Log and Capture
NO REMOTE

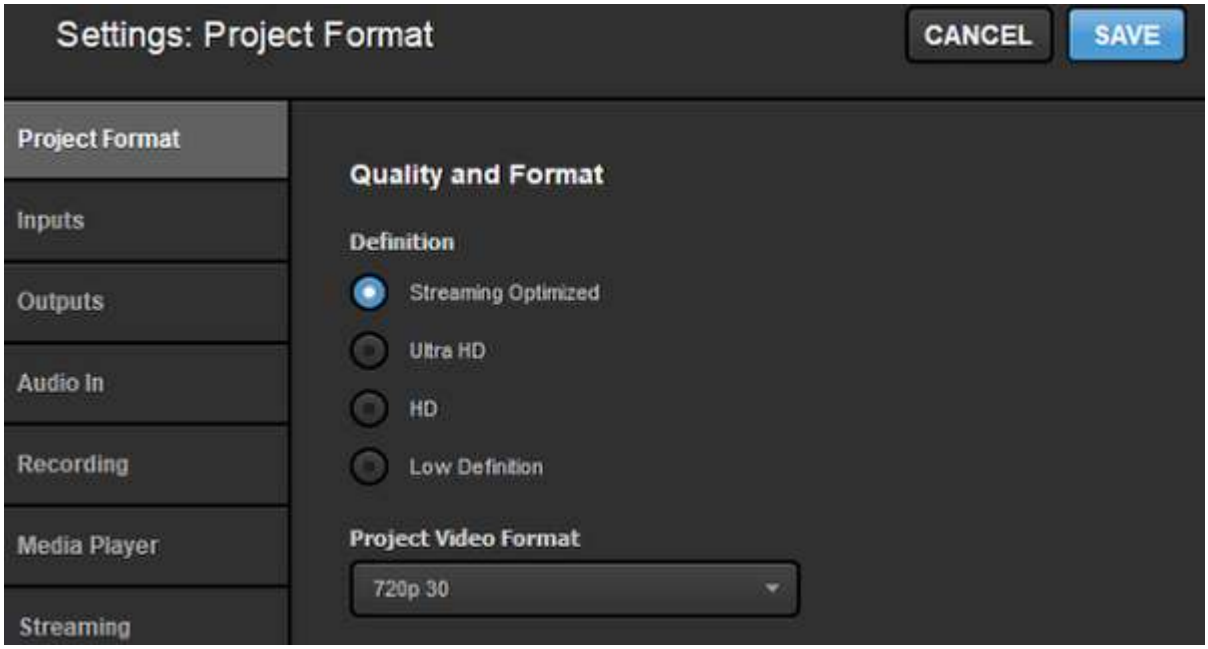
Setting Your Project Format

To configure your Studio Project Format, click on the gear wheel in the upper right corner of Livestream Studio.



The first tab is Project Format. This menu is where you set your project video quality and format as well as adjust some interface configurations. The video formats that are available to choose from are based on which Definition you select.

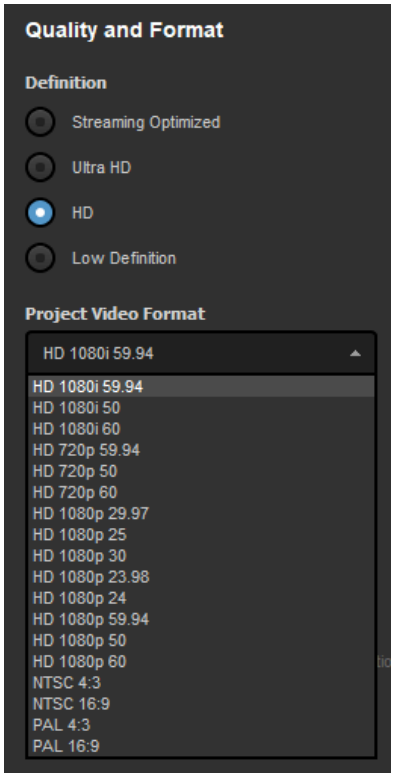
- Streaming Optimized (previously referred to as Low CPU Performance) includes 720p project formats, which are ideal for streaming particularly on laptops and lower end CPUs.
- Ultra HD includes 4K formats, which should only be used if you have 4K-compatible cameras and capture cards.
- HD has the most options for video formats, including 1080i, 1080p, 720p, NTSC, and PAL formats.
- Low Definition has 480p, 432p, 360p, NTSC, and PAL formats and will auto-downscale any HD inputs to the selected format.



Either a 1080p or 720p format will produce the best quality stream, as they eliminate the need to de-interlace. All formats will be true broadcast quality when recording and outputting the video.

After choosing your Definition, choose your specific Project Video Format.

Check each camera's settings to ensure that they all match each other as well as your project format. This will keep your CPU consumption low.



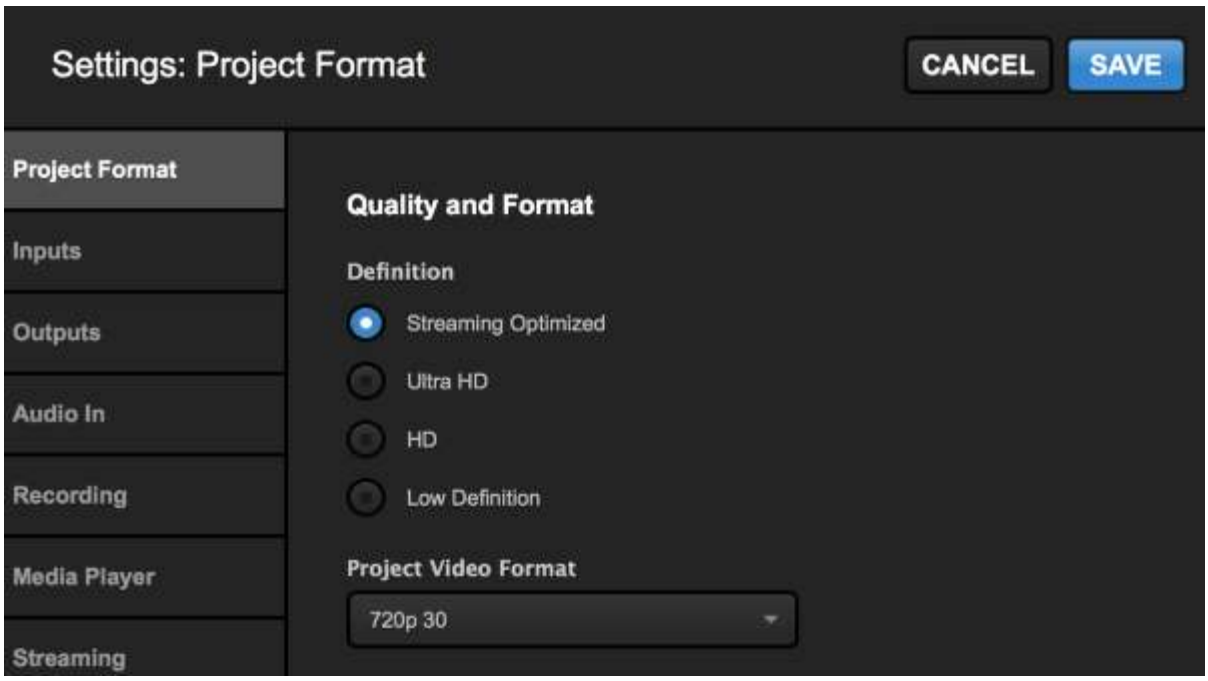
Be sure to save your settings. Next, connect your cameras if you haven't done so already, then configure your inputs.

Using 4K Project Formats

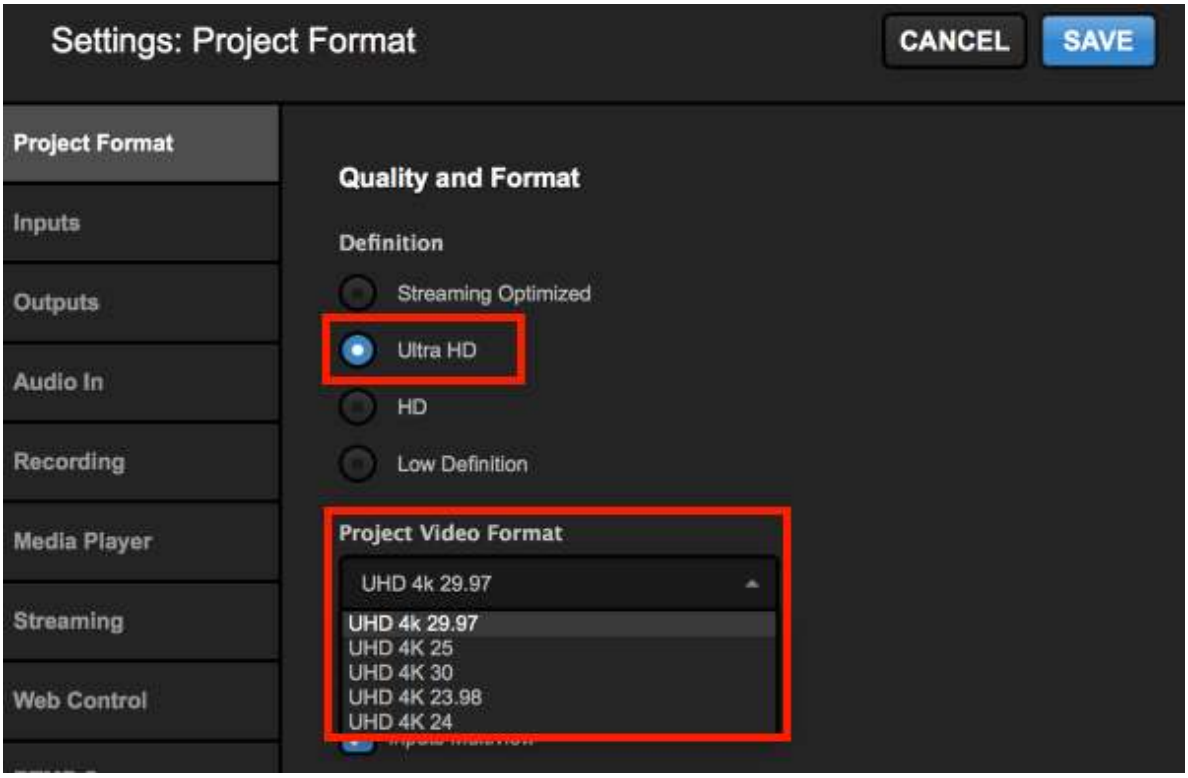
You can use 4K video capture cards to bring 4K video signals into Livestream Studio.

Important: While you can record and output in 4K, you can only *stream* in 4K if you are able to enable hardware encoding.

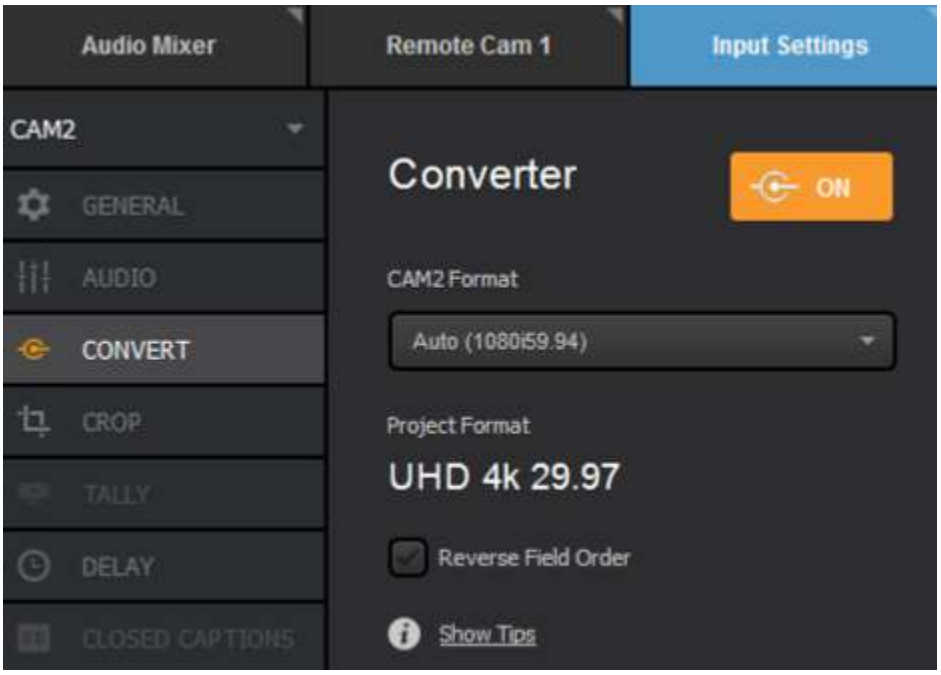
In settings, under the Project Format menu, there is a Definition section.



Selecting Ultra HD will allow you to choose a 4K format as your Project Format. This means that you can use 4K cameras with supported 4K capture cards to bring in 4K video signals.



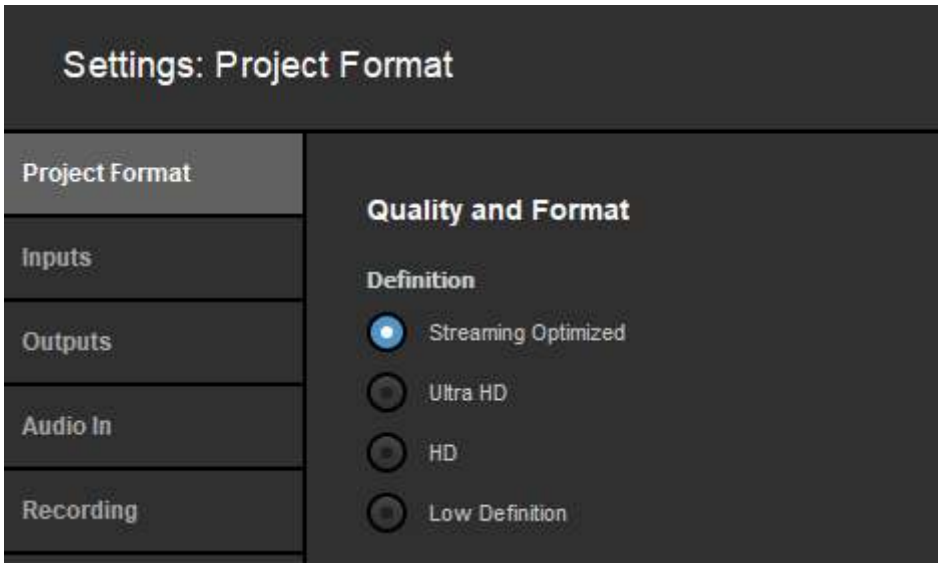
Any camera sources that are not in 4K can be converted under the Input Settings tab. Please note that using the converter may increase your CPU consumption.



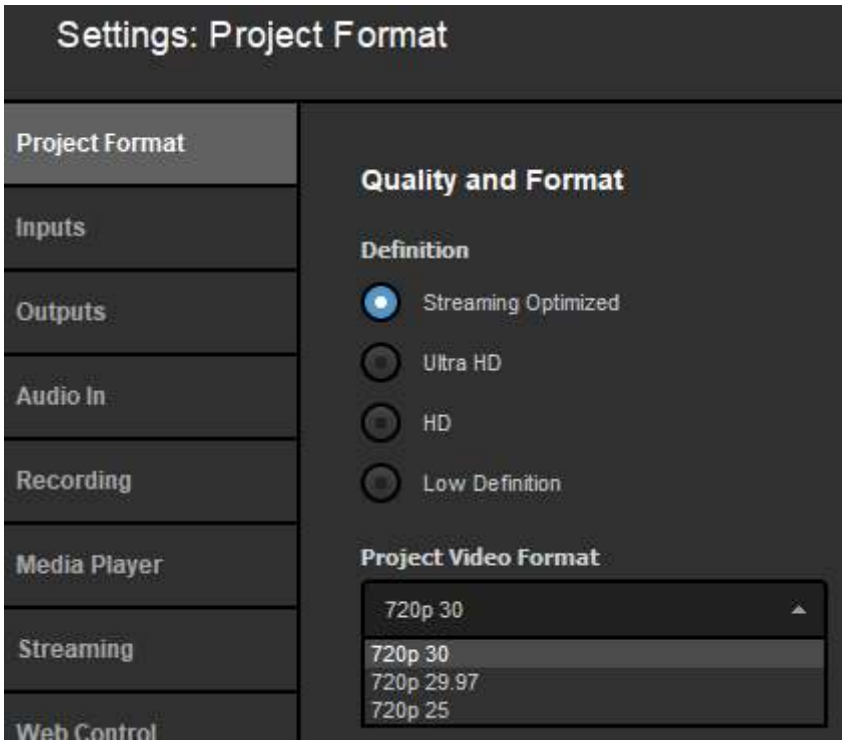
Using Standard Definition-only Formats

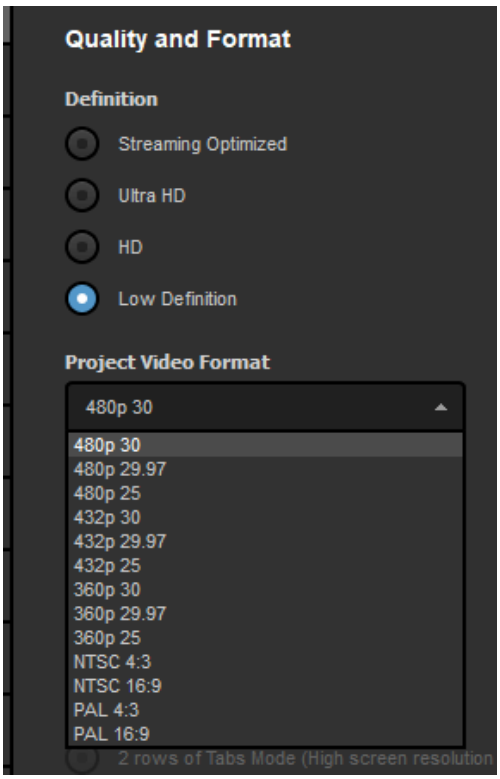
Producers who use Livestream Studio on low-performance computers can now help preserve their CPU by using Low Definition and Streaming Optimized project formats.

In settings, under the Project Format menu, there are various options for Quality and Format. Alongside High Definition mode, Studio offers Streaming Optimized (previously known as Low CPU Performance) Ultra HD, and Low Definition modes.



Streaming Optimized includes 720p formats only; Low Definition mode includes 480p formats and lower. These should be selected when using low-performance computers and laptops.

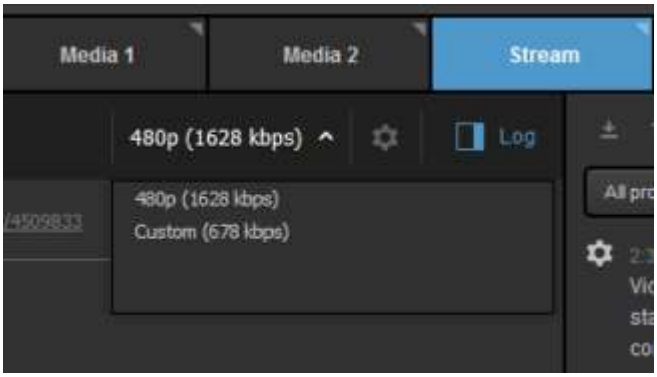

Settings: Project Format
Project Format
Inputs
Outputs
Audio In
Recording
Media Player
Streaming
Web Control
Quality and Format
Definition
Streaming Optimized
Ultra HD
HD
Low Definition
Project Video Format
720p 30
720p 30
720p 29.97
720p 25


Quality and Format
Definition
Streaming Optimized
Ultra HD
HD
Low Definition
Project Video Format
480p 30
480p 30
480p 29.97
480p 25
432p 30
432p 29.97
432p 25
360p 30
360p 29.97
360p 25
NTSC 4:3
NTSC 16:9
PAL 4:3
PAL 16:9
2 rows of Tabs Mode (High screen resolution

Studio supports hardware encoding and decoding via NVIDIA NVENC/NVDEC or Intel Quick Sync, which also greatly reduces CPU usage on low-performance computers.

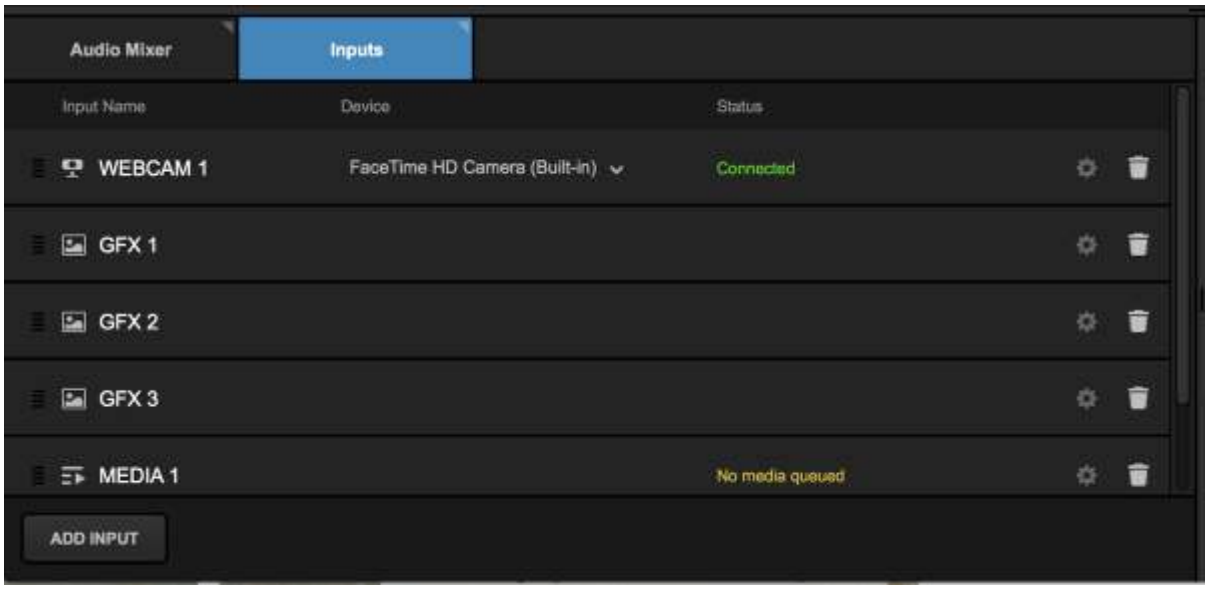
Any HD input sources will convert to the selected project format automatically.

When using Low Definition mode, you will only be able to stream in a resolution equal to your selected Project Format regardless of which streaming provider you use. This is to preserve the CPU.



Adding Input Sources

To add inputs and other sources (e.g. remote cameras, media player, etc.), navigate to the Inputs tab in the lower-left quadrant of the Studio interface. Some inputs will have already been added automatically such as graphics, two media players, and any detected cameras.



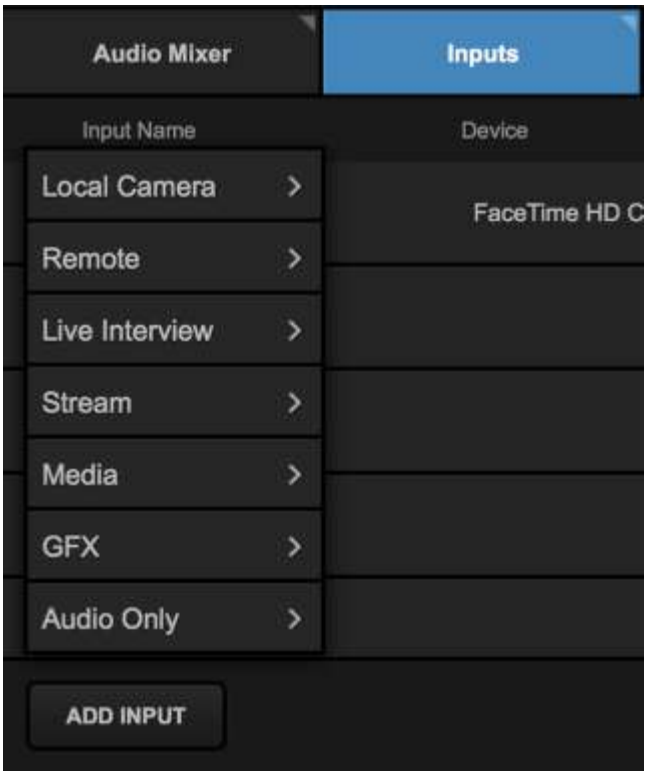
To add more inputs such as a remote camera, select Add Input.

A menu will open up with a variety of options:

- Local Camera: Any cameras that are physically connected to your computer, including webcams and screens for screen capturing.

- Remote: Sources that can communicate with Studio via the local network, such as Mevo, Broadcasters, iOS and Android devices, Mac and Windows desktops, and NDI inputs. Any devices already on the network and waiting for Studio will be listed here automatically.
- Remote guests (formerly Live Interview): Invite up to five (5) guests from different locations to be a part of your production via their webcam and browser.
- Stream: Bring in other streams, such as RTMP and RTSP playback, RTMP Ingest, or other events on Livestream.
- Media: Add media bins to playback pre-recorded videos such as highlights or montages.
- GFX: Up to three (3) graphics overlay channels can be individual sources such as picture-in-picture graphics or fullscreen scoreboards.
- Audio Only: Bring in audio via USB or the direct inputs on the HD550 or Studio One hardware units. You may add up to eight (8) Audio Only inputs.

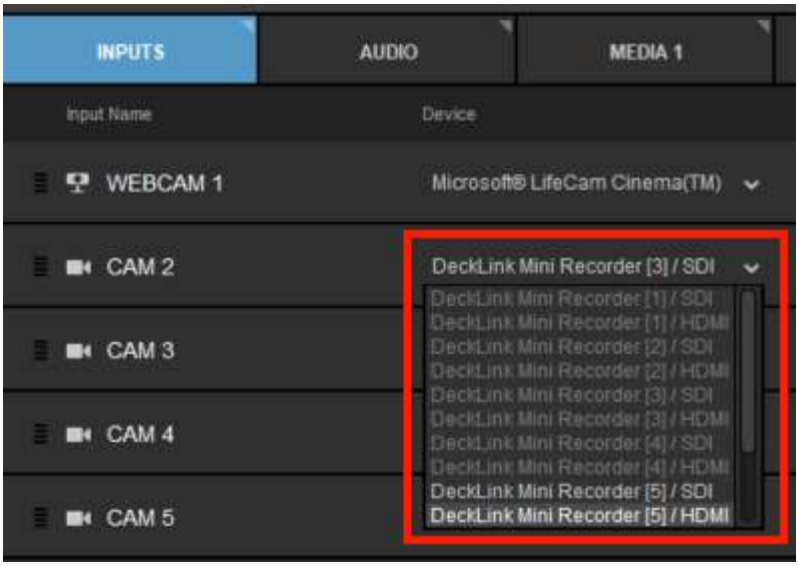
Unless otherwise specified (i.e. Live Interview, GFX, and Audio Only), Studio allows for up to 50 total sources to be added (e.g. 25 local cameras and 25 remote cameras, but no additional inputs).



Each source you add will appear in a list in the inputs menu. You can re-order your inputs dragging and dropping them up and down via the drag handle on the left side; this will also change the order they appear in the multi-view.

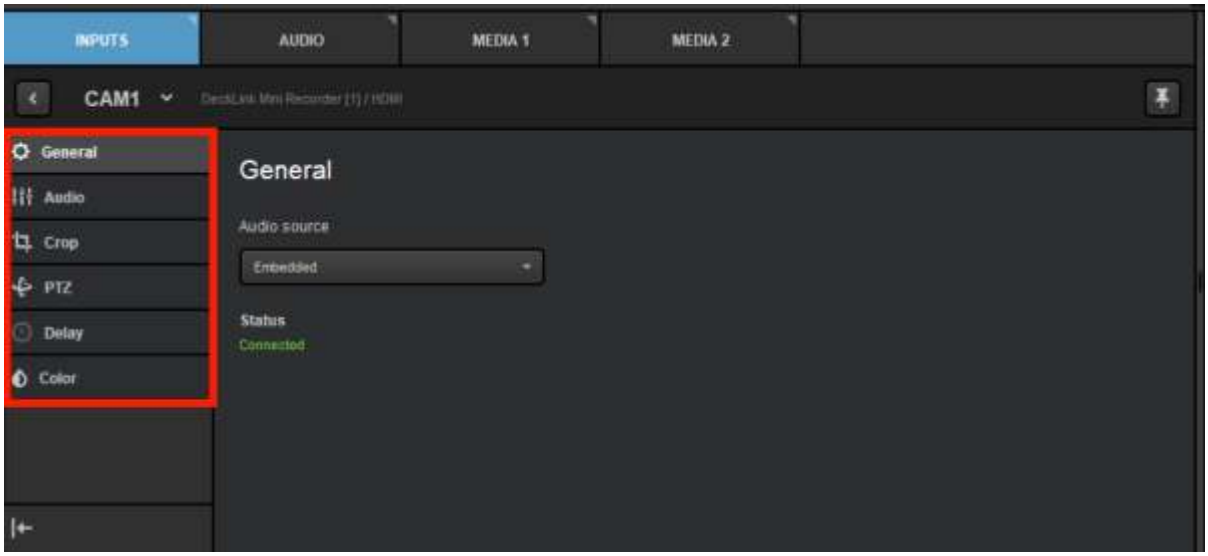
Each source will be given a default name, but you can edit this by hovering the cursor over it and selecting the pencil icon that appears.

For local cameras, use the Device drop-down menu to choose which capture device and input (e.g. SDI or HDMI) should be used for each source.



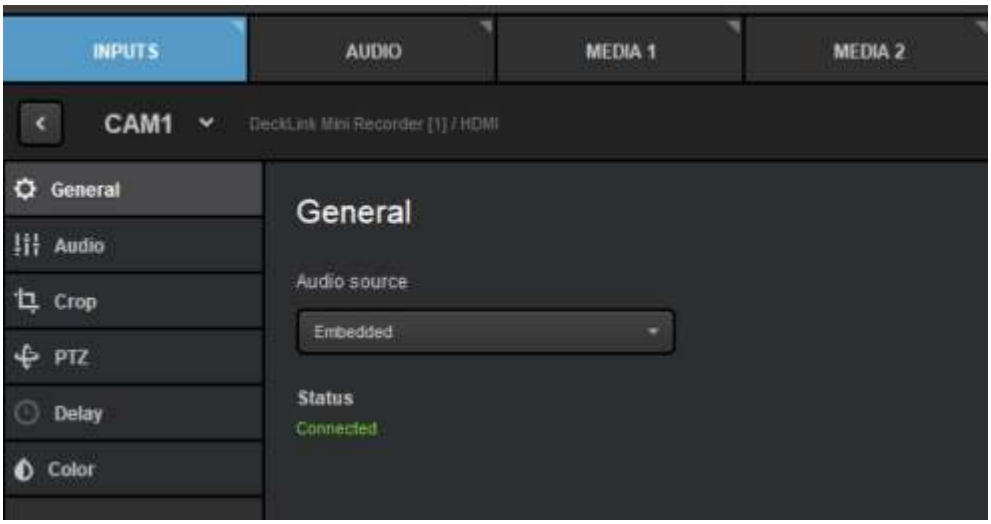
To configure settings for any source, select the corresponding gearwheel to enter its settings menu.

Along the left side of the menu are menu options such as your audio source for that input, along with additional settings.



Under General is where you can choose the audio source tied to the select video source. Many camera sources and capture devices, such as the Blackmagic DeckLink Quad or DeckLink Mini Recorder, will only support embedded audio through their SDI and HDMI inputs. Other Blackmagic cards, such as DeckLink Studio, will support embedded, analog, or AES/EBU audio via the provided Blackmagic breakout cable.

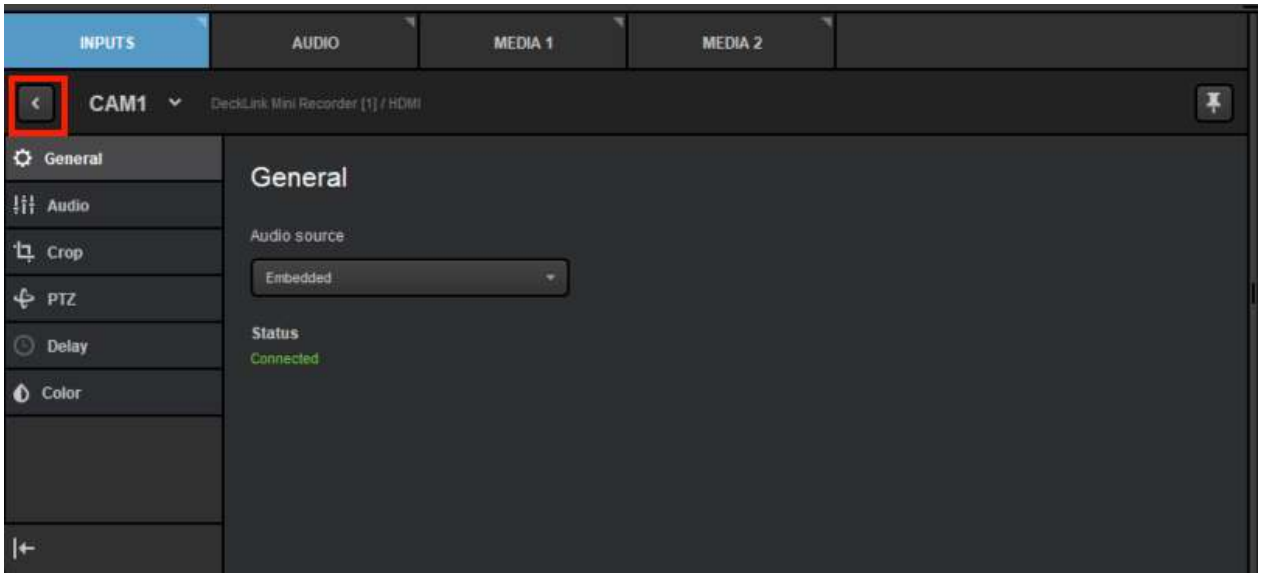
Blackmagic analog audio inputs MUST be accompanied by a video input source to be active. If a video signal is not coming into the card, audio will not come through either.



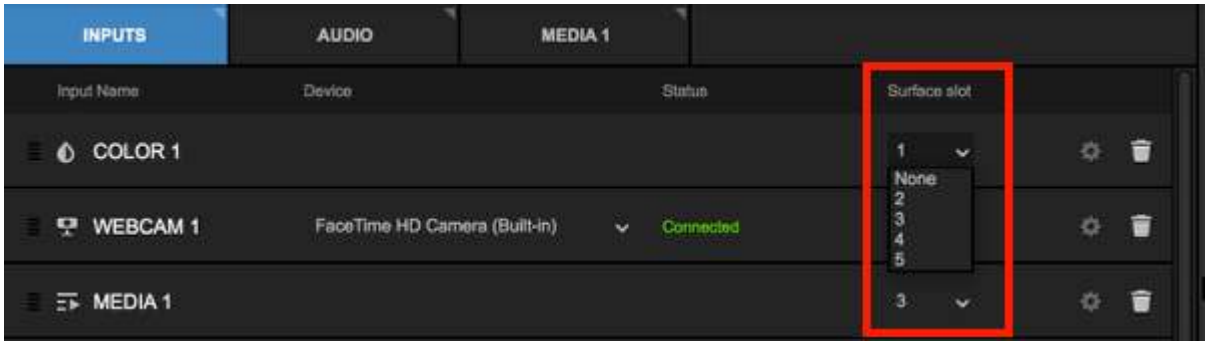
Learn more about input settings.

If this is a source you will need to quickly access often, you can pin it so that a tab to it becomes available alongside your other production elements. Select the pin icon to do this.

To return to the general Inputs menu, click the back button in the upper left corner.



If you have a Studio Surface or Surface Go connected to your system, you can assign the tracks under the Surface slot column. If you do not have a Studio Surface product, this menu will not be present.

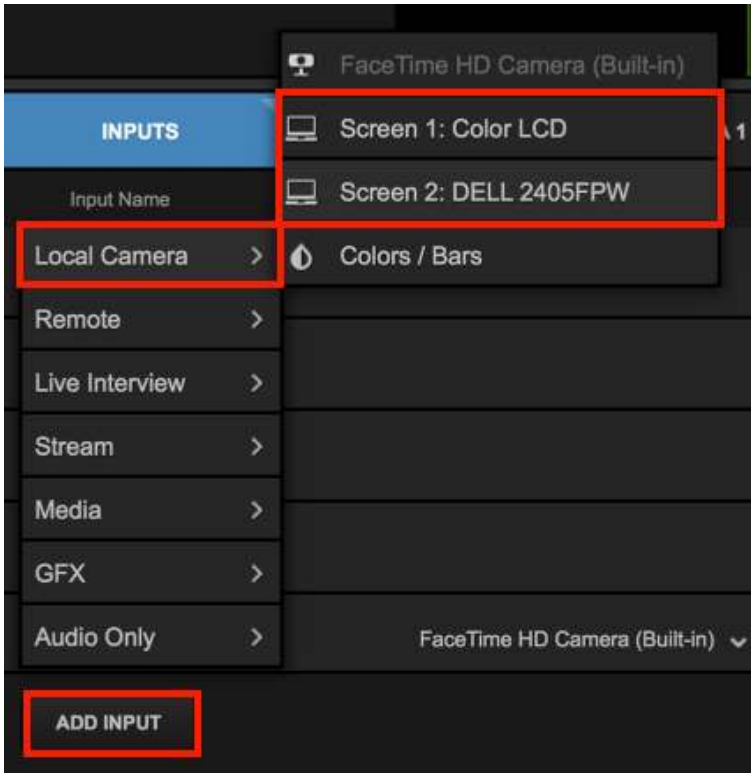


To remove an input, select the trash icon on the right side of the corresponding source.

Screen Capturing with Livestream Studio

When adding your inputs in Livestream Studio, one source you can include is your computer's screen(s).

Navigate to **Add Input** > **Local Camera**. You can select a local screen from the menu that opens up.

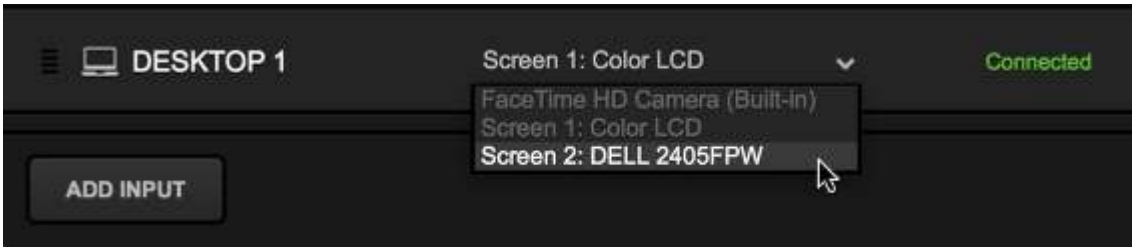


This feature is ideal for systems with multiple monitors connected (e.g. Livestream Studio on one monitor, and a slideshow on another monitor). Please note that local screen capturing will increase CPU.

Once you select a screen, it will be available in your multi-view. You can transition it into Program just as you can with any other input.

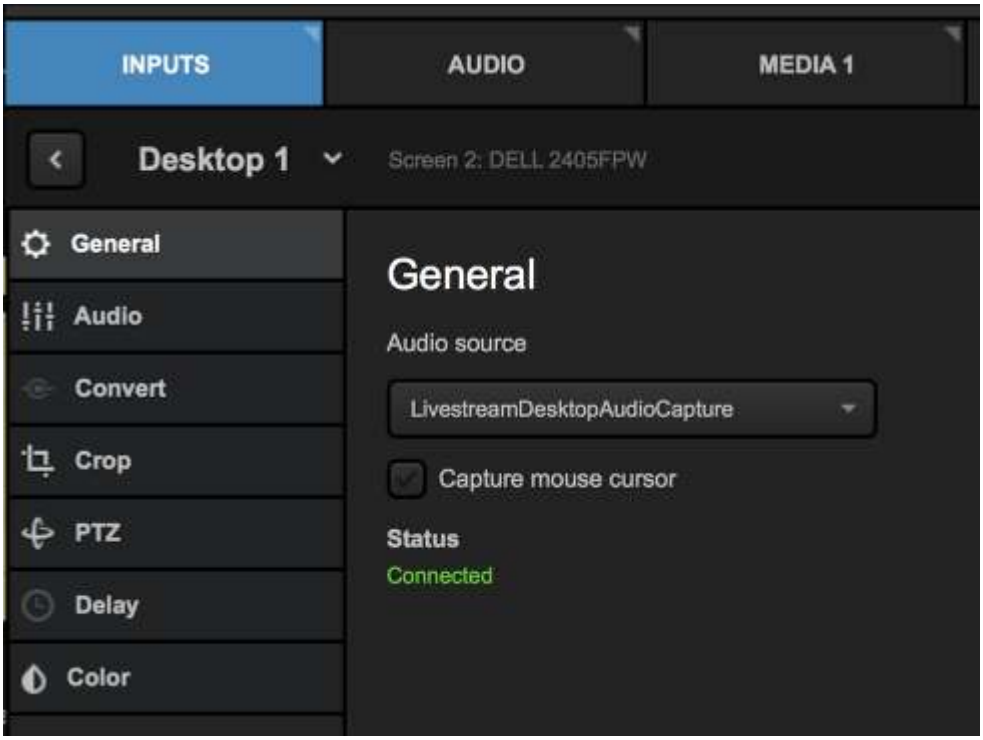
If you see a "Defunct" error notification, you may need to give Studio permission to record your screen.

If you want to change out a screen (i.e. you chose one by mistake), you can open the Device drop-down menu in the Inputs module and choose a different one.

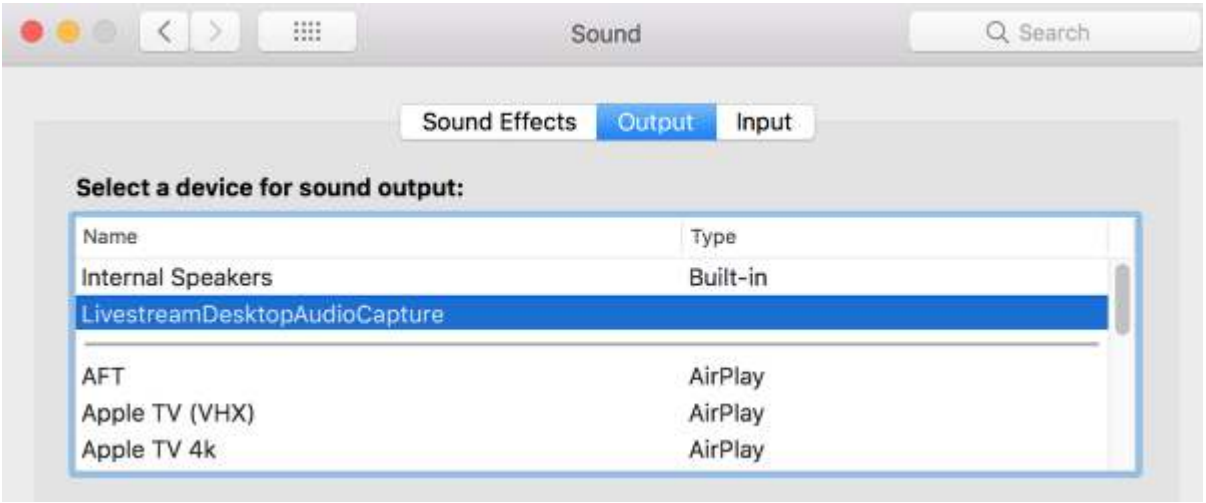


There are a few settings you can configure when capturing a local desktop. Select the corresponding gearwheel in the Inputs menu to adjust these.

Under General settings, you can check your audio source; if you want to hear audio coming from your computer, make sure LivestreamDesktopAudioCapture is selected. You can also choose whether you want your mouse cursor to be displayed; this is disabled by default.



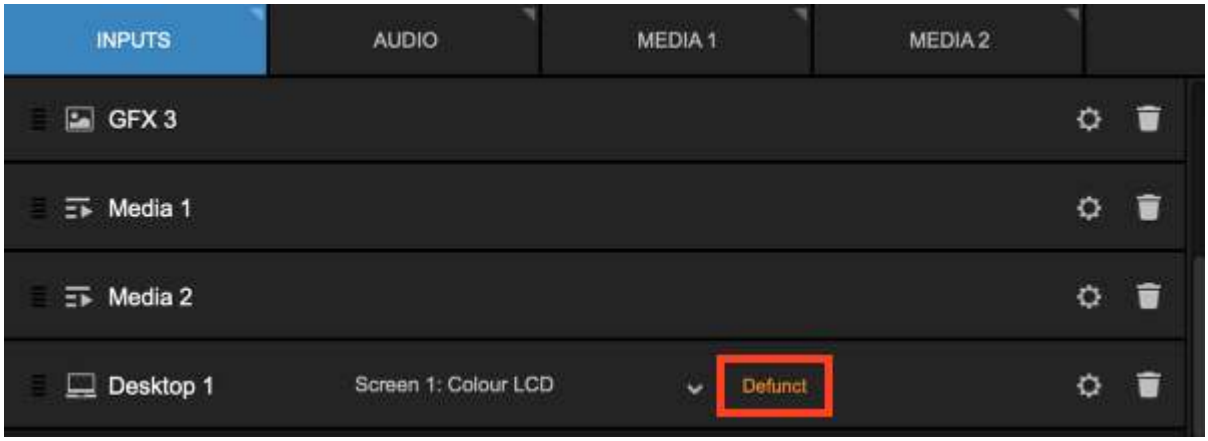
If you need to bring in local audio from your desktop, make sure to go into your system's Sound settings and ensure that LivestreamDesktopAudioCapture is the selected output or playback device, rather than your system's speakers or headphones.



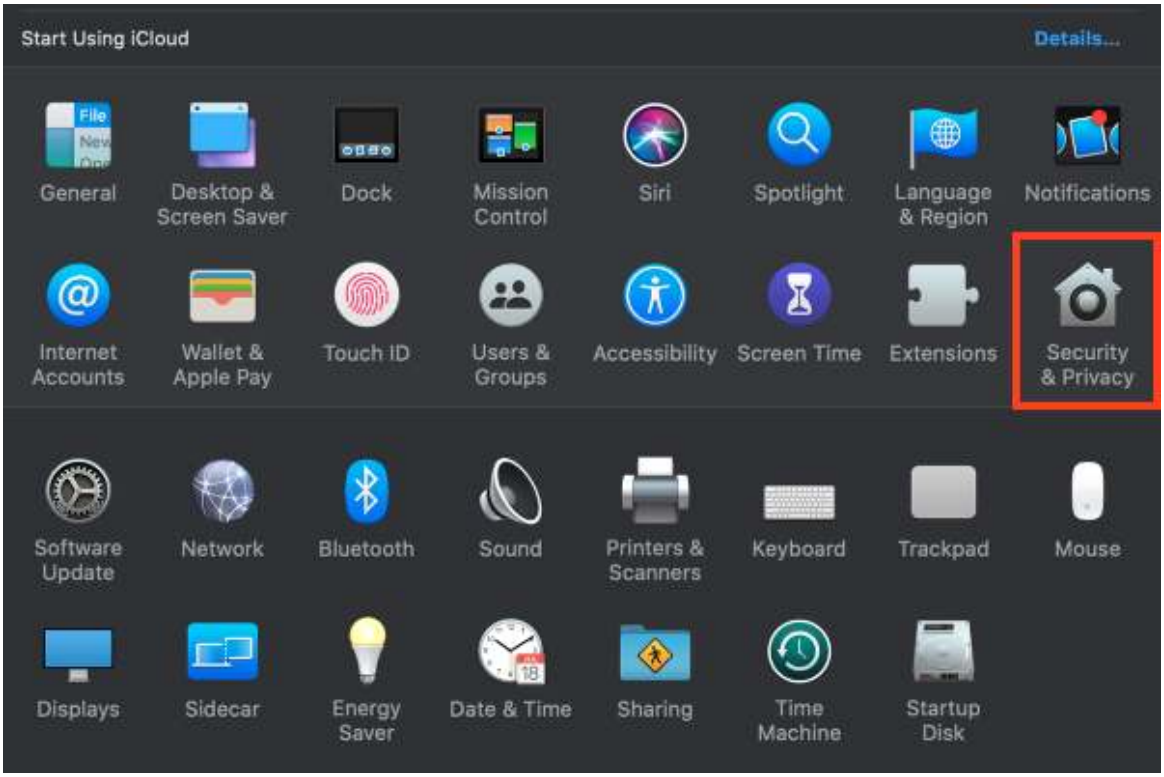
"Defunct" Message when Screen Capturing on macOS Catalina

macOS Catalina requires additional security and privacy permissions to be configured in order to add a local screen as an input. This does not apply to Windows or earlier versions of macOS.

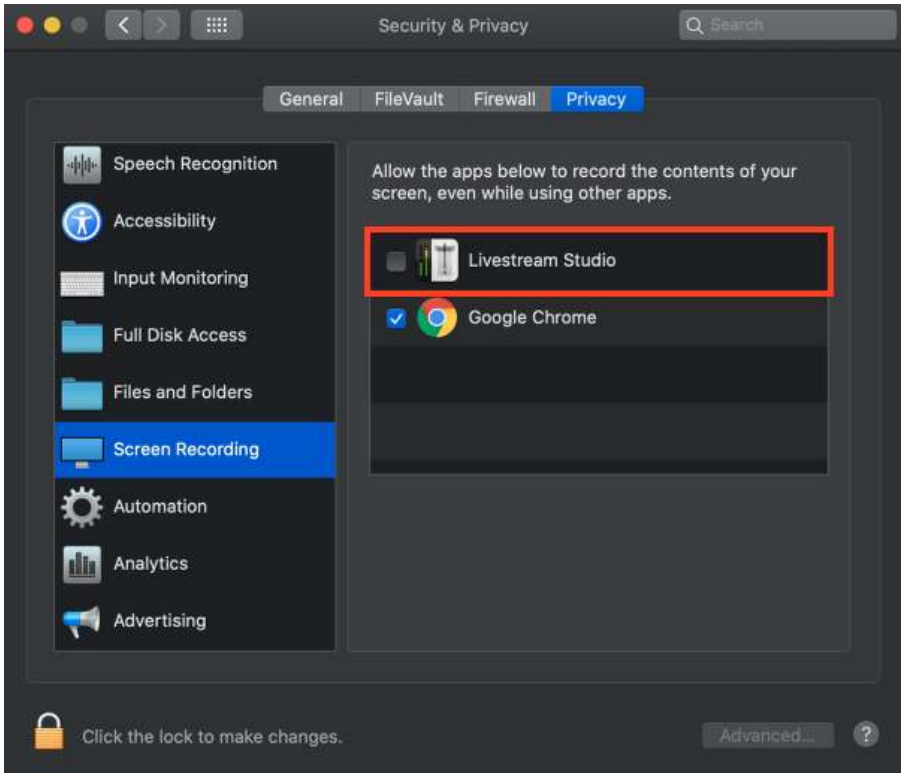
When you first attempt to add a local screen as an input, macOS will prompt you to allow Livestream Studio to record your screen. You should allow this permission or else you will not be able to bring your screen in as an input source and you will instead see the Defunct error notification.



To change this permission, go into macOS' System Preferences and open Security & Privacy.



Navigate to the Screen Recording permission and select the checkbox next to Livestream Studio. You may need to click the lock in the lower left corner to save the changes.



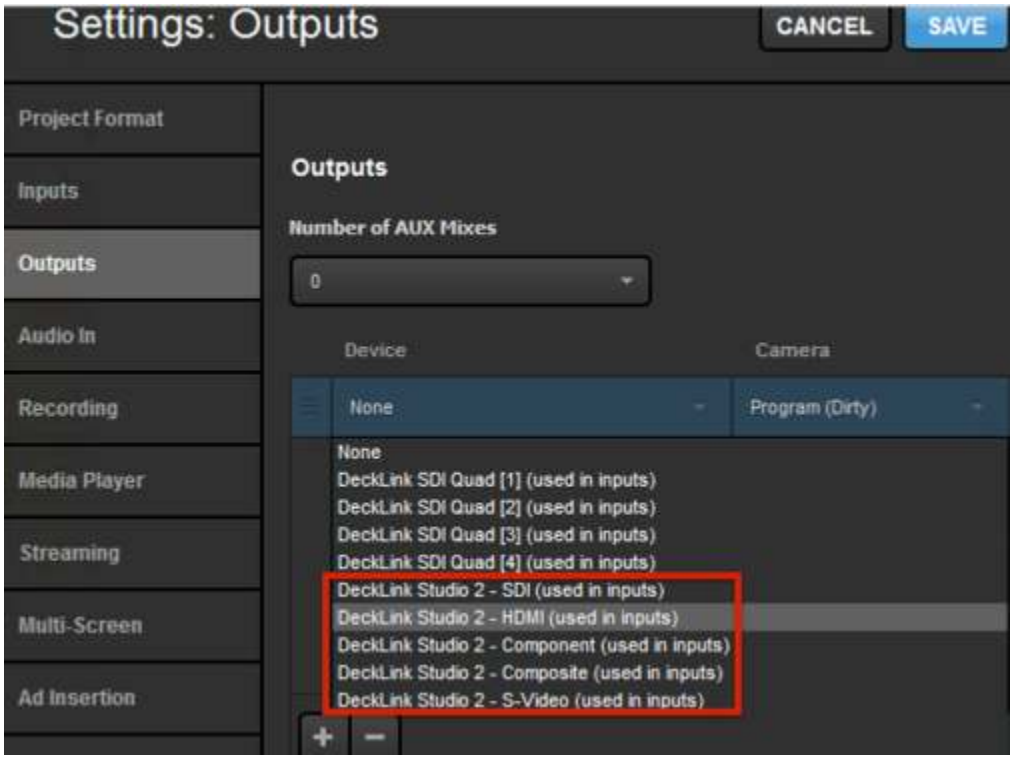
Relaunch Livestream Studio to add your screen as an input.

Using the DeckLink Studio 2 and Similar Cards

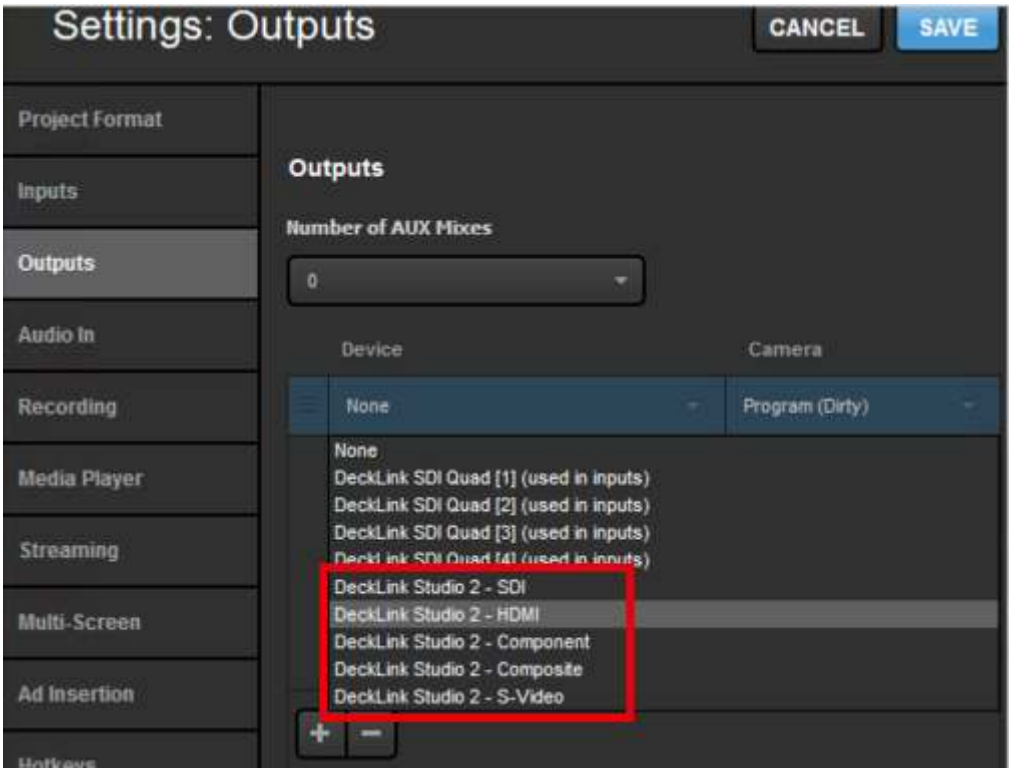
Most Blackmagic Design capture devices can be used as either an input or output device. One example of this is the DeckLink Studio 2 card, which came preinstalled on Livestream's first generation of Studio hardware products (HD50, HD500).

Add this card as an input by going to Inputs, then navigate to Add Input > Local to add it with whichever connection type you are using.

If you add this as an input, but then try to add it as an output by going to the Outputs tab, Studio will notify you that it is already being used in Inputs.



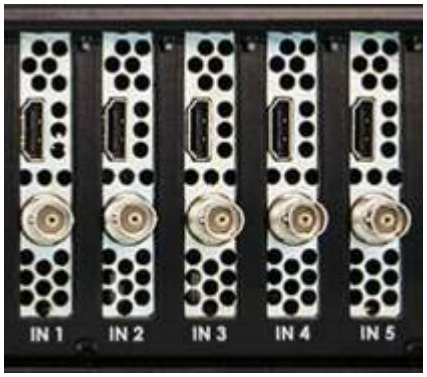
If you want to use any device as an output, be sure to remove it from Inputs by selecting the corresponding trash icon on the right side. Then you can go back to the Outputs tab and select it.



When you select it as an output, you will notice that if you try to add it as an input again, it will not be available.

Using the DeckLink Mini Recorder

The Livestream Studio HD51 and HD550 are each equipped with five Blackmagic DeckLink Mini Recorders; the HD31 has three cards installed.



Each card has one SDI input and one HDMI input.

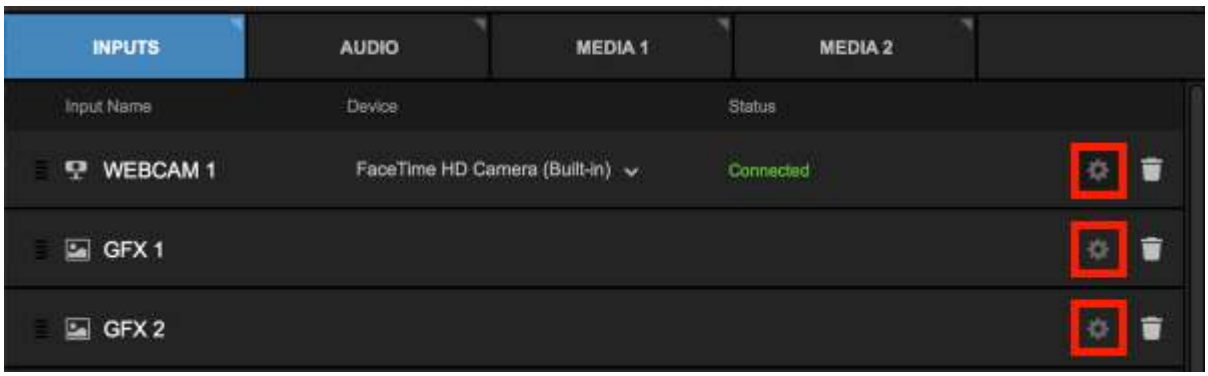
The 4K editions of the HD51 and HD550 have 4K versions of these cards installed.

Each card can only handle one source at a time. You cannot use both the SDI and HDMI input on the same card. For example, if you use the HDMI input on Mini Recorder 1, you cannot also use the SDI input on Mini Recorder 1 and would thus have to use an SDI input on one of the other four Mini Recorder cards.

Configuring Input Settings

Every input in Livestream Studio has individual settings you can configure directly from the Inputs module, including audio settings, conversion, cropping, audio/video sync correction, tally lights, captions, and color correction.

To open the input settings module for a given source, navigate to the Inputs tab in the lower left quadrant. To the right of each input is a gearwheel; selecting this will open input settings for that source.

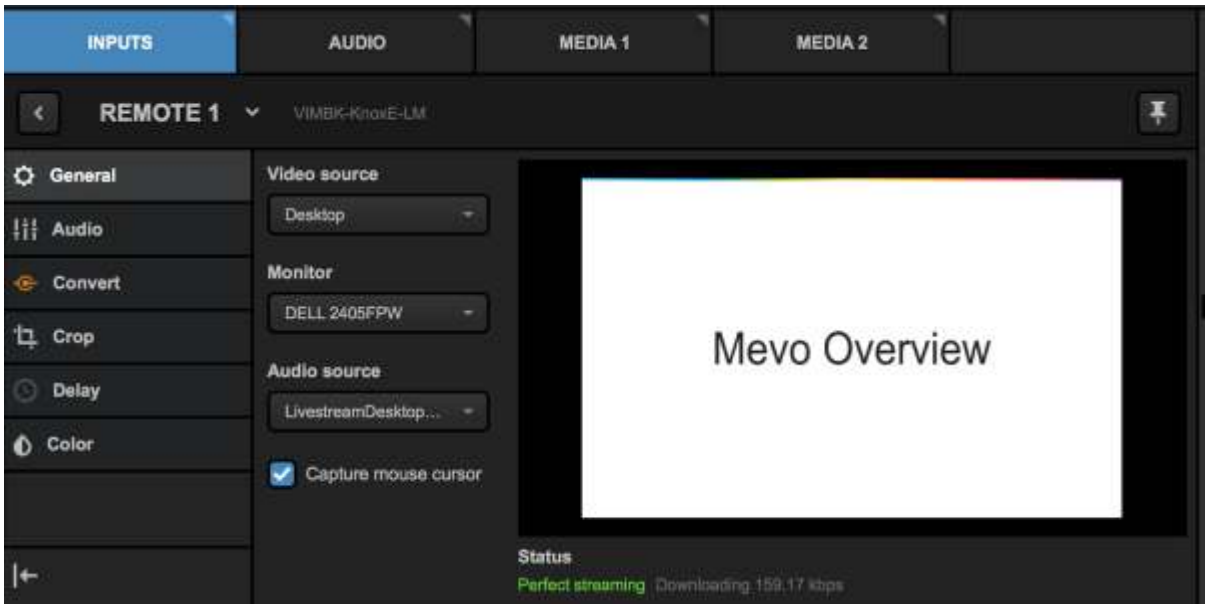


You can also access an input's settings menu by clicking the gearwheel icon next to the source's display name in the multi-view or in the audio mixer by clicking the source name and selecting Input Settings.

General: This is the first tab that will open and will include any settings specific to that input source. For example, direct camera inputs (e.g. webcams, HDMI/SDI cameras) will have the option to choose the audio source for that camera (e.g. "built-in microphone," "embedded," etc.)

Mevo will allow you to configure all the basic settings for your Mevo directly from Studio.

Remote desktops (Windows and Mac) will show the options to change your video source, audio source, and whether you want to capture the cursor from that desktop.



You can learn more about the general settings available for:

- iOS and Android devices
- Local screens
- Broadcasters
- NDI inputs
- Remote Guests
- RTMP Server and other streams
- Media bins
- Graphics overlays
- Audio-only inputs

Audio: Incoming audio channels are displayed for the selected source. In stereo mode, use the "L" and "R" buttons along the bottom of the module to assign left and right audio channels to the input source fader.

In mono mode, click the corresponding speaker icon to assign input channels to the source fader. Each input channel has an individual level meter with gain control.

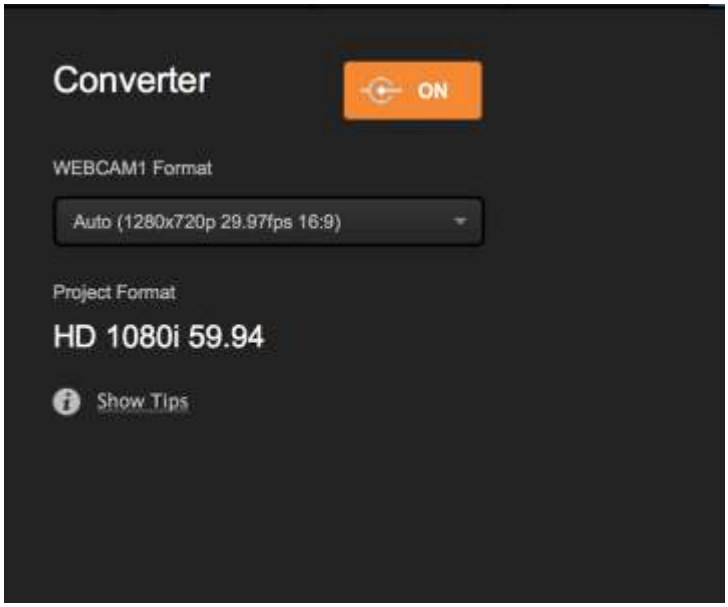
Stereo:

WEBCAM 1
FaceTime HD Camera (Built-in)
General
Audio
Crop
Delay
Color
General
Filters
INPUT 1
INPUT 2
OVR
L
R

Mono:

INPUTS
AUDIO
MEDIA 1
WEBCAM 1
FaceTime HD Camera (Built-in)
General
Audio
Crop
Delay
Color
General
Filters
INPUT 1
INPUT 2
OVR

Converter: Allows for video inputs to be converted to your project video format in real-time. This allows producers to use different types of camera sources and formats. The video converter also has an auto-detect function that will recognize different formats instantly.



If the converter does not automatically detect the source format of the camera, select the converter tab to pick the format from a full range of format options and convert it into the format that the current project is set to.

Crop: Allows you to crop your input's picture.

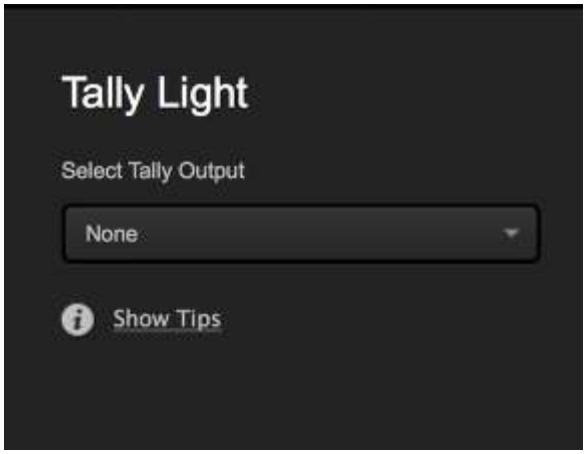
PTZ: If this input is a PTZ camera, you can connect and control it from here.

Delay: If you notice a discrepancy in synchronization between direct camera inputs and remote cameras, you can delay an individual input's video and audio by up to two seconds to help keep your sources in sync.

Color: If the coloring or white balance of your input source seems off, open this menu to correct it.

Tally: Activate and control a Tally Light system through Livestream Studio. After connecting a Metasetz tally system via USB, click the Tally icon shown here and select and available tally port to assign to that camera. Repeat this step for each camera source.

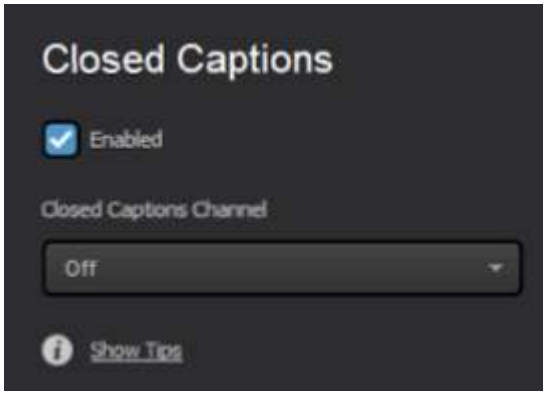
If you do not see this option, go to Settings: Advanced and make sure Tally is checked. Also please note that these only work with local inputs and not remote sources.



Closed Captions: Livestream Studio can receive a closed captioning signal from a closed captioning encoder via SDI, and output to Livestream's live player. This is where you control which channel of closed captions come through.

If you do not see this option, go to Settings: Advanced and make sure Closed Captioning is enabled.

This feature only works on players that support CEA-608 captions.



Using PTZ Cameras with Livestream Studio

You can connect and control a pan-tilt-zoom (PTZ) camera to Livestream Studio via VISCA or NDI protocols.

Connect the PTZ Camera to Studio

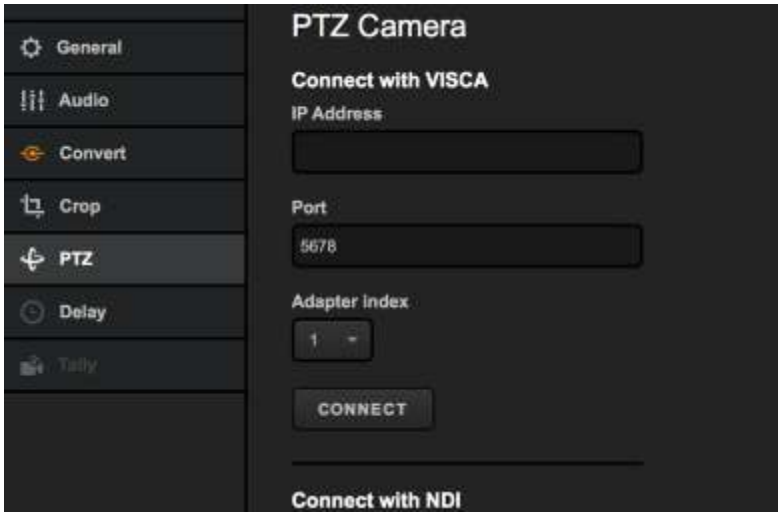
First, connect your PTZ camera to the same network to which your Studio system is connected.

You can then connect the camera to Studio via SDI, HDMI, NDI, RTSP, etc. Go to the **Inputs** tab and select **Add Input**. Depending on how you are connecting your camera, your PTZ will appear either under **Local Camera** (e.g. SDI, HDMI), **Remote** (NDI), or **Stream** (RTSP, RTMP).

Please note that in order for Studio to receive an NDI camera's signal, you may need to install the NDI|HX Driver from NewTek.

At this point, will see your camera's output appear in the Studio multi-view but you will not have control access yet.

To the right of the PTZ source in **Inputs**, select the gearwheel. This will bring you to the camera's general settings. Select the **PTZ** tab on the left side.

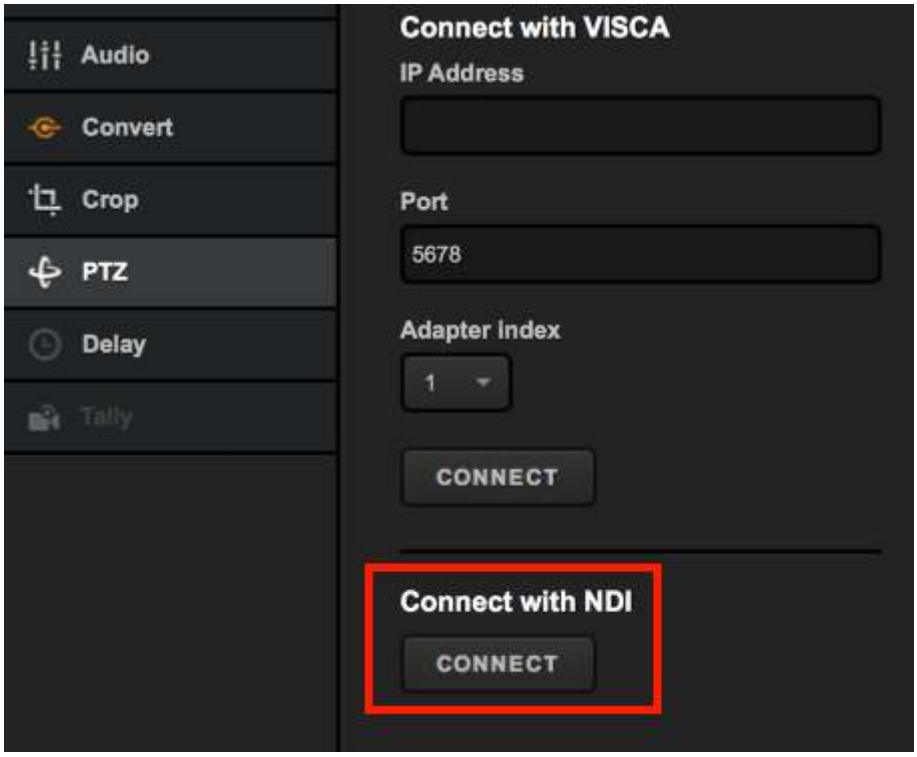


If you are connecting to your camera using VISCA, enter the camera's IP address.

Port 5678 is standard but you may change it if you've configured your camera to communicate over a different port (1-65536). Adapter index is useful if you have more than one PTZ camera.

Once you've configured your settings, select Connect.

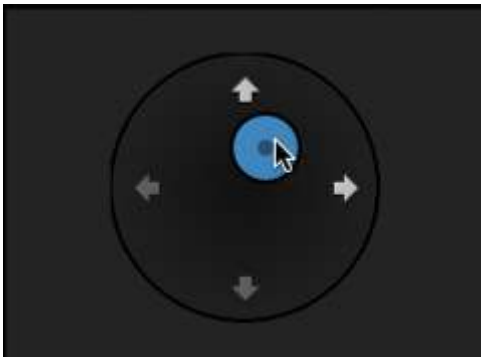
Alternatively, if your camera is communicating via NDI, navigate to the bottom of the menu where it says Connect with NDI. If an NDI signal is being received from this source, the Connect button will be enabled. Click it to activate the PTZ controls.



Control the PTZ Camera Inside Studio

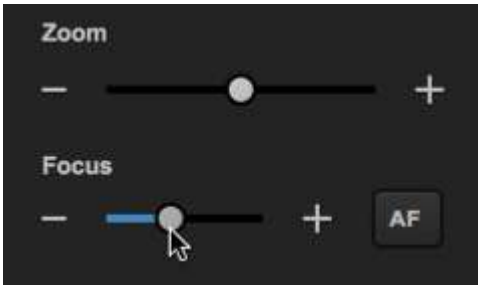
After clicking either Connect button, your source will appear in the menu along side a set of controls along the left side of the pane.

To pan and tilt your camera, click and drag the virtual joystick in the direction you wish to move the camera.

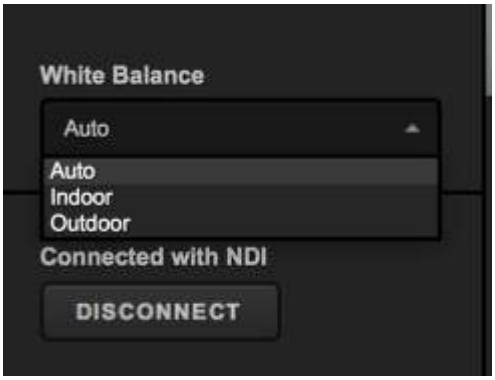


Below the virtual joystick is the zoom option; click and drag the zoom control right or left to zoom in or zoom out.

Below the zoom control is the focus control. By default, the AF button is highlighted, which is Auto Focus. To control the focus manually, disable the auto focus and click and drag the focus control left or right to adjust it.



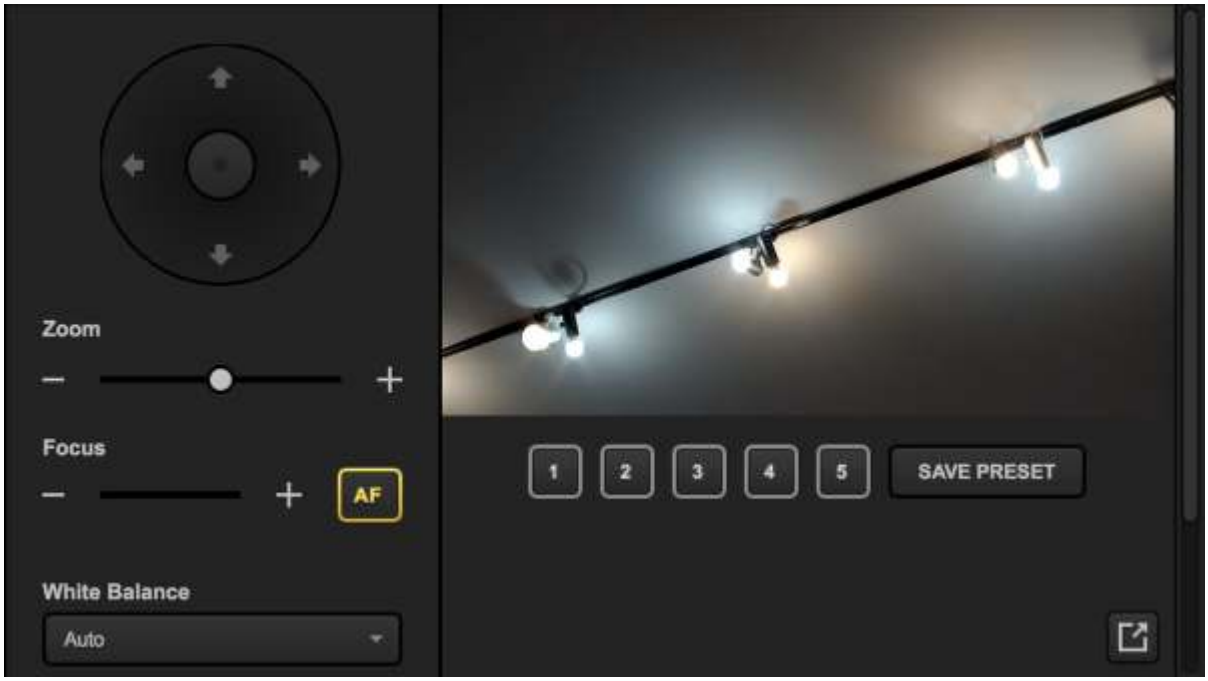
Under the focus control is the white balance control, which is set to Auto by default.



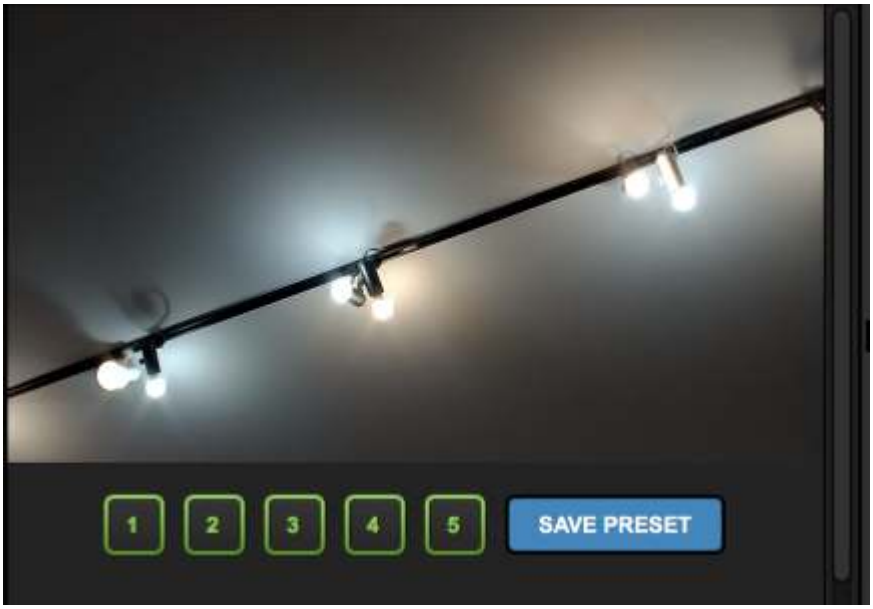
At the bottom, you can select Disconnect to disconnect Studio from your camera's PTZ controls.

Configure Preset Shots

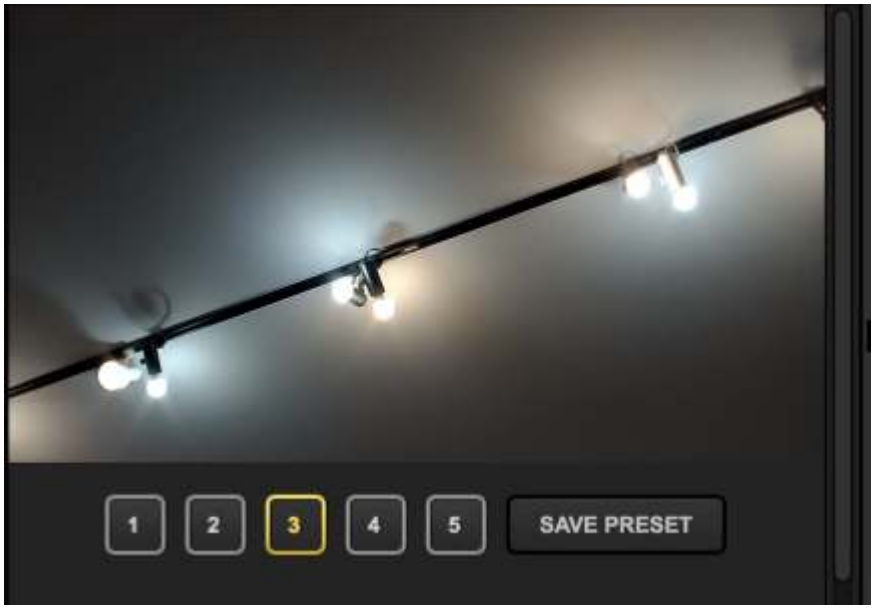
You can configure up to five preset shots if you know you need the camera to move from one shot to another frequently. First, use the manual controls described above to get the shot you need, then click Save Preset.



All the numbered buttons will turn green. Select the one you wish to use for this shot (in this example, we clicked 3).

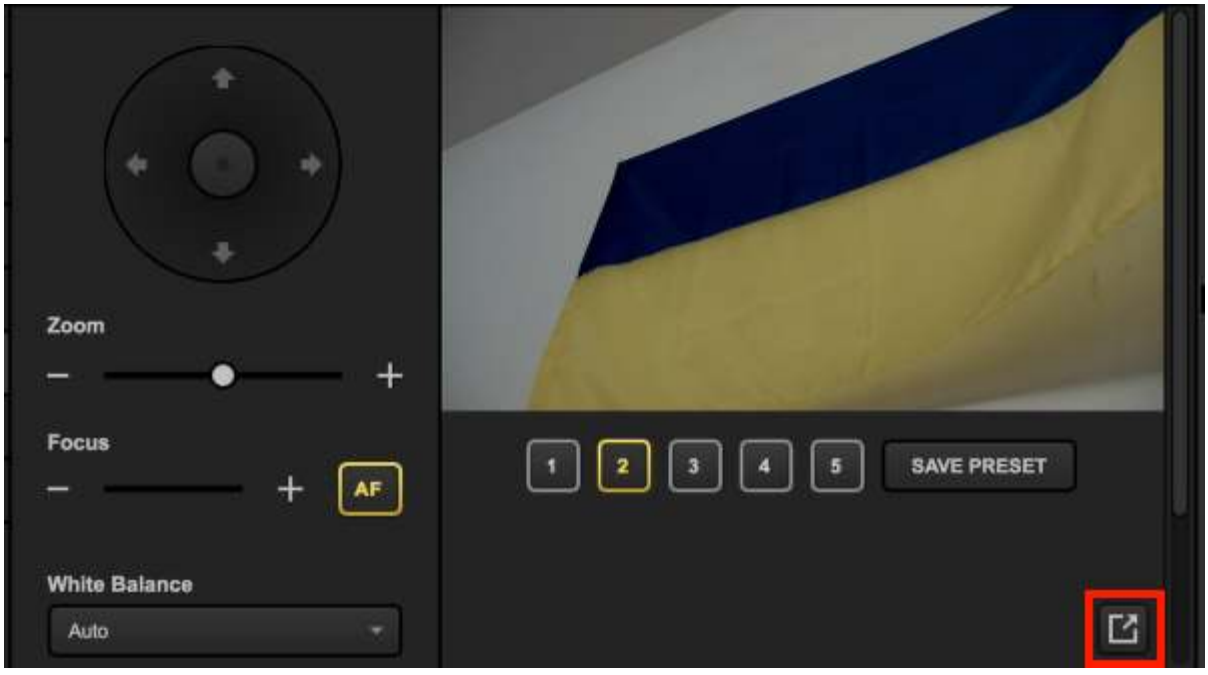


That number will turn yellow, indicating that you are currently on the number 3 preset shot. Now whenever you need that shot, click the assigned number and the camera will move to that shot.

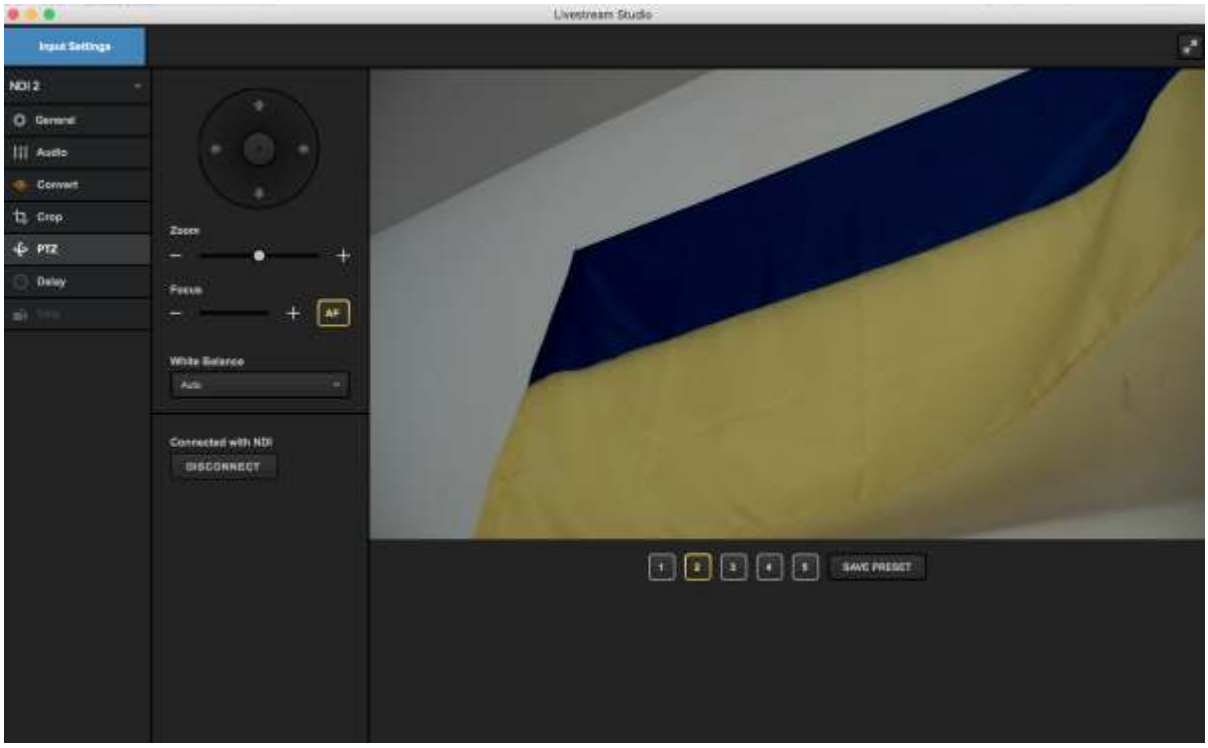


Open Controller in a New Window

In the bottom right corner of the PTZ controller module, click the new window button.



The PTZ menu will now be open in another window, which you can put next to Studio or in another monitor to control your camera outside of the main Studio interface.



Converting Input Sources of Different Formats

Livestream Studio works best when all video input sources match the same video format. However, with certain sources such as laptops and webcams, it may not be possible to match them all together. This is where the built-in any-to-any converter comes in.

Go to the Inputs tab and select gearwheel corresponding to the source you need to convert. Then select the Convert tab on the left side of the interface.

In most cases, Livestream Studio will automatically convert your source. Otherwise, choose your input source's format from the drop-down menu.

Once the correct format is selected, the converter will turn on and you will see your video source.

> ⚠ Using the converter will reduce the quality of your video signal and increase your CPU usage, so only use it when necessary.

Bringing a Laptop into Livestream Studio

When bringing in a laptop, you will almost certainly use the converter. Many laptops come with an HDMI output port that can directly connect to a Blackmagic capture device via an HDMI cable.

Another option for bringing a laptop into Livestream Studio as a source is to install the Remote Camera Client for Windows and Mac over your local network.

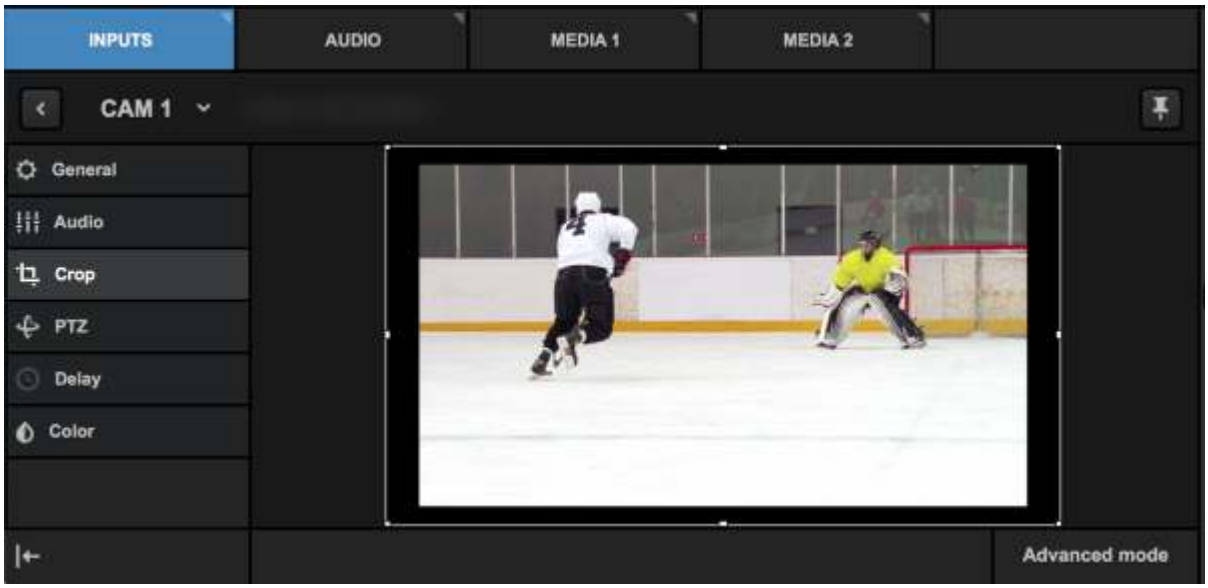
Advanced Input Source Cropping

You can create multiple virtual camera shots for each input source. This works best with 4K inputs and Mevo.

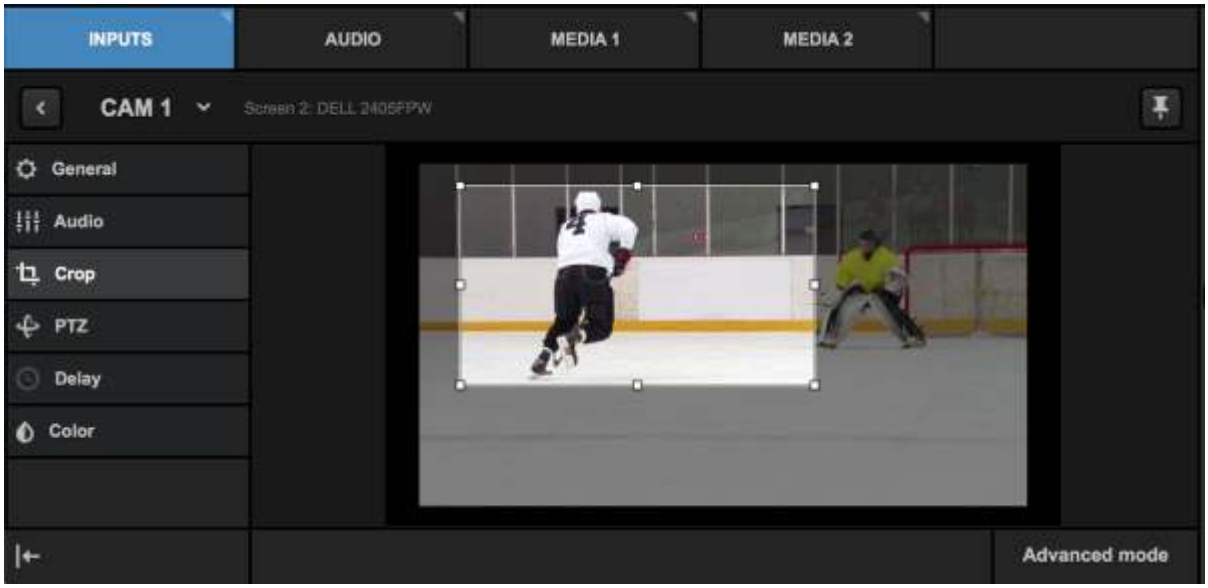
Navigate to the Inputs tab. Find the desired input you wish to crop and click the gearwheel that corresponds to it to enter its settings.

⚠ This feature does not work on media sources or GFX sources.

Select the Crop tab on the left side.



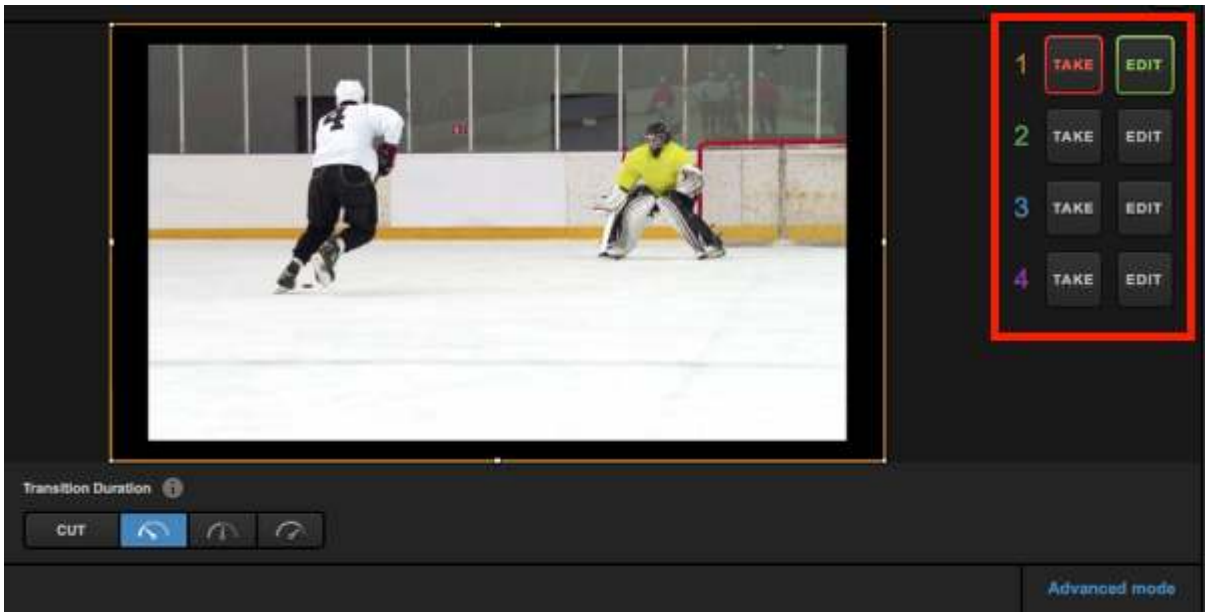
You can do a basic crop by clicking and dragging the corner of the image, and dragging and dropping the cropped frame. You can also scroll on your mouse or trackpad to crop. The crop will be locked to the aspect ratio of your project format (16:9 in most cases).



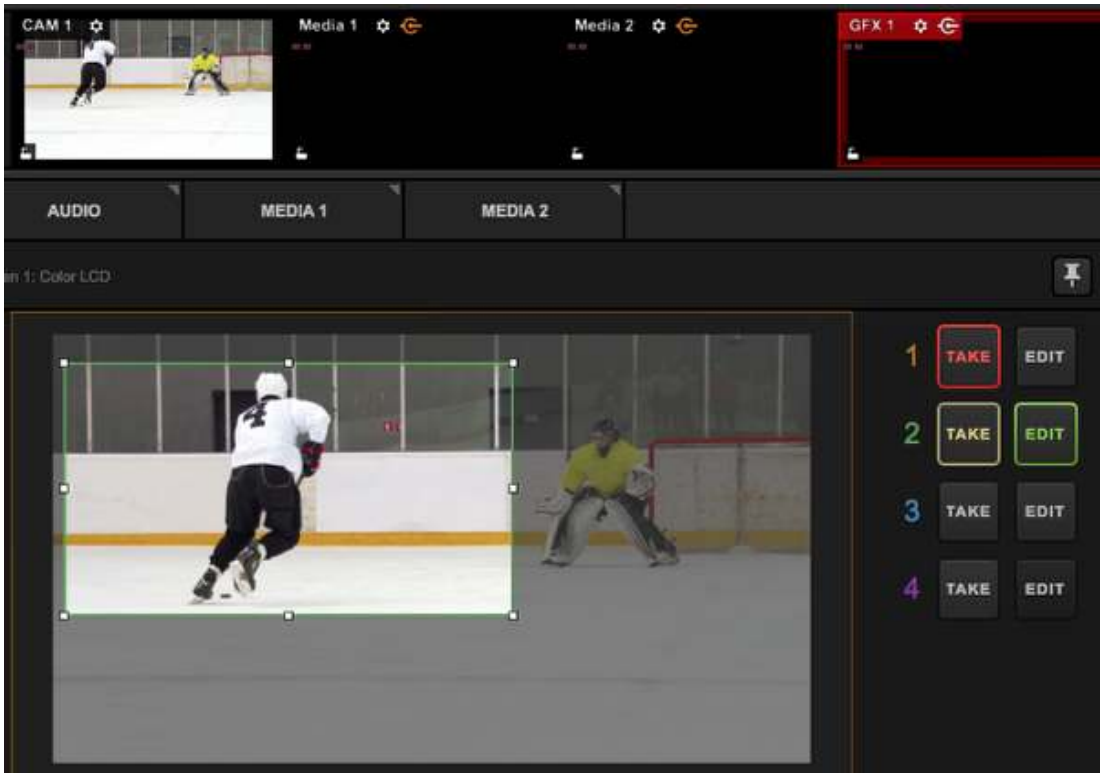
Click Advanced Mode to reveal more cropping options.

> If you are using Mevo, you will only see Advanced mode for cropping. Learn more about controlling Mevo via Studio.

To the right of your source are numbers 1-4 in different colors, each with a corresponding Take and Edit button.

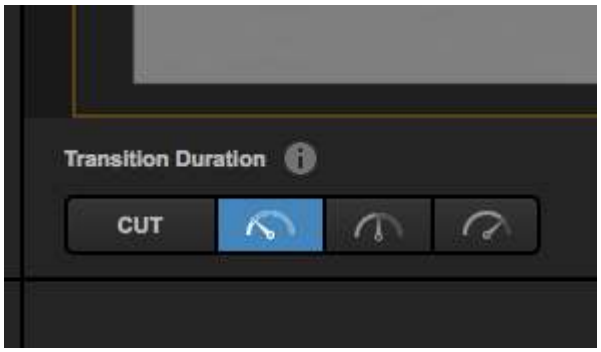


Clicking Edit on any shot will allow you to adjust that particular shot without affecting the output. Click and drag the corners to crop the shot. Notice the border of your shot matches the color of the corresponding number, and the source in the multi-view is not yet reflecting the crop.



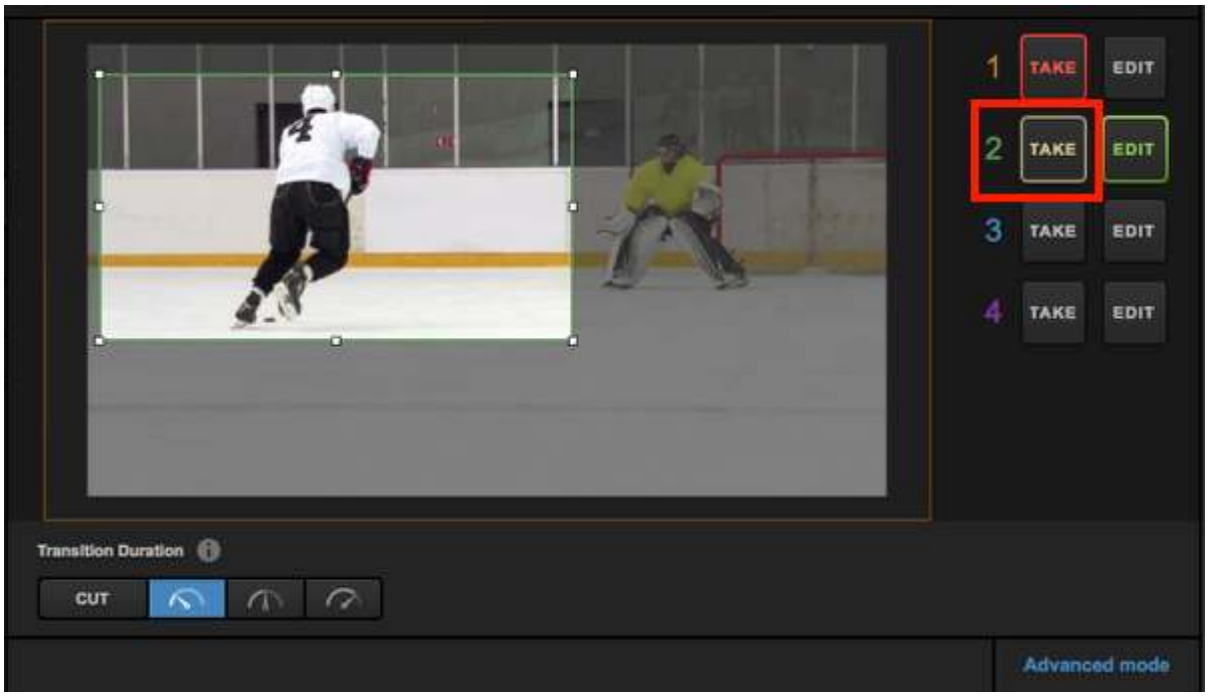
You can also scroll on your mouse (i.e. with a scroll wheel or if it's a touch-sensitive mouse) to crop your shot.

Before clicking the glowing Take button, check the Transition Duration setting below.

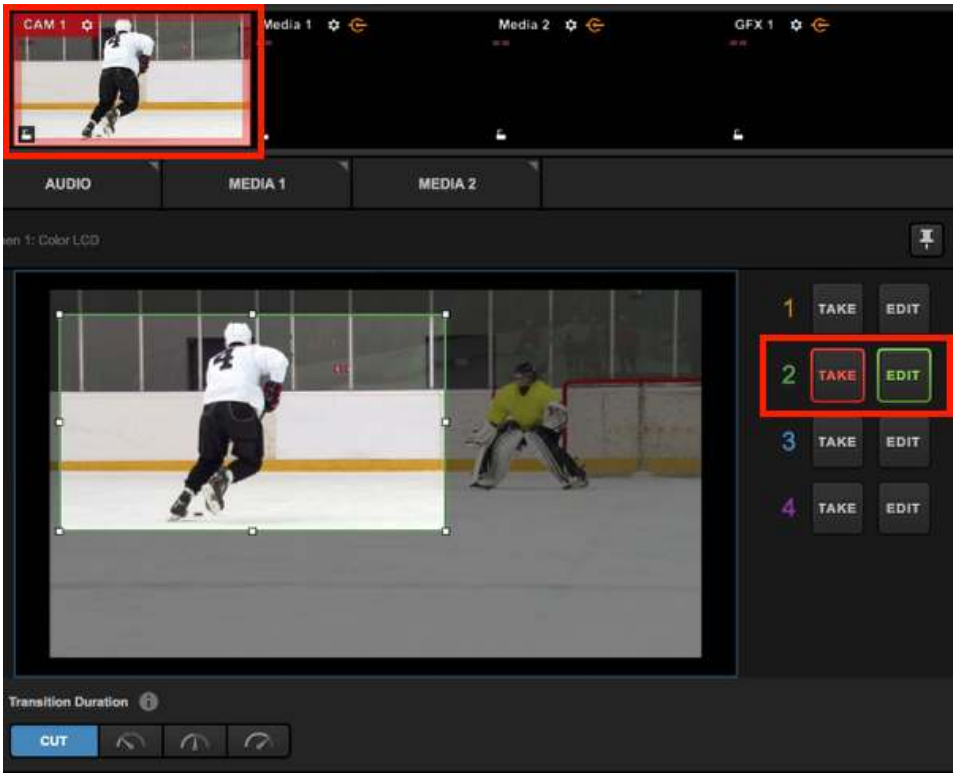


Under Transition Duration, you can choose how you fast you want to move between shots. Cut will be an immediate switch. The following timer buttons indicate a virtual camera movement (i.e., a virtual tilt or pan) in order of increasing time (fast, medium, slow).

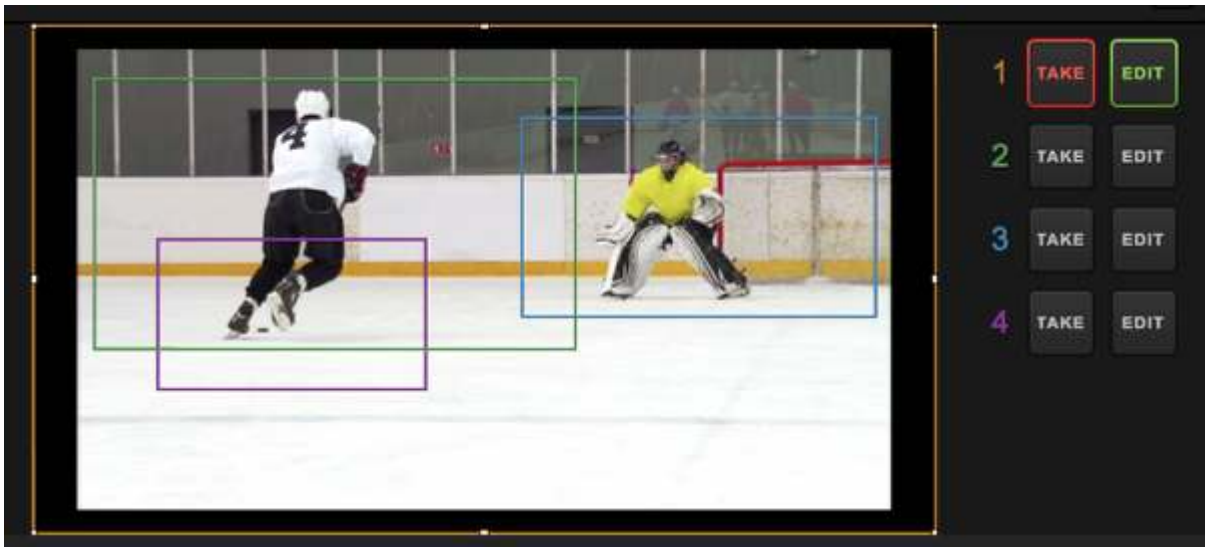
Once your Transition Duration is set, click the glowing Take button.



The Take button will turn red and you will notice your input will transition to the cropped area in your multi-view.



You can build up to four different cropped areas per input using the corresponding Edit buttons. Switch between each using their corresponding Take buttons.

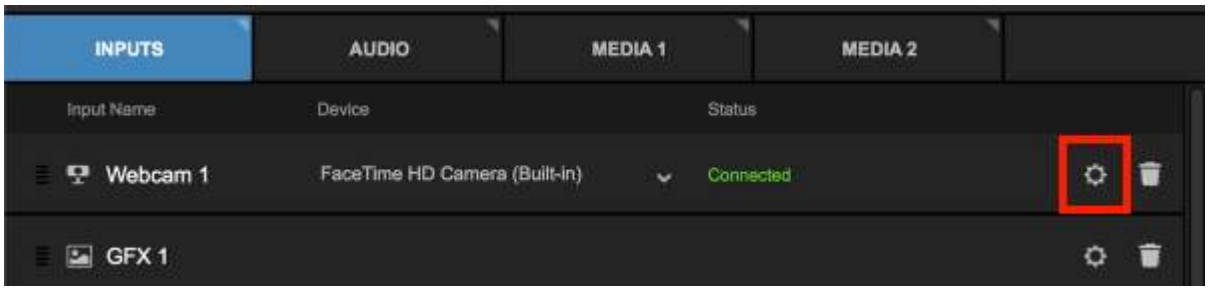


Color Correction in Livestream Studio

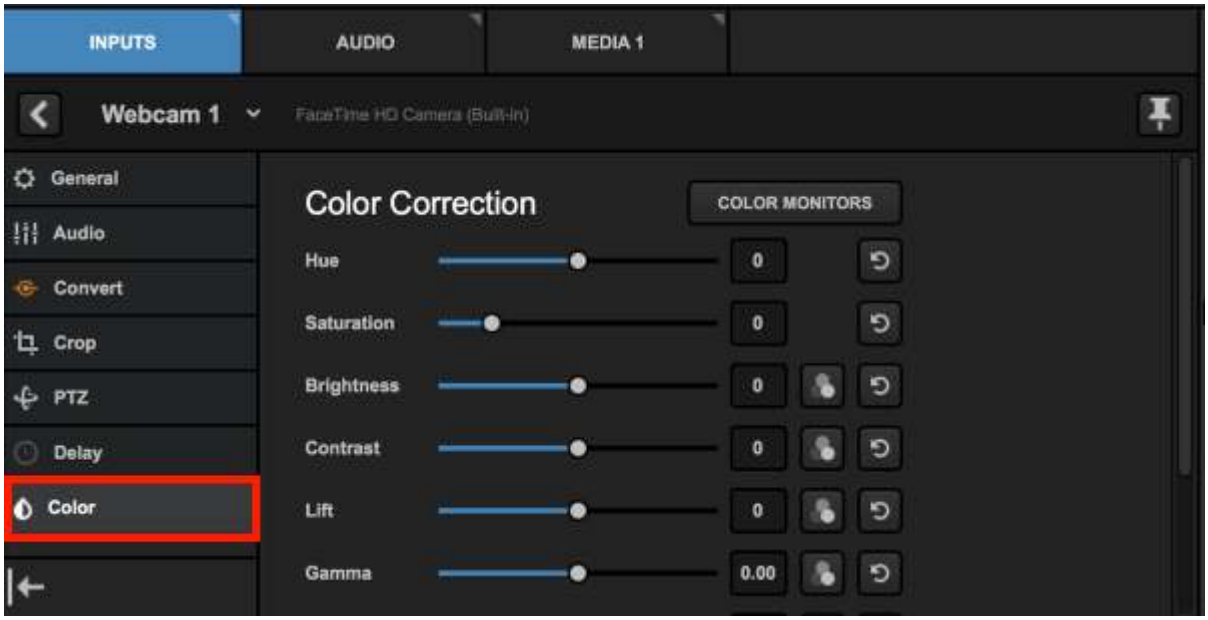
As of version 6, you can adjust the light levels and coloring in all of your camera sources whether they are local (directly connected) or remote. You can adjust the shot's Hue, Saturation, Brightness, Contrast, Lift, Gamma, and Gain with aid from three different color monitors.

Color correction settings are available for each camera input *except Mevo*, as Mevo includes its own image adjustments setting built-in, which is also accessible in Studio once a Mevo is connected. Color correction settings cannot be applied to GFX or Media sources.

Navigate to the Inputs tab in the lower left corner of the interface. Select the corresponding gearwheel to the input you wish to adjust.

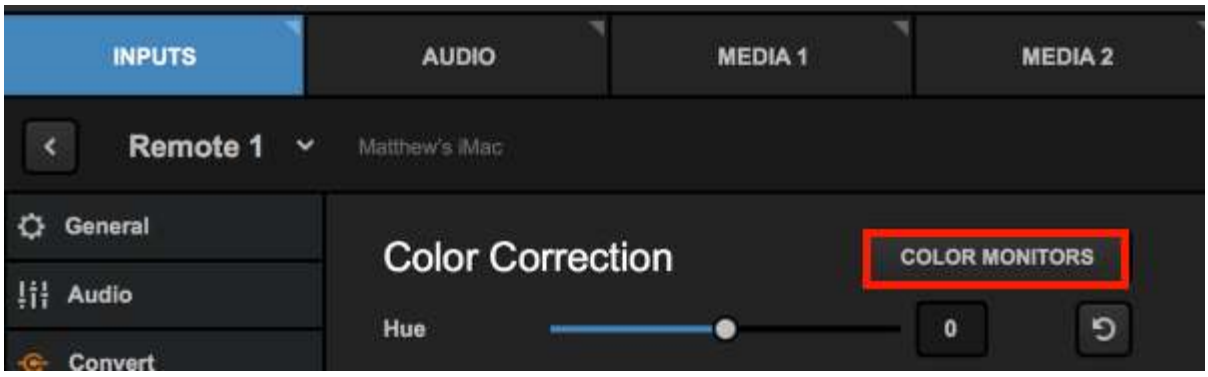


Along the left side of the panel is the Color tab; selecting this opens the Color Correction menu.



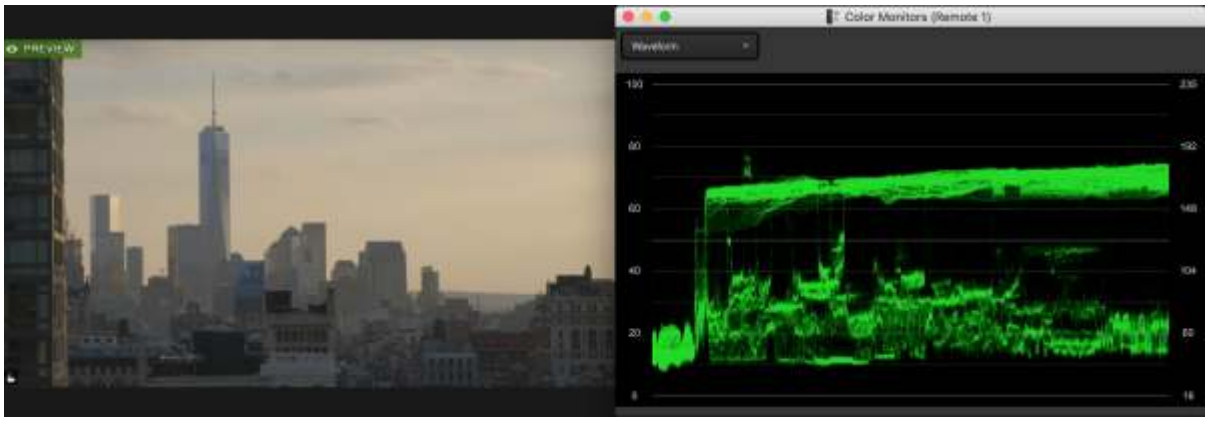
Color Monitors

A helpful tool when color correcting is the Color Monitors window. There are three monitors you can use when making adjustments to your image.



By default, you will see the Waveform monitor. This monitor helps measure the blacks and whites in your image from left to right. In this graph, you want to make sure all of the data (the green waves and lines) are within this monitor (between 0 and 100 on the left side).

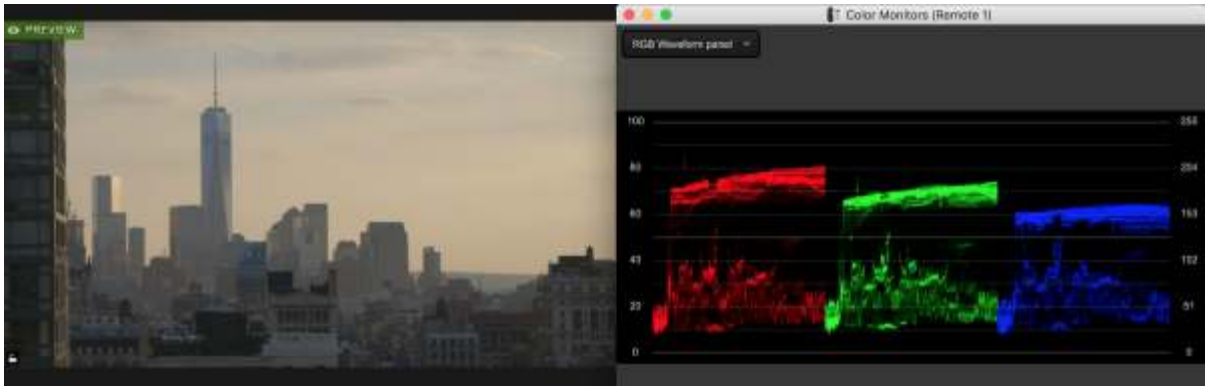
If something is too dark, it will "crush" to the bottom, resulting in image loss to black; if something is too light, the waves will crush to the top and result in overexposure. When you work with the Brightness, Contrast, Lift, Gamma, and Gain settings (discussed below), you will see the impact in this graph. (Although this chart is green, it's measuring all the white, gray, and black in the entire shot, not just the green channel.)



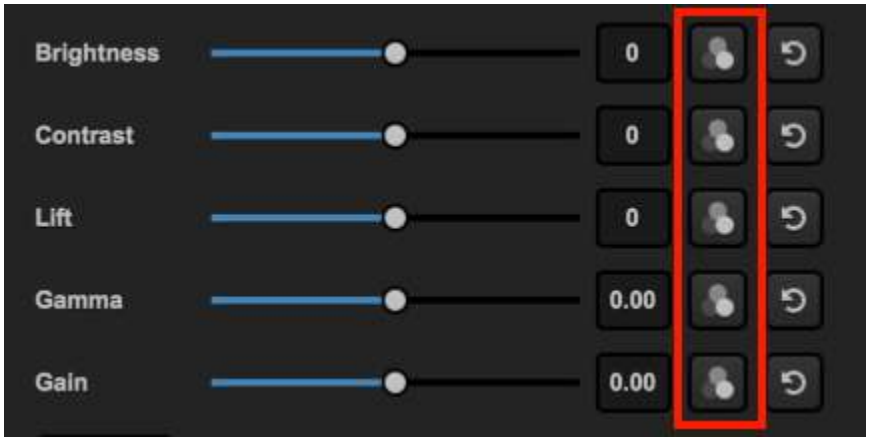
Open the dropdown in the upper left corner of the window to see two more options: RGB Waveform Parade and Vectorscope.

RGB Waveform Parade will show waveforms for each of the three video channels (red, green, blue), informing you of the overall color balance in your shot. The closer all three match, the more balanced your video will look in terms of color and temperature. In the below example, red is higher than green, and blue is the lowest; this is because the shot has more red tones in it as it was taken during sunset; if we balance these waveforms, it will look more like midday.

Similar to the Waveform, you want to make sure your colors aren't crushing all the way to the top or bottom (unless you're going for a specific look).



To adjust these, open the color channel settings that are available with each light adjustment setting (Brightness, Contrast, Lift, Gamma, Gain).

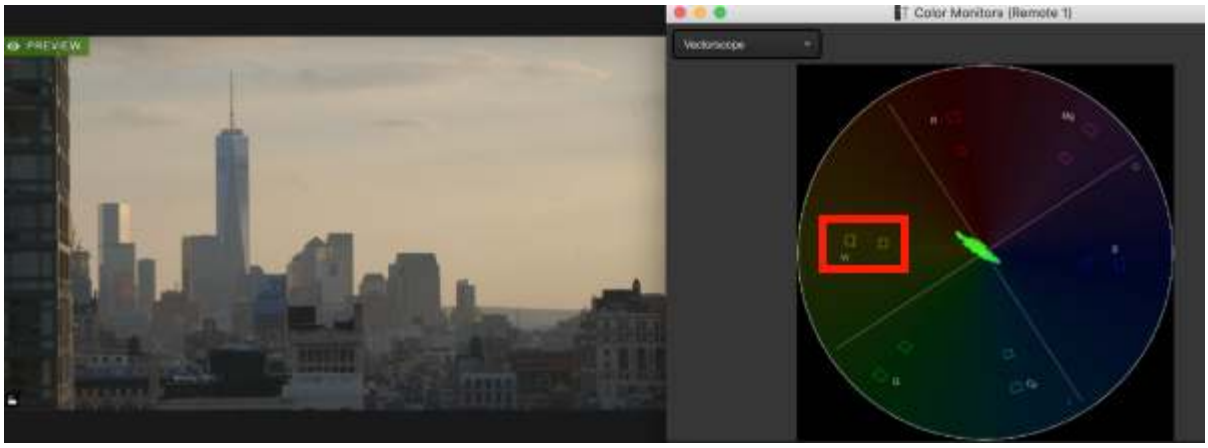


By pushing up the blue and reducing the red, we now have a more color balanced shot.

Vectorscope measures hue and saturation. In other words, it tells you what colors are most prominent and by how much. If you lower your saturation, the pixels in the middle will reduce and your image will

look more black and white, whereas a saturated image will show the pixels more spread out towards the edge of the scope.

Note that each color has a pair of squares, one closer to the center than the other; the more-center square represents the pure color while the square farther to the edge is a super pure color (e.g. Yellow and Super Yellow; these are both seen if you use HD SMPTE color bars).

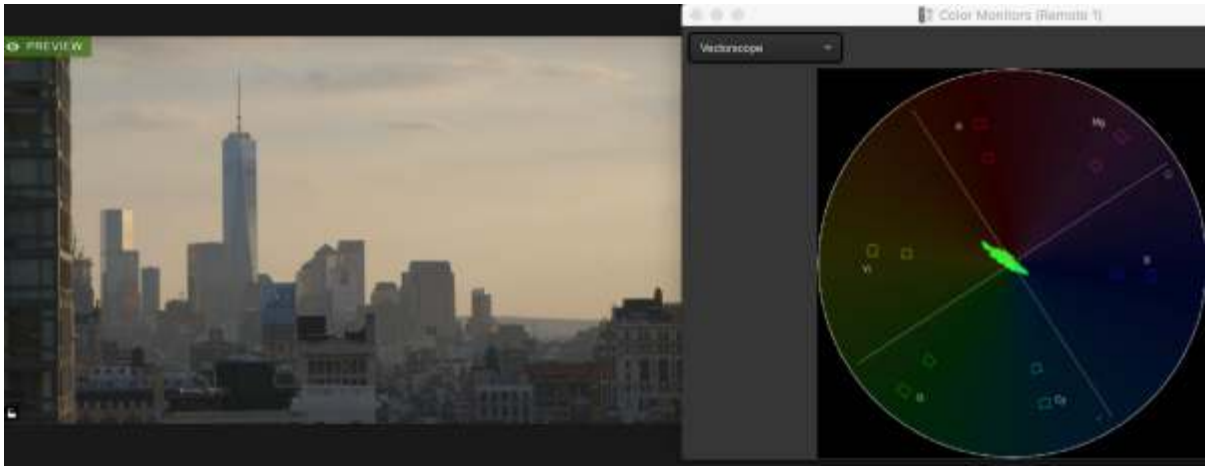


Color Correction Settings and What They Mean

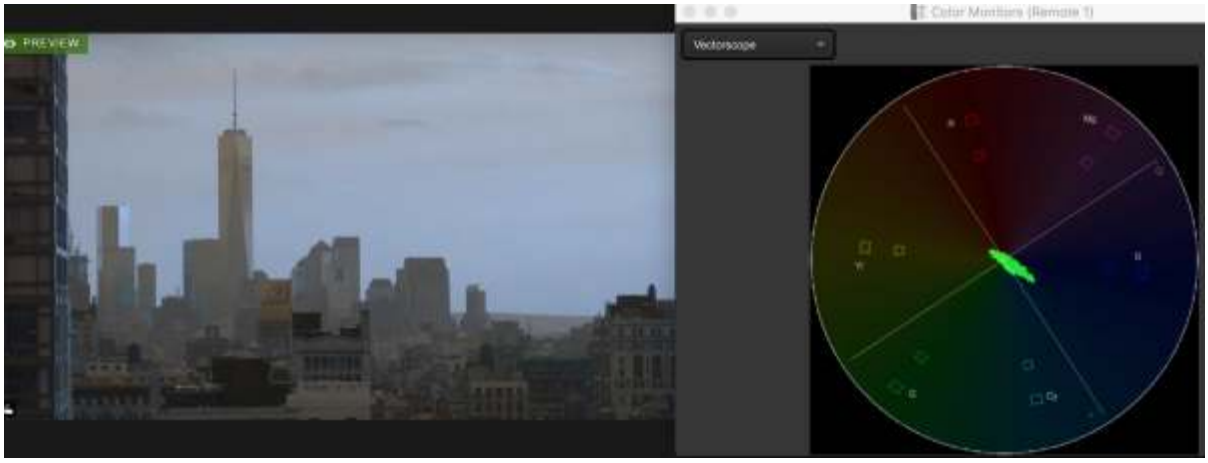
Best practice is to adjust your settings while the color monitors window is open. Each setting has a slider that starts at a neutral position with a reset button next to it. Here is what each setting changes:

Hue: The actual colors that you see. Hue is a 360-degree measurement that reflects where on the color wheel the colors in your shot fall. You can adjust it down to -180 degrees or up to 180 degrees; you will notice these two extremes will be nearly identical in color but opposite of the neutral position. If you have the vectorscope open when you adjust this setting, you will notice the pixel pattern will spin like a wheel as you adjust the slider.

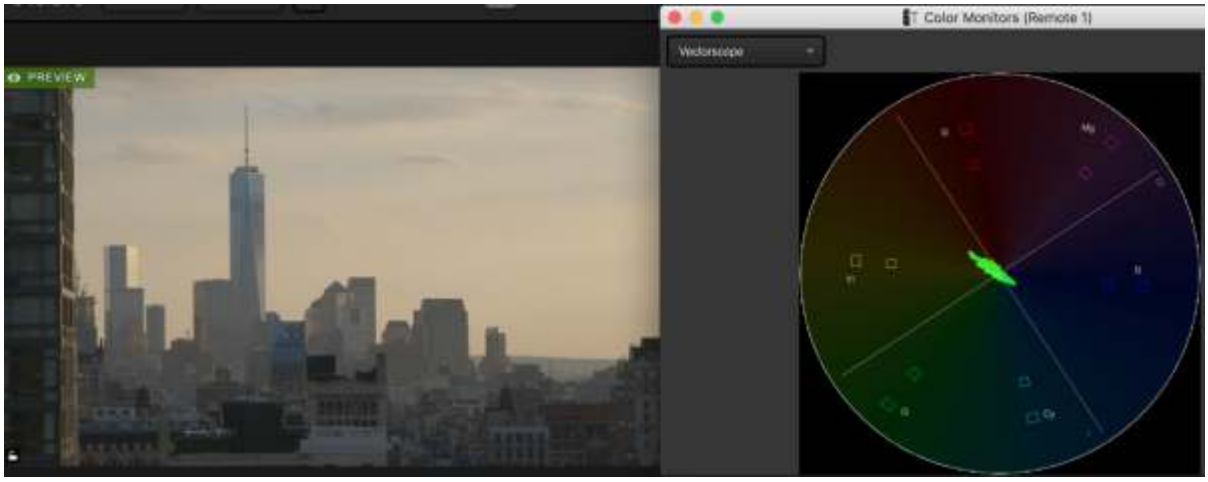
Zero degrees:



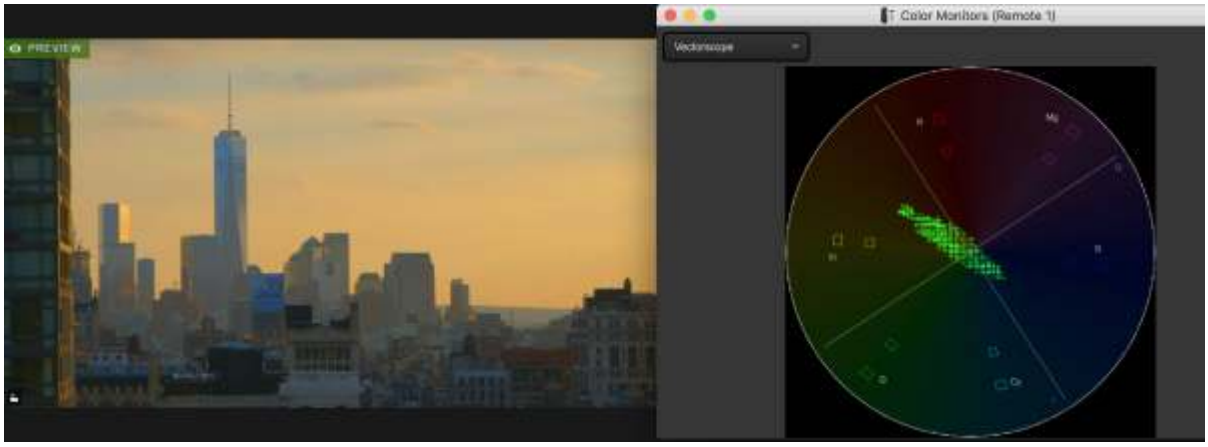
180 degrees:



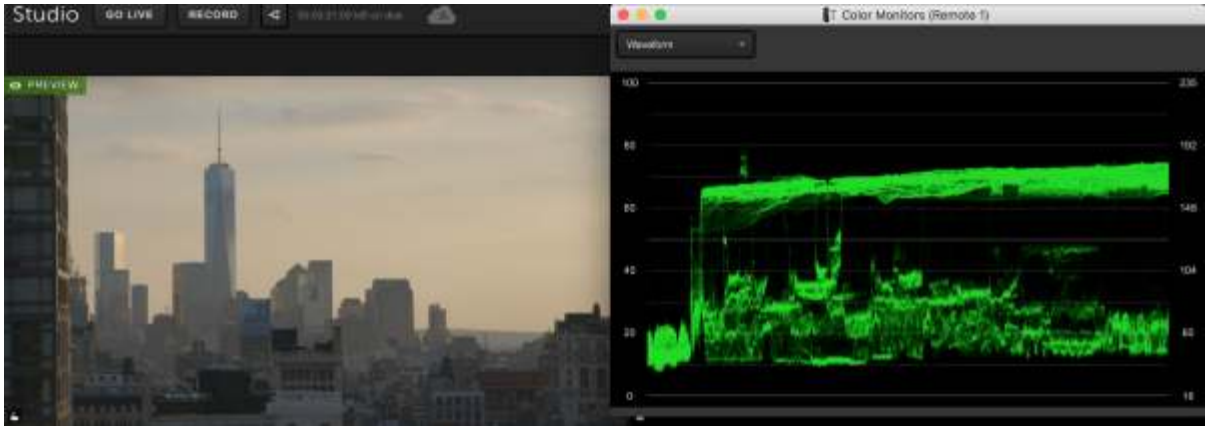
Saturation: The amount of color. If you reduce saturation to the lowest setting, your shot will be nearly black and white. Slide it to the right to increase the color in your shot to be closer to pure color. Keep your vectorscope open to ensure you don't over-saturate your image (i.e. pixels should not surpass the squares).



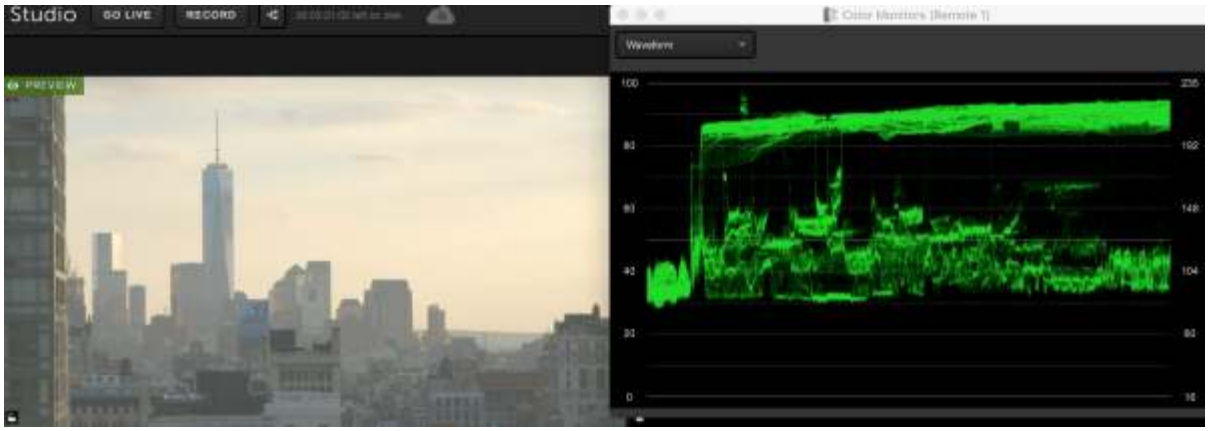
Saturation increased, giving this shot more color, especially in the yellow/orange regions.



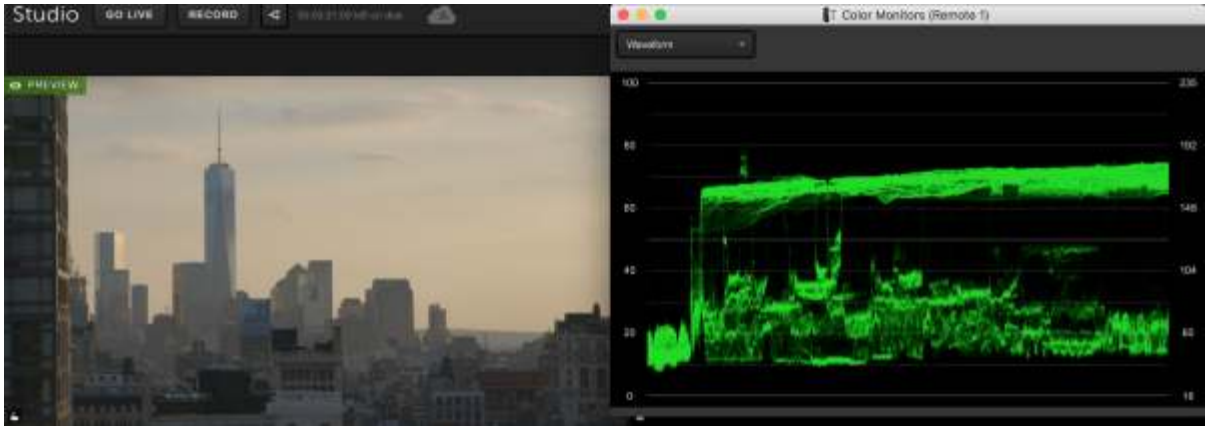
Brightness: Adjusts all of the lightness and darkness in your image symmetrically. In other words, your white and blacks will move up and down the same amount, causing an extreme white when adjusted all the way up and an extreme black when completely reduced. Keep an eye on your waveform monitor while adjusting this, and consider using Lift, Gamma, and Gain before adjusting Brightness.



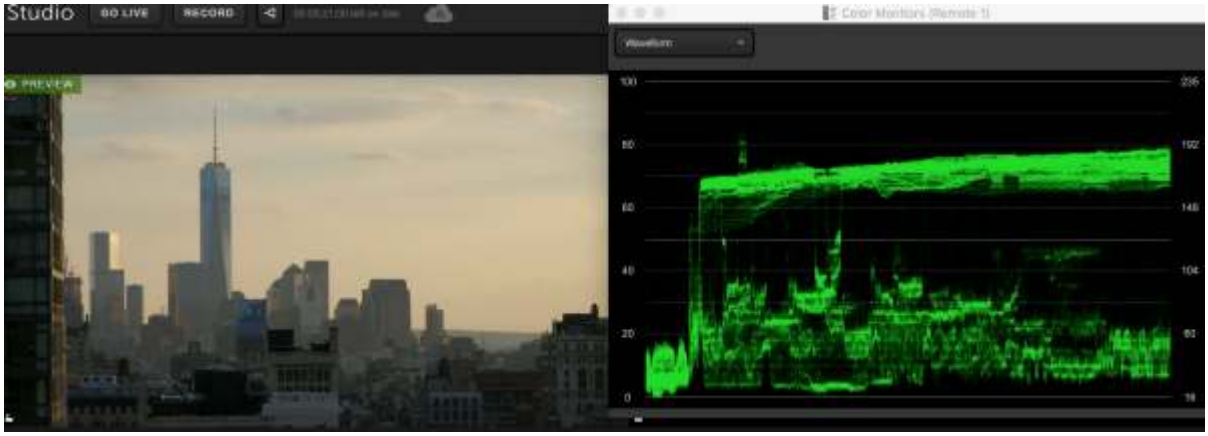
When Brightness is increased, the entire waveform stays in the exact same shape but moves higher in the graph. This is what we mean when we say it adjusts the light in the shot "symmetrically."



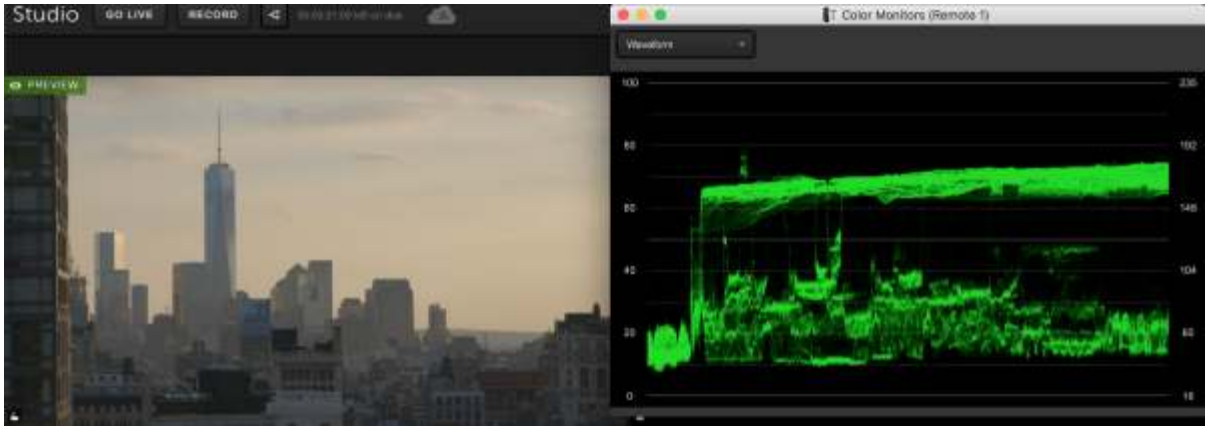
Contrast: The difference in brightness between the darkest and lightest areas of your image. This is another setting where your waveform graph will be helpful. Unlike Brightness, your blacks and whites will move the same amount, but in opposite directions. An image with low contrast will show the waveform more condensed to the middle and appear very gray and flat, whereas an image with high contrast will be more spread out from top to bottom. This is another setting you should consider waiting on changing until you adjust Lift, Gamma, and Gain first.



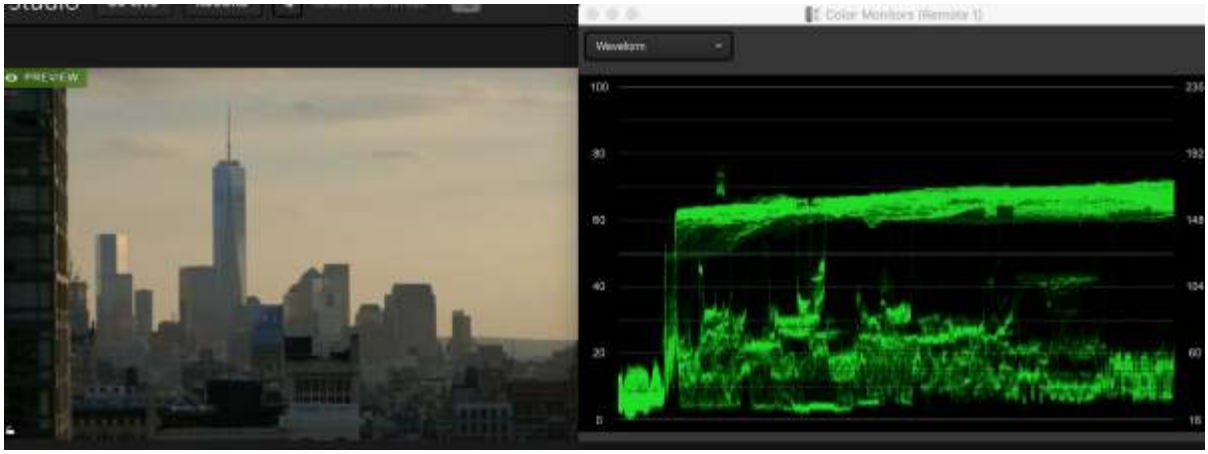
Increasing Contrast will show the waveform spreading apart evenly, with lights getting lighter just as the darks get darker.



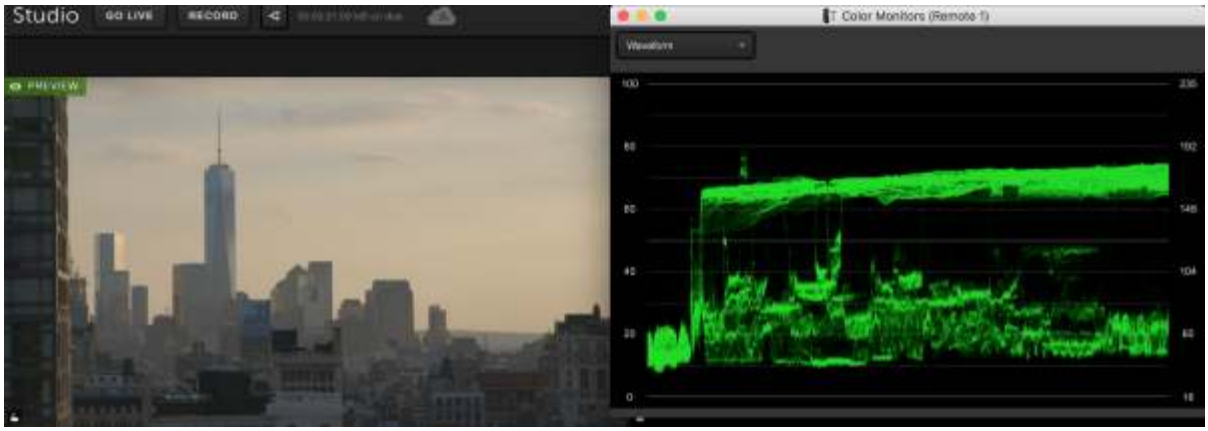
Lift: This controls the level of black in your shot without modifying the white. The waveform will show the bottom half of the graph move the most when adjusting this setting. You will get all white when raising the lift all the way up.



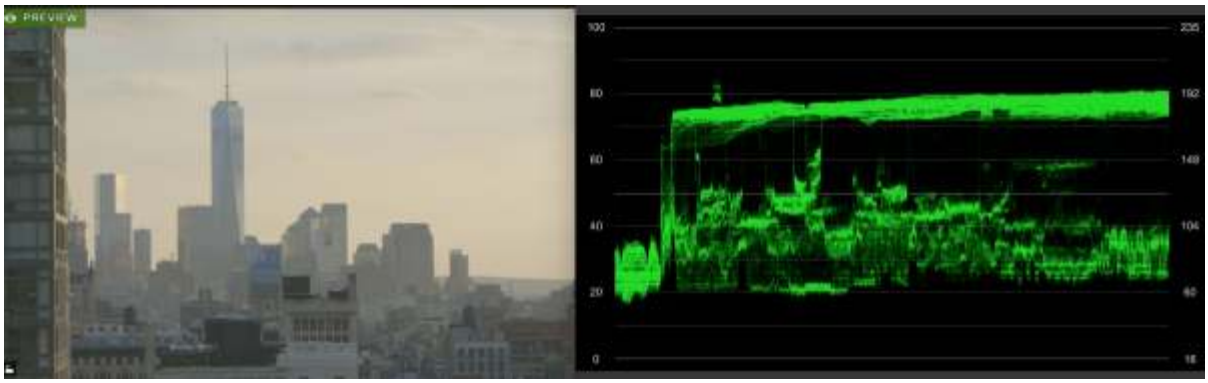
Lift has been lowered, darkening the black tones with minimal impact on the whites.



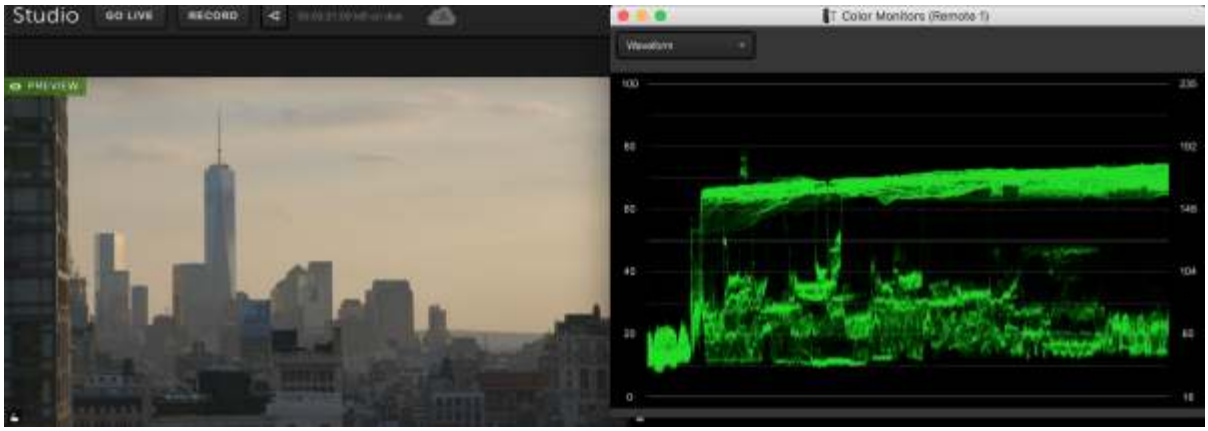
Gamma: This controls the range of gray tones (or mid-tones) without modifying true black or true white.



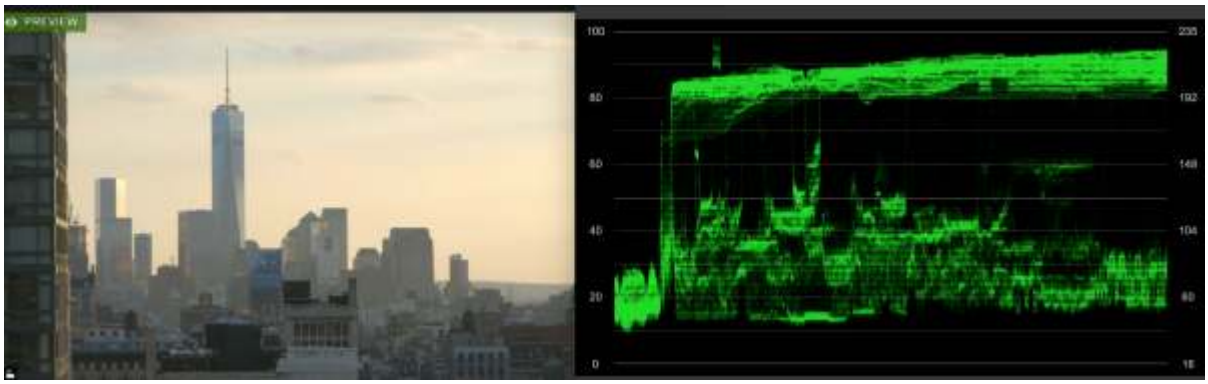
Gamma has been raised, with the most movement happening in the middle of the waveform.



Gain: This controls the white levels in your shot without modifying the black. In other words, this is the opposite of Lift. If you push this all the way down, your shot will be entirely black.



Gain has been increased, dramatically increasing the lighter tones in this image and the darker tones barely adjusting.



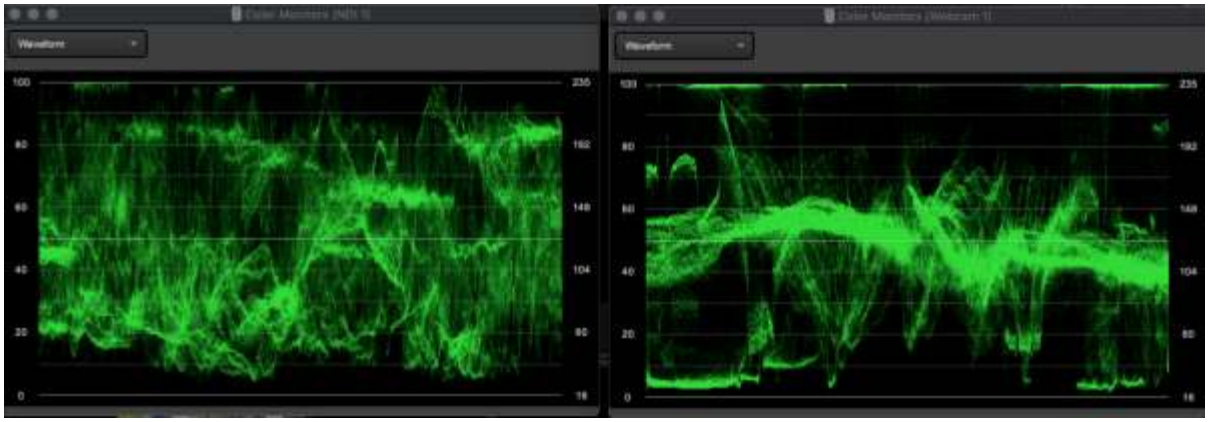
While Lift, Gamma, and Gain all focus on different areas of light in your image, adjusting them will still impact the appearance of the entire shot. Consider using those three settings to adjust the lighting balance in your image first, and then use Brightness or Contrast to help boost those adjustments as you see fit.

Comparing Two or More Inputs

If you have two (or more) cameras pointing at the same shot and you want to compare them, the easiest way to to do this is to select the pin icon to add the input as its own tab for easy access.

Then go back to the Inputs tab and open the settings for another input. Pin as many cameras as you need to compare.

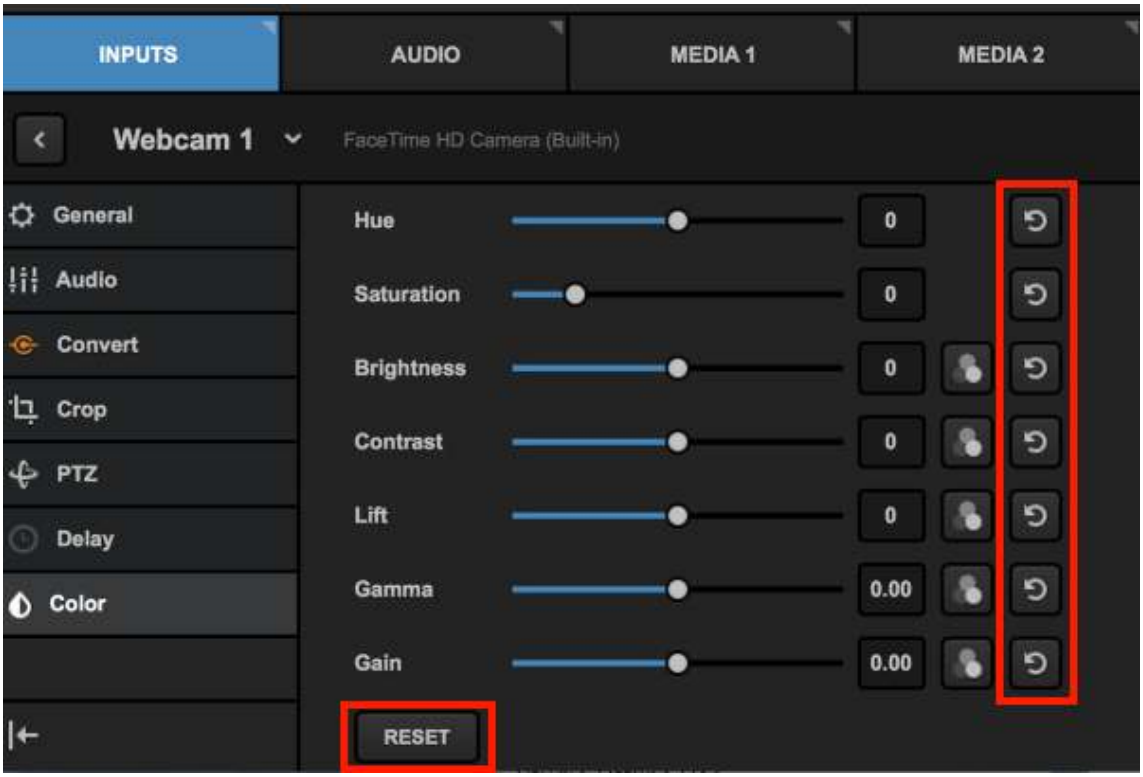
You can then open the color monitors for each input, then compare and adjust accordingly. The name of the input will be at the top of the window so you know which one you're adjusting. You can alway un-pin and re-pin inputs as you need.



Reset Settings to Default

If you've overdone it on a color correction setting, you can click the arrow button next to that setting to reset it to the default position.

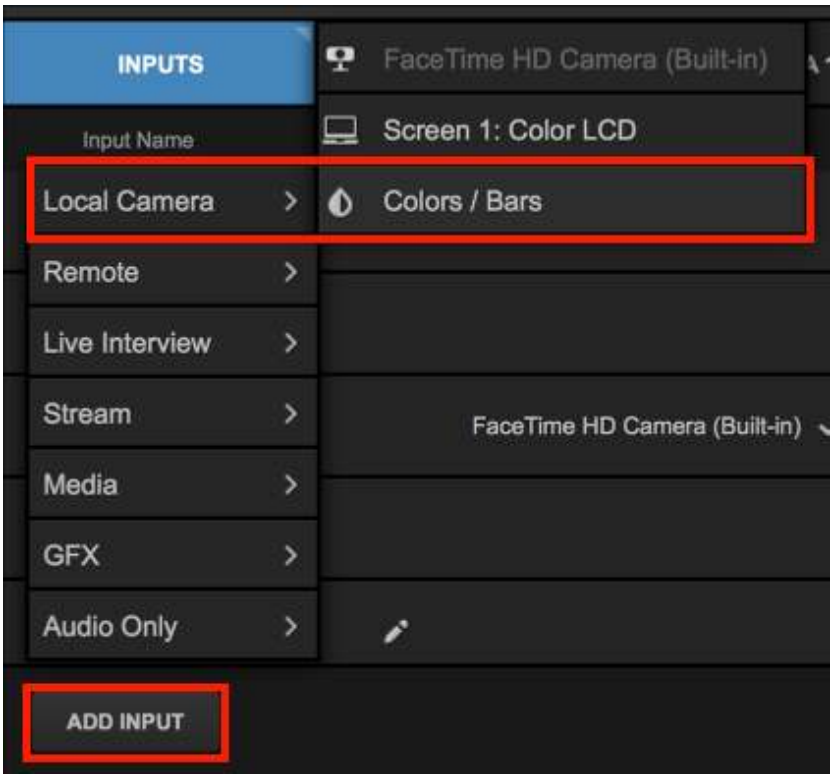
If you've adjusted multiple settings and want to start from scratch, click the Reset button at the bottom of the Color Correction menu to reset all settings back to their defaults.


INPUTS
AUDIO
MEDIA 1
MEDIA 2
Webcam 1
FaceTime HD Camera (Built-in)
General
Audio
Convert
Crop
PTZ
Delay
Color
Hue
0
Saturation
0
Brightness
0
Contrast
0
Lift
0
Gamma
0.00
Gain
0.00
RESET

Using the Color Source Generator

In addition to cameras, graphics and media sources, you can include color sources in your Livestream Studio production.

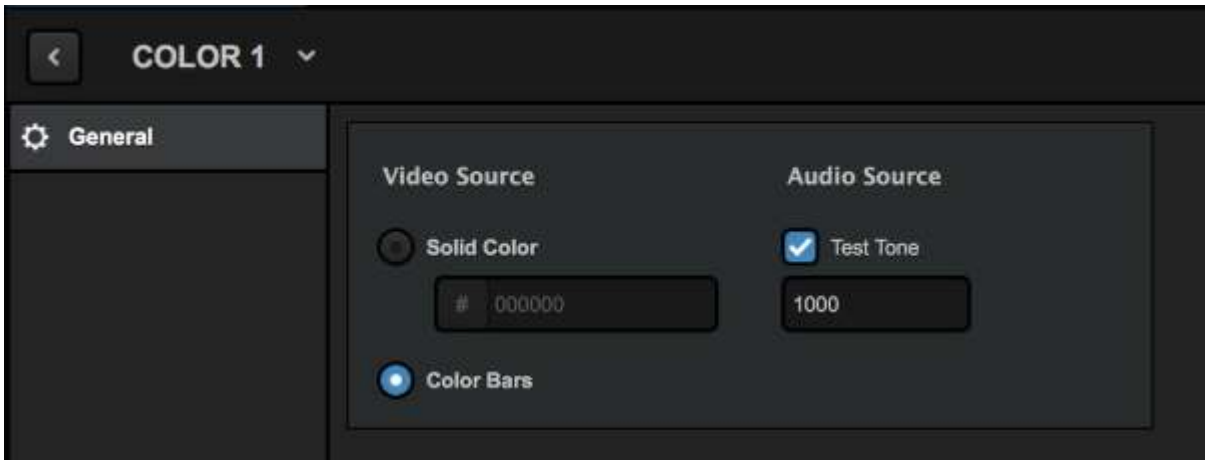
To add a color source as an input source, navigate to the Inputs tab in the main Studio interface, then click Add Input in the bottom left corner. Hover the cursor over Local Camera, which will open a menu that includes Colors / Bars.



The color source will appear in your list of inputs. Click the gearwheel on the right side to access its settings.

You can use either a solid color or traditional color bars. If you select Solid Color, you can either type in the hex code or click on the # button to select a color.

You can also choose whether or not to include a test tone as your audio source by checking the box next to Test Tone. You can also adjust the pitch of the tone below (default is 1000 Hz; a lower number will be a lower pitch, a higher number creates a higher pitch). Uncheck the box if you do not want any audio coming through your color source.



Troubleshooting Steps: Not Seeing Input Source

If you are unable to receive a video signal in your Studio software please make sure you confirm the following:

Are you using a Blackmagic or Magewell capture device?

Livestream Studio will best work with video signals from certified Blackmagic Design capture devices. Magewell cards are also supported. If you are using a non-Blackmagic device there is a chance your signal will not appear in the software.

Check here for our list of supported devices.

Do you have the recommended version of the Blackmagic Design drivers?

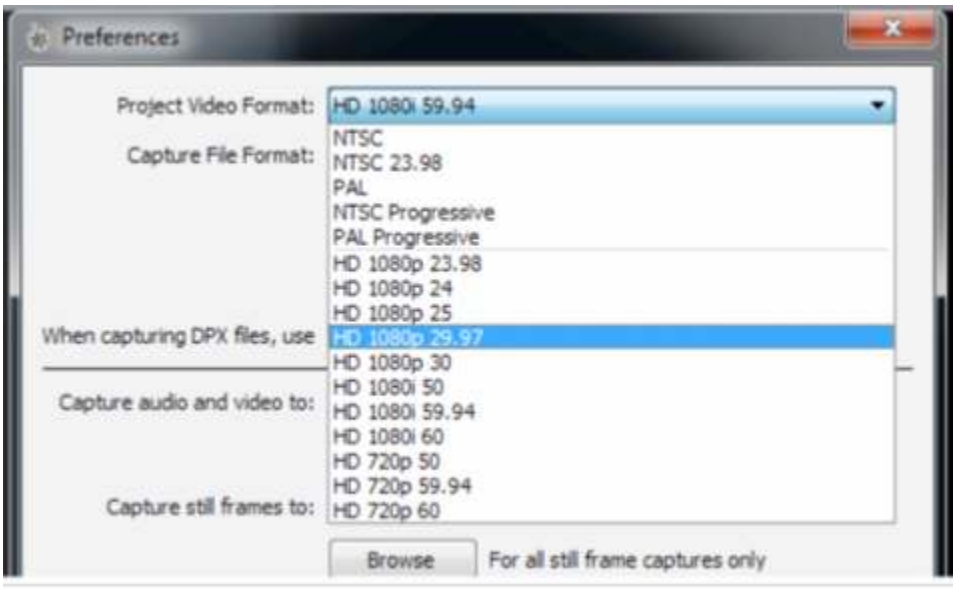
We generally recommend using the most recent version of Desktop Video. However, if you are on Windows 10 Pro version 1709, we recommend downloading Desktop Video 10.9.5.

Drivers found on the Blackmagic Design package discs are often out of date as Blackmagic frequently releases updates. Please be sure you are using the proper version of the Blackmagic drivers, which you can download at blackmagicdesign.com/support.

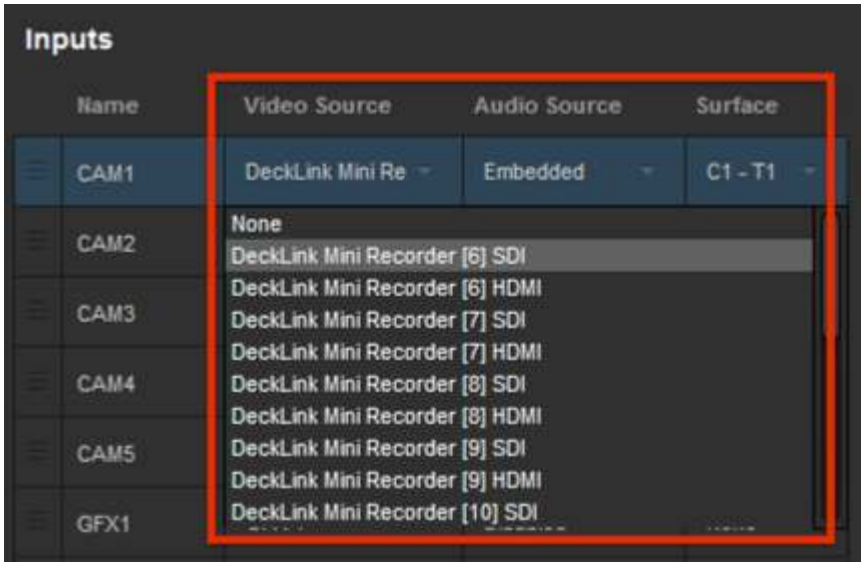
- Select Capture & Playback and download Desktop Video for your operating system.

Are you getting a video signal in Blackmagic Media Express?

Click the Start button and search for Media Express, then click Blackmagic Media Express to open the program. Select the Log and Capture tab to display the video input. Click Edit on the menu bar at the top of the program and select Preferences, then confirm that your Project Video Format matches the format of your video source.



If you receive a video signal in Media Express, you should check Studio's video format settings. If you do not receive a video signal in Media Express, confirm you are connected to the correct input and your camera is configured properly (e.g. SDI or HDMI correctly selected).



Does Livestream Studio's video format match your input source?

Open Studio's Preferences by clicking the gearwheel icon at the top right-hand side of the program window. In the Project Format tab at the left-hand side of the Preferences window, and choose the video format that matches your input source's format. Please note that all your input sources should match Studio's video format setting.

Are you connected to the correct input of your Blackmagic device?

Generally, Blackmagic Design doesn't specifically mark the input/outputs of the device on the actual hardware. Please check your capture device's documentation to confirm the proper input.

Is your camera configured properly?

Many cameras with multiple output formats allow you to define your specific output method. Check your camera's settings to confirm your are properly configured for HD-SDI, HDMI or analog, depending on your input to the Blackmagic Design device.

Does your camera output to an external display?

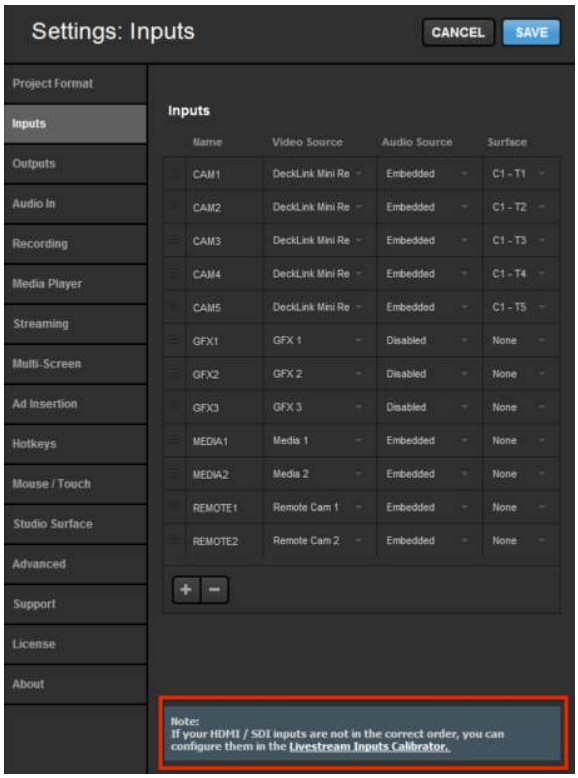
Connect the camera's output to an external display such as a monitor to verify the video signal. If you do not receive a signal, try a new wire of the same type or double-check your camera's settings.

If all of the above fail please contact Livestream Support by going to Livestream Studio settings and navigating to the Support tab. You will find contact information and your Support PIN there.

Incorrect Order of Inputs

Some producers using some Livestream Studio hardware products only (HD51/HD510/HD550) have noticed their inputs not appearing in the multiview in the proper order. Livestream Studio includes an input calibrator for these specific units that can resolve this issue.

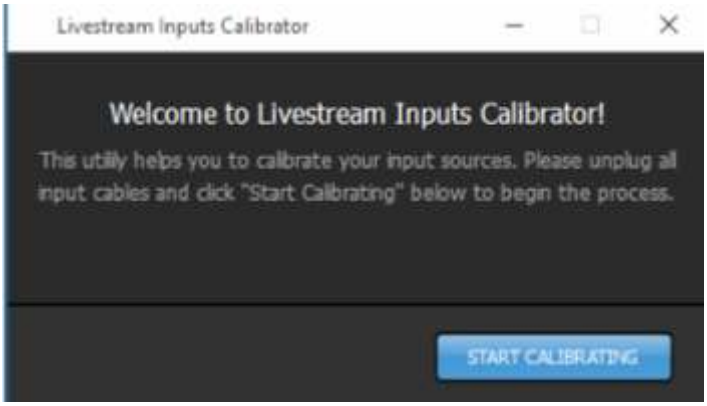
In Livestream Studio, click on the gearwheel to open settings, then click Inputs. A link to the Livestream Inputs Calibrator will be at the bottom of the window.



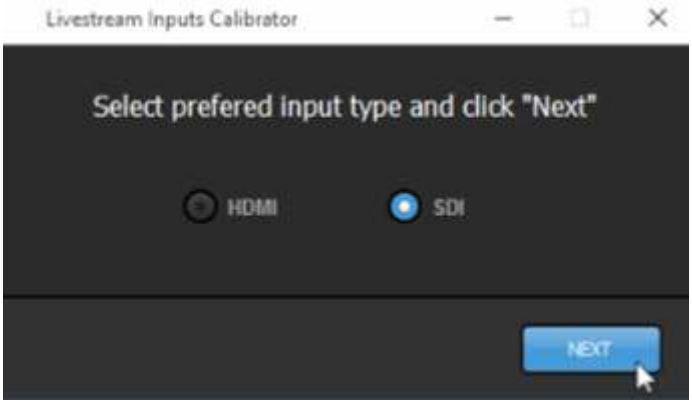
Customers using the HD31 will need to open the tool manually by opening the File Explorer and navigating to Program Files (x86) -- > Livestream Studio Launcher ---> LSDeviceOrderCalibration. This tool is not compatible with other computers running Livestream Studio software.

A window will pop up prompting that Livestream Studio will close. Click OK.

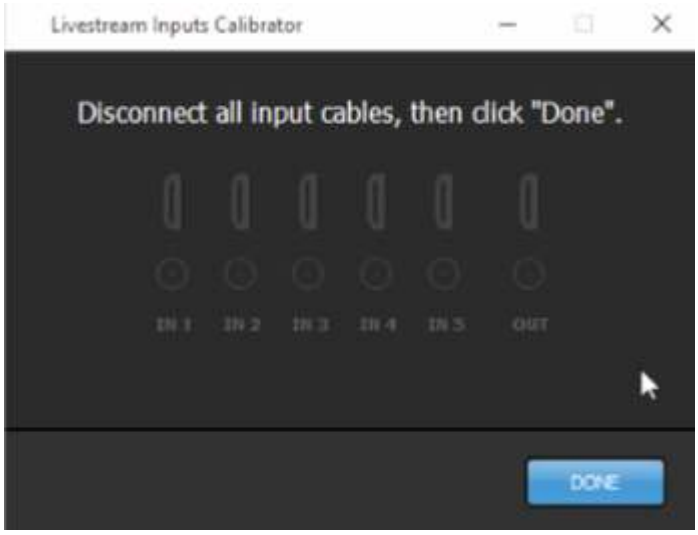
When Livestream Studio closes, a new window will pop up that will prompt you to unplug all of your cameras from all of your Blackmagic Design devices. After you do this, click Start Calibrating.



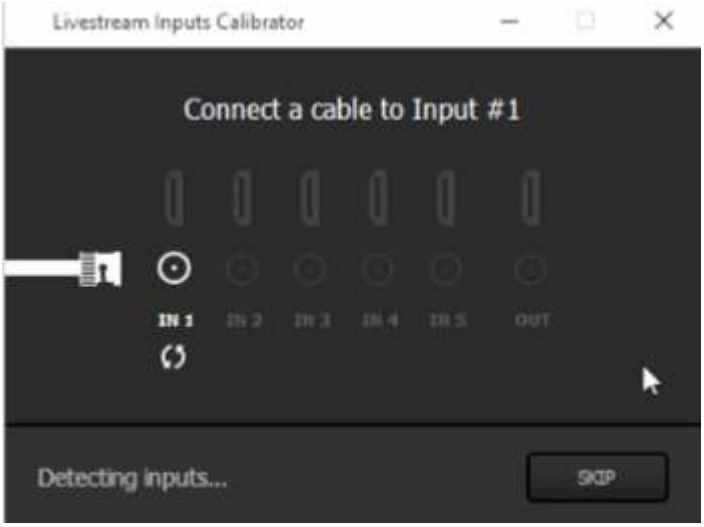
Select your preferred input type, either HDMI or SDI. You will only need one camera for this process, so if you are alternating input types, choose whichever one you are using more of. The calibration will still work. Then click Next.

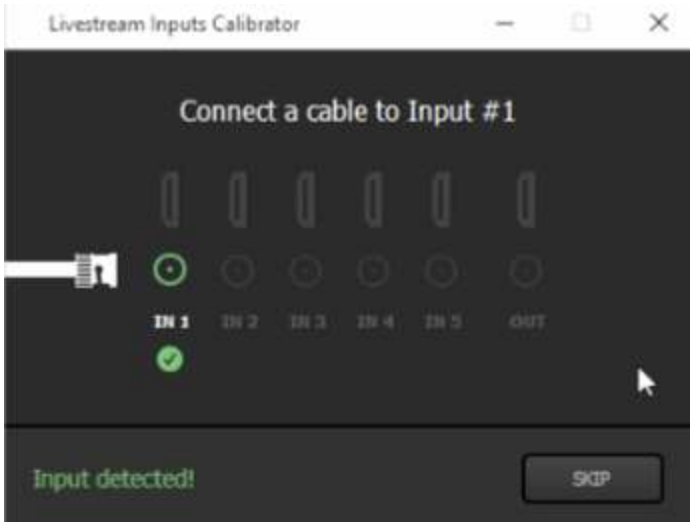


If you haven't disconnected all of your cables yet, do so now. Then click Done.

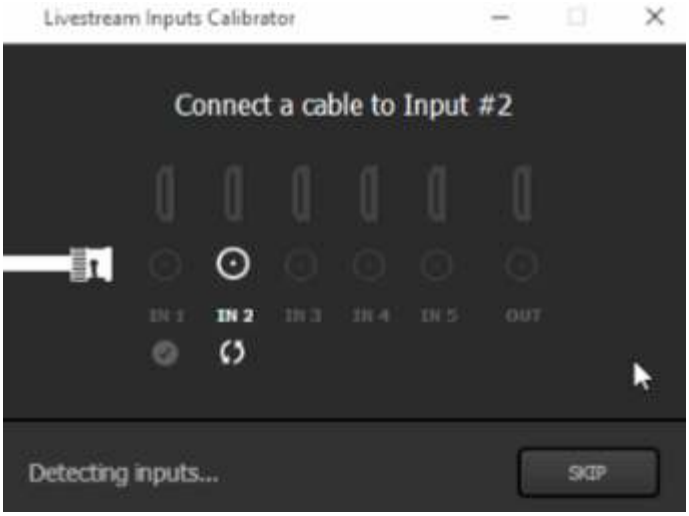


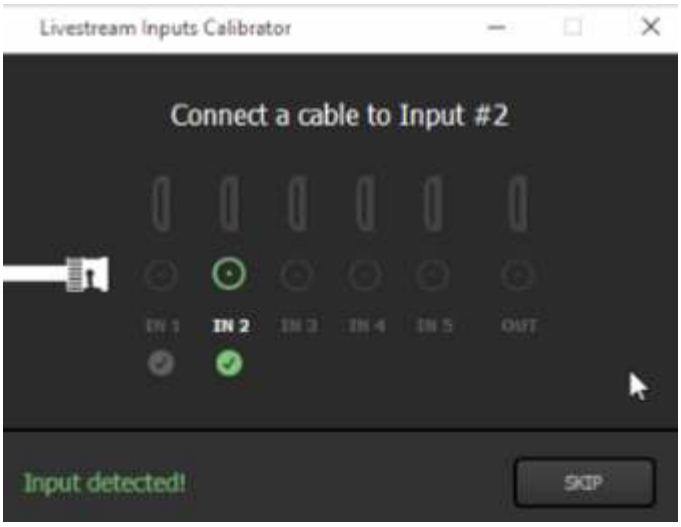
Connect a camera to In 1 on your system. The calibrator will indicate when it has detected it and completed calibrating it.

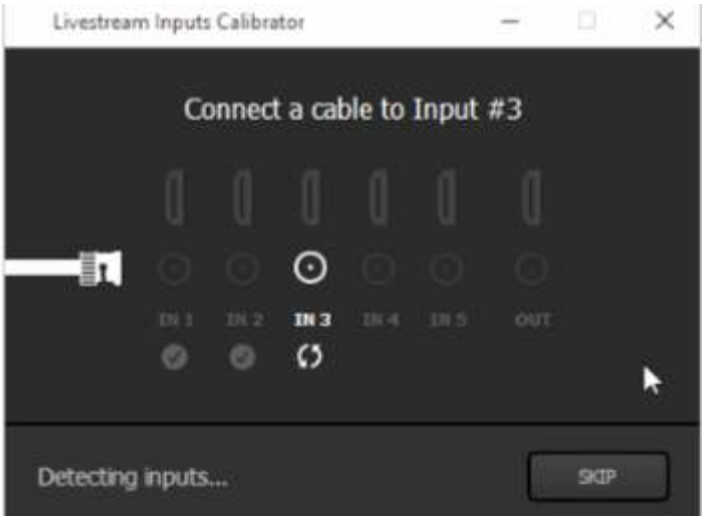




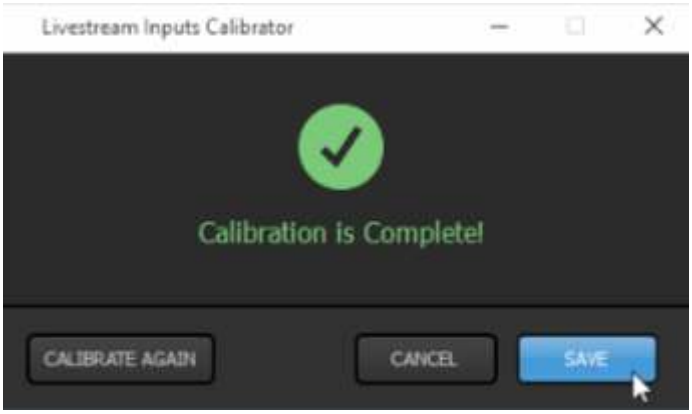
The calibrator will automatically prompt you to move to the next input. Unplug your camera from In 1 and plug it into In 2. Repeat this for all five Blackmagic Design cards.







After you've gone through all inputs, the calibrator will inform you that calibration is complete. Click Save and Livestream Studio will reopen with your inputs in the proper order.



Please note that calibration is project-based. If you create a new project, you may need to calibrate your input sources again.

Uninstall Blackmagic Design Desktop Video Drivers

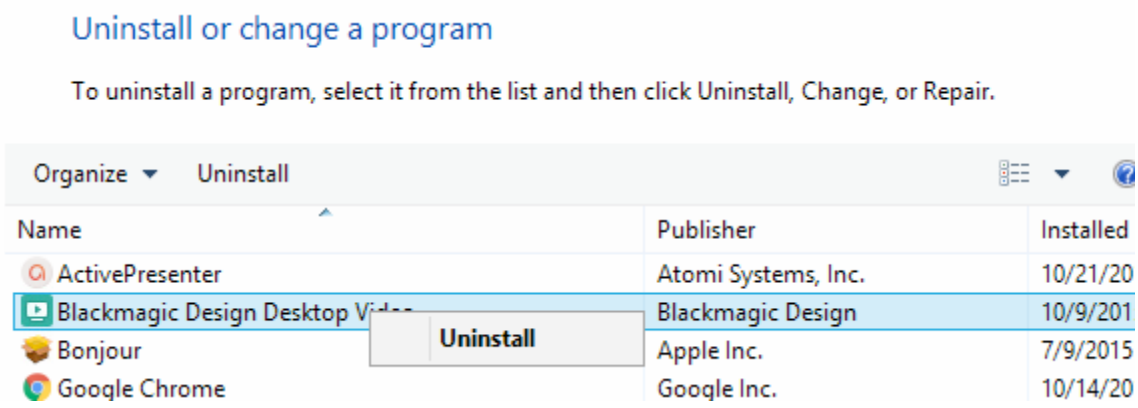
If you need to update your Blackmagic Design Desktop Video drivers, you must first uninstall the version that is currently installed on your computer before installing the current recommended version.

Uninstalling drivers on Windows computers differs slightly from doing so on Mac computers. Instructions for both are outlined below.

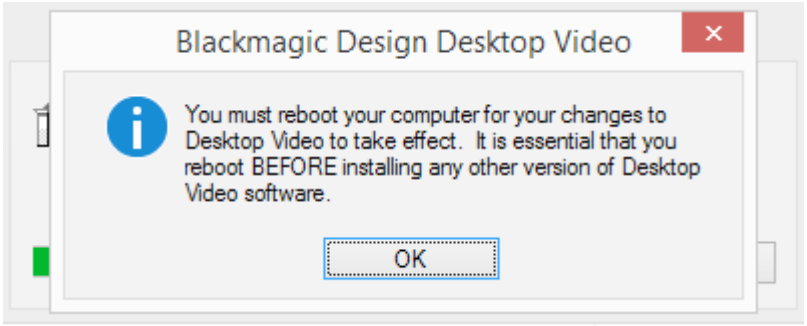
Uninstall Blackmagic Design Drivers - Windows

Go to your system's Control Panel, then enter the Uninstall a program menu.

Find Blackmagic Design Desktop Video in the menu. Right-click it, then click **Uninstall**.



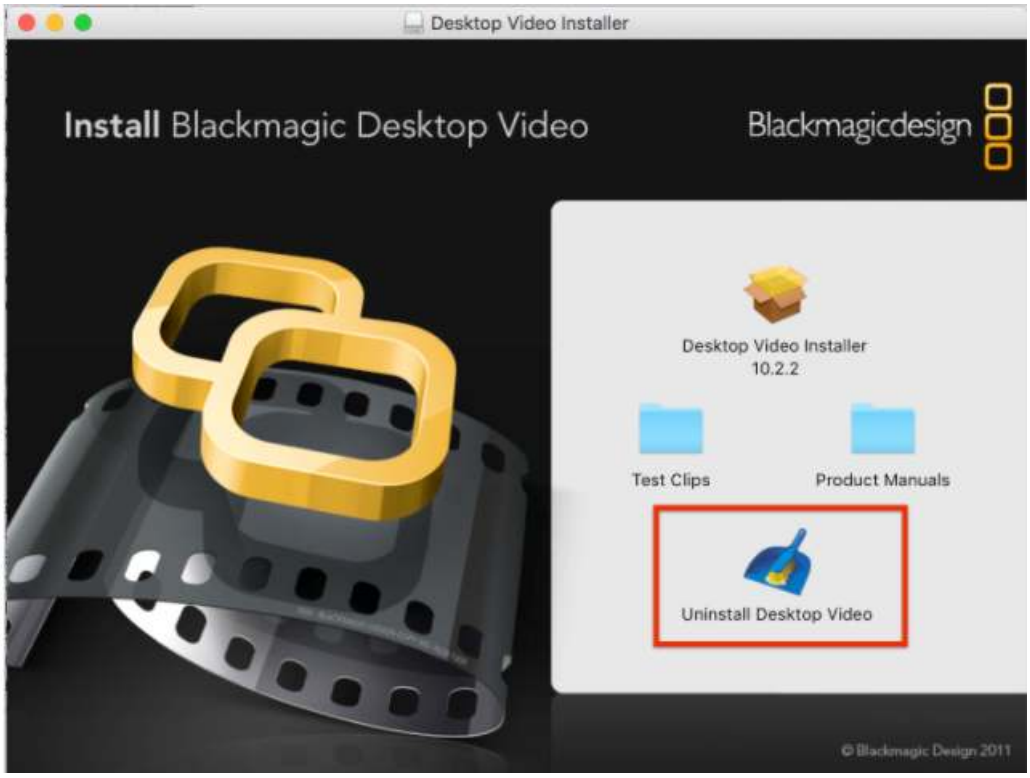
Follow the on-screen prompts, which will notify you that you must restart your computer for the uninstall to take effect.



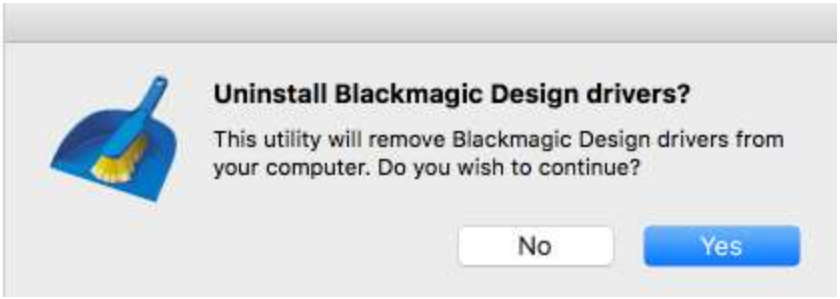
After you restart your computer, the uninstallation will be complete.

Uninstall Blackmagic Drivers - Mac

Find the **DesktopVideo_.dmg** file in your Finder. These are typically saved in your Downloads folder. Open the .dmg file and double-click **Uninstall Desktop Video**.



You will need to confirm that you want to uninstall Blackmagic Design drivers. Click Yes.



Uninstallation is now complete.

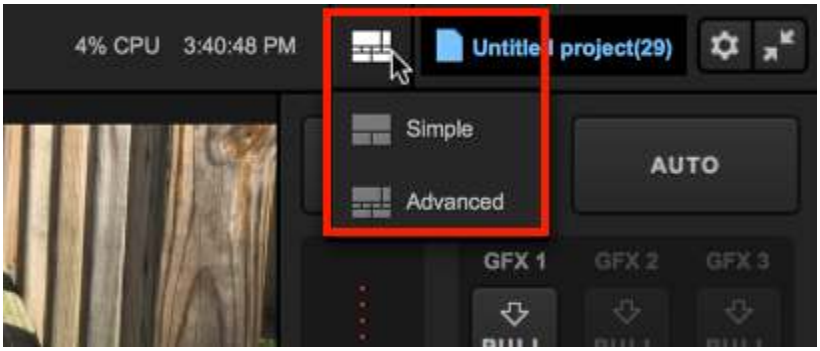
Switching Controls

Using Livestream Studio's Simple Interface

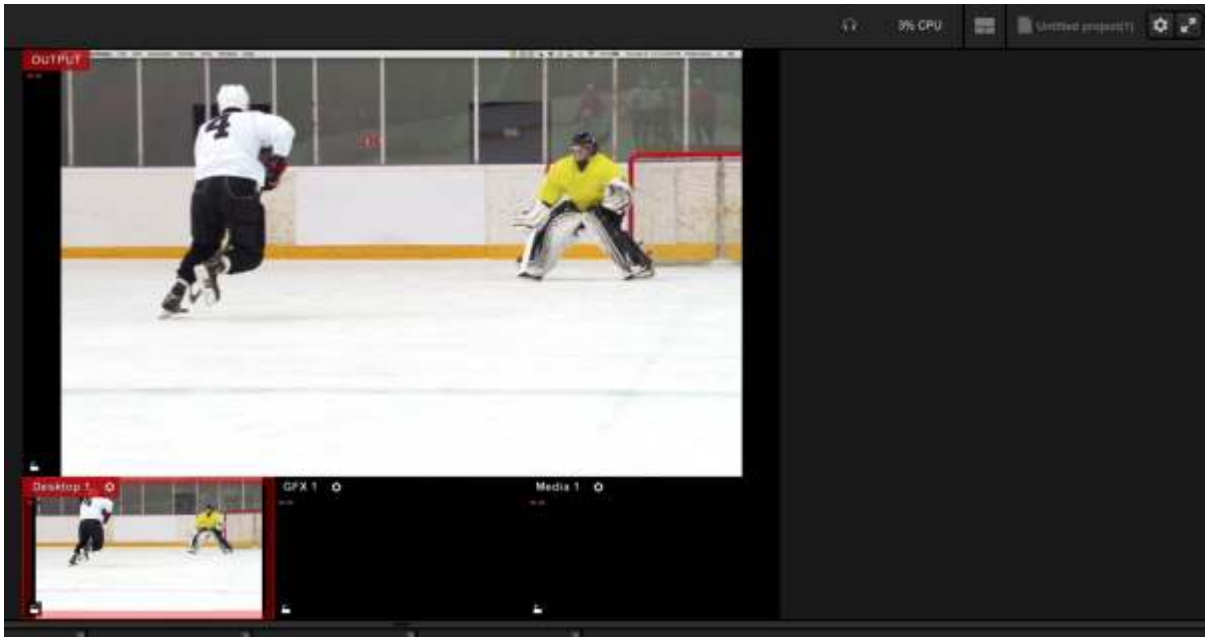
The Simplified Interface in Livestream Studio is a good option for customers with smaller production setups looking for minimal clutter.

When you first launch Studio or create a new project, you will be prompted to choose your interface mode: Simple or Advanced, allow you to arrange Studio in the Simple interface from the start.

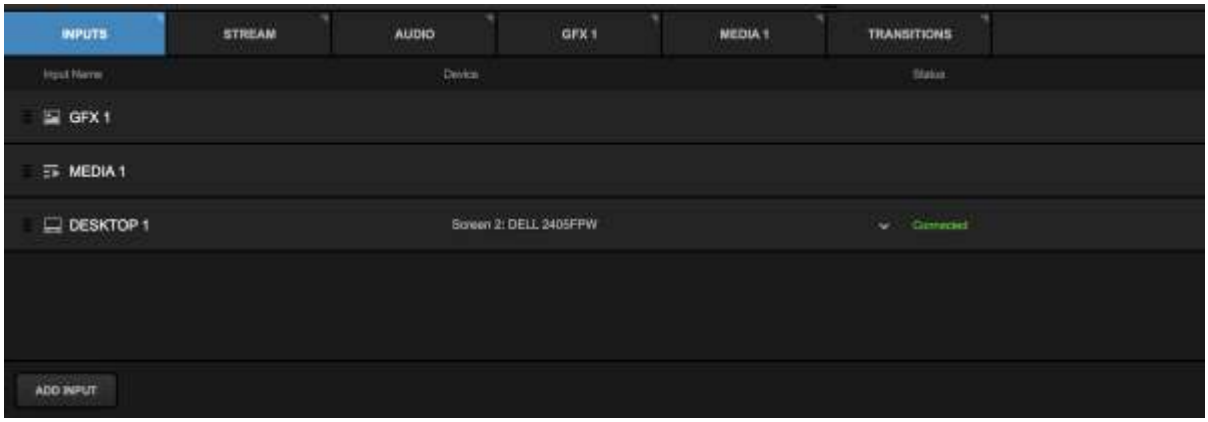
If you have an existing project in Advanced mode, you can easily switch to Simple mode by clicking the interface icon in the upper right corner and selecting Simple.



The most noticeable change can be seen in the upper portion of the interface. The Preview/Program monitors are replaced by a single Output monitor; whichever source is in this monitor is what your viewers are seeing. You will also notice the mixing panel that includes transition, graphics overlay, advert, and fade-to-black controls is also gone.

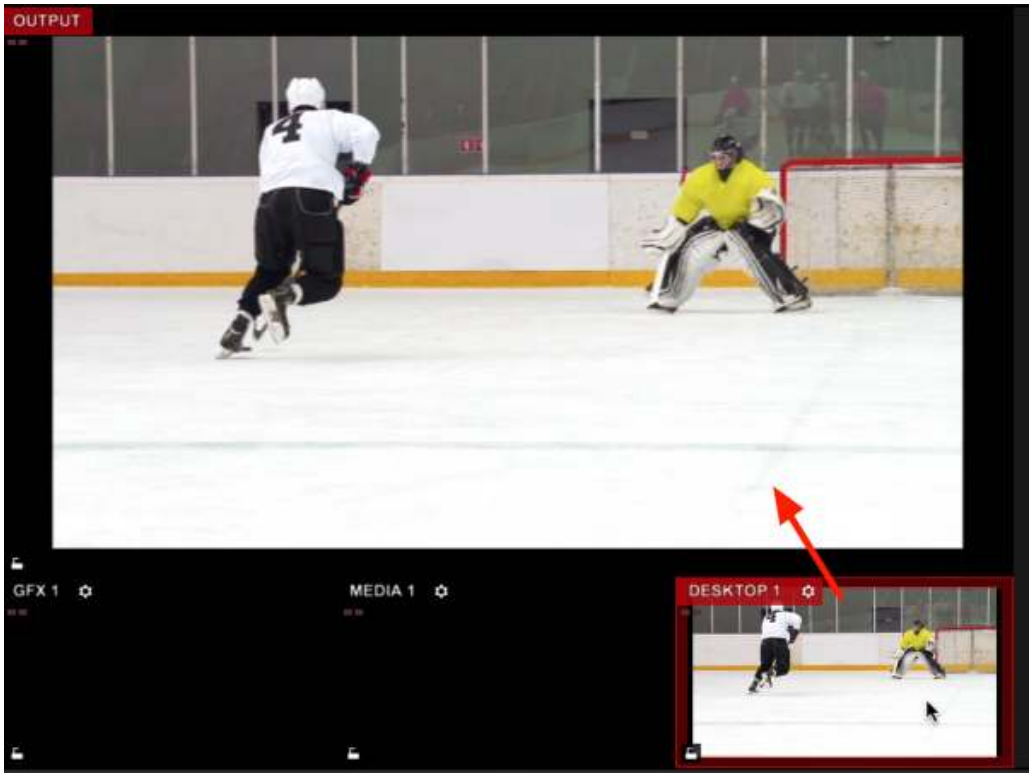


The Tabs containing your various production elements (graphics, media, etc.) will default to the Flat setting, meaning the lower portion of the Studio interface will be grouped into one column rather than have a divider splitting them into two interchangeable columns.



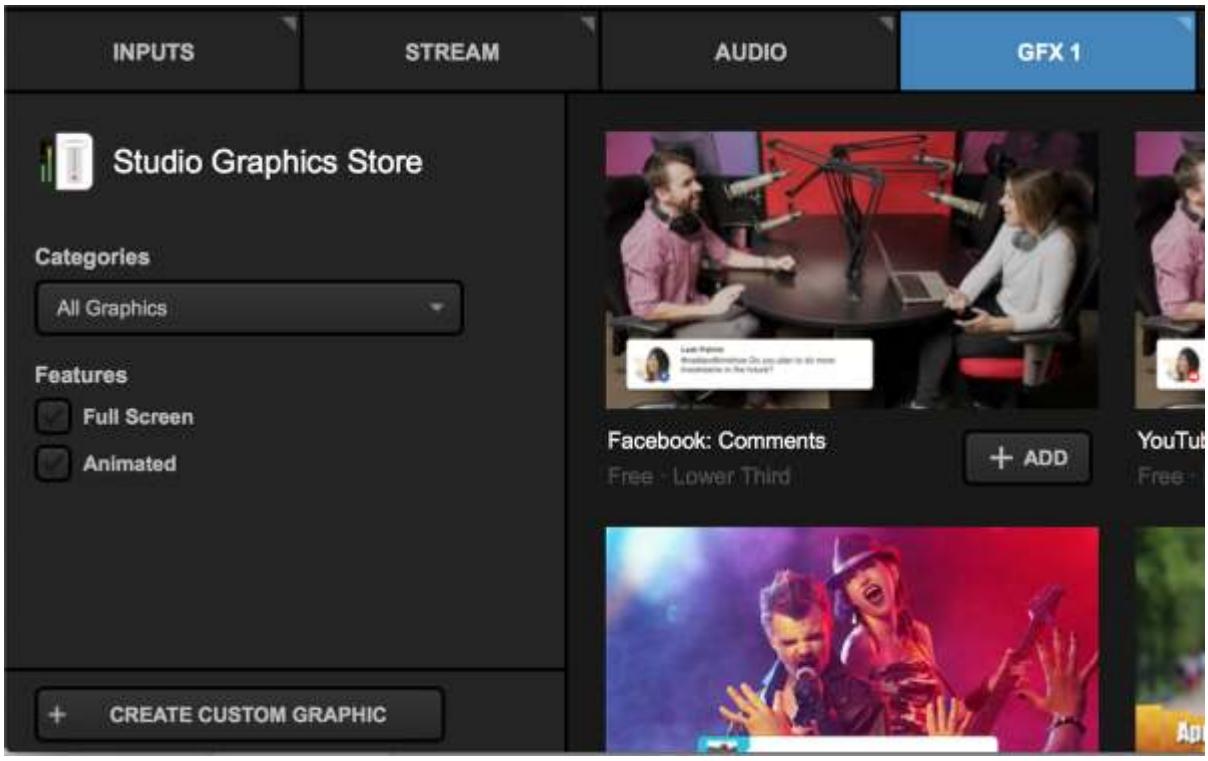
Your default production elements will also reduce to one GFX channel and one Media bin in addition to any detected cameras. You can still add to your setup by going the Inputs tab and selecting Add Input.

To switch between your video sources in this mode, use your mouse and left-click on the desired source in your multi-view. The source will transition into the Output monitor.

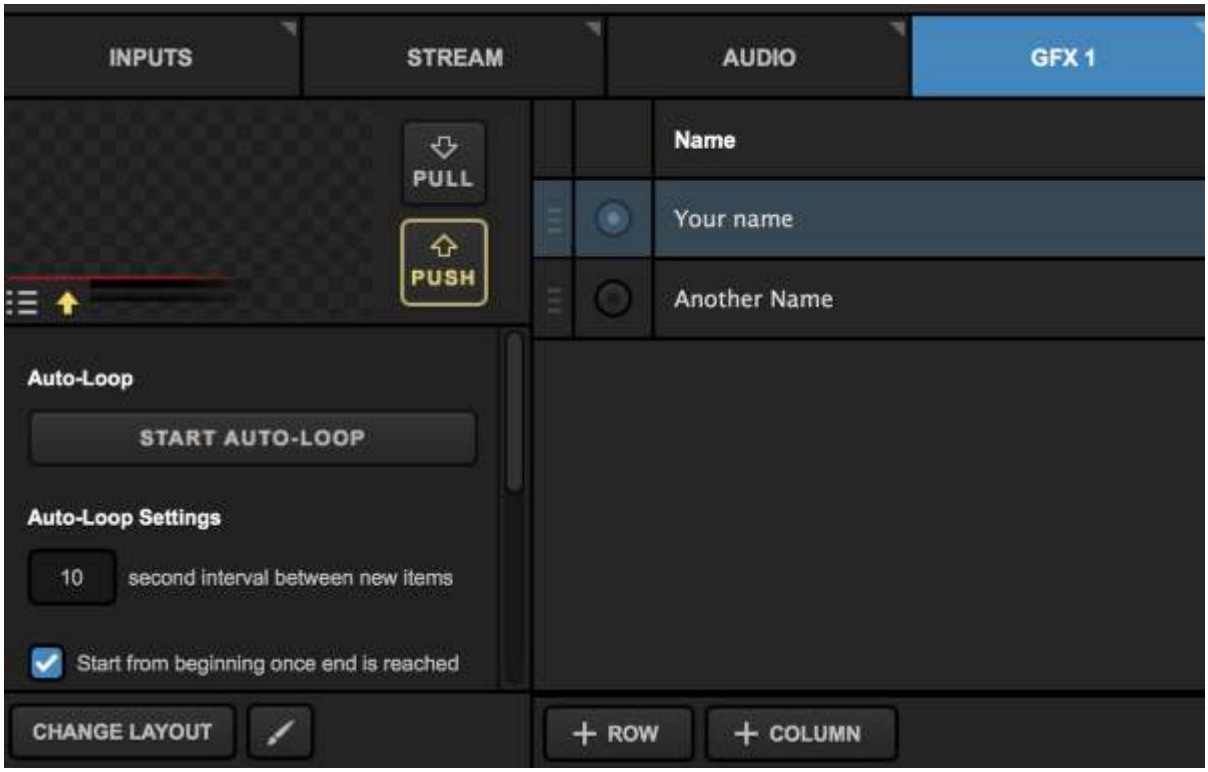


Using Graphics in Simple Mode

To overlay graphics in this mode, navigate to the GFX tab. Add a graphic by browsing the Graphics Store or by clicking + Create Custom Graphic to build your own.



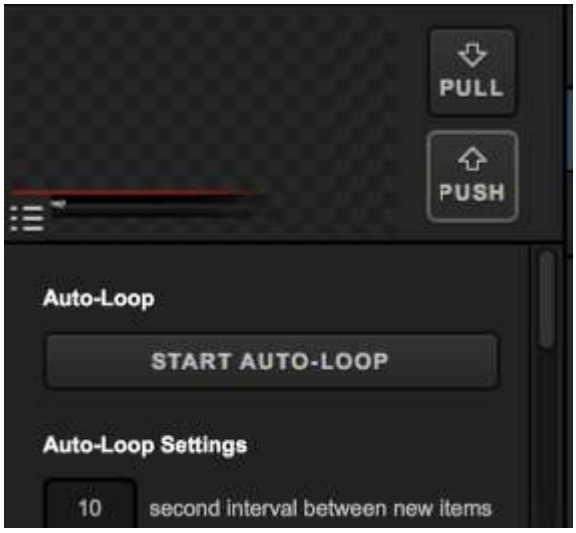
You will see your graphics preview and settings on the left side with the ability to add and edit data fields on the right side.



The main difference with graphics overlays in simplified mode versus advanced mode is how you transition graphics overlays into the Output. Since the mixing panel is not present in Simple Mode, you will see PUSH and PULL options here, with the layer's auto-loop settings underneath.

To adjust the design of the graphic, double-click the preview to open the GFX Designer. A more in-depth explanation on building and using graphics overlays in Studio is covered in another section.

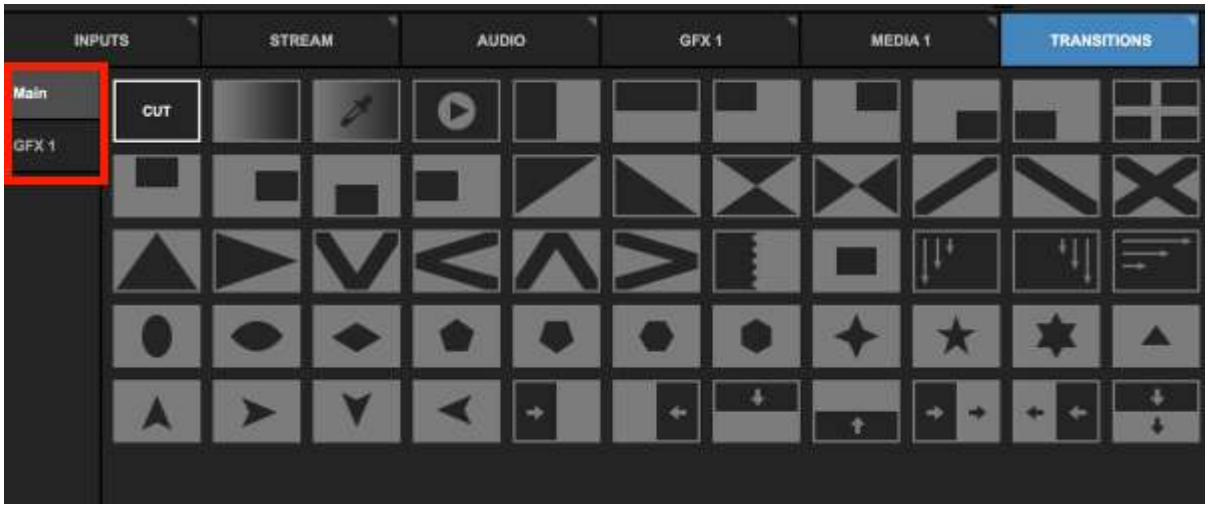
When you are ready to show your graphic, click the flashing PUSH button. The graphic will transition into the Output; to remove it from Program, click the red PULL button.



Transitions in Simple Mode

By default, the GFX transitions will be a 45-frame long edge wipe, whereas transitions between different video sources will be a cut.

You can change this by navigating to the Transitions module. Be sure the to select the correct tab on the far left side when choosing your transitions; Main is your main video mix, followed by each graphics overlay track. You can then select among different transition types

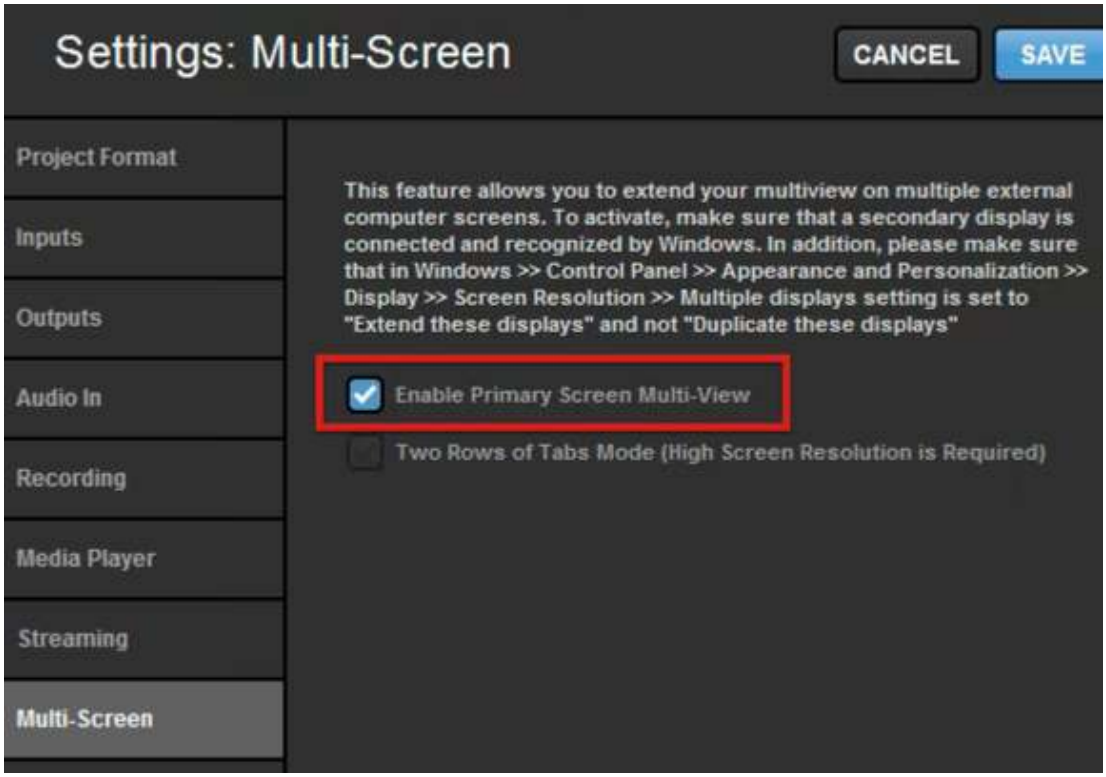

INPUTS
STREAM
AUDIO
GFX 1
MEDIA 1
TRANSITIONS
Main
GFX 1
CUT

Introduction to Multi-View & Preview/ Program Switching

The Advanced interface mode of Livestream Studio is designed for traditional Preview/Program switching, with controls available via mouse, defined keyboard shortcuts, and assigned controls on the Livestream Studio Surface or Surface Go.

The software includes a multi-view that allows you to see all of your video sources and graphics overlays in one display.

If you are not seeing your full multi-view, go to the **Multi-Screen** tab in settings, and check **Enable Primary Screen Multi-View**, then click **Save**.



At the top of this multi-view are two larger monitors, which are called Preview (left) and Program (right).

Preview is where you would typically review any video source or graphics overlay prior to transitioning it to your recording and/or stream.

Program is the content that is currently showing in your recording and/or stream; it is what your viewers are currently watching.

Below Preview and Program is an arrangement of smaller monitors with every camera input, graphics overlay channel, media bin, remote camera, and color source that you are using.

A standard multi-camera production typically involves putting a source into Preview, then using a transition control to switch it into Program.

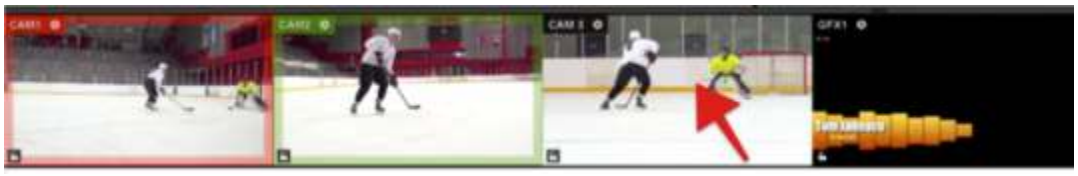
Using Transition Controls

Advanced Mode includes Preview and Program monitors as well as a mixing panel with transition controls, giving you more options for switching between your video sources using your mouse.

If you are using the Simple Interface mode, see switching instructions here.

Basic Mouse Controls

To put any of your sources into Preview, hover over the source in the multi-view with your mouse, and click on it.

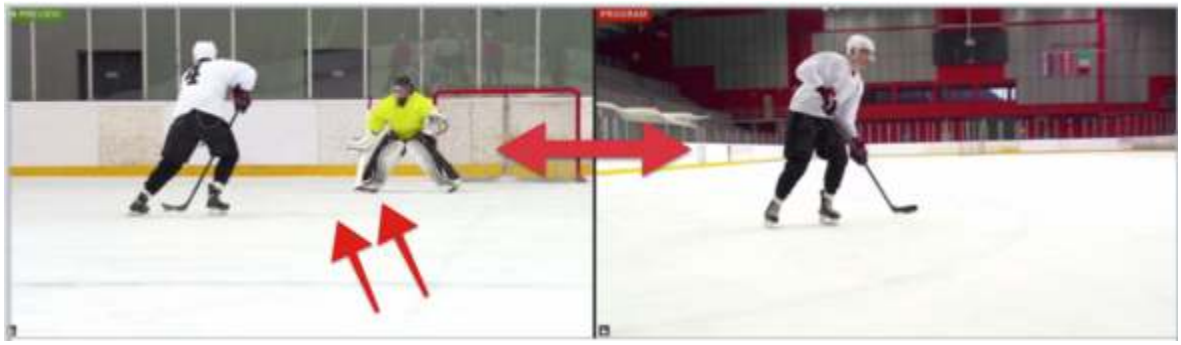


That source will now be in the Preview monitor, and you should notice a green border around it in the multi-view.

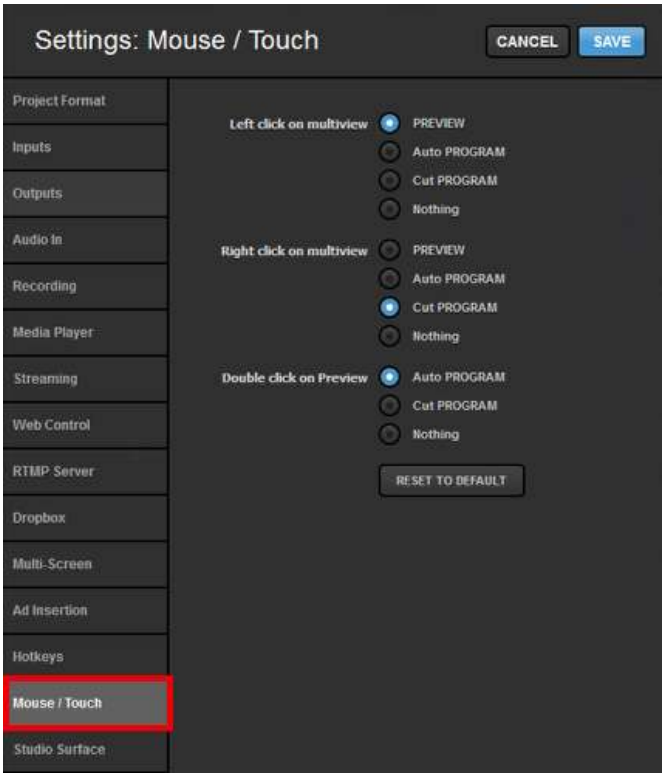
If you want to put a source directly into Program without previewing it, hover your mouse over it in the multi-view and right-click it.

That source will now be in Program and will have a red border surrounding it in the multi-view.

You can also double-click on the Preview monitor, which will automatically transition that source into Program.



To adjust how sources are put into Preview and Program using your mouse, navigate to the Mouse / Touch tab in settings. Select the desired actions, then click Save.



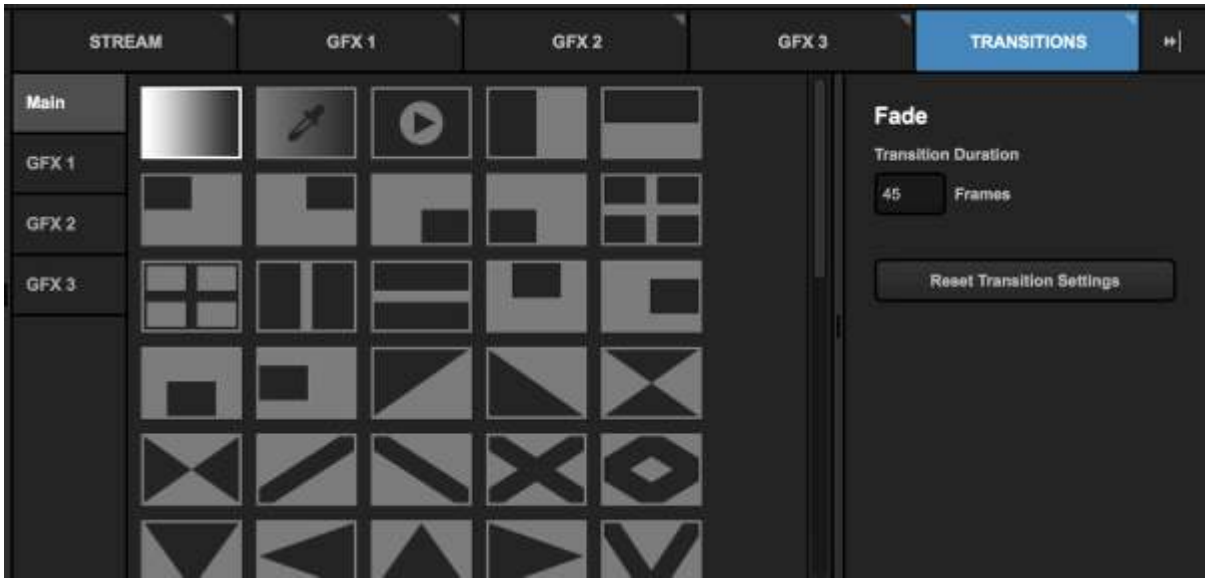
Standard Transitions: Cut, Dissolve, Wipe

Livestream Studio's transition controls can be found in the upper right corner of the software interface. Cut switches Preview and Program immediately with no overlap occurring between them. Clicking the Cut button activates this transition.

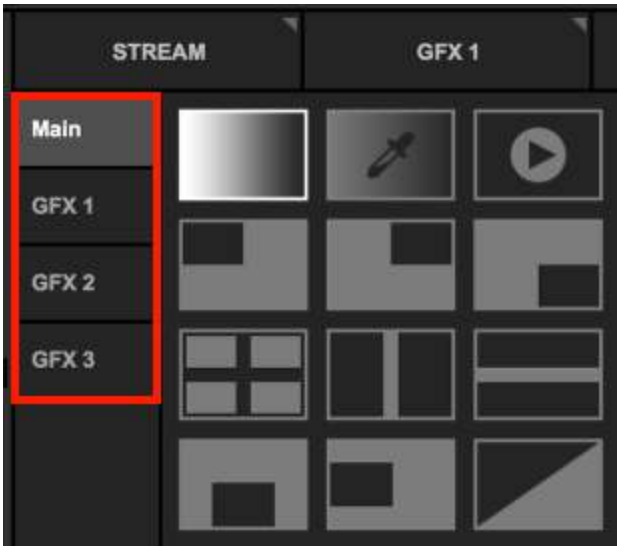
Another commonly used transition is Dissolve, which is an overlapping crossfade between the changing sources.

Finally, a Wipe is an animated transition where the Preview source overlays the Program source during the switch.

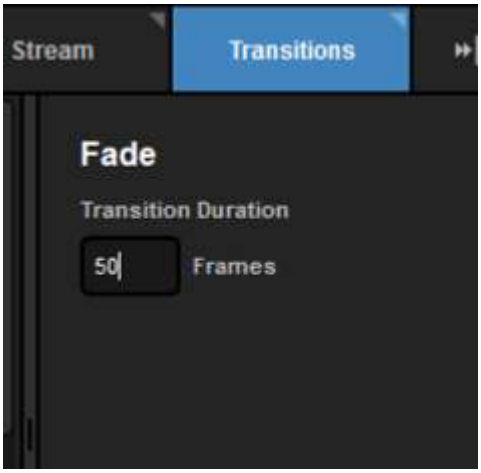
In Livestream Studio, you can configure fades and wipes under the Transitions tab in the lower right corner.



Notice on the left side that you can choose to set a transition for both your main mix (i.e., any source in Preview) and each individual graphics overlay channel.



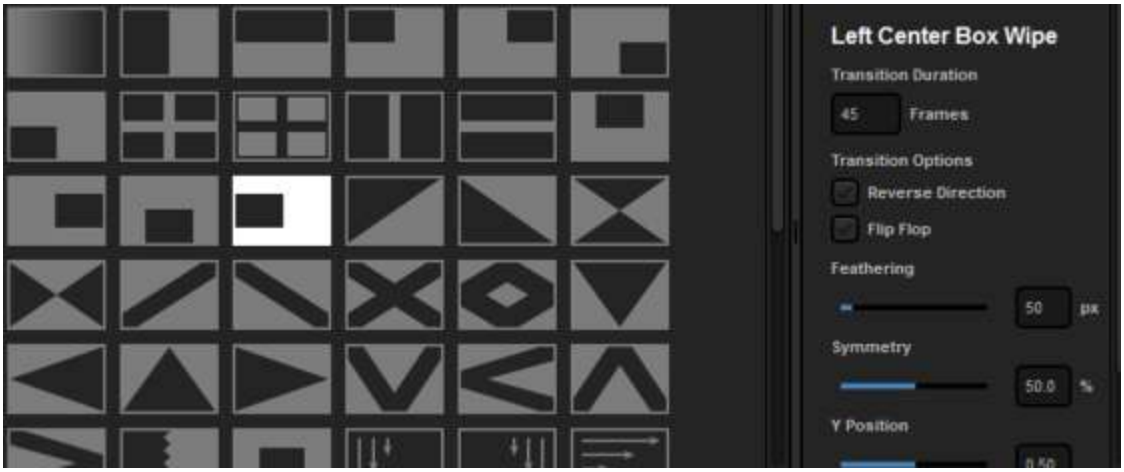
Fade is the first option in the menu, which is the dissolve transition. When you select it, you can set the amount of time you want an automatic transition between sources to last.



You can also double-click the duration time under the transition controls to change the speed of any automatic transition quickly.

The next two transition options are Dip to color and Stinger, which are advanced transitions covered below.

The remaining options in this menu are different kinds of wipes. Selecting one will show additional settings on the right.



Reverse Direction will push the wipe in the opposite direction that it moves by default.

Flip Flop will alternate the wipe between the default direction and the reverse direction.

Feathering allows you to determine how hard or soft the edge of the wipe animation will be, in pixels. The more pixels you cover, the more faded the line will be.

0 px

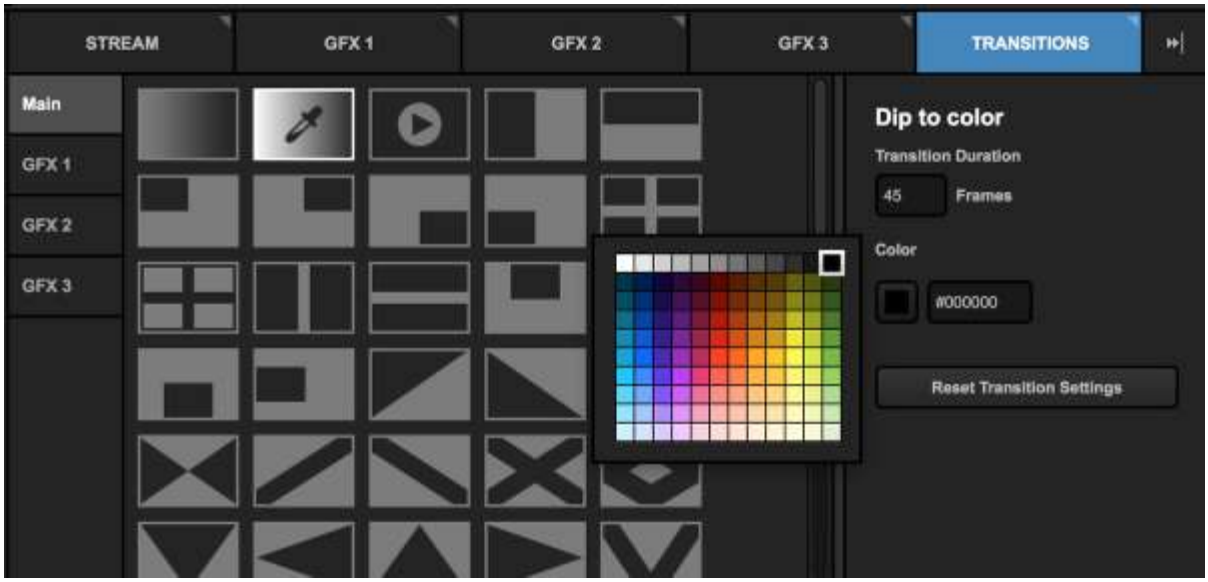
100 px

Some wipes also have options for adjusting their positions and appearance on the screen when they are used.

Advanced Transitions: Dip to Color, Stinger

Dig to Color is similar to a fade but instead of cross-fading the two sources in Preview and Program, Program will fade, or "dip," into a selected color which then, in turn, fades into the source coming in from Preview.

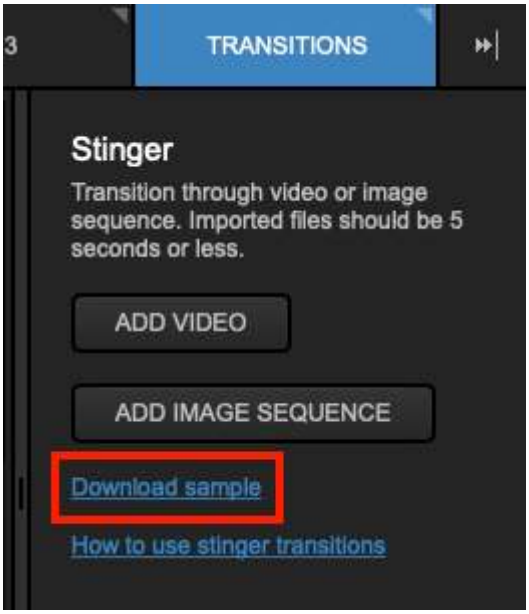
When selecting Dip to color, you can choose the duration of the transition in frames and the color the transition uses to the right of the transition menu. If you don't like your settings, click Reset Transition Settings to go back to the default settings.



A dip to color transition looks similar to this:

The next transition is referred to as a stinger, which is a video or image sequence that animates in Program while your sources cut in the background. This is common in live sports broadcasts switching to and from replays or news broadcasts switching to different reporters.

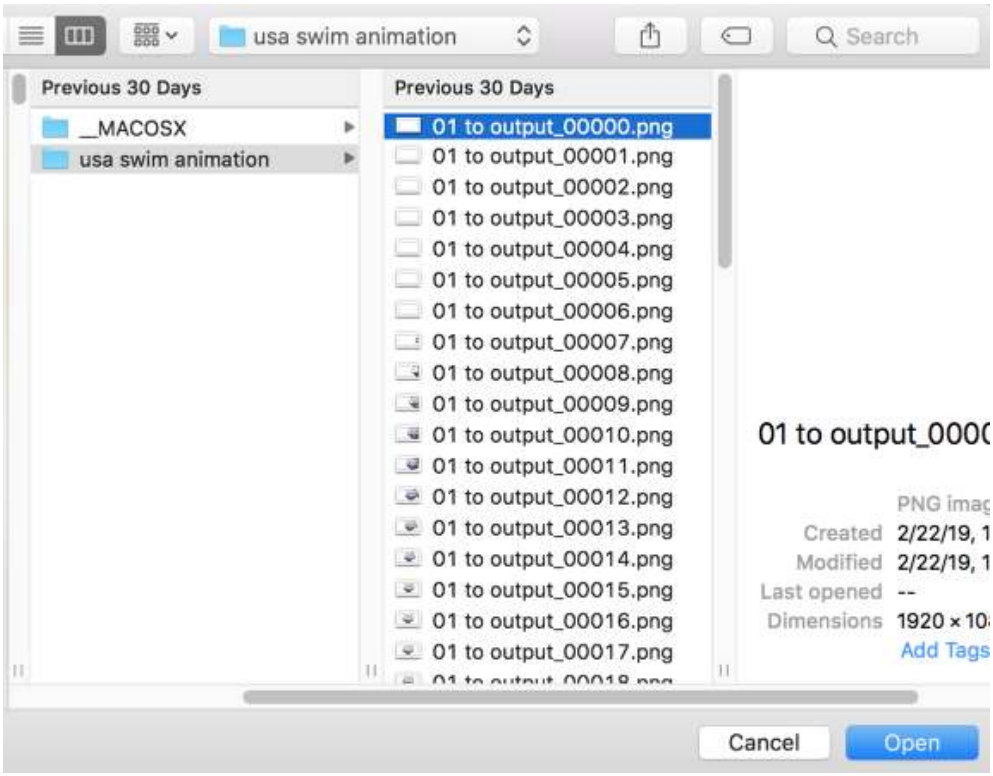
You can download a sample stinger directly from Studio by clicking Download sample on the right side.



You can use a short .mov file by clicking Add Video or a PNG image sequence by clicking Add Image Sequence. When selecting an image sequence, go to the folder your image sequence is saved in and select the first file in the sequence; this will import all of them.

Stingers cannot exceed five (5) seconds. If you are using a video, we recommend you use an .mov file that matches your project format in Studio to prevent upscaling or downscaling.

A PNG sequence should not exceed 1920x1080. If your project format is 30 FPS, your sequence should not exceed 150 images; if the project is 60 FPS, the sequence can have a maximum of 300 images.



After importing your stinger into Studio, use the slider below to determine at what point during the stinger the Preview and Program should switch. This should ideally be when the stinger overlays the entire screen so that viewers don't see the cut behind it.

After setting the stinger, click Auto to transition it in realtime.

Automatic and Manual Transitions

To activate an automatic transition, click Auto in the upper right corner. The sources will then switch based on the duration you set for that transition.

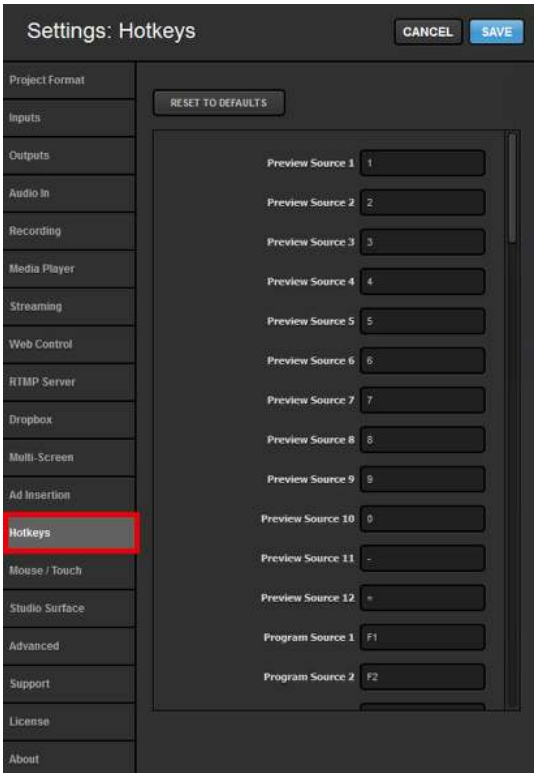
You can always employ a manual transition by clicking and dragging the virtual T Bar below the transition buttons. This allows you to control the speed of that transition.

Configuring a Keyboard to Use with Livestream Studio

You can create custom keyboard shortcuts in Livestream Studio by assigning hotkeys.

Open the settings menu and click the Hotkeys tab.

This will reveal a list of controls. Each control has a default hotkey assigned to it.



The images below show the Livestream Studio Keyboard, which is simply a standard keyboard that is designed to reflect the default hotkey settings. However, you can use hotkeys in Livestream Studio with any keyboard.

Some common default keyboard commands include:

The 1 key will put your first input source into Preview

Pressing 2 puts the second input source into Preview, 3 puts the third source in Preview, and so on.

Similarly, to put your first input source directly into Program, press the F1 key on your keyboard.

F2 will put the second source into Program, F3 the third source, and so forth.

Mac Users: In order to use the F1, F2, etc. hotkeys, you must either hold down the fn key when pressing them or go to System Preferences > Keyboard and make sure Use F1, F2, etc. keys as standard function keys is checked.

Pressing Enter will cut between Preview and Program sources, while pressing the spacebar will activate an auto-transition between those sources.

You can customize these hotkeys to better fit your workflow if you wish.

The keyboard that Livestream provided with all Studio Hardware units is designed to fit the default hotkey settings when you are producing a live event. It will operate as a normal keyboard when typing into text fields and when using it with other applications.

CUT
livestream
AUTO
CUT

Use a Skaarhoj Control Panel with Studio

As of version 6.5, Livestream Studio is compatible with Skaarhoj live switching control panels, allowing you to control many core aspects of your production from an external device.

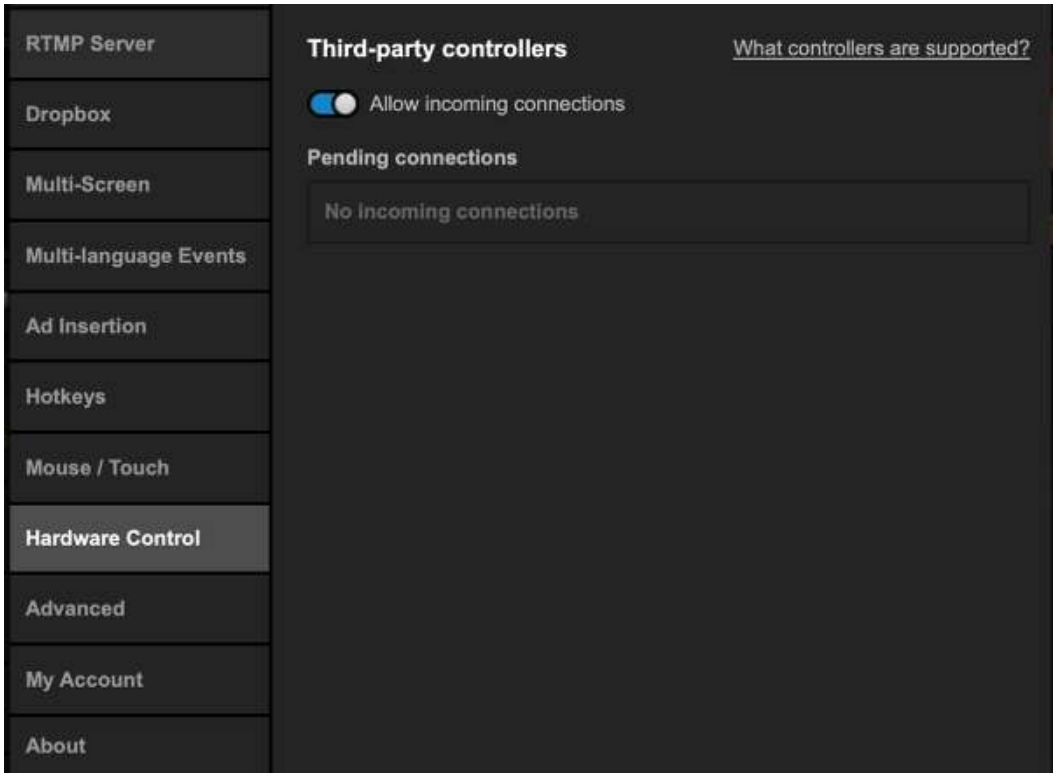
Skaarhoj provides instructions configuring the controls on the panel for Studio here.

For a complete walkthrough, see the following video produced by Skaarhoj:

Connect a Skaarhoj panel to Studio

Connect your Skaarhoj panel to your computer running Studio via an Ethernet cable. The panels utilize Power Over Ethernet (POE) so only one cable is needed.

Launch Studio. Navigate to the settings via the gearwheel button in the upper right corner, then navigate to the **Hardware Control** tab. Toggle the **Allow incoming connections** switch to On (it will turn blue).



When the IP address of your panel comes in, click Allow to the right to connect the panel to Studio. You can also choose Block if you do not recognize an incoming IP address.

Click Save. You should notice the OLEDs on your panel matching your source names in Studio.

Control Features on Skaarhoj Panels

Once your Skaarhoj control panel is connected, you can control numerous aspects of Studio via the panel.

Your input sources will appear on the panel in the same order in which they are listed in the Inputs menu in Studio. Your control panel may include a Shift key that you can hold down to see the next set of sources if they do not all fit into a single row.

You can toggle the user menu buttons (e.g. U2) left and right to navigate to different pages on the panel to control different aspects such as media playback and audio controls.

Aspects of Studio that Skaarhoj panels can control include:

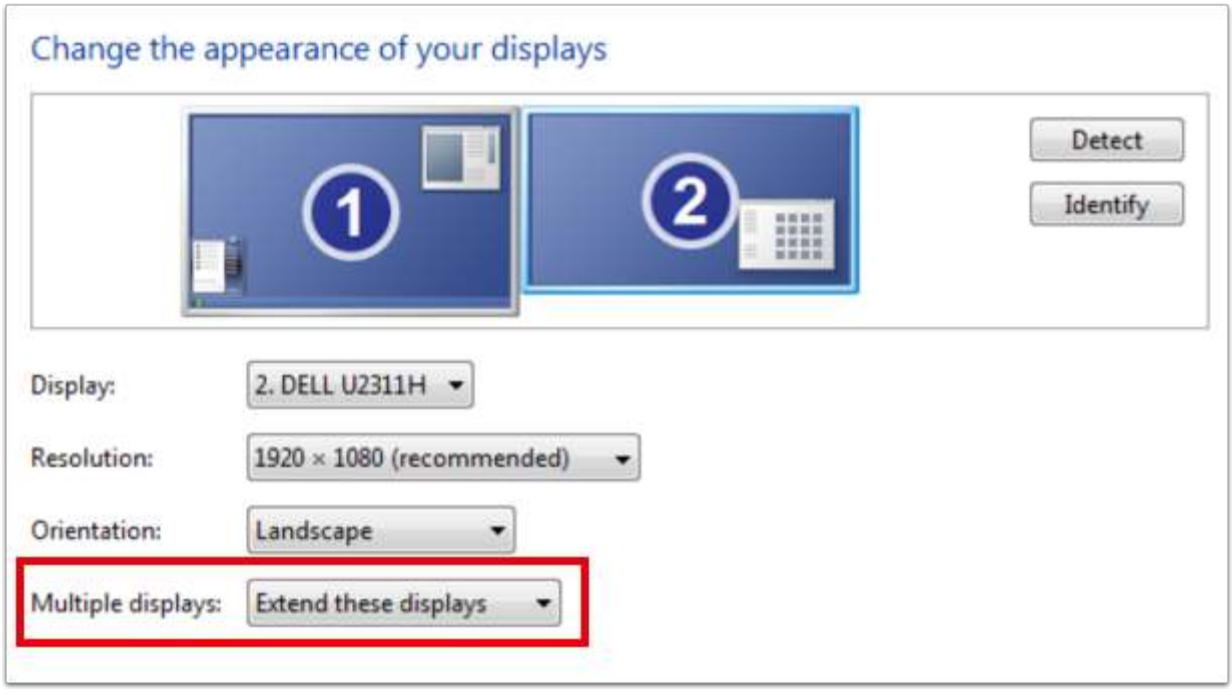
- Start/stop recording
- Start/stop streaming
- Preview/Program source switching (via Cut, Auto, or fader bar)
- Preview and mix in graphics overlays
- Play/pause media source (full clip or only the selected segment)
- Adjust program audio levels
  - Tip: Pressing the knobs will switch between "fine" and "coarse" adjustment modes, allowing you to control how much of an adjustment will be made.
- Adjust source audio levels
- Adjust headphone volume
- Mute/un-mute sources
- Adjust source audio gain
- Lock audio source in Program (or toggle off to keep the audio source following its video source in and out of Program)
- Fade to black (FTB)

Using External Multi-Screen with Livestream Studio

If you have a second monitor connected to your system, you have the option of displaying all or part of your multi-view by using your system's graphics card. The software can support up to a Quad GPU setup out of a graphics card which can output to up to 4 displays.

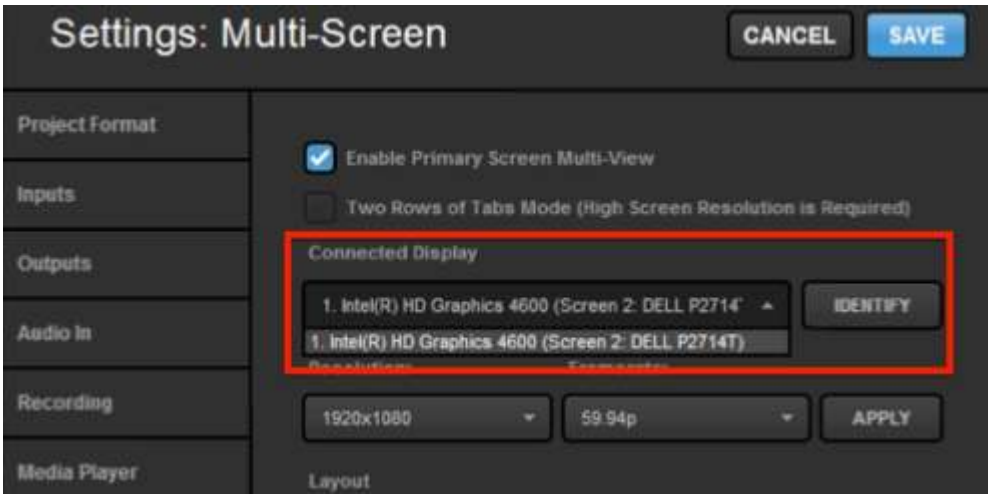
For best results, we recommend connecting the secondary display to the available HDMI port on the graphics card connected to your Livestream Studio system (It will also work with DVI and VGA connections).

First, check your computer's display settings in Control Panel. In Screen Resolution, go to the Multiple Displays menu and select Extend these displays.

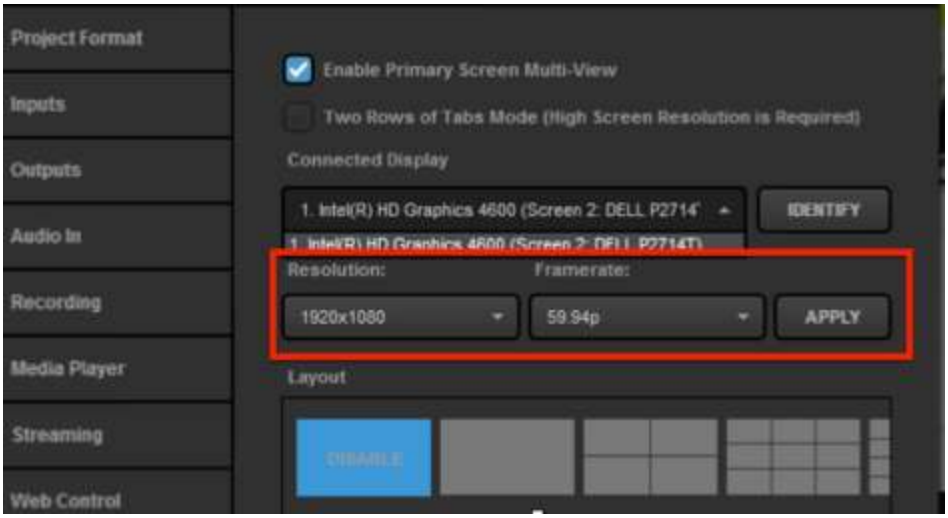


In Livestream Studio, go to settings and click on the Multi-Screen tab. With the second monitor connected, it will include additional settings.

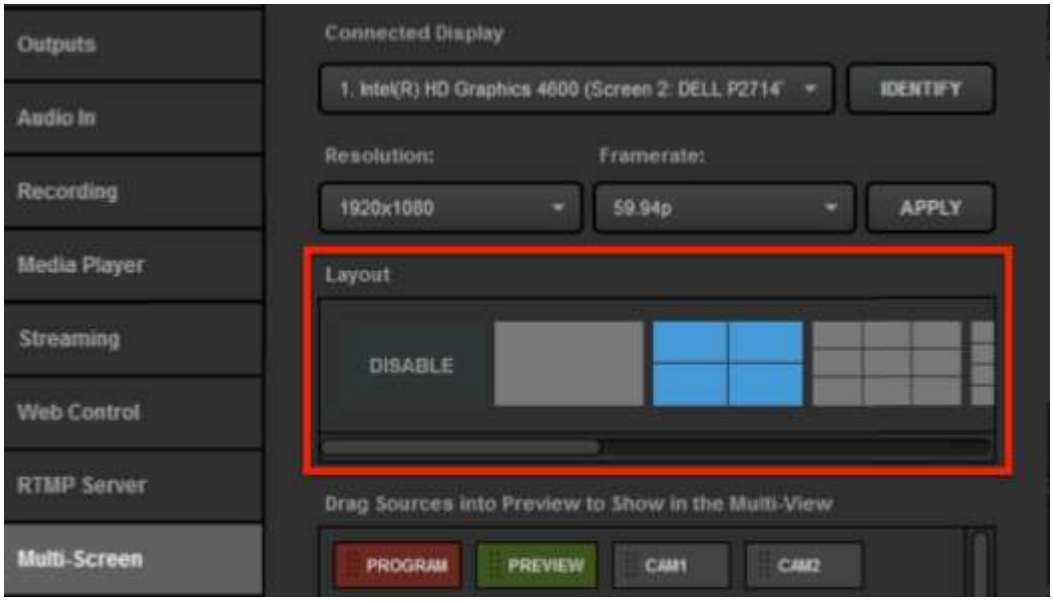
You should see your display listed in the Connected Display drop-down menu. Select the display and click Identify.



Select the resolution and frame rate at which you want Livestream Studio's multi-view to output.



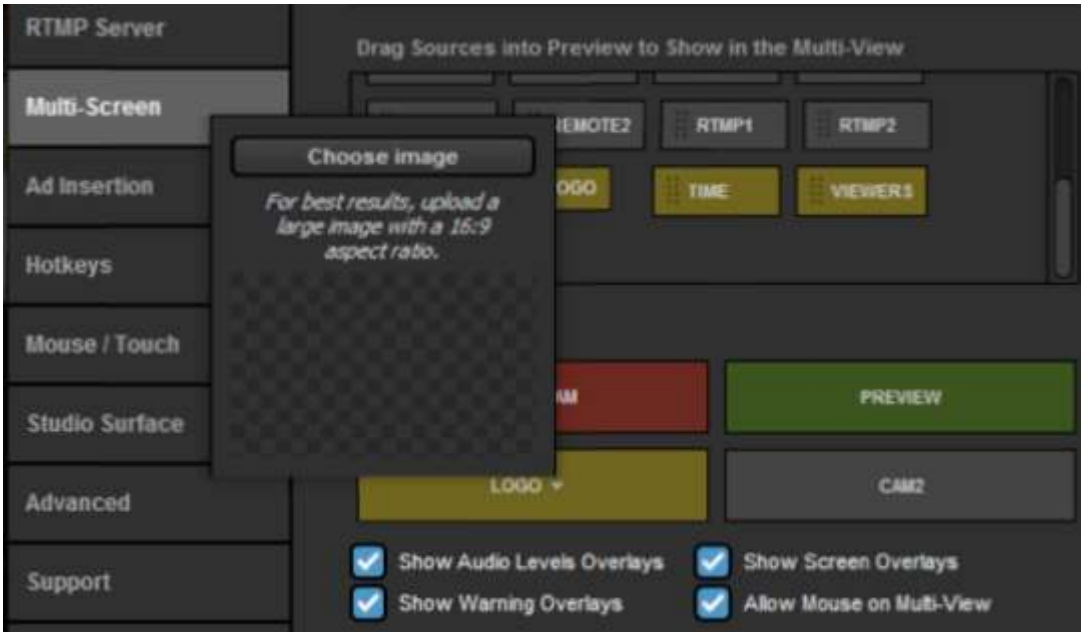
Next, determine which layout you want to see in your external monitor.



Below the layout selection, use your mouse to drag and drop each video source you want to see into the appropriate box below.

In addition to video sources, you can include a logo, time of day, viewer count, and stream status.

If you drag a logo into your external multi-view, click on it to be given the option to upload a logo image.



Underneath the multi-view preview, you will see options for showing or hiding specific overlays on the multi-view and for whether you want to allow your mouse onto that display.

When you have set your multi-view to your desired preferences, click Save. You will see the multi-view appear on your external monitor.

HD1920x1080 29.970fps
Frame: 110
0:00:03.670;20
livestream
4:50:57 PM

livestream
4:57:23 PM

Audio Workflow

Adding Audio Sources

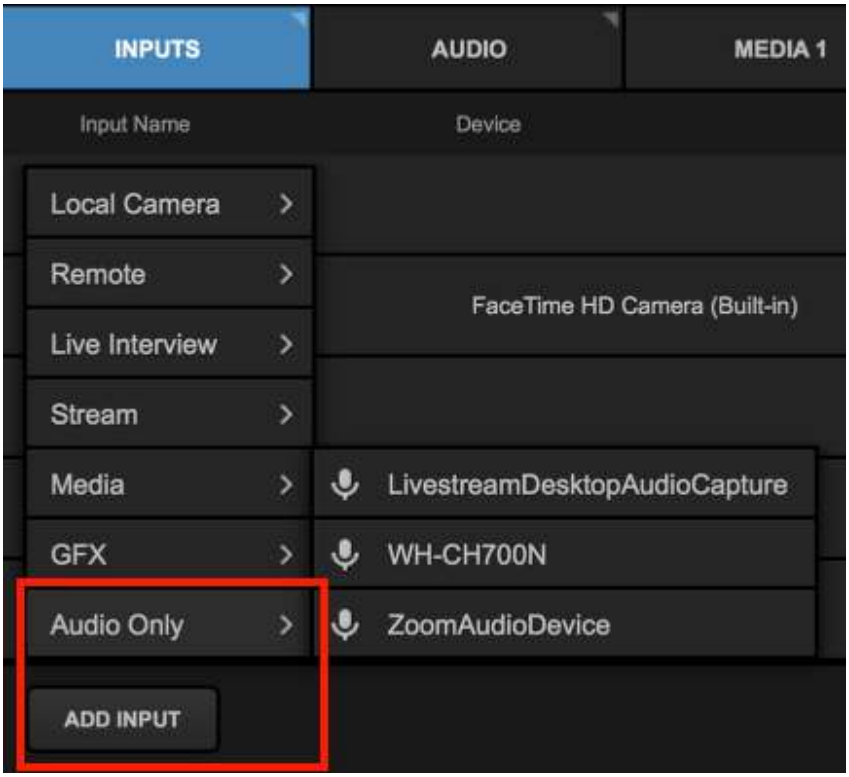
Livestream Studio's built-in audio mixer can be found in the lower left corner of the interface under the Audio tab.

Each input source will have a corresponding audio source that you can monitor and adjust.

You may have a separate audio mixer or a microphone can connect to your system directly via USB or line-in (the HD550 also has two 1/4-inch XLR combo inputs built in).

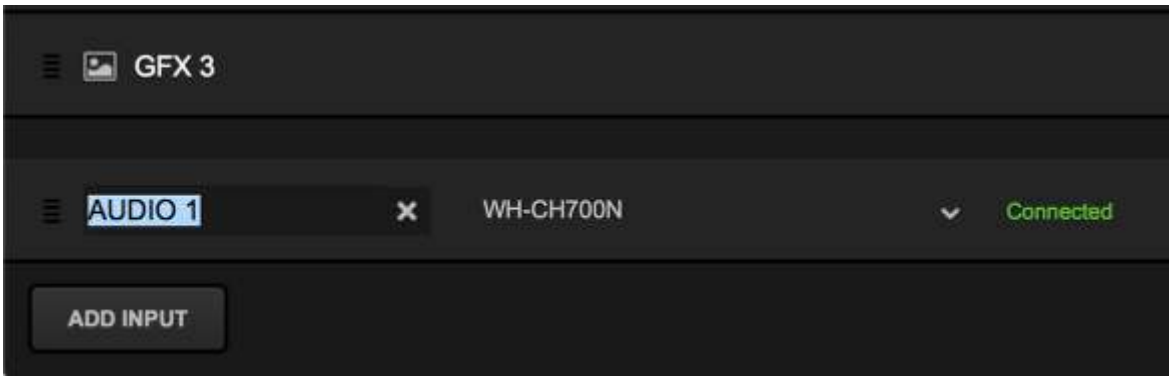
> We have successfully tested Onyx and M-Audio mixers with Livestream Studio. Generally speaking, any device your operating system--Windows or Mac--supports will work with Livestream Studio, although we recommend using audio devices that do not require drivers to be installed.

To add these sources, navigate to Inputs > Add Input > Audio Only. Choose your source from the menu that pops open. You can add up to eight (8) Audio Only sources.

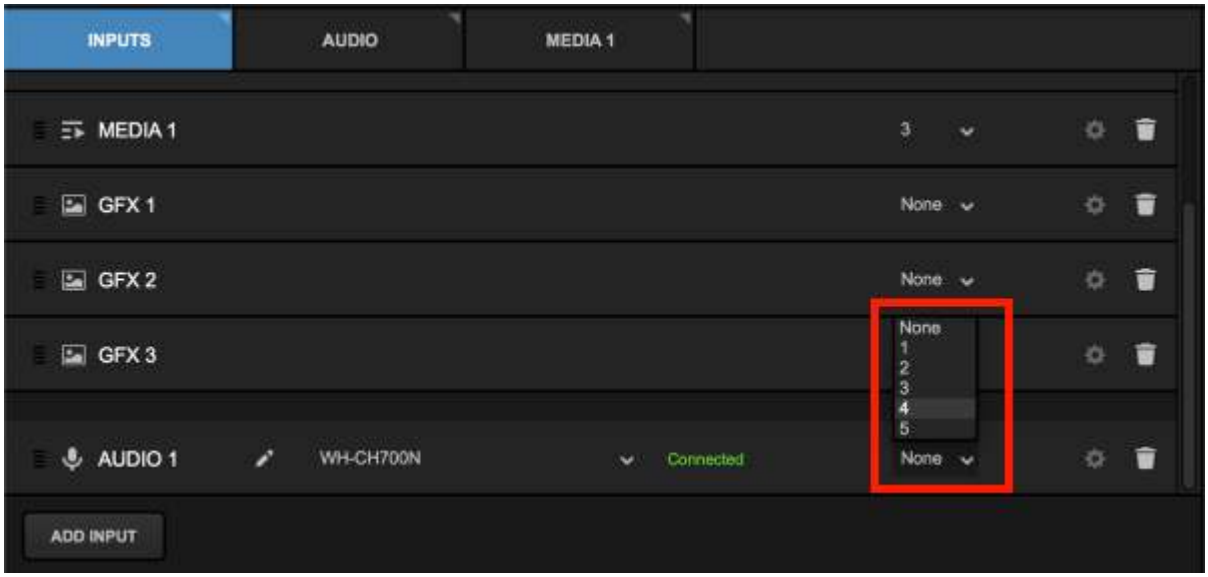


If your device is not recognized, check to see if it needs to have drivers installed.

Livestream Studio will automatically label the source (e.g., AUDIO1). Hover your cursor over the name and then select the pencil icon that appears to edit it if you wish.



This source can also be assigned to a track on Studio Surface if you have one connected.



You should now see your audio source included with your other sources in the Audio Mixer.

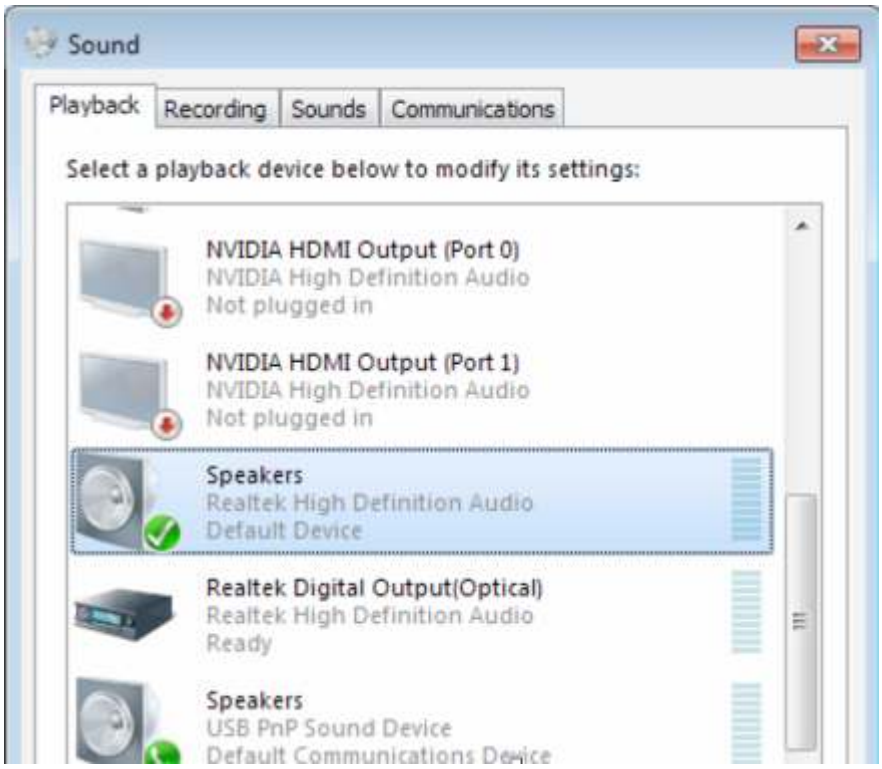
Monitoring Audio in Livestream Studio

In order to mix your audio effectively, you need to be able to hear it. Start by plugging headphones or speakers into the headphone jack on your system.

You may not hear any audio right away, even if you see audio levels. If this is the case, there are settings on your system to check.

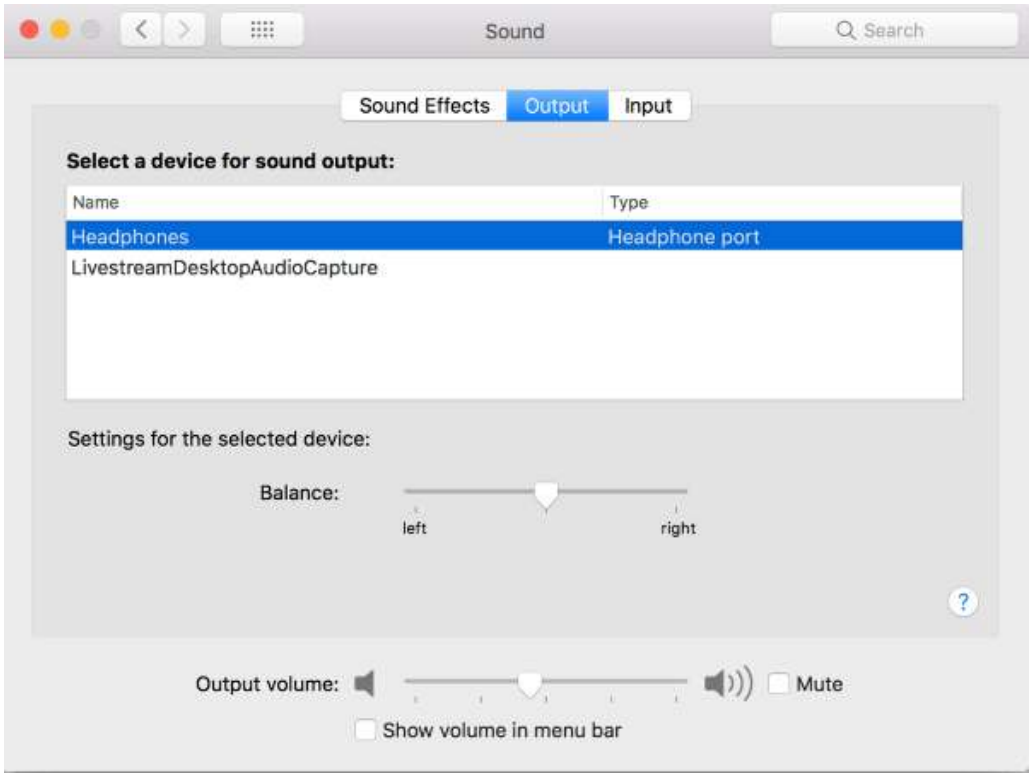
Windows

Go to your Windows Control Panel and navigate to your Sound settings. Under the Playback tab settings, look for Speakers - RealTek High Definition Audio. Select that source, click Set as Default, then click OK. You may need to disable some other audio devices first for this to take effect.



Mac

Go to System Preferences > Sound. In the Output screen, make sure Headphones is highlighted.



After confirming the above system settings, navigate to Livestream Studio. Check the headphone volume meter in the upper right corner and adjust the level to the desired volume. You can also adjust your Windows volume as you would when using any other program.

This does not affect audio levels of the inputs, Preview, or Program.

You will know which sources you are hearing in your headphones by checking the Audio Mixer. The bottom of each source has a headphone button.

Any headphone button with a white border is currently being heard in your headphones. You can monitor as many sources at any given time as you need. Click on the headphone button to stop monitoring the corresponding source; you will notice the white border will disappear from the button. This also applies when monitoring Program audio, which is typically represented by Stream Out / Record Out.

> This only impacts your local headphone output and does not stop the audio from outputting to your stream and/or recording.

While monitoring your audio, keep an eye on your levels both in the audio mixer and in the multi-view. Each sources audio is seen on the left side of each monitor. You can also further adjust any input's audio by implementing audio filters.

Clicking the lock icon below the levels indicator will enable Peak Hold for that source, which will provide a permanent visual as to where your audio is peaking so you may adjust accordingly. Keeping this icon unlocked (default) will still show the indicator but it will follow your levels as they go down.

Controlling the Audio Mixer

For each audio source in the Audio Mixer, you can see that source's levels, as well as a corresponding fader, speaker button, and **Audio** button.

> While this mixer controls the basic levels and mix of all your audio sources, you can refine each individual input's audio using audio filters.

When switching sources, you may notice the different **Audio** buttons turning yellow as you make the transitions. This indicates that the audio source is heard in Program because its corresponding video input is in Program. It is not heard when the video input is not in Program.

You may also notice the sources in the switcher highlighted red or green. This is simply indicating what is also shown in the multiview; the source highlighted in red is in Program, the source highlighted in green is in Preview.

If there is a particular audio source you want outputting to Program at all times, click the Audio button; it will turn red.

This locks that input source's audio into Program. Even if you continue switching video sources, you will still hear that audio source in addition to any other active audio source.

Click the Audio button again to disable the locking. What you hear will revert to the default setting of following the video source into and out of Program.

If there is a particular source's audio that you do not want to hear at any point, click on the corresponding speaker button. The button should go from white to black, and the levels will fade from green/yellow to gray. This indicates that the source is muted. You can turn off muting for any source by clicking its speaker button again.

Muted sources can still be monitored through headphones as long as the headphone button is activated.

You can also link audio sources to each other. For example, if you have all audio coming in from CAM1, you may want to link other cameras to that source for seamless transitions.

Click on the name of the source at the top of the audio module. You will notice you have the option to link to any other input source.

Linking an input will cause the linked source to override the audio that had been coming in originally. The mixer will indicate which source's audio is being heard.

In this example, CAM1 has been linked to CAM2, so viewers will hear CAM1's audio when either CAM1 or CAM2 are in Program. Notice in the image below how the levels are identical and both Audio buttons are yellow (the red bar above the CAM2 label indicates that CAM2 is in Program).

You can link multiple inputs to one audio source for smooth transitions.

By default, Record Out and Stream Out together for consistent Program audio across all output sources. Those two outputs may be unlinked if desired, but they cannot be linked to any other source.

To adjust the levels of any audio source, click and drag the corresponding fader for that source. A good rule of thumb is to ensure your audio peaks at around -4dB.

If audio levels are too high (i.e. they reach or exceed 0dB, the mixer's OVR meter for any over-modulating source will blink red. Activating an input source's audio filters can help prevent this.

You can also adjust the gain of each source by clicking and dragging the small gain meter above that source's level meter.

INPUTS
AUDIO
COLOR 1
CAM 1
CAM 2
Gain: 3.8 dB
0 dB
OVR
-29.8
OVR
0
-10
-24
-36
-48
-60
-72
AUDIO
AUDIO
AUDIO

Multi-Language Audio

Livestream Studio can accept multiple audio tracks with different languages via SDI and/or a multi-channel audio interface and send them out to either a single player (via UDP or Zixi only), or simulcast multiple streams, each with a different language selected.

Requirements

To bring multiple languages into Studio, they must come in through a single input with multiple channels of audio (e.g. English in channels 1 and 2, Spanish in channels 3 and 4, and so on. You could also configure one language per channel with each one outputting to L and R). This can typically be achieved using an external audio mixer going into a camera, which then outputs SDI into your Studio system. We've also tested the Behringer UMC404HD interface successfully.

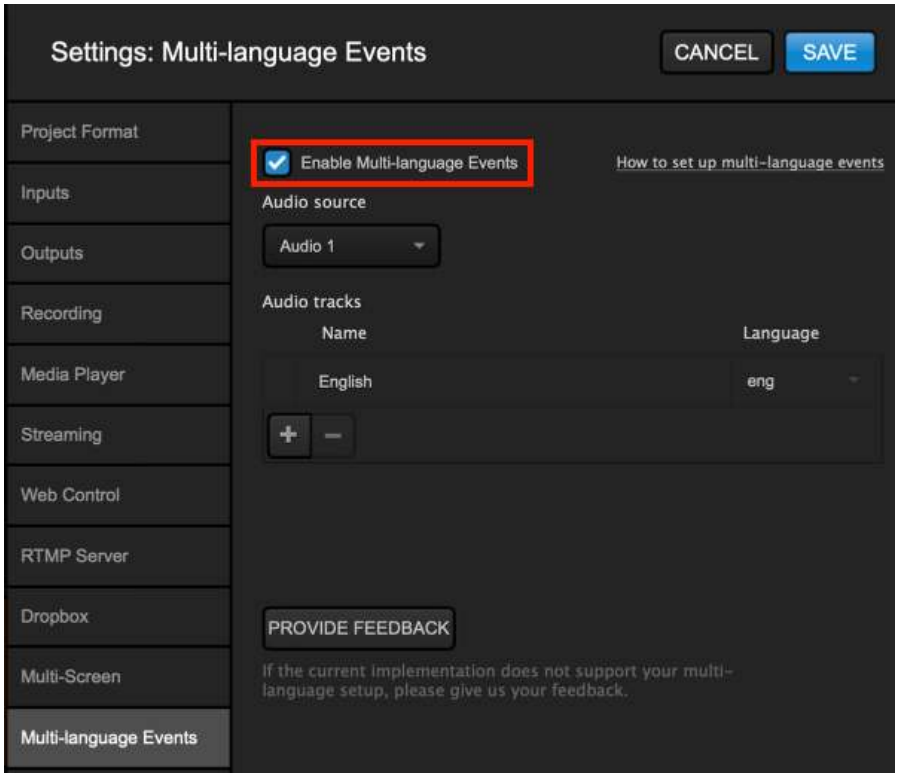
If you wish to have a single stream where viewers can choose which language they hear in the destination player, your streaming provider will need to include a server that can accept MPEG-TS output. Currently, neither Vimeo nor Livestream support this workflow, but you can learn more about how to set it up with Wowza here.

The alternative is to simulcast from Studio to multiple destinations (e.g. three separate Vimeo events). You can choose which language each event should output in the Stream tab; this is described in further detail below.

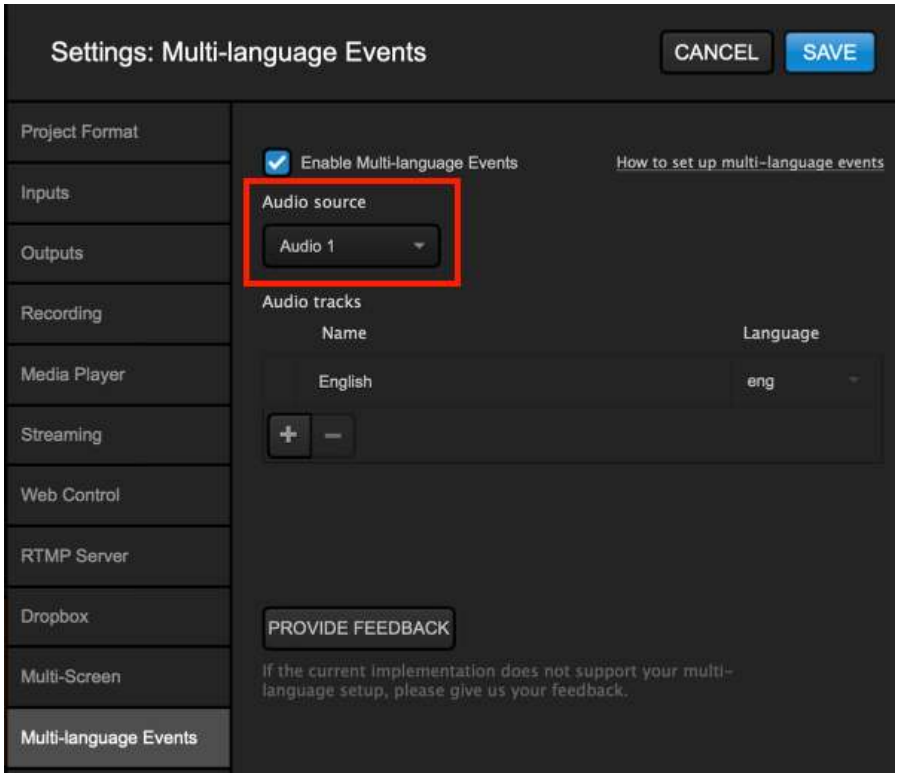
If neither setup works for you, we'd love to hear your feedback.

Language configuration

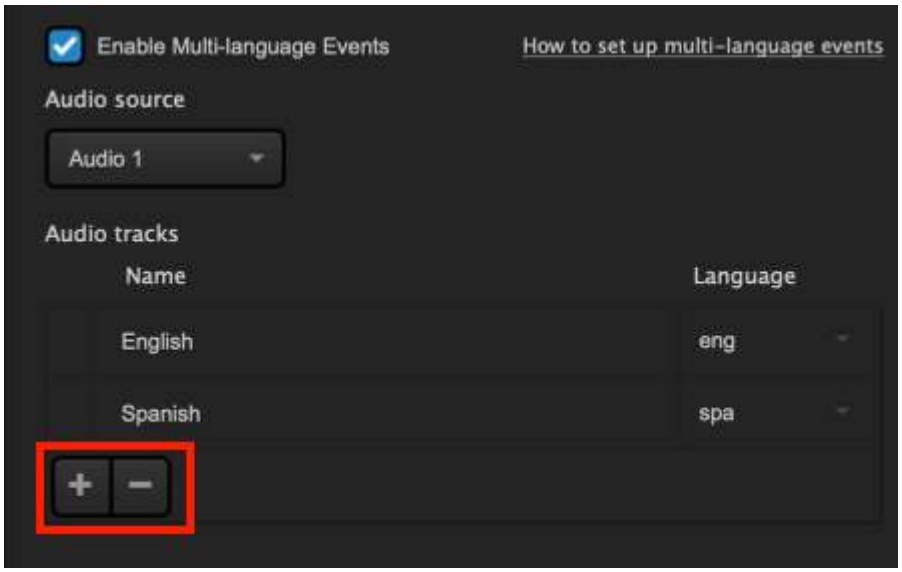
To setup multiple languages in Studio, navigate to Settings: Multi-language Events and check Enable Multi-language Events.



Select the input that the multiple audio channels with the different languages are coming in.



You can add up to 16 languages. Use the + / - buttons to add and remove language tracks, then use the drop-down menu on the right side to select the desired language. The abbreviations here are based on international language standards; a reference of language codes is available here.



Be sure to add languages in the same order in which they are coming into Studio. For example, if English is coming in via channel 1, add English first. This is so Studio can map them to the correct channel properly (although you can adjust it manually if needed). Save your settings when you're done.

Navigate to the Inputs tab and select the gearwheel of the input with the languages coming in. Select the Audio tab. In addition to Filters, you should see a separate tab for each language you added. This is where you can check and adjust the channels that each language is using in Studio.

> If you adjust filters, they will be applied to all available languages. There is currently no way to adjust filters for each language individually.

To monitor the languages coming in, navigate to the Audio tab. A drop-down menu with the various languages will appear under the input you selected in the Settings: Multi-language Events menu. You can use this menu to select which language you monitor locally. This does not impact your stream, but rather gives you a chance to confirm that the correct language is coming through the correct channels.

If you want to listen to audio channels while manually mapping them to languages, try having the audio mixer and the input audio settings open in opposite columns so you can navigate between them seamlessly.

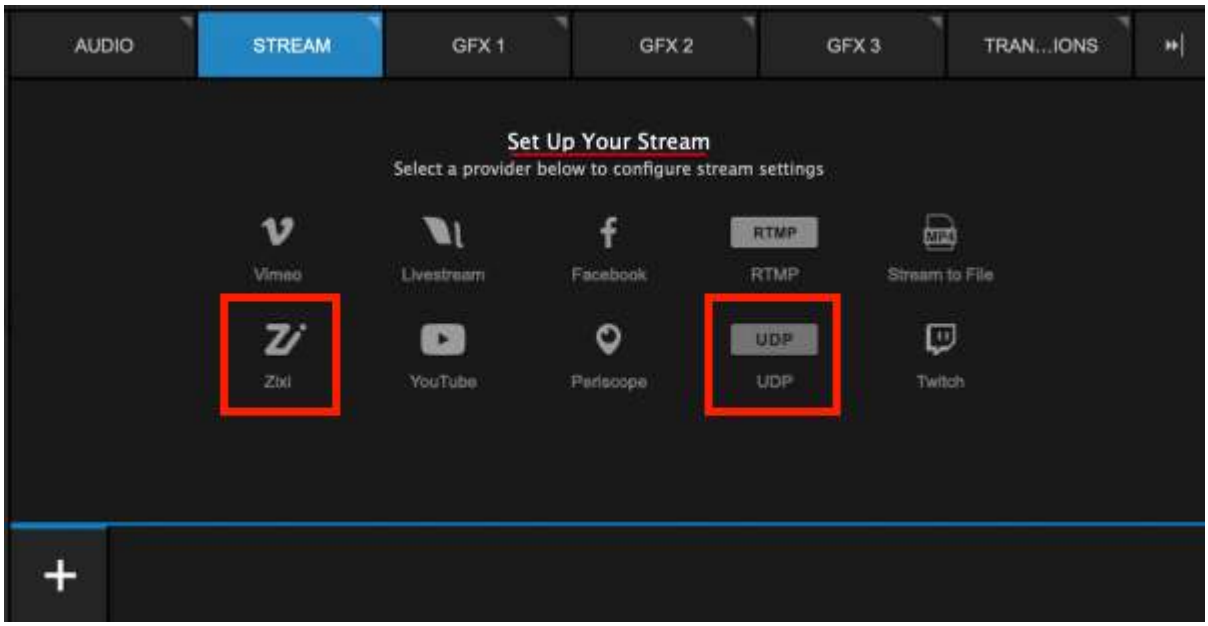
Streaming via UDP or Zixi to a single player

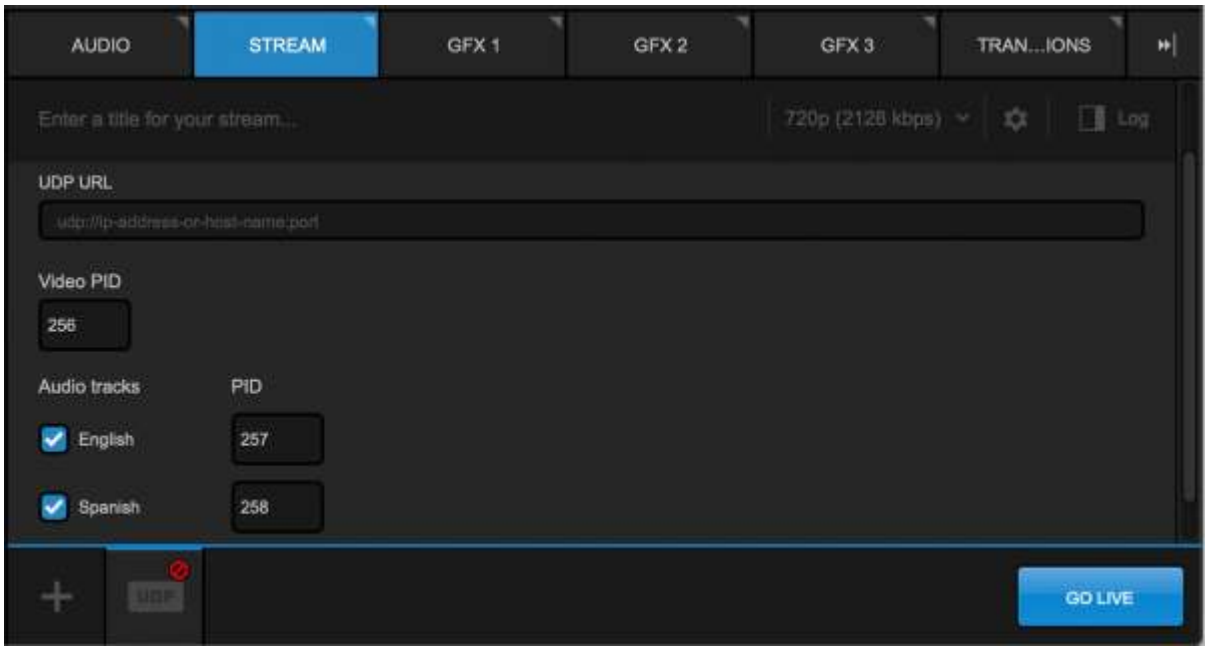
Navigate to the Stream tab and select either UDP or Zixi as your streaming destination. Enter your destination URL into the URL field.

Below this, you can find the Video PID (packet identifier) and each language's audio PID. Studio generates these automatically but you can edit them to be any value between 32-8190. You will need these when creating .stream and SMIL files for Wowza.

Each language will be checked by default, but if for any reason you don't want a language included in a stream, uncheck it and it won't output to Program.

Select Go Live when you're ready to start your stream.



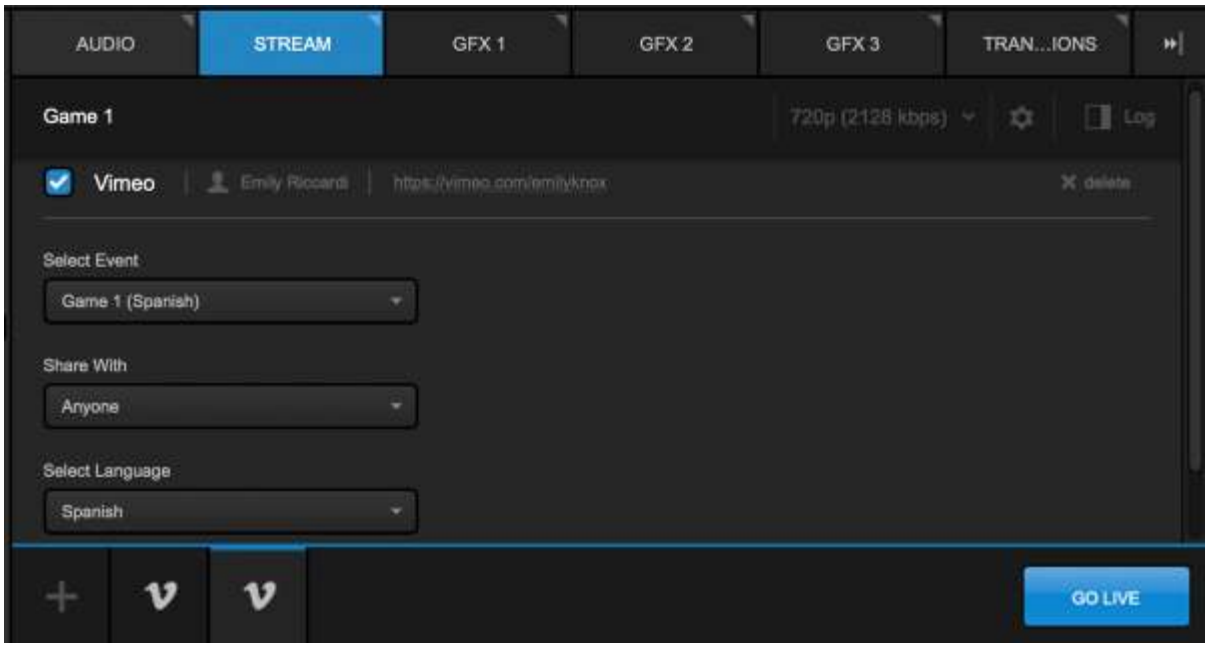


Streaming to multiple destinations with different audio tracks

For all other providers available in Studio, you can achieve a multi-language event by adding multiple streaming destinations. For example, Vimeo Premium allows for up to three simultaneous live events, which would let you broadcast three streams with identical video but different audio at the same time all within one provider.

When you have multi-language events enabled and your languages configured (as described above), you will see a Select Language drop-down menu, allowing you to choose which language will output to that destination. Select a different language for each stream.

> Consider including the language in the name of each event (i.e. Vimeo events, Livestream events, Facebook schedule posts) so that your viewers know which one to watch and also so you can easily choose which language to configure for each stream.

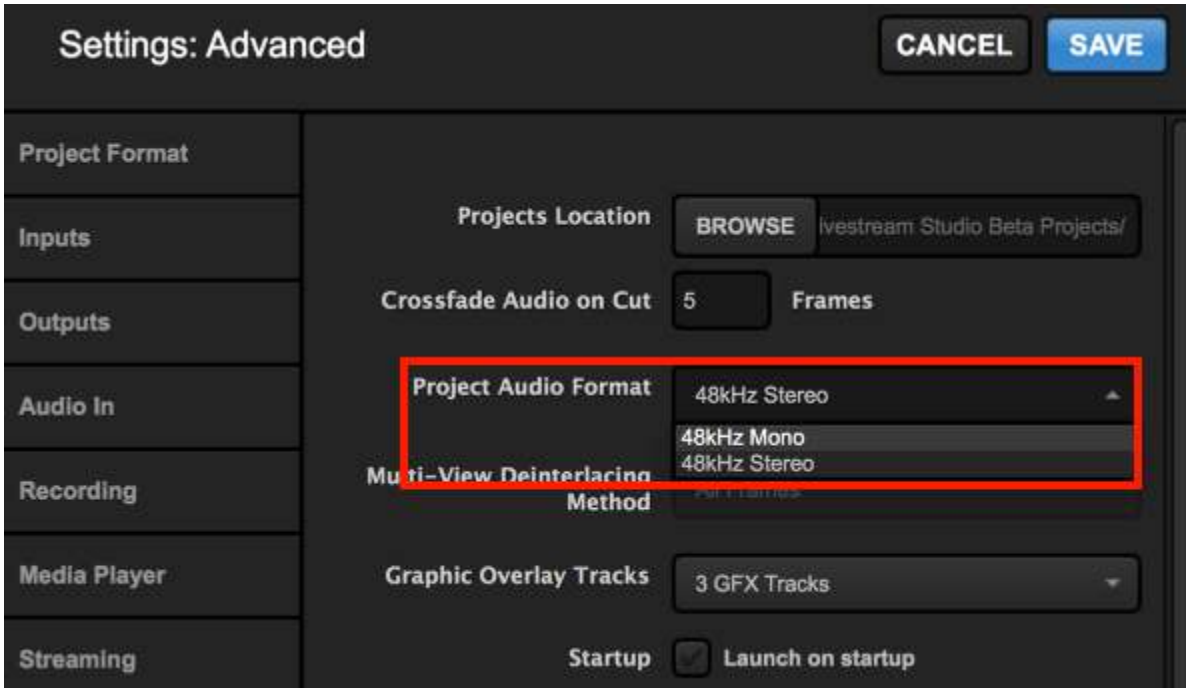


Make sure each destination is activated (i.e. is checked at the top of the panel or when you hover over its bottom tab). Select Go Live when you're ready to start streaming; each destination will go live simultaneously.

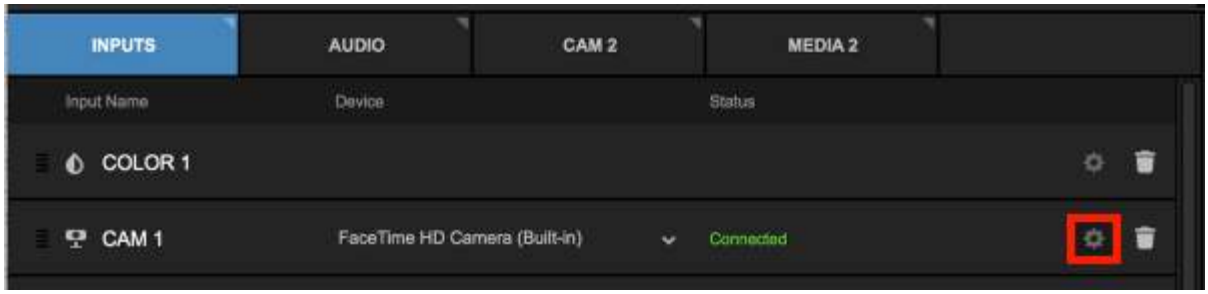
Fold Audio Channels Into Mono

In Livestream Studio, your audio setup can be set to either mono or stereo.

To fold all of your audio channels into mono. Go to Settings: Advanced. In the Project Audio Format drop-down menu, select 48kHz Mono.



Now all of your audio inputs will be in mono. You can see this by going to the Inputs tab, then select the gearwheel that corresponds to the desired input, then select Audio.

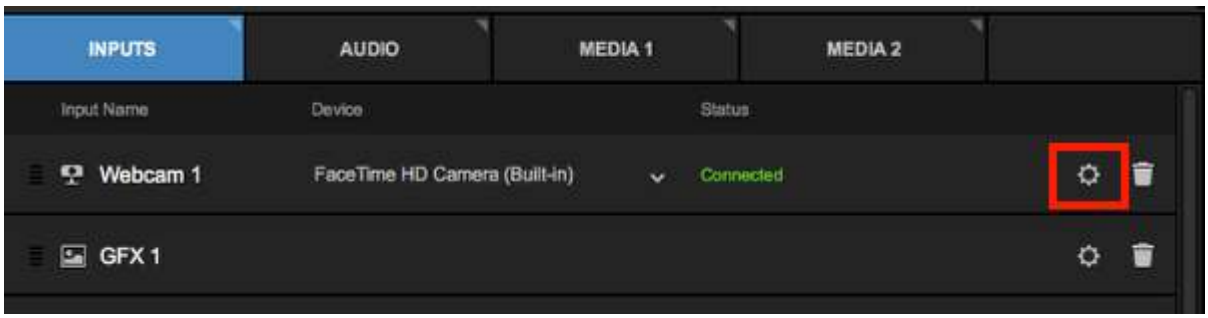


INPUTS
AUDIO
CAM 2
MEDIA 2
CAM 1
FaceTime HD Camera (Built-in)
General
Audio
Convert
Crop
PTZ
Delay
Color
General
Filters
INPUT 1
INPUT 2

Audio Filters

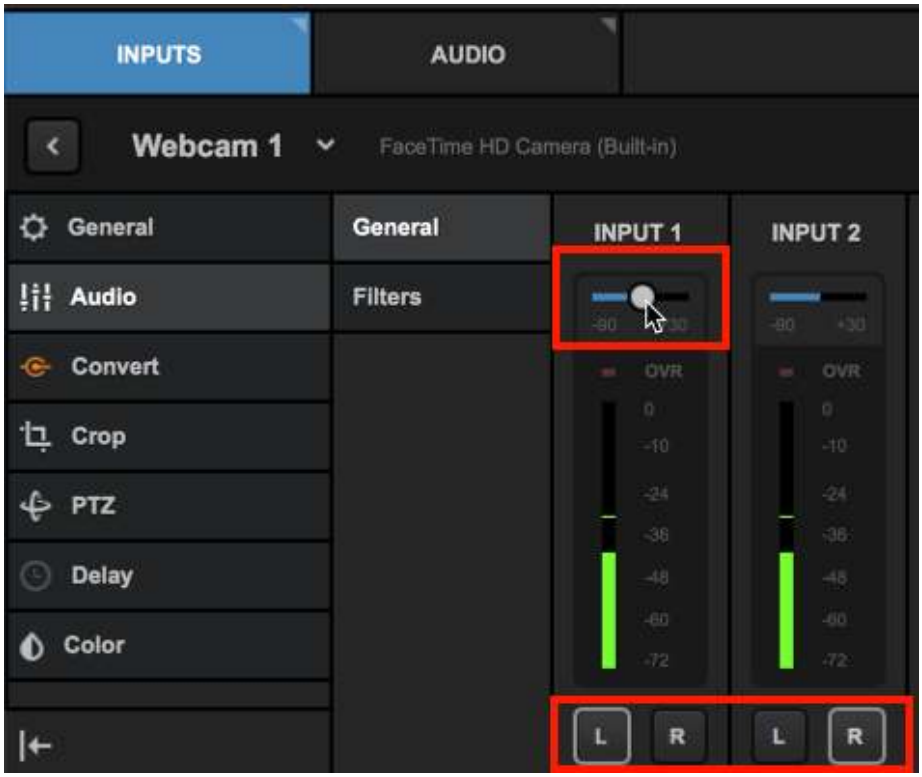
As of version 6, Studio's input settings now includes audio filters, allowing you to adjust and define the sound coming from each camera or audio source. Filters included are a Limiter, Compressor, Equalizer, and Noise Gate.

To adjust an input's audio, navigate to the Inputs tab in the lower left corner. Select the gearwheel that corresponds to the source you wish to adjust.

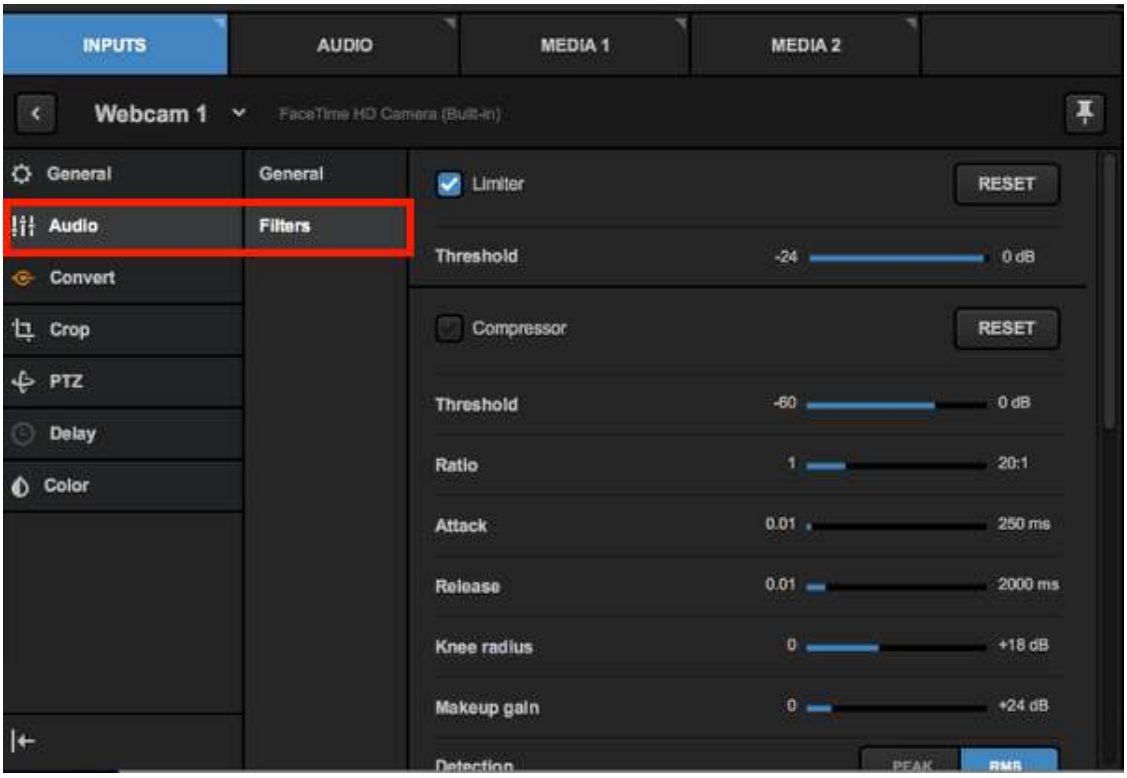


Select the Audio tab on the left side. Be sure to check the General tab to adjust your overall input audio levels first; a good rule of thumb is to set this so your audio peaks at around -4 decibels (dB), which you can do either by adjusting the gain above the audio input.

You should also check the channels to which your audio source is outputting. For example, if you only have audio coming in through Input 1 (channel 1), be sure both the L and R buttons are selected so your viewers on headphones hear audio in both ears rather than one. This common with Studio One units.



To adjust your audio further, select the Filters tab.



One thing to note is that the default settings for each (i.e. if you enable all filters but don't adjust the settings any further) are best suited for speech audio, such as interviews, panel discussions, public meetings, etc. If you're in a noisier or more dynamic audio environment (e.g. concerts, recitals), you may want to adjust these further to get the desired sound. While we can provide guidelines for what each setting adjusts, best practice is always to test, listen, and adjust accordingly.

There are four areas in which you can adjust your input's audio. Generally, it's best to start from the bottom, which deals with lower audio levels, and work your way up.

Noise Gate

The Noise Gate at the bottom of the menu deals with the quieter end of your audio. It's disabled by default so be sure to select the checkmark if you want to activate it.

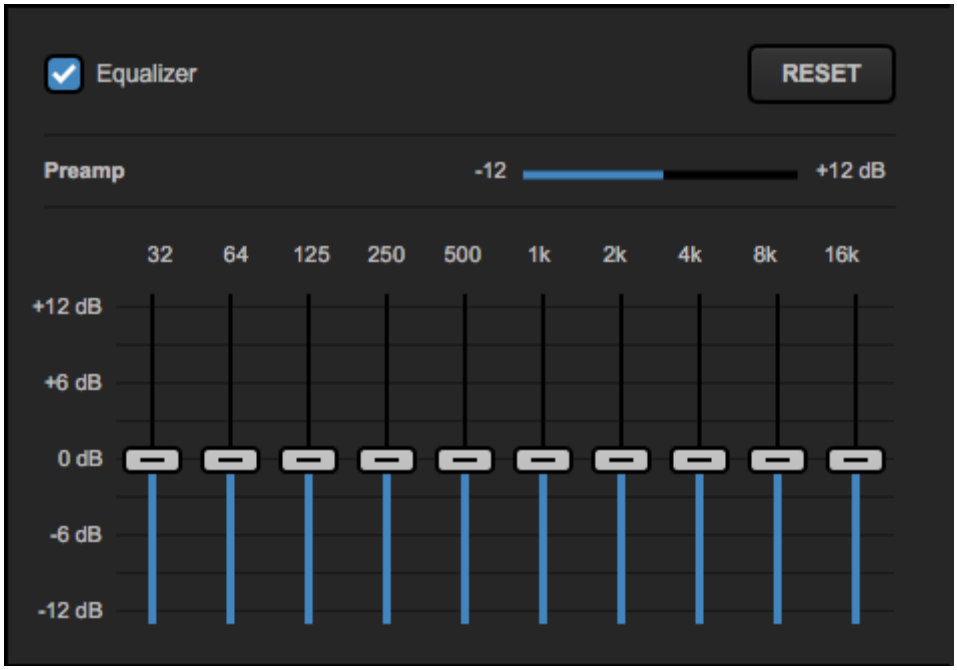
This is useful if you're in an environment that may have a lot of undesired background noise, such as an HVAC system. The default threshold is set to -40dB. When you go above this threshold, all sound will come through. However, when your main incoming audio drops below this, your background noise will be filtered out.

For example, if a band is playing a song, presumably their audio would be well above -40dB, and so the Noise Gate would allow all sound to come through. When the band finishes their song, audio may drop below this threshold, and thus any faint background noise would also cut out.

Equalizer

Above the Noise Gate is the Equalizer, which balances out different pitches and determines what pitches (or frequencies) should be louder than others. If you want to apply the Equalizer to your audio input, be sure to select the corresponding checkmark.

Before adjusting the Preamp setting, take a look at the frequencies below it. Each slider represents a different sound frequency, with the lowest pitches being on the left and the highest on the right. By default, these are all balanced at 0 dB. If, for example, you notice that a deeper voice is coming in louder than a higher pitched voice when they should be equal, this is where you can fix that.



If, after adjusting your frequencies, you notice that your overall sound is particularly loud or soft, this is where the Preamp comes into play. It defaults to 0 dB, but you can increase or decrease the average audio level the source outputs using this setting, allowing you to keep your frequencies balanced as desired, but ensuring this source still gets heard at the appropriate volume.

Here are a few guidelines for what each frequency represents:

- 32 - sub-bass (a subwoofer's low vibration during a deep space scene)
- 64 - bass (kick drum)
- 125 - bass (bass guitar)
- 250 - upper bass (lower vocals, lower notes of a piano)
- 500 - lower midrange (cello)
- 1k - midrange (adjusting this setting will likely have the most obvious impact on your sound)
- 2k - upper midrange (pop of a snare drum, trumpet; also very obvious to human ears)
- 4k - presence/sibilance (the traditional "treble" setting in home stereos)
- 8k - brilliance (cymbals, bells)
- 16k - open air (nearly the limit to which the human ear can hear)

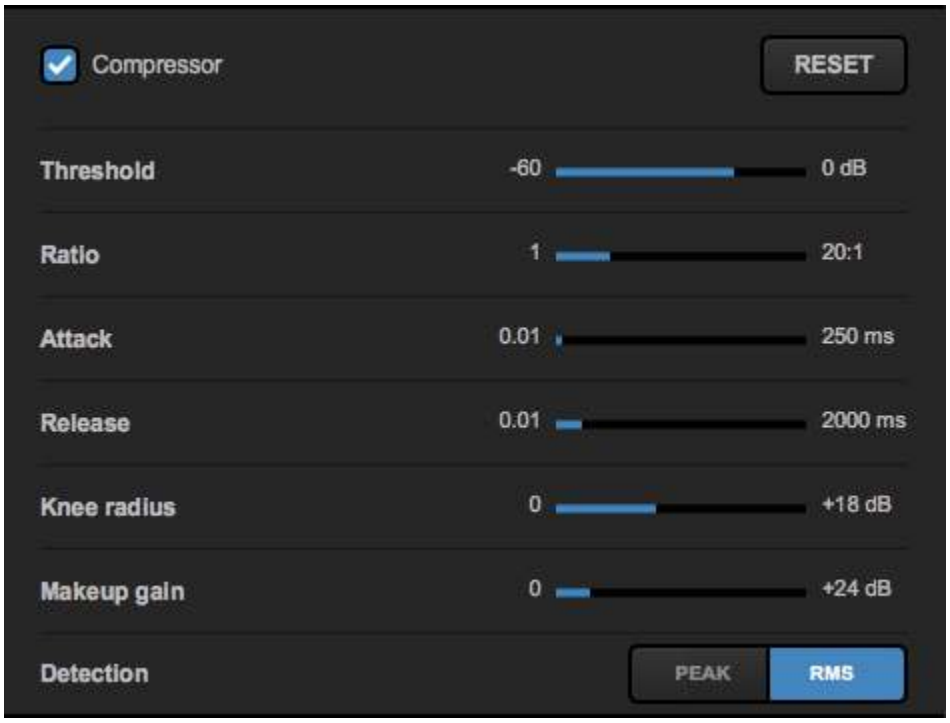
Compressor

The next setting up is the Compressor, which is not activated by default. If you wish to compress your louder audio, be sure to select the checkmark to enable it.

In short, the Compressor takes louder audio levels and reduces them to more normalized levels. This is primarily determined by the Threshold setting, which should be set to a lower decibel level than the threshold from the Limiter (discussed below). The Compressor's threshold establishes a dynamic range of audio, keeping most of your audio within a certain level.

Any audio that comes in below this threshold will not be impacted by the Compressor (in other words, however it comes through the input is exactly how it will output). Sounds above this decibel level will be "compressed," or reduced to output at a lower level compared to how it comes in.

The rest of the settings in this filter determine how the Compressor behaves.



Ratio: There is some math involved in this setting, but generally speaking this determines how dramatically audio above the threshold will be compressed, with the default setting set to a 5:1 ratio. For example, if an audio signal comes in 5dB above the threshold, then the Compressor will output that audio at 1dB above the configured threshold. If you imagine a straight, diagonal line graph, the threshold tells Studio at what point the line should bend, and the ratio will determine how far it bends down.

Attack: How long (in milliseconds) the audio signal should be above the threshold before Studio applies the compression. If you set a longer attack time, then shorter spikes in audio will not be compressed. This is set to 4 ms by default.

Release: Essentially the opposite of attack; this setting determines how long Studio should wait before uncompressing audio when it returns below the threshold. This is also set to 200ms by default, but note that the maximum release time available is higher than the attack setting.

Knee radius: This measures how gradual the transition from uncompressed to compressed audio will be once your audio level goes past the threshold. A lower setting will make the transition more abrupt, whereas a higher setting will create a more smooth, gradual transition.

Makeup gain: This is also sometimes referred to as "output gain." Oftentimes when compressing audio, it could end up compressing sound so much that it actually goes below the threshold and cause louder sounds to be quieter than their quieter counterparts. The makeup gain will bring that louder audio back up to where it should be in terms of volume.

Detection: This determines how the Compressor detects audio peaks. Peak will recognize absolute peaks and be more responsive to short spikes in audio that go above the threshold. RMS (Root Mean Square) determines the average peak audio rather than brief spikes and thus is less responsive to short peaks.

Limiter

Finally at the top is the Limiter, which is enabled by default and is almost the opposite of the Noise Gate. The lone setting in this filter is the Threshold, which is typically set to a very high dB level, with the default setting being -1 dB.

This helps prevent your audio from overmodulating should an extremely loud sound come through. Any audio that surpasses the threshold configured here will be filtered out, including any audio that is decreased through the Compressor but still reaches above this limit. If you are in a very quiet environment, you may consider lowering this beyond the default setting.

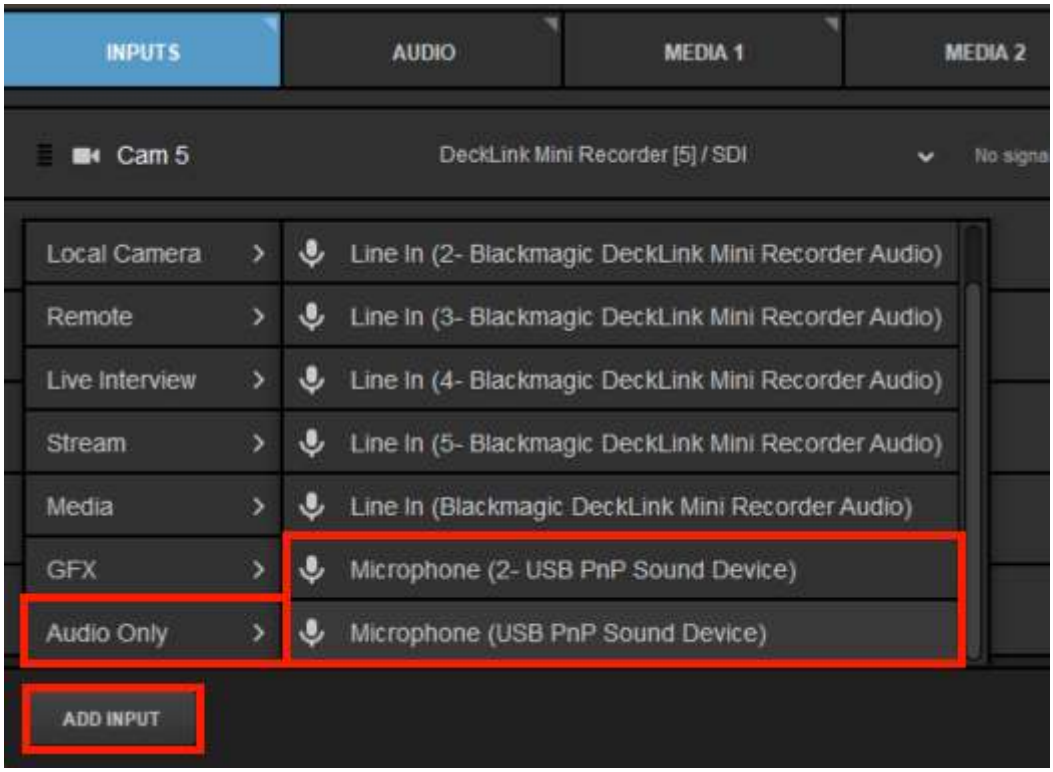
If you adjust your audio so much that to the point where you want to start from scratch, each filter has a Reset button that places everything within that filter back to default settings.

Using HD550 Direct Audio Inputs

HD550 users have the ability to plug in an XLR or ¼" audio input directly into their unit without the need for a USB adapter.

⚠ Please note that these inputs support mic level audio signals only. If your audio equipment is line level, see here for a workaround.

When you plug in your audio source, be sure to add it as an audio input by navigating to the **Inputs** tab. Select **Add Input** > **Audio Only**. These inputs are the **USB PnP Sound Devices**.



You may notice a very low level of sound coming in. This low level of audio may appear regardless if your source is connected or not.

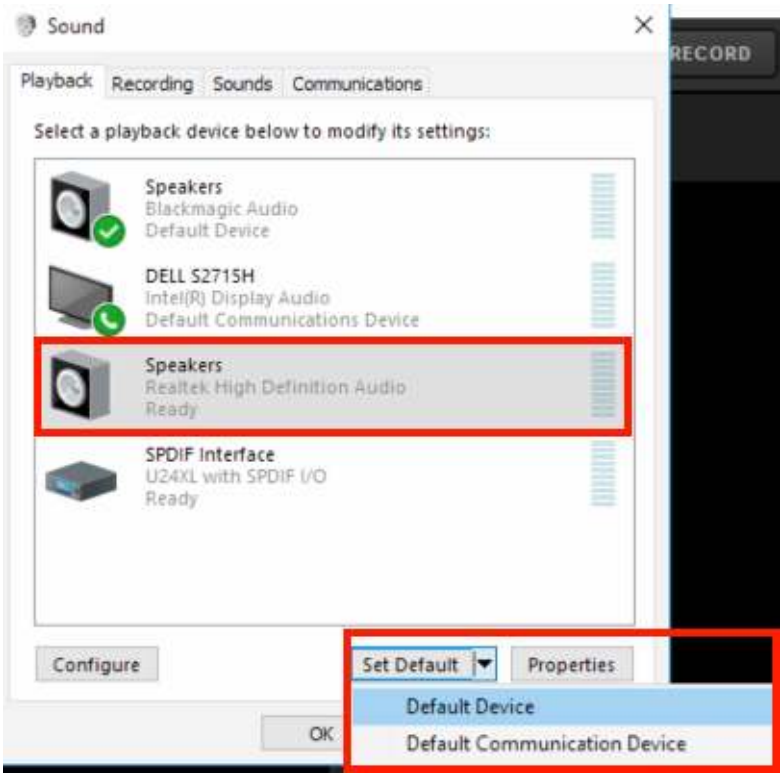
This white noise should not exceed -48dB on either input. It is characteristic of all USB-based PC audio devices and is virtually inaudible.

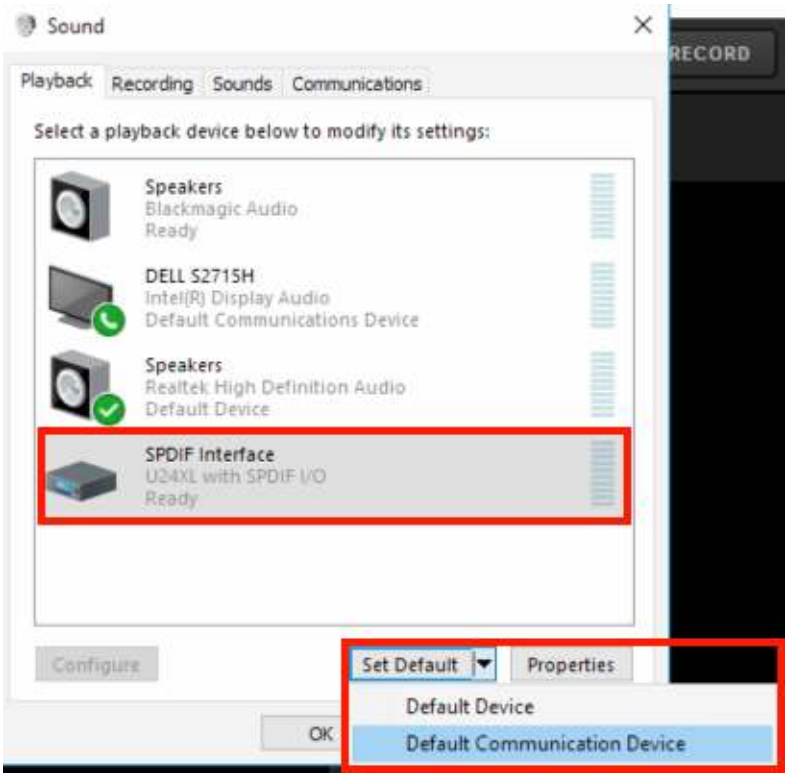
Using the Studio One Audio Inputs and Outputs

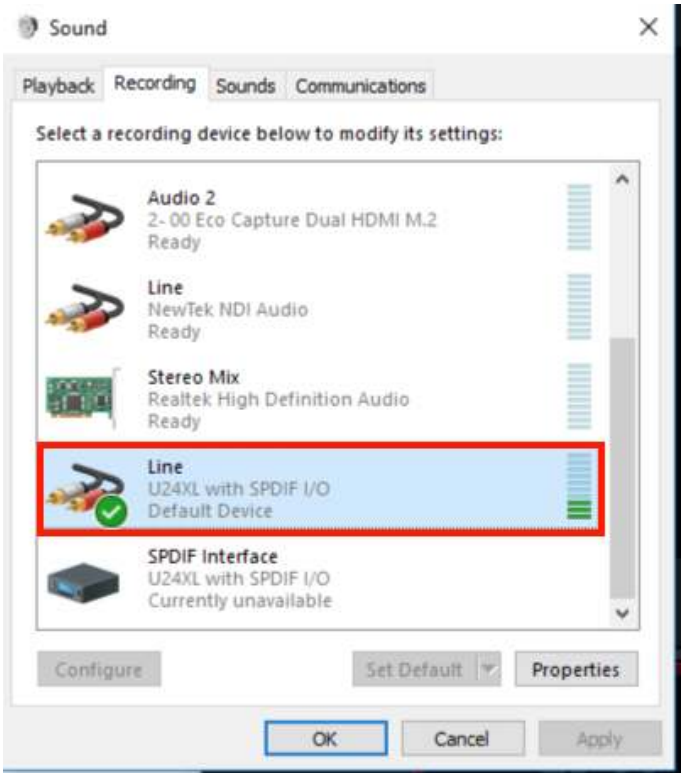
All editions of the Studio One hardware includes two 1/4" audio inputs and two 1/4" audio outputs. These can all be found labeled on the back of the unit.

To ensure your Studio One audio setup is configured correctly, go to Control Panel and open the Sound settings. You will want to ensure the following:

- Under the Playback tab, set Speakers: Realtek High Definition Audio as the Default Device. This will allow for the headphone jack in the front of the unit to work so that you can monitor audio from Studio.
- Also under the Playback tab, set U24XL with SPDIF I/O as the Default Communication Device to allow the ¼" output jacks of the Studio One unit to playback the Program Output of the Studio program at all times.
- Under the Recording tab, set Line: U24XL with SPDIF I/O as the default device to bring your ¼" audio inputs into Studio.


Sound
Playback
Recording
Sounds
Communications
Select a playback device below to modify its settings:
Speakers
Blackmagic Audio
Default Device
DELL S2715H
Intel(R) Display Audio
Default Communications Device
Speakers
Realtek High Definition Audio
Ready
SPDIF Interface
U24XL with SPDIF I/O
Ready
Configure
Set Default
Properties
Default Device
Default Communication Device
OK
RECORD


Sound
Playback
Recording
Sounds
Communications
Select a playback device below to modify its settings:
Speakers
Blackmagic Audio
Ready
DELL S2715H
Intel(R) Display Audio
Default Communications Device
Speakers
Realtek High Definition Audio
Default Device
SPDIF Interface
U24XL with SPDIF I/O
Ready
Configure
Set Default
Properties
Default Device
Default Communication Device
OK
RECORD



The 1/4" Out plugs will output Program audio (i.e. audio coming through Stream Out/Record Out in Studio's audio mixer). Keep in mind these outputs are stereo by design, so you will hear Channel 1 through the L output and Channel 2 through the R output.

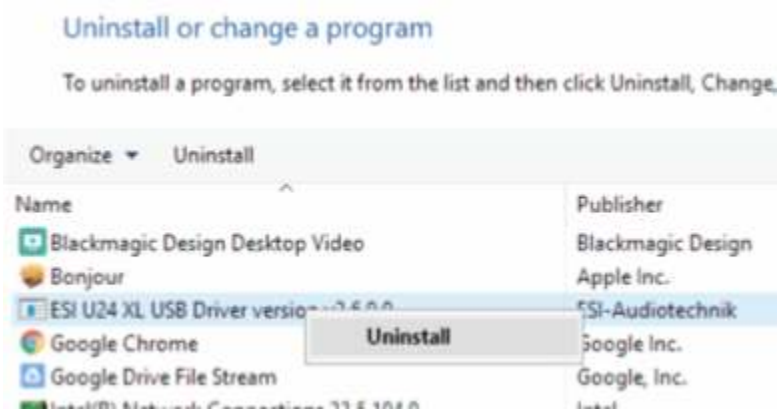
Plug in your audio source to the inputs (bottom ports). After you launch Studio, go to the Inputs tab in the lower right corner. Select Add Input > Audio Only. Select the 1/4" Input(s).

Troubleshooting: Not Seeing 1/4" Input in Studio Settings?

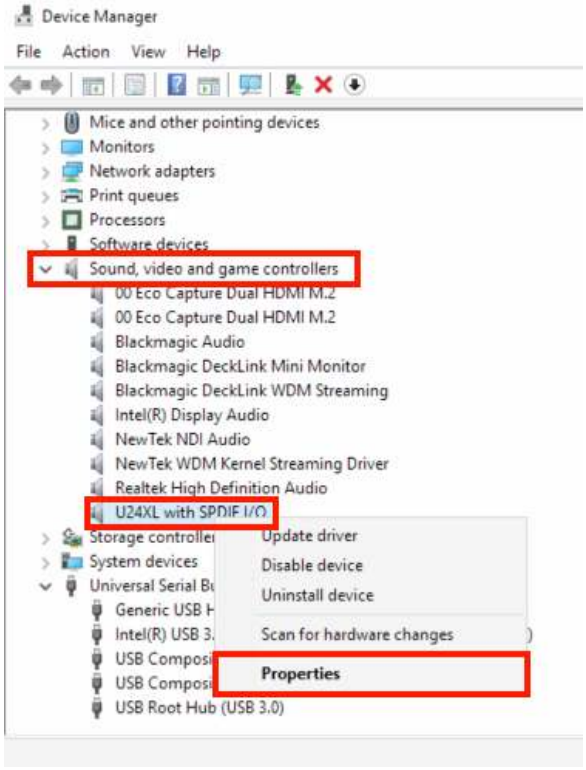
First, make sure you are running Studio version 5.2 or later, as this version resolves an issue with detecting the drivers for the card.

If Studio still does not detect your audio inputs after updating, you may need to rollback the audio device's drivers to the Windows default driver.

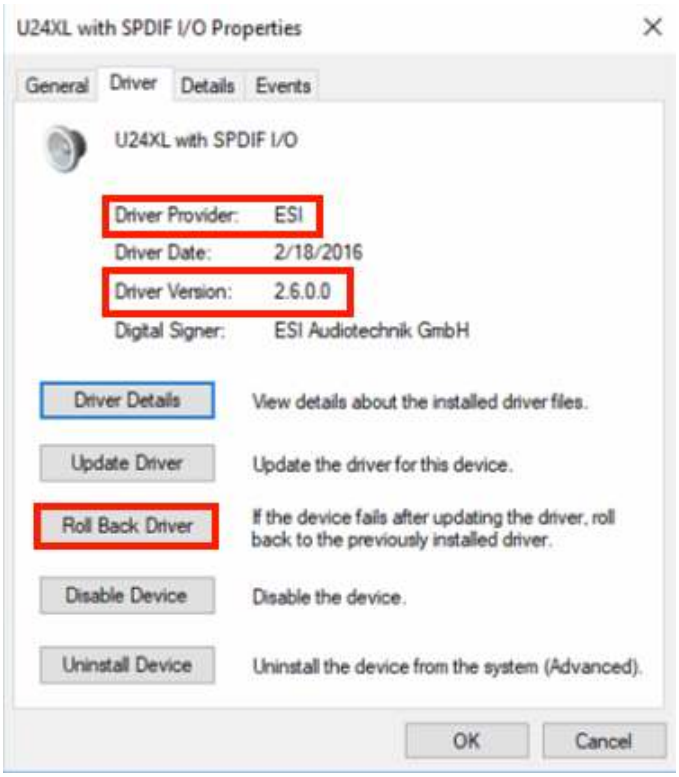
To do this, navigate to Control Panel > Uninstall a program, and uninstall ESI U 24 XL USB Driver version v2.6.0.0. You will need to restart your system after doing this.



Open Control Panel > Device Manager, open the Sound, video and game controllers option and find U24XL with SPDIF I/O. Right-click it and select Properties.



Select the **Drivers** tab. If the Driver Provider says "ESI" and the Driver Version says "2.6.0," then select **Roll Back Driver**. This will remove the ESI driver in favor of the Microsoft driver version 10.0.17134.1.



Restart your system again. When you launch Studio, create a new project to start with a fresh audio configuration.

If the issue persists, you can try going back to the Driver window (shown above) and this time select Disable Device and restart your system. When Windows relaunches, go back to Device Manager, find U24XL with SPDIF I/O, right click it and re-enable the device. You will need to restart again and we recommend creating a new Studio project.

If disabling the device does not resolve the issue still, you may again go back to the Driver window and select Uninstall Device. When you restart your machine, the device will reinstall. Relaunch Studio and create a new project.

If the issue still persists, please contact us.

The source will automatically be labeled Audio 1 and appear in both the Inputs list and the Audio Mixer.

You can adjust the channel input into Studio by navigating to the Inputs tab, selecting the gearwheel that corresponds to Audio 1, and then selecting Audio on the left side.

You will see both audio channels; Input 1 is the Left (L) input, Input 2 is the Right (R) input. Each input can be configured to send audio out to either one channel or both channels.

For example, if your audio source is only plugged into the R input on the Studio One unit, you may want to configure Input 2 to send audio to both the L and R channels so that your viewers will hear audio from both sides rather than only one channel.

Both channels will be reflected inside Studio's Audio Mixer.

If you are using both 1/4" inputs, you can keep each input separate by selecting L under Input 1 and R under Input 2, creating a stereo audio output to your stream.

Using Line In Audio Sources with the HD550

If you own an HD550 and wish to use a line in audio input rather than a mic in audio input, you will need to add an additional accessory to your setup.

The HD550 XLR inputs support **mic level** inputs only, which ranges from -60dBV to -40dBV. **Line level** audio on consumer products starts much higher at -10dBV.

If you add a **Whirlwind IMPAD In-Line XLR Barrel Transformer** to your workflow, this will allow you to bring in a line level source into the XLR inputs on the HD550. These accessories reduce the decibel (dB) level coming from your audio source so that Studio can support it.

These barrel transformers vary based on the amount of dB they remove from the source. For example, the Whirlwind IMPAD40 removes 40dB from your source's audio. Also available are:

- Whirlwind IMPAD30 - removes 30dB
- Whirlwind IMPAD20 - removes 20dB
- Whirlwind IMPAD10- removes 10dB

Simply connect your audio source to the female end of the transformer, then connect the male end of the transformer to your HD550. Then configure your audio as you normally would.

⚠ We cannot guarantee that other similar products will work with the HD550 as we have not tested them. If you have success bringing in a line-in source using a different workflow, please let us know!

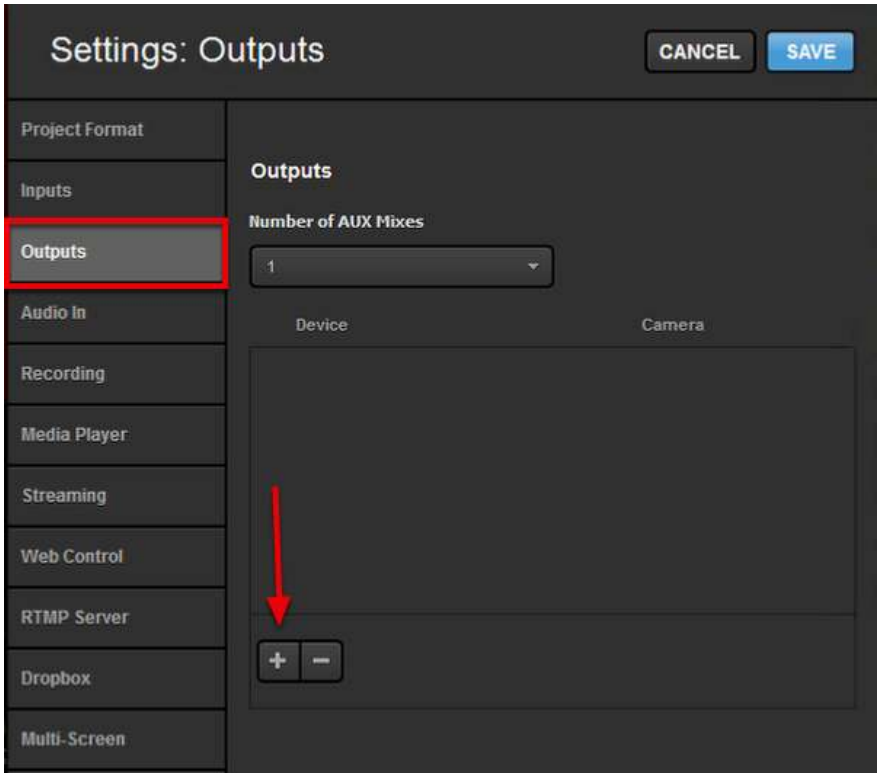
Outputting & Recording

Setting Up a Video Output

Livestream Studio allows you to send up to 25 video signal separate to different sources such as monitors, projectors, etc. This requires multiple Blackmagic Design video cards that can output a video signal.

Trying to set up an NDI output? Learn more.

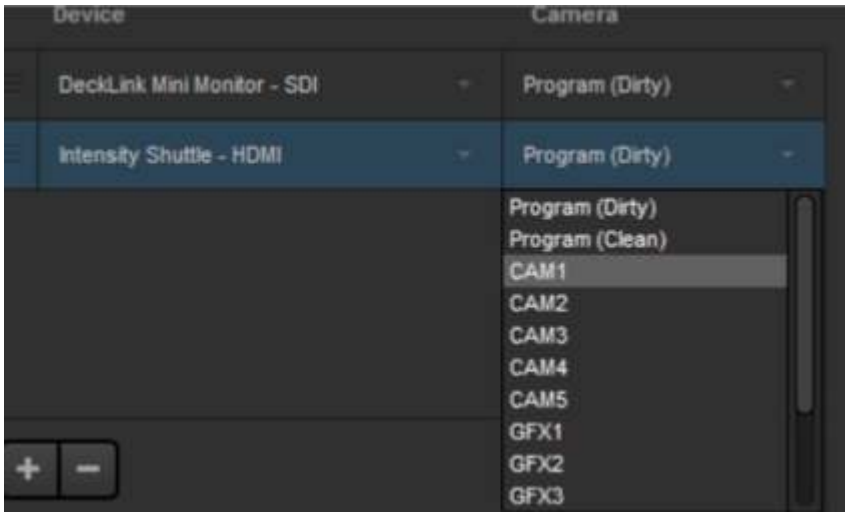
Navigate to the **Outputs** tab in Settings and click the **+** button to add an output source.



Select which device will be used for the output (Studio hardware products such as the HD550 have the DeckLink Mini Monitor pre-installed).

⚠ If you are using a Livestream HD hardware product (HD31, HD51, HD550), make sure your Project Format is *not* in Streaming Optimized mode. The DeckLink Mini Monitor cannot output when using those project formats.

Next, select which source will be output through each device. You can output your Program feed or any other input source (e.g., CAM1).

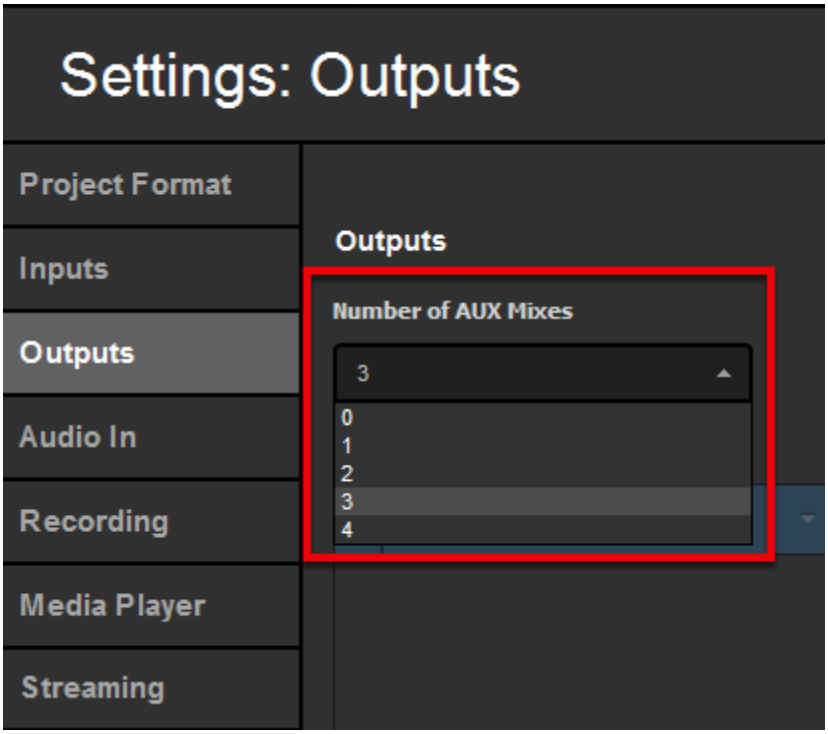


When you have finished setting your output(s), click Save. You will now see the selected source(s) being sent to your monitor, projection system, etc.

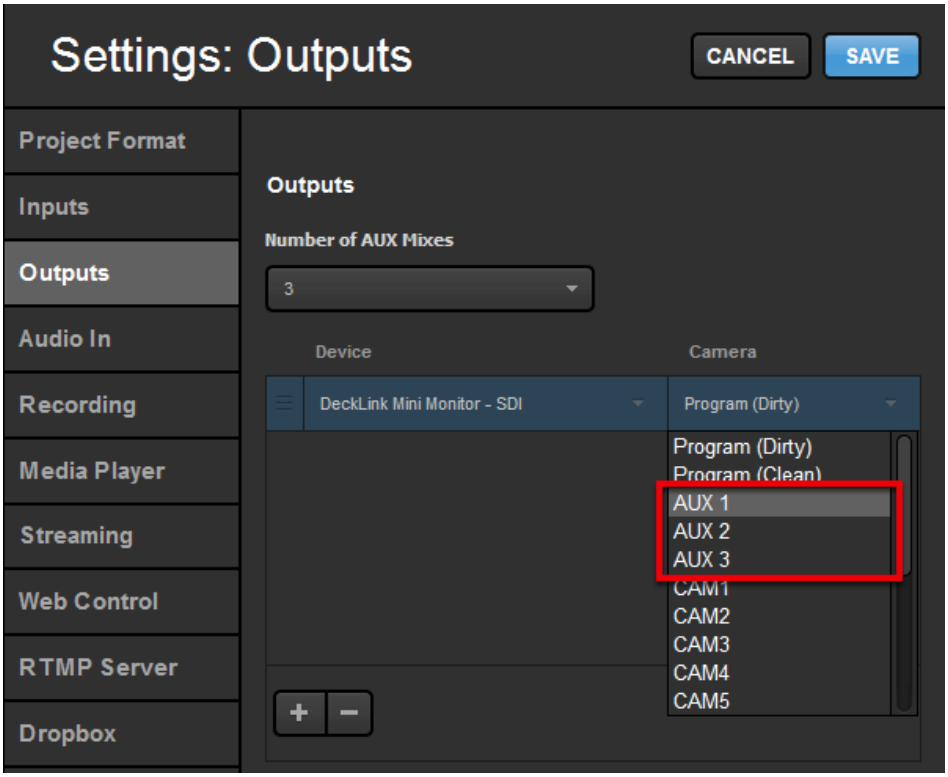
Configuring Auxiliary Outputs

Livestream Studio gives you the ability to choose up to four auxiliary output mixes. This can be helpful for changing picture-in-picture and output sources (monitors, projectors, etc.).

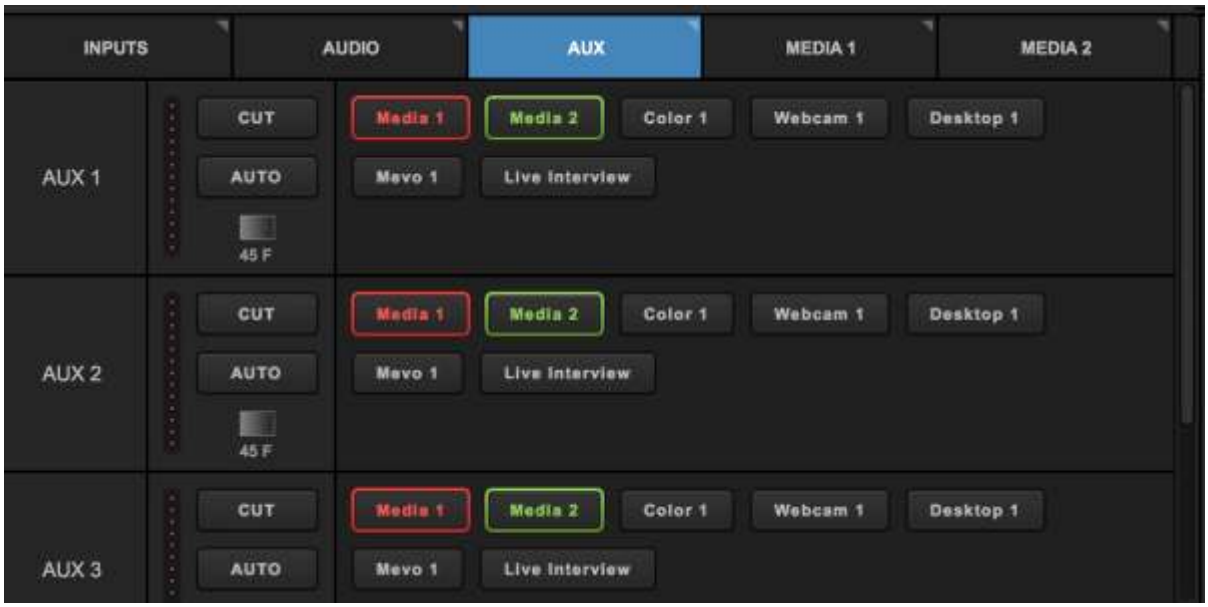
Navigate to settings, and enter the Outputs menu. Under Number of AUX Mixes, select how many auxiliary outputs you want to use.



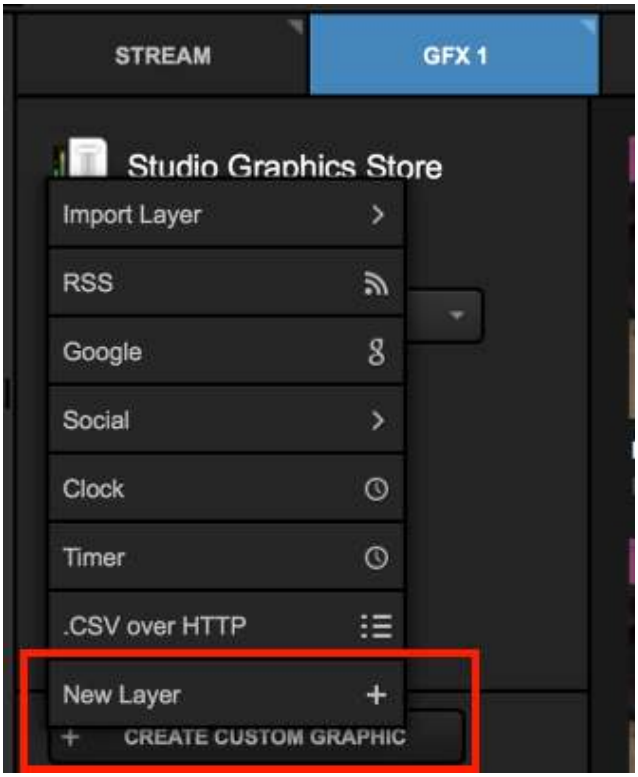
You can set any output to use an auxiliary source, which is helpful if you intend to change the sources shown to your onsite viewers.



When you set your auxiliary outputs, you should see an AUX tab appear in the lower left section. Each auxiliary output includes all camera inputs, media bins, remote cameras, RTMP inputs, and NDI inputs.



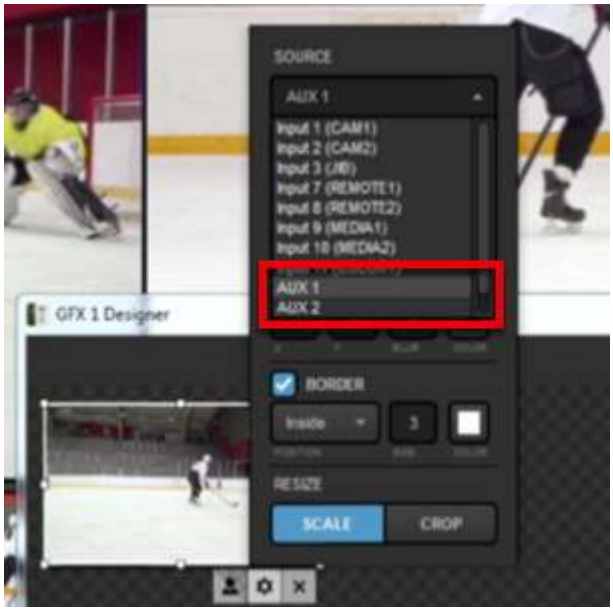
To utilize this with your picture-in-picture graphics, go to a Graphics tab (e.g., GFX 1) and create a new layer (Create Custom Graphic > New Layer).



Click the Paintbrush button.

The GFX Designer will open. Click on the Video button to bring a video source into your graphics layer.

Click on the drop-down menu to change any settings, including your video source. Note that AUX sources are now among your options.

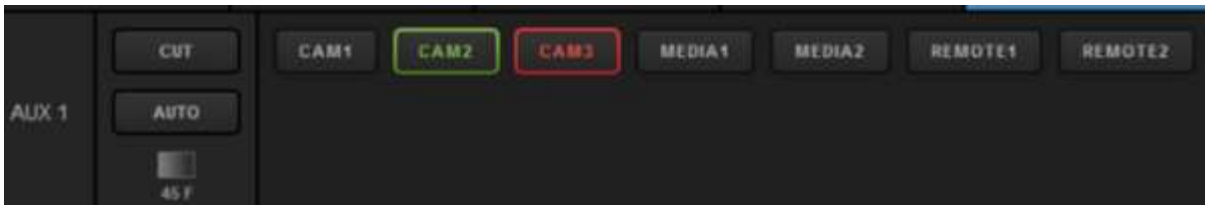


When you have finished setting your video source in the graphics layer, close out of the GFX Designer and make sure that layer is visible.

Navigate to the AUX Outputs tab of the AUX source you are using. Here you can select which of your inputs you want to see in the AUX output. You can choose from camera inputs, media sources, remote cameras, and NDI sources.

Push the graphics channel to Program to allow you and your viewers to see it.

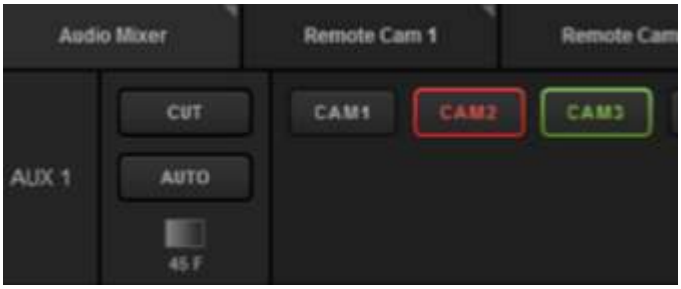
To change the source in your graphics overlay, go back to the AUX Outputs tab and click on the desired source. That source will turn green, indicating that it is ready to be transitioned into the AUX output.



To switch sources, use either the Cut or Auto button to the left.

If you click on the transition type under Auto, you can choose both the type and speed of the auto transition used for each AUX source.

Click a transition control; the AUX tab will indicate that the new source is being pushed through that auxiliary source by highlighting that source in red.



You will also see the change in your graphics overlay in Preview and Program.

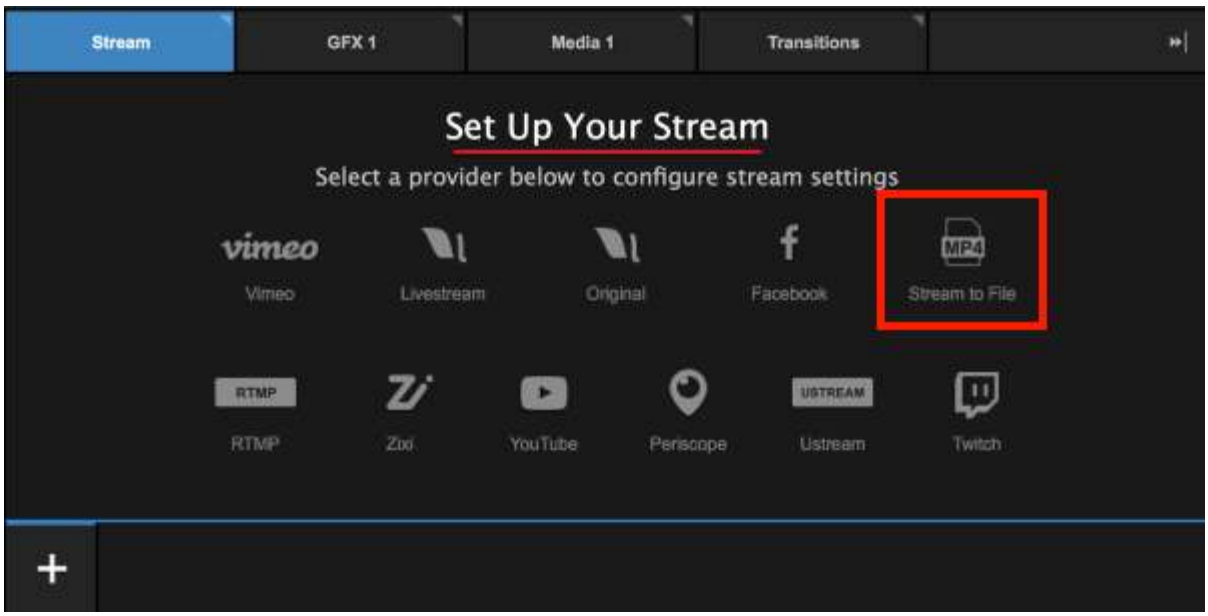
PROGRAM

Recording Options in Livestream Studio

Livestream Studio includes various ways to record your Program and ISO recordings. Recordings are saved in a user-selected destination folder; by default, you can find the files in the Videos folder on Windows and the Movies folder on Mac.

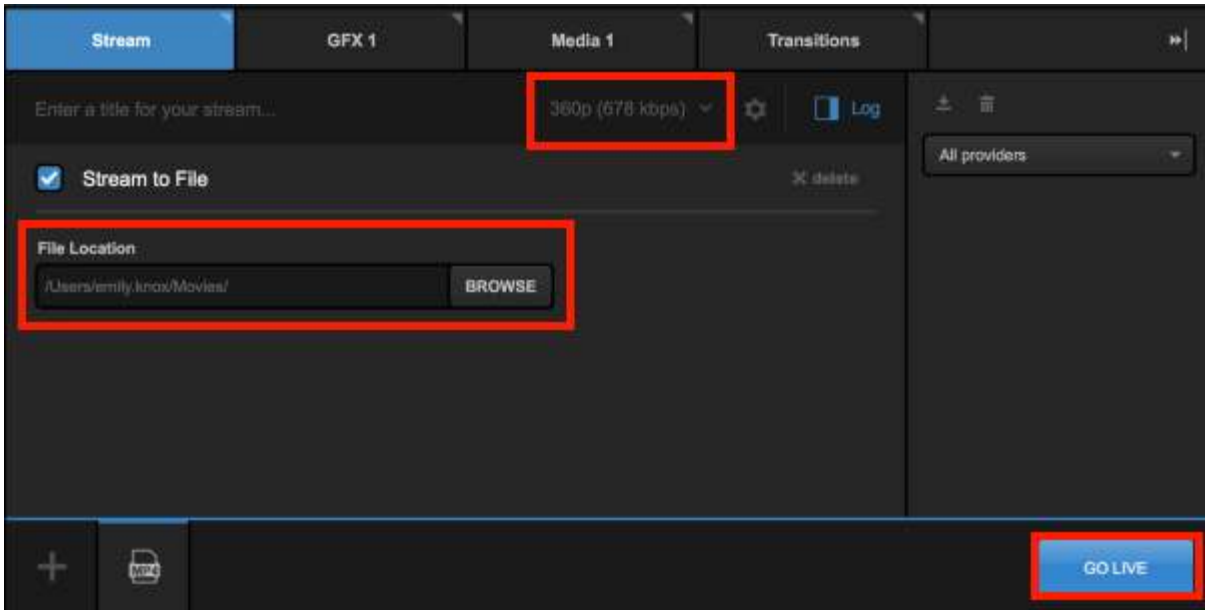
Encode Program as an MP4 File

If you are just looking to record an .mp4 of your event, you can do this via the Stream tab. Select Stream to File as your destination.



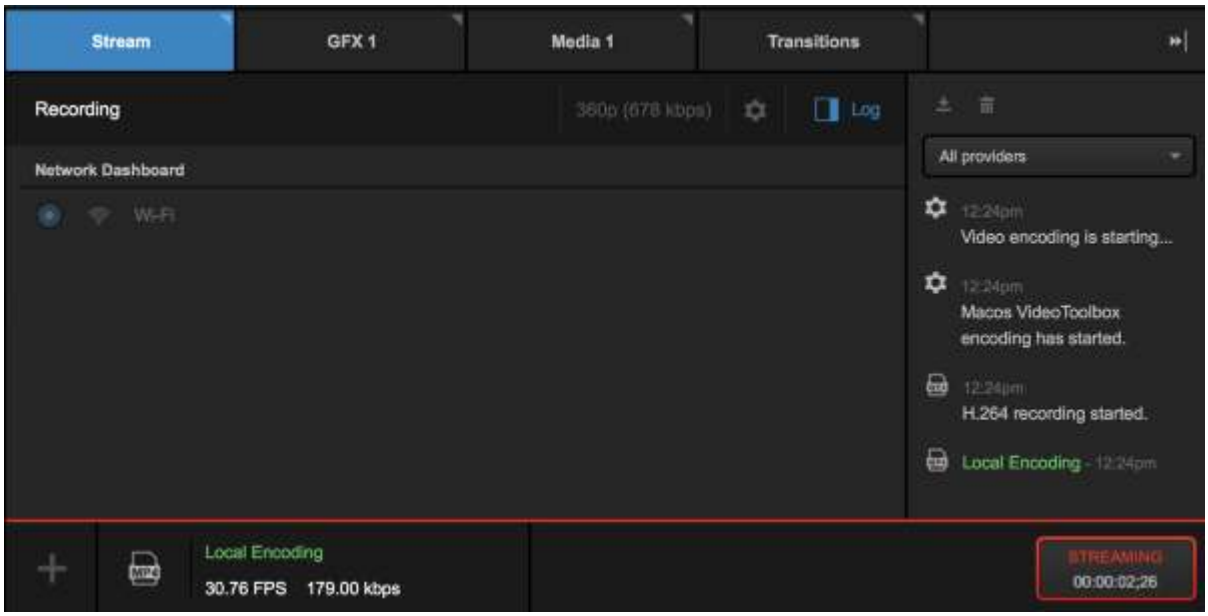
Choose the quality you wish to encode at and choose where you want to save the recording (by default it will save to the Videos folder on Windows or the Movies folder on macOS). You can also add a title, which the file will save as alongside the date in your hard drive.

When you are ready to start encoding, click Go Live.



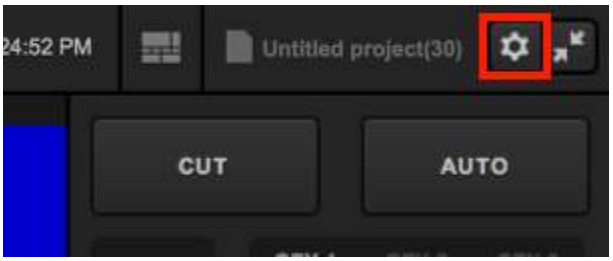
The Studio Log will indicate the encoding has started. When you are ready to stop recording, click the red Streaming button in the bottom right corner of the Stream module.

Your recording will be saved in the location you specified.



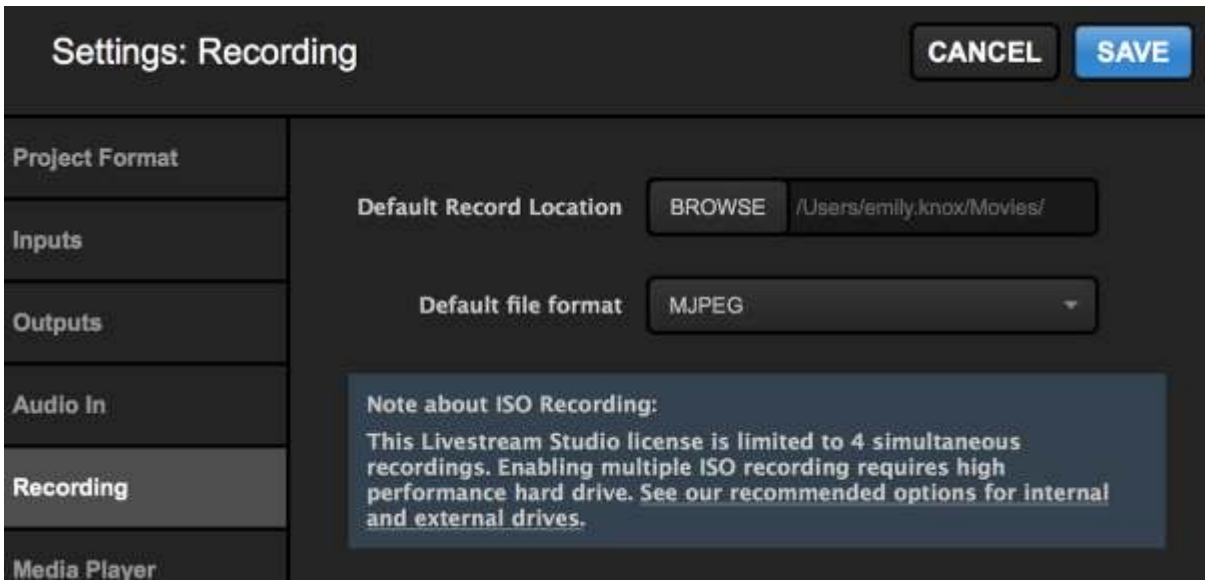
Hi-Resolution (MJPEG AVI) Program and ISO Recording

If you are looking for a broadcast quality high-resolution Motion JPEG recording of either your Program output or any of your isolated (ISO) video sources, navigate to Studio settings by clicking the gearwheel button in the upper right corner of the interface.

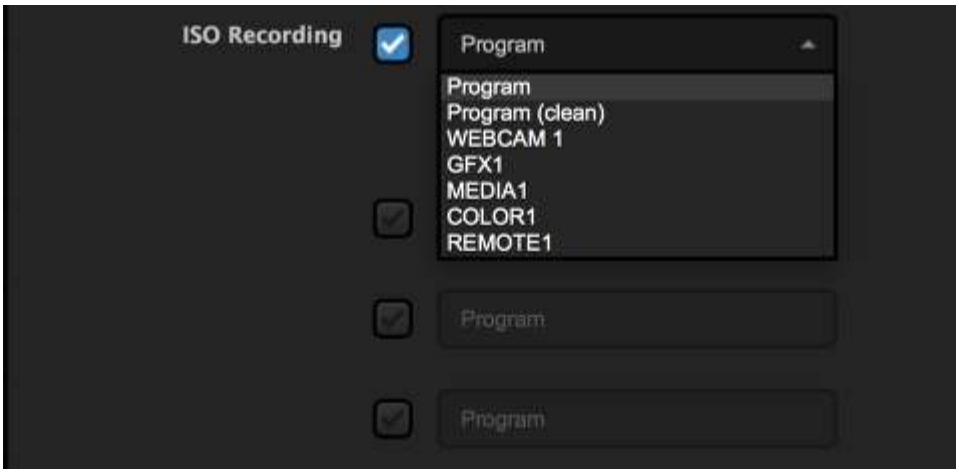


Navigate to the Recording tab on the left side of the menu. The default recording location is where your recordings will be saved (by default, "Videos" for Windows computers and "Movies" for macOS). Click Browse if you want all of your recordings to save somewhere else, such as an external hard drive.

The Default file format of your recording will be MJPEG by default. H.264 is covered in a section below.



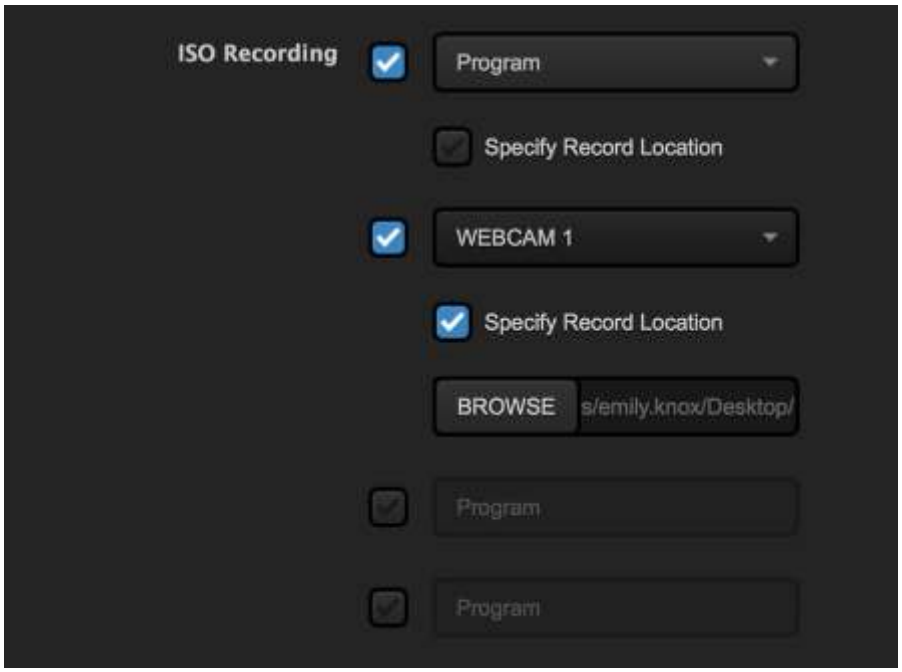
Farther down in the menu are your ISO Recording options. With MJPEG selected as the default file format, you can run up to four recordings simultaneously. This is helpful if you wish to edit your sources together in post-production or you intend to use the basic replay feature.



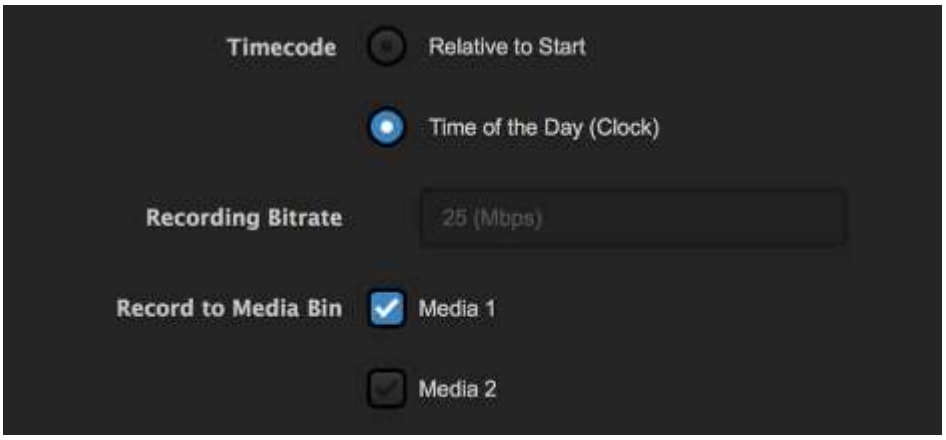
Each checkbox will activate a recording. Select which sources you wish to record.

> Program (clean) is your Program recording without any graphics overlays. Choose this if, for example, you need to repurpose your recording for different brands.

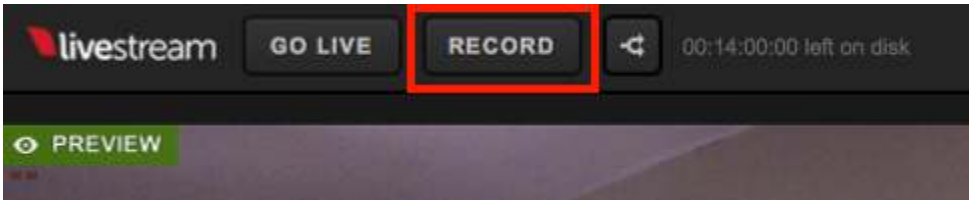
Below each source selection is the option to Specify Record Location. This allows you to save any of your recordings in a location separate from the Default Record Location configured above.



Below your ISO recordings specifications are additional settings for your recordings, include how timecode is recorded, your recording bitrate, and the ability to also save your recordings in either Media bin. Record to Media Bin is essential if you intend to use the basic replay feature.



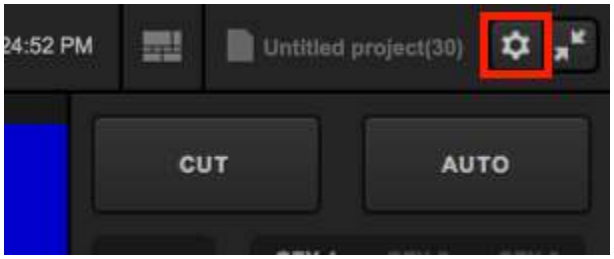
Once your recordings are configured, save your settings. To start recording, click Record in the upper left corner of the Studio interface; click it again to stop recording. You can find your AVI in the specified recording location(s).



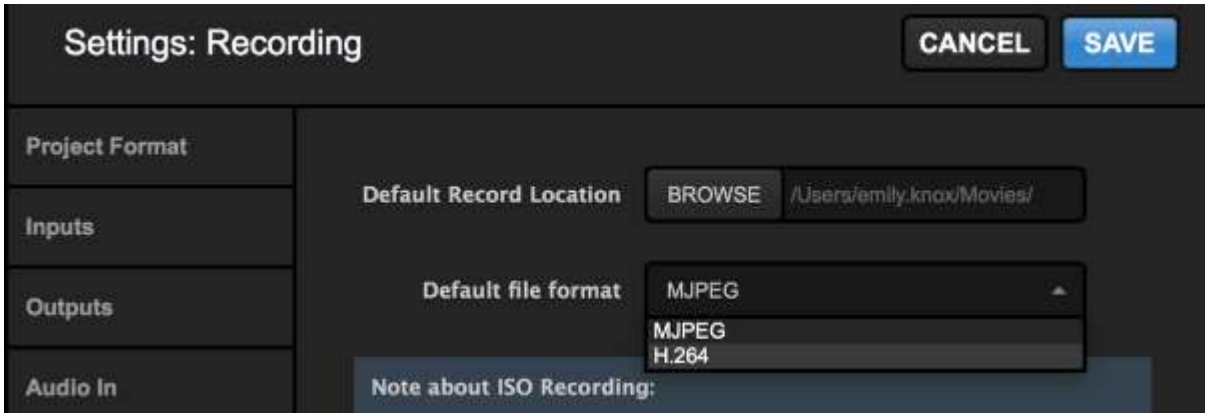
Compressed (H.264 MP4) Program or ISO Recording

If you are operating on a system that supports hardware encoding, you can also record an .mp4 file of either your Program or a single video source. Click the gearwheel button in the upper right corner of the Studio interface to enter the Settings menu.

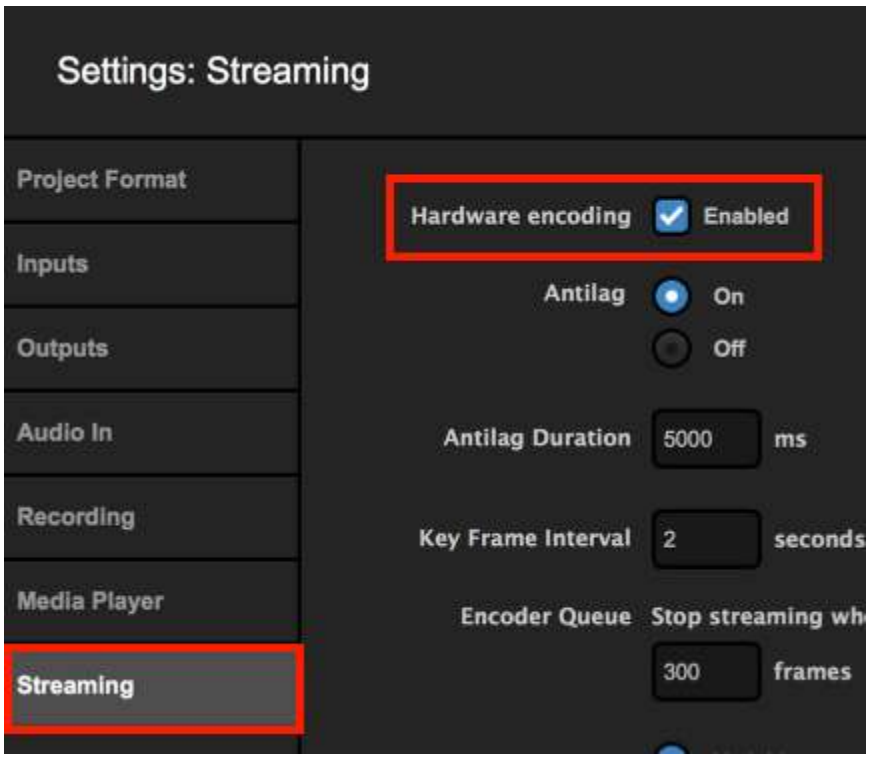
> ⚠ If your system only has NVIDIA NVENC for hardware encoding, this feature will not work if your project is set to interlaced formats (e.g. 1080i59.94, 1080i60). Unless your PC or Mac also uses Intel QuickSync, change your project format to a progressive format (e.g. 1080p30, 720p30) or to use this feature or switch the Recording settings to MJPEG file format.



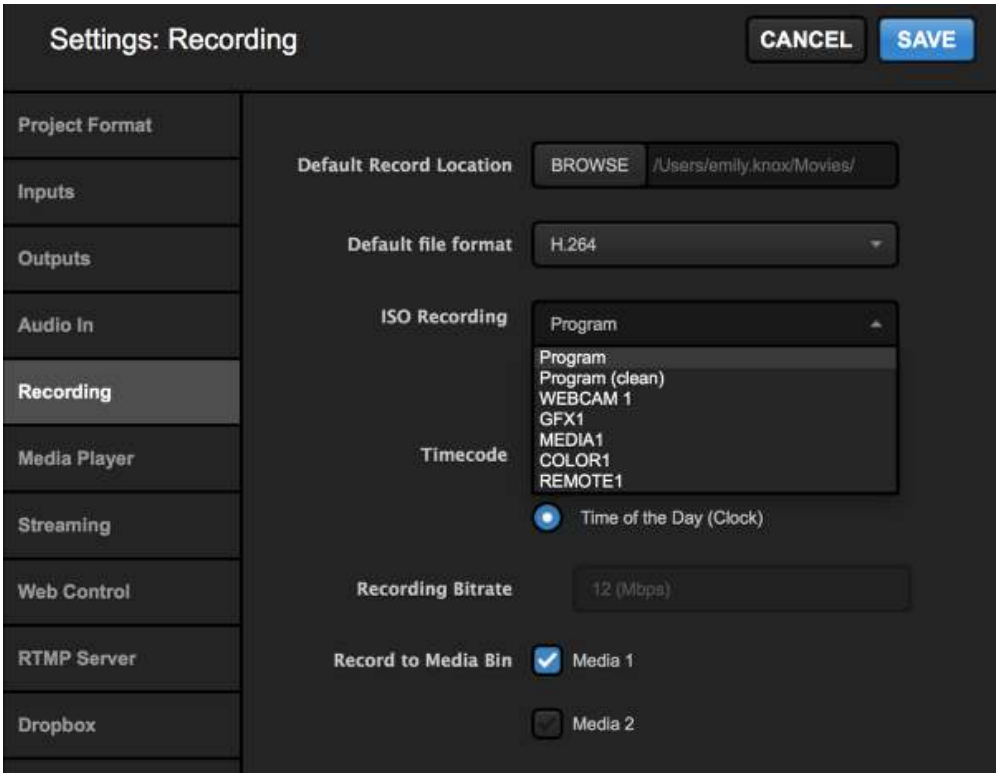
Select the **Recording** tab on the left side of the menu. You can change the **Default file format** to H.264 to create a compressed recording that consumes less hard drive space than the MPJEG recording.



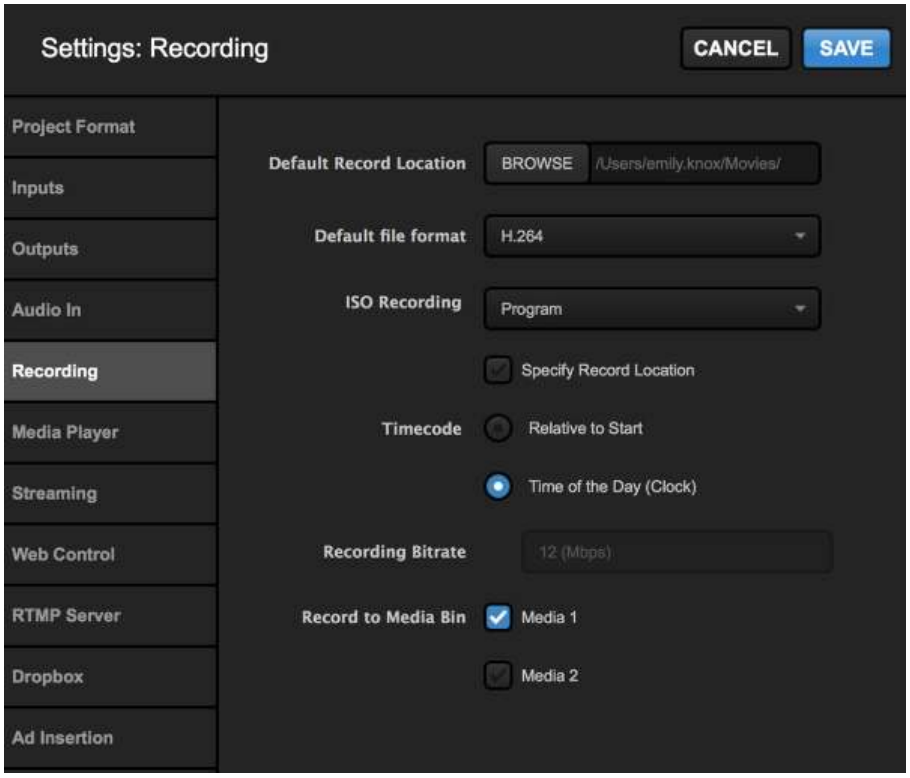
If you do not see this option, navigate to Settings: Streaming and make sure Hardware encoding is enabled. If you do not see an option for Hardware encoding, then your system does not have the proper hardware installed to support it.



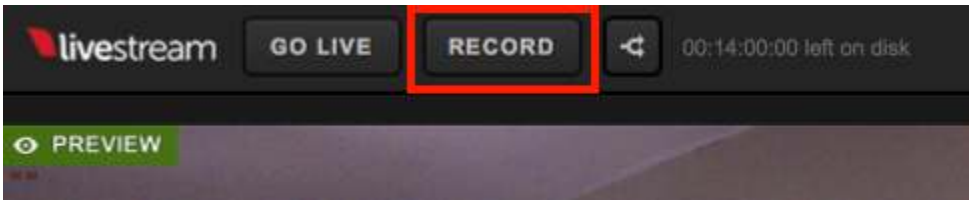
This setting only allows you to create one ISO recording, as opposed to four hi-resolution recordings. Choose which source you would like to record.



You can specify a record location that is different from the default setting by checking Specify Recording Location. In addition, you can configure which timecode your prefer, recording bitrate, and whether to also record your source into the Media Bin (essential if you plan to use the Basic Replay function).

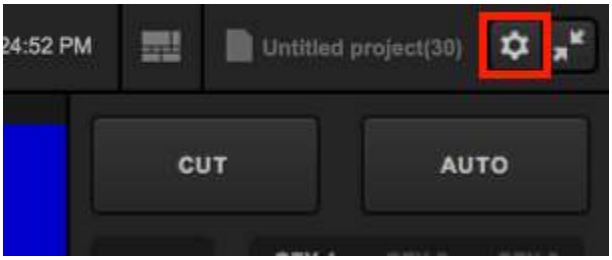


Save your settings. When you are ready to start recording, click Record in the upper left corner of the Studio interface. You can find the .mp4 file in your specified record location.

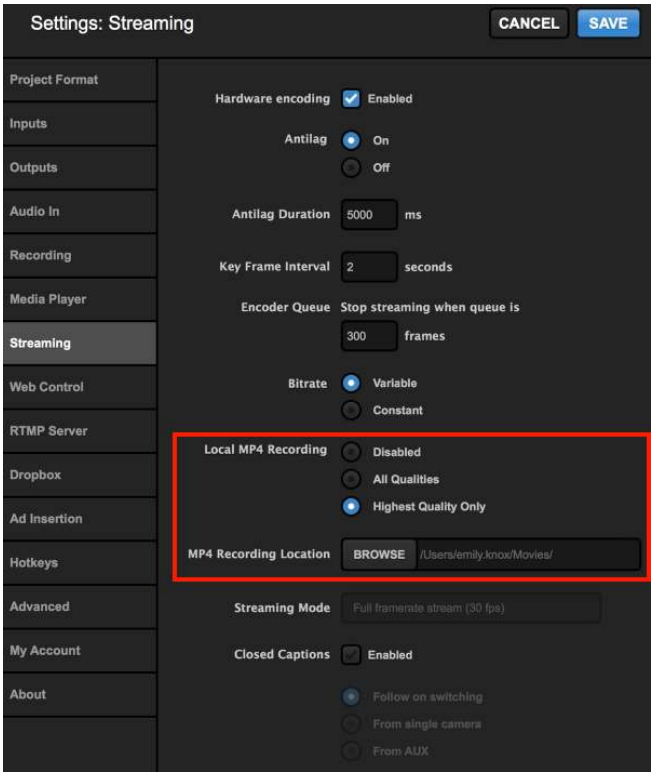


Backup Recording of a Live Broadcast

When you stream to any provider, Studio will by default save a backup .mp4 recording of your Program to your hard drive. You can change these settings by clicking on the gearwheel button in the upper right corner of the Studio interface.



Navigate to the Streaming tab. Towards the bottom, you will see settings for Local MP4 Recording and MP4 Recording Location.



We recommend leaving Highest Quality Only selected, as this will record only the file of the highest selected bitrate when you configure your stream. If you choose All Qualities and select a multi-bitrate streaming quality, your system will record separate files of each quality, which can tax your CPU.

Unless you are also recording separately using the methods described above, we do not recommend disabling the local recording.

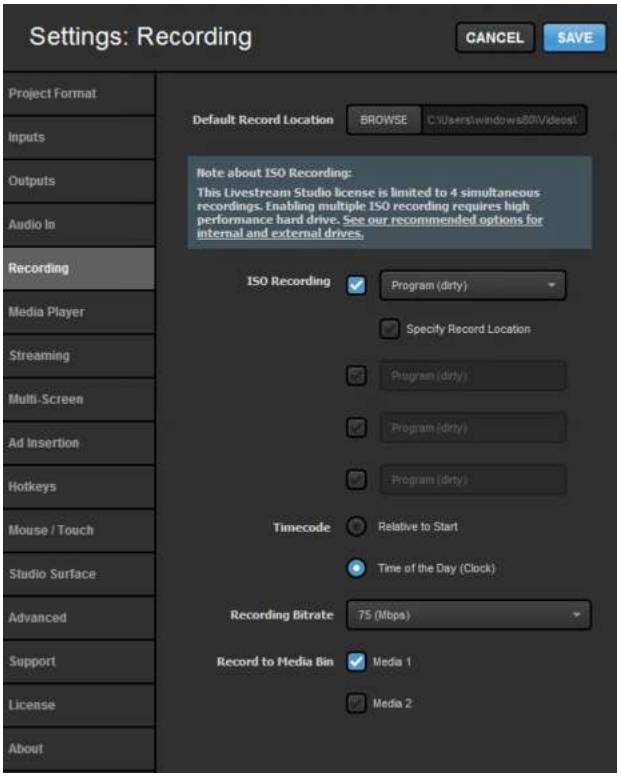
By default, the MP4 Recording Location will be either the Videos folders on Windows or the Movies folder on macOS. You can click Browse to choose a different location, such as an external hard drive.

Be sure to save your settings.

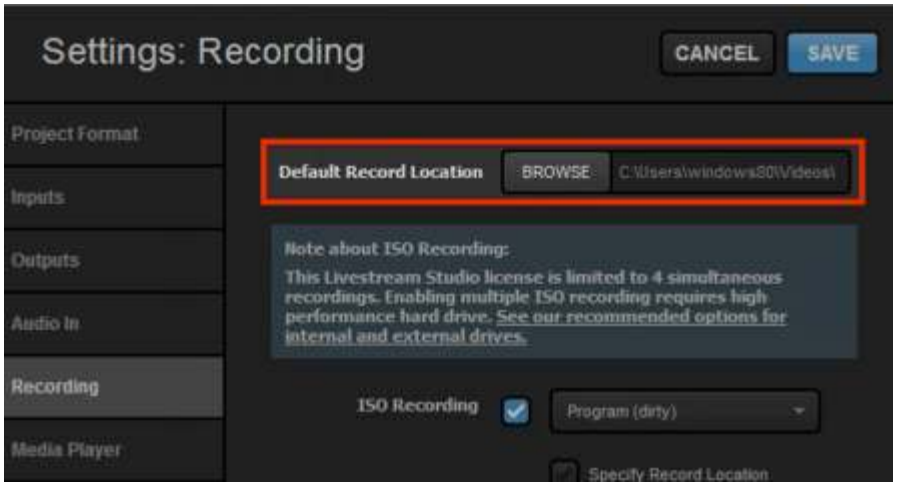
Set up High-Resolution & ISO Recordings in Livestream Studio

In Livestream Studio, click the gearwheel icon in the upper right-hand corner to access settings, then select the Recording tab.

> Are you looking to record a smaller-sized MP4 file of your program? Try the Stream to File option instead.



Default Record Location: Selects the location where the Livestream Studio recordings will be saved by default--typically the "Videos" folder in Windows and the "Movies" folder in Mac. Click the Browse button to select a different default record location.



ISO Recording: ISO is an abbreviation for "Isolated". When referring to cameras in video production, this term indicates that the individual camera video signals are being isolated and recorded independently of each other and the final Program mix. These files can be used later for further editing offline or live replay during or after an event.

> ISO recordings are only available via this hi-resolution recording setting. Selecting Stream to File in the Stream tab will not record ISOs.

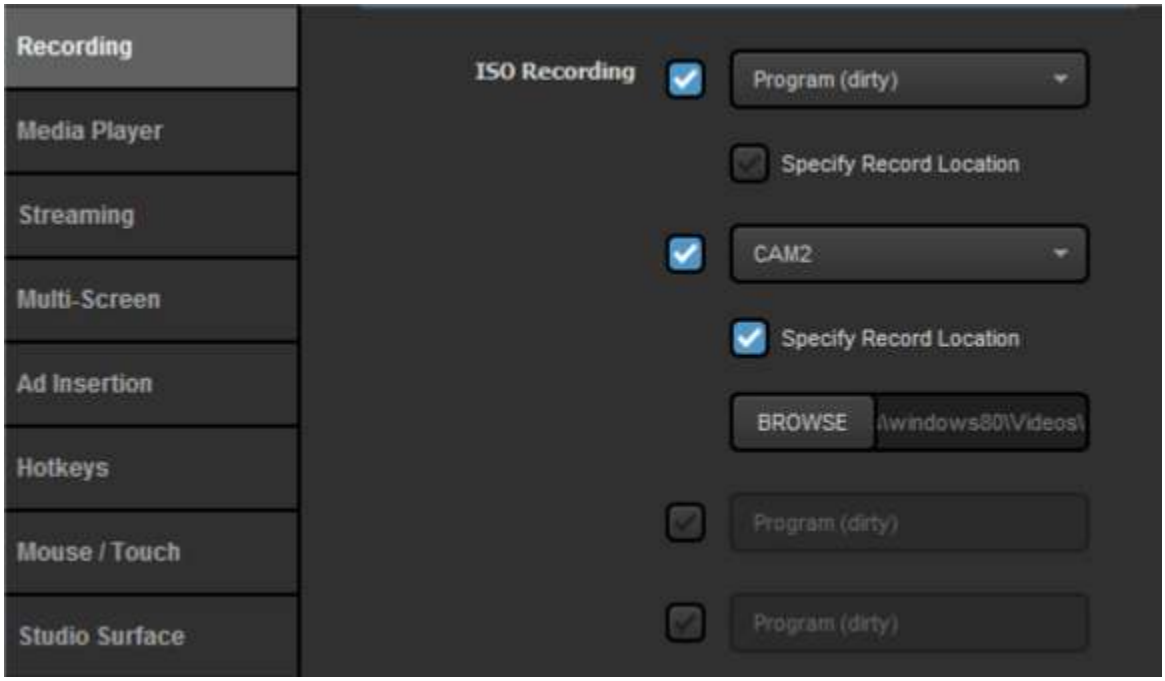
Select how many hi-resolution recordings you want to produce (up to four), and which sources you want to record. You can record Program (dirty), Program (clean), and any other source in your multi-view. We have more recommendations regarding ISO recordings.

Along with the single cameras, you can also record the Program output in 'Clean' or 'Dirty' mode.

- Clean: Without graphic overlays
- Dirty: With graphic overlays

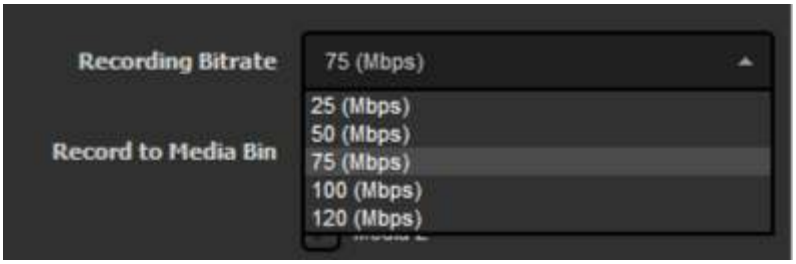
By default, the selected option is Program (dirty).

Specify Record Location: As a best practice, choose different locations for each ISO recording. This can help resolve any hard drive performance related issues when recording multiple ISOs by spreading to multiple HDDs.



Timecode: You can select how you want timecode to be presented. This is meant for users who intend on editing the recordings together and have a preference on which type of timecode to use when matching up the sources.

Recording Bitrate: Chooses the quality your recording will be in. Higher bitrates will be higher quality, but also produce much larger files.

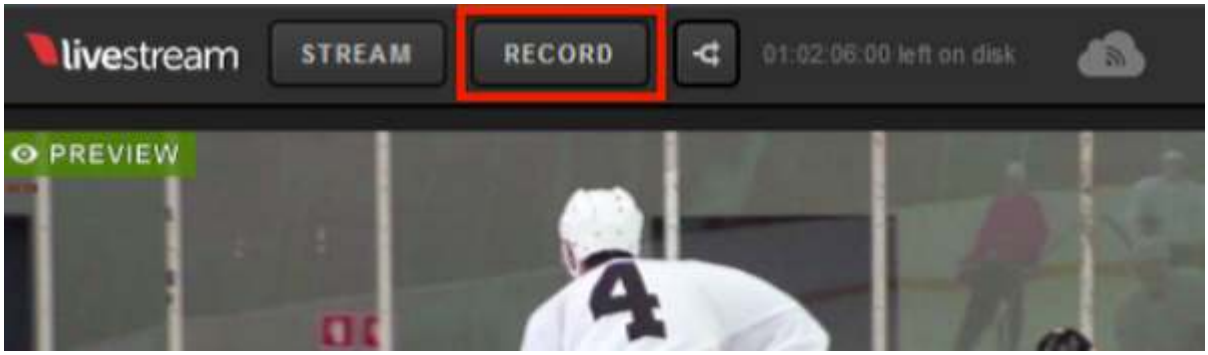


Record to Media Bin: When a recording begins, it will immediately be added to the selected media bin. Both bins can be selected or deselected simultaneously. This is necessary in order to use the basic replay feature.

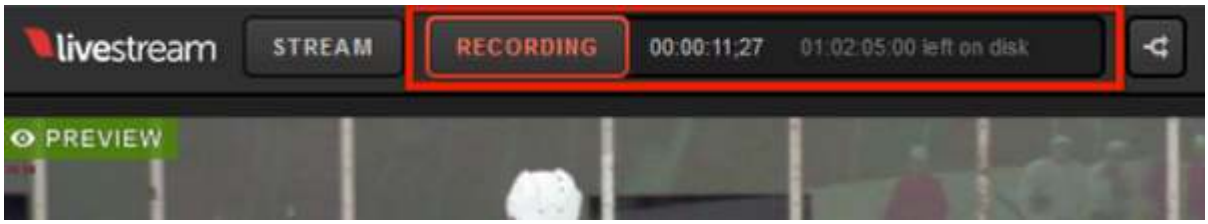
Click Save and you will be able to start recording.

Available recording time is dictated by available internal disk space. If necessary, external devices with transfer speeds of at least 50MB/sec may be used for recording, though performance may vary. Make sure your external device is connected and choose save to that location in the Recording settings. Studio also lets you know how much space is remaining on your hard drive.

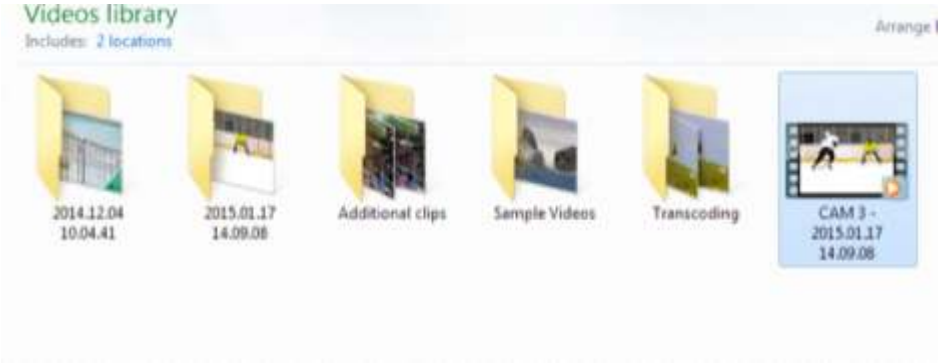
When you are ready to start recording, click Record in the upper right corner.



The Record button will turn red and change to Recording. You can also track your recording time and hard drive space.



When you are ready to stop recording, press the Recording button at the top of the interface. All recorded files will be located where you specified in the Recording settings.



ISO Recording Best Practices

Below is information regarding internal and external hard drive recommendations for producers who want to do multiple, simultaneous ISO recordings.

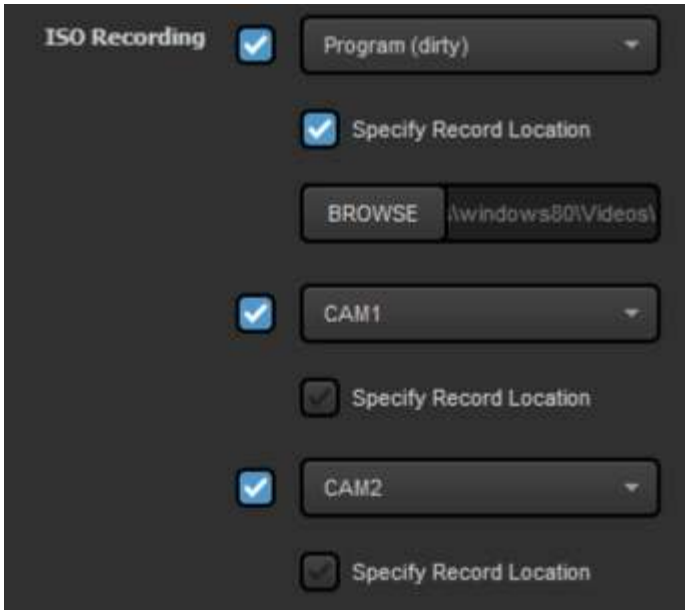
For owners of our series of Studio HD hardware units:

The HDD or SSD currently installed on your system have the following specs:

- HD31: 2TB WD BLACK SERIES WD2003FZEX 7200 RPM / SATA 2.5" Internal HDD
- Studio One: 1 TB Western Digital Red 7200 RPM/ SATA 2.5" Internal HDD
- HD50: 1 TB / 5400 RPM / SATA 3.5" Internal HDD
- HD51: 1 TB / Western Digital Red 7200 RPM / SATA 2.5" Internal HDD
- HD51 4K Edition: Samsung 850 EVO 2TB SSD
- HD500: 500 GB/ 5400 RPM / SATA 2.5" Internal HDD
- HD510: 1 TB / Western Digital Red 7200 RPM / SATA 2.5" Internal Hard Drive
- HD550: 1 TB/ Western Digital Red 7200 RPM/ SATA 2.5" Internal Hard Drive
- HD550 4K Edition: Samsung 850 EVO 2TB SSD
- HD900: 2 TB / 5400 RPM & 500 GB / 5400 RPM SATA 2.5" Internal HDDs
- HD1700: 2 TB / 5400 RPM & 500 GB / 5400 RPM SATA 2.5" Internal HDDs
- HD1710: Dual quick-time front removable (2) x WD Red 1TB / 7200 RM ISO recording drives, mid-plane, access door, receiver mounting kits. 1 internal fix mounted WD Red 1TB / 7200 RM ISO hard drive & 1 internal fix mounted 120GB SSD OS / application drive.

Please note that all Studio hardware products have been discontinued.

To avoid performance issues, we recommend using an external HDD via USB 3.0 as mentioned below and/or spreading the recording across multiple drives by selecting the Specify Record Location option within the Recording section of the Livestream Studio settings.



What type of hard drive is recommended when recording ISOs?

We recommend recording to a separate HDD, either installed on the desktop system or an external HDD connected via USB 3.0, that adheres to the following specification:

7200 RPM
64 MB Cache
Formatted NTFS (Full format)
2TB or larger (for longer broadcasts)

The Western Digital Red series hard drives have been tested and approved for recording 4 isolated cameras. You can pair this with a USB 3.0 HDD enclosure such as this one from Macally.

⚠ Testing done using other brand hard drives with the recommended specification have resulted in poor performance when recording 3-4 ISO cameras. Recording 2 ISO cameras performed well in these cases.

If a Western Digital Red series drive is not available, using more than one HDD and specifying different record locations may help resolve any performance issues.

Studio Recording Does Not Play Back

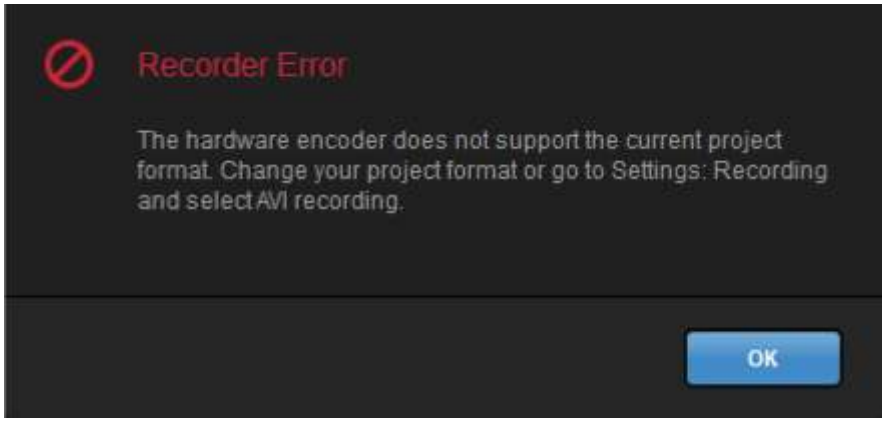
If you used Livestream Studio to record and the AVI file does not play back in other software, Studio may be able to recover the file via the built-in transcoder in the Media bin.

To repair your AVI file, navigate to either Media tab in Livestream Studio and import your AVI file. If the file transcodes and plays back in the Media bin, then Studio was able to recover it. After doing so, export the file to your hard drive.

We have seen this method work in cases where Studio crashed during the recording and the AVI file left over was corrupt and unplayable.

"Recorder Error" in Livestream Studio

If you attempt to start an H.264 ISO recording a see a "Recorder Error" message (shown below), it's typically related to Studio's project format and how your system's hardware encodes video.



Studio has the ability to create an H.264 ISO recording if your PC or Mac includes hardware encoding. However, if your system includes hardware encoding **only** via NVIDIA NVENC, then you will not be able to record if you are using an interlaced format (e.g. formats that include "i" such as 1080i59.94, 1080i60, etc.) as this is a limitation of NVIDIA's encoding capabilities. Only systems that include hardware encoding via Intel Quick Sync would support these formats.

As a workaround, go to **Settings**: **Project Format** and select a progressive project format (e.g. formats that include "p" such as 1080**p**30, 720**p**30). Another alternative is to go to **Settings**: **Recording** and switch the Default File Format to MJPEG, but this would create a larger, uncompressed file.

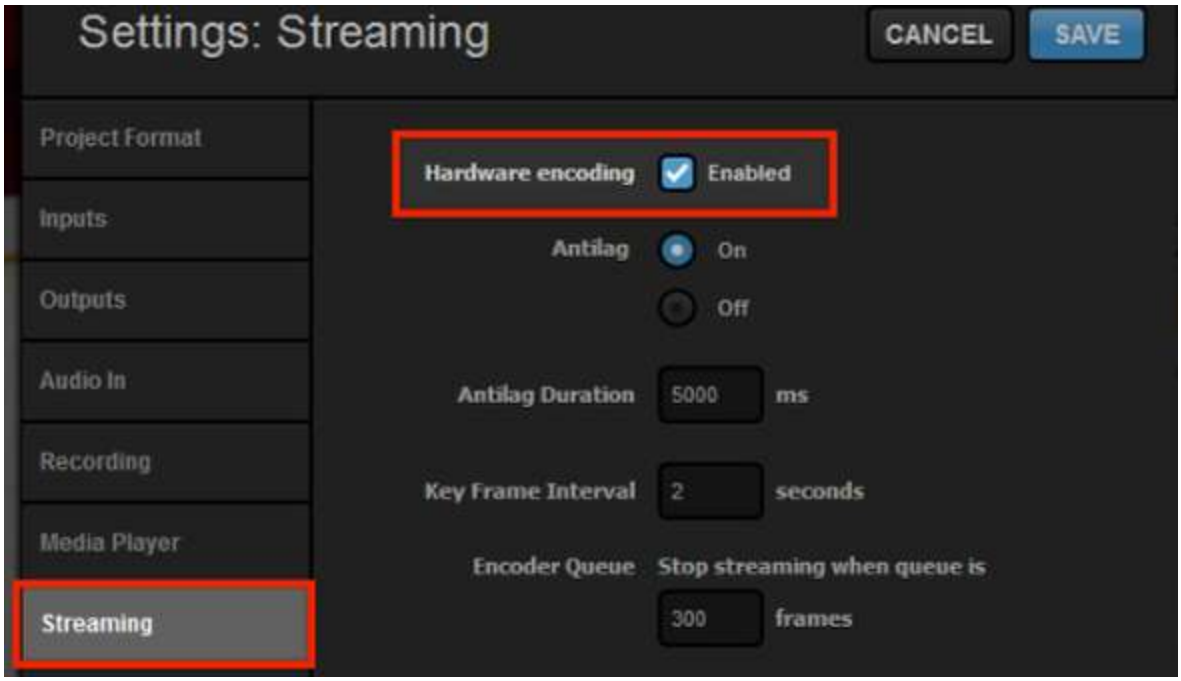
Streaming

Choose a Streaming Quality in Livestream Studio

Livestream Studio has more flexibility and streaming bitrate options than ever before. These include the ability to stream in 1080p, 4k, and custom bitrates.

In order to see the highest quality options, you must have hardware encoding enabled on your Studio system by going to your Settings > Streaming.

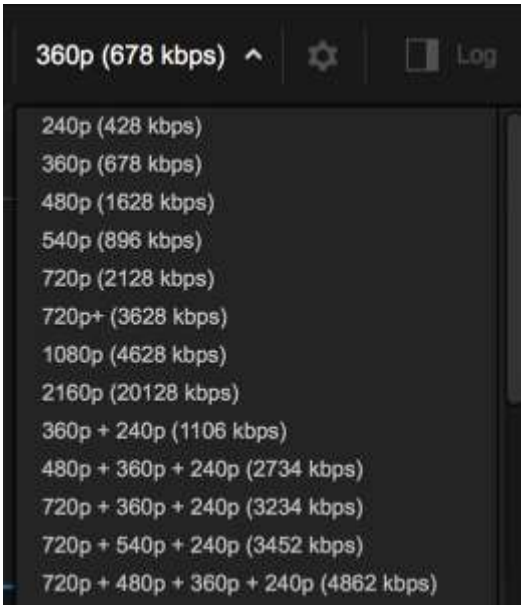
This means your computer must have either an Intel Processor or NVIDIA card installed that supports this feature. Computers that do not have these will not see the hardware encoding option and have a more limited selection of streaming bitrates available to them.

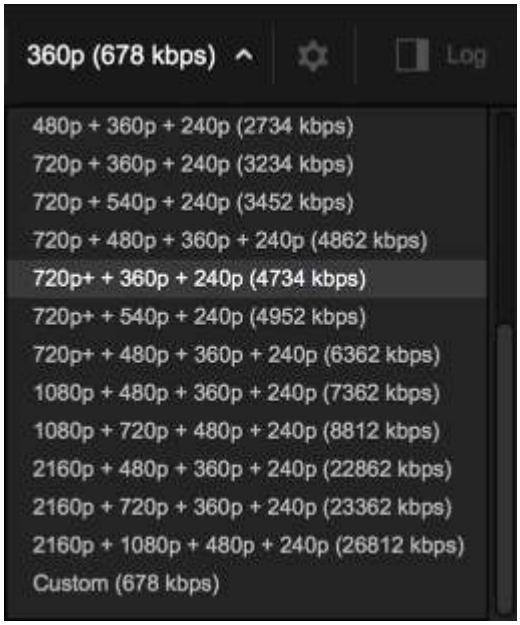


After saving your settings, navigate to the Stream tab in the lower portion of Studio.

After configuring your streaming providers, open the Stream Quality dropdown menu in the upper right corner of the Stream module; the lower qualities will be listed first with higher, multi-bitrate qualities

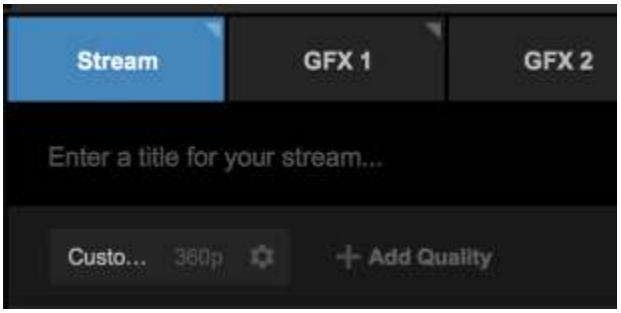
populating below. Each quality lists the resolution(s) being pushed out with the average total bitrate in parenthesis.



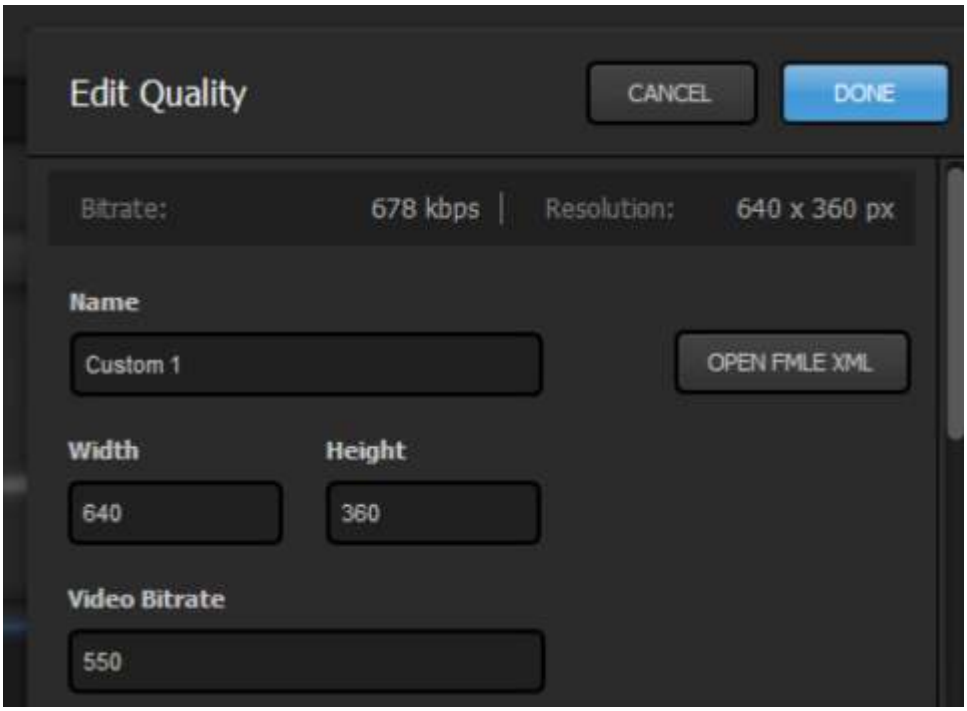


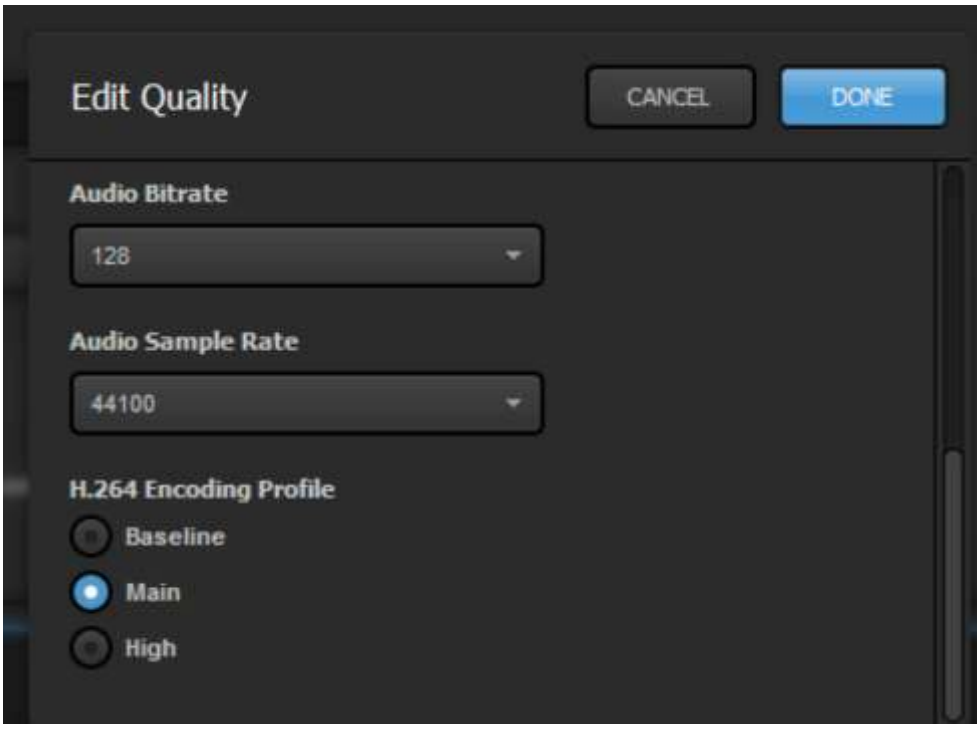
Selecting Custom allows you to configure your own bitrate in case none of the presets suit your needs. Click the corresponding gearwheel to open up the bitrate settings.

**The ability to use custom bitrates is available regardless if you have hardware encoding or not.*



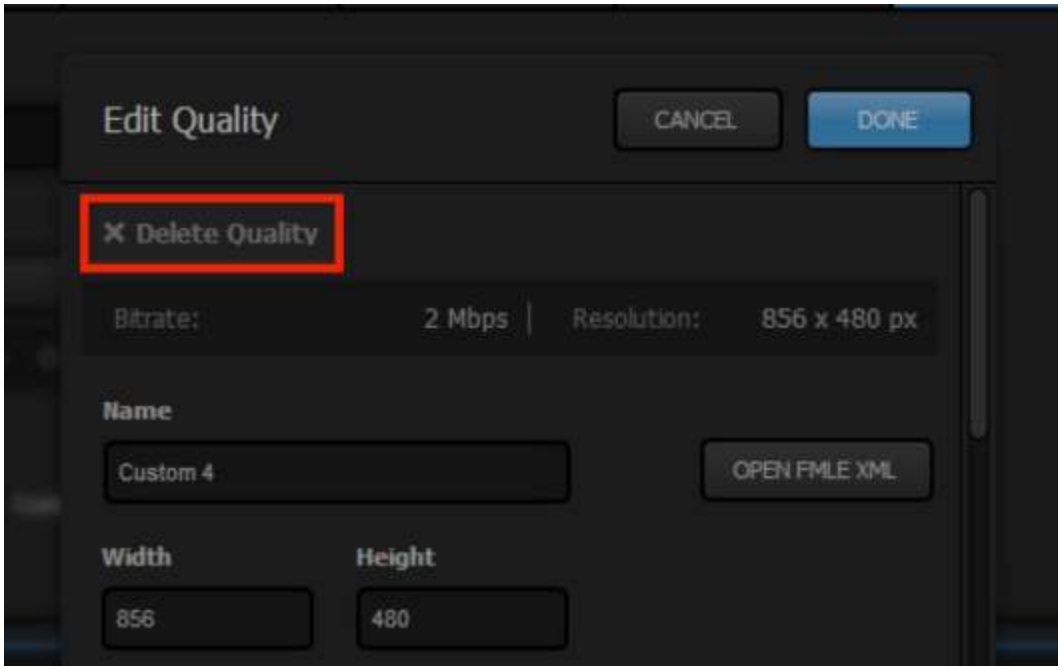
Choose a name for this particular quality (e.g. High), set the width, height, video bitrate, audio bitrate, audio sample rate, and encoding profile. Once you have configured the settings, click Done.





You can add up to four custom bitrates by clicking Add Quality. Each quality can be edited individually by clicking the corresponding gearwheels.

You can remove a quality by going into its Edit Quality menu and selecting Delete Quality.



What's the Best Quality for Me?

There are two factors to consider when choosing a streaming quality: Network Upload Speed and CPU.

Upload speed is easier to determine, especially if you are connected to a dedicated network via Ethernet. Go to www.speedtest.net and start a speed test. Pay attention to your upload speed results.

If you perform a speed test on a shared network, the results will display the upload and download speeds available for the total network, not just your device, so the numbers will be less accurate. It's best to remove other computers and devices from your network.

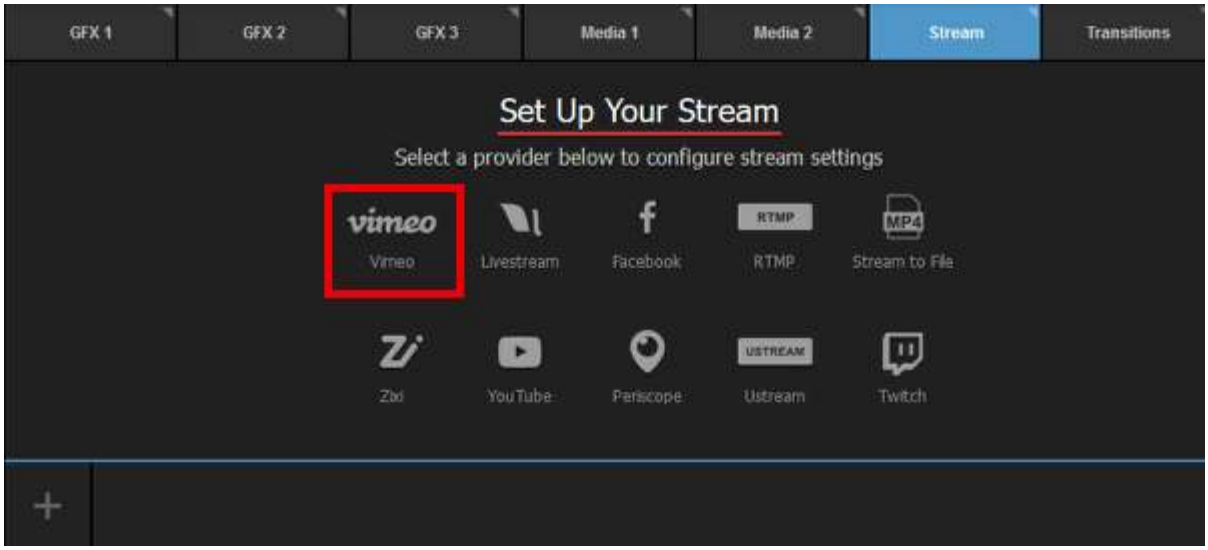
Our rule of thumb is to choose a quality whose total bitrate is **half** of your upload speed. This allows room for network fluctuation. For example, if your upload speed is about 10Mbps, which equals about 10,000Kbps, then you can safely assume your network can push out **720p + 480p + 360 + 240p (4862Kbps)** and lower.

When choosing your hardware, be sure to review our recommended hardware specifications, which includes expected performance benchmarks for different types of processors.

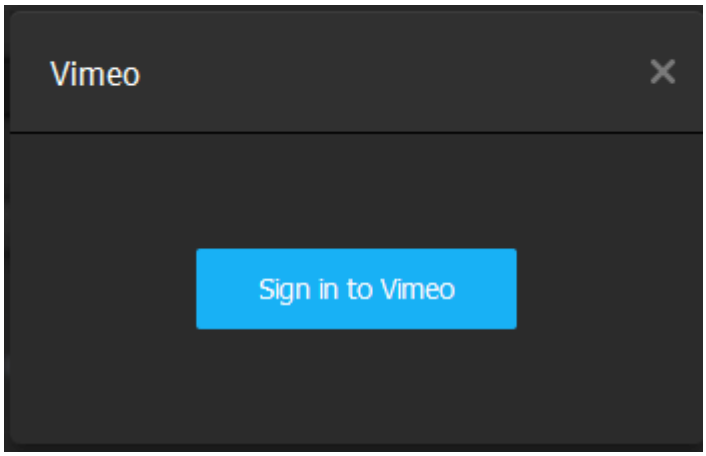
Streaming to Vimeo via Livestream Studio

Livestream Studio supports streaming to Vimeo Live for all Vimeo Premium and Vimeo Enterprise members.

If you are not logged in already, go to the **Stream** tab and select **Vimeo**.



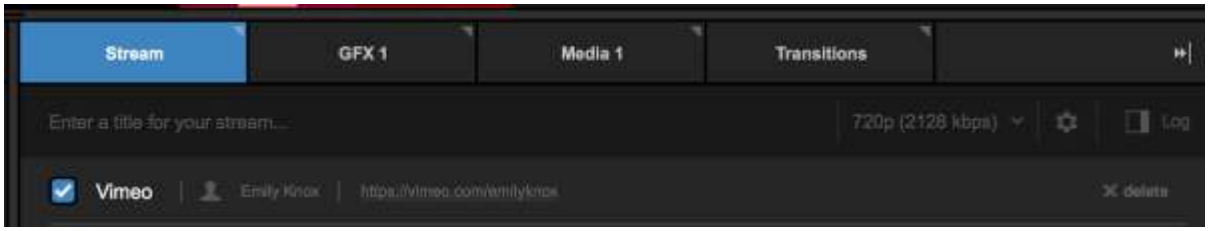
The following window will pop up. Click **Sign in to Vimeo**.



A browser window will open; you may need to minimize Studio in order to see it. Studio will automatically log into the account that your default browser is logged into. If you are not logged into a Vimeo account, you will be prompted to.

Once you are logged in, you can configure your stream. At the top of the module, give your stream a title and select your streaming quality on the right side.

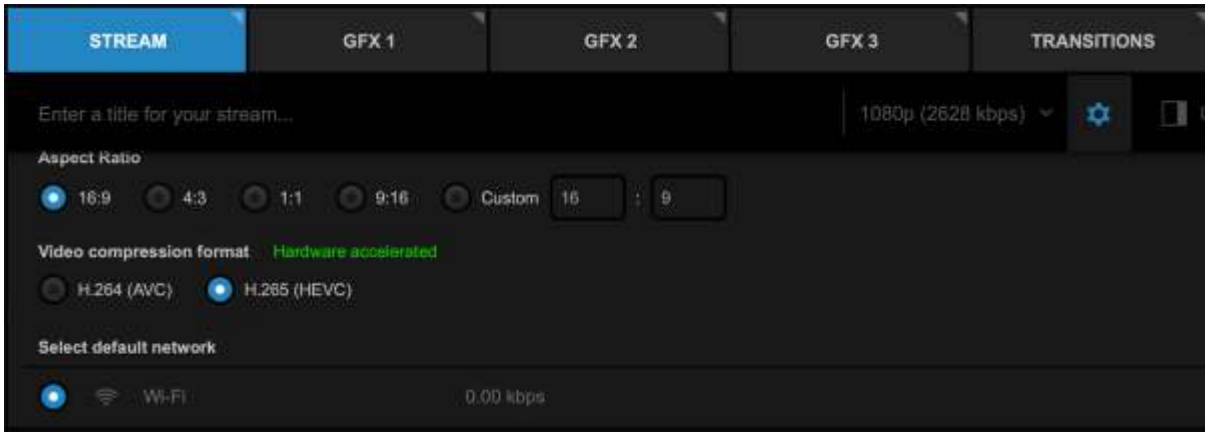
> Since Vimeo Live includes cloud transcoding, we recommend selecting a single bitrate quality.



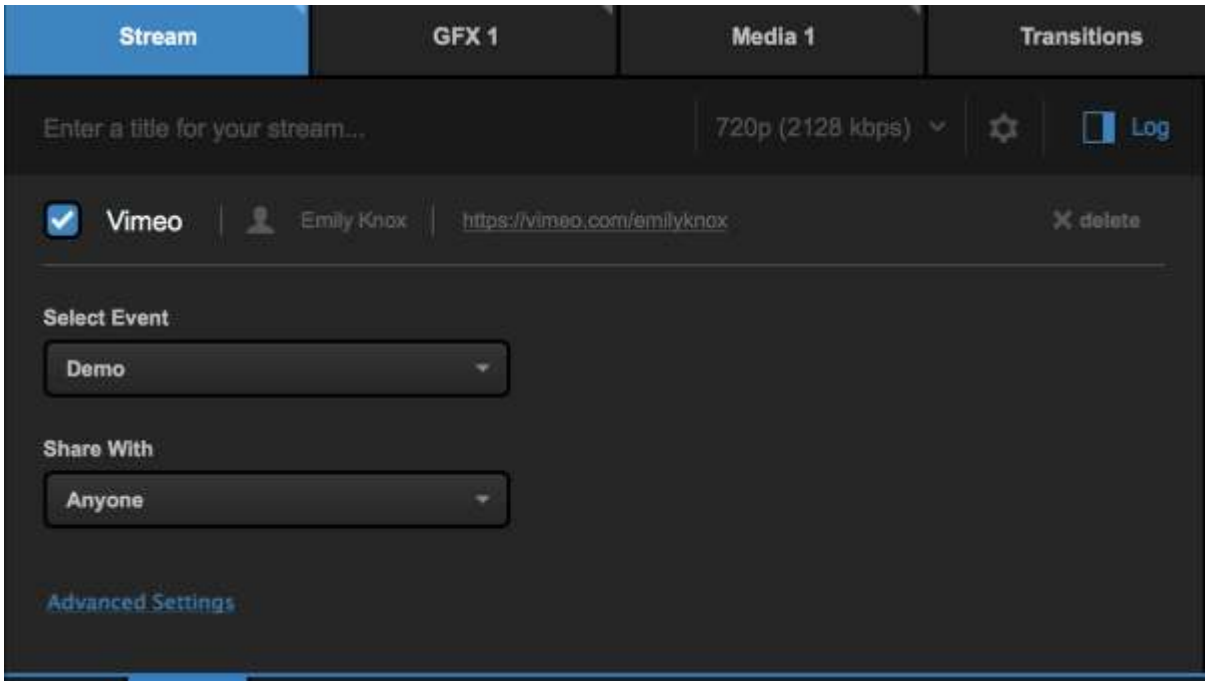
In the top right corner is a gearwheel icon. Selecting this will allow you to set your aspect ratio and choose your default network to use for streaming. The default network will be used when streaming to any provider you add to Studio unless you specify a different device for a specific provider (shown in a later step).

Also, if you enable hardware encoding, streams to Vimeo can utilize H.265 video compression, which is a newer, more efficient method of compressing video than H.264. It allows you to stream twice a better quality with the same bitrate, or the same quality at half the bitrate.

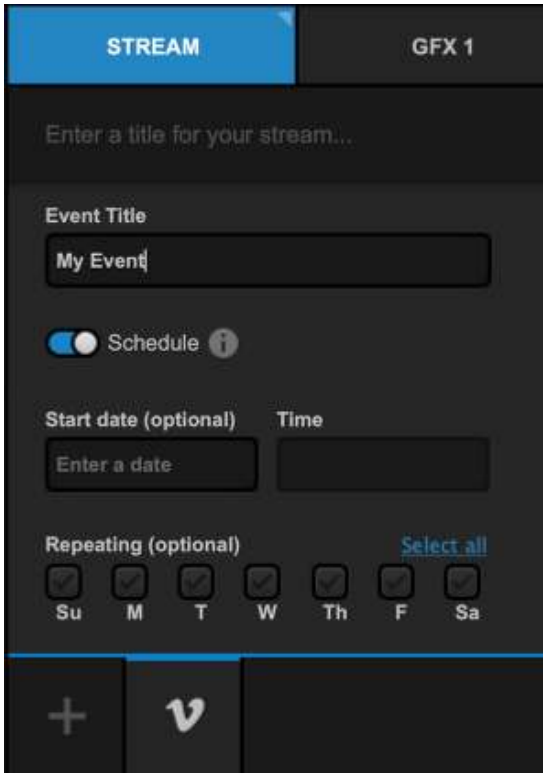
> Note that this is only available when streaming to Vimeo and any other active streaming destinations within Studio will be disabled if you select H.265.



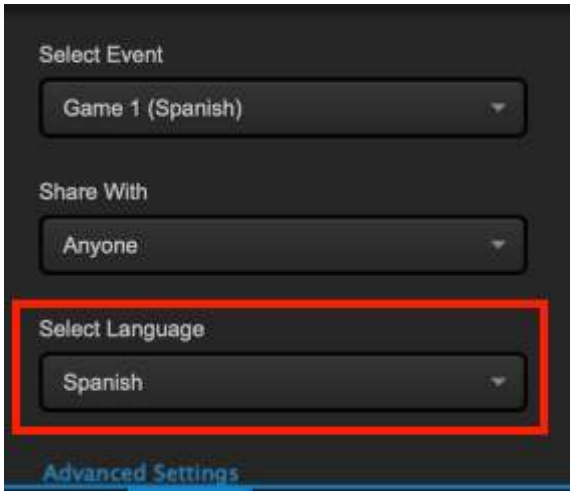
Next, choose your stream goes under the Select Event menu. You can either create a new event by selecting Create new or stream to a pre-created event. Learn more about streaming to a scheduled event on Vimeo via Studio.



When you create a new event or select another recurring event, you also have the ability to toggle the Schedule switch, which will allow you to add a date, time, and mark if it repeats on a certain day of the week. This is optional and is meant for informational purposes only. All events you create via Studio will be recurring events (rather than one-time events).



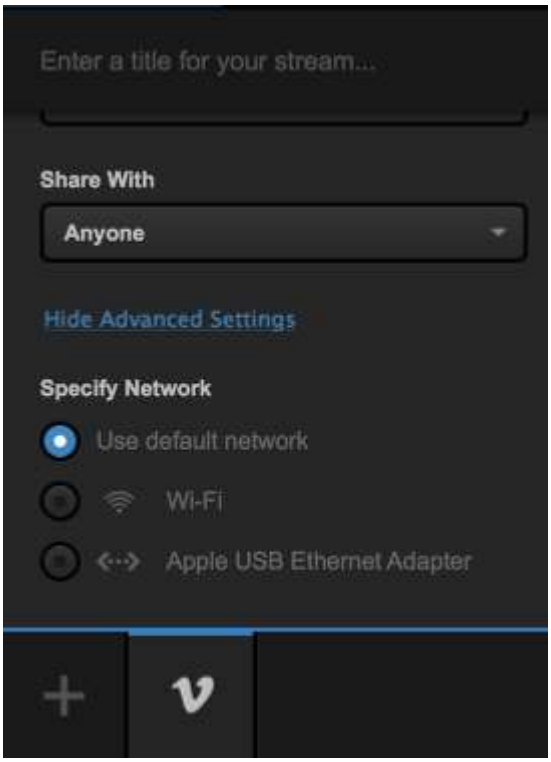
If you have enabled multi-language events, you can choose which incoming language (or audio track) will output to this particular stream by using the Select Language drop-down menu; if you are simulcasting, this allows you to stream to the same provider but select a different language for each stream instance. This menu does not appear if multi-language events are not enabled.



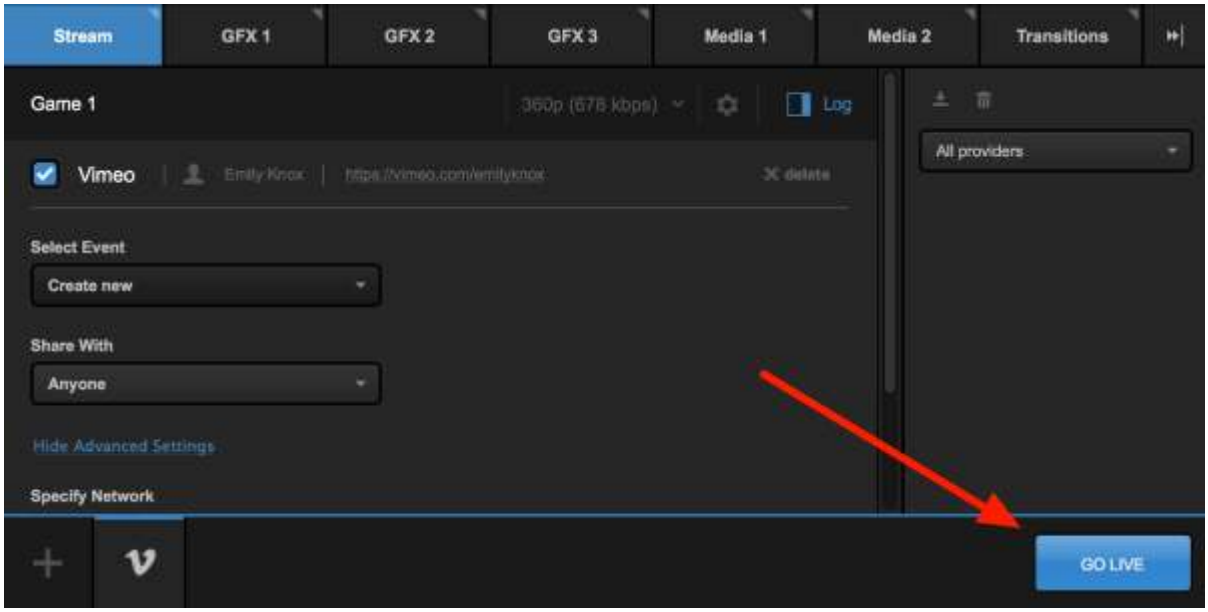
You can moderate your event's chat directly from Studio by clicking the Go to chat link in this menu.

Clicking Advanced Settings will give you the option to use a specific network device to stream to Vimeo; Use default network will use the network device you selected earlier, but you may override that setting here if you wish to use a different connection for Vimeo. This can be handy if you want to keep simultaneous streams on separate networks as a failsafe.

Click Hide Advanced Settings to collapse this menu.

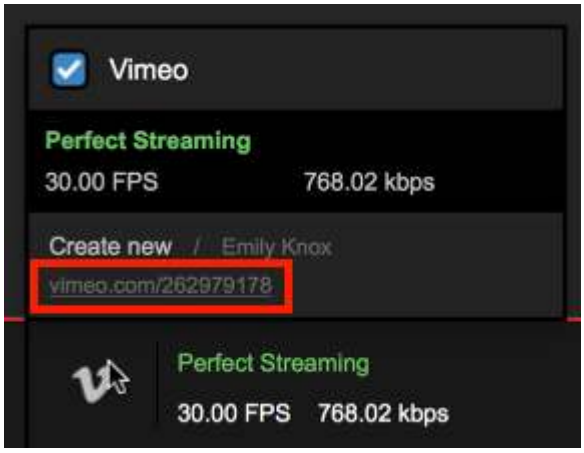


When you are ready to start your stream, click Go Live in the bottom right corner.



Your Program output will appear in your chosen event on Vimeo. Note that if you toggled on "Preview stream before going live" when setting up your event, you will also need to click Go Live in the upper right corner on your live preview page on Vimeo in order for your viewers to see your stream.

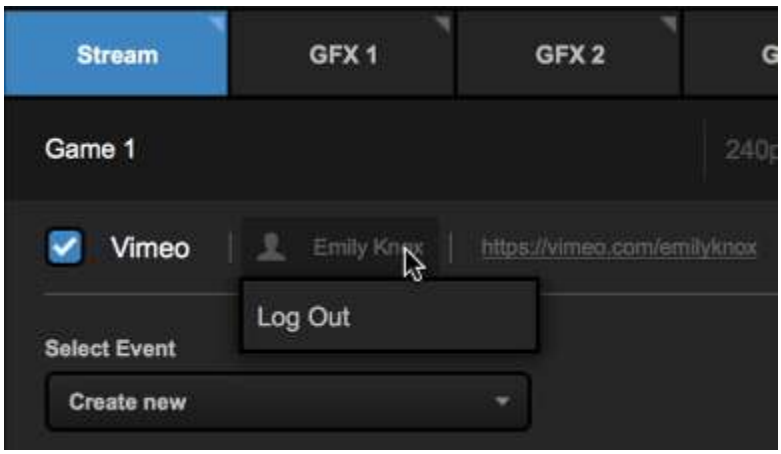
For easy access to your stream, hover your cursor over the Vimeo icon; the URL to your stream will appear there.



The viewer count recorded inside Studio is only for views on the Vimeo player. If you are simulcasting to other destinations, those views are not counted in Studio.

When your event is over, end the stream by clicking the red Streaming button in the lower right corner.

To log out of Vimeo, click your profile name below the stream title and click Log Out.

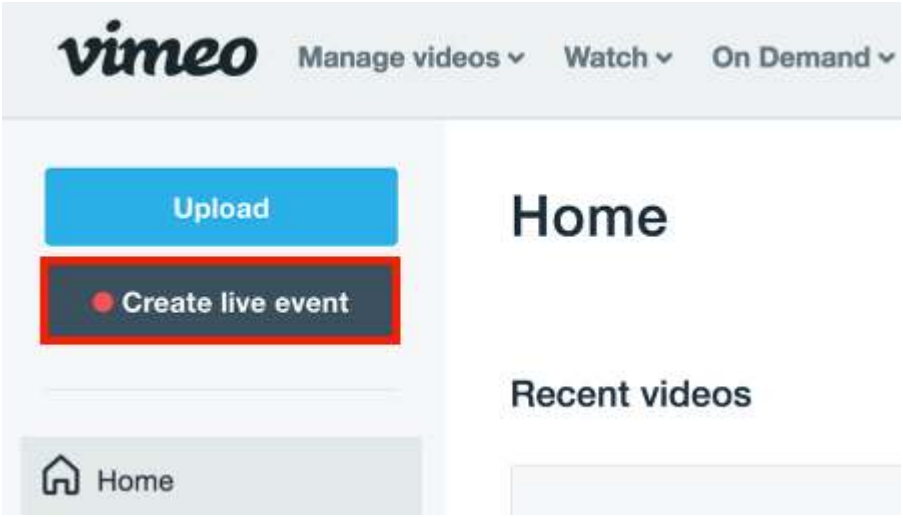


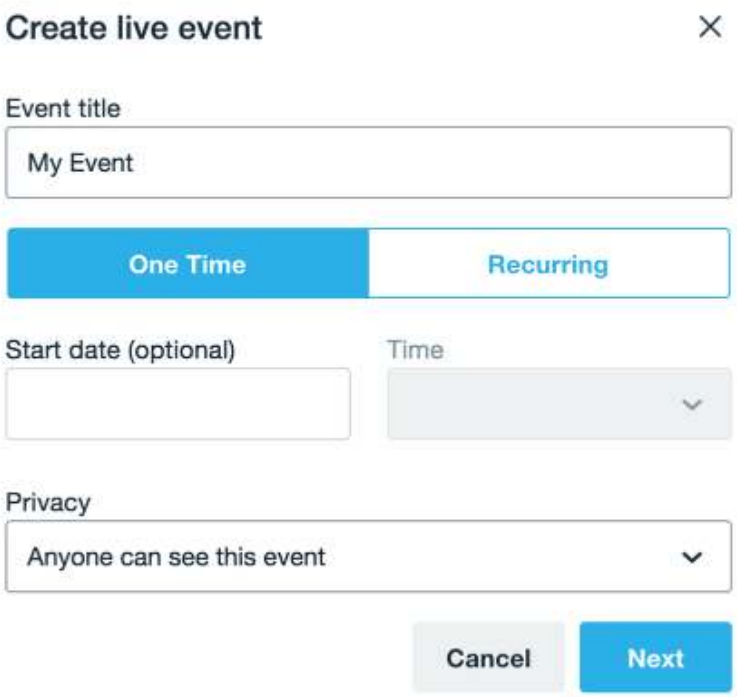
Stream to a Scheduled Event on Vimeo via Studio

In order to stream to a scheduled event on Vimeo from Studio, you need to follow the steps below in order for the event to appear as an option in Studio.

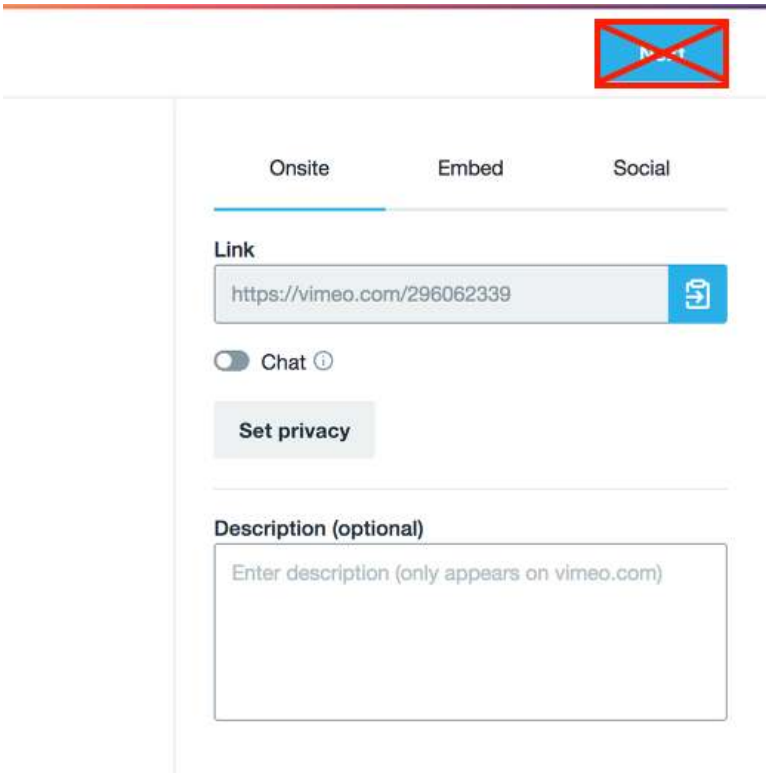
First, in a browser, go to your Vimeo account and create a live event. Vimeo allows you to create either a one-time event (only go live once) or a recurring event (which you can go live to repeatedly).

You must have a Vimeo Premium or Vimeo Enterprise membership in order to go live to Vimeo.

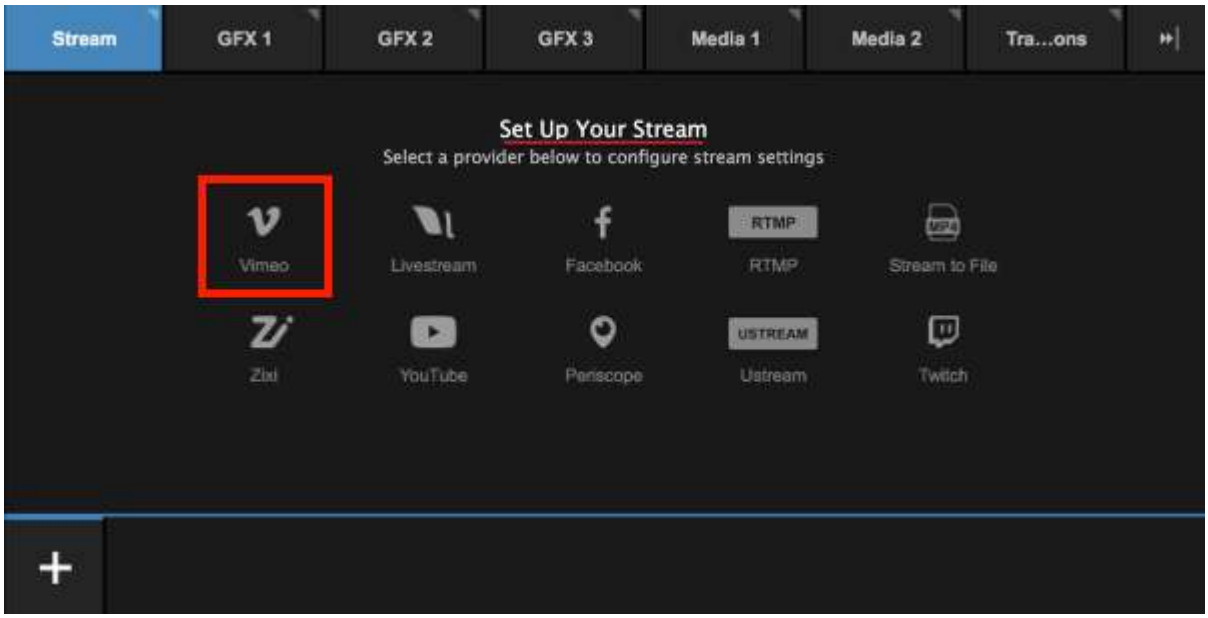




After setting the title, time, and audience, you will be brought to the event setup page and your event is available to select from in Studio. There is no need to click the "Next" button on this page, especially if your event is more than 60 minutes away.

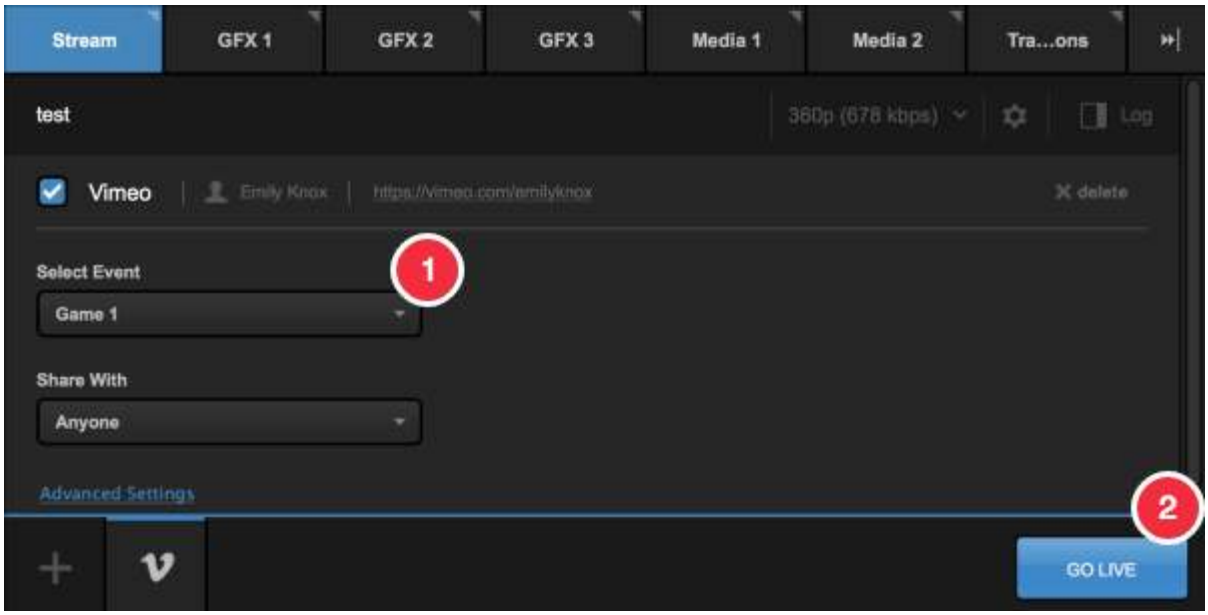


Launch Livestream Studio and navigate to the Stream tab. Select Vimeo and log into your Vimeo account.



Under the Stream tab, open the Select Event menu. Your event should be listed here. The rest of configuring your stream is the same as streaming to a new event.

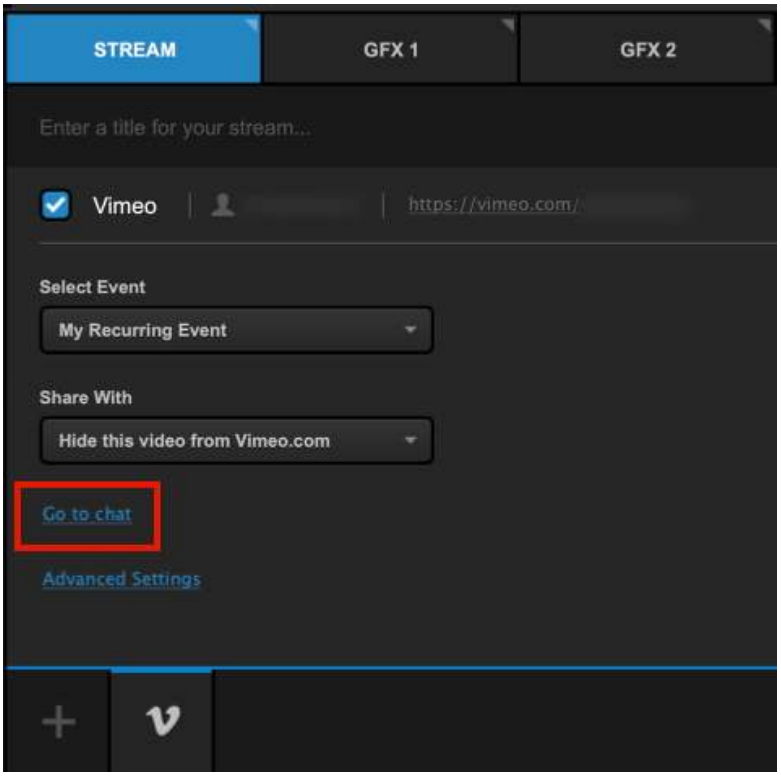
When you are ready to start your stream, click Go Live in the bottom right corner.



Enable and Moderate Vimeo Chat from Studio

If you are streaming to Vimeo, you can enable and moderate your event chat from Vimeo directly within the Studio interface.

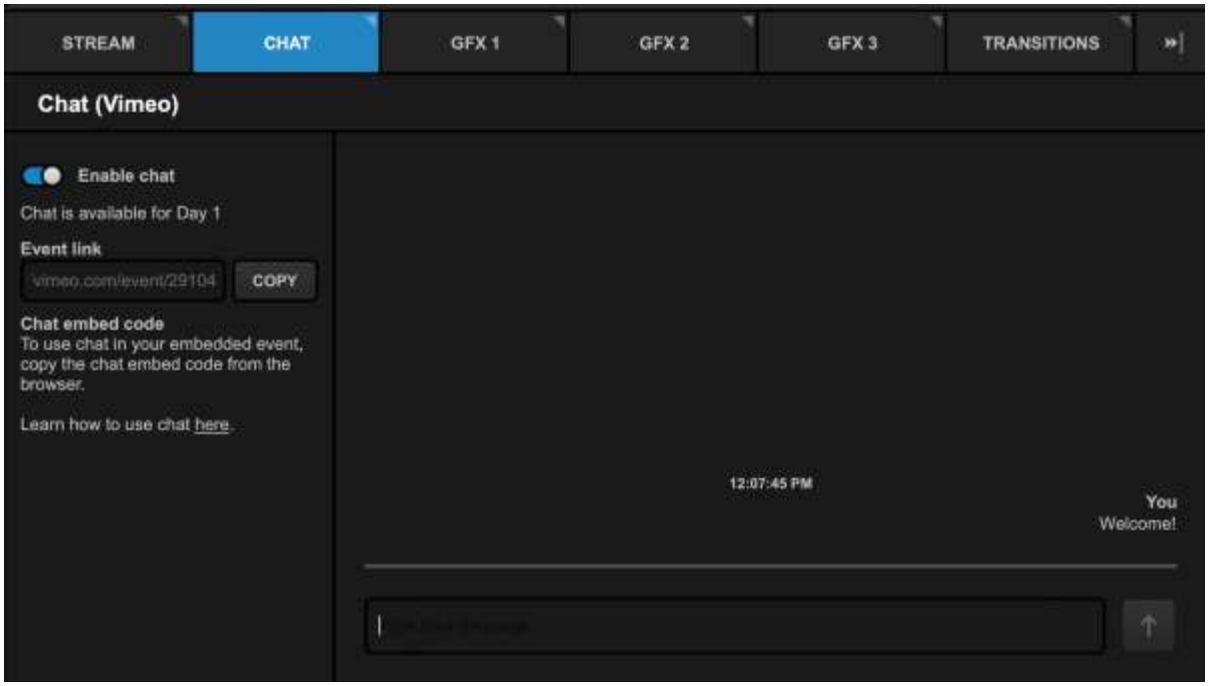
In the STREAM tab, set up your stream to Vimeo. Select your event, then click Go to chat.



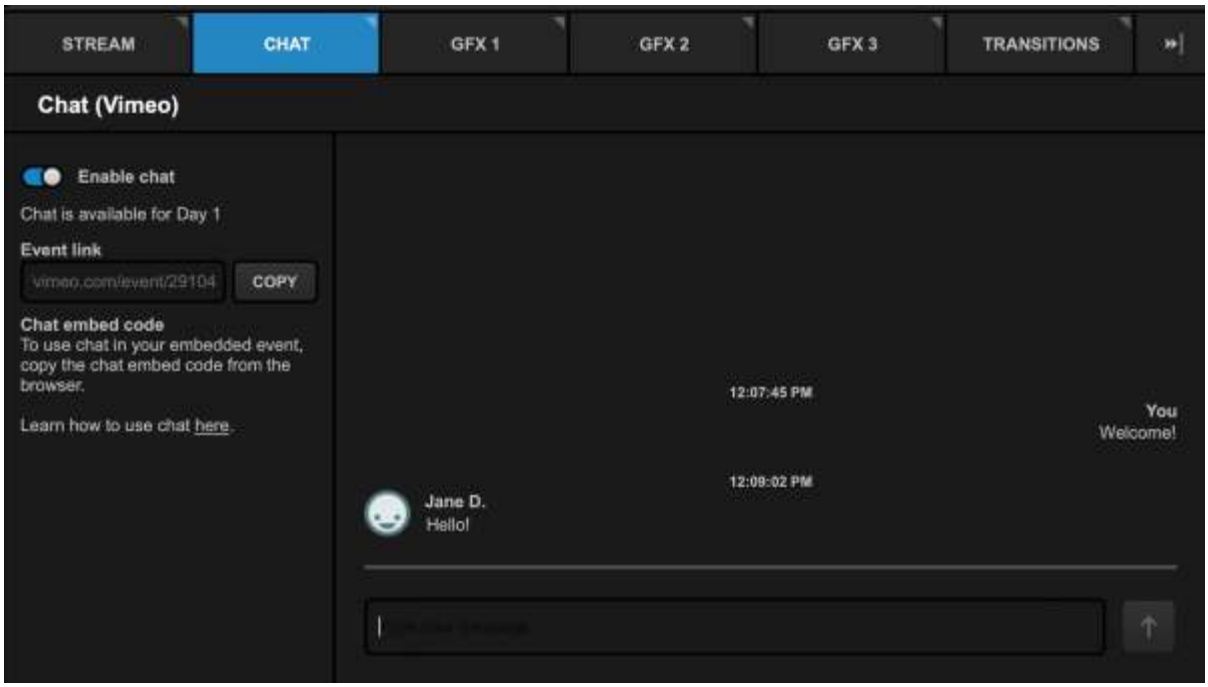
A new CHAT tab will open. Here you can toggle chat on and off for your event, just as you would on the Vimeo site. You can also copy the URL of your event to your clipboard to share or paste it into your browser.

If you are creating a new event from Studio, the toggle will be grayed out and set to Off by default until you start streaming; you will be able to switch it on or off as soon as you go live.

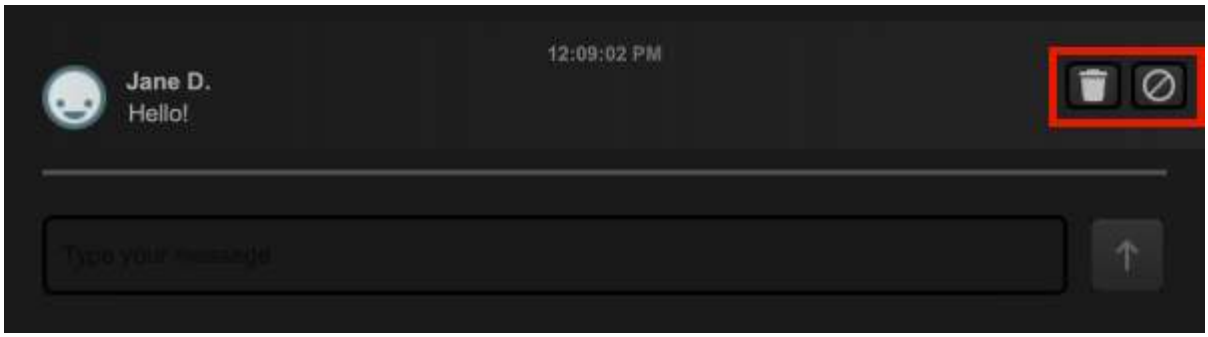
On the right side is the chat window, where you can message your viewers without needing to navigate to a browser window.



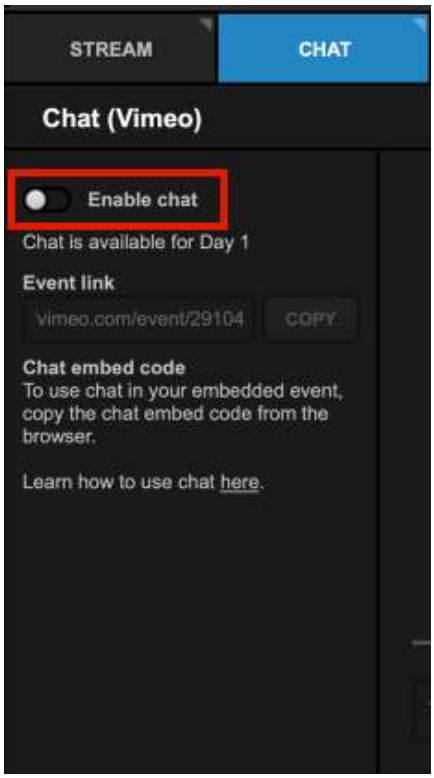
You will also see any chat messages from your viewers come in in realtime.



You can delete individual chat messages by hovering your cursor over the message and clicking the trash can icon, or block the chat participant from posting any additional messages by clicking the block icon. The viewer will not be notified that they've been blocked but no one will see any messages that they post from that point on.

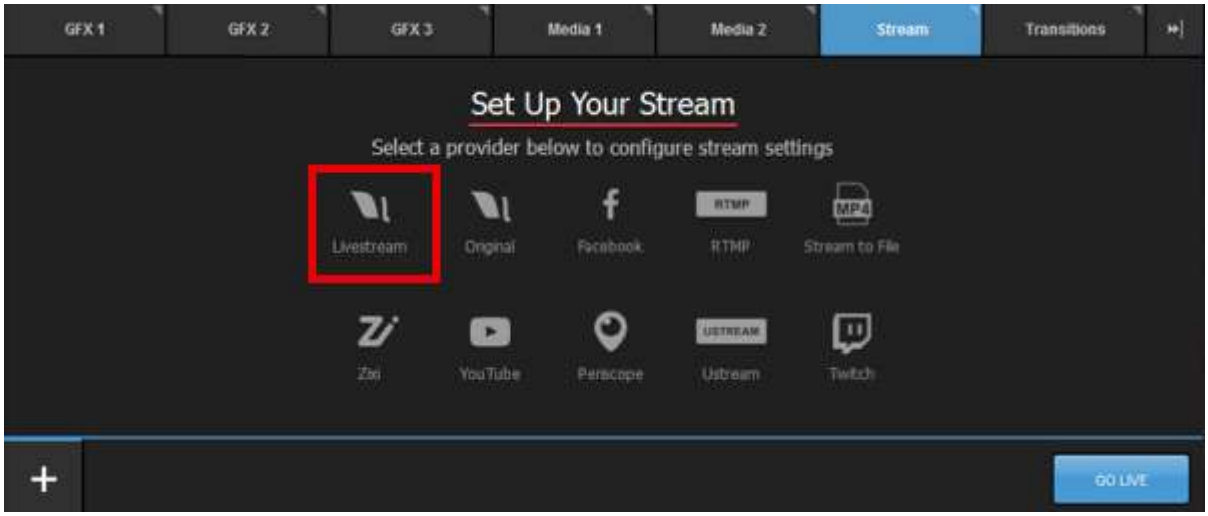


If you wish to disable chat at any point during your event, toggle the Enable chat switch to the Off position. Chat will immediately be disabled on your event.

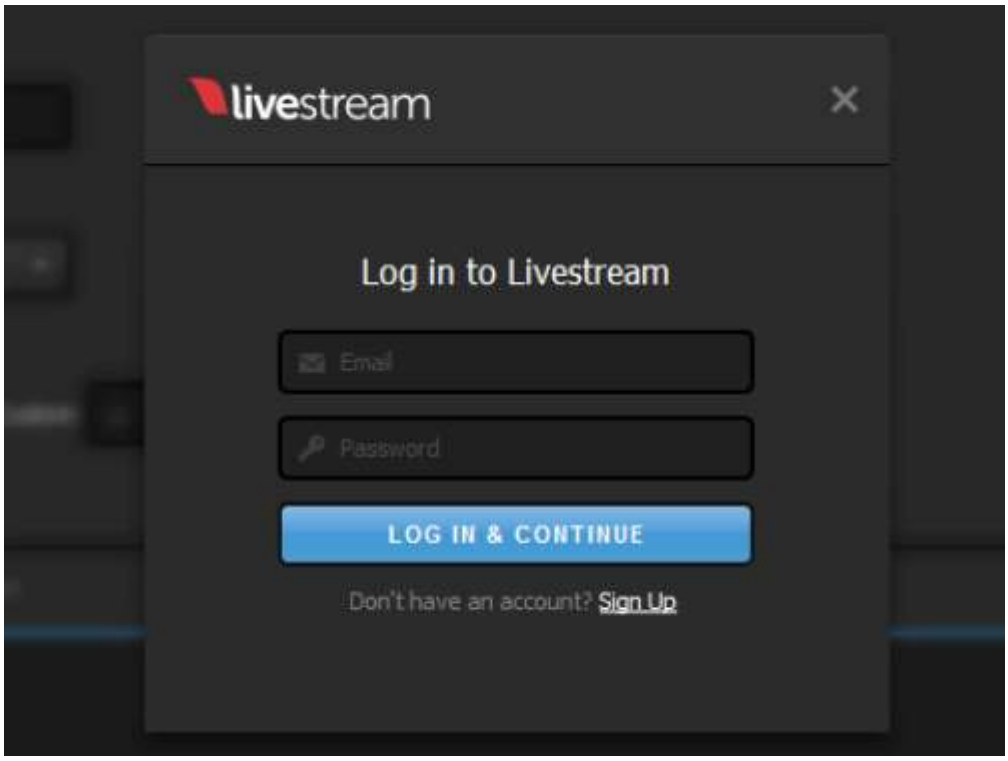


Streaming to Livestream with Livestream Studio

Select the Stream tab in Livestream Studio. Here you will see a few providers to choose from. Select Livestream.



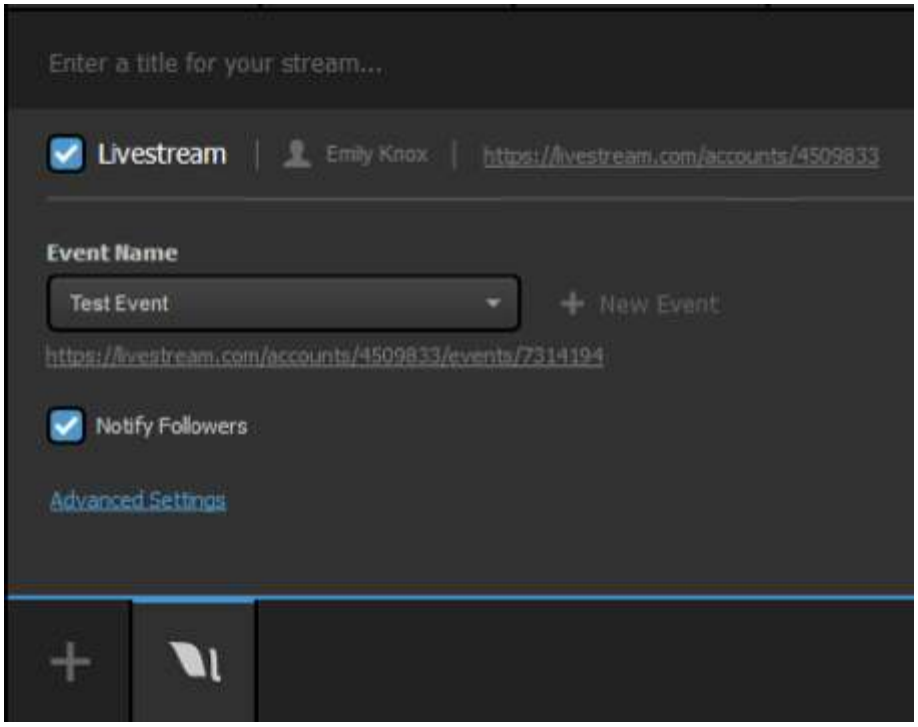
Log in to your Livestream account.



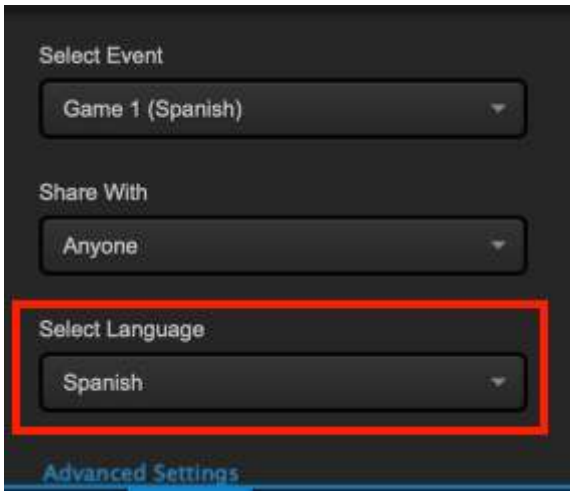
At the top of the module is a text field labeled Enter a title for your stream... Type a stream title in here.

Choose an event from the Event Name drop-down menu (or click + New Event to create a new event).

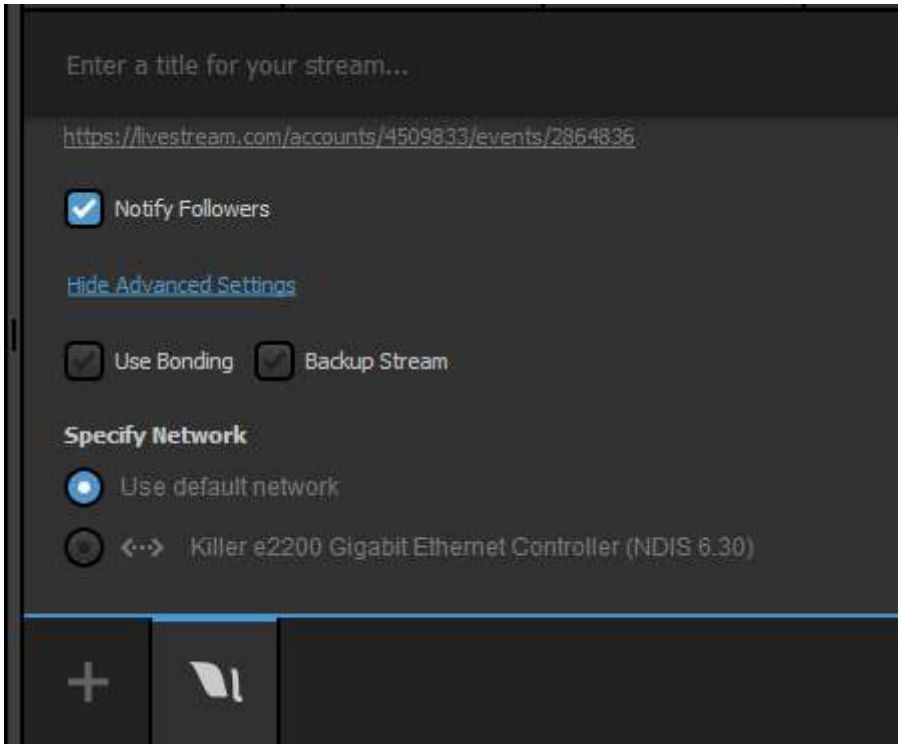
By default, your Livestream followers will receive a notification when you go live. If you do not want to send out a notification, uncheck Notify Followers.



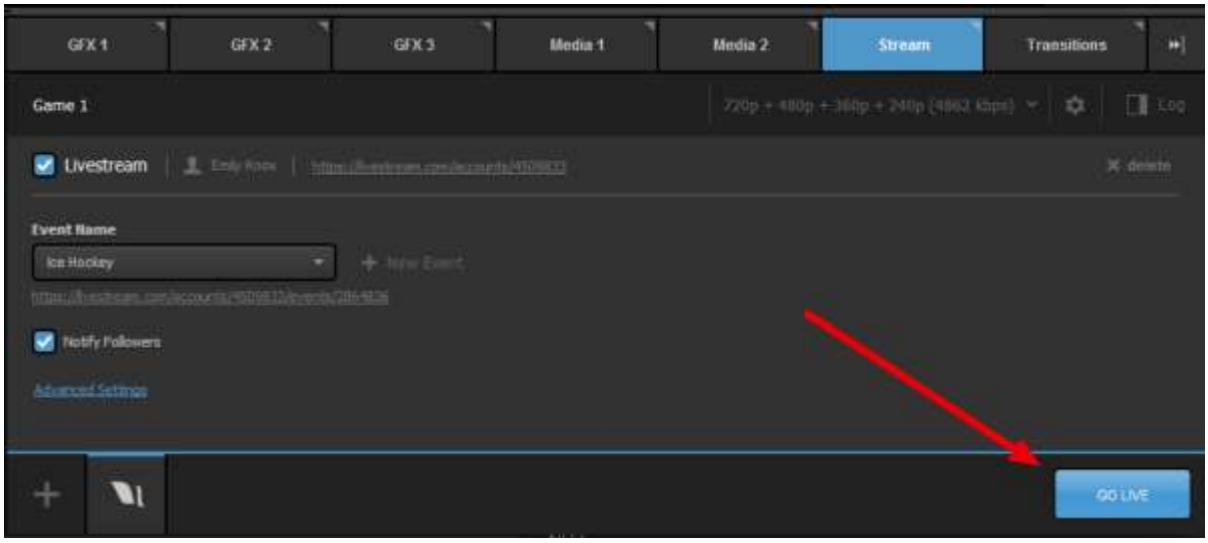
If you have enabled multi-language events, you can choose which incoming language (or audio track) will output to this particular stream by using the Select Language drop-down menu; if you are simulcasting, this allows you to stream to the same provider but select a different language for each stream instance. This menu does not appear if multi-language events are not enabled.



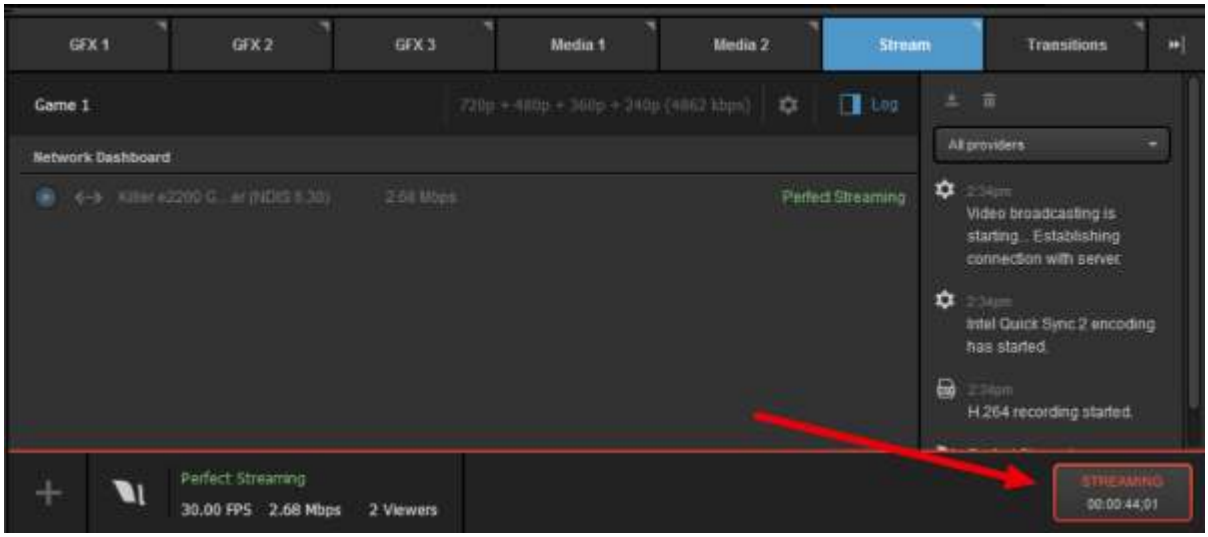
Click Advanced Settings if you want to send the stream over a bonded connection, send it as a backup stream, or specify which network(s) to use for your stream.

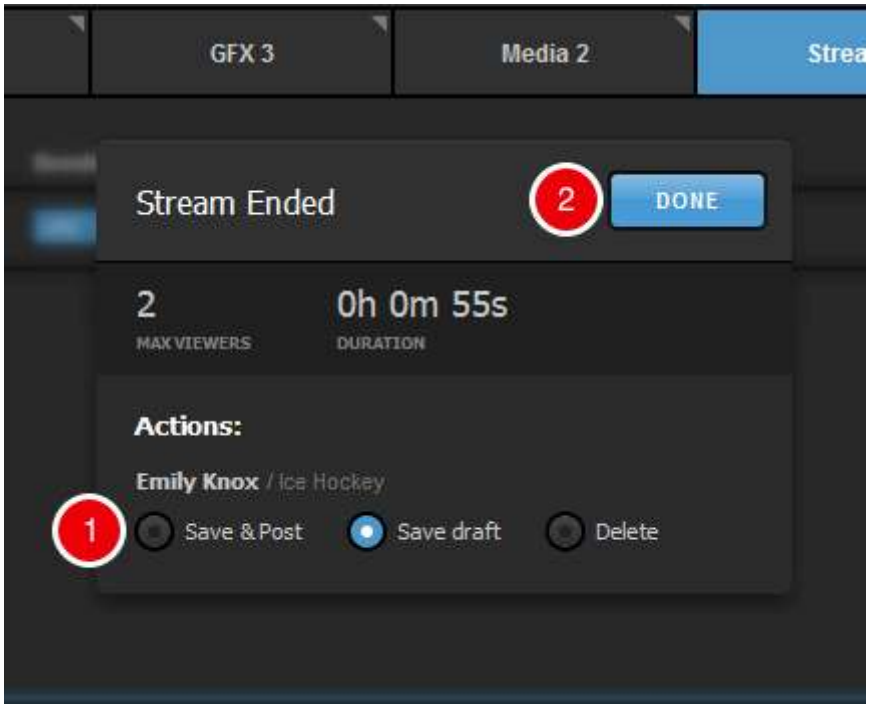


When you are ready to start your stream, click Go Live in the bottom right corner.



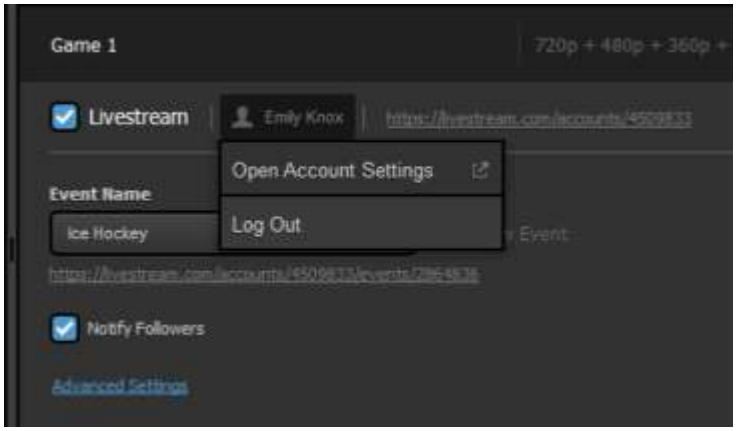
Press the red Streaming button to end the stream. When a stream is terminated, the user will be prompted to post the video-on-demand (VOD) to the event, save the clip as a draft on the event page, or delete the cloud recording.





The viewer count recorded in Studio counts viewers watching the Livestream player. If you are simulcasting to other destinations, those views are not recorded in Studio.

To change the Livestream account you stream to, click on your account name inside the Stream module. From here, you can either open a browser to your Livestream Account Settings or Log Out of your account in Studio.



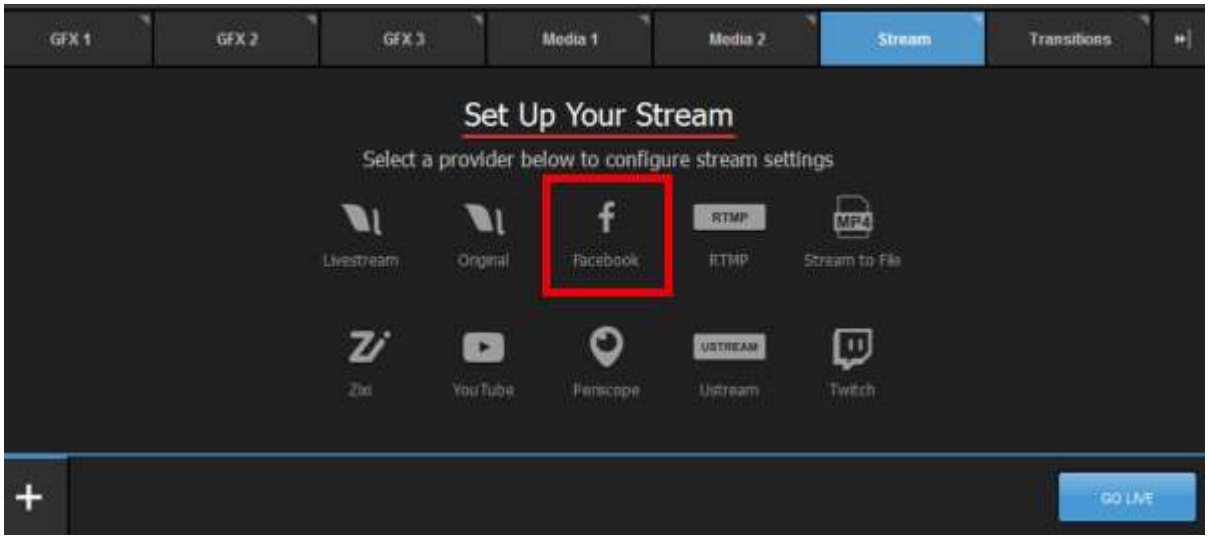
Streaming to Facebook Live via Livestream Studio

You have the option to stream directly to your Facebook Profiles and Pages of which you are an admin.

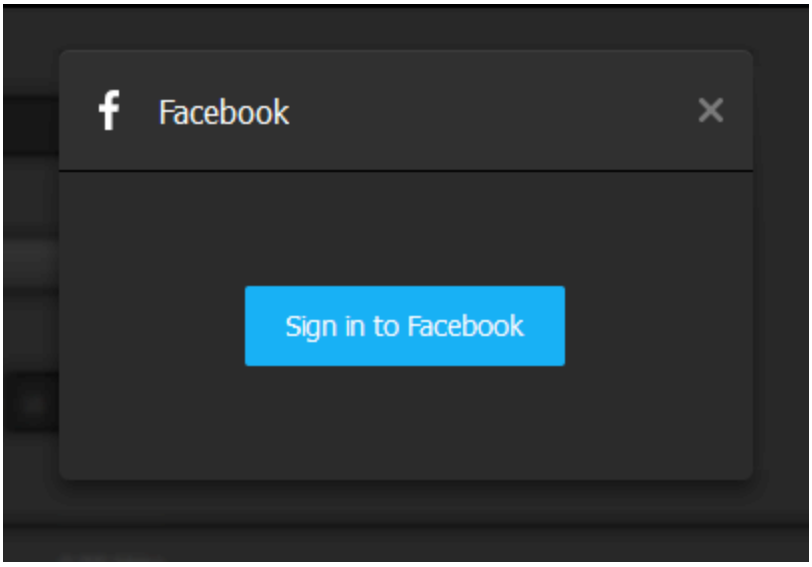
This article covers going live to Facebook via Livestream Studio. *If you are trying to stream to Facebook via the Livestream Platform Simulcast feature, see here.*

Log in to Facebook.

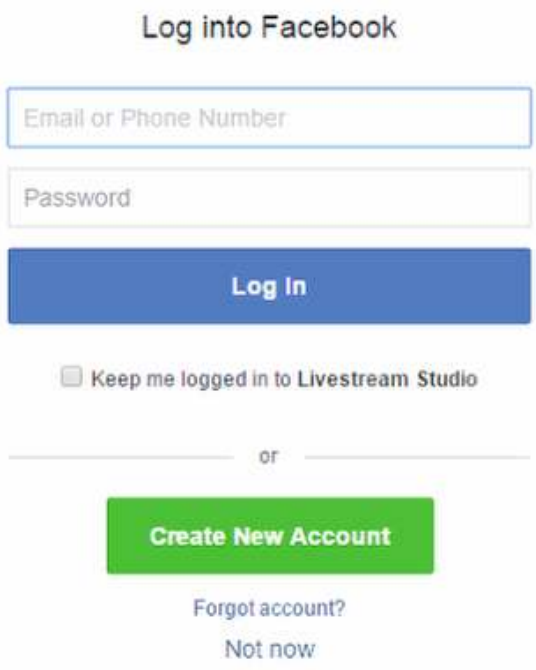
Navigate to the Stream tab in the lower right corner of Studio, then select Facebook.



Click Sign in to Facebook. A browser window will open.



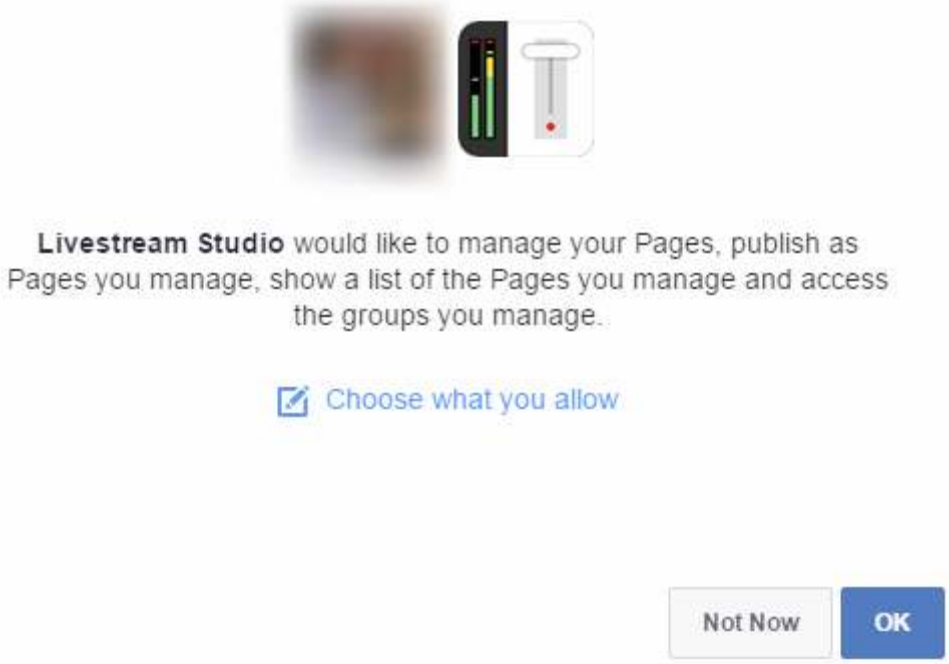
Enter your Facebook credentials, and select whether you wish to stay persistently logged into Livestream Studio. Then click Log In.



Livestream Studio will request several permissions, including your friend lists, events, ability to post, and access to pages you manage. Be sure to allow these and continue.

We recommend setting your default audience settings to Public, especially if you ever intend to stream to an audience beyond your friends list. You can restrict your audience for each broadcast within Livestream Studio before you go live.

Click OK to finish permission settings.

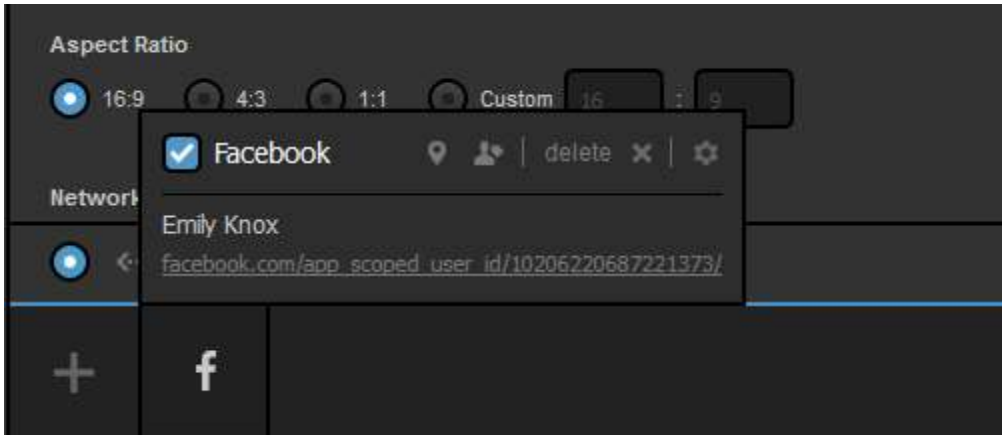


When authorization is complete, you can close your browser window if it does not close automatically.

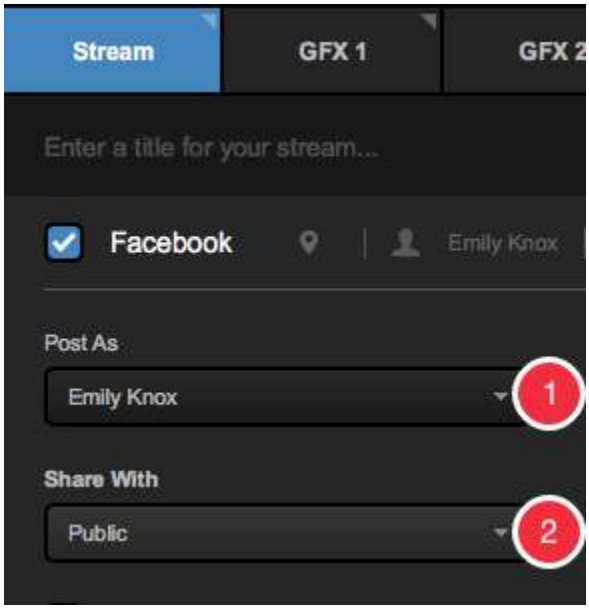
Configure Facebook Settings

Across the top of the Stream module are a handful of add-ons for your stream, including the abilities to tag your (1) location and (2) friends. You can also log out of your Facebook account, click the URL to open the page where your stream will be hosted, or remove Facebook as a streaming destination.

You can also access these options by hovering your cursor over the Facebook icon at the bottom of the module.

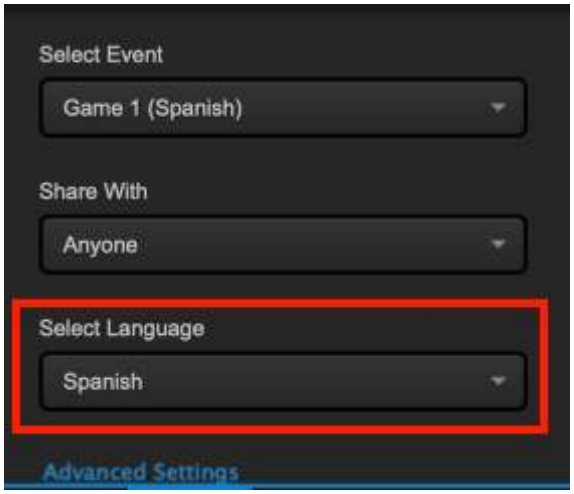


Below these options are basic stream configuration settings.



1. 1. In the Post As dropdown, you can choose between your personal profile, any pages you *admin*, or any groups you *admin*.
2. 2. Share with lets you choose which audience you would like to share your stream with.

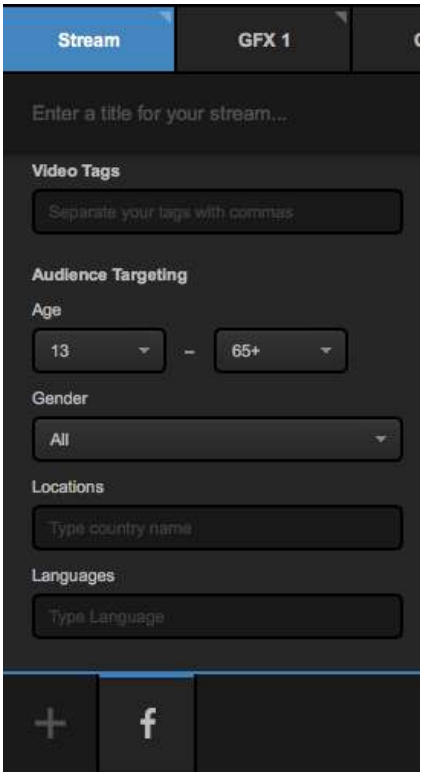
If you have enabled multi-language events, you can choose which incoming language (or audio track) will output to this particular stream by using the Select Language drop-down menu; if you are simulcasting, which allows you to stream to the same provider but select a different language for each stream instance. This menu does not appear if multi-language events are not enabled.



Below these basic configurations, click Advanced Settings to set a variety of options for customizing your live video post on Facebook, such as adding tags for other pages on Facebook, and audience targeting tools.

You can also provide other metadata for your stream, such as targeted countries and what language the broadcast will be in.

At the bottom of this section, you can select which network to stream over, if you have multiple available.

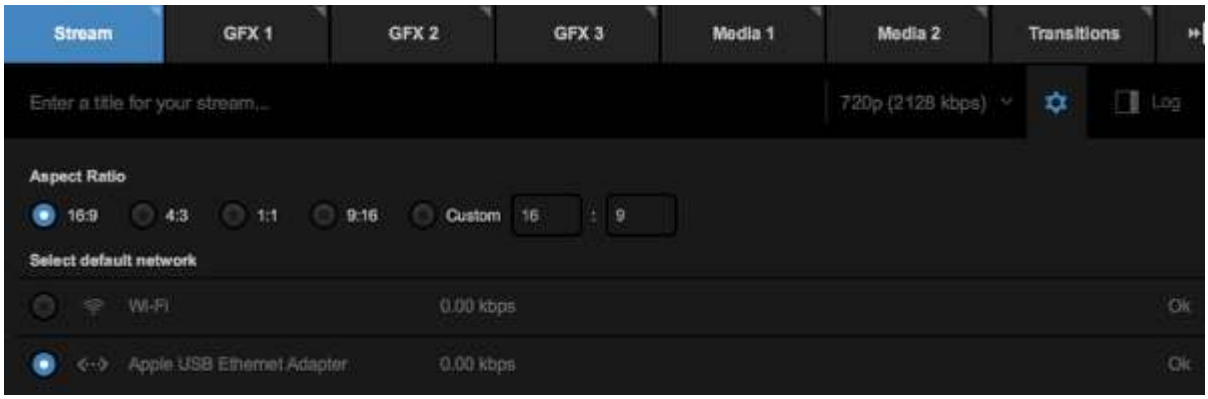


Go Live to Facebook

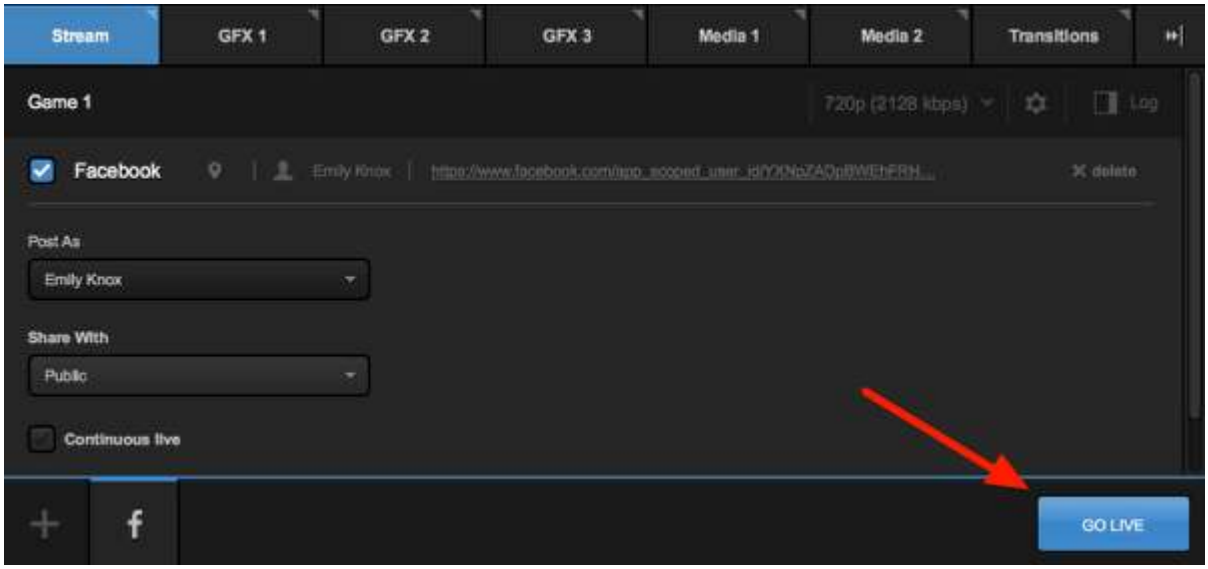
At the top of the module, give your stream a name and select a streaming quality. For optimum performance on Facebook, select a single bitrate (e.g. 720p+) rather than a multi-bitrate quality (e.g. 720p + 540p + 240p).

Clicking the gearwheel allows you to select your preferred aspect ratio. Choosing 1:1 or 9:16 will display a yellow Safe Area Display in Program and Preview demonstrating what your stream's output will look like so you can set your shots accordingly. You also have the option to see the display is all multiview sources, or to turn it off entirely.

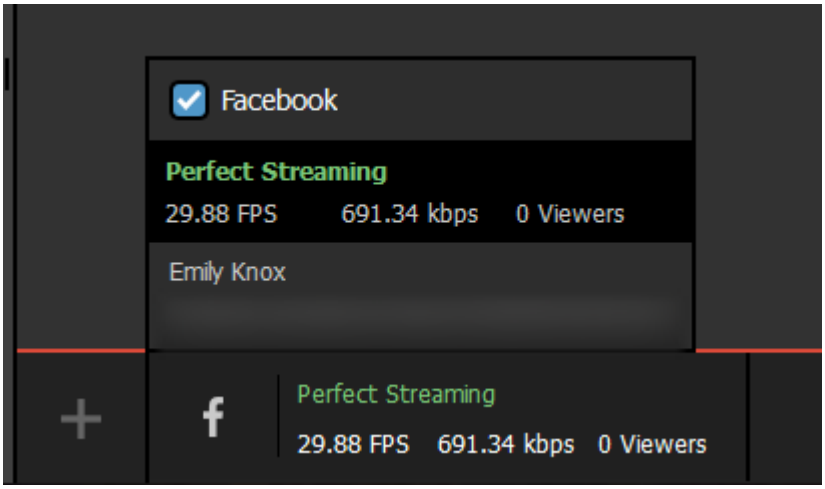
Here, you can also choose your default streaming network. Unless you specified a different network in the Advanced Settings section, your stream will broadcast over this network.



Click Go Live to start your stream.

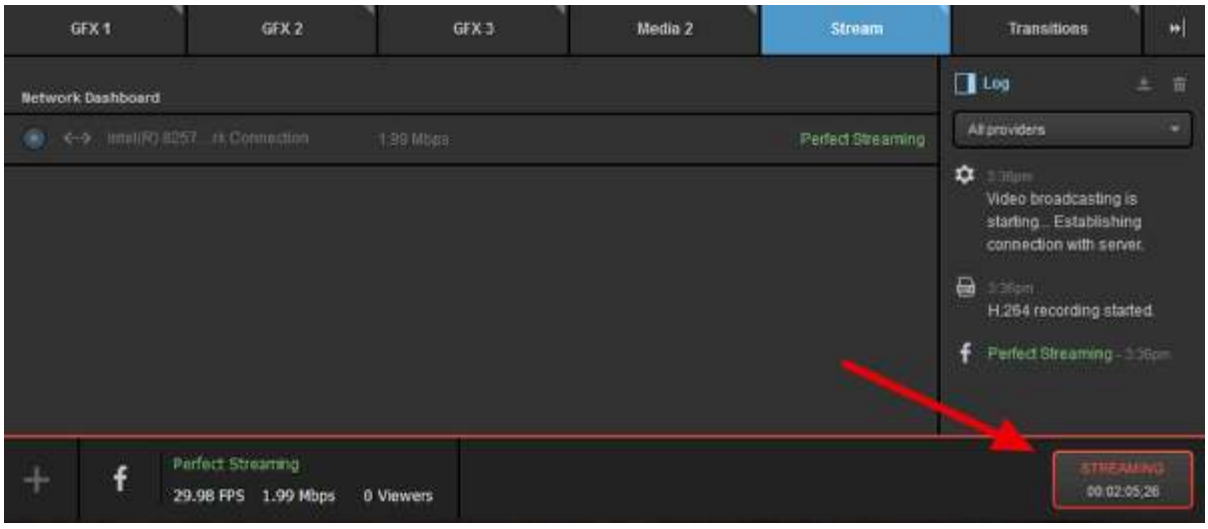


Once you are live, you can view your stream by hovering the mouse over the Facebook logo and clicking the URL in the menu that pops up.



The stream will appear in your Facebook timeline after about 10 seconds.

When you want to end your stream, click the red Streaming button.



The broadcast will end promptly and the stream will save on your Facebook timeline for on-demand playback.

Stream to a Scheduled Live Post on Facebook via Livestream Studio

While you can go live to your Facebook pages and groups at any time, many publishers on Facebook prefer to use Facebook's Scheduling feature so that their followers have prior notice and are more likely to watch their live event.

Schedule a Live Video on Facebook

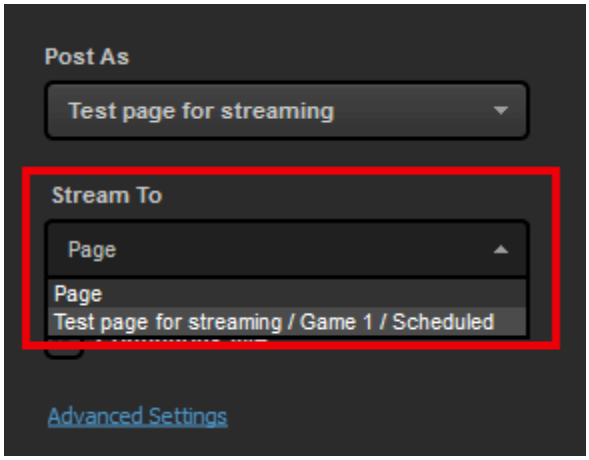
In order to stream from Studio to a scheduled live video on Facebook, you will first need to create the scheduled post on Facebook.

Facebook provides a comprehensive tutorial and best practices to scheduling a live video on Facebook. A broader live overview for Publishers on Facebook is also available.

Once your live video is scheduled, you can configure Studio to stream to it.

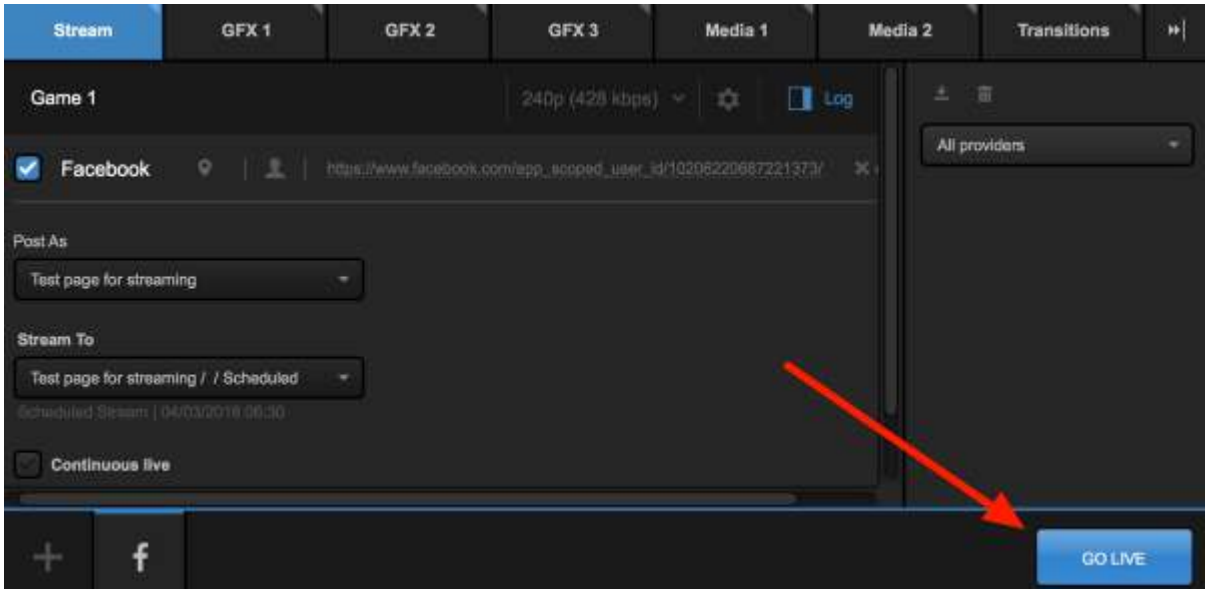
Go Live to Your Scheduled Live Post

In Livestream Studio, navigate to the **Stream** tab, select Facebook and log in to the same account. Select your Page under **Post As**, and then open the **Stream To** drop-down menu. Your scheduled live video post will appear there.



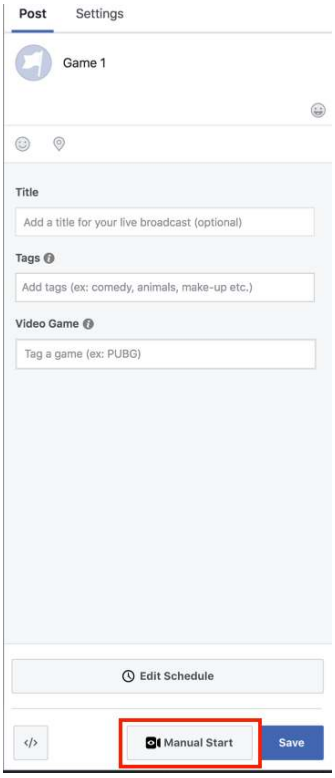
Select that scheduled post. Configure the rest of your stream is the same as all streams to Facebook.

When you are ready to start broadcasting, click Go Live in the bottom right corner.

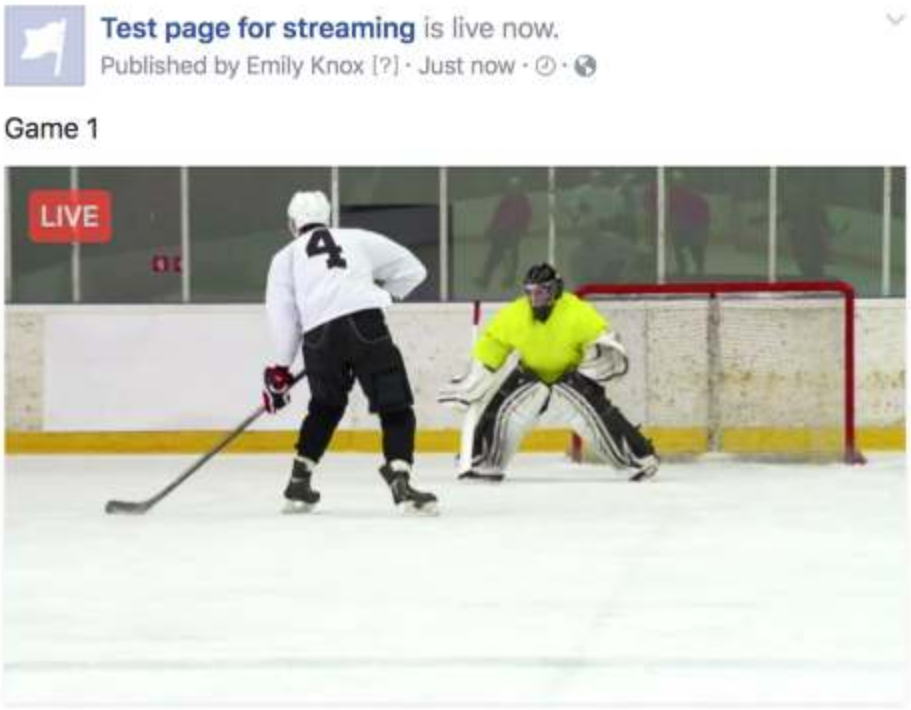


When you edit your scheduled post on Facebook, you can see your stream come in and monitor it. However it will not appear live on your timeline until the time you scheduled your post to go live.

If you want to go live sooner, click the Manual Start button at the bottom of the post editor in Facebook.



Once you confirm you want to proceed and Facebook fetches your stream preview, click Go Live. Your stream will be live on your Facebook timeline.



Alternatively, wait until your scheduled start time; the stream will appear on the timeline automatically.

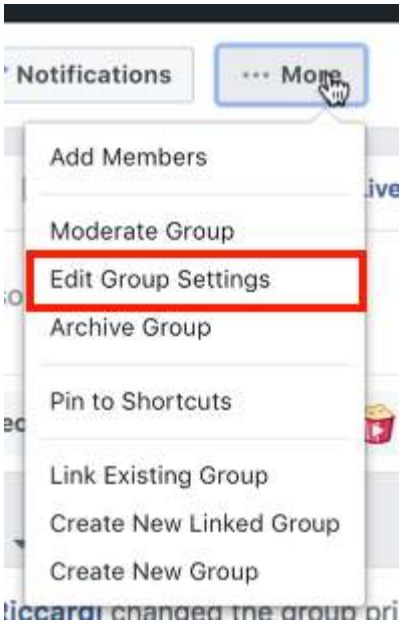
When your event is over, you can simply click the red Streaming button in Studio to end your live event on Facebook.

Stream to a Facebook Group via Livestream Studio

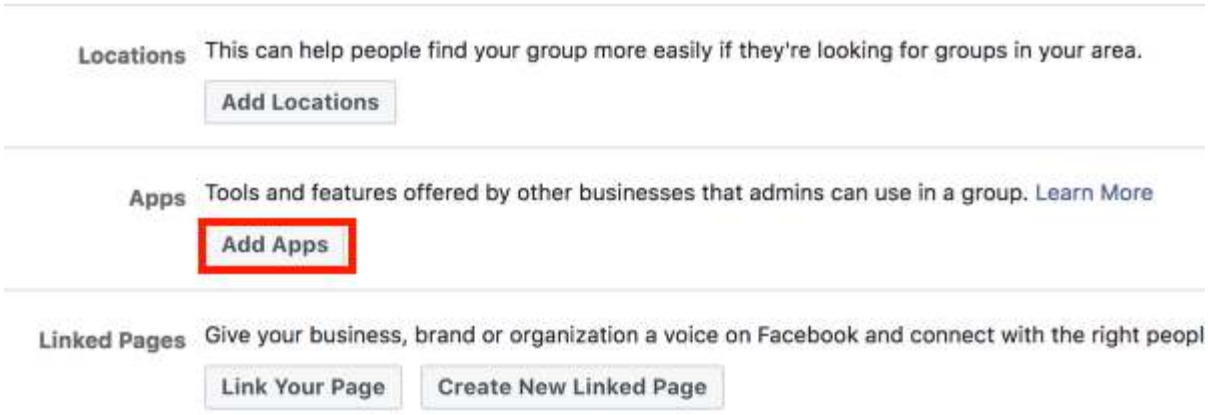
In order to go live to a Facebook Group from Livestream Studio, you must first be an Admin and install the Livestream Studio Facebook App to your Group. Once you have done so, you will be able to choose your Group as a streaming destination within Studio.

First, make sure you are an **Admin** of your Group. Only Admins can adjust Group settings and go live to Groups. Also, ensure that you are using Livestream Studio version 5.1.25 or later.

On your Group's Discussion page, open the **More** menu and select **Edit Group Settings**.



Scroll down to the **Apps** section and select **Add Apps**.



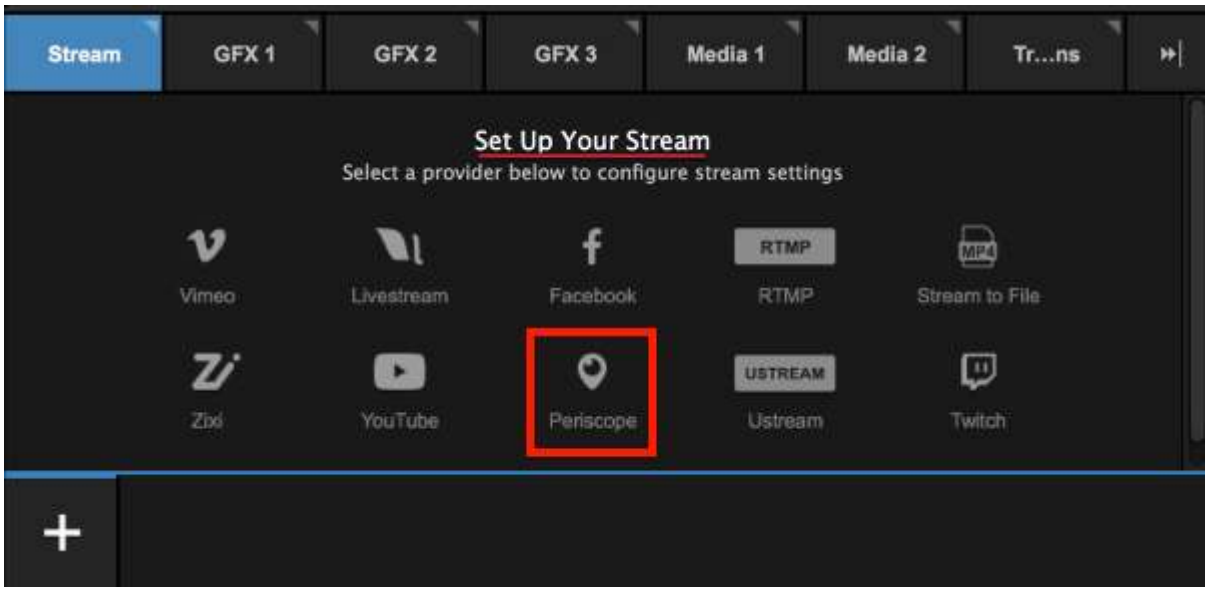
Find the Livestream Studio app in the list and select it. Once you've added the app to your Group, be sure to scroll to the bottom of the settings screen and click Save.

In the Livestream Studio software, navigate to the Stream tab and select Facebook. Configure your stream as you normally would; your Facebook Group should appear as an option in the Post As menu.

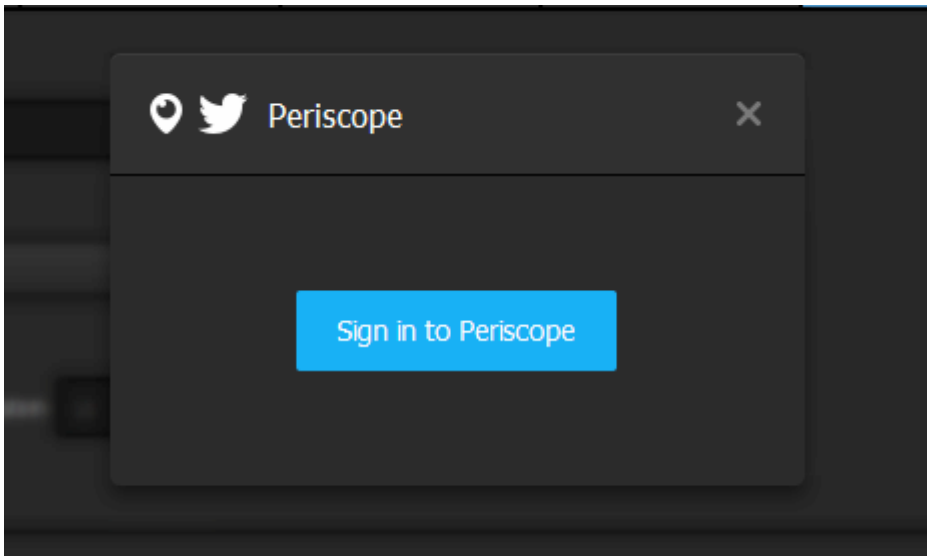
Stream to Twitter & Periscope via Livestream Studio

Livestream Studio integrates with and streams directly to Periscope.

Navigate to the **Stream** tab and select Periscope as your streaming provider.



Click **Sign in to Periscope**.



This will open your web browser to Periscope's login page. If your browser does not automatically come to the front of your screen, you may need to manually switch over to it. Do not exit Studio.

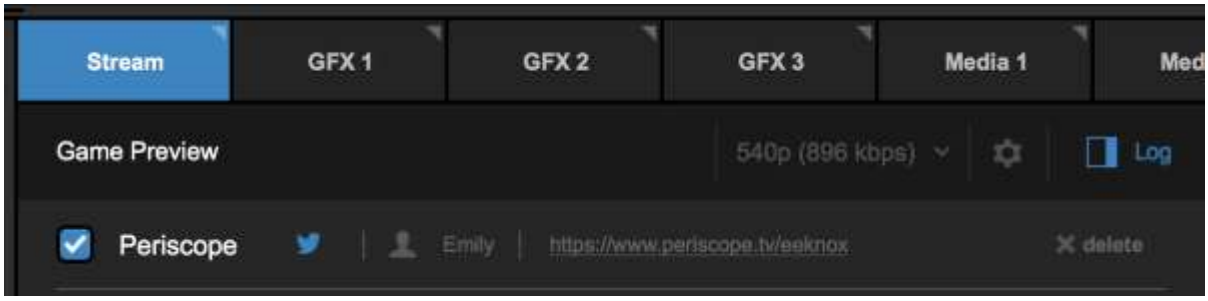
> ⚠ This will not work if Microsoft Edge is your default browser. Set Google Chrome or Mozilla Firefox as your Windows default browser in order to log in.

Log in to Periscope and authorize Studio to access your Periscope account. This is necessary in order for the two applications to communicate to each other.

Once authorized, you can close your browser and go back to Studio.

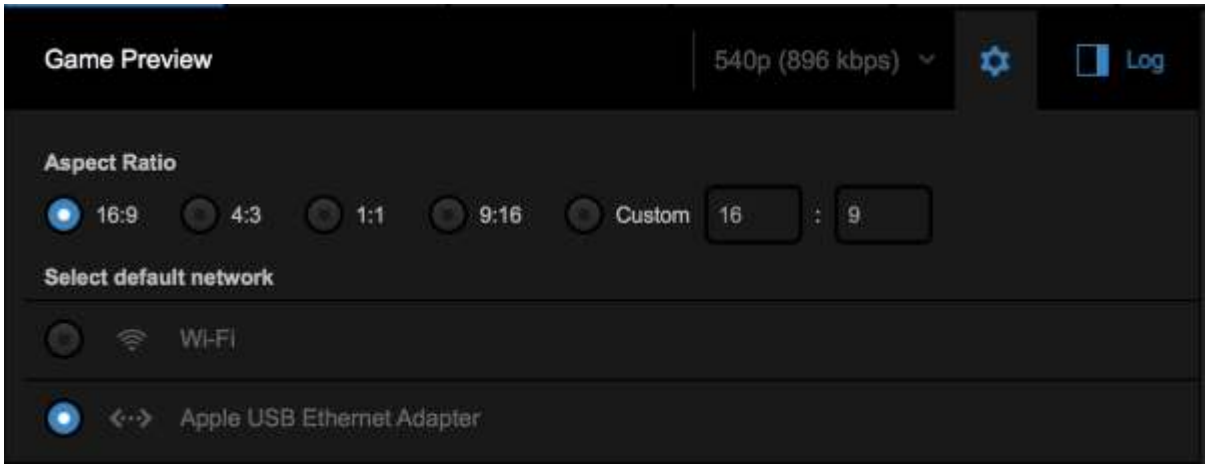
In the Stream module, give your stream a title and select your quality.

> ⚠ 720p is the streaming quality profile that is recommended by Periscope. 1080p and above are not supported.



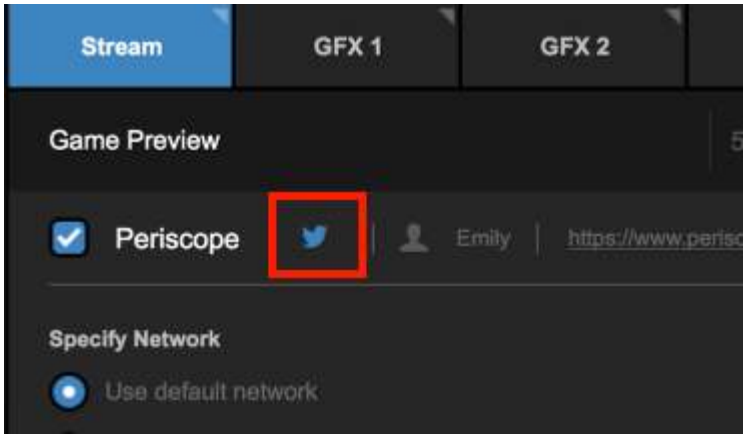
Click the gearwheel on the upper right side to set your aspect ratio and your default network to stream with.

When you have configured these settings, click the gearwheel again to collapse this menu.



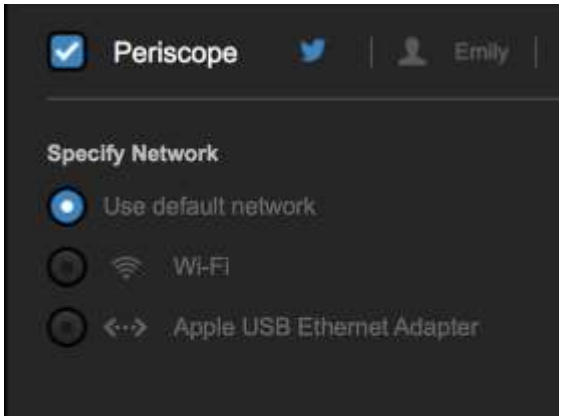
Below the stream name is a small Twitter bird icon. By default, it is blue, indicating that the stream to Periscope will also be tweeted to the Twitter account connected to your Periscope account. If you do not want your stream on Twitter, click the bird icon to disable it.

Clicking the gearwheel in the popup menu will allow you to choose which of your available network connections you will send your stream though (this example only has one).

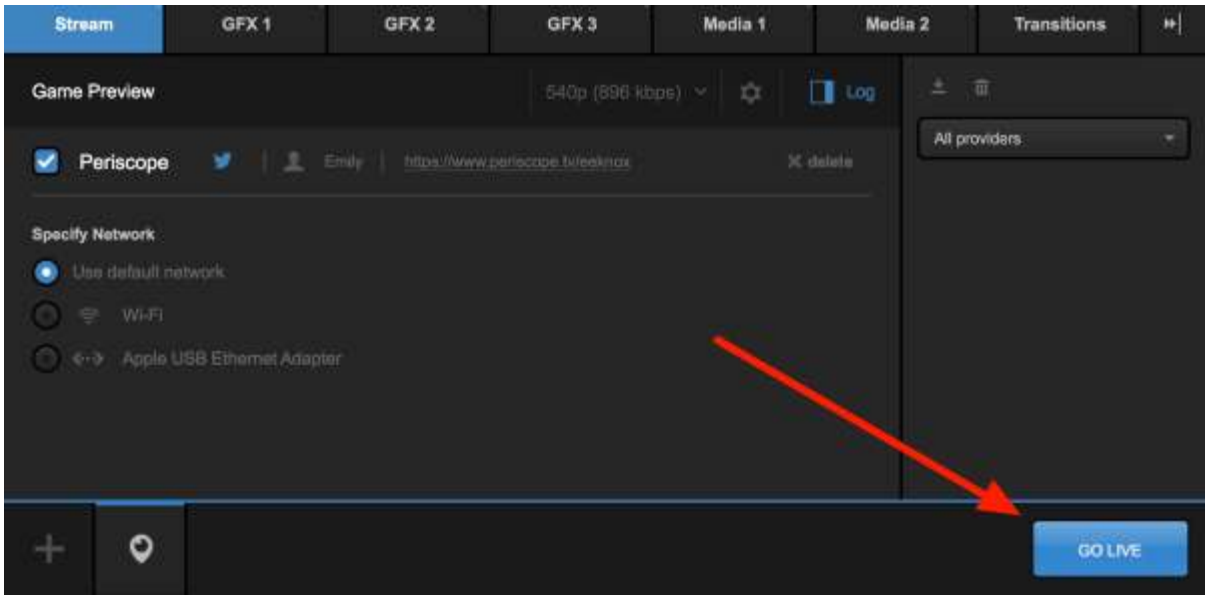


If you have enabled multi-language events, you can choose which incoming language (or audio track) will output to this particular stream by using the Select Language drop-down menu; if you are simulcasting, this allows you to stream to the same provider but select a different language for each stream instance. This menu does not appear if multi-language events are not enabled.

Below this, you can specify a network to use if you wish to stream using a network different from your default set network. This is handy if you intend to add other providers and wish to use different connection types for each stream.



When you are ready to start streaming, click Go Live in the bottom right corner.



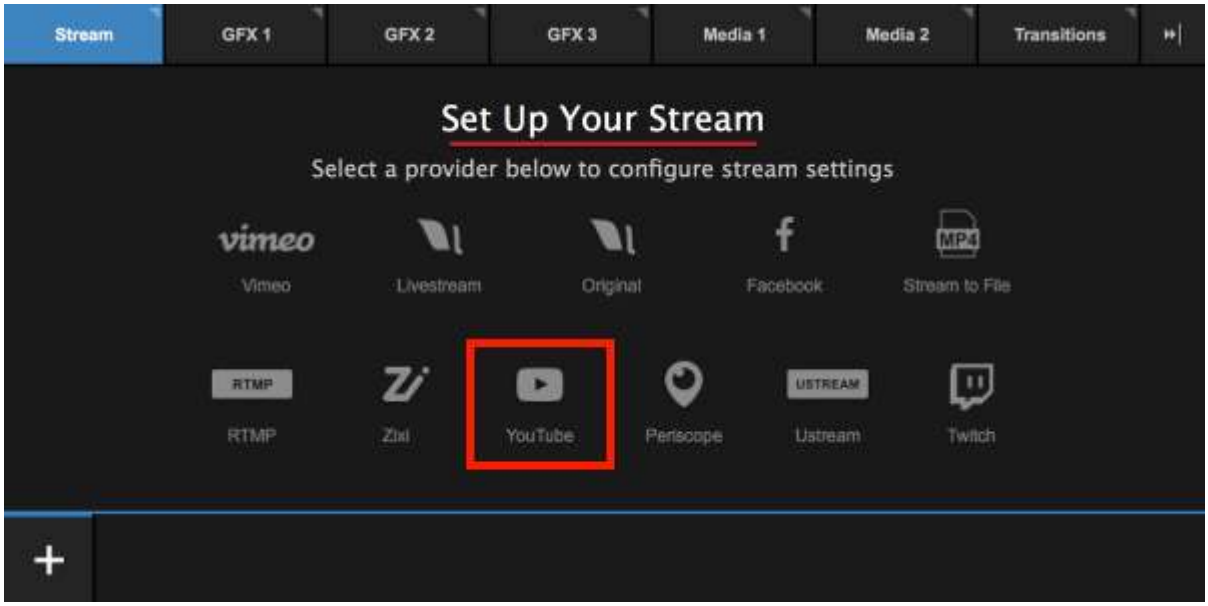
When your event is over, click the red Streaming button to end the stream.

When you stream ends, you can see information about your viewers and for how long you streamed. Choose to either save your video on demand or delete it.

Streaming to YouTube via Livestream Studio

You can stream to your YouTube channel directly from Livestream Studio. There are two ways YouTube supports streaming: either their "Stream Now" option or the Live Events Dashboard.

To get started, go to the Stream tab and select YouTube as a provider.

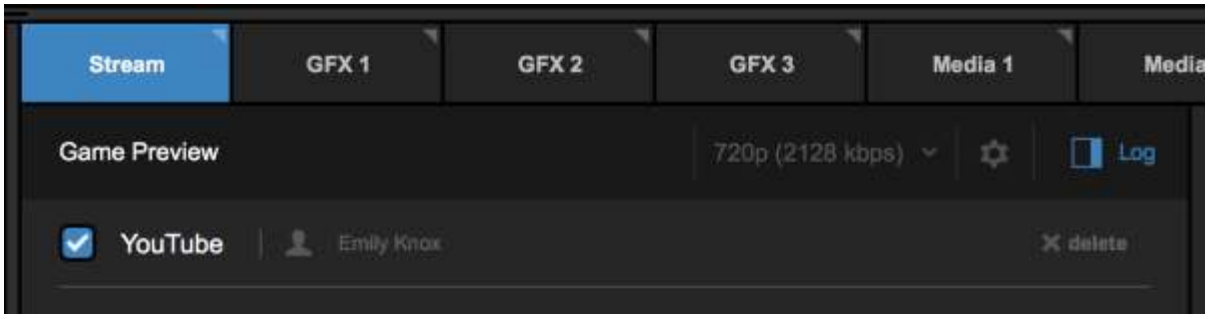


You will need to log in using your YouTube/Google credentials and allow Livestream Studio to access your account. This will open a new browser window; if your browser does not come to the front of your screen, navigate away from Studio to see it and log in. Do not close Studio.

If you are using Google apps (i.e. an Google account that is not a standard @gmail.com address), you may need to authorize access to third-party applications in your Google account or via an admin.

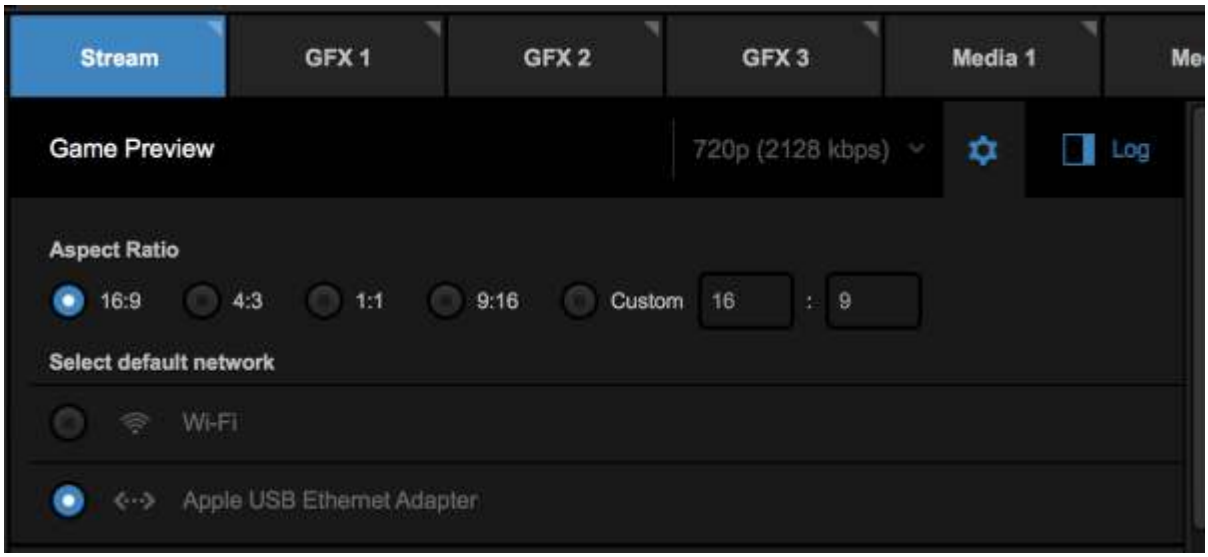
Once you are logged in and authorize Studio access to your Google account, you can close the browser and navigate back to Studio.

Give your stream a title and choose a streaming quality. Since YouTube provides cloud transcoding, we recommend selecting a single-bitrate quality.

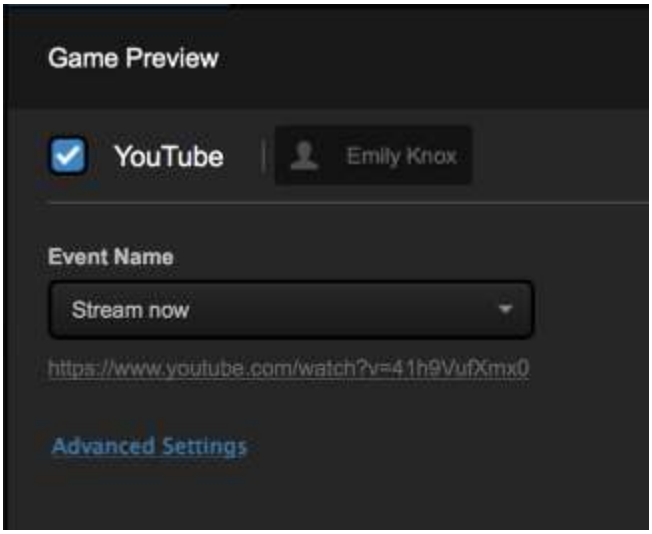


Clicking on the gearwheel will allow you set your aspect ratio and choose your default network. This is the network that will be used to stream with by default for any provider in Studio.

Once you have configured these settings, you can click the gearwheel icon again to collapse the menu.

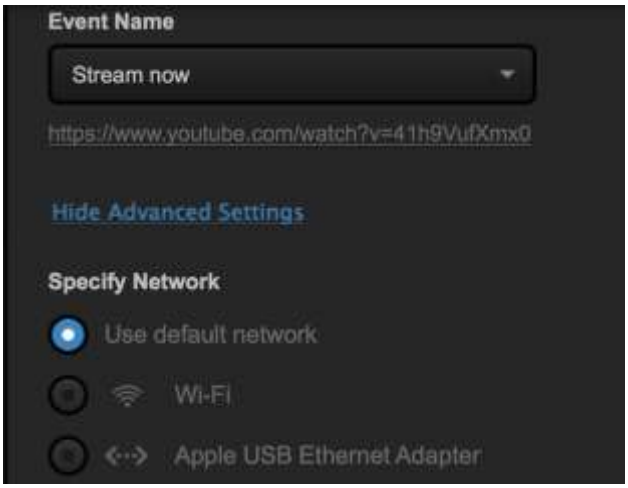


You can select which YouTube event you want to stream to in the Event Name drop-down menu. Selecting Stream Now will simply start a new stream to your channel rather than broadcasting to a previously created event. The URL to your stream will be available below the menu.

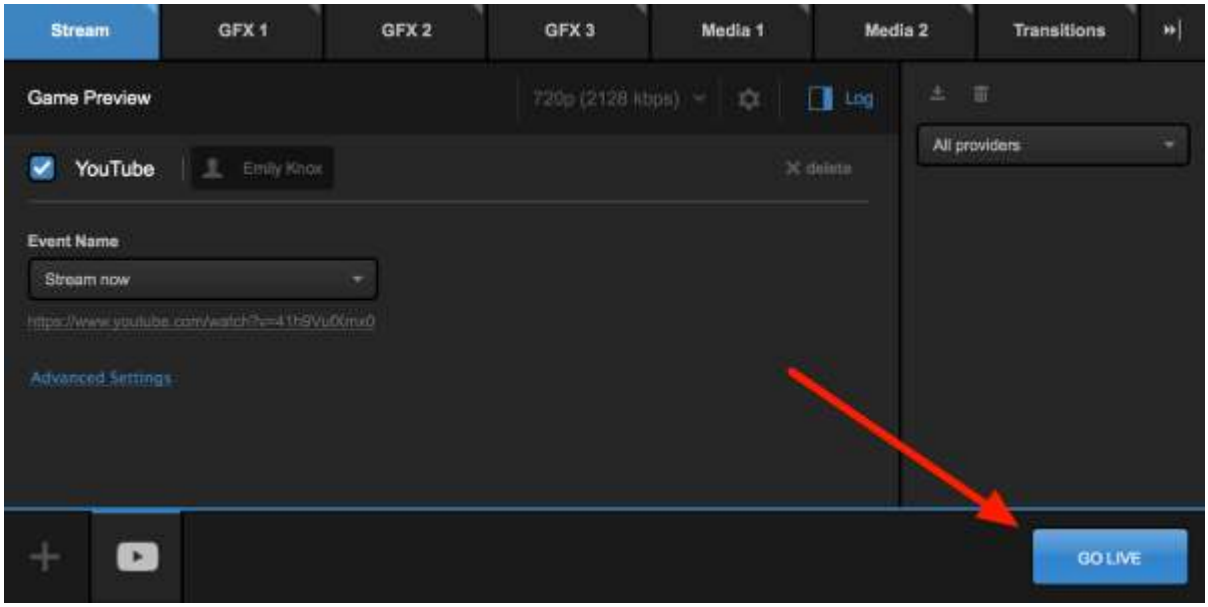


If you have enabled multi-language events, you can choose which incoming language (or audio track) will output to this particular stream by using the Select Language drop-down menu; if you are simulcasting, this allows you to stream to the same provider but select a different language for each stream instance. This menu does not appear if multi-language events are not enabled.

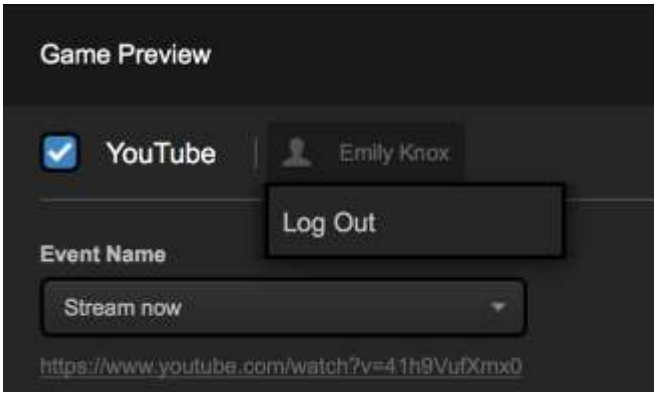
Clicking Advanced Settings will allow you to choose a different network rather than your default network to stream with. This is handy if you intend to add other providers to Studio and wish to keep them on different network devices. When you specify YouTube's network, you can click Hide Advanced Settings to collapse the menu.



When you are ready to start streaming, click Go Live in the lower right corner.



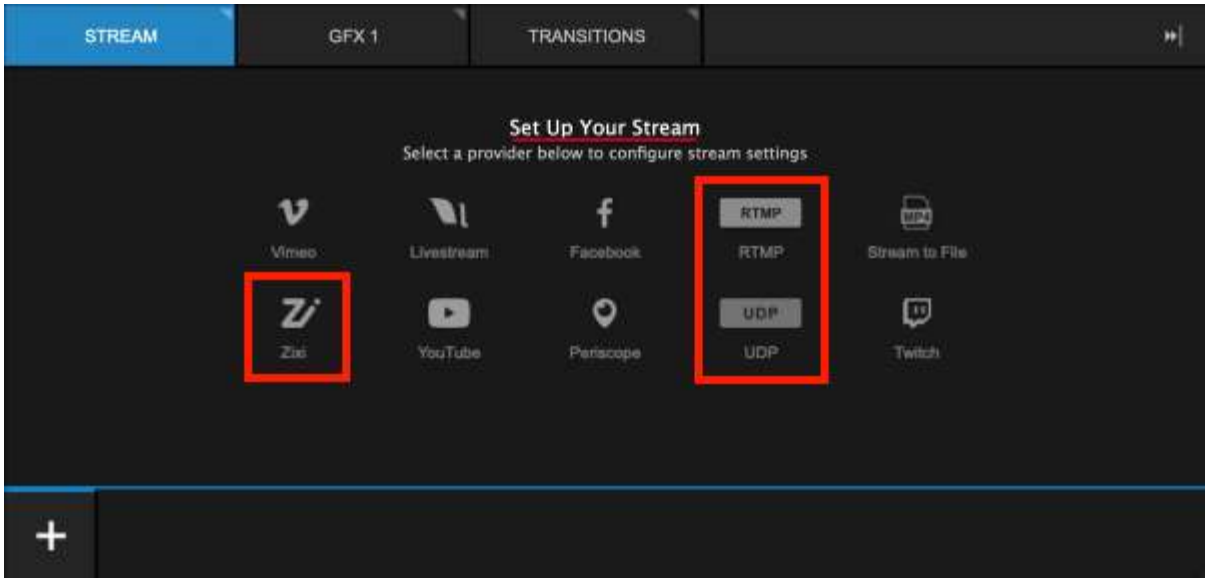
When your event is over, click the red Streaming button to end the stream. If you need to log out of YouTube, click your name below the stream title, then click Log Out.


Game Preview
YouTube
Emily Knox
Log Out
Event Name
Stream now
https://www.youtube.com/watch?v=41h9VufXmx0

Stream via RTMP, RTMPS, Zixi, and UDP from Livestream Studio

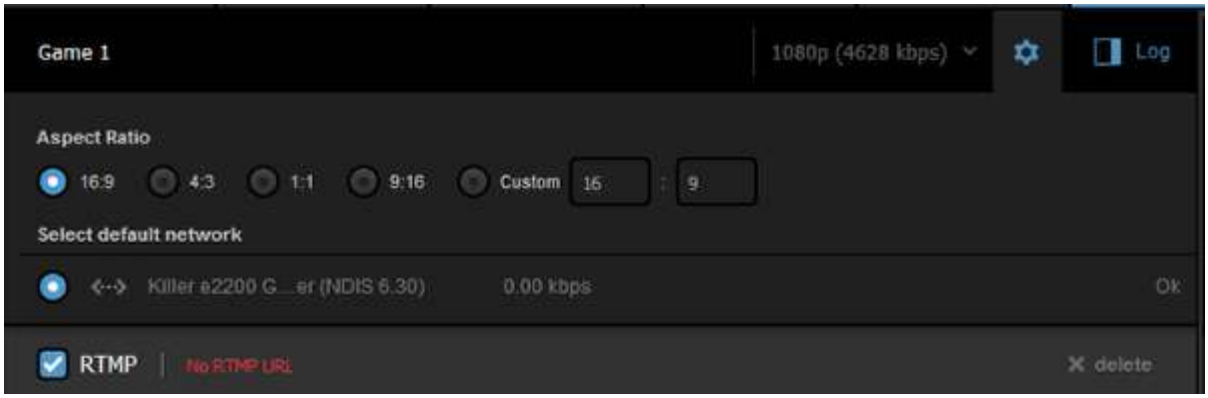
You can stream directly from the Livestream Studio software to other services (e.g. Wowza, Akamai, etc.) using other common protocols such as RTMP/RTMPS, Zixi, and UDP. All these options have very similar interfaces.

Under the Stream tab, click the streaming protocol you plan to use (RTMP, Zixi, or UDP; select RTMP if streaming via RTMPS).



At the top of the module, configure a stream title and streaming quality.

Click the gearwheel to adjust your aspect ratio or choose a default network for sending your stream.

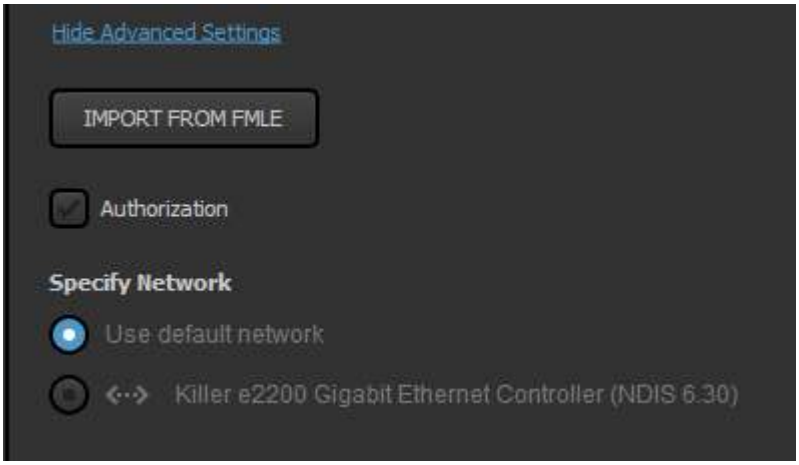


The URL (and Stream Key, if using RTMP) comes from your streaming provider, which allows Studio to know where to send the stream. Paste the appropriate URL into the URL field.

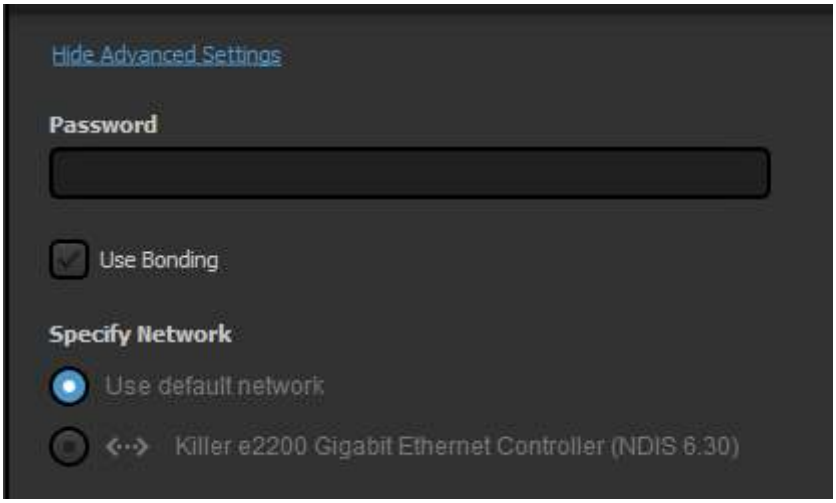
Some RTMP streaming providers only give a single Stream URL with the stream key included, while others provide the stream URL and stream key separately. If your provider does the latter, click switch your view to see two text fields: Stream URL and Stream Key

If you've enabled multi-language events, you will see a Select Language dropdown menu in the RTMP panel, allowing you to choose which language will output in this stream instance.

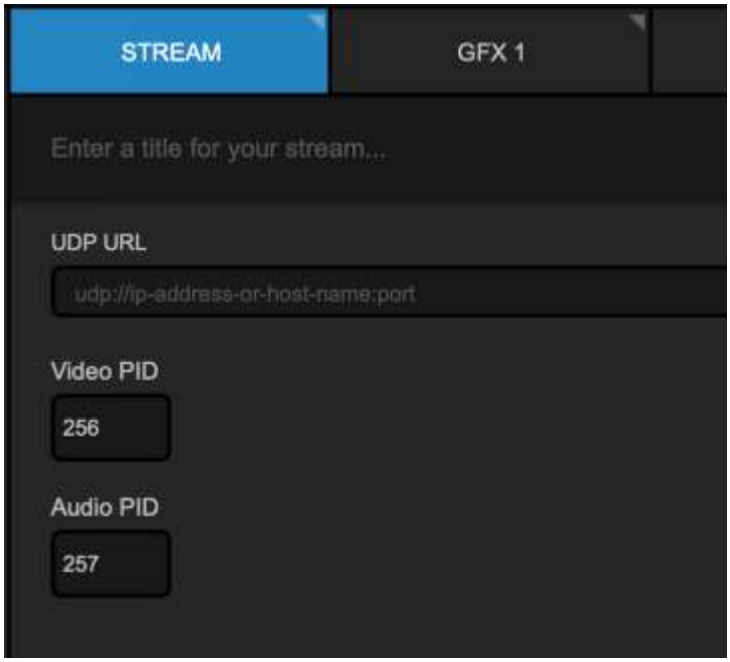
Clicking Advanced Settings will show additional options. For RTMP you will see the option to import the configuration XML file (Import From FMLE), enable authorization, and choose which network to stream over if you do not wish to use your default network.



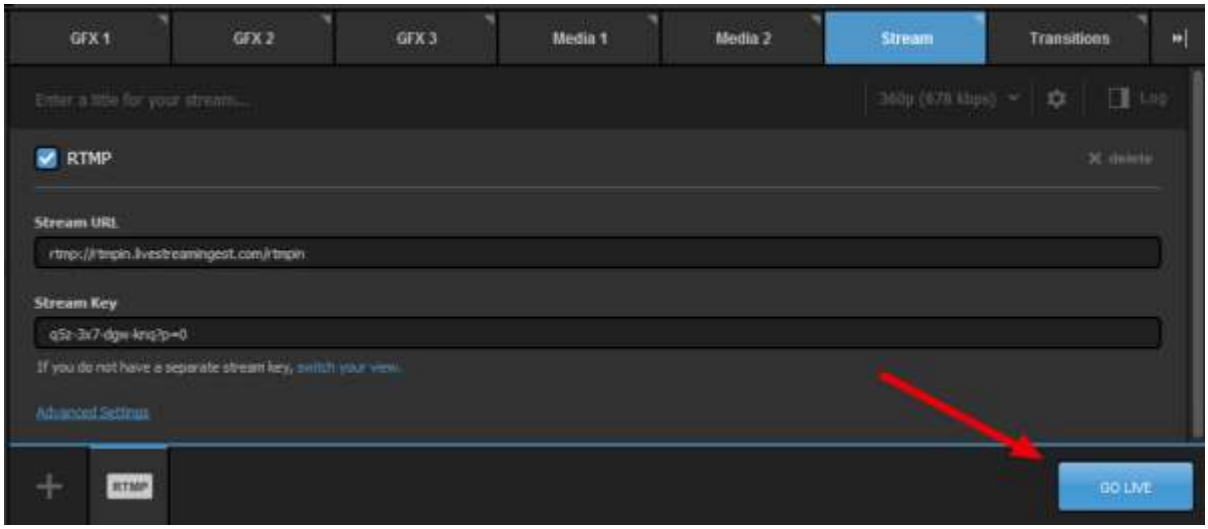
Zixi users will see the option to enter a Zixi password, as well as the option to use a bonded connection or specify a network under their Advanced Settings. Checking Use Bonding will automatically use all available networks to which your Studio PC is connected.



Both Zixi and UDP provide the Video packet identifier (PID) and Audio PID, which a .stream or SMIL file would need to recognize your stream. This is particularly helpful when streaming to a player that can recognize multiple audio tracks for the same video.

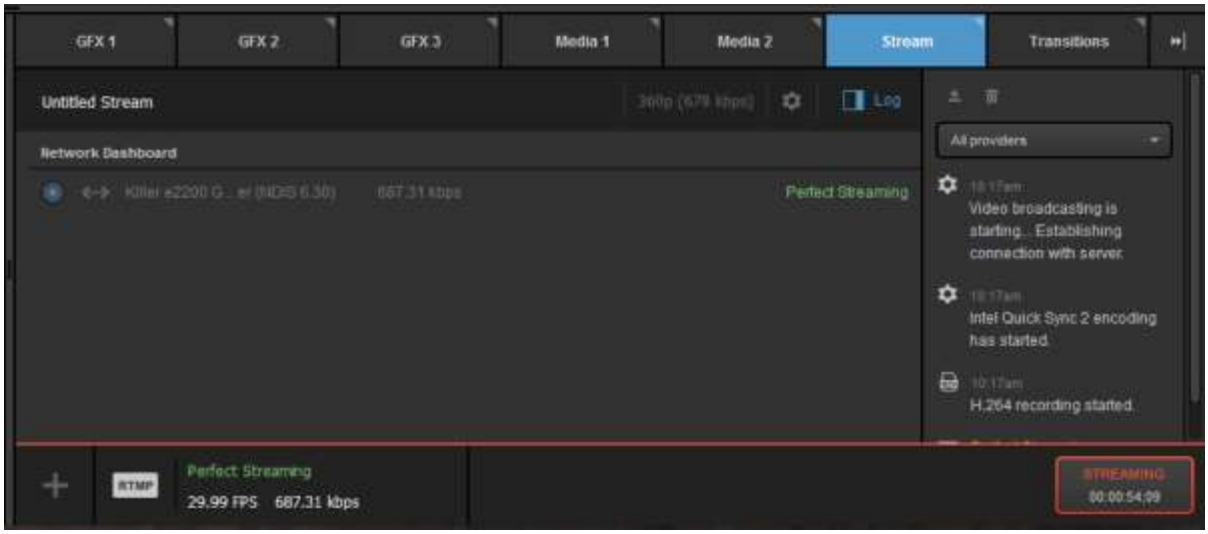


When your settings are configured, click Go Live to start streaming to your destination.



Studio will start streaming your content to your destination and display information such as outgoing frame rate and bitrate. Any potential issues will display in the log on the right side.

When your event is over, click the red Streaming button to end your stream.


GFX 1
GFX 2
GFX 3
Media 1
Media 2
Stream
Transitions
Untitled Stream
Log
Network Dashboard
Perfect Streaming
All providers
Video broadcasting is starting... Establishing connection with server.
Intel Quick Sync 2 encoding has started.
H.264 recording started.
RTMP
Perfect Streaming
29.99 FPS 687.31 kbps
STREAMING
00:00:54:09

Streaming to IBM Video (Ustream)

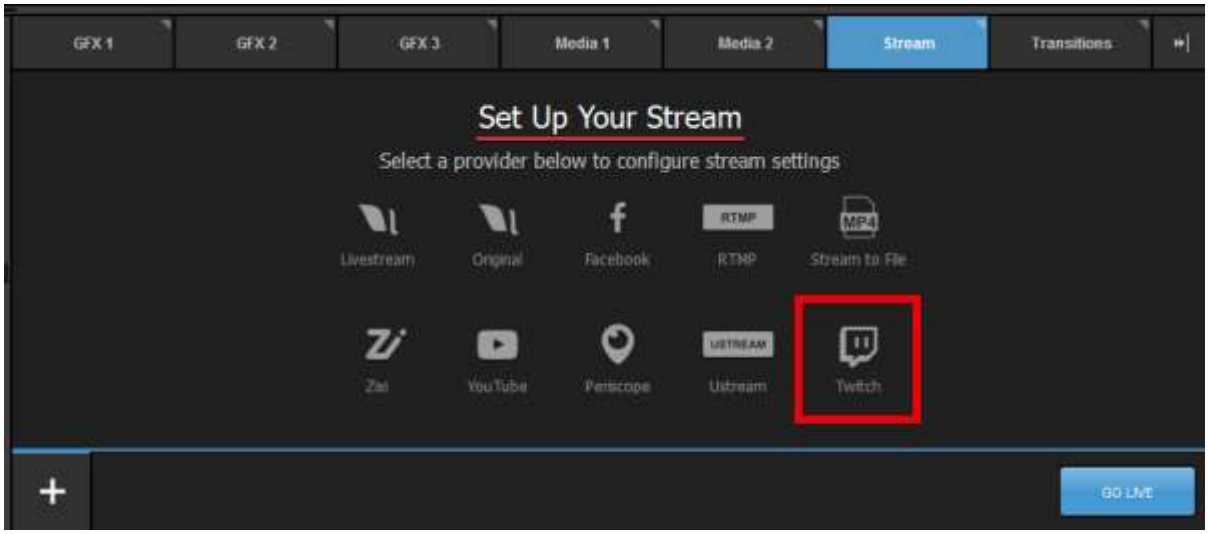
In order to stream to IBM Video (formerly known as Ustream) via Livestream Studio, producers must use the RTMP section of the **Stream** module.

Instructions on how to obtain the RTMP URL for your channel can be found here.

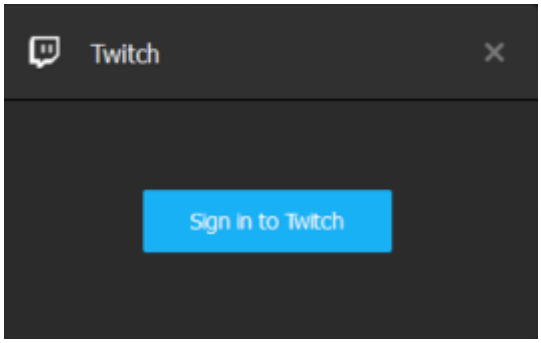
Streaming to Twitch via Livestream Studio

Livestream Studio offers direct integration with Twitch for producers who wish to stream their content there.

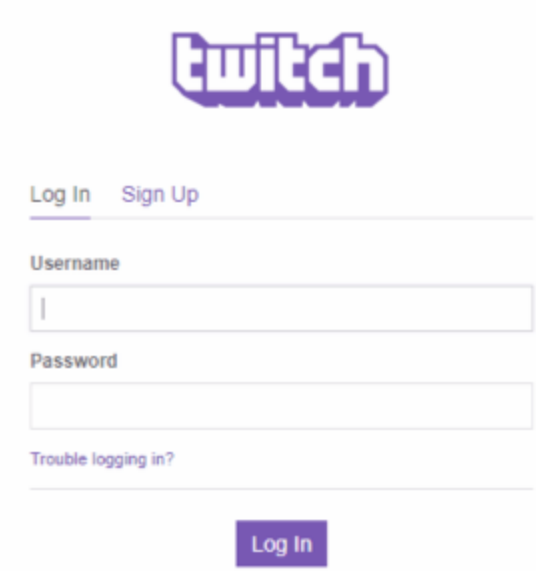
In the Stream module, click the Twitch logo to start configuring your stream settings.



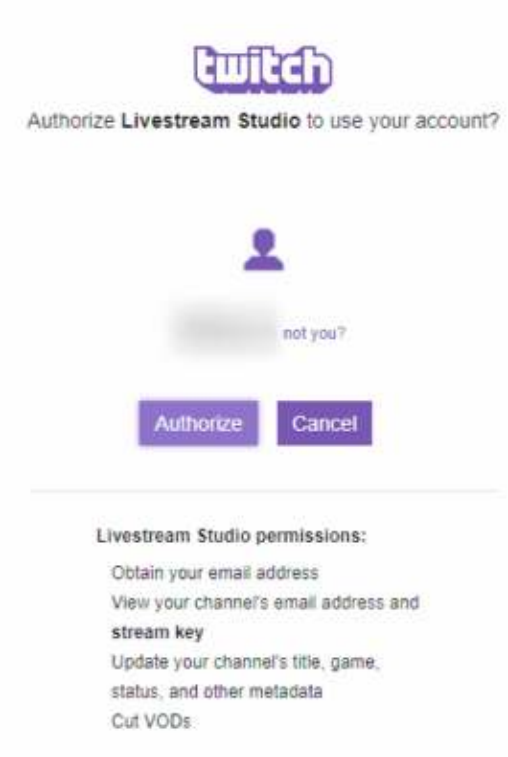
The pop-up window seen below will appear. Click Sign in to Twitch and navigate to your web browser if it does not switch over automatically.



Log in to your Twitch account within the browser.



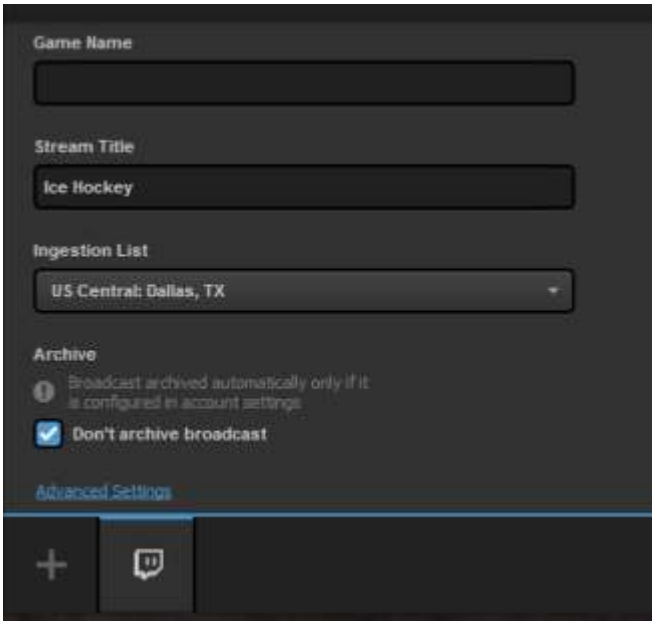
Authorize Livestream Studio to access information from your Twitch account by clicking **Authorize**. After doing so, navigate back to Studio if the browser does not close by default.



Enter a title for your stream and set your streaming quality.

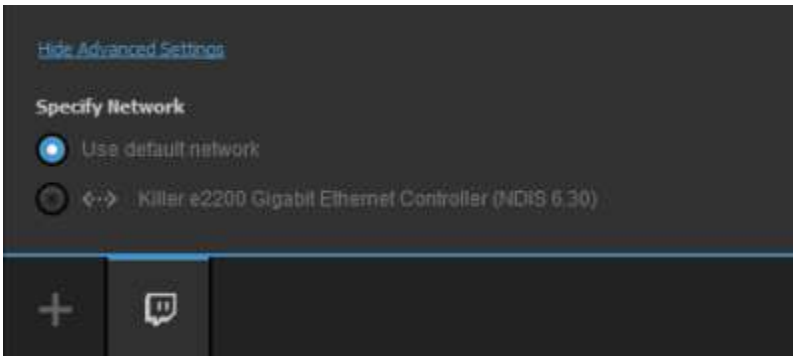
Click the gearwheel icon to set your desired output aspect ratio and the default network to use with your stream. If you choose a 1:1 or 9:16 ratio, a Safe Area Display will appear in your output by default. You can change this to show in all sources in your multiview or to not display at all.

Set your game name, stream title on Twitch, ingestion location, and whether to save your VOD on Twitch.

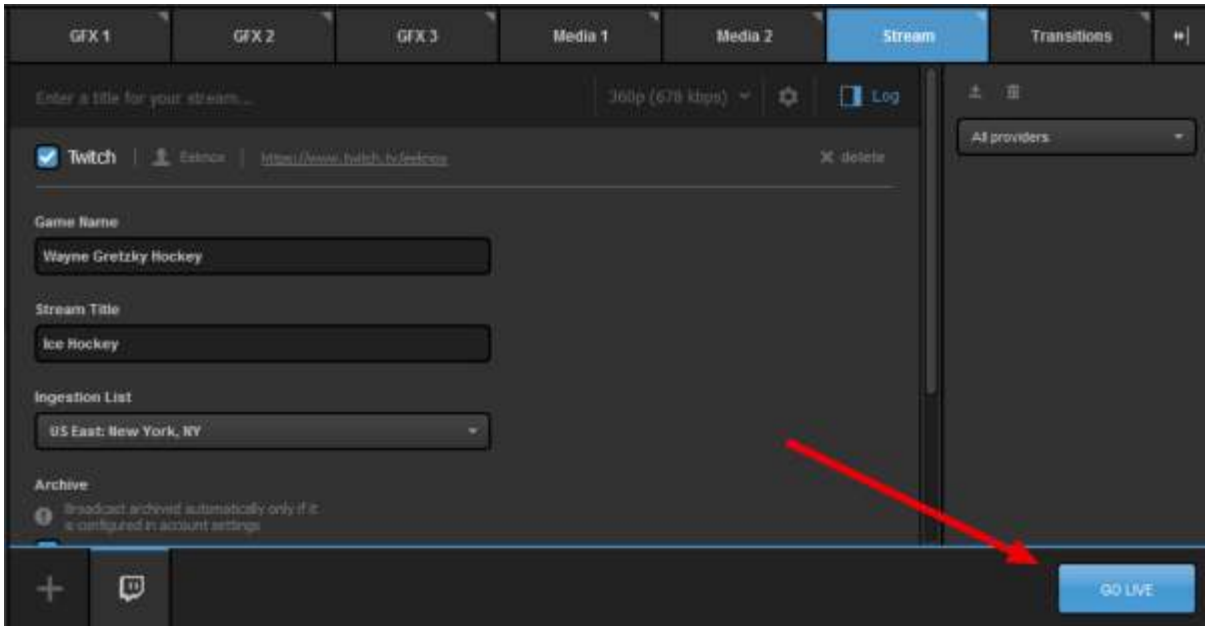


If you have enabled multi-language events, you can choose which incoming language (or audio track) will output to this particular stream by using the Select Language drop-down menu; if you are simulcasting, this allows you to stream to the same provider but select a different language for each stream instance. This menu does not appear if multi-language events are not enabled.

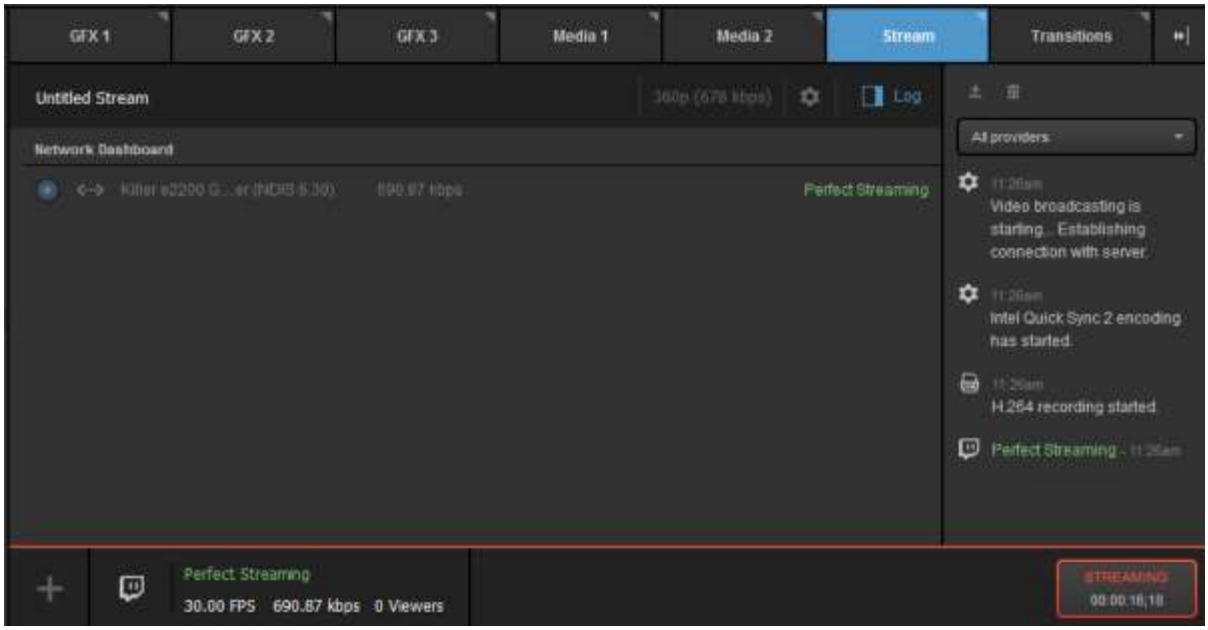
Clicking Advanced Settings will allow you to specify a network to stream out at if you do not wish to use your default network selected earlier.



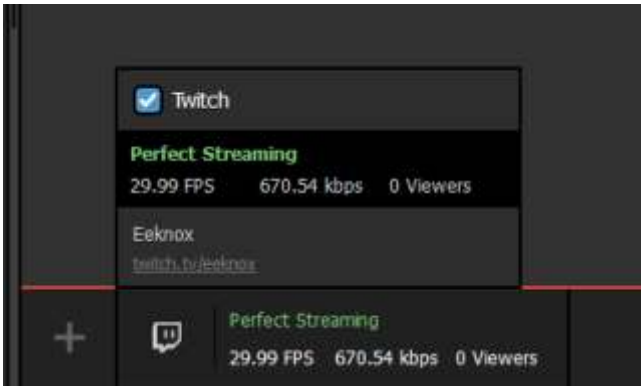
Click Go Live when you are ready to start broadcasting. Livestream Studio will indicate that the stream has started and display your streaming status.

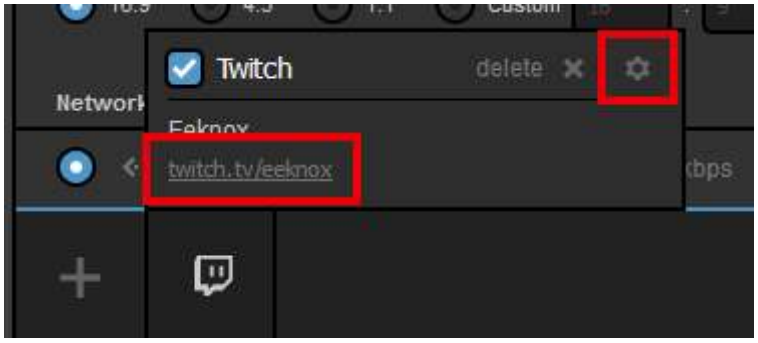


When you are ready to finish streaming, click the red Streaming button.



Hover your mouse over the Twitch icon at the bottom of the module. You will find a link to your Twitch channel.





Stream to Multiple Providers Using Livestream Studio

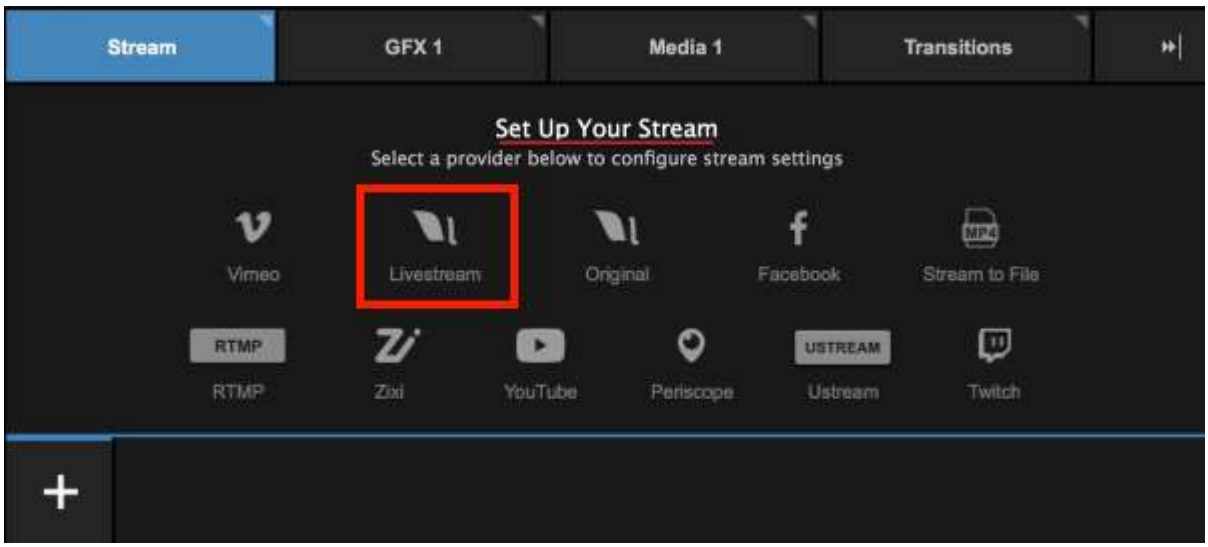
You have the option to stream to multiple providers at the same time using Livestream Studio.

Your video is only encoded once, so CPU demands for this feature are similar to those for streaming to just one provider. However, bandwidth requirements will be higher. Multiple streams will use as much bandwidth as the qualities selected for each provider.

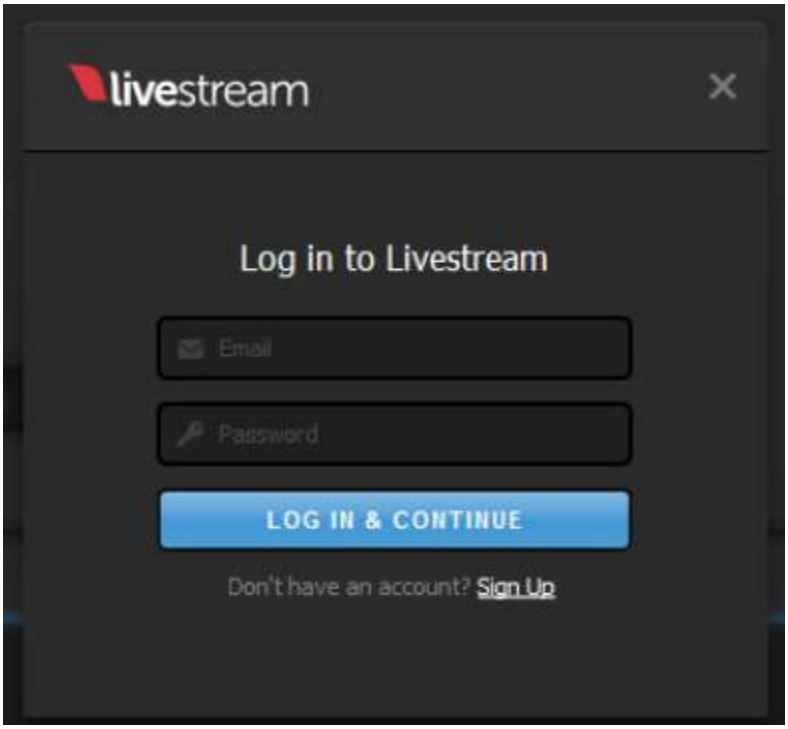
Example: If 720p + 480p + 360p + 240p (4862Kbps) Stream Quality is selected for Livestream and 'Highest Quality' is selected for Facebook (in this case, 720p), then the total outgoing bitrate will average 4862 + 2128 = 6990Kbps. We always recommend having twice the upload speed on your network as the selected bitrate, which is about 14Mbps upload speed in this case.

You can also utilize this feature to send multiple streams to the same provider with different audio tracks (e.g. languages). Learn more.

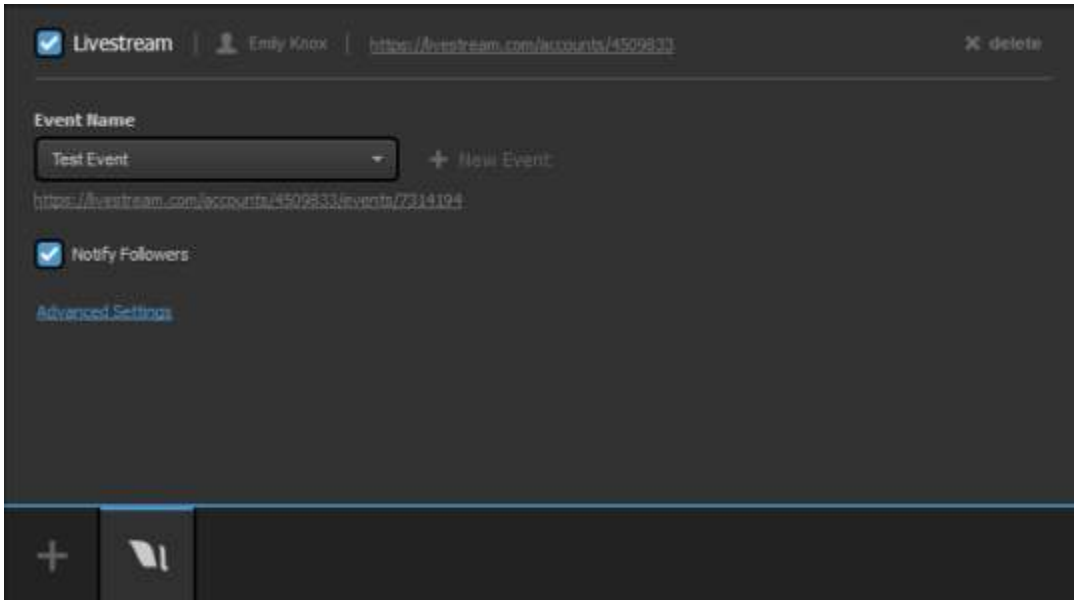
Start by clicking one provider's logo to add it to Studio (this example will use Livestream).



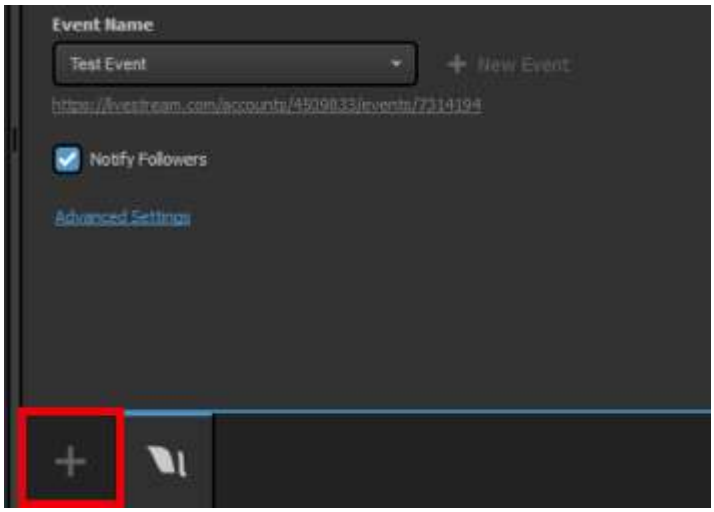
Log in to the selected provider to configure your stream settings.



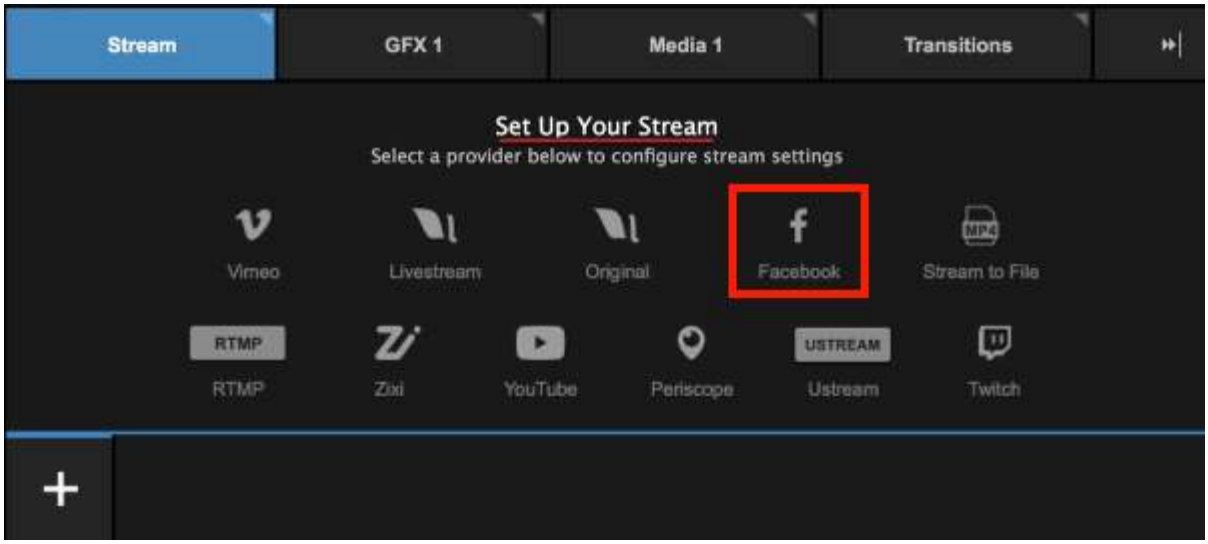
Configure your stream destination as you normally would (e.g. select your Livestream event).



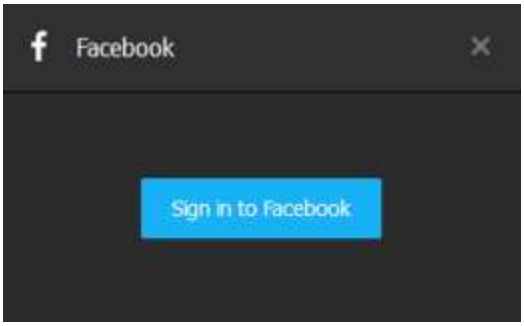
Now add a second provider by clicking the + button in the lower left corner of the Stream module.



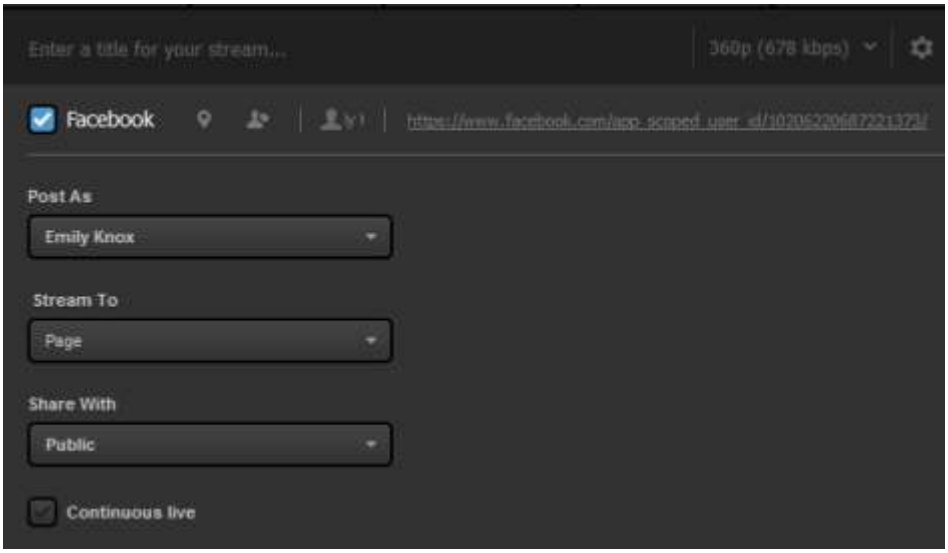
Select a second provider (this example will show Facebook).



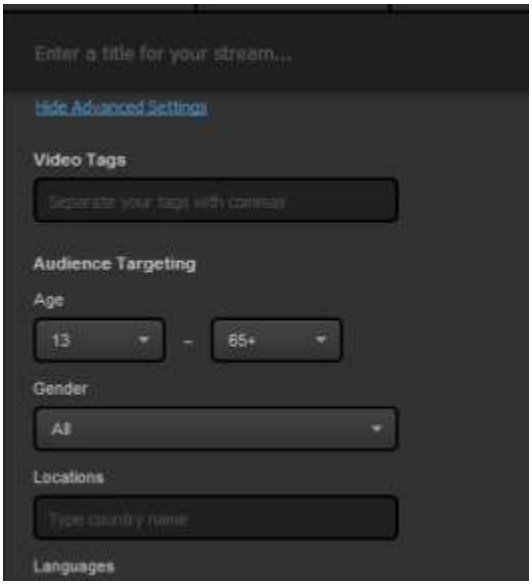
Log in to that provider; allow any permissions that the provider may request in order to use it with Studio.



Configure your stream's destination for that provider, i.e. which profile is streaming, to which page or group, and your desired audience.

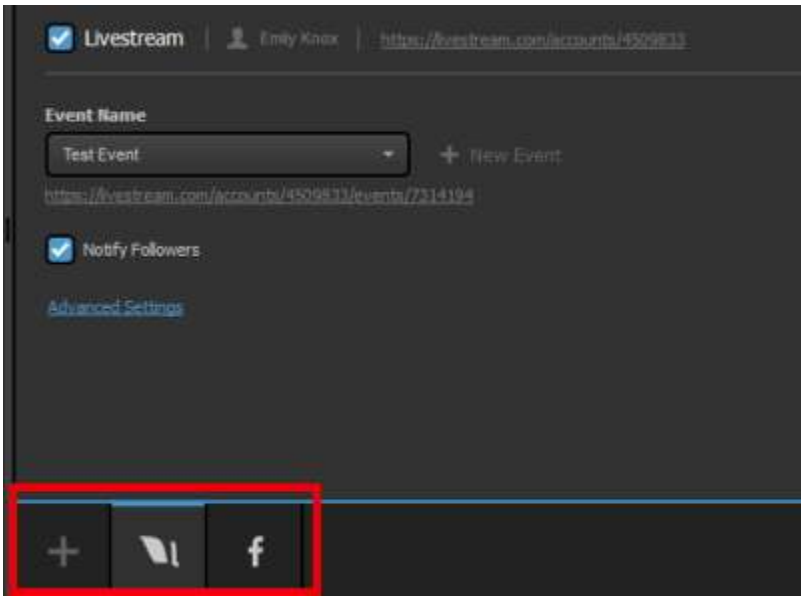


You can click Advanced Settings to configure further settings for that provider if you wish.

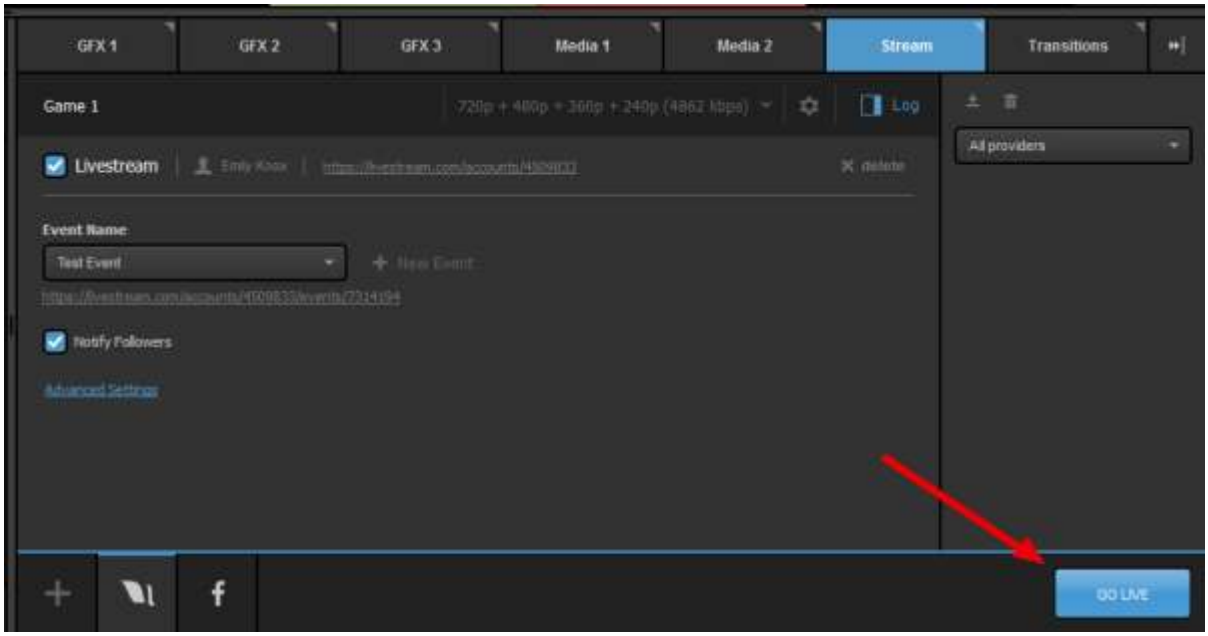


At the top of the overall Stream panel, your stream title, bitrate, and aspect ratio.

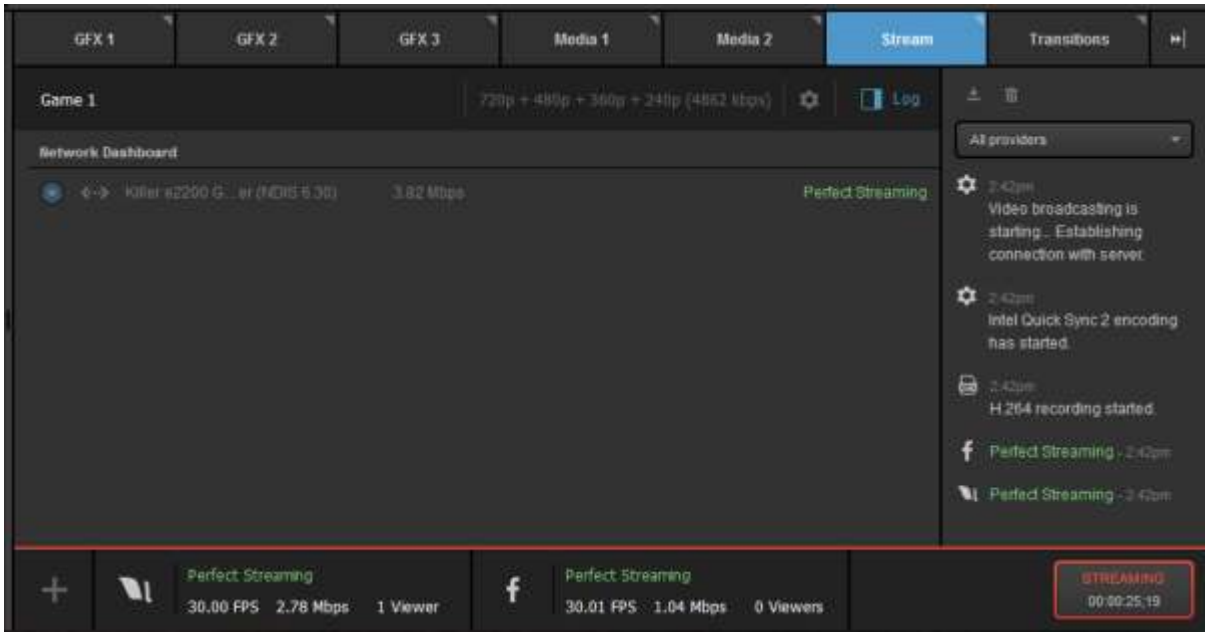
If you need to change a setting for a particular provider, click the provider's icon at the bottom of the panel. The selected provider will be a ligher shade of gray.



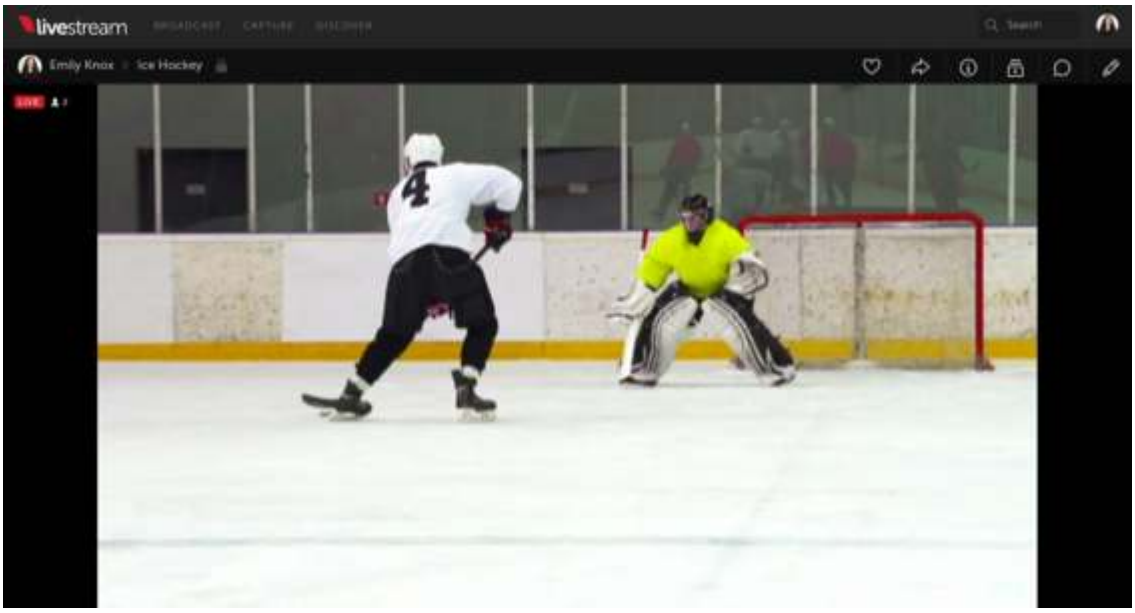
Click Go Live in the bottom right corner to start your stream.



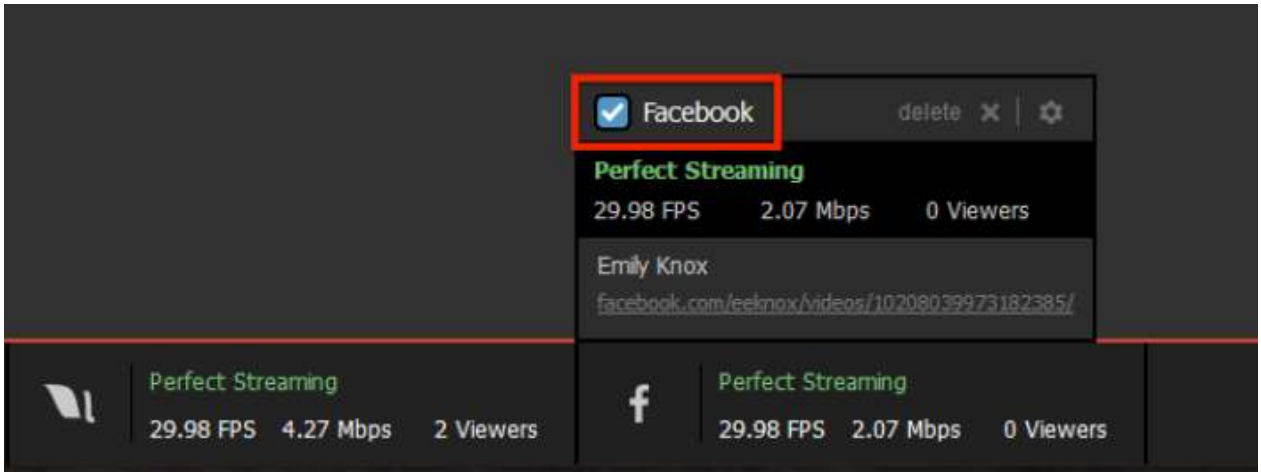
The Stream module in Studio will show the streaming status for each provider along the bottom of the interface, as well as the overall outgoing bitrate in the middle of the panel.



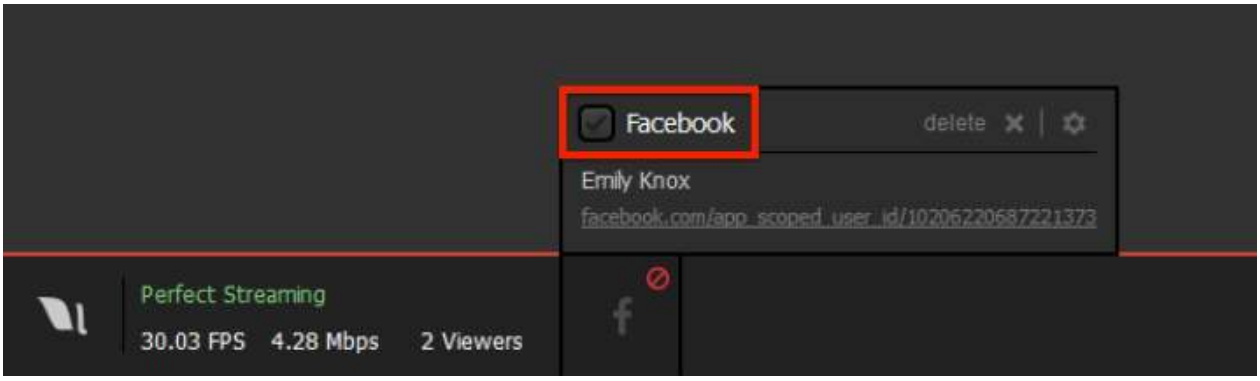
Open a web browser and go to your selected stream destinations. You will see the exact same live content in each player.



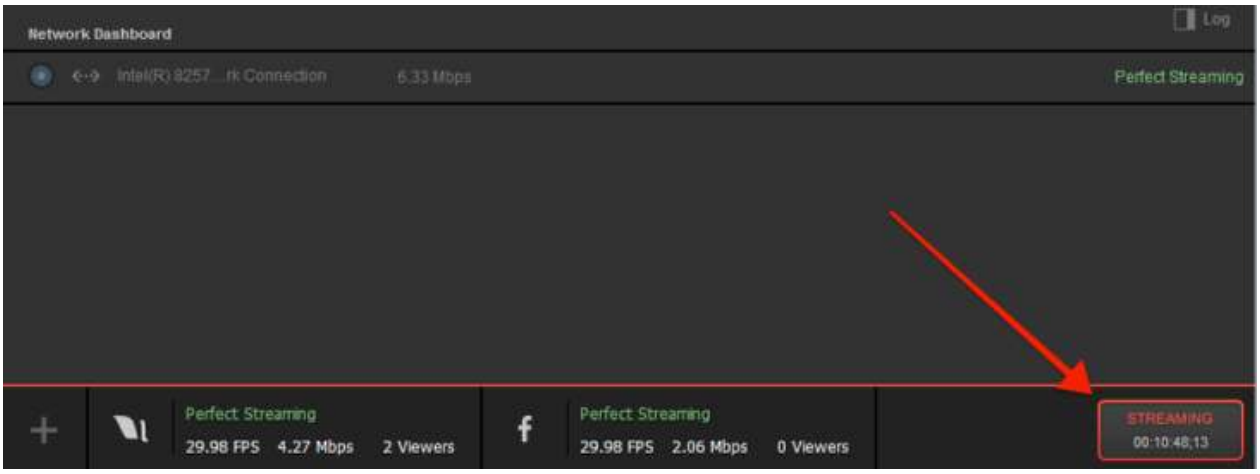
You can deactivate a provider by hovering your mouse over its icon and unchecking the checkbox in the upper left corner of the popup box. If this is done while you are streaming, that will stop the stream on that provider only.



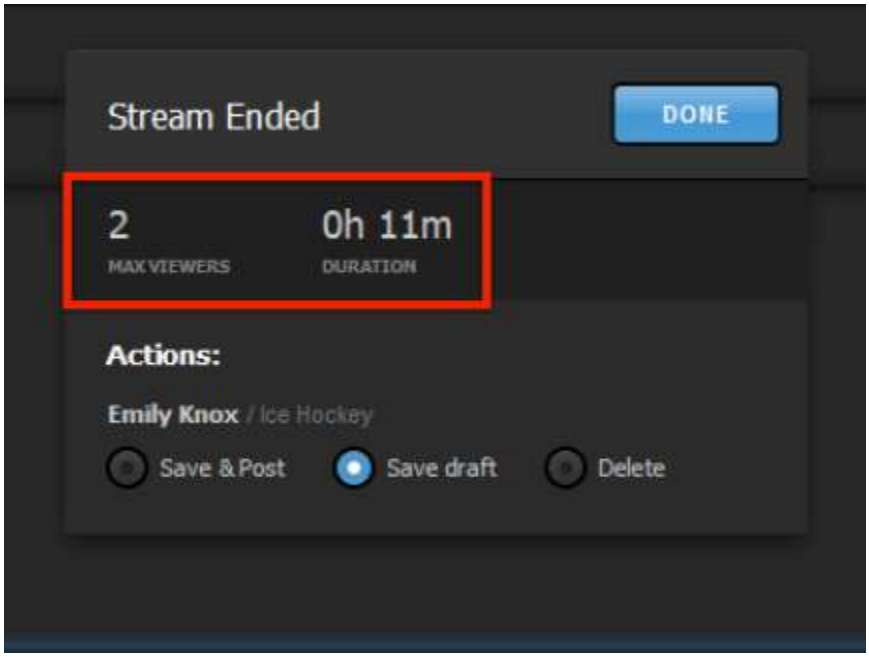
You can reactivate that provider at any time (live or not live) by checking the checkbox.



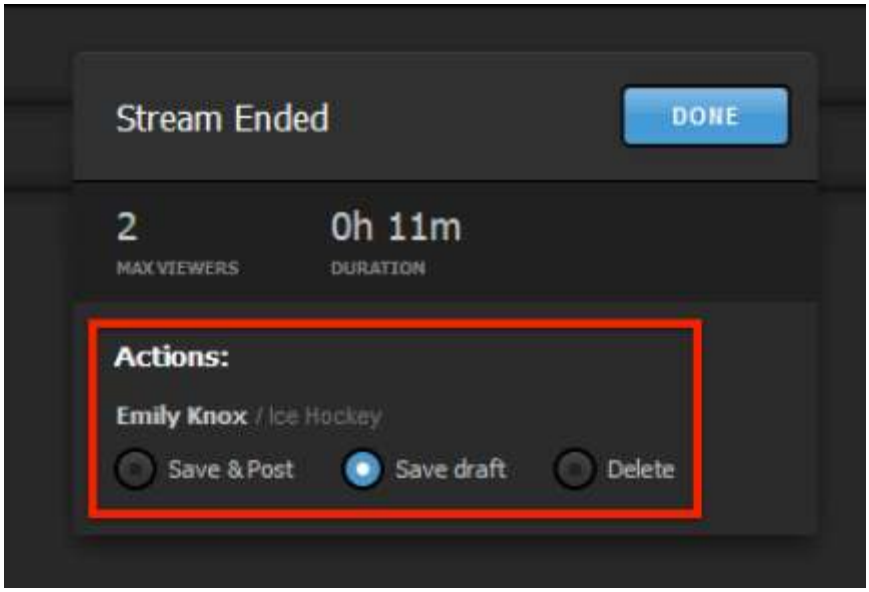
When your event is over, click Streaming in the lower left corner to end the stream.



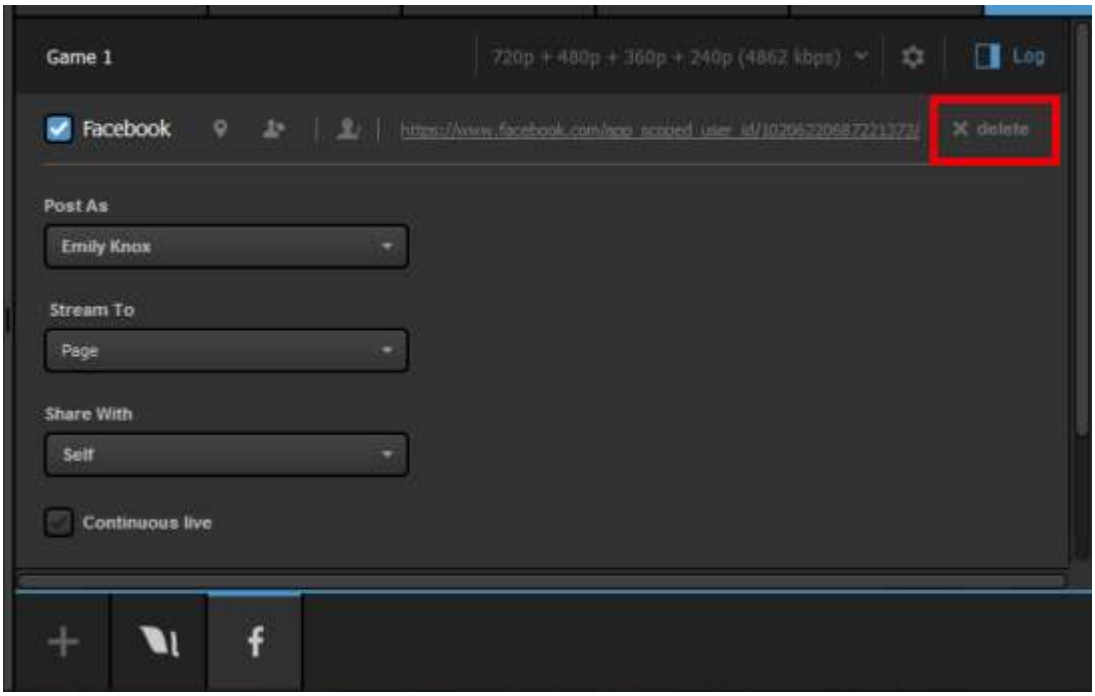
Studio will let you know that the stream has ended and display the maximum viewers your event had and the stream duration.



Certain providers may have actions for you to take after the broadcast. For example, Livestream will ask if you want to post the video on demand, save it as a draft, or delete it ('Save draft' is selected by default.) Choose your desired option, then click Done.



If you want to remove a provider from your workflow entirely, select its icon in the bottom of the interface to open its settings, then click X delete in the upper right corner of the module. You can add it back at any time.



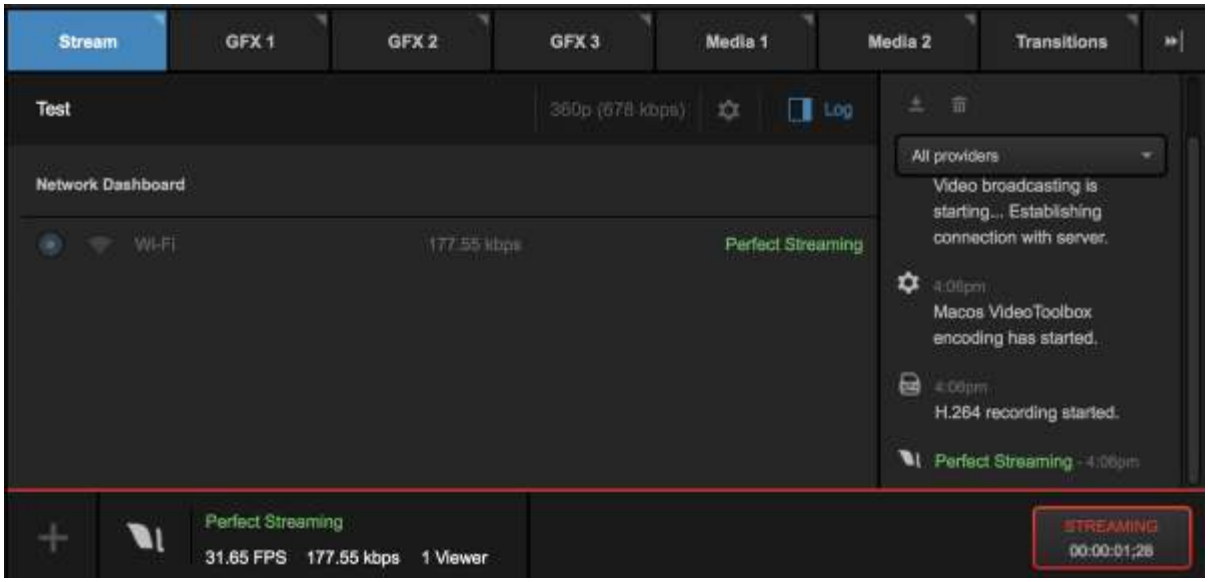
If you wish to stream to Livestream and another destination but have limited bandwidth, you may want to look into simulcasting via the Livestream platform or Vimeo.

Studio Log and Streaming Information

Livestream Studio displays basic information about your stream as well as a log with various warnings and notifications regarding your stream.

When streaming is active, the stream module displays a network dashboard alongside a streaming log on to provide live updates on streaming status.

- FPS: Displays the current outgoing FPS.
- Mbps (Kbps): Displays the current outgoing bitrate.
- Viewers: Displays the number of concurrent viewers watching the stream.
- Stream Status: Displays the current status of the stream (e.g. "Perfect Streaming").
- Streaming Log: Displays live streaming updates.



Common messages you may see in the streaming log are:

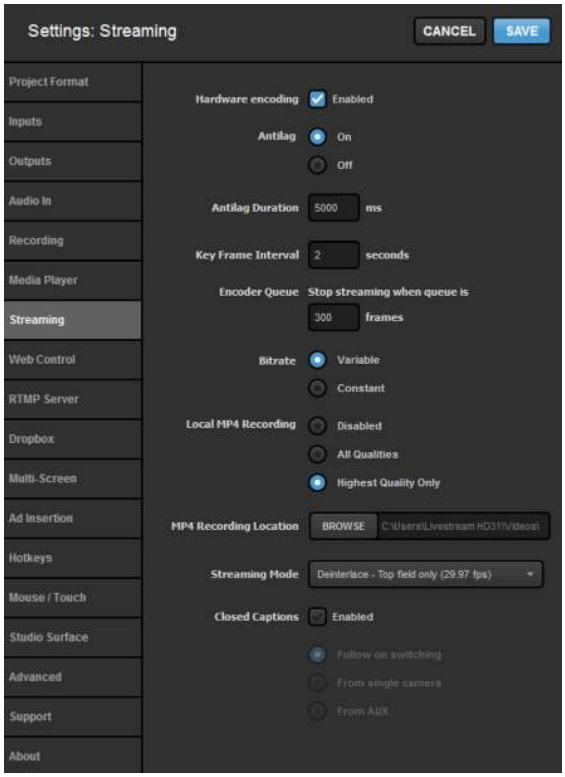
- Perfect Streaming: The stream is going out with no issues.
- Internet Too Slow for Quality: Upload bandwidth does not support selected quality. This is generally an on-site IT issue and should be escalated to the IT department. Changing quality requires the stream to be stopped and restarted.
- Lost Internet Connection: Internet connection has been lost. Again, check with onsite IT if this happens.
- CPU Warning: CPU percentage is getting very high.

- Problem publishing to primary server: Studio is unable to stream to the primary publishing point due to local Internet connection issues or an issue with the publishing point.
- Antilag Feature Triggered: Antilag has been triggered based on the selected queue limit (see Streaming Preferences above).
- Audio Peak Warning: Audio levels are peaking above normal levels.

Advanced Streaming Settings in Livestream Studio

Livestream Studio allows you to configure additional settings regarding your stream's output and response to certain situations.

These settings can be found by clicking the gearwheel in the upper right corner of the Studio interface and navigating to the Settings: Streaming menu.



Hardware encoding: This option only appears on PC's that have integrated graphics cards that support video encoding. Learn more.

Antilag: Selecting 'On' for Antilag works to reduce latency on the viewing end. If a delay on the encoding side builds up past the chosen Antilag Duration (below), the frame buffer will be cleared. Turning Antilag off will continue to build a cache of frames without clearing the data, thus building latency to your viewers. If low latency is a critical component of your stream, disabling Antilag is not recommended.

Key Frame Interval: Places keyframes into the stream to track changes in movement. Two seconds is a standard setting, but you may want to consider a more frequent interval if your event has a lot of motion.

Encoder Queue: The number of frames that Livestream Studio will allow to build up prior to a stream terminating due to bandwidth or CPU issues.

Bitrate: A 'Variable' bitrate will change the outgoing bitrate based on the movement in the video. Static images will send at a lower bitrate; high movement will increase the bitrate. 'Constant' bitrate will maintain the outgoing bitrate regardless of the amount of movement in the video.

Local MP4 Recording: Automatically records an .mp4 of your stream as a backup. It is strongly recommended to keep this feature enabled. Selecting Highest Quality Only will record in only the highest bitrate and resolution that you are outputting (e.g. if your stream quality is 720p + 540p + 240p, your backup file will record in 720p, whereas selecting All Qualities will produce three separate recordings simultaneously, one for each quality).

MP4 Recording Location: Choose where the backup recording described above is saved. By default, your recordings will save to the Videos folder on your system's C drive, but you may choose to save it elsewhere, such as an external hard drive.

Streaming Mode: Allows you to choose the outgoing frame rate. The higher the rate you choose, the more CPU usage will increase.

Closed Captioning: If you need to ingest closed captions over SDI, here is where you enable it. Learn more about Studio's closed captioning support.

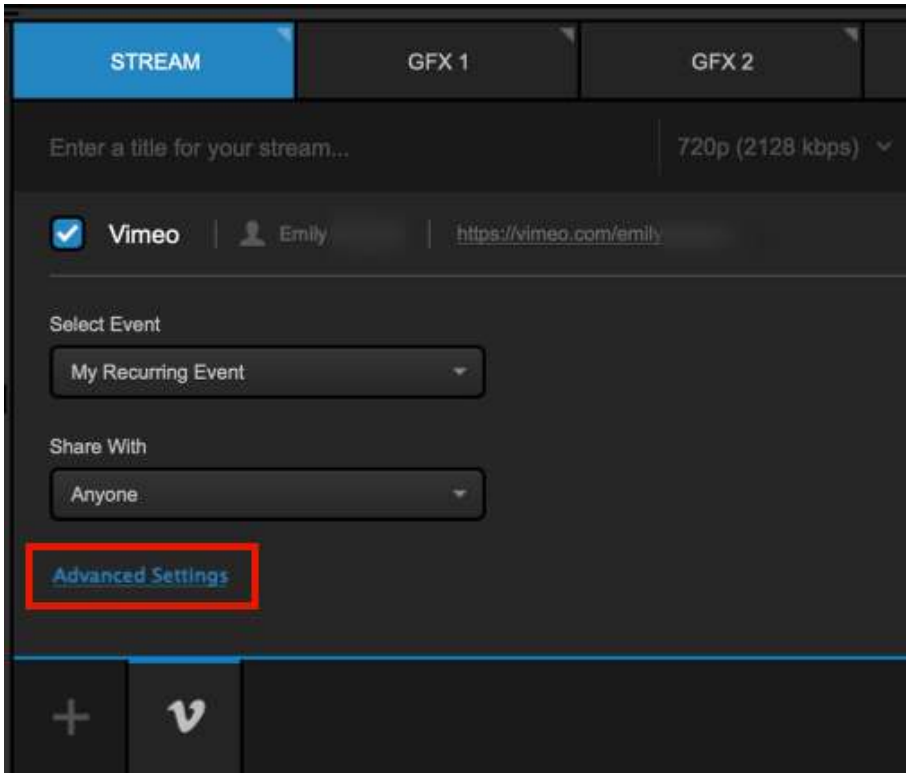
Can Livestream Studio Stream to Facebook Workplace?

Facebook Workplace is not directly integrated with Livestream Studio. However, you can stream to your Workplace community via RTMP.

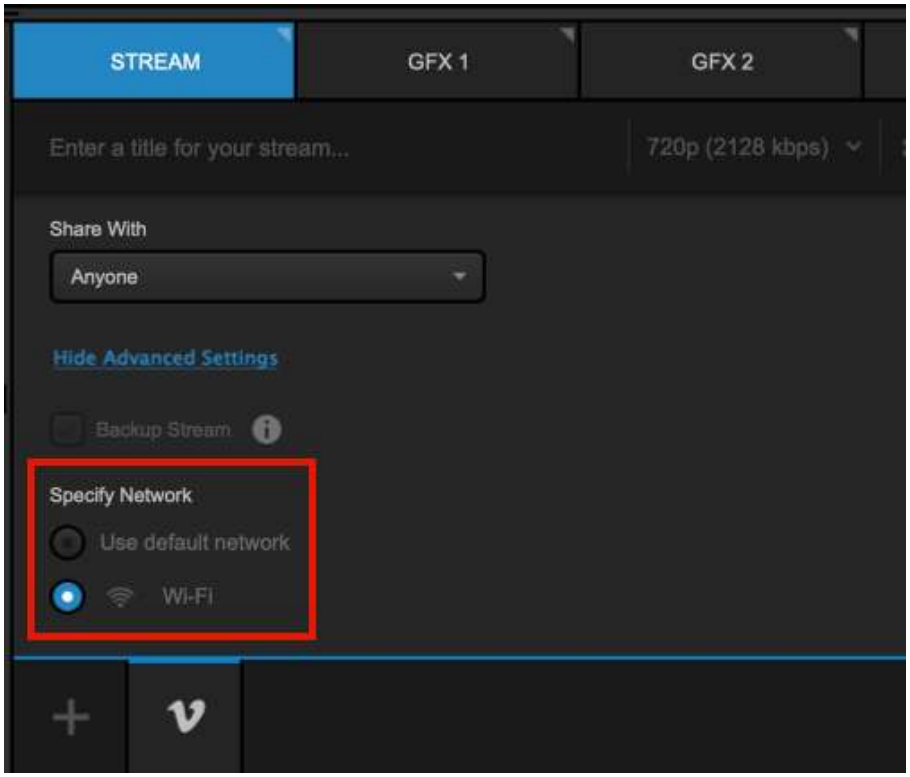
Error: "The Server Is Not Available"

If you attempt to start a stream and see a notification in the log indicating "The server is not available," this can often be fixed by manually selecting your network under Stream > Advanced Settings.

In the Stream tab, select Advanced Settings to expand the panel.



Under Specify Network, select your network *instead of* "Use default network."



Note that if you are streaming to multiple destinations, you may need to do this for each provider to which you are streaming.

Once this is done, select the Go Live button again to start your stream.

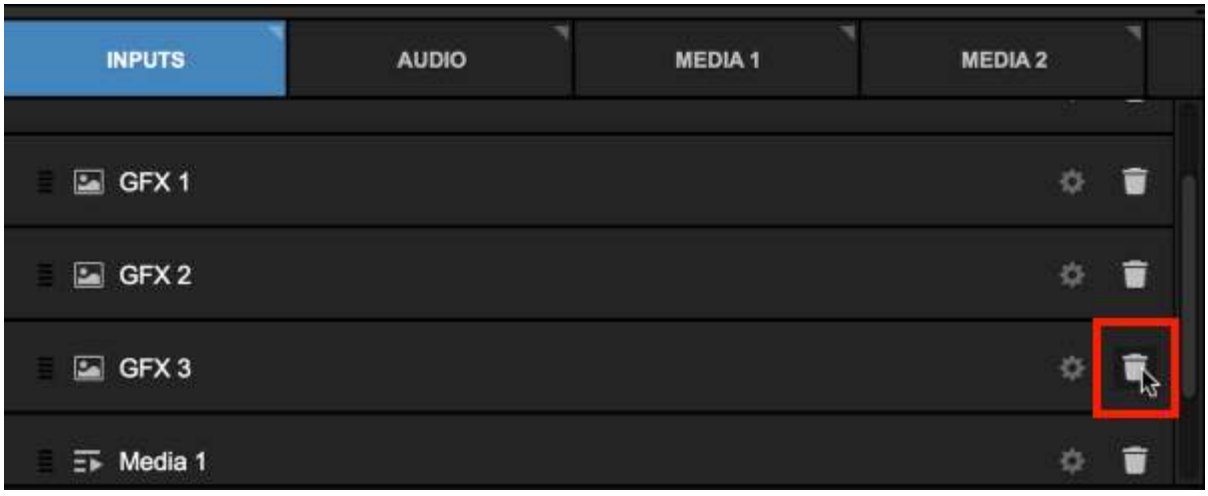
Graphic Overlays

Adding Graphics Overlay Tracks

Livestream Studio gives you the option to use three graphics overlay channels, all of which can include multiple layers of static or data-driven graphics.

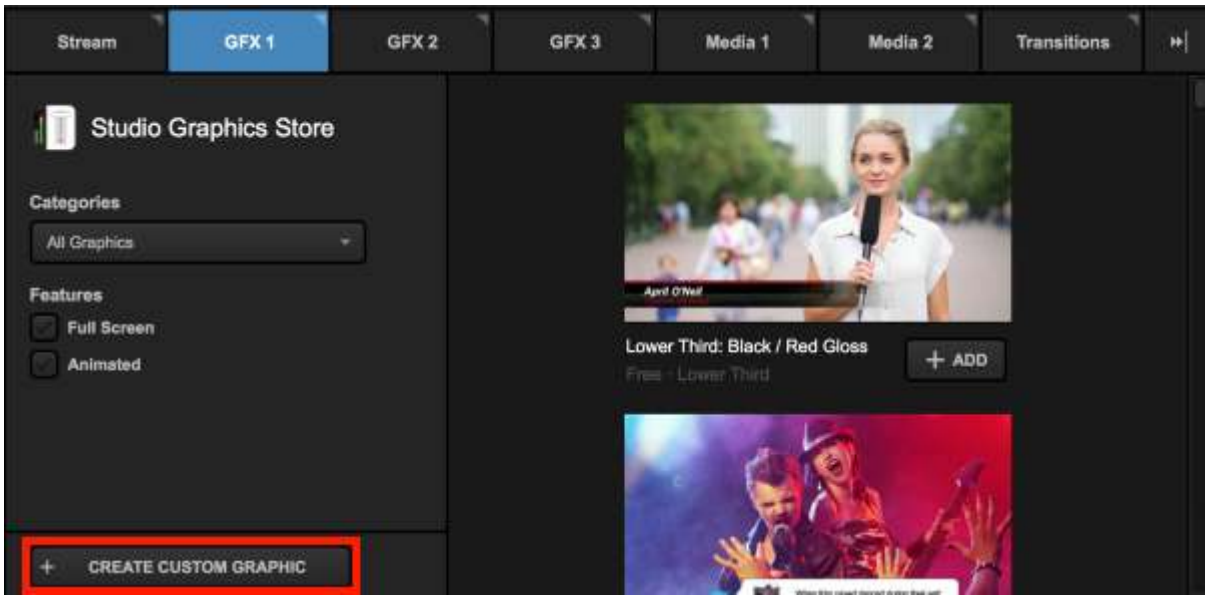
By default, three graphics overlay tracks will be available and listed in the Inputs menu in the lower left corner of the Studio interface. You will also see them in your multi-view.

If you do not intend to use all three graphics overlay tracks, you can remove any of them by going to the Inputs menu and selecting the trash icon to the right of each. This will remove that GFX input from the multi-view and make it unavailable as an overlay.

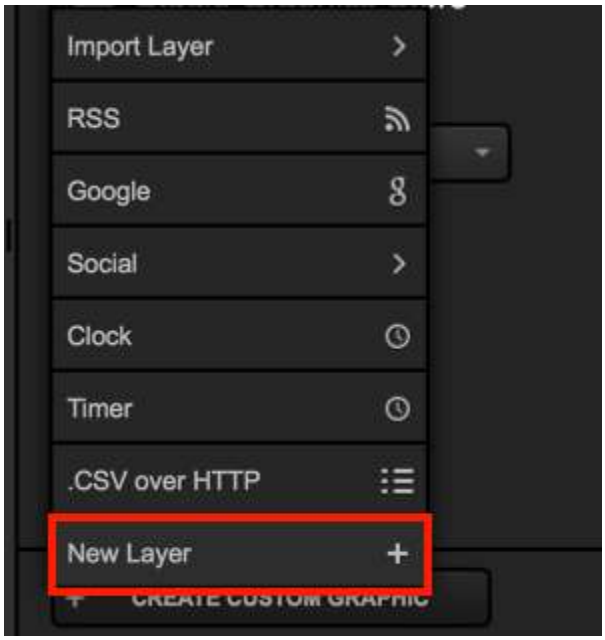


The first step in adding graphics overlays to the GFX channel is adding a layer. You can easily add a Livestream pre-built graphics template such as a lower third by navigating the Studio Graphics Store seen inside the graphics module.

To add your own custom graphic, select Create Custom Graphic in the bottom left corner of the interface.



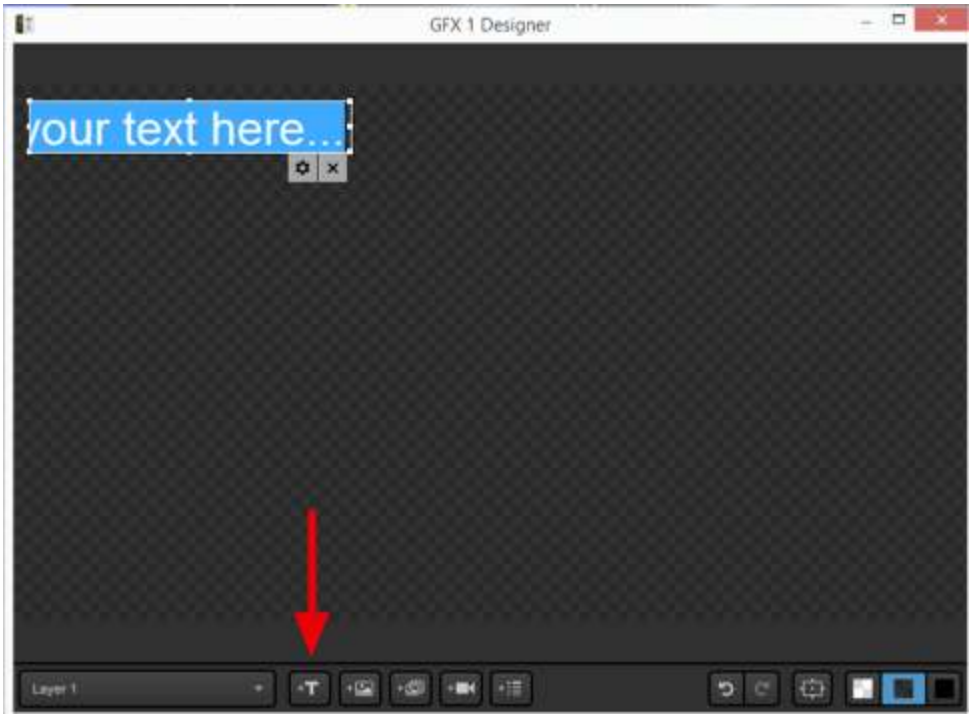
Many options will pop up. To get started, select New Layer at the bottom of the list.



The layer will appear on the left side of the module. Click either paintbrush button to enter the GFX designer to build your graphic.

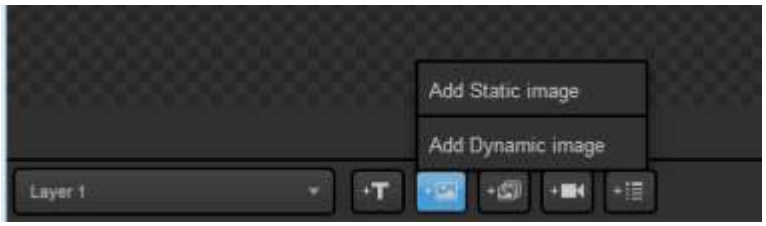
Simple Mode: To open the GFX Designer in Simple mode, double-click the graphics layer.

Clicking the +T button will add static text to your graphics layer.



Click the attached gearwheel button for editing options (font, size, color, etc.)

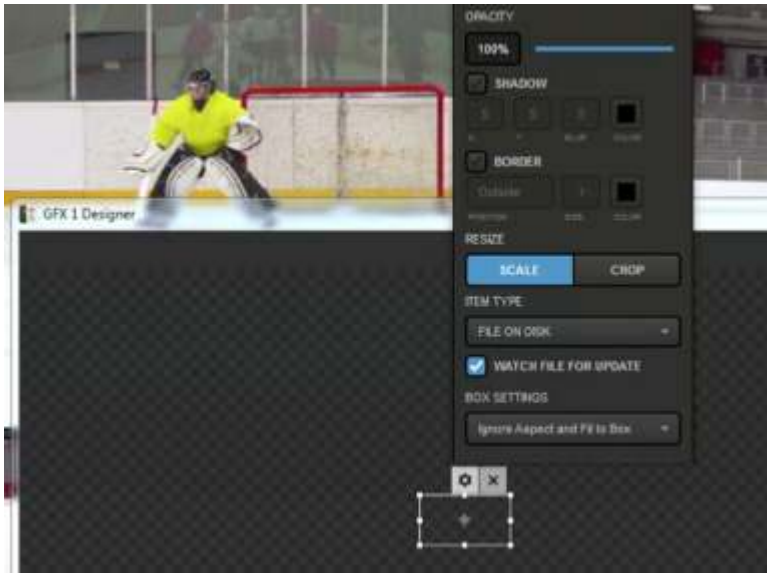
The next button allows you to add either a static or dynamic image to your graphics layer.



A static image is any image file you can import, which will always be visible when that graphics layer is also visible. The image will not change.

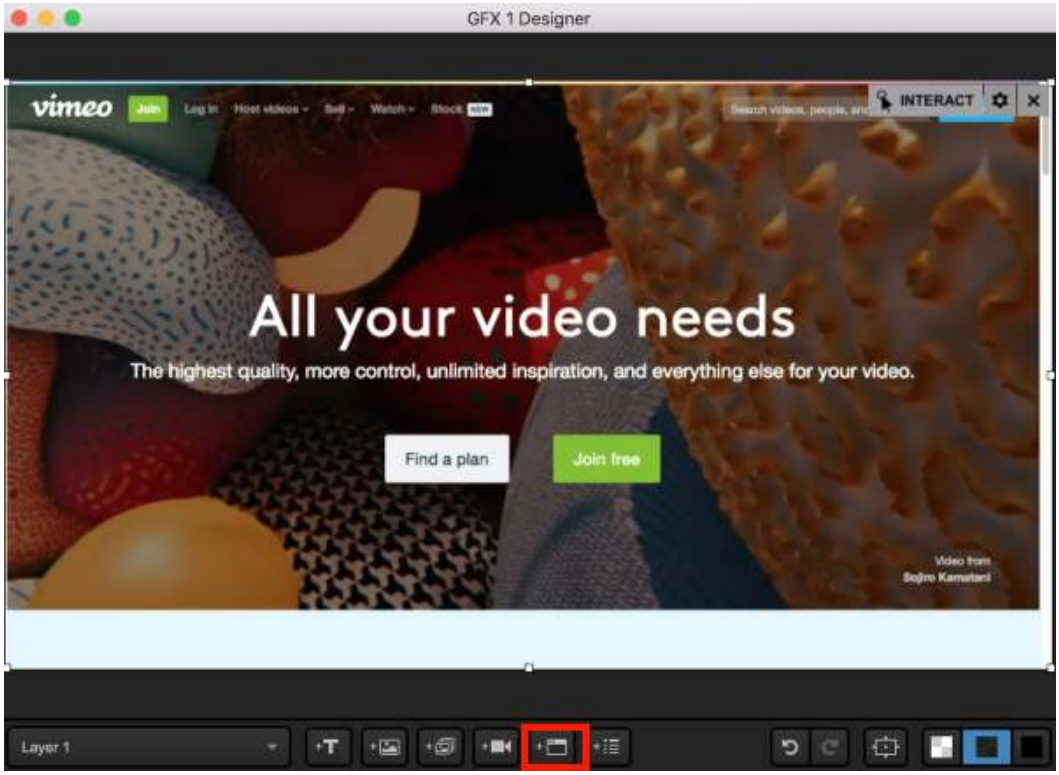
Supported image formats are .png, .jpg, .jpeg, .bmp, .xpm, .tif, .tiff

A dynamic image will change if the hosted file is also changed. In the designer, you choose the file where it is located and its dimensions.



The next option you can add is a video source. Clicking this will allow you to choose which video source you want to include in your graphics channel, place it, size it, etc. Each layer can support up to five video sources.

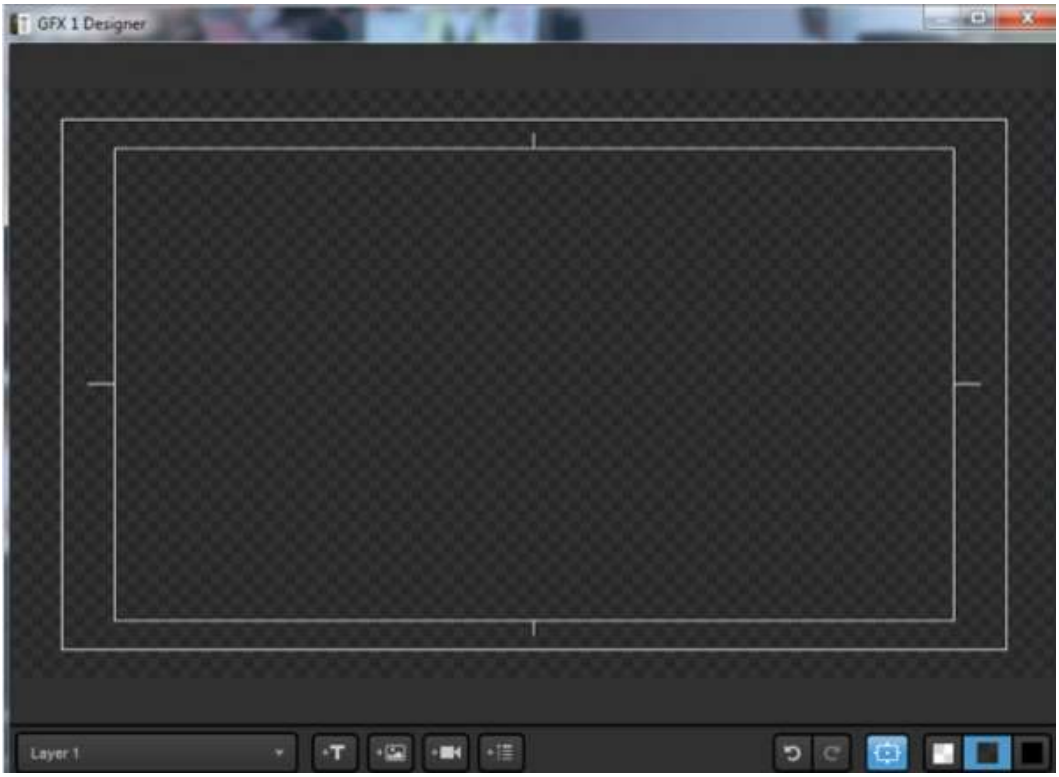
Next, you can add a webpage as a source in your graphics layer. This includes the ability to navigate the page and change its appearance within Studio. Please note there is currently no option to bring in audio from your browser source.



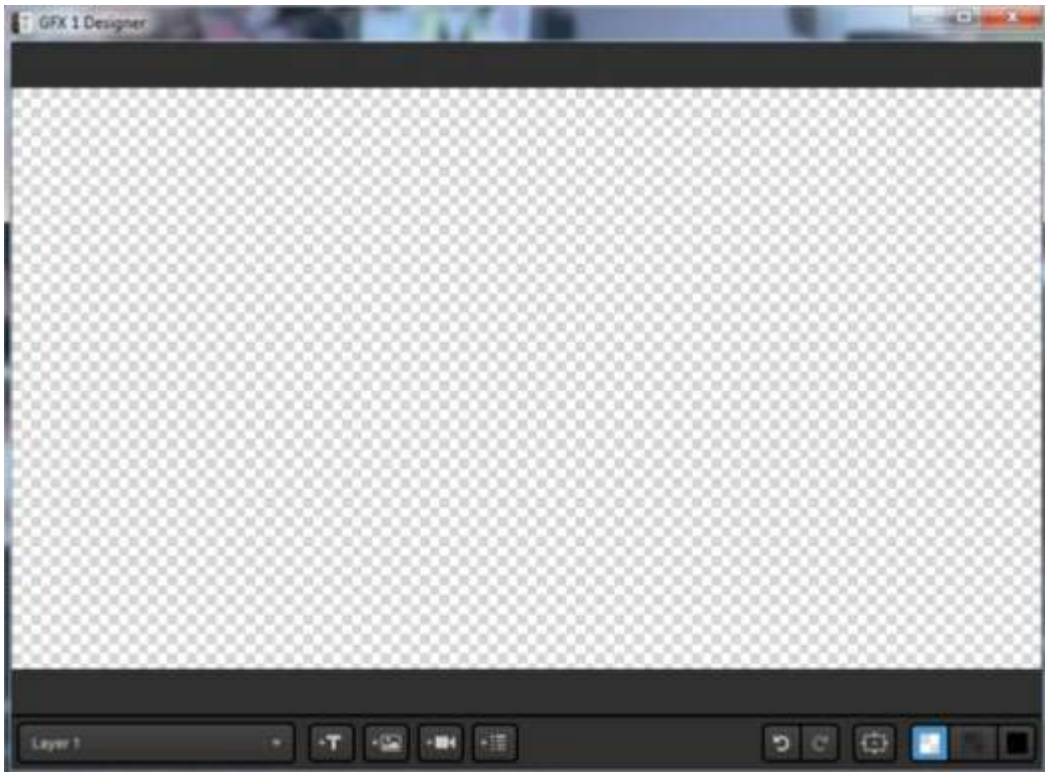
The following button allows you to add text or image data fields. Here is where you set where assets will be, their sizes, font colors, etc. The content of those fields is added in a later step.

Farther to the right, the two arrow buttons are for Undo and Redo.

The next button will provide you with a box identifying the title safe (inner box) and action safe (outer box) areas. This lets you know that your graphics will not be cut off the screen.

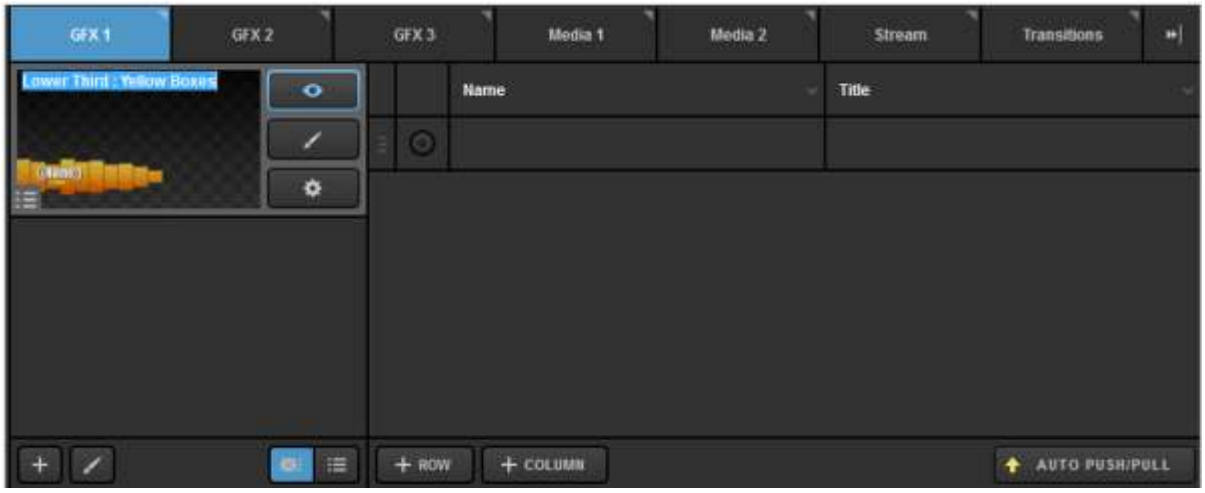


The next three buttons allow you to change how the GFX Designer displays transparency. This has no impact on the appearance of your graphics overlays.



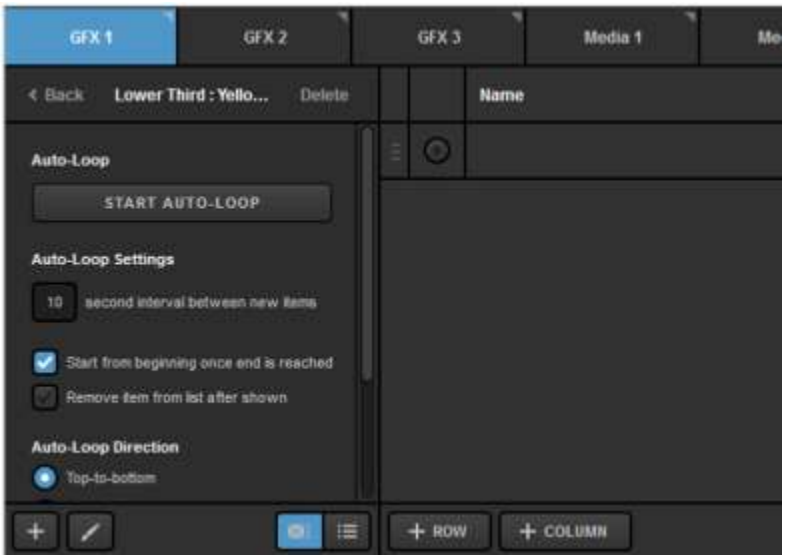
Right clicking on your content in the designer allows you to undo and redo actions, move content between layers, copy, paste, etc.

Close out of the GFX Designer when you have finished building your graphics layer. If you hover your mouse over your GFX layer, you will notice a name appear at the top-left of the image. Double-click the text to rename this GFX layer.

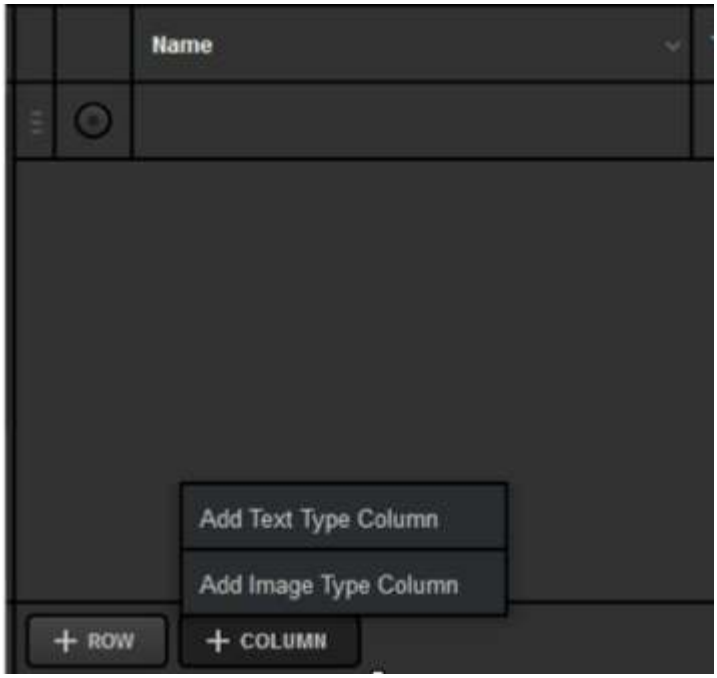


You can adjust other settings for that graphics layer by clicking the gear wheel button. The settings shown will change based on the type of graphics overlay being used.

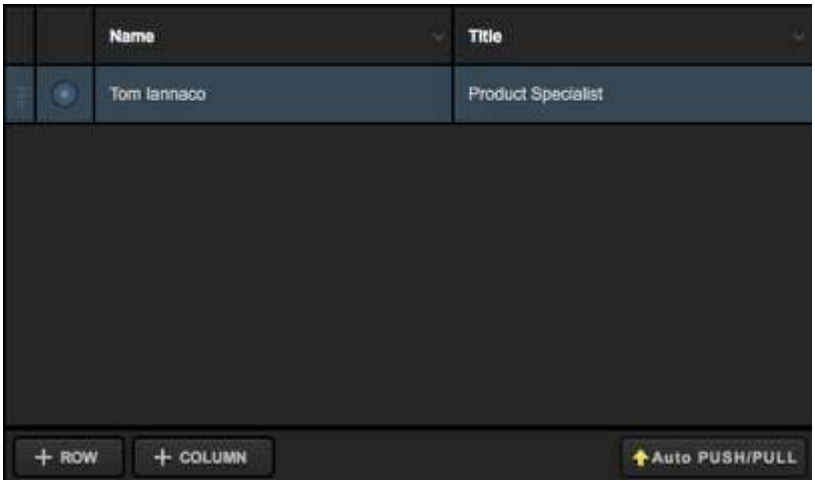
Most GFX layer settings will be related to your data fields. If you added a text or image field, a column for each should have been created to the right, which you can rename.



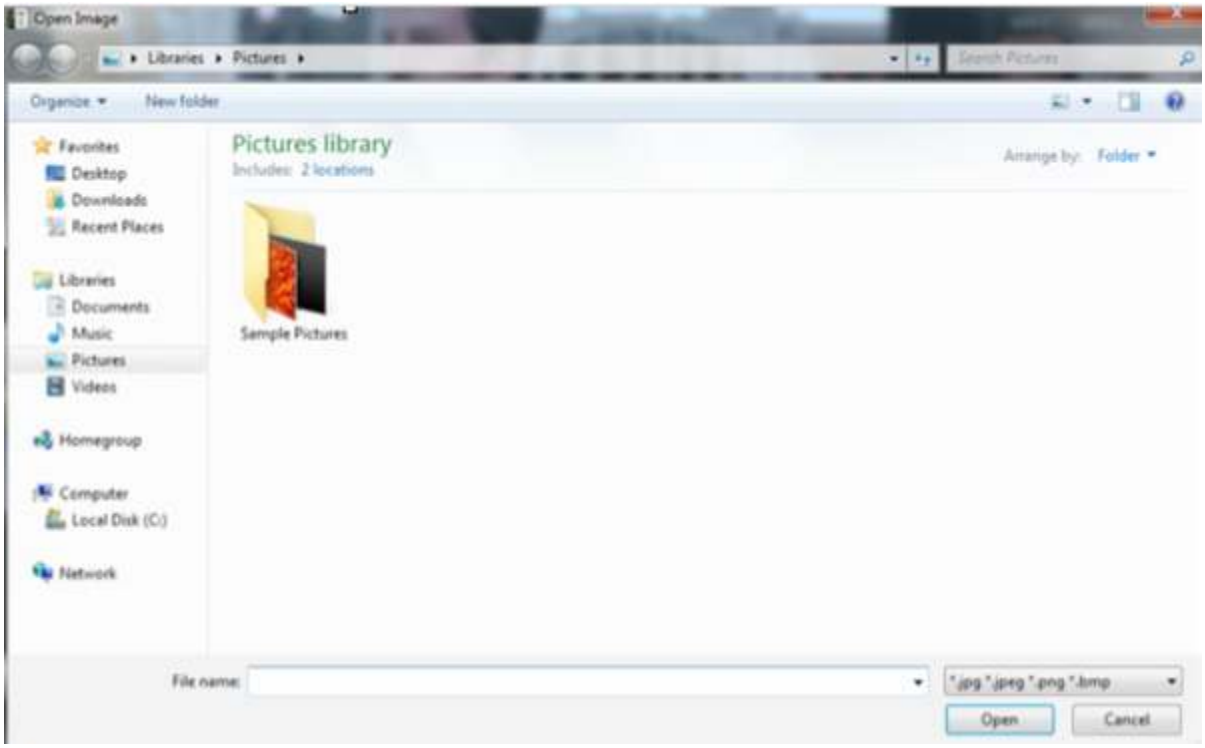
You can also add a column by clicking + COLUMN underneath where the data populates and add that asset in the GFX Designer.



In the one row that appears, you can add content to those fields by clicking in the cell. You can then type any desired content into a text field.

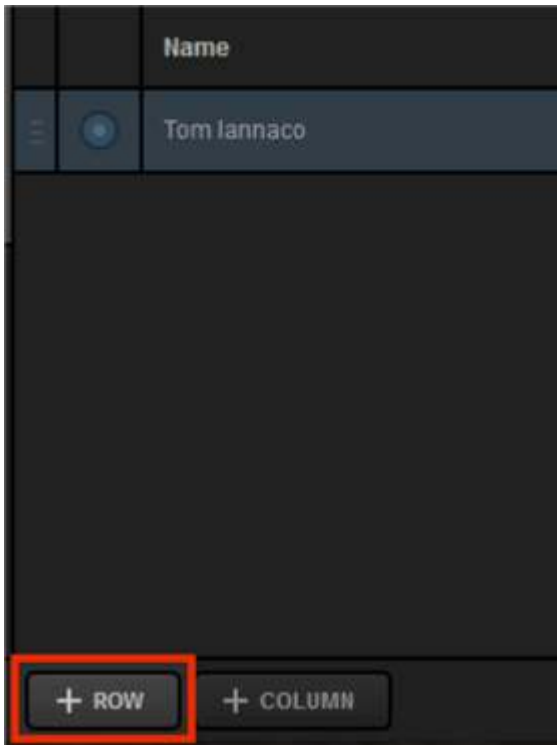


Double-clicking an image field will allow you to browse your computer for an image to put in that image field.



Click the adjacent radio button to highlight it blue. This will make that row of data visible when that layer is shown in Preview or Program.

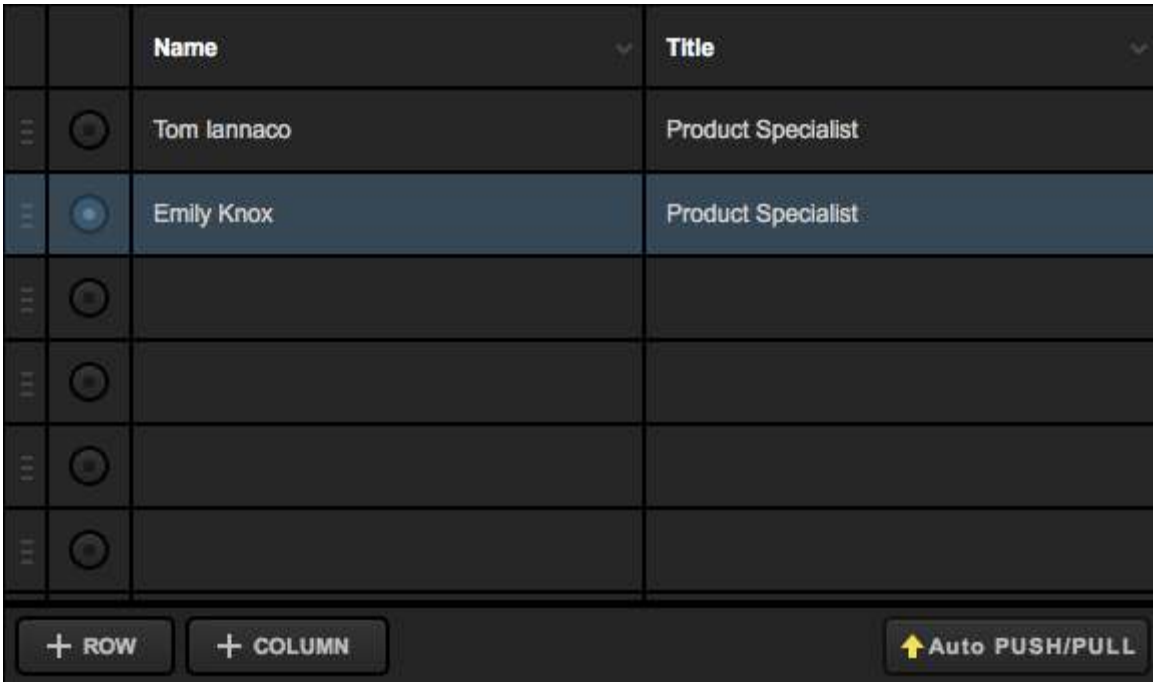
To use the same graphics overlay template for different information or data, click + ROW on the bottom.



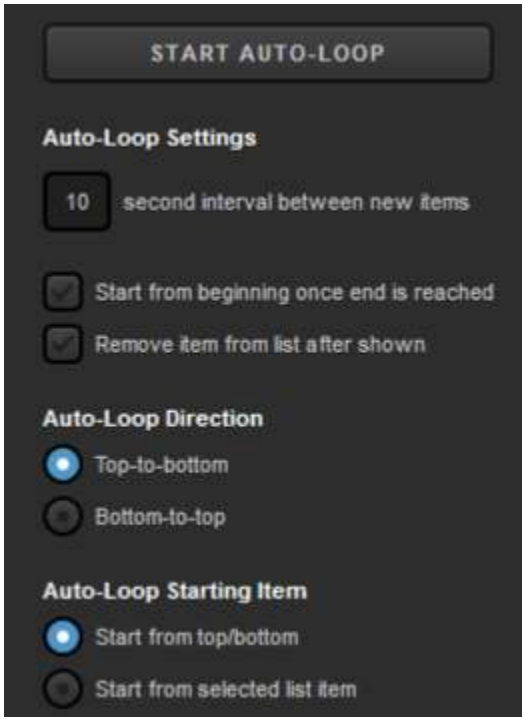
Fill in the data cells with the information you want to use for those text or image fields.

Click the corresponding radio button to make that row of data visible in your graphics layer.

You can add as many rows and columns as necessary for any given graphics overlay layer.



The settings allow you to loop your data content automatically. You can change the interval between switches, whether the loop re-starts, if rows are kept, and what direction the loop moves.

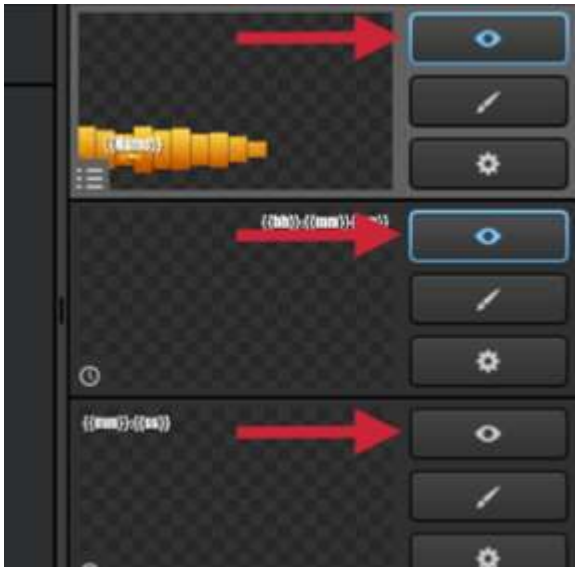

START AUTO-LOOP
Auto-Loop Settings
10
second interval between new items
Start from beginning once end is reached
Remove item from list after shown
Auto-Loop Direction
Top-to-bottom
Bottom-to-top
Auto-Loop Starting Item
Start from top/bottom
Start from selected list item

Mixing Graphics Overlays into Program

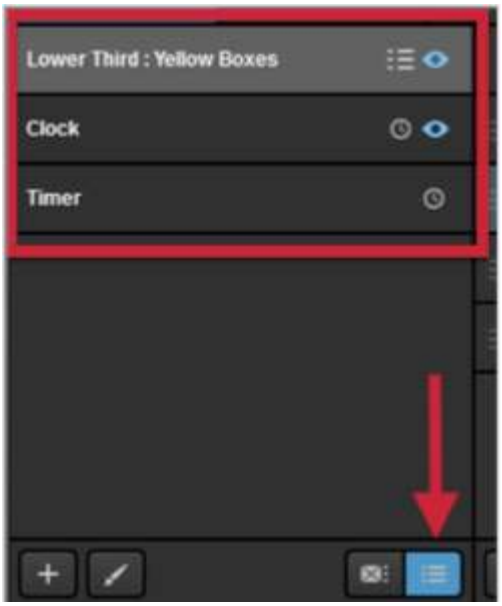
> The mixing panel shown in this section is only visible when Studio is in **Advanced Interface Mode**. Mixing graphics in Simple Mode is covered here.

Once your graphic is designed and configured, you can start adding it to your production. First, make sure your layer is visible by clicking the eyeball icon. It should be highlighted blue.

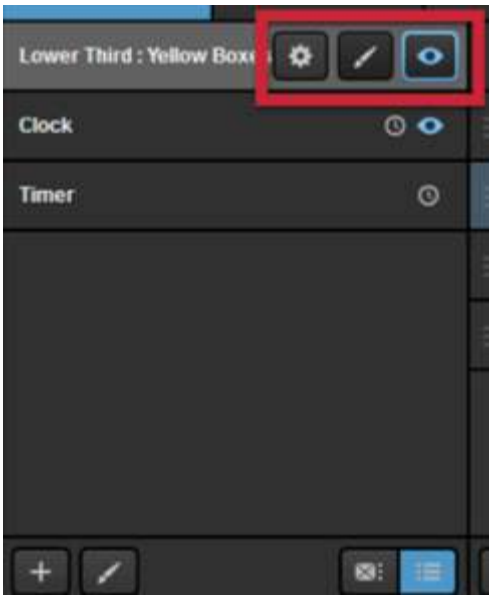
If you have multiple layers in your graphics overlay channel, highlight the eye icon of any layer that you want to be visible; more than one layer can be visible at a time.



Please note that if you have multiple layers in one module, you can click the display buttons on the bottom to show your layers in list mode to manage them more easily.



You can still access settings, the GFX Designer, and change visibility for each layer when using this view.



If you want to put a graphics overlay channel in Preview before pushing it to Program, click the corresponding PRV button in the upper right corner of the interface.

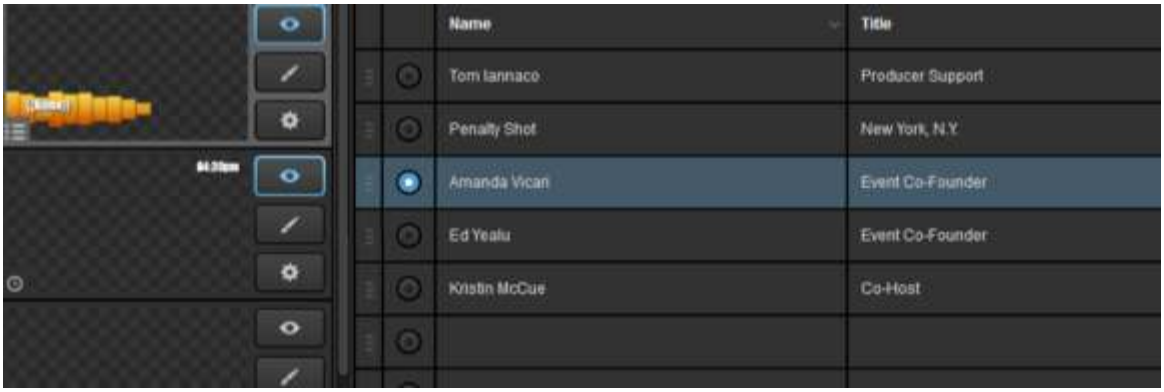
You should now see the visible layers of your graphics overlay channel in Preview.

You should also notice the yellow PUSH button flashing. Click it to bring your graphics overlays into Program.

Your visible layers are now seen in both Preview and Program.

This is also indicated by PUSH no longer flashing and the PULL button turning red.

Now try making a change to your graphics overlay channel, such as changing a layer's visibility or selecting a different row of data in a currently visible layer.



You will notice the change is visible in Preview but is not yet seen in Program.

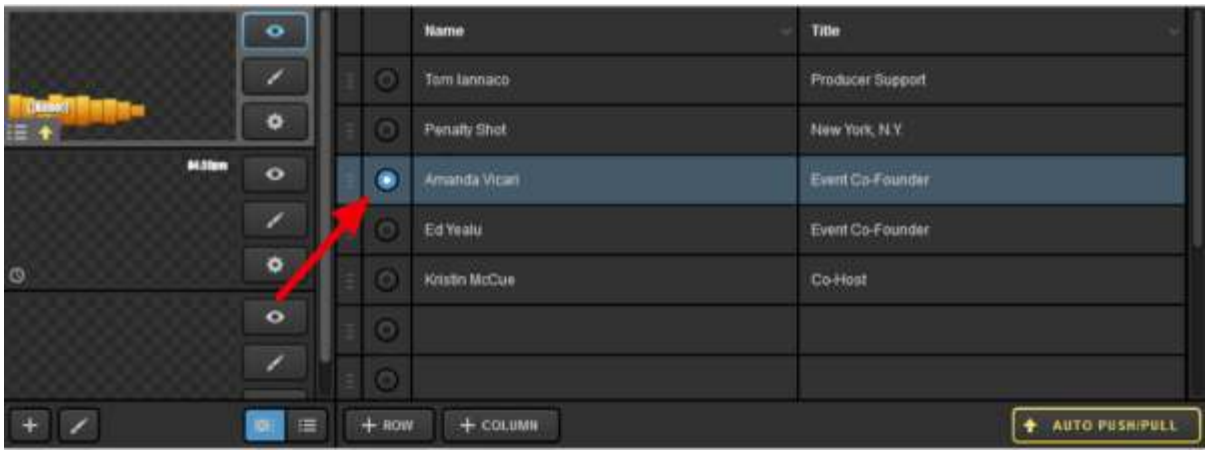
The PUSH button has also started flashing again. This means that Livestream Studio has detected a change in that GFX channel and is ready to change it in Program. Click it when you are ready to show the change to viewers.

You should now see the change reflected in both Preview and Program.

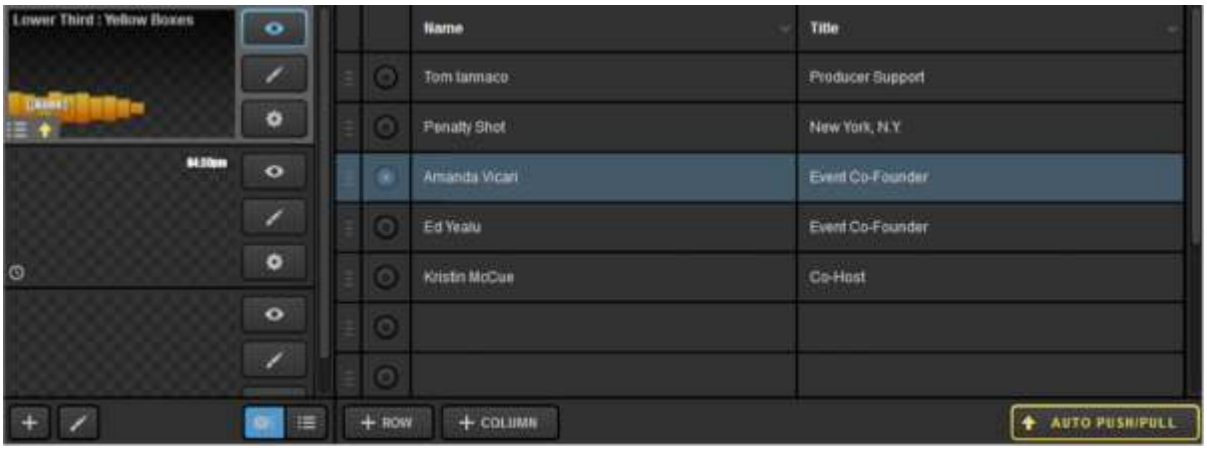
For each layer, you have the option to have every change automatically pushed to Program immediately by selecting the AUTO PUSH/PULL button on the bottom right.

Please note that if the graphics overlay is not yet in Program, you will need to push it manually by clicking PUSH in the upper right corner.

To remove a visible graphics overlay quickly while AUTO PUSH/PULL is enabled, simply click on the highlighted radio button of the visible row.



Now the graphic has been removed from Program and the radio button has faded in the graphics module to indicate this.



Click the red PULL button that corresponds to that channel to remove everything from that graphics overlay channel from Program.

Doing so will remove that graphics overlay from Program, but you will still see it in Preview if the PRV button is still selected.

To remove a graphics overlay from Preview, click the corresponding green PRV button.

You should no longer see your graphics overlay in either Preview or Program.

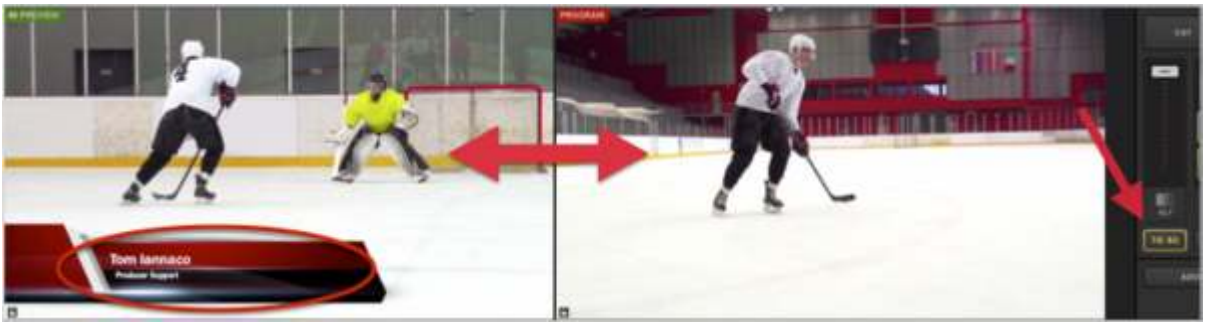
Using the Tie Controls

You may need to switch a video source and a graphics overlay simultaneously. This is where the TIE BG and TIE buttons in Livestream Studio (Advanced Interface only) come in.

At least one of these TIE buttons must be selected at all times. This tells the transition controls what to reference when switching.

If only TIE BG is highlighted yellow, then only the video source in Preview will switch to Program when transitioning.

After using a transition control, notice how the video source switched, but GFX 1 remained in Preview because only TIE BG was selected.



To switch the video source and bring in a graphics overlay at the same time, select TIE BG and the corresponding TIE button for your graphic. Be sure to select the PRV button for the graphics overlay channel that is tied to your video source.

Your Preview and Program monitors should look similar to this, with a GFX channel in Preview. Use a transition control to switch the sources.

Now your video sources have switched and your graphics overlay has been pushed to Program.

If only the GFX 1 and GFX 2 TIE buttons are lit and both sources are in Preview, then both overlays will switch into Program when transitioning. The video will not change.

In this example, GFX 1 has a lower-third graphic, and GFX 2 is a clock. Use a transition control to bring both into Program.

After the transition, both graphics overlays are now in Program, but the video source is the same since TIE BG was not selected.

To pull a graphics overlay out of Program simultaneously with a video source, tie the background and the graphics overlay together.

Next, you will need to remove the graphics overlay from Preview. This will tell the transition controls that the graphic should not be shown in Program on the next switch.

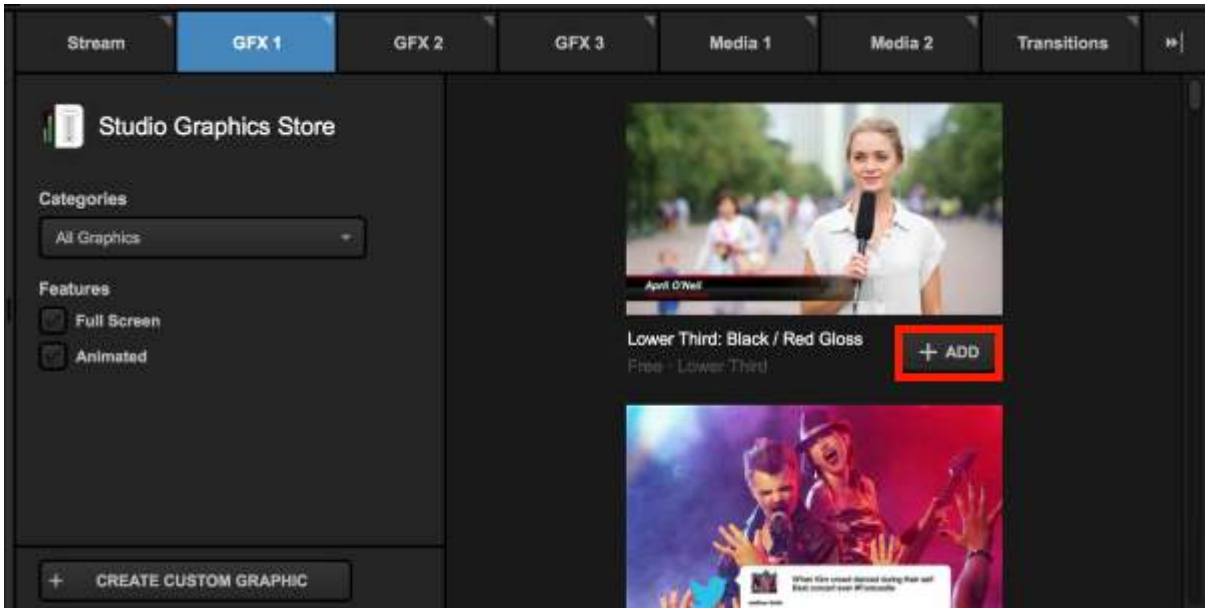
Your monitors should look similar to this now, with Preview showing a different video source and no graphic. Use a transition control to switch the sources.

Now your video sources have changed, and your graphics overlay is no longer in Program.

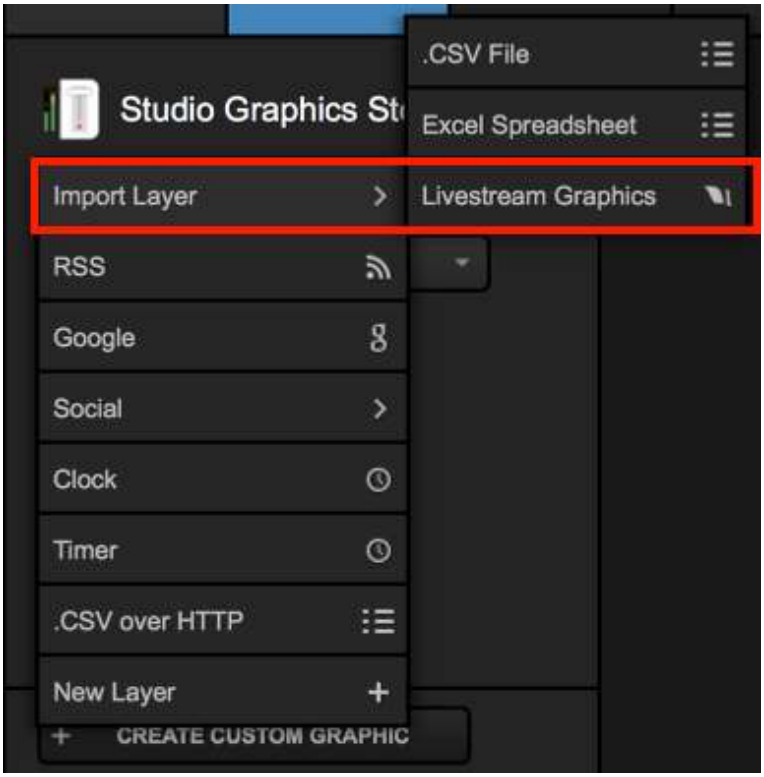
Importing Livestream Graphics Files

Livestream's Graphics Store has numerous free templates that can be downloaded and imported into Livestream Studio. You can also export any template you build in Studio and import it into another Studio project later using this feature.

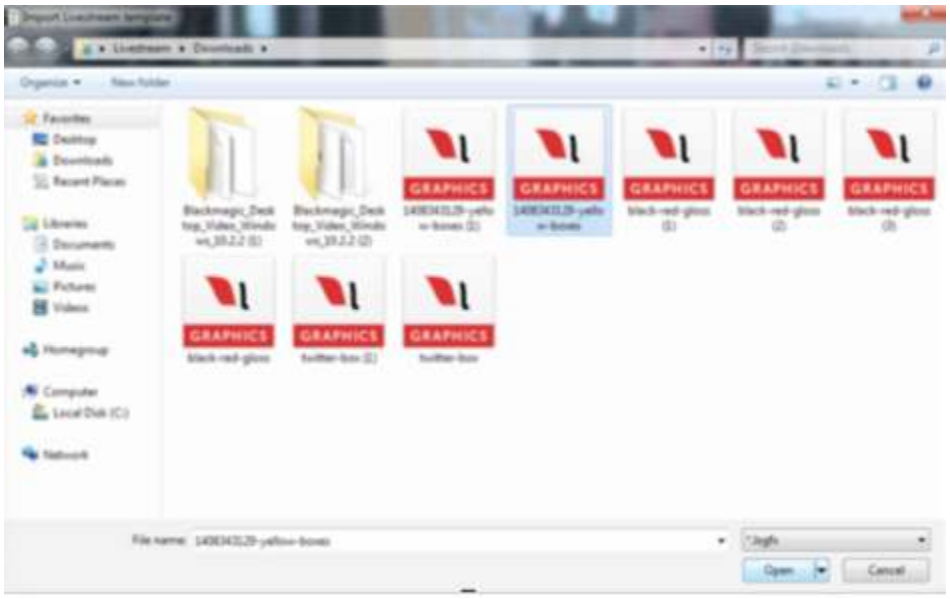
Studio has the Livestream Graphics Store built into its interface. Navigate to any GFX module. Open the Categories menu or select Features you would like your graphic to have on the left side and browse through template options on the right side. If you find a design you like you can simply click +Add below the corresponding template.



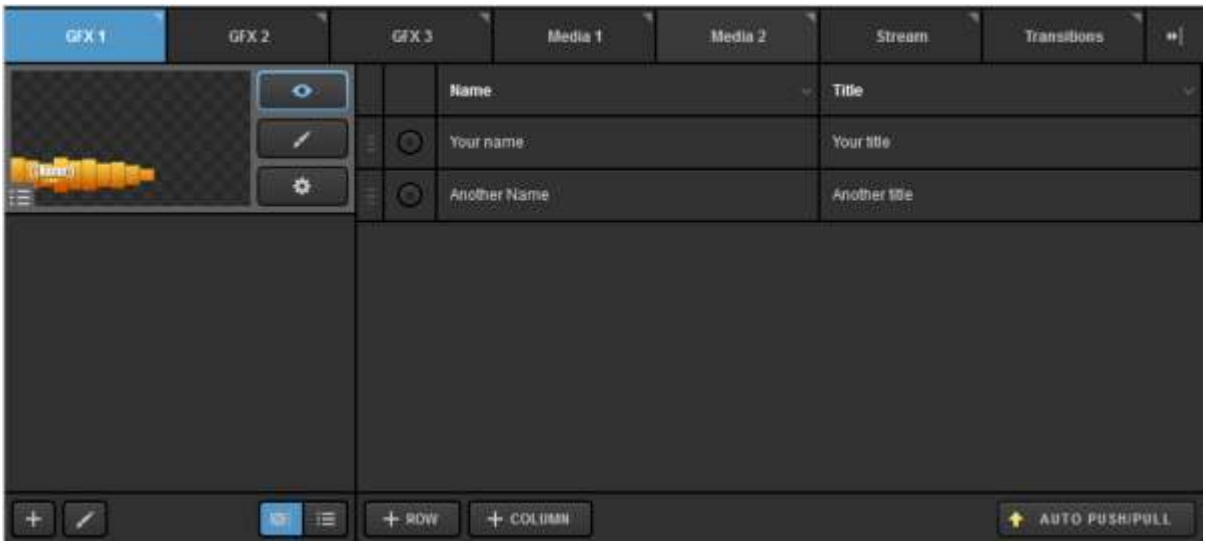
Alternatively, if you downloaded a template from the Store website or exported an .lsgfx file previously, you can import that file from your local hard drive by selecting Create Custom Graphic > Import Layer > Livestream Graphics.



Browse your computer for the .lsgfx file you just downloaded (this is typically found in the Downloads folder). When you find the file, click Open.

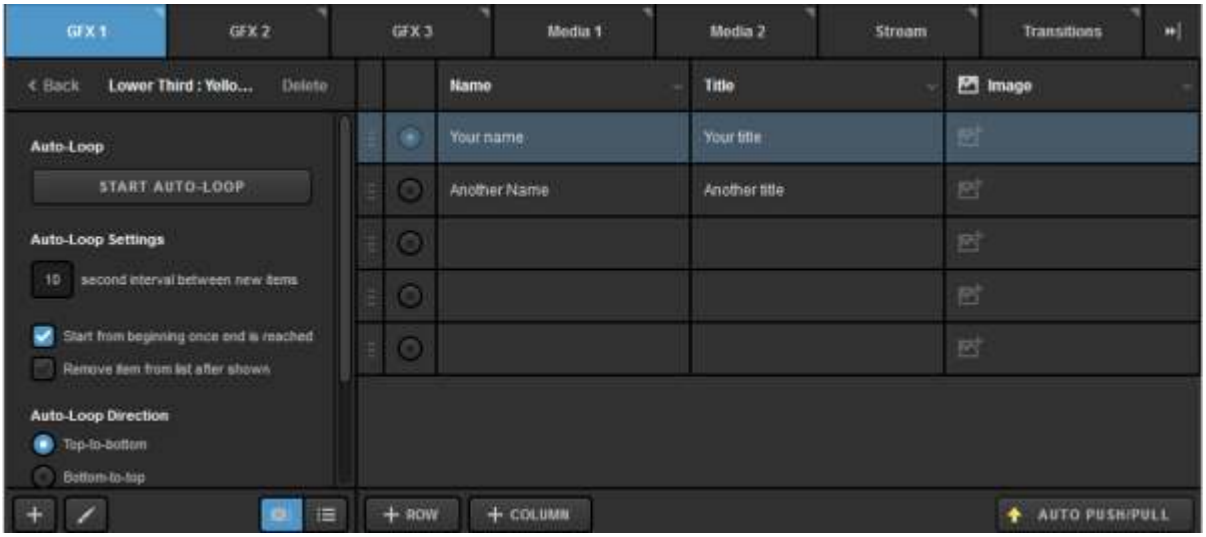


The layer will appear in your graphics overlay channel. For lower third graphics downloaded from the Graphics Store, there are two text type columns and two rows included by default.



If you open the GFX Designer by clicking the paintbrush icon, you will see clearly which text fields the two columns correspond to and can adjust them as necessary.

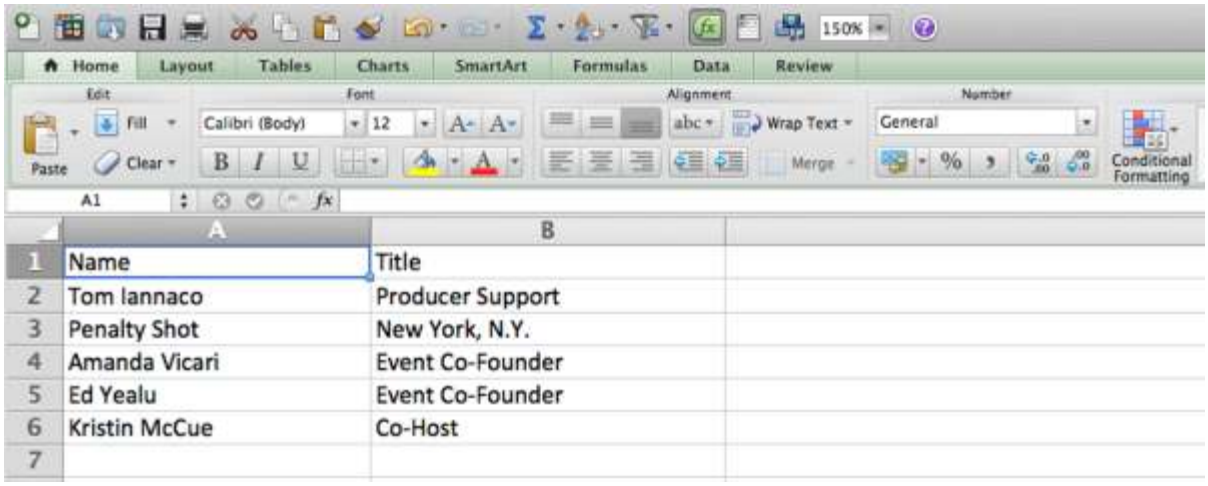
Just as with any manually built graphic, you can add as many columns for data fields or rows of content as necessary.


GFX 1
GFX 2
GFX 3
Media 1
Media 2
Stream
Transitions
Back
Lower Third : Yello...
Delete
Auto-Loop
START AUTO-LOOP
Auto-Loop Settings
10
second interval between new items
Start from beginning once end is reached
Remove item from list after shown
Auto-Loop Direction
Top-to-bottom
Bottom-to-top
Name
Title
Image
Your name
Your title
Another Name
Another title
+ ROW
+ COLUMN
AUTO PUSH/PULL

Importing Excel Spreadsheets and .CSV Files

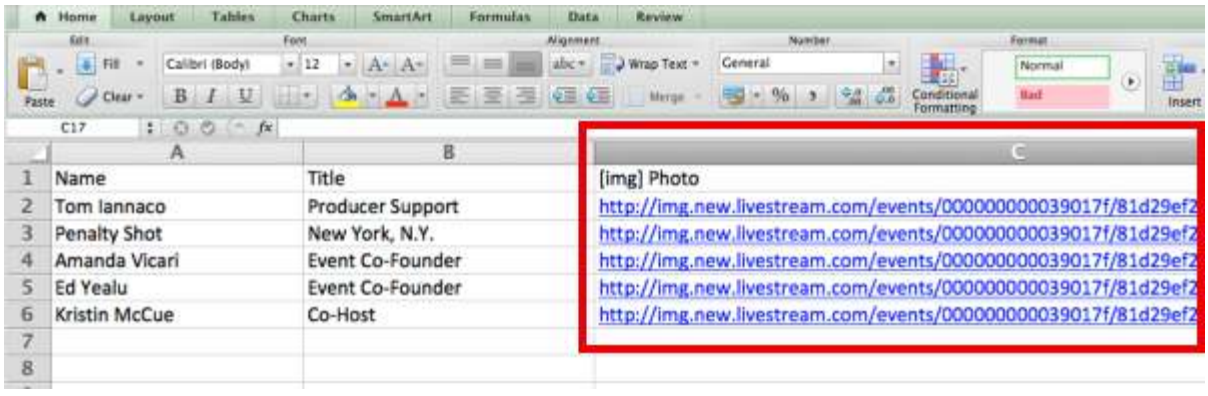
Rather than manually inputting your data in Livestream Studio, you can import all your data from an Excel (.xlsx) spreadsheet or .CSV file.

> For the best experience, we recommend that your document have no more than 250 rows. You can use other Excel or .CSV files in as many graphics layers as needed if you need to show more data.



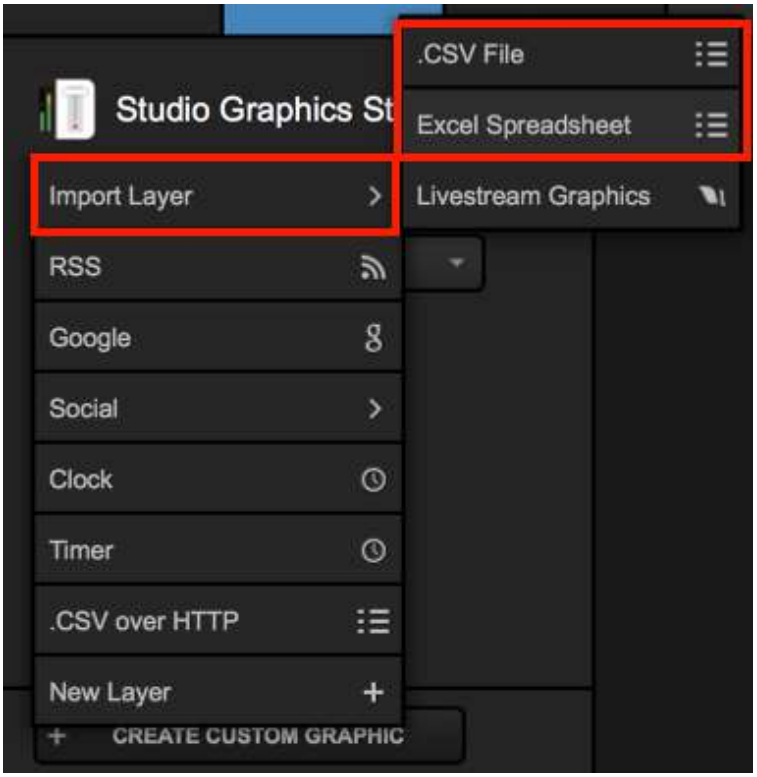
	A	B
1	Name	Title
2	Tom Iannaco	Producer Support
3	Penalty Shot	New York, N.Y.
4	Amanda Vicari	Event Co-Founder
5	Ed Yealu	Event Co-Founder
6	Kristin McCue	Co-Host
7		

If you want to include images, make a column with the URLs where the images are hosted.

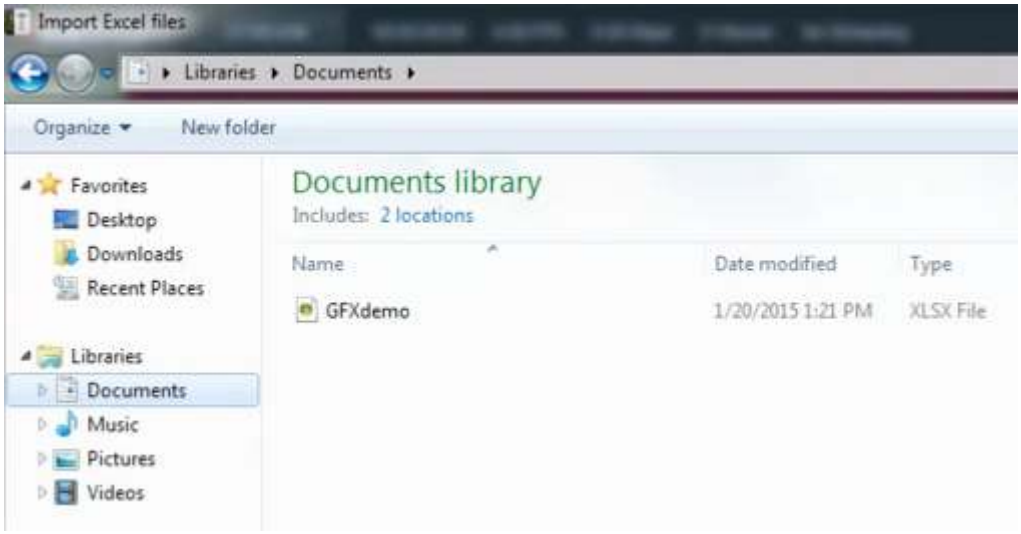


	A	B	C
1	Name	Title	[img] Photo
2	Tom Iannaco	Producer Support	http://img.new.livestream.com/events/0000000000039017f/81d29ef2
3	Penalty Shot	New York, N.Y.	http://img.new.livestream.com/events/0000000000039017f/81d29ef2
4	Amanda Vicari	Event Co-Founder	http://img.new.livestream.com/events/0000000000039017f/81d29ef2
5	Ed Yealu	Event Co-Founder	http://img.new.livestream.com/events/0000000000039017f/81d29ef2
6	Kristin McCue	Co-Host	http://img.new.livestream.com/events/0000000000039017f/81d29ef2
7			
8			

To get started, click Create Custom Graphic, then hover the cursor over Import Layer. Choose either Excel Spreadsheet or .CSV File.

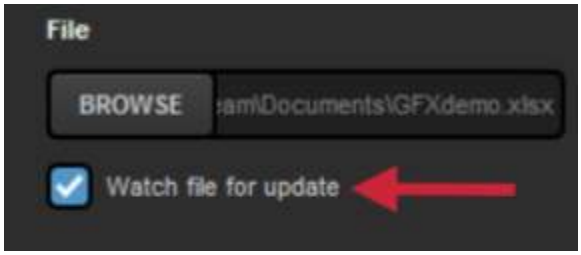


The browse window will appear, allowing you to select your file and import it.



The data from your file will appear on the right side of the module. Click the gear wheel to enter its settings.

Checking Watch file for update will prompt Livestream Studio to make any changes to the data that are made in the original .xlsx file on your hard drive.

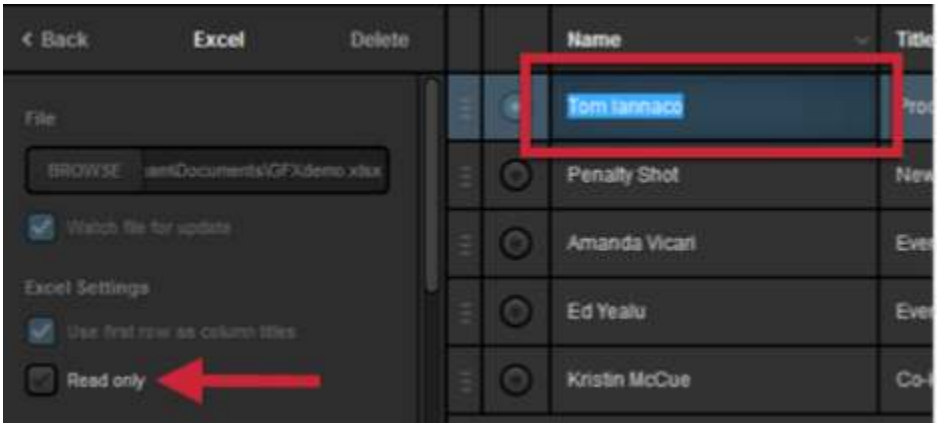


Checking Use first row as column titles will change row A in your spreadsheet to be titles of the corresponding columns in the GFX layer.

Click on the name of any column to change the data type that is in the column (text or image).

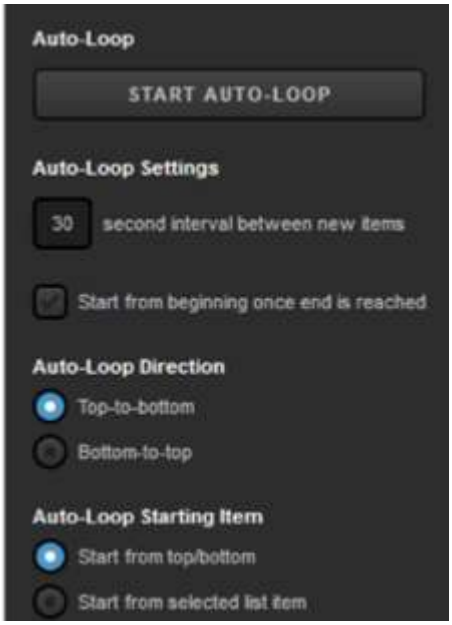
If you want to be able to edit the information within Livestream Studio, uncheck Read Only. Otherwise, changes can only be made in the original file.

Any edits made to in Livestream Studio will not change content in the original document.

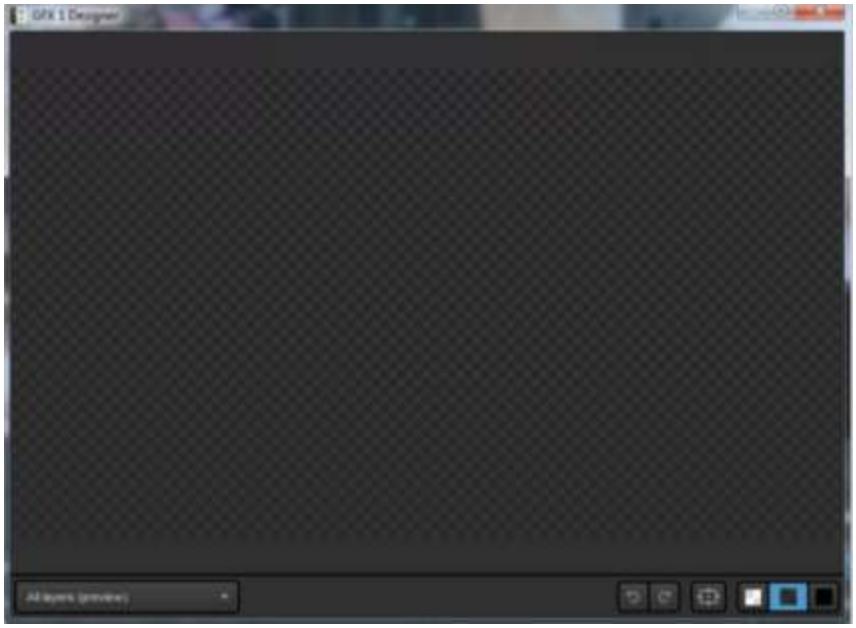


.CSV File Only - Further down in the settings, you can adjust the separators in the document as well as the character encoding (which is typically detected automatically).

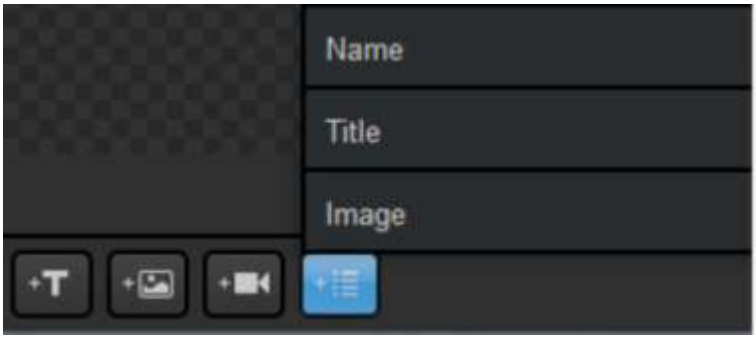
Scroll down to find your Auto-Loop settings, including interval between rows, direction, and starting point.



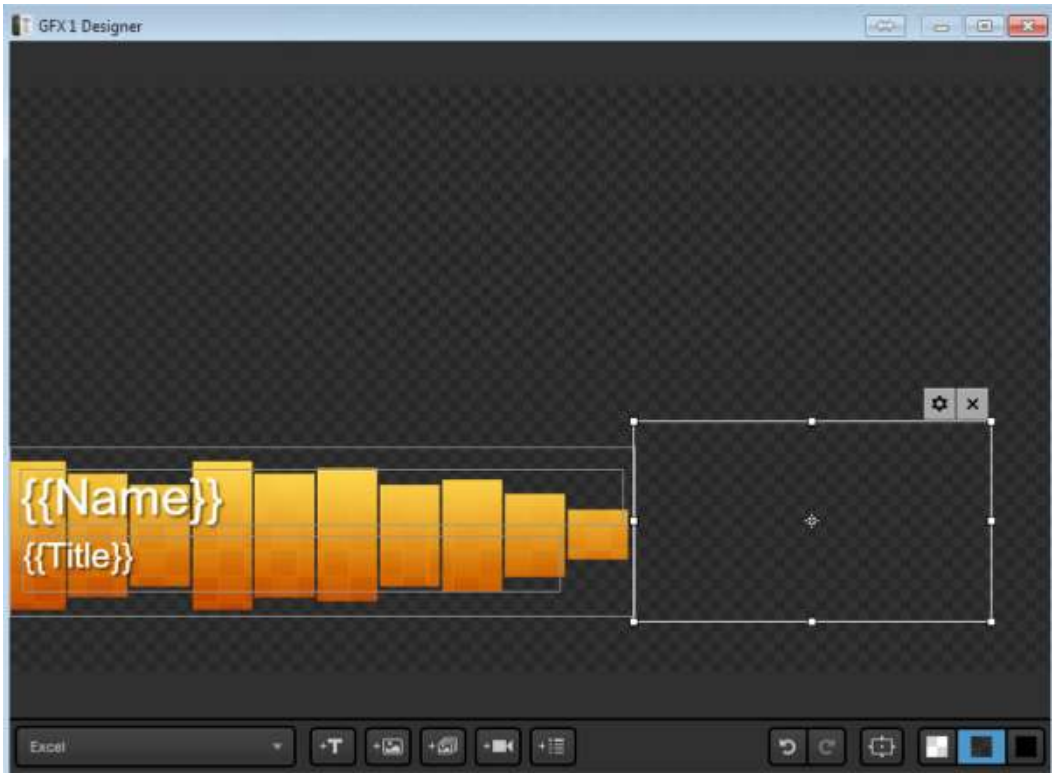
Next, click on the paintbrush icon at the bottom of the graphics module to enter the GFX Designer.



Select Excel or .CSV in the dropdown menu and click the list icon to insert your text and image fields into the designer.

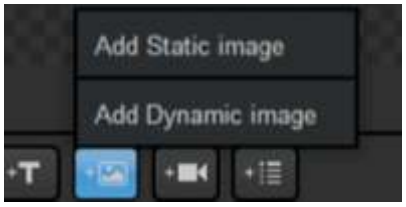


From here, you can drag and drop each field to wherever you want it to be displayed.



Click the gearwheel icon on each field to choose font, size, color, opacity, etc.

Feel free to add any additional elements to your graphics overlay using the other icons at the bottom of the designer.



Close out of the GFX Designer when you have finished. To use the graphic, click Back to view the layer module.

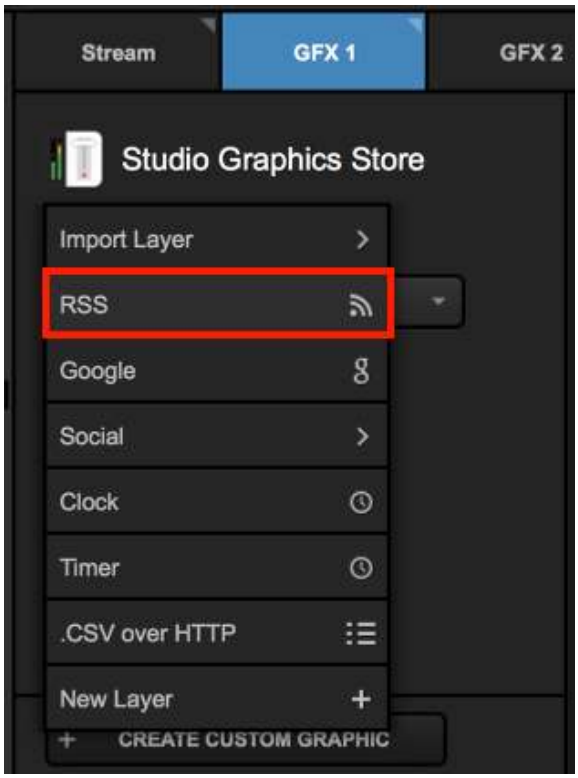
Make sure the eye icon corresponding to that layer is highlighted blue, meaning that it is visible.

You can then click the associated PRV, PUSH, and PULL buttons to utilize that graphics overlay.

GFX 1
GFX 2
GFX 3
PULL
PULL
PULL
PUSH
PUSH
PUSH
PRV
PRV
PRV

Using RSS Feeds

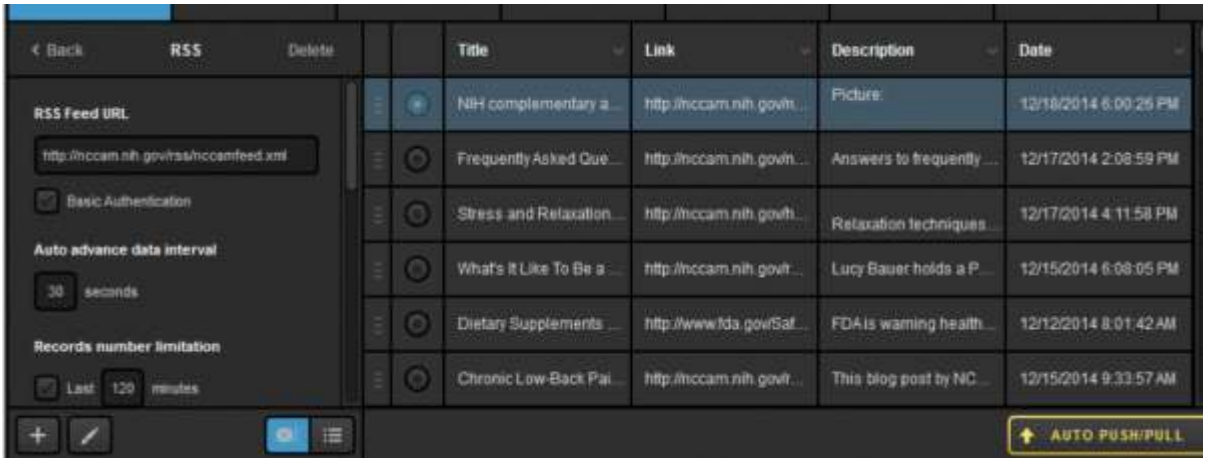
If you want to include an RSS feed in your Livestream Studio production, go to a GFX module, open the Create Custom Graphic menu and select RSS from the graphics menu.



The RSS layer will appear in the graphics overlay channel. Click the gear wheel to enter its settings.

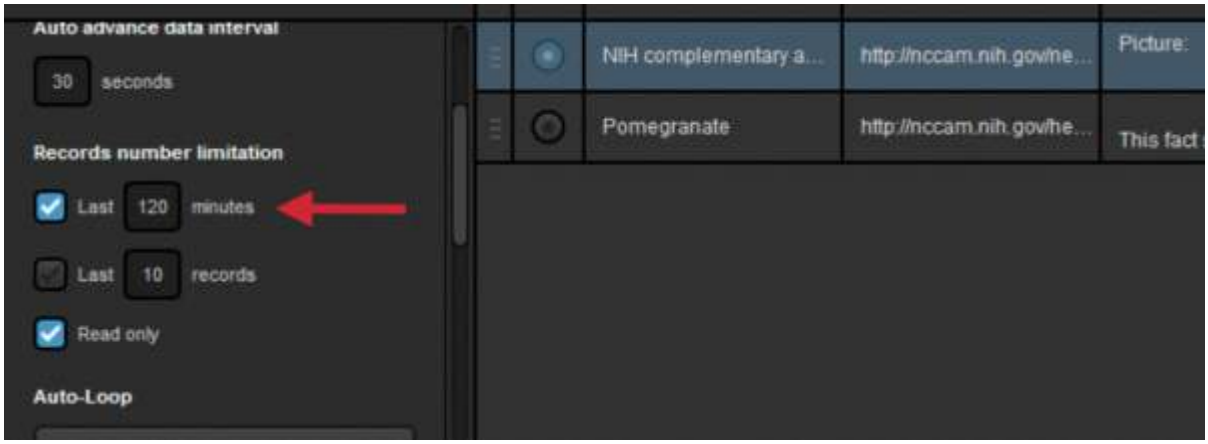
If access to your RSS feed requires authentication, check Basic Authentication and enter your credentials.

When you enter the RSS URL, the data should populate on the right and give you access to further settings.



Set the time interval in seconds that you want Livestream Studio to look for new information from your RSS feed under Auto advance data interval.

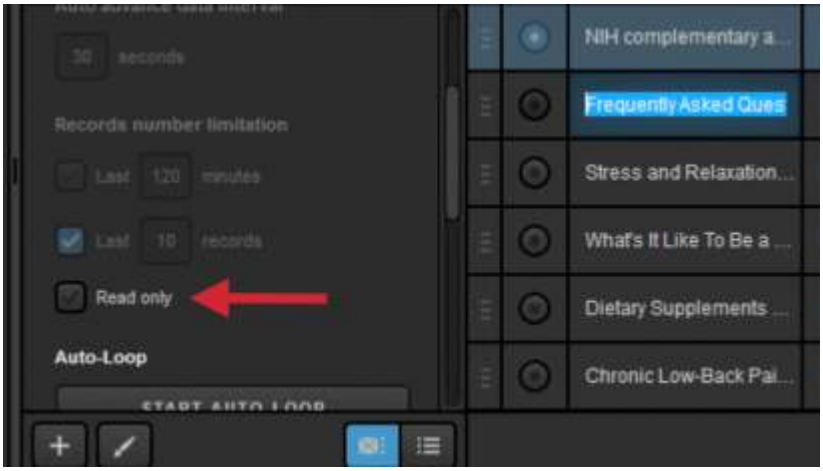
To control the number of posts from your RSS feed, you can choose to only include posts within a recent time frame.



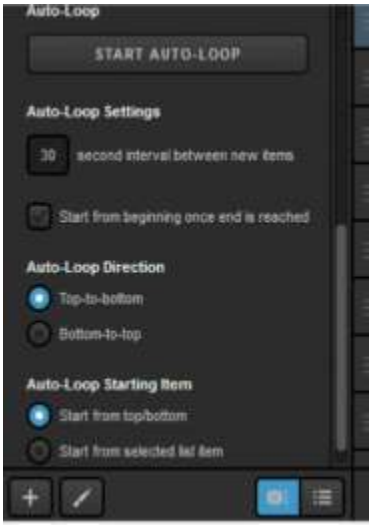
You can also limit Livestream Studio to pull only a certain number of most recent posts.

If you wish to edit any data within Livestream Studio, uncheck **Read only**.

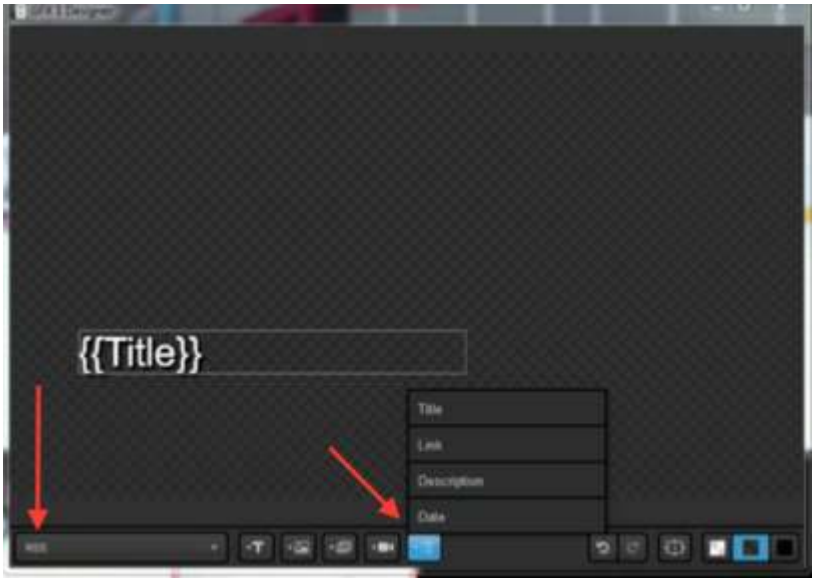
> Any edits made to data sources in Livestream Studio will not change content in the original source.



At the bottom of the settings are the Auto-Loop options for this graphics layer.



Next, enter the GFX Designer, and select RSS from the dropdown. Click the list icon to select your data fields.



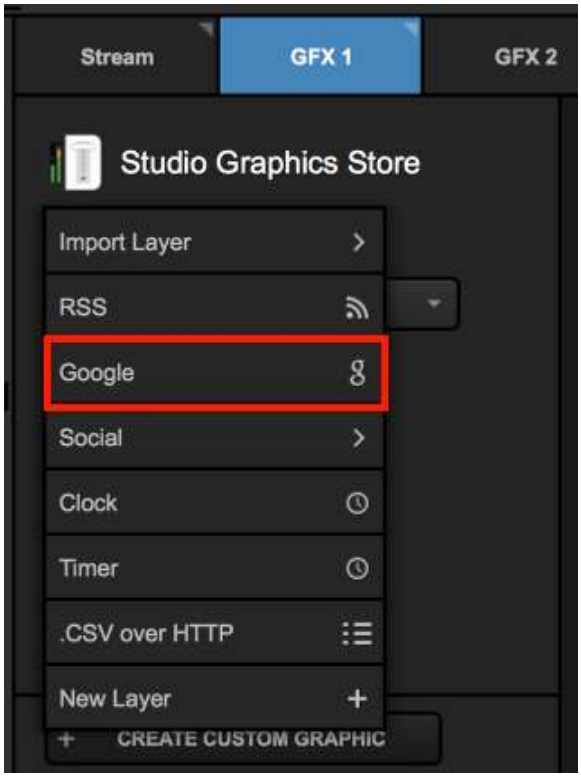
Close out of the GFX Designer and return to the layers module to make the layer visible. You can now include content from the RSS feed into your production via the graphics overlay controls.

GFX 1
GFX 2
GFX 3
Media 1
Media 2
Stream
Transitions
Title
Link
Description
Date
NIH complementary a...
http://nccam.nih.gov/h...
Picture
12/18/2014 6:00:26 PM
Frequently Asked Que...
http://nccam.nih.gov/h...
Answers to frequently ...
12/17/2014 2:08:59 PM
Stress and Relaxation...
http://nccam.nih.gov/h...
Relaxation techniques ...
12/17/2014 4:11:58 PM
What's It Like To Be a ...
http://nccam.nih.gov/r...
Lucy Bauer holds a P...
12/15/2014 6:08:05 PM
Dietary Supplements ...
http://www.fda.gov/Saf...
FDA is warning health ...
12/12/2014 8:01:42 AM
Chronic Low-Back Pai...
http://nccam.nih.gov/r...
This blog post by NC...
12/15/2014 9:33:57 AM
AUTO PUSH/PULL

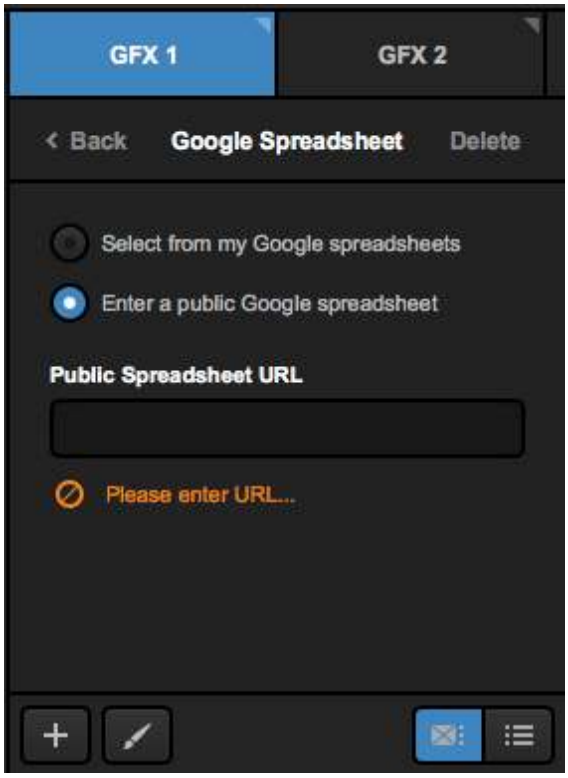
Integrating Google Spreadsheets

An easy way to integrate and manage data in a graphics overlay from an external source is to use Google Sheets. Livestream Studio can integrate up to 15 Google Sheets graphics layers; this is an authorization limitation determined by Google.

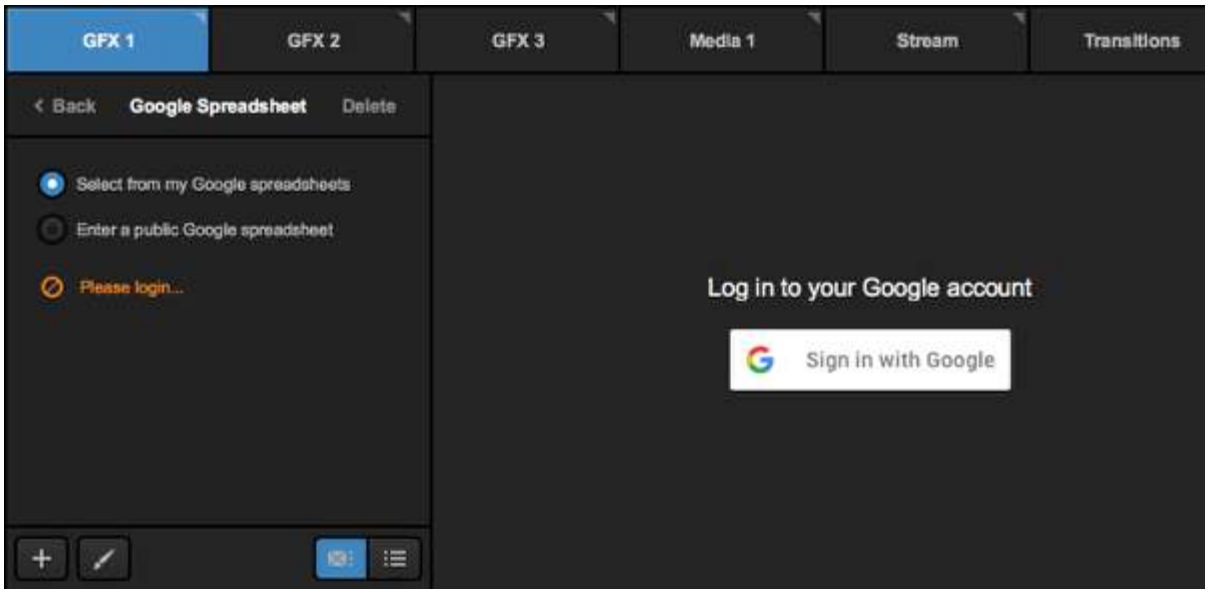
Navigate to a graphics overlay track, open the Create Custom Graphic menu and select Google.

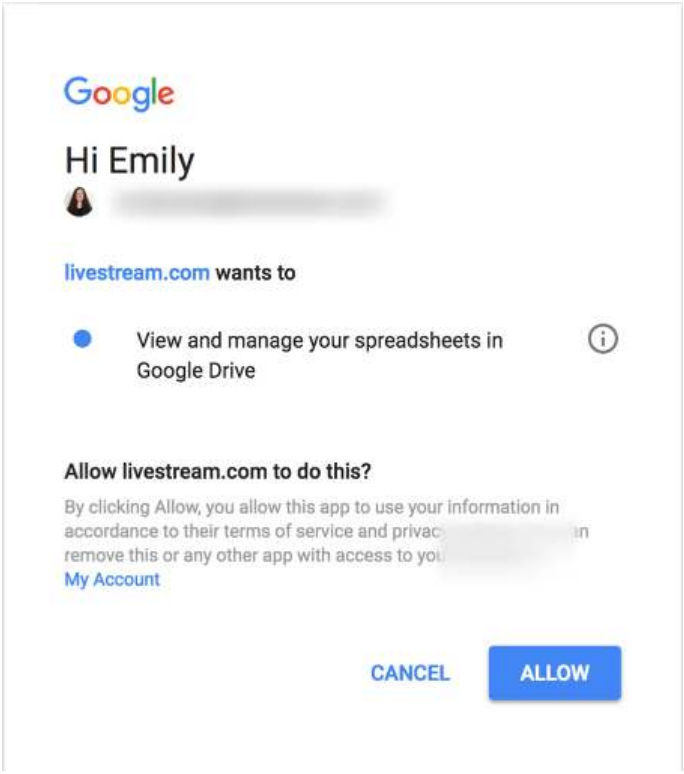


You do not need to log in if you select Enter a public Google spreadsheet. Selecting this will allow you to enter the document's URL.



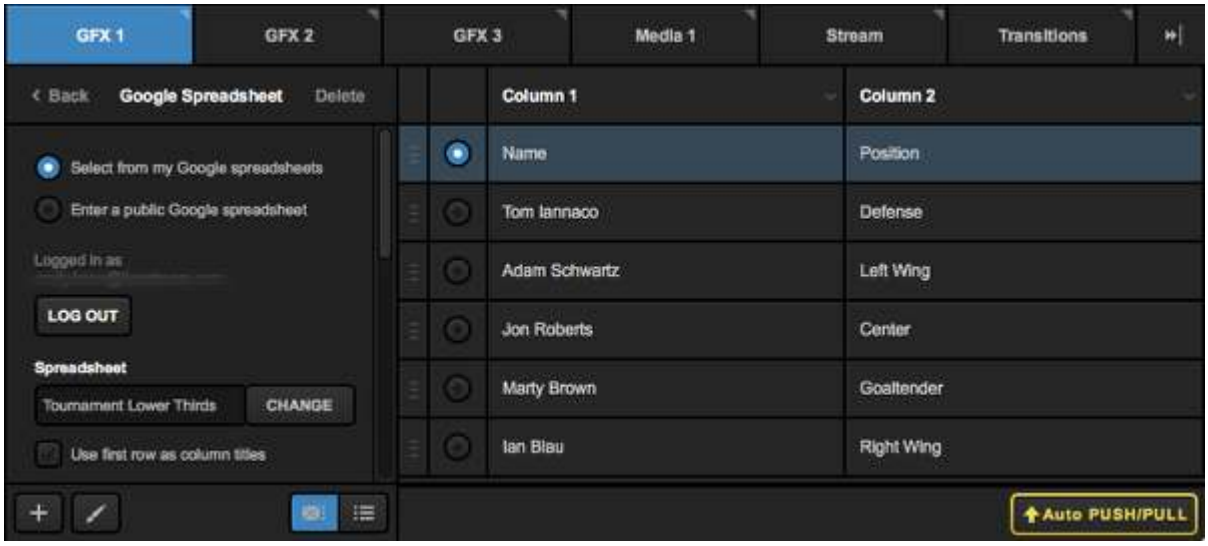
If you want to use your own private Google document, you will need to sign in to a Google account to allow access to your Google Drive. When you click Sign in with Google, a new browser window will open allowing you to sign in and allow this permission.



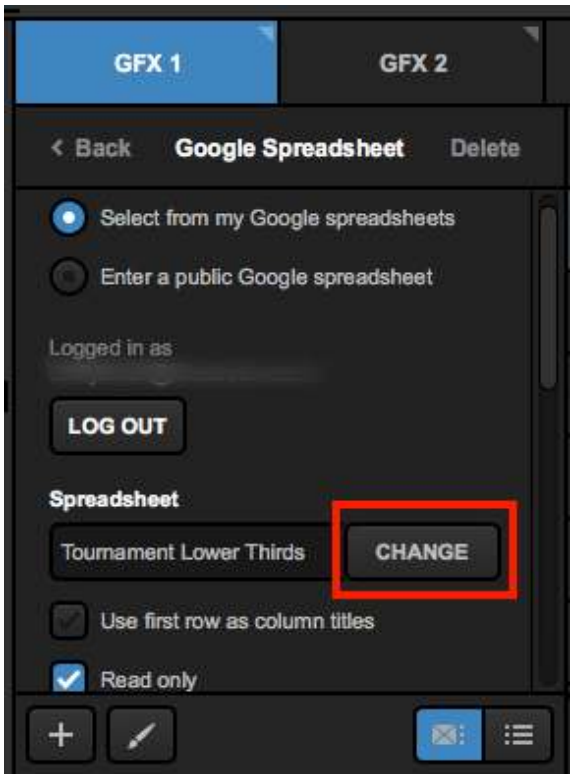


Once you see the Authorization Successful message, navigate back to Studio and select the document with the information you want to include in your graphic. The selected document's data will populate on the right.

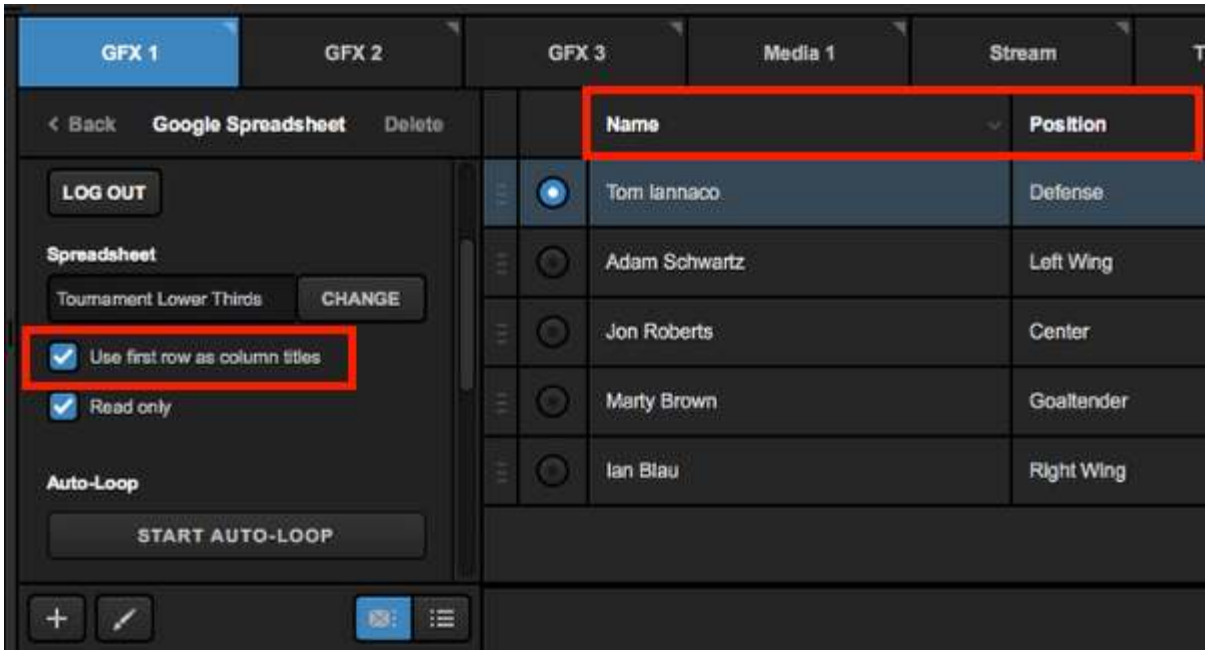
For the best experience, we recommend that your document not have more than 250 rows. You can use Google in multiple graphics layers if you need to show more data.



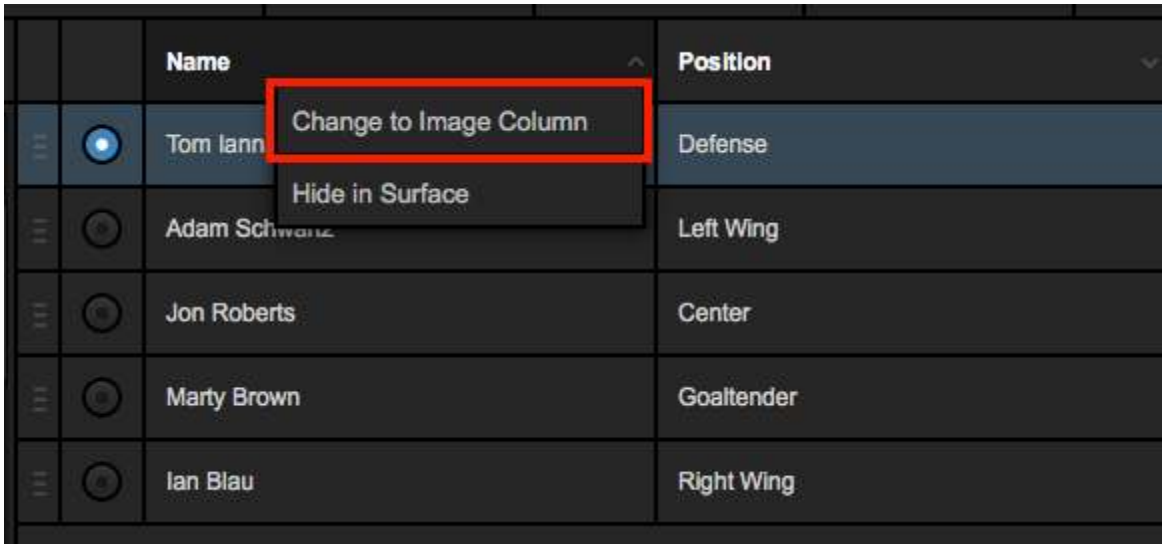
You can always use a different spreadsheet in your Google Drive by clicking the Change button. Spreadsheets will be ordered by most recently modified.



Scroll down to adjust additional settings for this layer. To turn your first row into column titles, check Use first row as column titles.

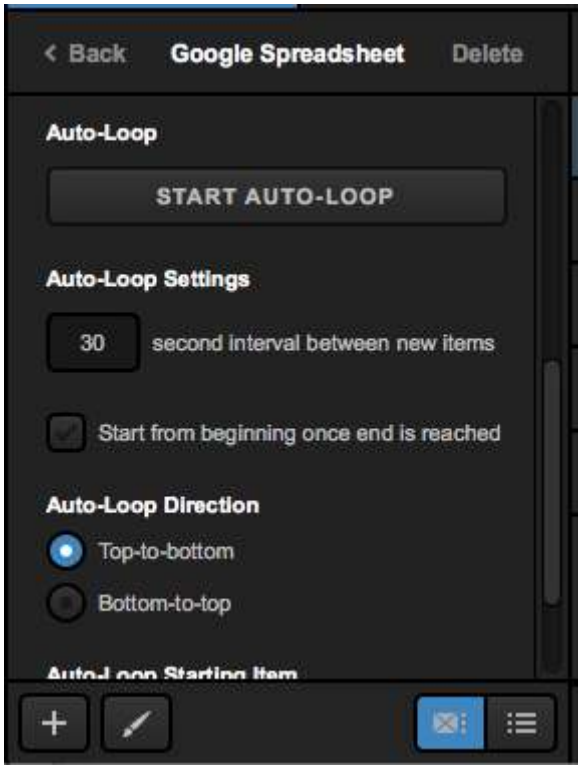


Click on any column title to change the type of data included in that field (text or image).



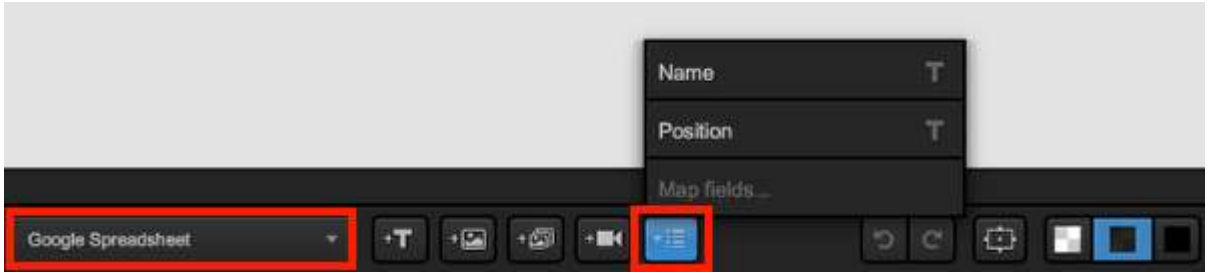
Uncheck Read only if you want to be able to edit the information within Livestream Studio. Otherwise, changes can only be made in Google Docs.

Scroll down in the settings to configure your Auto-Loop preferences, including how often Studio switches to the next row, the direction the loop should go, and where the loop should start from.

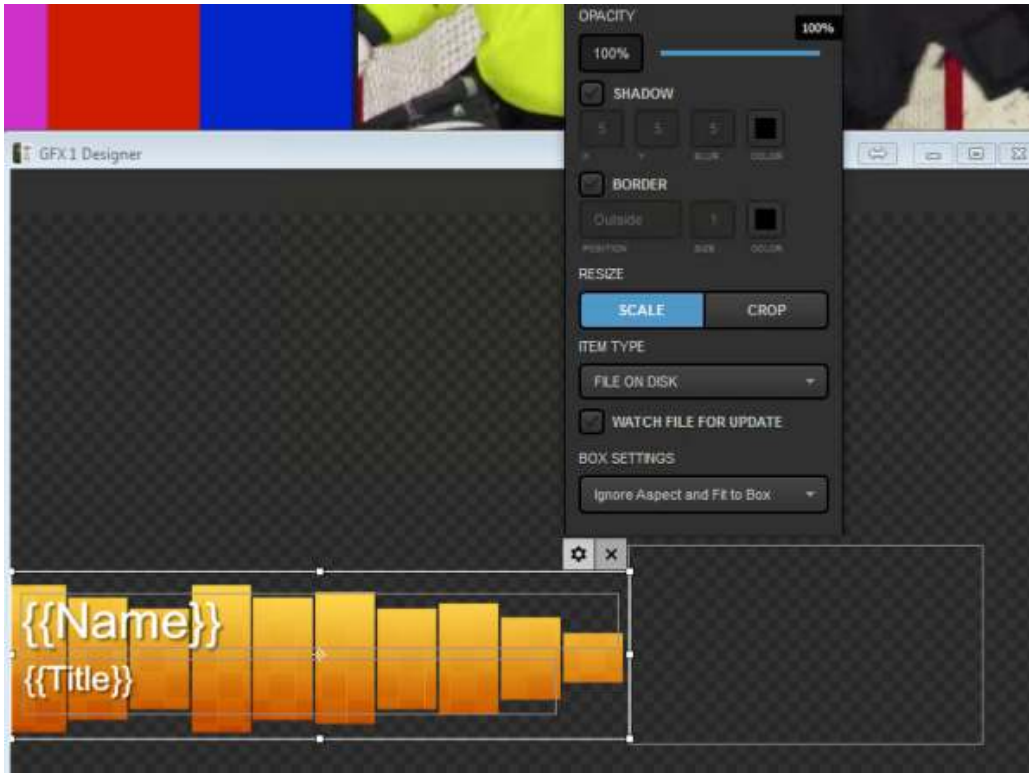


The next step is to start designing your graphic. Click on the paintbrush button to enter the GFX Designer.

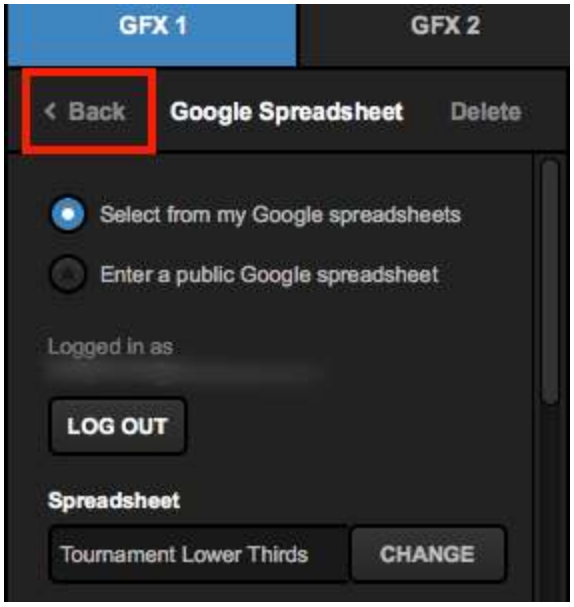
In the Google Spreadsheet layer, click on the list icon to see your columns. Click on one to insert it into the GFX Designer.



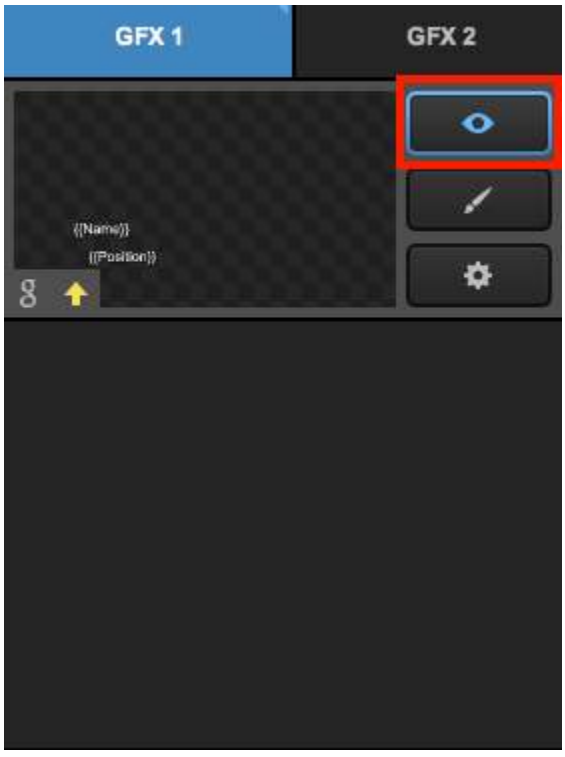
Click on the gearwheel button to access more options for your font, colors, etc.



Close out of the GFX Designer when you have finished. In the graphics overlay channel, click Back in the upper right corner to return to the layer module.



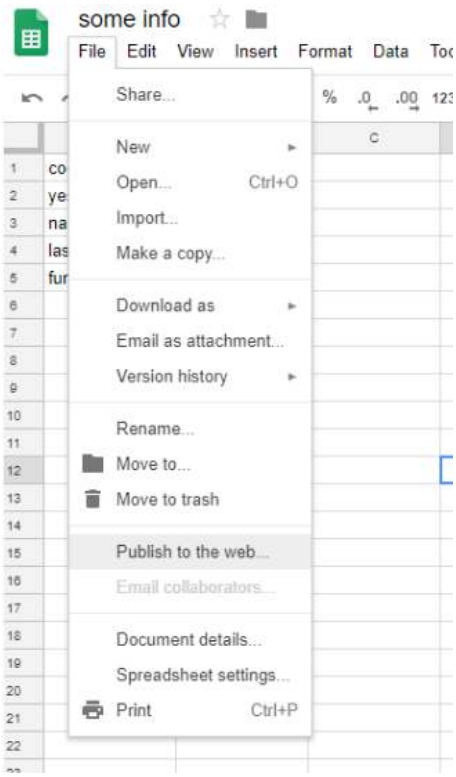
Make sure the Google spreadsheet layer is visible by selecting the eye icon. This will allow you to this graphics overlay to be visible in Livestream Studio.



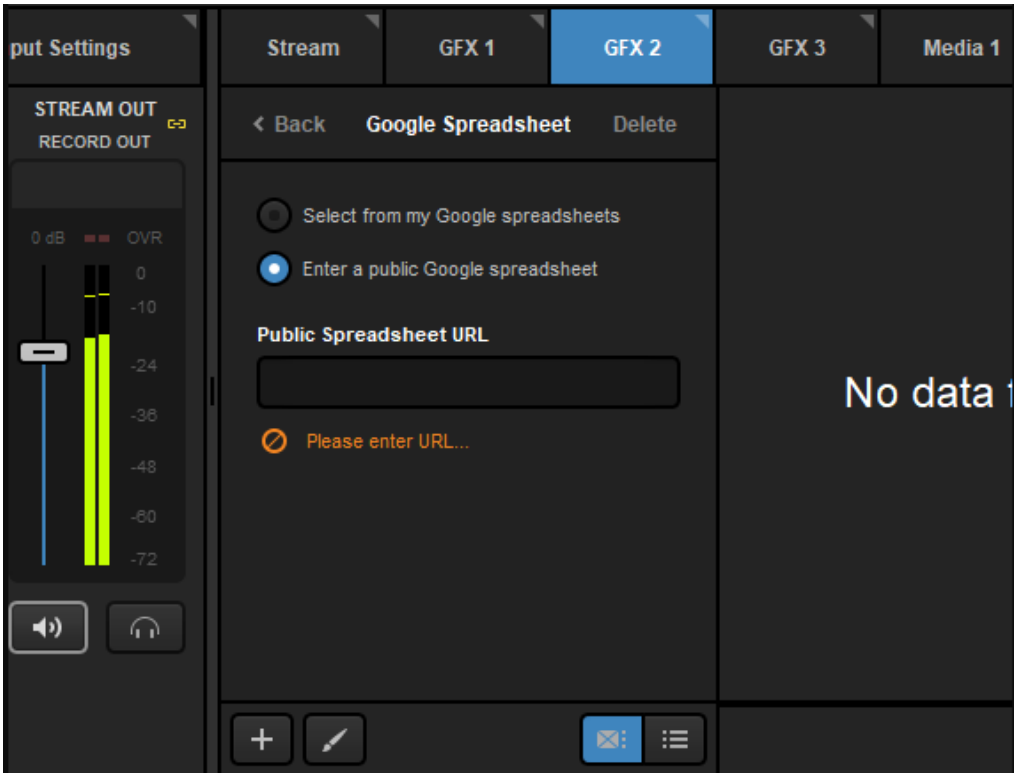
Unable to Log In to Google Sheets

If you are unable to log in to Google via the GFX module and need to use a Google Spreadsheet with your graphics overlays, we have a workaround option detailed below.

In your Google Spreadsheet, navigate to File > Publish to the web.



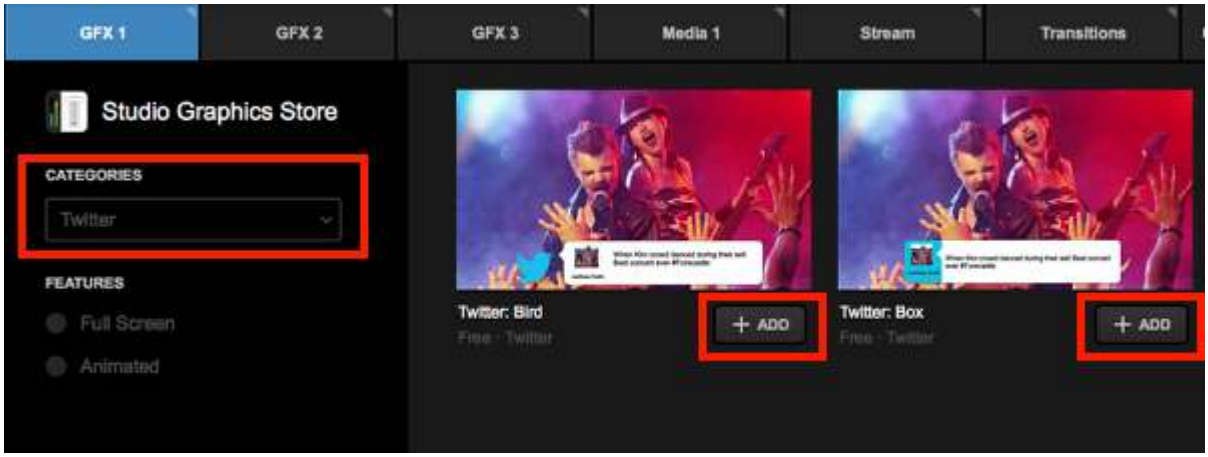
Copy the URL of your sheet. In Studio, add a Google Spreadsheet and select Enter a public Google spreadsheet. Paste your sheet's URL in the field below. Your data will then populate on the right side.


put Settings
Stream
GFX 1
GFX 2
GFX 3
Media 1
STREAM OUT
RECORD OUT
0 dB
OVR
0
-10
-24
-36
-48
-60
-72
Back
Google Spreadsheet
Delete
Select from my Google spreadsheets
Enter a public Google spreadsheet
Public Spreadsheet URL
Please enter URL...
No data

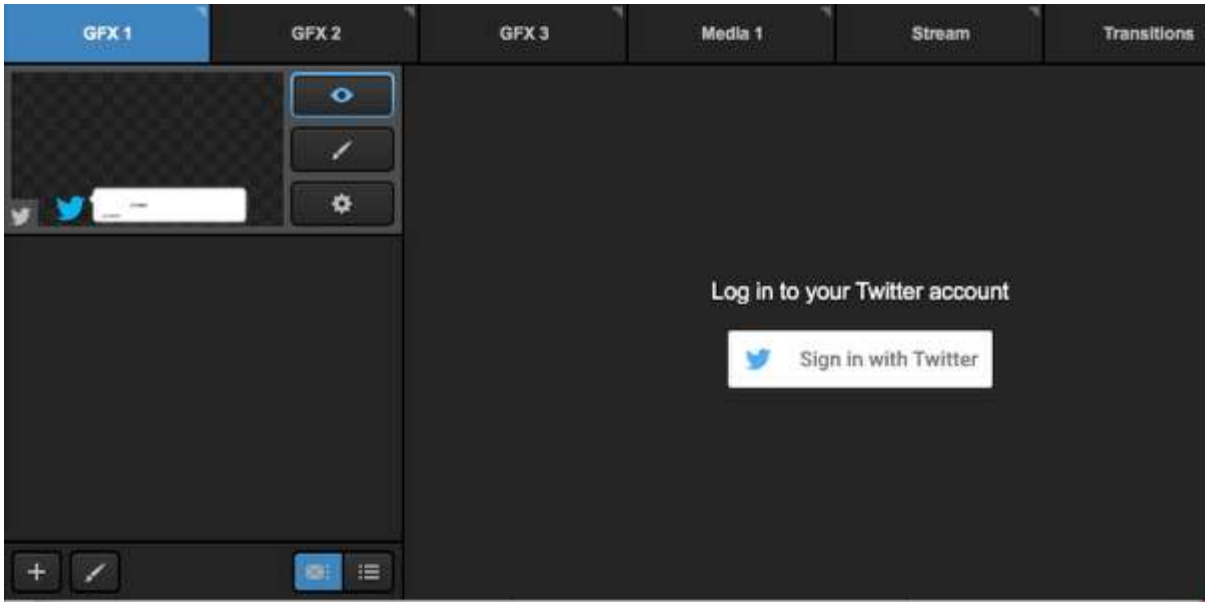
Importing a Twitter Feed into Livestream Studio

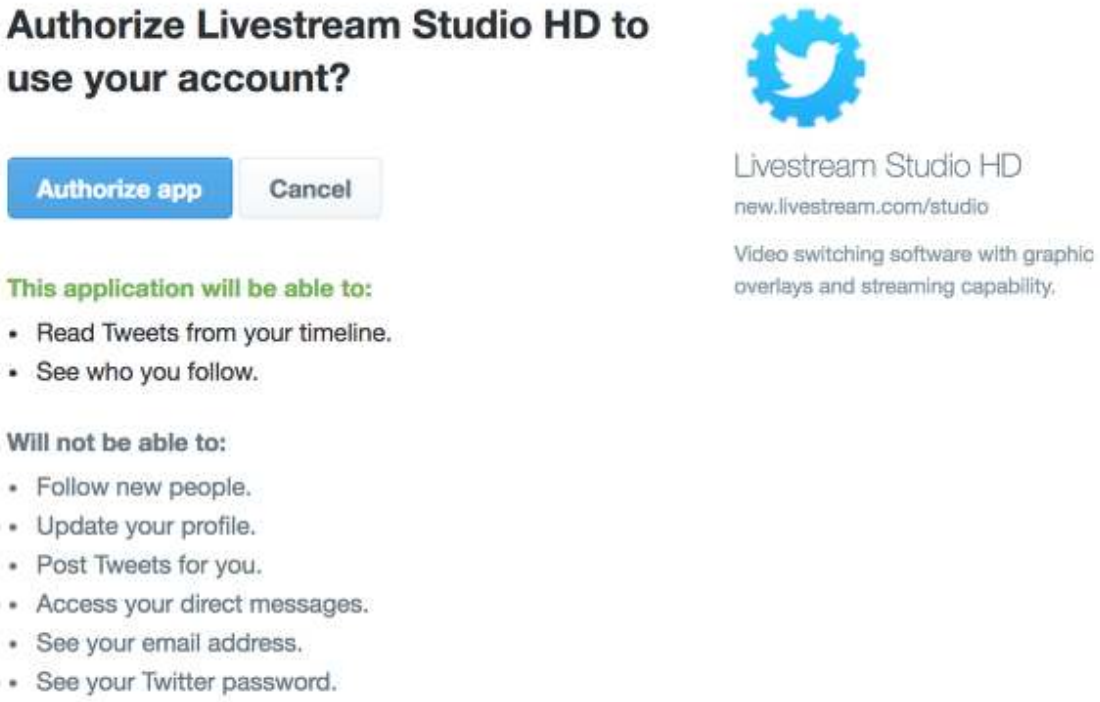
You can include a graphics layer of a Twitter feed from a username or hashtag as a graphics overlay in Livestream Studio.

To get started, you may want to consider adding a Twitter graphic template from our Graphics Store. In the GFX module, select Twitter from the Categories menu, then click +ADD under one of the design options.

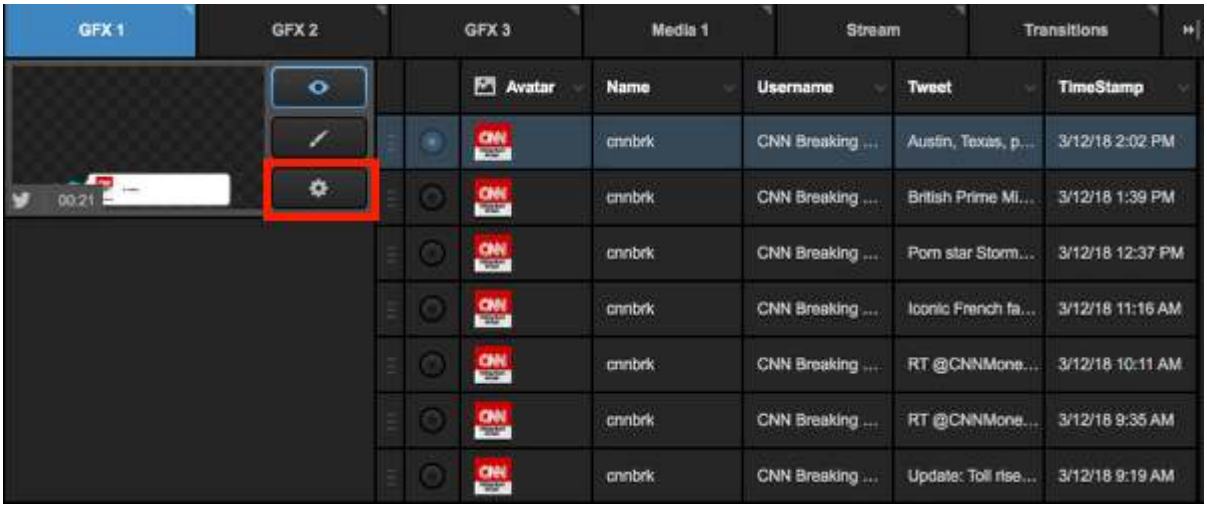


When the graphic is imported, you will see the design preview on the left side and a prompt to sign in on the right. Click Sign in with Twitter to open a browser window and sign in to Twitter. This is required in order to allow Studio and Twitter to communicate with each other, however you are not restricted to displaying tweets from your own Twitter account.

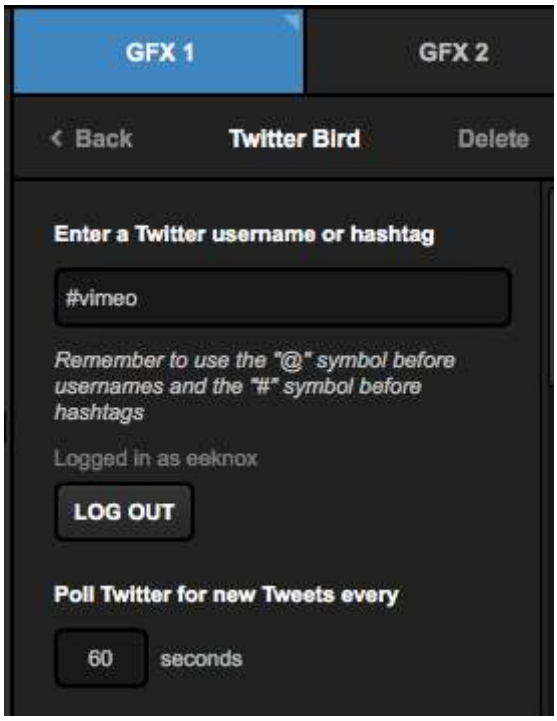




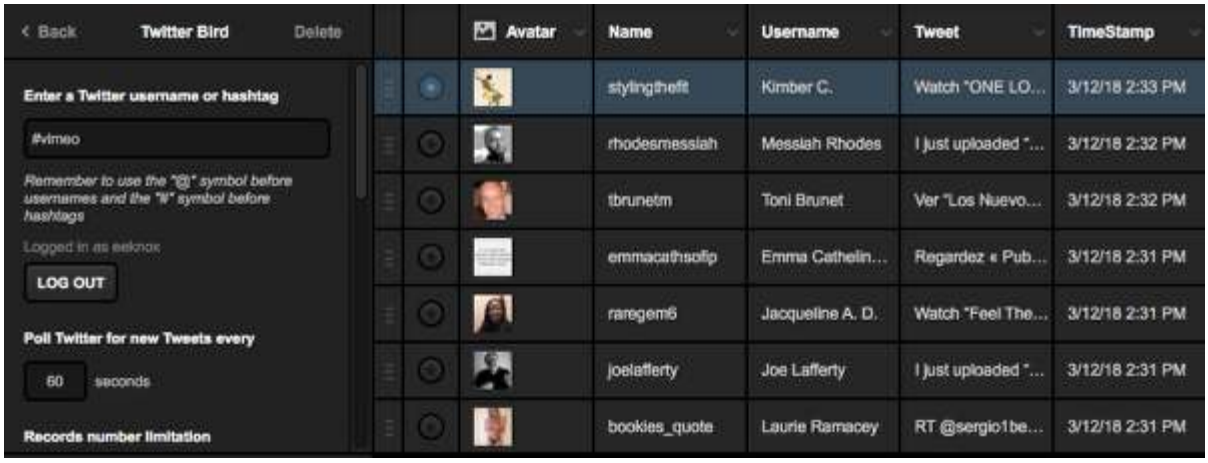
Once you authorize the app, navigate back to Studio. The layer module will open with a default account. Click the gearwheel to enter the graphic's settings.



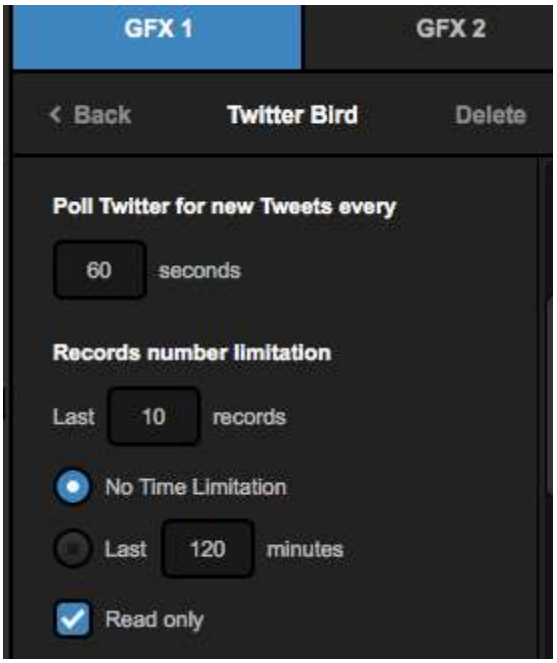
Select a username or hashtag to poll. Keep in mind that you must include '#' in the front of hashtags and '@' in front of usernames. When you have typed in the desired asset, press the Enter or Return key.



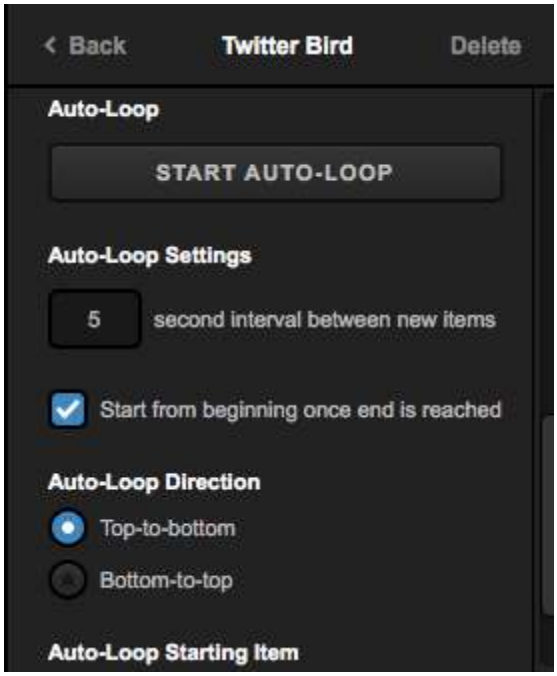
On the right, tweets from that username or hashtag will load on the right side, including each tweet's avatar, name, username, and time stamp.



Scroll down on the left side of the module to find more settings. You can select how often Livestream Studio should look for new tweets. Newer tweets appear at the top of the module. You can also tell Livestream Studio how many tweets to look for within a certain time frame. Select Read Only if you do not want to be able to edit the tweets.

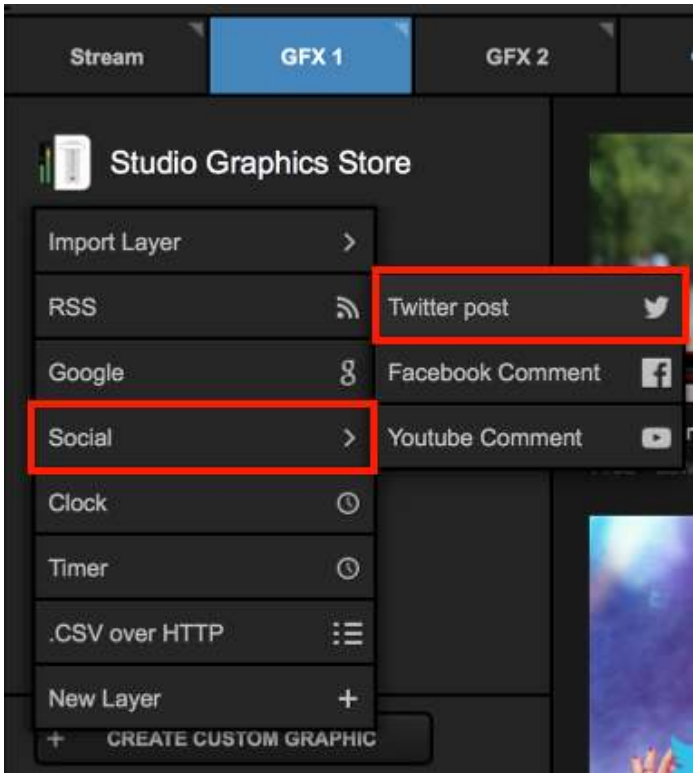


Scroll down in the settings to configure any desired Auto-Loop options.



If you wish to adjust the appearance of the graphic or change what information is shown, click the paintbrush icon to open the GFX Designer. You can adjust the placement, size, font, and color of any of the text fields by selecting it and clicking the gearwheel icon.

If you do not wish to use a Livestream Graphics template, you can also create your own by opening the Create Custom Graphic menu, hovering your mouse over Social, and selecting Twitter post.



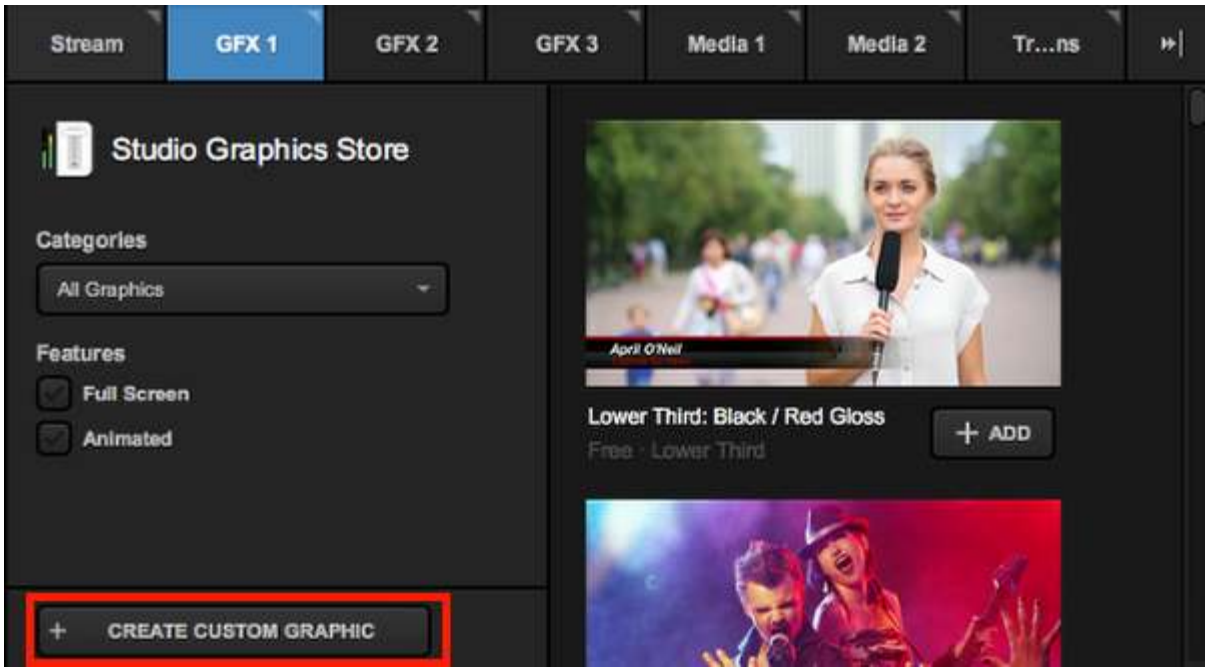
Follow the login steps as described above, then open the GFX Designer. Click on the list button in the Twitter layer, and you can add any data field from Twitter such as the tweet, username, avatar, etc. as well as any other design element.

Display Facebook Comments via Livestream Studio

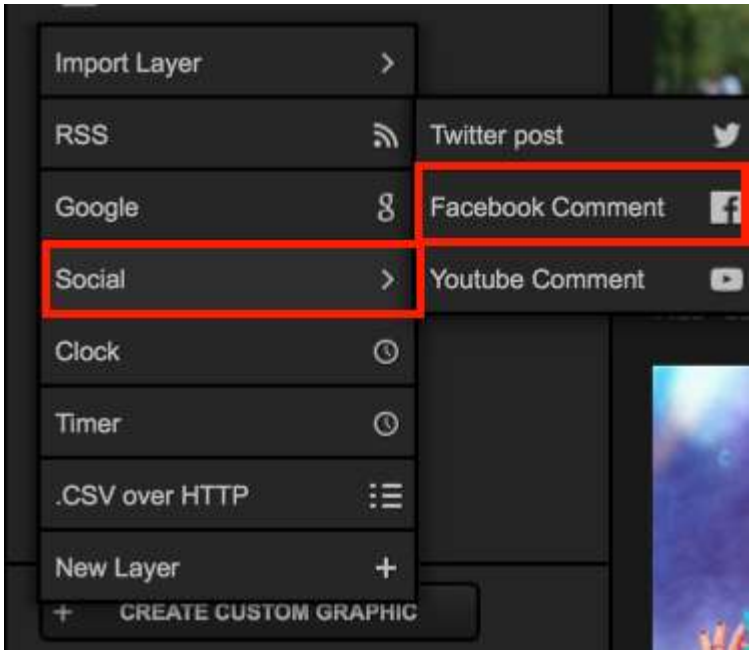
Studio lets you include comments from your Facebook broadcast or your other videos on Facebook and show them in a graphics overlay.

Please note that Facebook does not include the names or photos of commenters from a Page or Group post, regardless of the audience setting. Only the comments will be viewable.

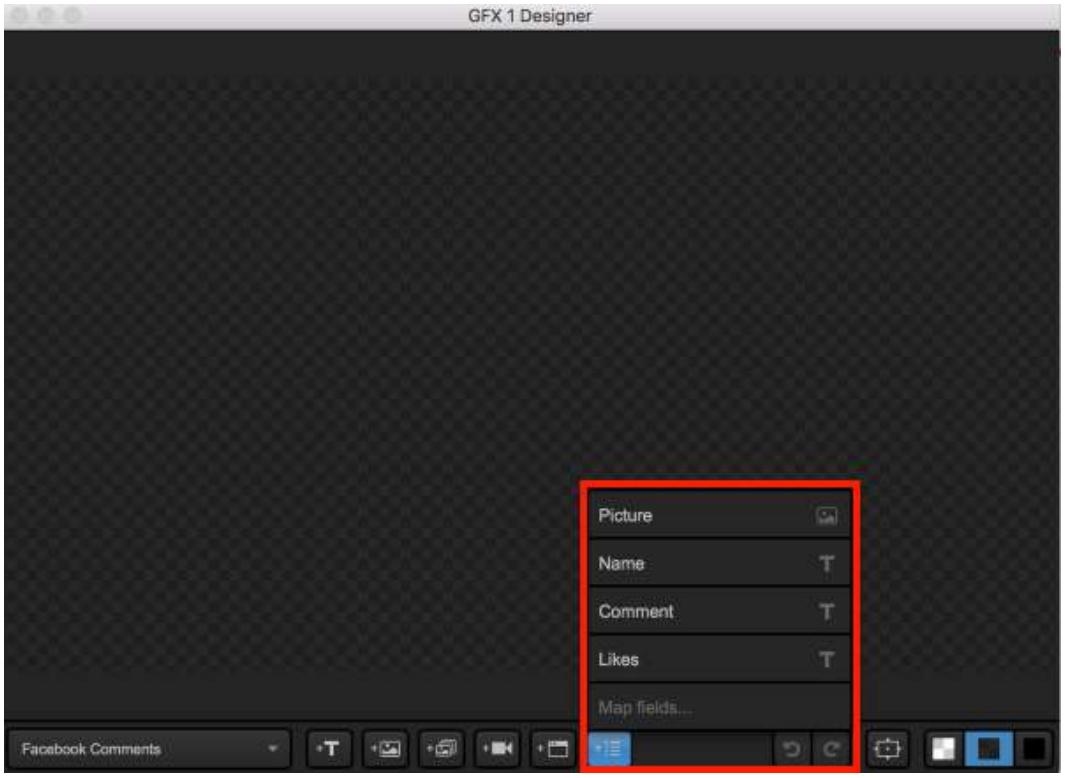
In a GFX module, select Create Custom Graphic in the bottom left corner.



Hover your mouse over Social, then select Facebook Comment.



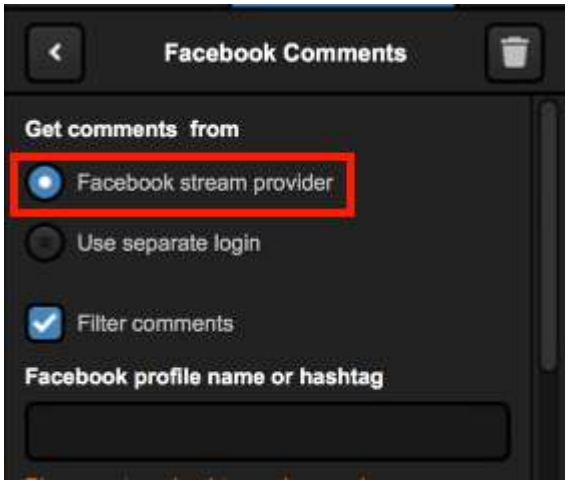
Once you add the Facebook Comment layer, be sure to open the GFX Designer to design your graphic and add the desired fields from Facebook (profile picture, name, comment, number of likes on that comment).



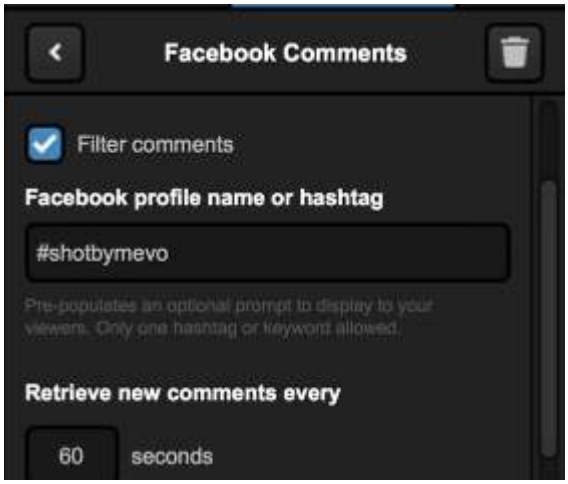
There are two ways this feature can be used.

See Comments on Current Live Broadcast

By default, this option is set to get comments from Facebook stream provider. This means when you set up Studio to broadcast to Facebook, the comments that populate will be from the stream that appears on Facebook once you go live from Studio.

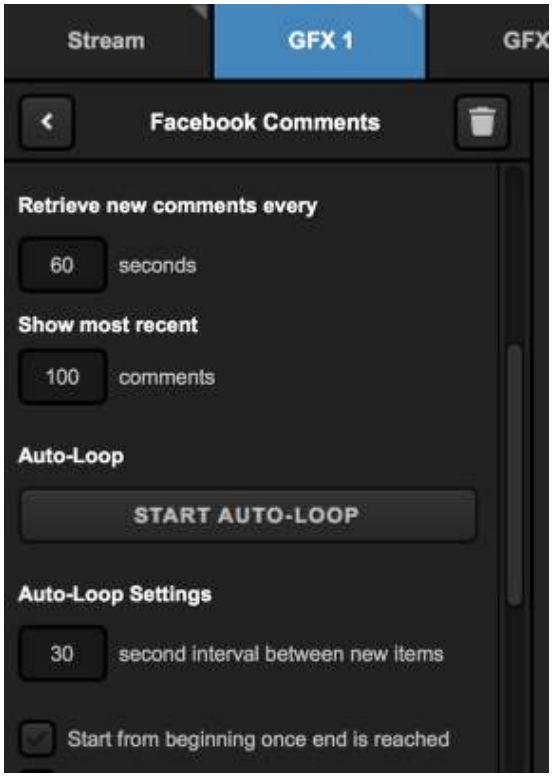


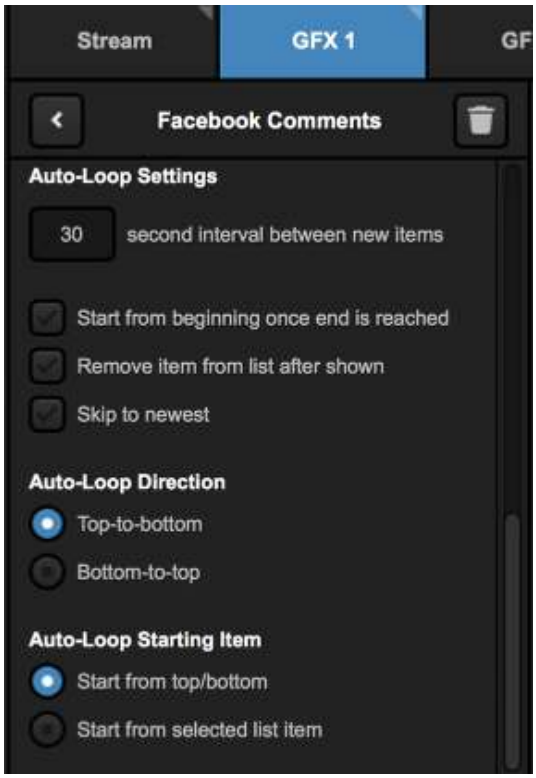
You can also filter the comments that come in by a keyword or hashtag. This will pre-populate a default comment you can display in your graphic that will prompt your viewers to use the desired phrase. If you want to see all the comments that come in, uncheck Filter comments.



Next, you can configure how often Studio polls for new comments and how many of the most recent comments will it show. By default, it will poll new comments every 60 seconds and display the most recent 100.

Below this setting are the auto-loop settings, where you can set Studio to loop through each comment at a defined interval.


Stream
GFX 1
GFX
Facebook Comments
Retrieve new comments every
60
seconds
Show most recent
100
comments
Auto-Loop
START AUTO-LOOP
Auto-Loop Settings
30
second interval between new items
Start from beginning once end is reached

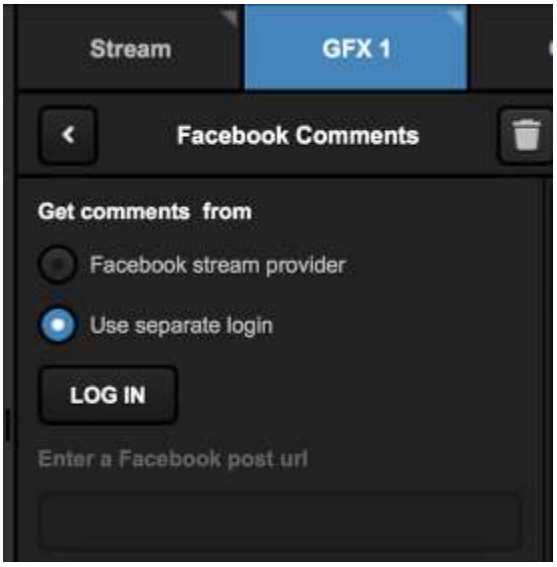

Stream
GFX 1
GF
Facebook Comments
Auto-Loop Settings
30
second interval between new items
Start from beginning once end is reached
Remove item from list after shown
Skip to newest
Auto-Loop Direction
Top-to-bottom
Bottom-to-top
Auto-Loop Starting Item
Start from top/bottom
Start from selected list item

Once you go live and some viewers have commented, Studio will poll Facebook for comments as configured, and you can display them one at a time in a graphics overlay.

See Comments from Another Facebook Post

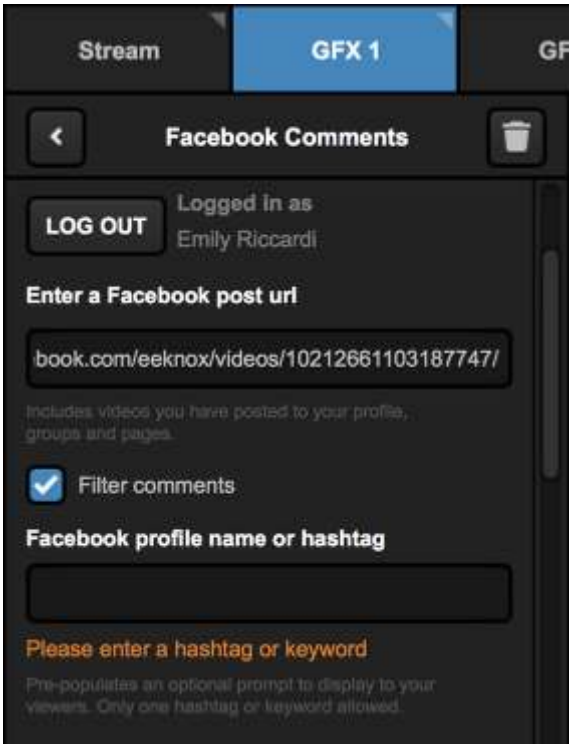
If you wish to display comments from another Facebook video, you must have login credentials to the account that owns the video, whether it's from your profile or a Page of which you are an admin.

Click Log In to open a browser window and log into Facebook.



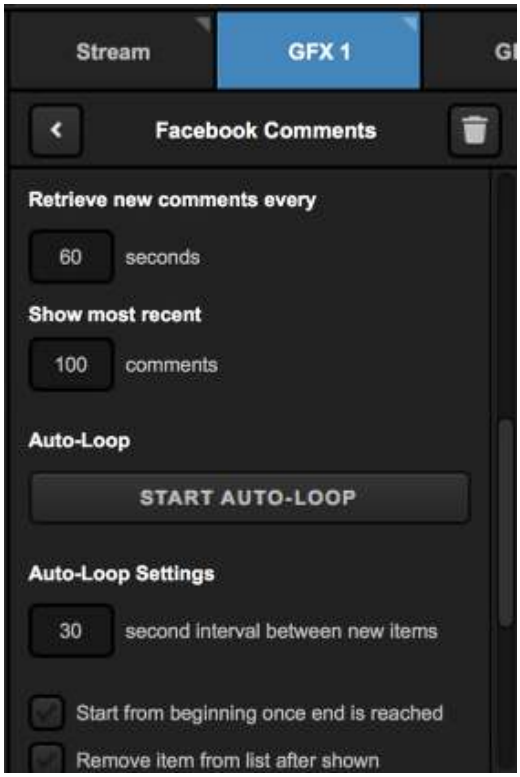
Once you are logged in, paste the URL of your Facebook video into the field.

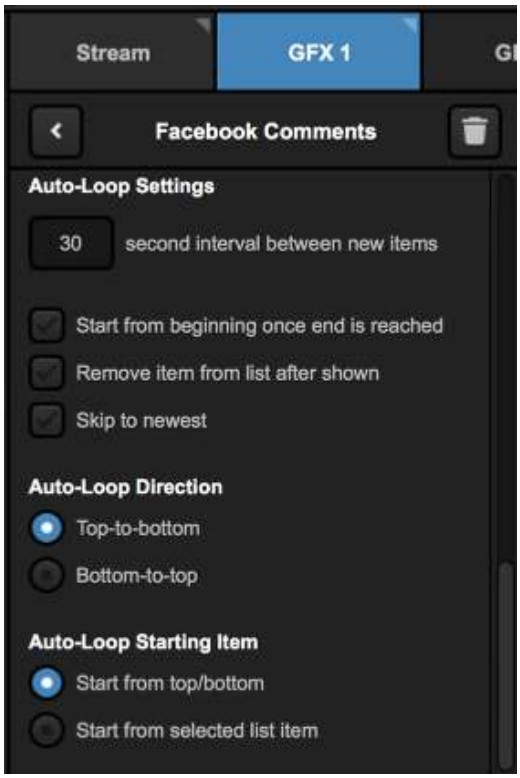
You can filter the comments that come in by a keyword or hashtag. This will pre-populate a default comment you can display in your graphic that will prompt your viewers to use the desired phrase. If you want to see all the comments that come in, uncheck Filter comments.



Next, you can configure how often Studio polls for new comments and how many of the most recent comments will it show. By default, it will poll new comments every 60 seconds and display the most recent 100.

Below this setting are the auto-loop settings, where you can set Studio to loop through each comment at a defined interval.

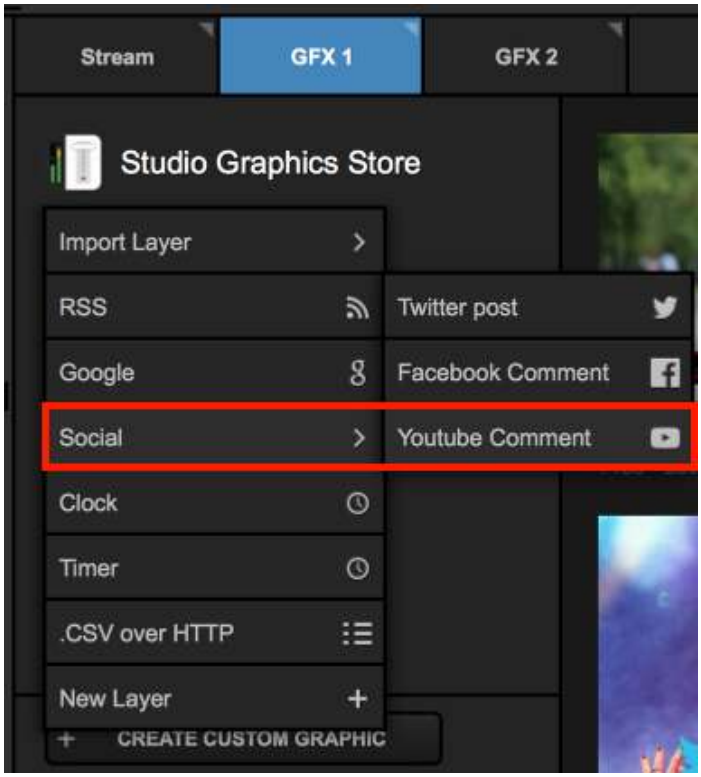

Stream
GFX 1
Facebook Comments
Retrieve new comments every
60
seconds
Show most recent
100
comments
Auto-Loop
START AUTO-LOOP
Auto-Loop Settings
30
second interval between new items
Start from beginning once end is reached
Remove item from list after shown


Stream
GFX 1
Facebook Comments
Auto-Loop Settings
30
second interval between new items
Start from beginning once end is reached
Remove item from list after shown
Skip to newest
Auto-Loop Direction
Top-to-bottom
Bottom-to-top
Auto-Loop Starting Item
Start from top/bottom
Start from selected list item

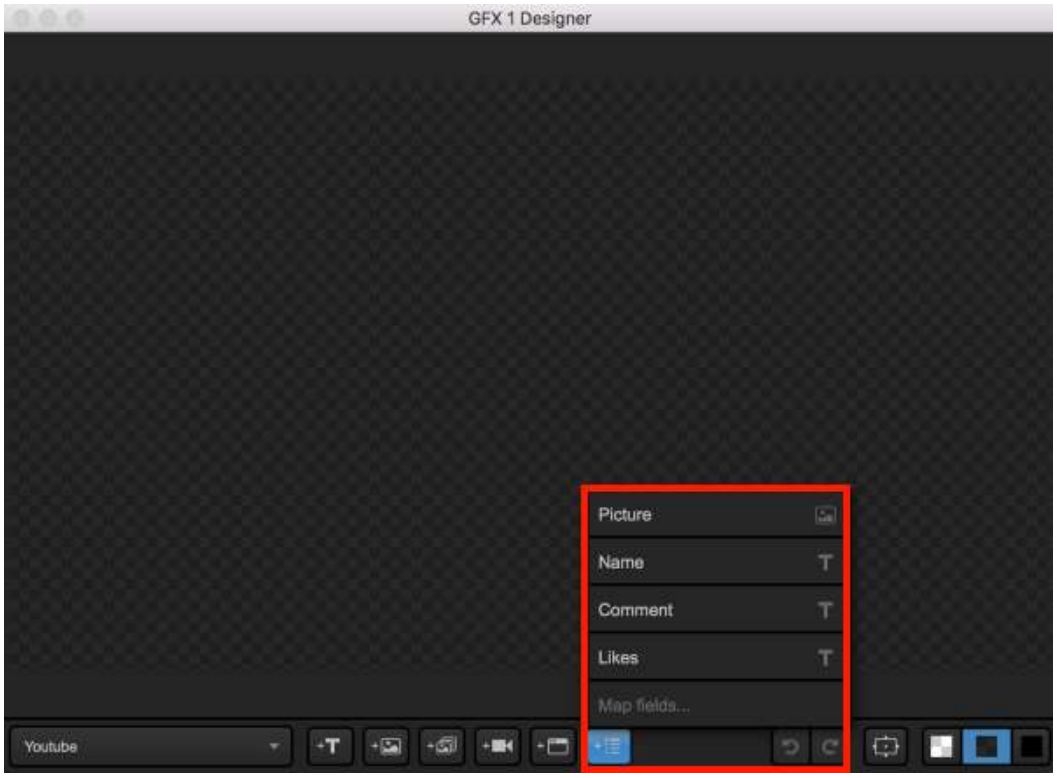
Display YouTube Comments via Livestream Studio

Studio lets you include comments from your YouTube broadcast or other videos on YouTube and show them in a graphics overlay.

In a GFX module, select Create Custom Graphic in the bottom left corner. Hover your mouse over Social, then select YouTube Comment.



Once you add the YouTube Comment layer, be sure to open the GFX Designer to design your graphic and add the desired fields from YouTube (profile picture, name, comment; "likes" will appear but will appear as "N/A" in the data field).

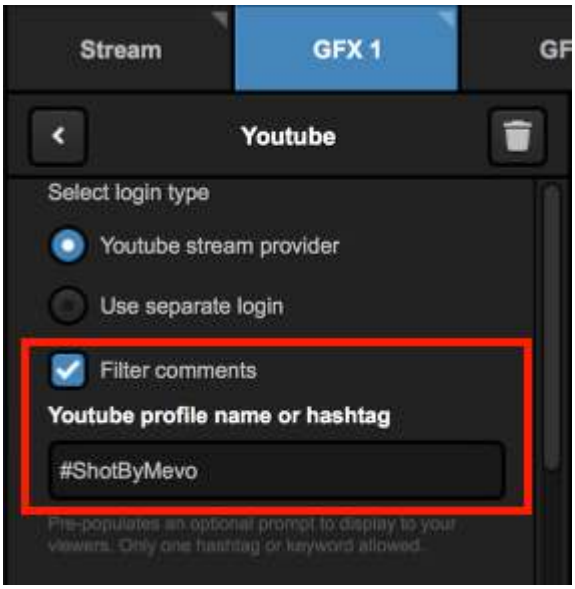


There are two ways this feature can be used.

See Comments on Current Live Broadcast

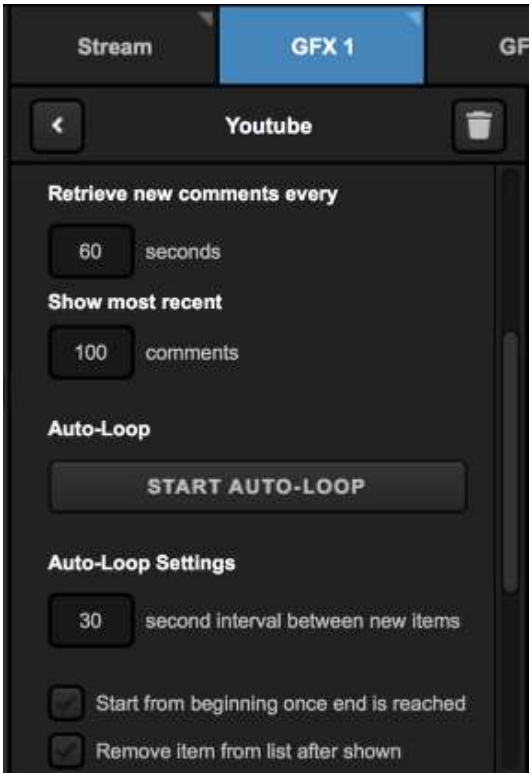
By default, this option is set to get comments from YouTube stream provider. This means when you set up Studio to broadcast to YouTube, the comments that populate will be from the stream that appears on YouTube once you go live from Studio.

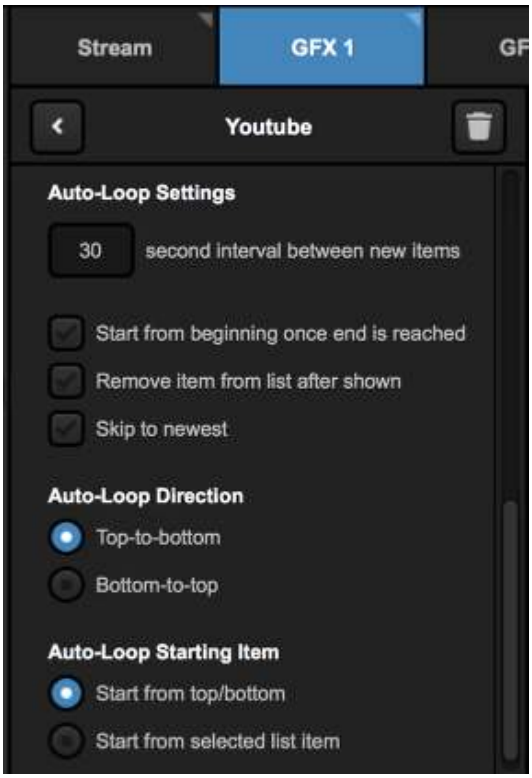
You can also filter the comments that come in by a keyword or hashtag. This will pre-populate a default comment you can display in your graphic that will prompt your viewers to use the desired phrase. If you want to see all the comments that come in, uncheck Filter comments.



Next, you can configure how often Studio polls for new comments and how many of the most recent comments will it show. By default, it will poll new comments every 60 seconds and display the most recent 100.

Below this setting are the auto-loop settings, where you can set Studio to loop through each comment at a defined interval.

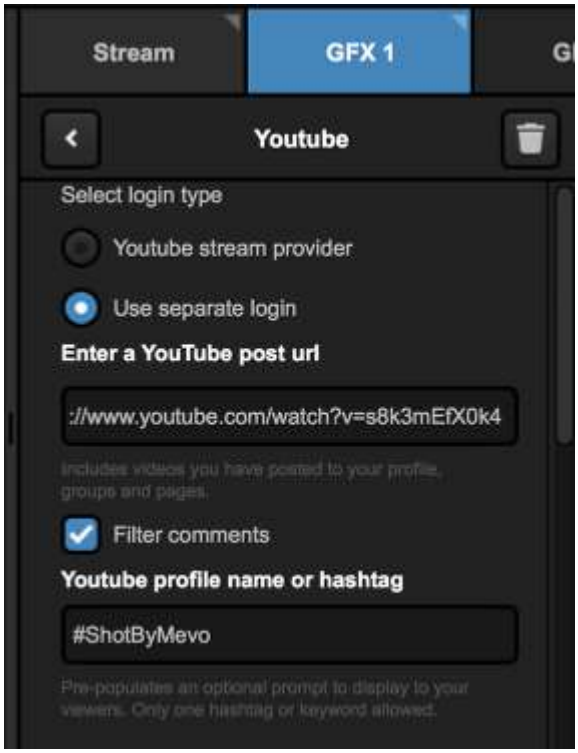

Stream
GFX 1
GF
Youtube
Retrieve new comments every
60
seconds
Show most recent
100
comments
Auto-Loop
START AUTO-LOOP
Auto-Loop Settings
30
second interval between new items
Start from beginning once end is reached
Remove item from list after shown


Stream
GFX 1
GF
Youtube
Auto-Loop Settings
30
second interval between new items
Start from beginning once end is reached
Remove item from list after shown
Skip to newest
Auto-Loop Direction
Top-to-bottom
Bottom-to-top
Auto-Loop Starting Item
Start from top/bottom
Start from selected list item

See Comments from Another YouTube Video

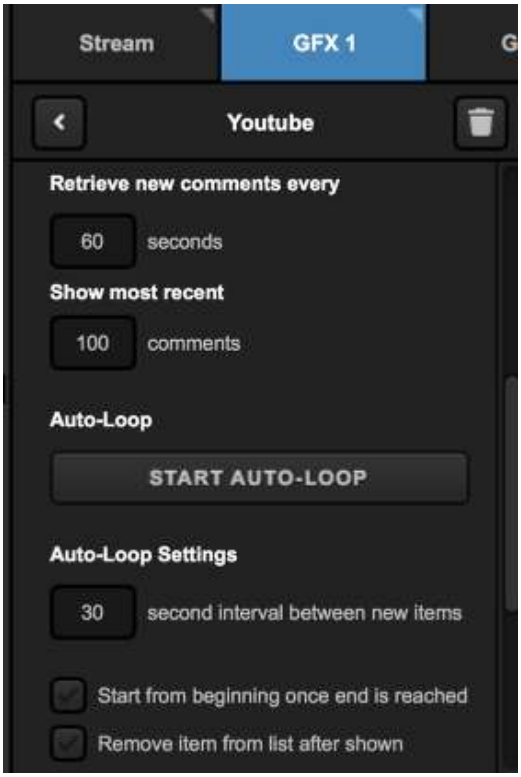
If you wish to display comments from another YouTube video, select Use separate login. Paste the URL of the video whose comments you wish to display in the graphics overlay, then press the Enter key on your keyboard.

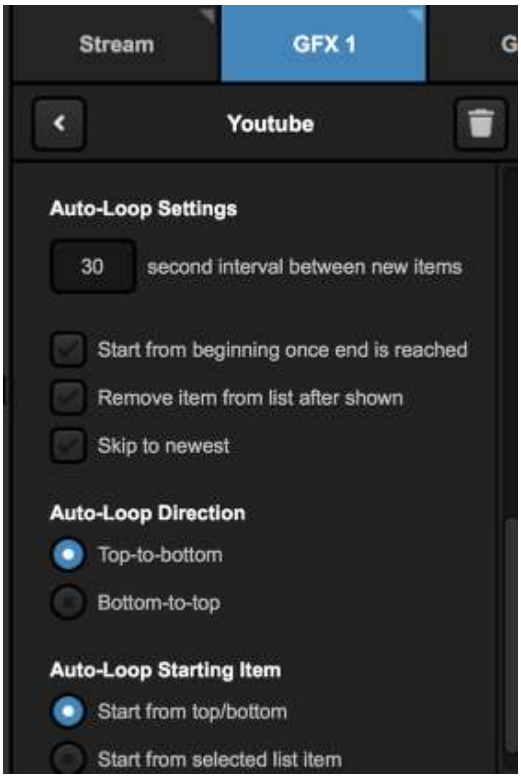
You can filter comments based on a keyword or hashtag. This will pre-populate a default comment you can display in your graphic that will prompt your viewers to use the desired phrase. If you want to see all the comments that come in, uncheckFilter comments.



Next, you can configure how often Studio polls for new comments and how many of the most recent comments will it show. By default, it will poll new comments every 60 seconds and display the most recent 100.

Below this setting are the auto-loop settings, where you can set Studio to loop through each comment at a defined interval.


Stream
GFX 1
Youtube
Retrieve new comments every
60
seconds
Show most recent
100
comments
Auto-Loop
START AUTO-LOOP
Auto-Loop Settings
30
second interval between new items
Start from beginning once end is reached
Remove item from list after shown


Stream
GFX 1
Youtube
Auto-Loop Settings
30
second interval between new items
Start from beginning once end is reached
Remove item from list after shown
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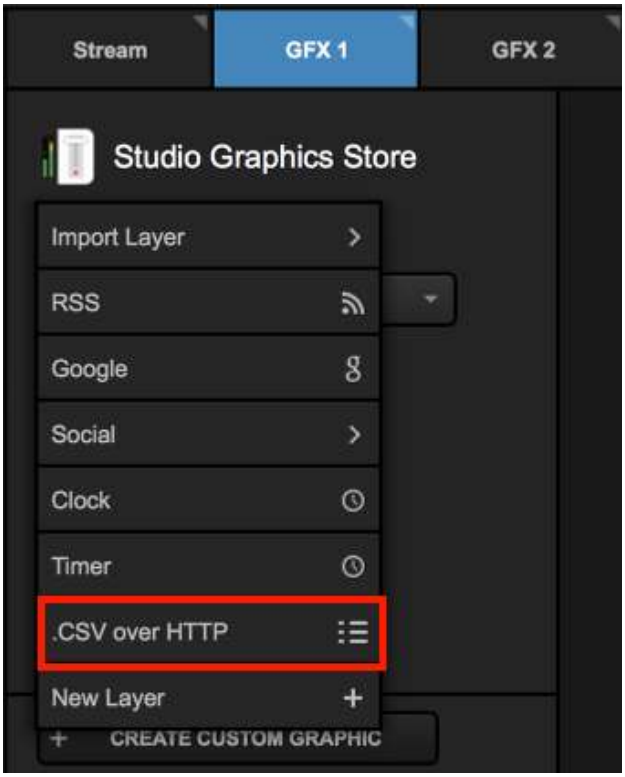
Auto-Loop Direction
Top-to-bottom
Bottom-to-top
Auto-Loop Starting Item
Start from top/bottom
Start from selected list item

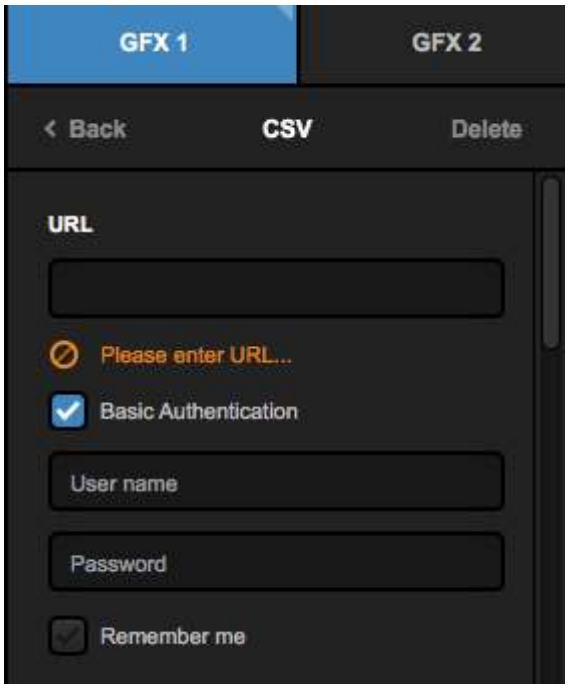
Using a .CSV Over HTTP

If you are hosting a .CSV file on a web server, you can use graphics overlays in Livestream Studio to display data from it.

In a GFX module, open the Create Custom Graphic menu and select .CSV over HTTP.



If your file requires authentication in order access it, check Basic Authentication and enter your credentials.



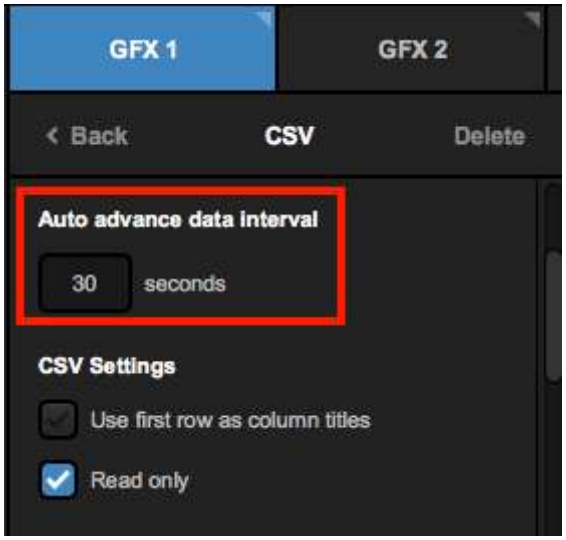
In the settings, input the URL where the .CSV file is located, then the press Enter or Return key on your keyboard. Your data will populate on the right with further settings becoming available on the left.

Make sure there are no spaces between either field; only commas should separate each value.

CORRECT: Data 1,Name,http://cdn.livestream.com/resources/branding/livestream-logo.png

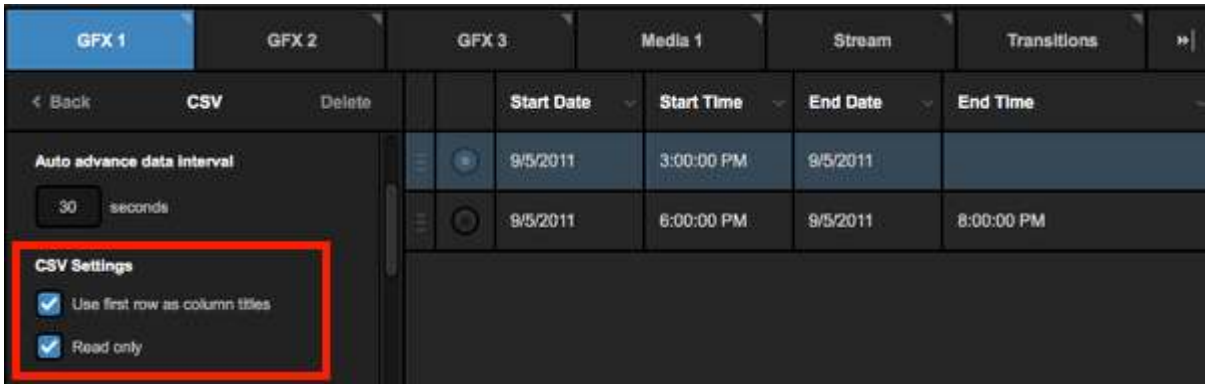
INCORRECT: Data 1, Name, http://cdn.livestream.com/resources/branding/livestream-logo.png

Scroll down on the left side of the module to configure additional settings. Set the amount of time in seconds that Livestream Studio should refresh and look for new data in your .CSV under Auto advance data interval.

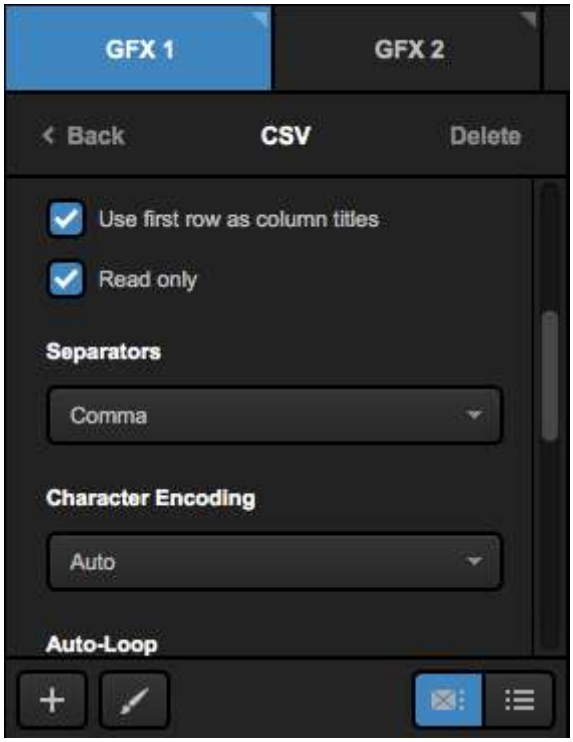


If the first row actually contains the titles of each field, you can check Use first row as column titles to move them up to the title field.

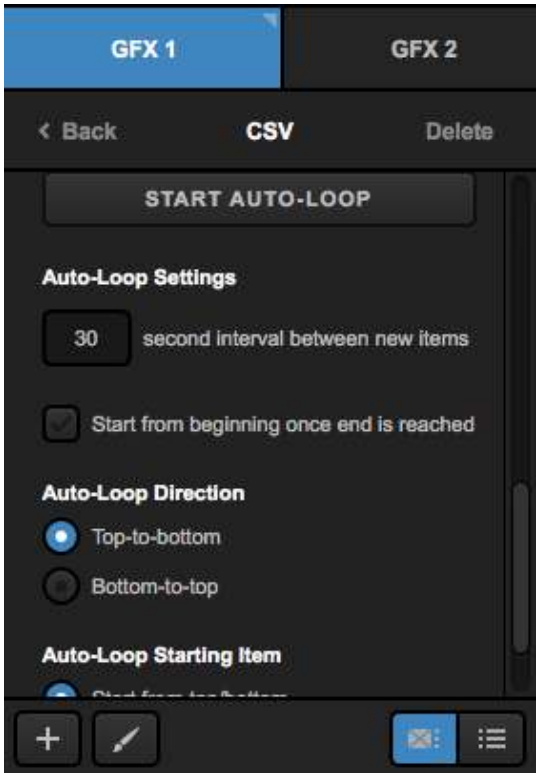
If you want to make changes to your .CSV content via Livestream Studio, uncheck Read only. Otherwise, leave it checked.



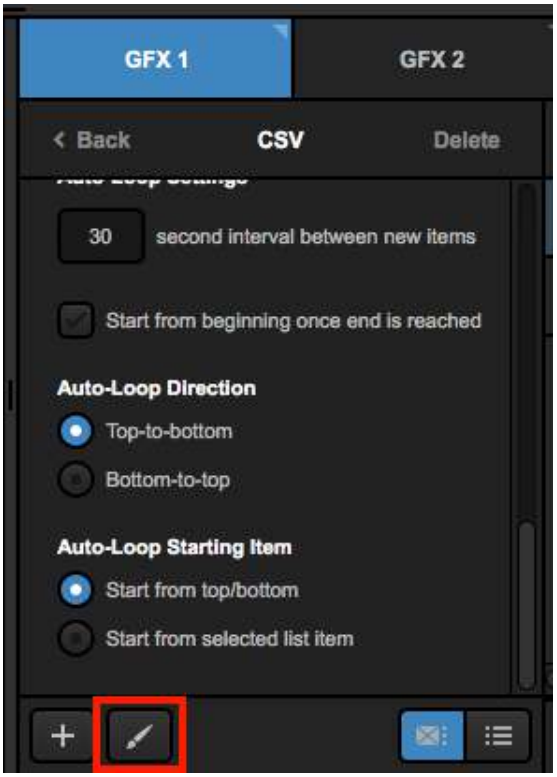
Scroll down to tell Livestream Studio what your column separators are and the types of characters being used (typically auto-detected).



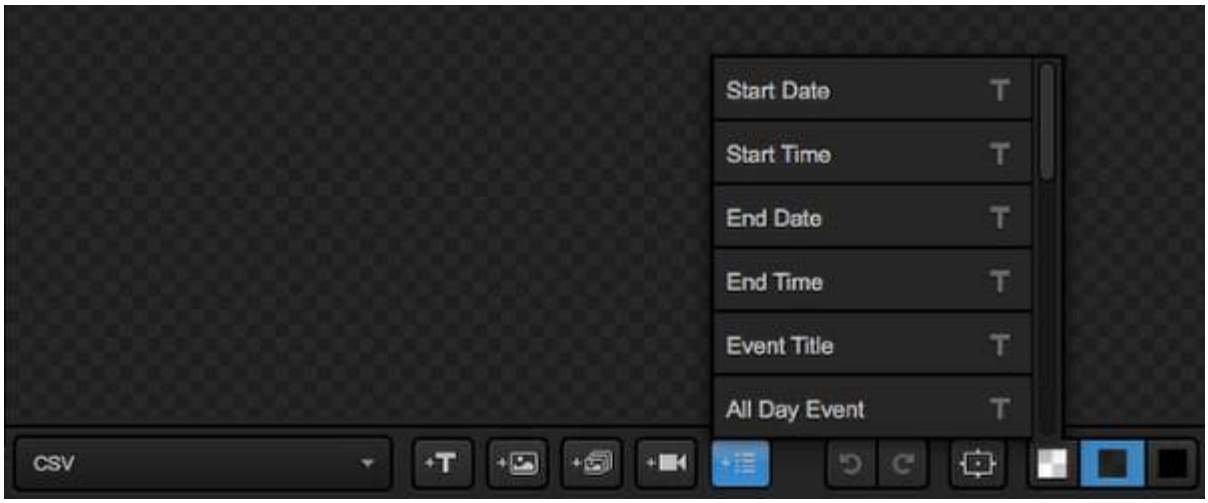
At the bottom are your Auto-Loop settings if you want Livestream Studio to rotate through your .CSV data; these settings include how often the displayed row changes, what direction it loops in, and its starting point.



To design the graphic, click the paint brush icon to enter the GFX Designer.



Select the CSV layer from the dropdown in the lower left corner and design your graphic as desired.



You can now control the graphics overlay by using PRV, PUSH, and PULL as desired.

Livestream Studio Certified Data Sources

A Livestream Studio Certified Data Source (LSCDS) is a spreadsheet document formatted according to the Livestream Studio specification. An Excel (.xlsx), CSV or Google Spreadsheet document can be used to define LSCDS. Below, you'll find information on the benefits and instructions on how to create/utilize a LSCDS formatted file.

Why do I need Livestream Studio™ Certified Data Sources?

The main advantage of LSCDS in Livestream Studio™ graphics layer compared to any standard custom excel, Google spreadsheet or CSV file is the ability to remotely control data selection “eyeball” in Livestream Studio™. This feature is primarily designed for distributed production workflows, meaning when a dedicated person operates graphics data during a live video production.

This feature can also be used for automation, for example, in combination with custom web services that generate CSV files on the fly to control graphics data in production, such as sports scoring.

In the examples below, you’ll find small scripts for data ON/OFF program validation, as well as illustrations on how to bring dynamic image objects into Livestream Studio using external files.

How to define Livestream Studio™ Certified Data Sources

You can copy one of the examples below and add columns, rows and data to the example as needed (make sure the PROGRAM column remains in the A1position).You may also use an existing file as a Livestream Certified spreadsheet, just add an additional first column and name the first cell (Cell A1) - PROGRAM. Once you have load the file to Livestream Studioas a graphics data layer, you will see a small Livestream logo over the layer thumbnail.

Once the file is identified as a certified data source, Livestream Studio will look for "ON" and "OFF" values within the first column (A2:Ax). "ON" value will activate that row in the Livestream Studio™ GFX layer, while "OFF" deactivates that row. The "ON" or "OFF" status will be represented by the "eyeball" logo within Livestream Studio.

If there are multiple ON values in the column, Livestream Studio will use the first from the top. You can add validation scripts to your spreadsheet by following instructions below to maintain single row selection. More information on using validation scripts below.

Note: All the values that are not equal to ON and OFF will be ignored.

Livestream certified CSV files can be used in Studio via file path on local disk/network or over HTTP protocol.

Sample LSCDS Files

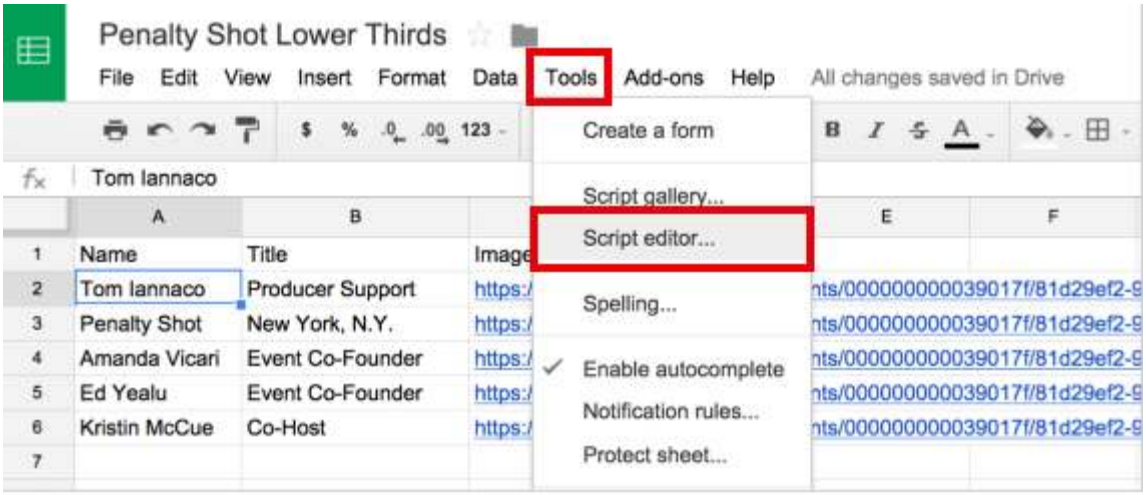
- Excel
- Google Spreadsheet Template - You can add this template to your own Google Drive by clicking the "Use This Template" button.
- CSV

Installing Validation Scripts

Google Spreadsheet:

The Google Spreadsheet templates linked above already include validation scripts. Below is a link to the source code of the validation script we used for the sample. You can use the text to install the script on your own custom Google Spreadsheets. To install the script, do the following:

- Click 'Tools' > 'Script Editor...' (or 'Script Manager...'):



- Copy the Google Spreadsheet Validation Script found here and paste it into the editor

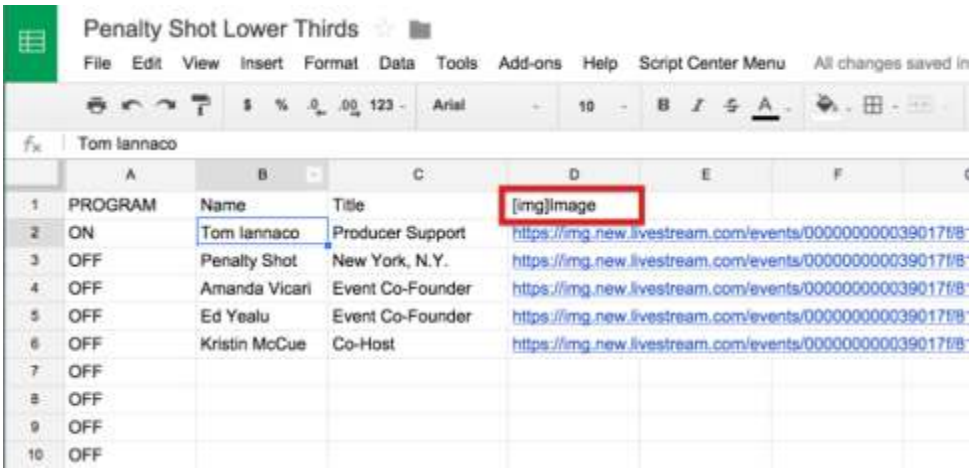
- Click the Save icon and name it.

Excel:

The sample file provided above has the validation script built in. If you already have a file you would like to use, you can use the validation script linked here.

Dynamic images and LSCDS

External data files may contain columns with HTTP URLs or local/network addresses referencing images you would like to use in your GFX template. To define a column as an Image type column, add **[img]** at the beginning of the column name. Livestream Studio™ will recognize the path as an image and display it in your graphics template.



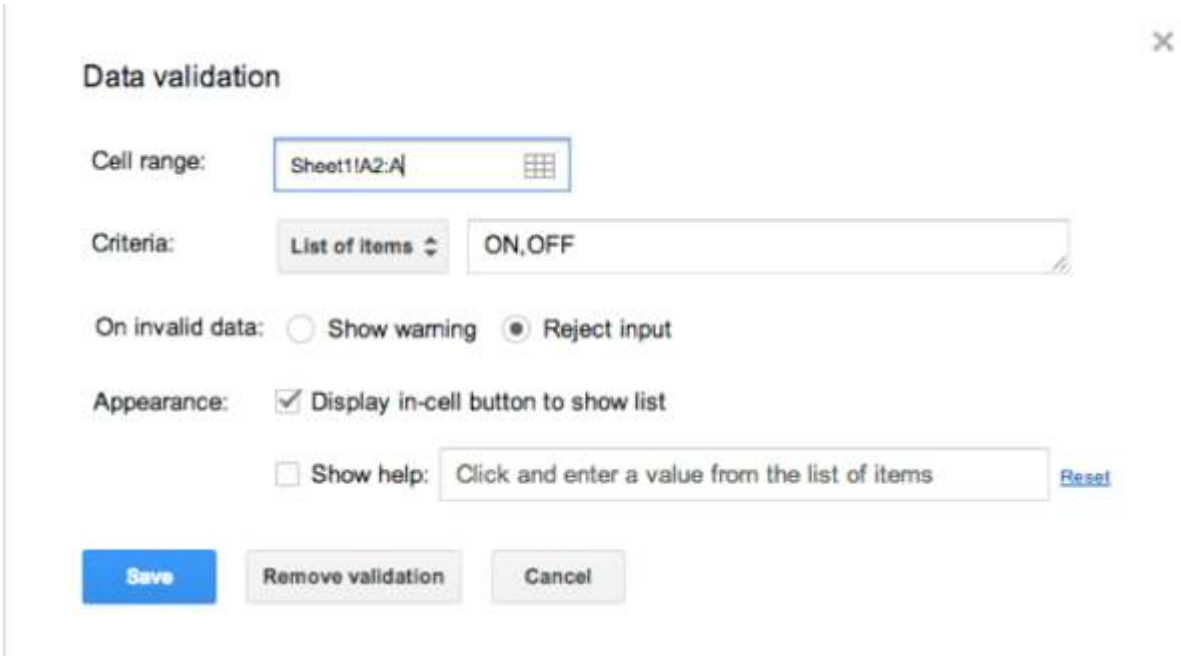
Note: When an image can not be found at the provided URL or path, Studio will display an empty (transparent) image field.

Spreadsheet Formatting Best Practices

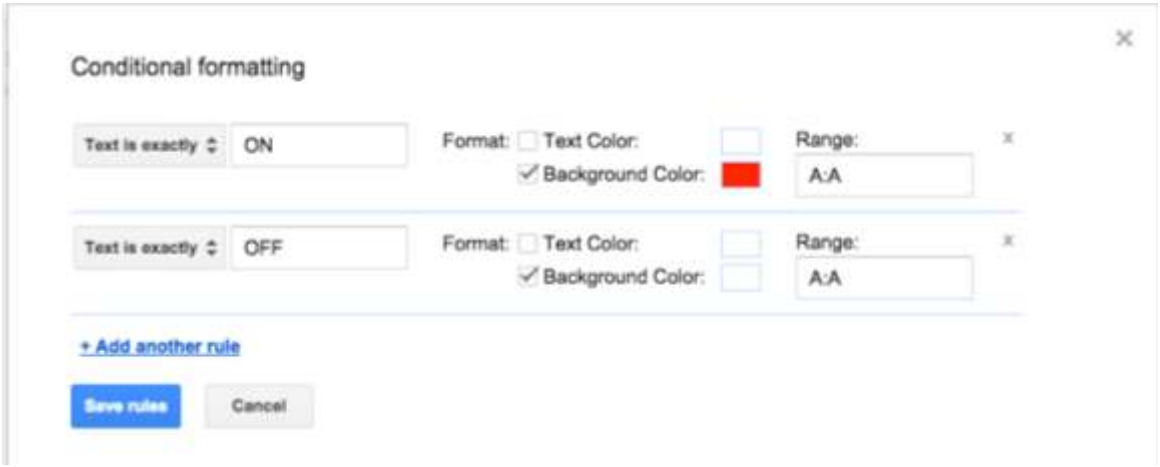
Google Spreadsheet:

- Freeze row 1 and column 1 (View - Freeze Row / Freeze Column)

- Add data validation using the shown parameters:



- Add conditional formatting to the A2:A (all the values in A row except A1)



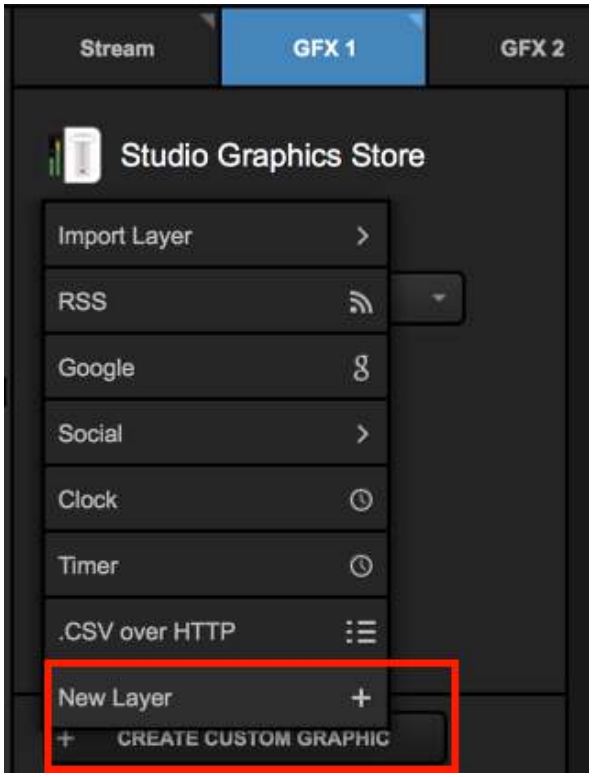
Excel file formatting:

We recommend using the template available HERE when using Excel files for LSCDS.

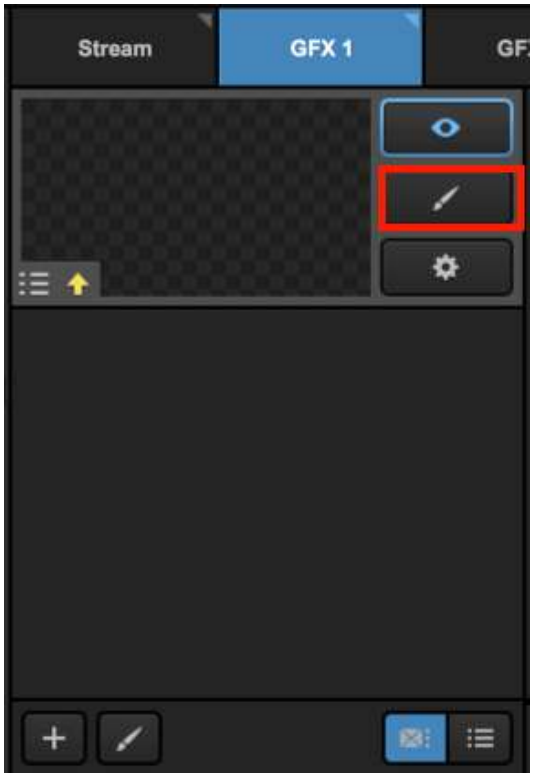
Display a Webpage in Livestream Studio

Beginning with version 5.2, Livestream Studio allows you to display and interact with a webpage within the graphics overlay module.

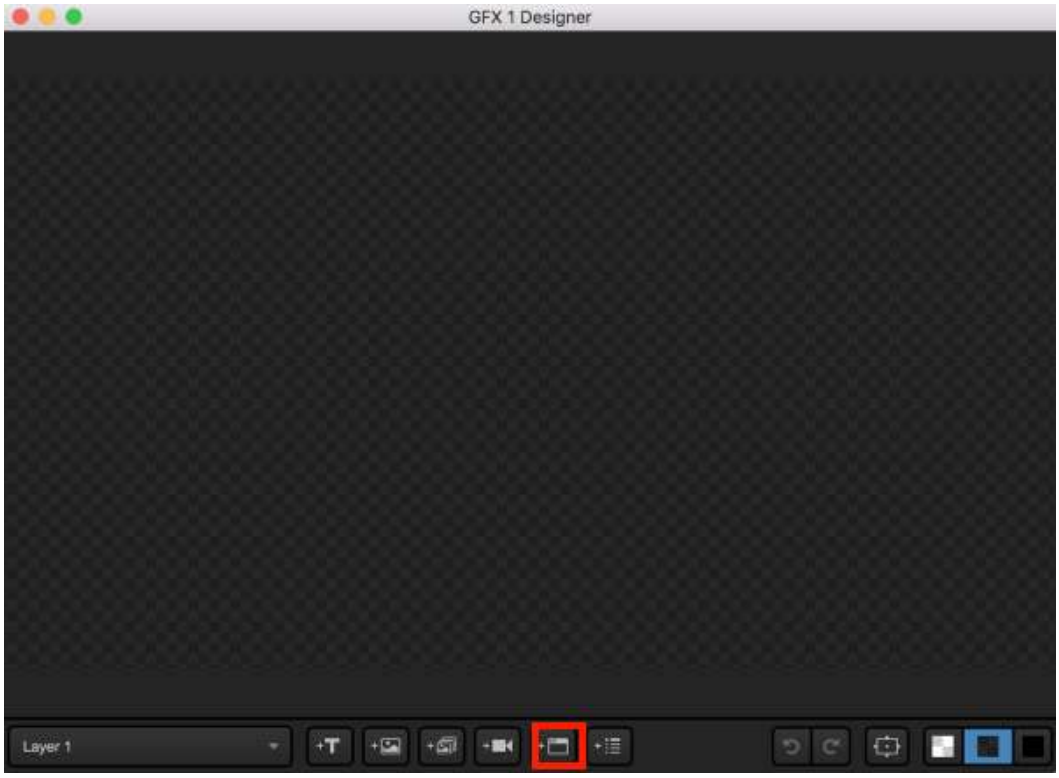
In a GFX tab, select Create Custom Graphic, then select New Layer.



Open the GFX Designer for the blank layer you just created.

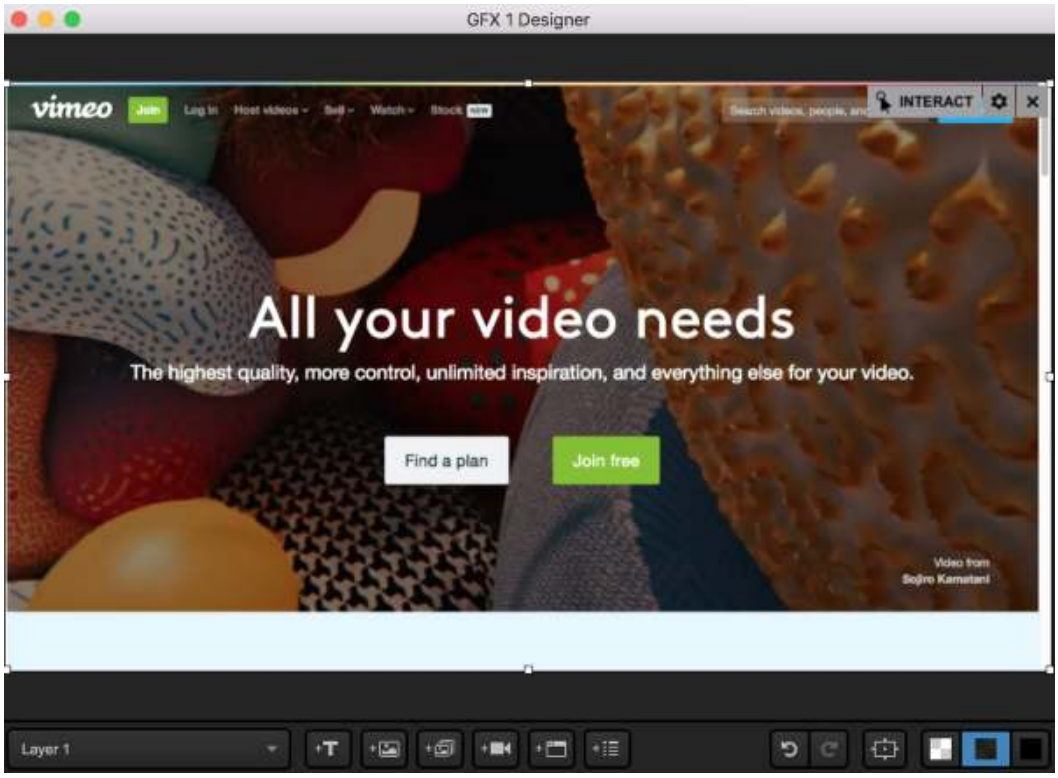


At the bottom of the window, select the webpage icon.

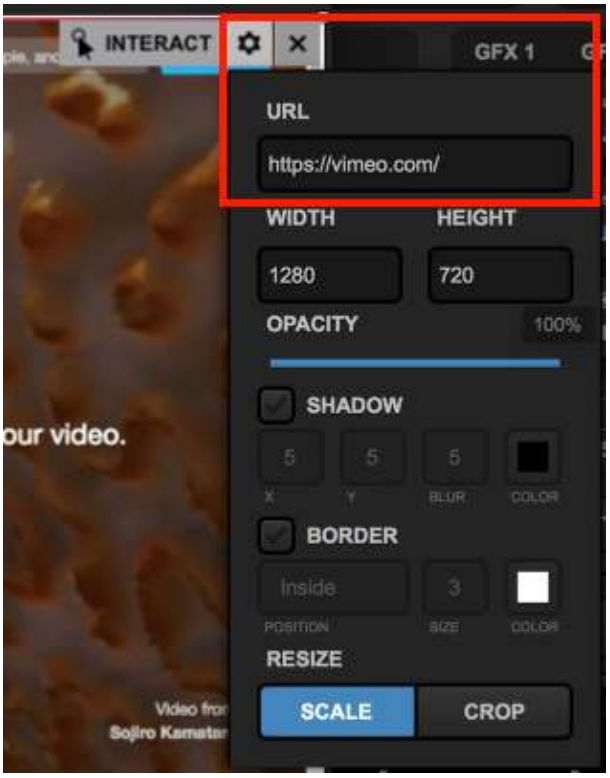


A webpage graphic will appear and fill the entirety of the GFX canvas. By default, it will show vimeo.com.

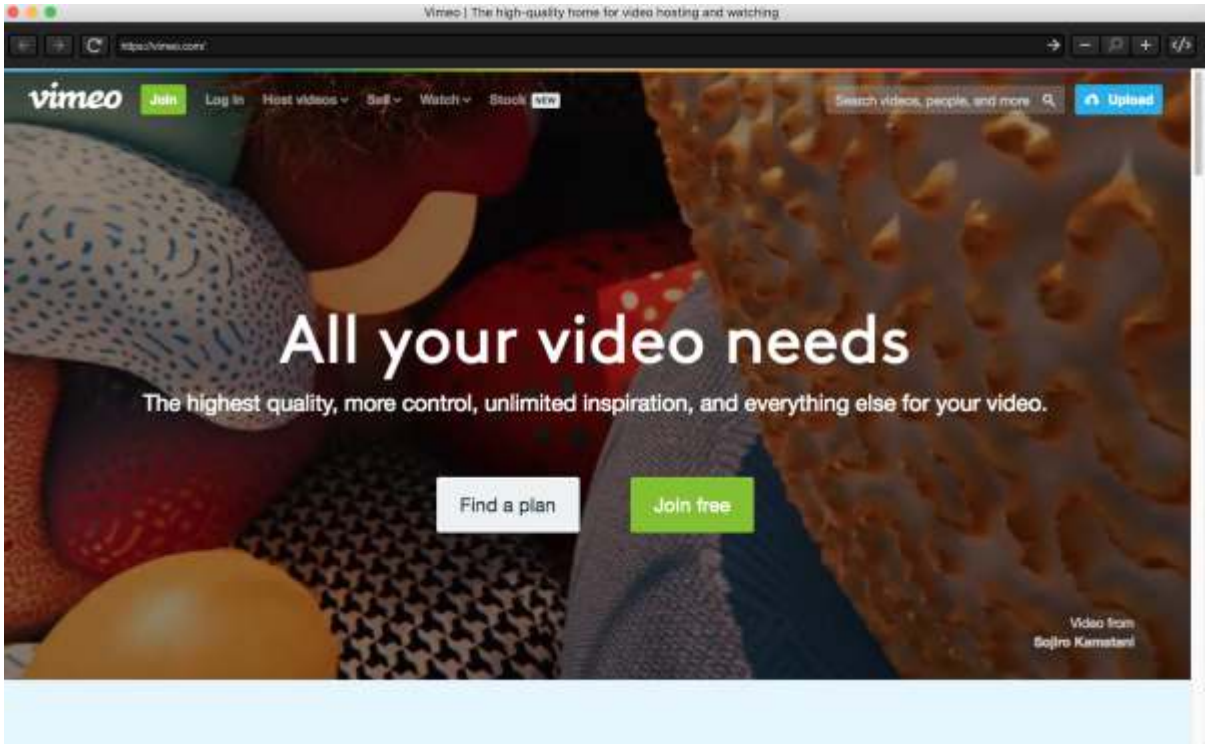
> At this time, any audio from the webpage will not be heard in Studio.



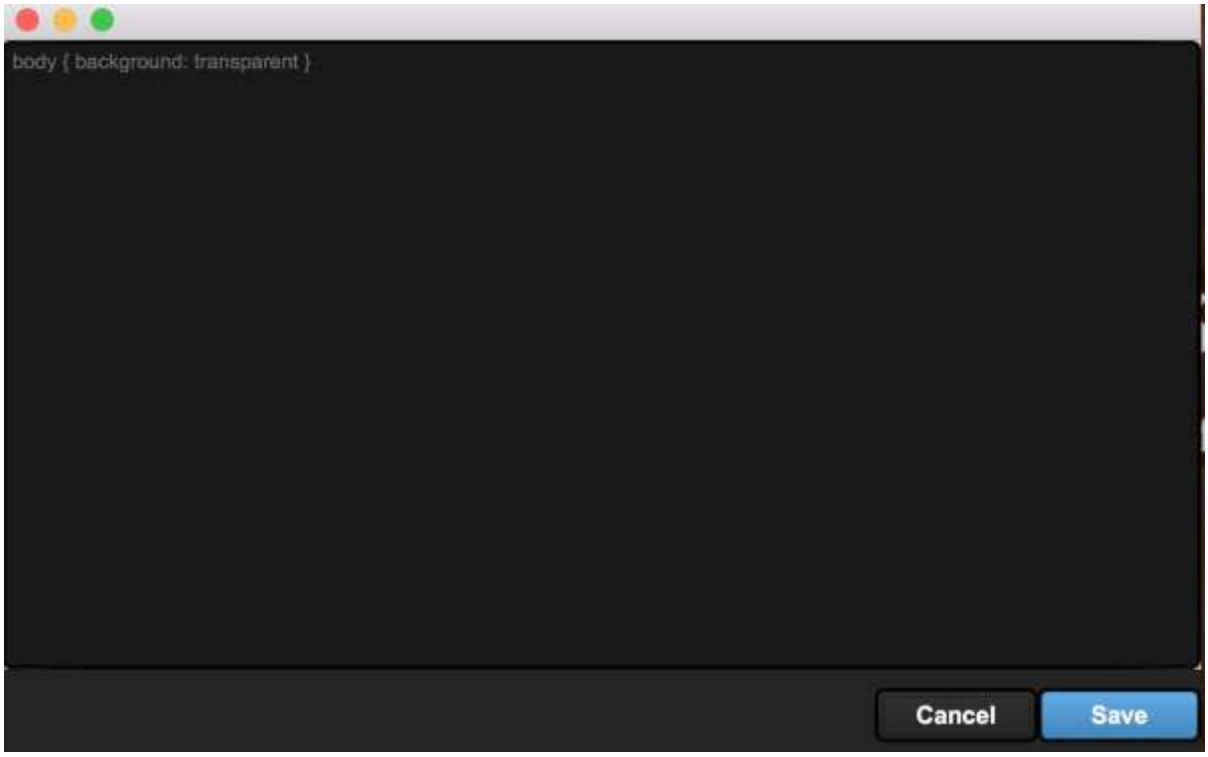
With the webpage selected, click the gearwheel icon in the corner to change the URL. You can also adjust the size of the webpage graphic.



Selecting the Interact option will open a new window in Studio and allow you to navigate the site just as you would in a normal browser, including scrolling, clicking on links to other pages, and typing into text fields.



Note the upper right corner of this window includes a </> button. Selecting this button will open a CSS editor that will allow you to change the appearance of the webpage in Studio. Be sure to click Save when you're done.

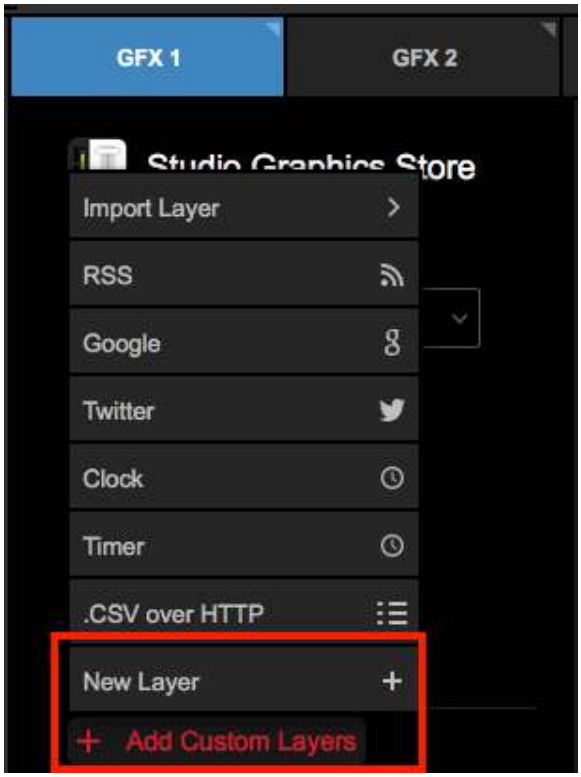


You can now mix your webpage into your production as you would with any other graphic.

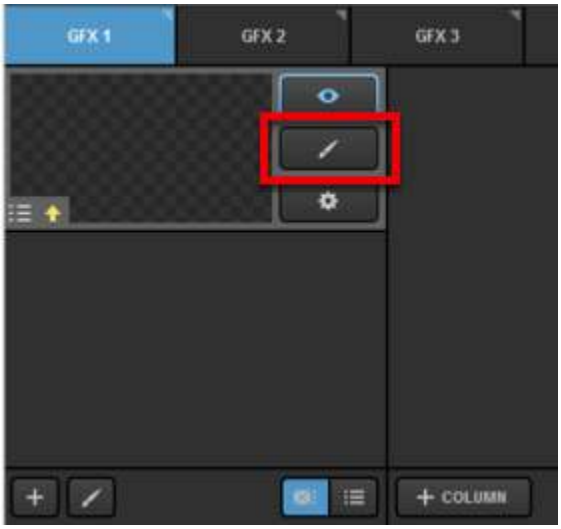
Building a Picture-in-Picture Graphic

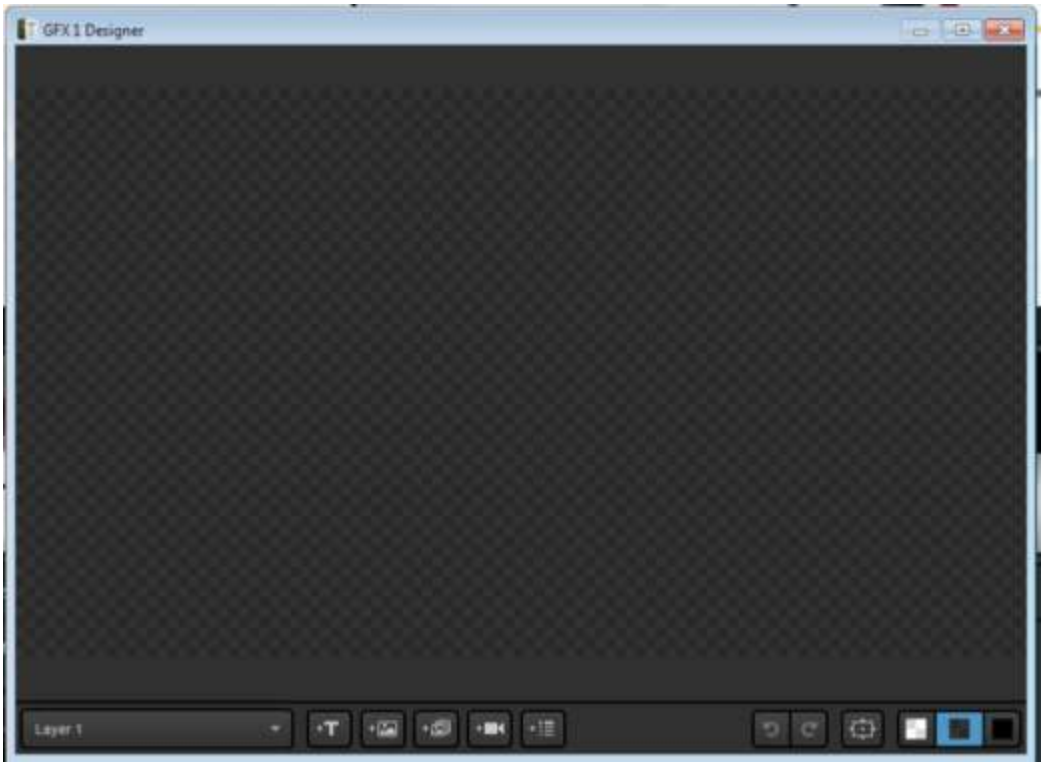
When doing a multi-camera production, many producers sometimes like to show two or more camera shots at the same time. Livestream Studio gives you the ability to show up to five cameras within one picture-in-picture graphics layer.

Navigate to a graphics tab, open the +Add Custom Layers menu and select New Layer.

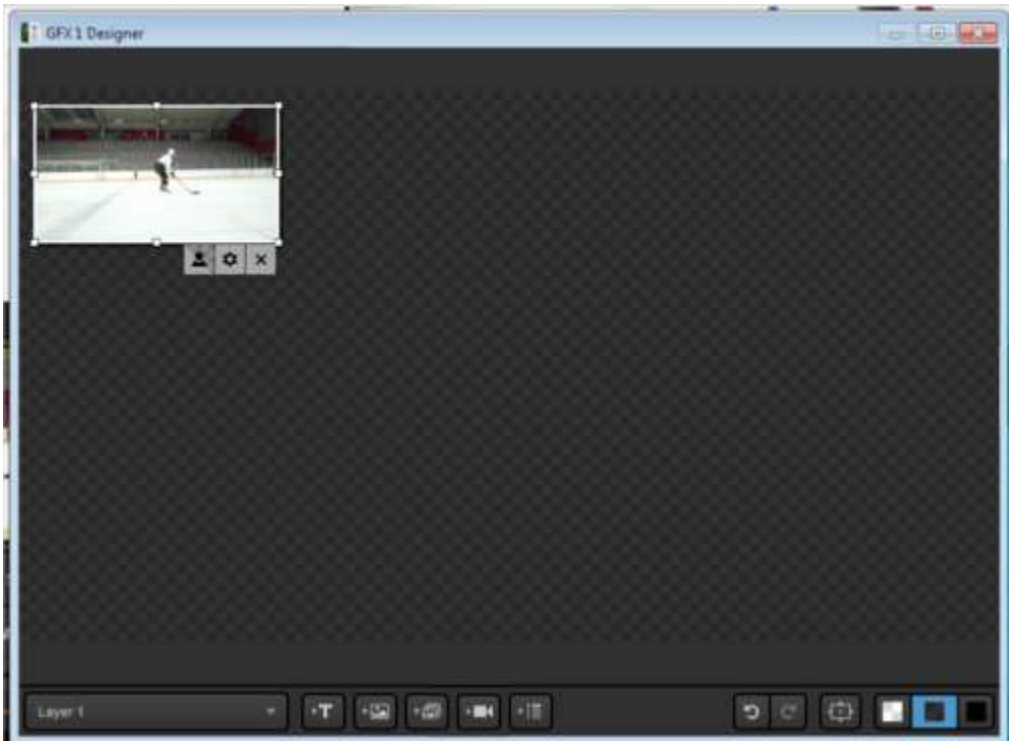


Click the corresponding paint brush button to enter the GFX Designer.

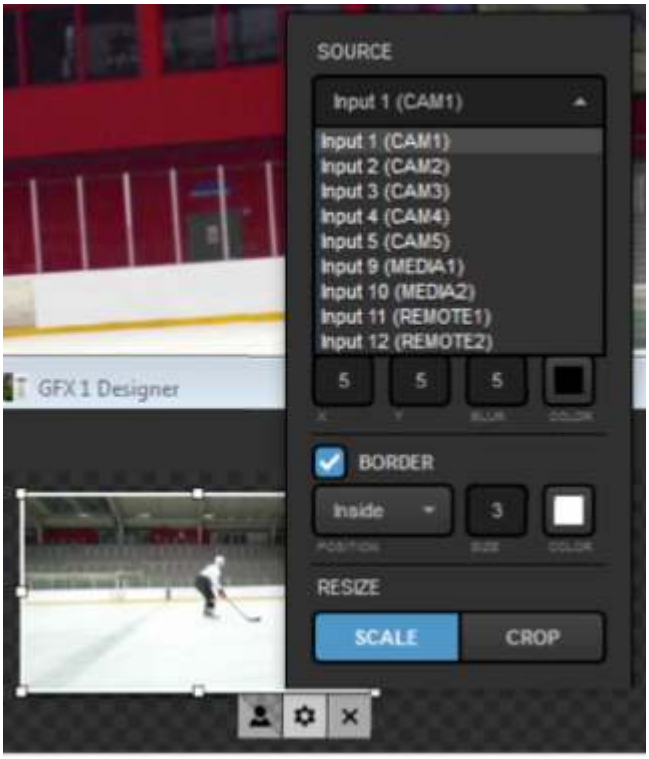




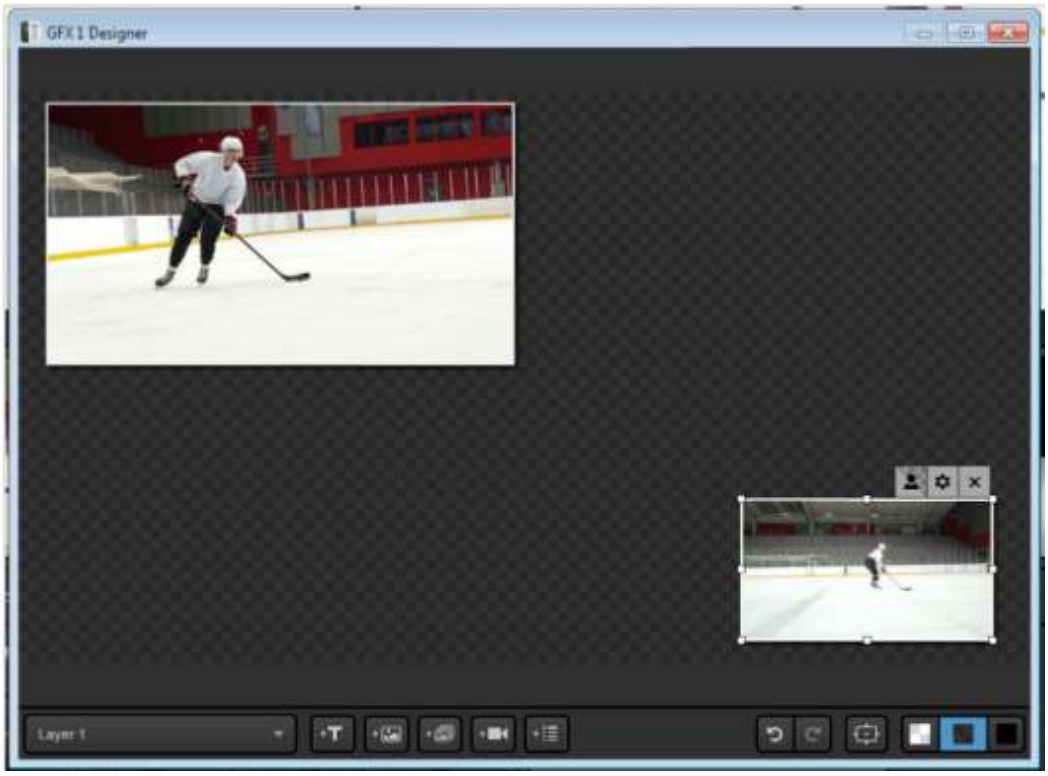
Click the camera icon at the bottom of the window. A video source will appear in the designer.



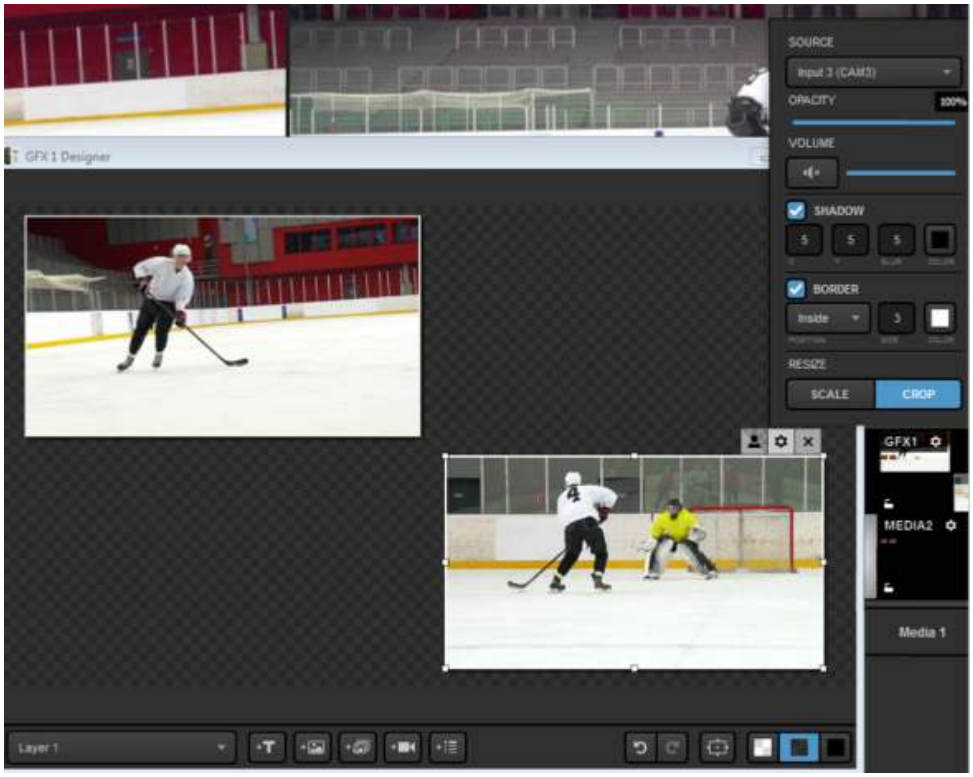
Click the attached gearwheel icon to change which source appears in there. You can choose any camera input, media source, remote camera, graphics track, or color source.



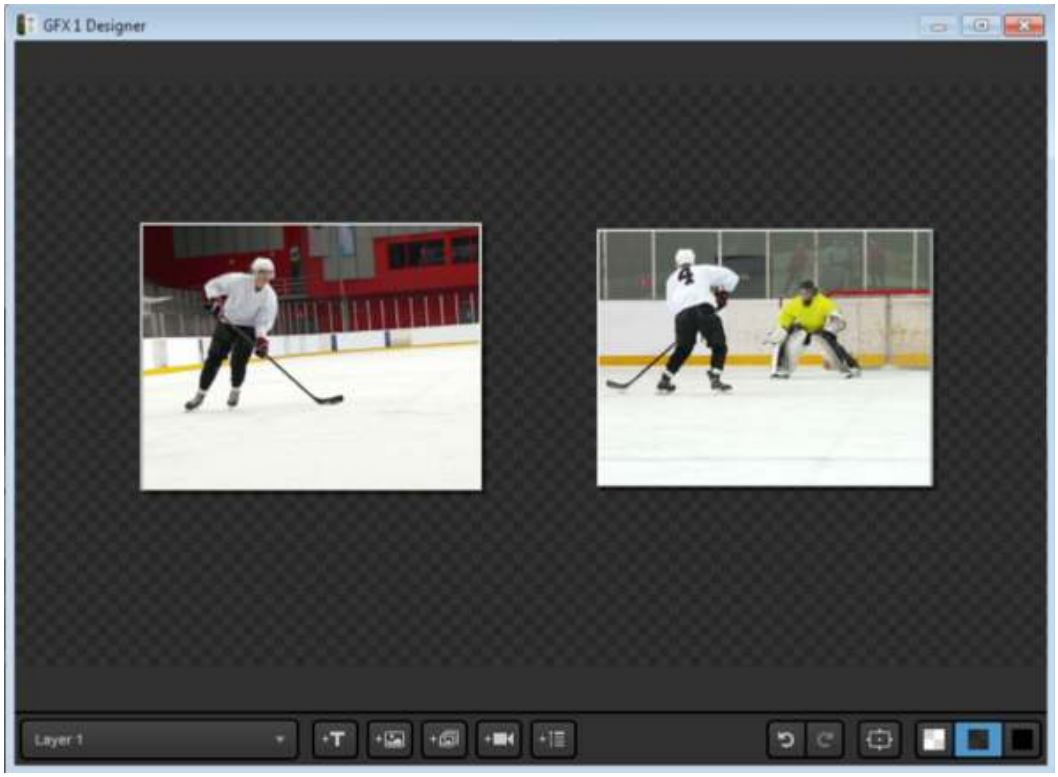
Add another source.



You can drag and drop either of these anywhere within the designer. Clicking the gearwheel will also allow you to resize and crop your sources.

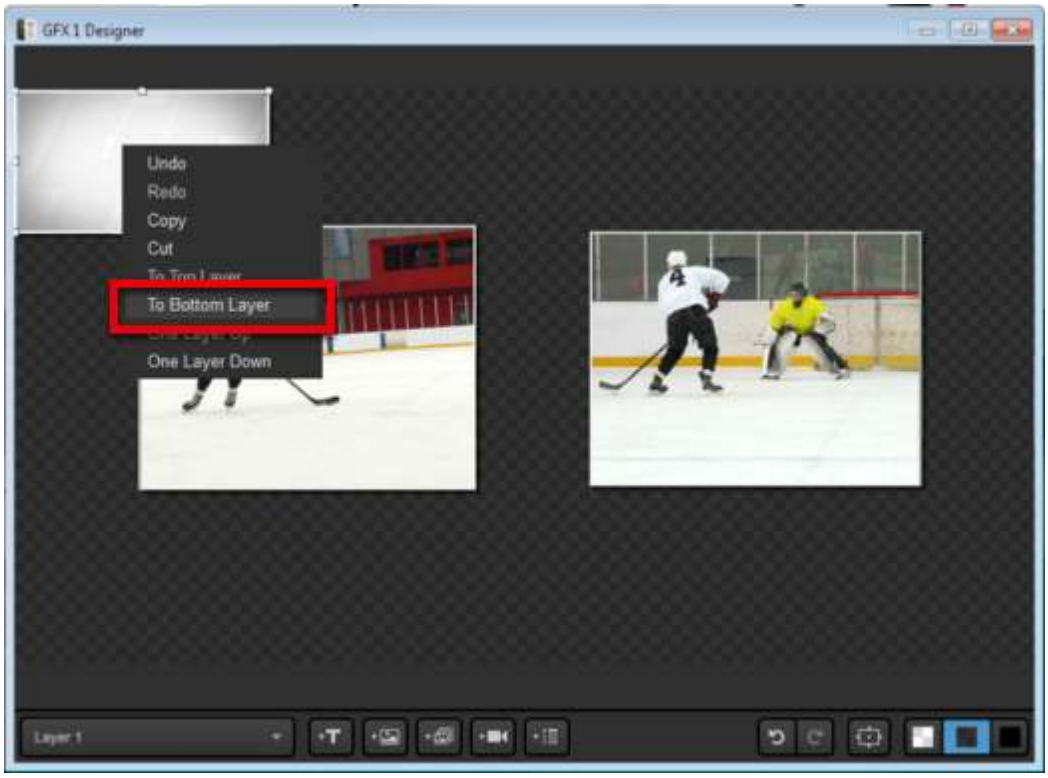


A sample double-box (or two-box) might look something like this:

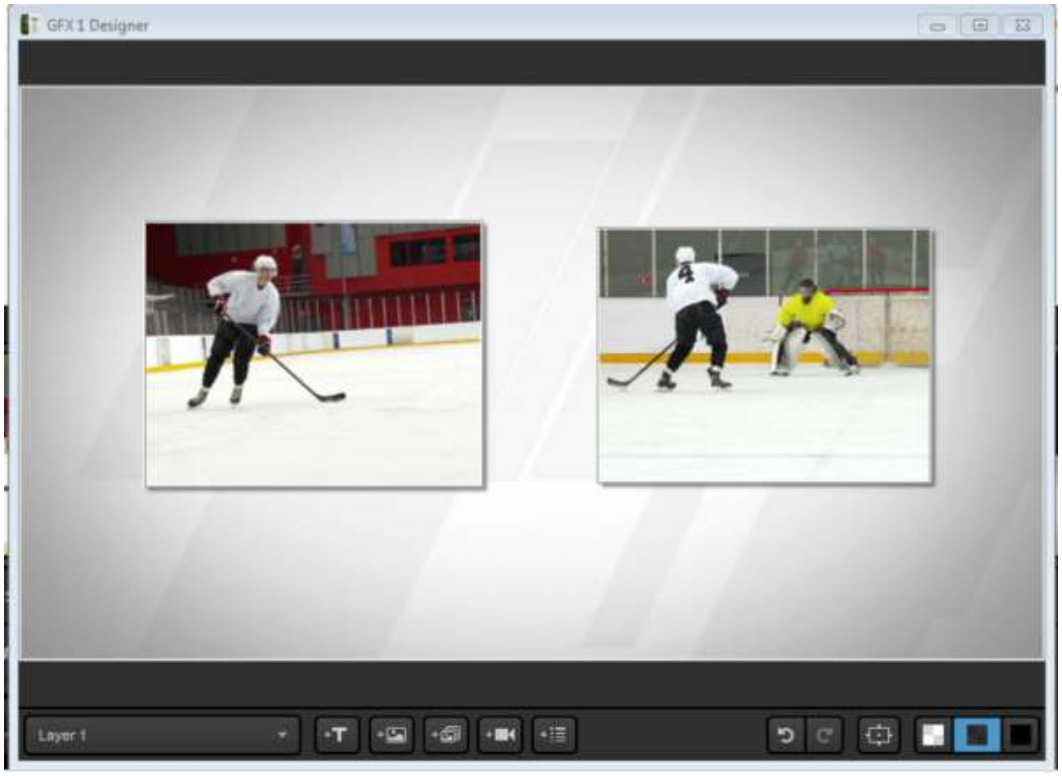


If you want to give a background to your picture-in-picture, add a third source to the GFX designer. In this example, we're using a looping video background in Media 1.

Right-click the third source and click To Bottom Layer. This will force it to be behind your other two sources.

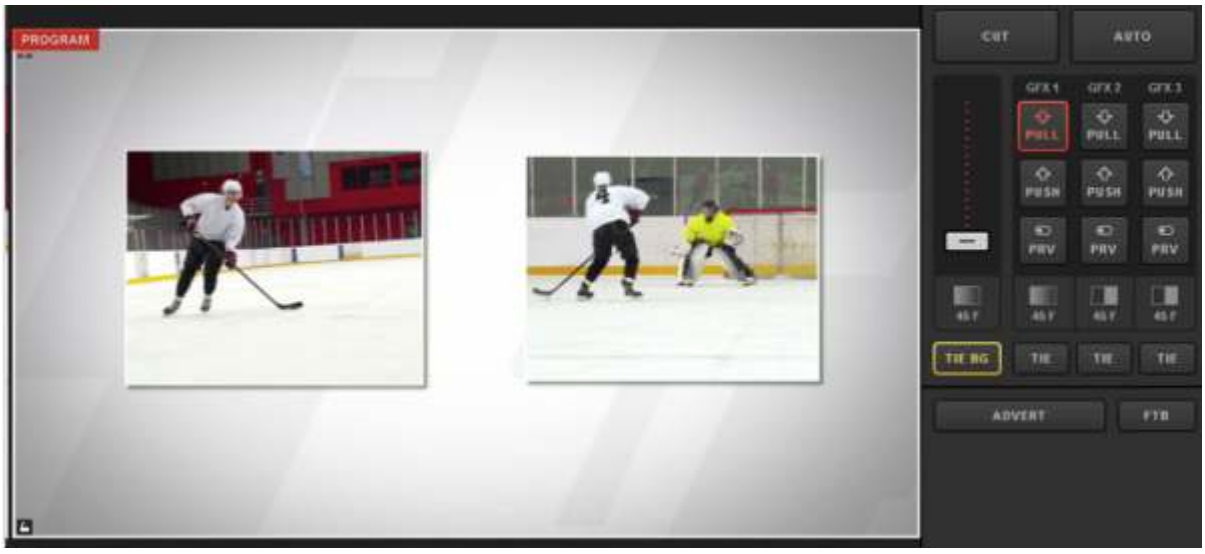


Scale it so it fills the designer. Now your picture-in-picture looks like this.



Close out of the designer and make sure your layer is visible (the eye icon is blue). Then click the corresponding flashing Push button to bring it into Program.

Now both sources are seen in Program at the same time with your background. Click Pull whenever you are ready to show your previous Program source.

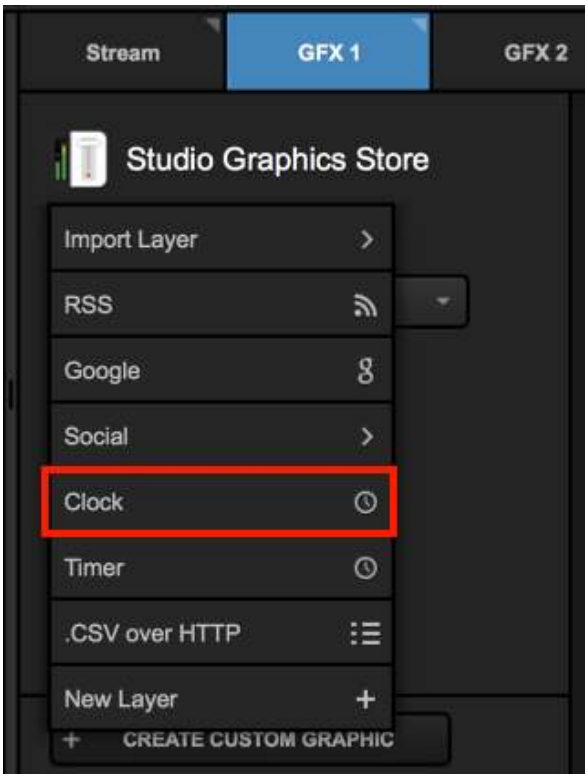


Building a Clock or Timer

Adding a time-of-day clock or a countdown timer are very similar processes.

Clock

You may want to overlay a time-of-day clock into your production. This can be done by opening the Create Custom Graphic and menu selecting the Clock option in the graphics overlay channel.



This will add a clock layer to the graphics channel. Click on the paintbrush icon to open the GFX Designer for that layer.

Click on the list icon for options of time fields to add. Consider checking the presets first to save the time needed to add individual fields.

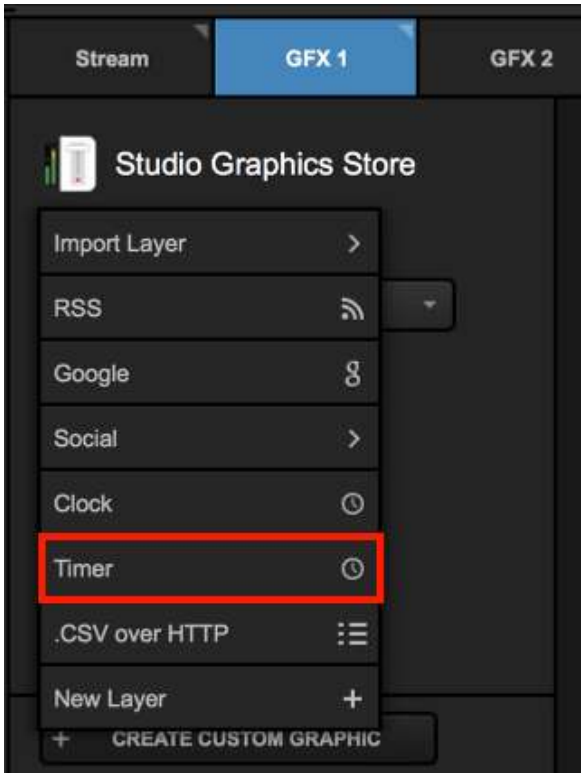
Once you have added the time fields you need, click the arrow button to change each one's font, size, color, etc.

Drag and drop the clock to where you want to have it appear. When you are done designing the clock, close out of the GFX Designer.

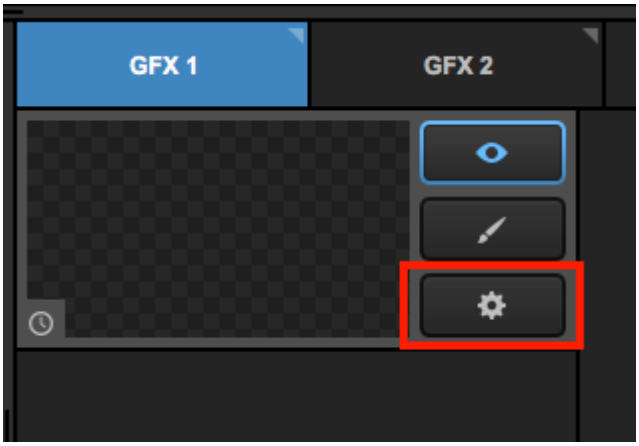
There are no additional settings for the clock layer other than deleting it. Click Back to return to the layer module. Then click the eye icon to ensure the clock layer is visible when you want to include it in your production.

Timer

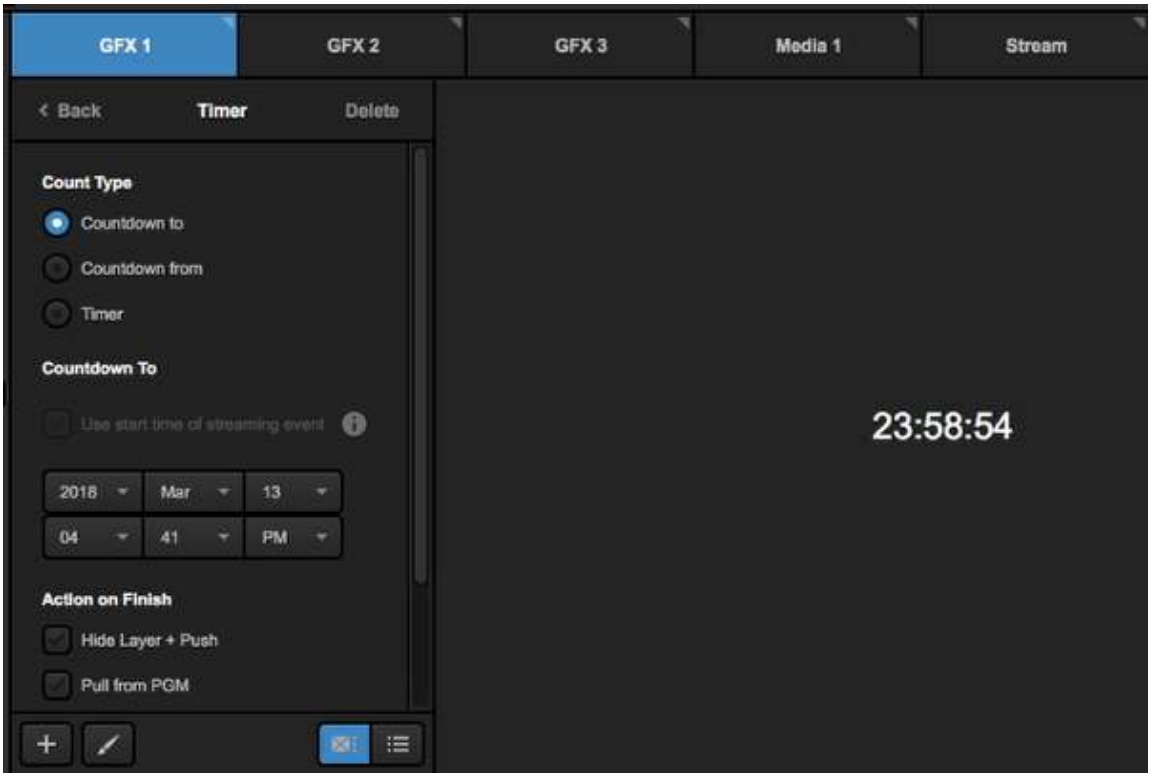
To integrate a countdown or timer overlay into your production, open the Create Custom Graphic menu and select Timer in the graphics overlay channel.



Click the gear wheel icon to enter that layer's settings.



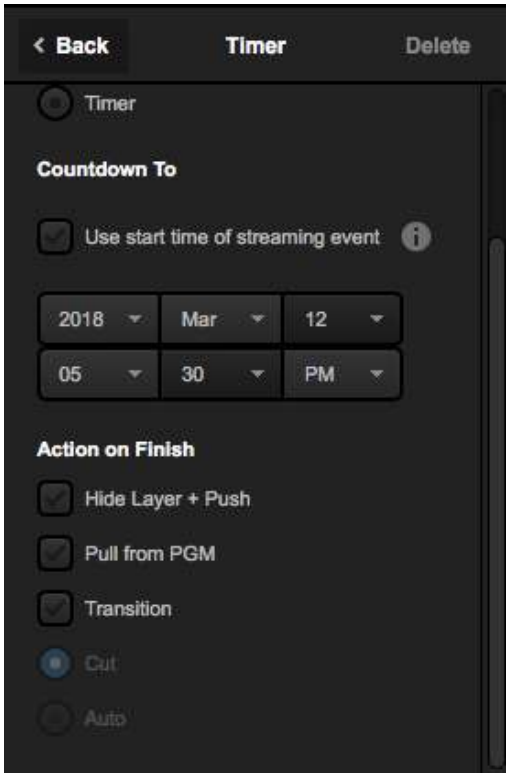
The settings for that layer will appear on the left side, with the reflected timer displaying on the right.



Countdown to allows you to set a specific time and date for when the countdown should end. The countdown will update on the right side.

> For a quick configuration, you can check Use start time of streaming event to automatically set the countdown to end at the start time of an event you have selected in the Stream tab.

Below the time/date setting are options for what the graphics overlay should do when the countdown completes.

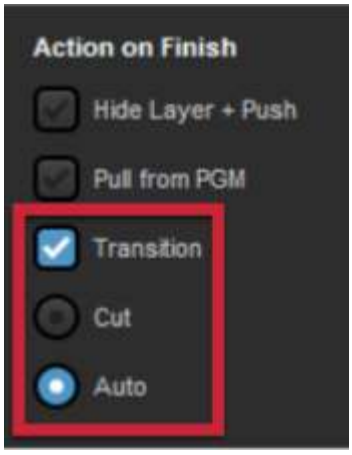


Hide Layer + Push will keep GFX 1 in Program, but remove the timer GFX layer from being visible. Other layers in GFX 1 will remain in Program.

Pull from PGM will pull all layers under that GFX channel from Program when the countdown ends.

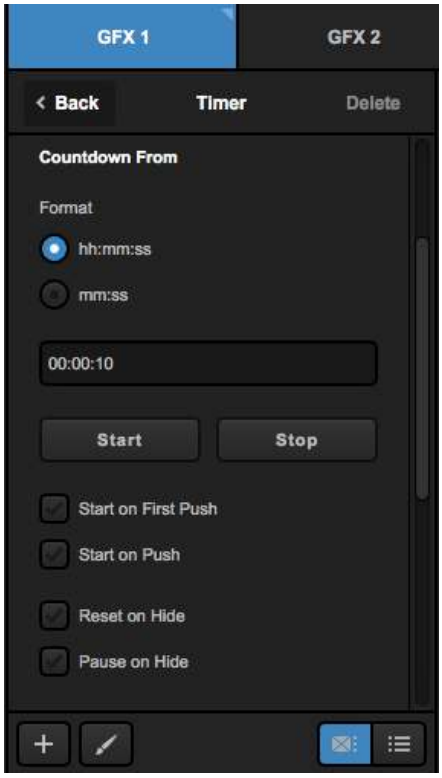
Transition can be used when the GFX channel is cued as a video source from the multiview instead of an overlay. It will take the Preview source once the countdown ends.

The transition type can be selected in the settings for that GFX layer.



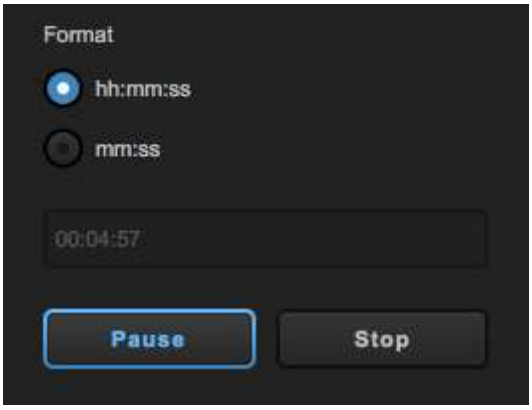
Leaving all options unchecked will keep the completed countdown graphic in Program.

The next setting is Countdown from, where you set the time that the countdown will start. The format of this countdown can either be hours:minutes:seconds, or minutes:seconds.



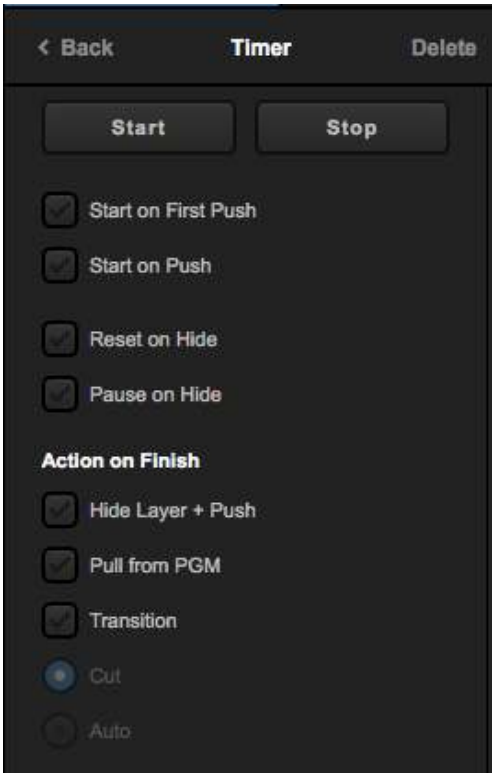
Type in the time you want to count down from. Clicking Start will begin the countdown manually.

When the countdown has started, a Pause button will replace it. Click Pause if you want the countdown to stop but stay at the current time, allowing you to resume from that point.

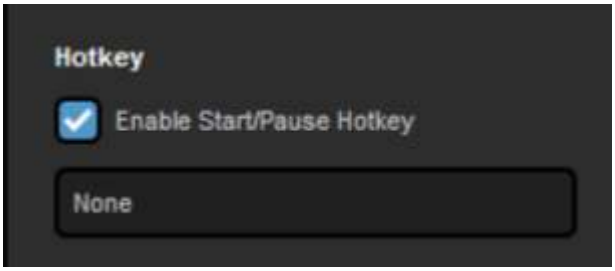


Clicking Stop will both stop the countdown and reset it to the beginning.

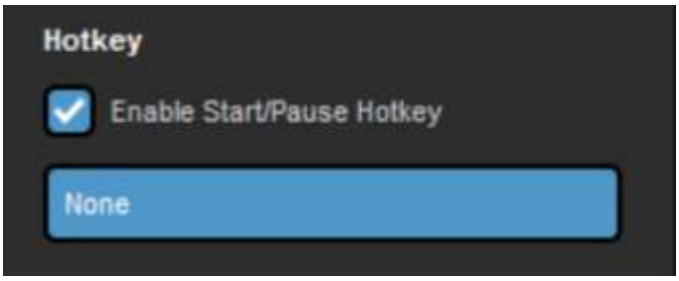
Below the Start and Stop options, there are options for what the clock should do when pushed, pulled, or finished.



Scroll down further in the layer settings to find the hotkey option. Click the checkbox to enable it.

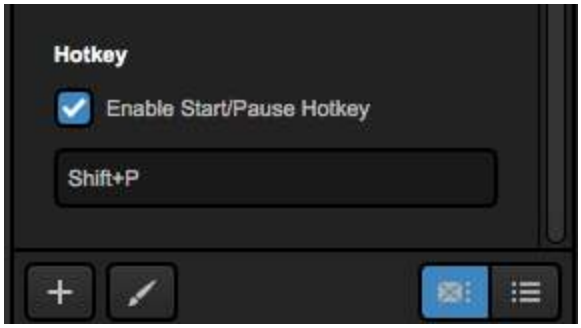


Click on the box that reads None. This will highlight it blue.



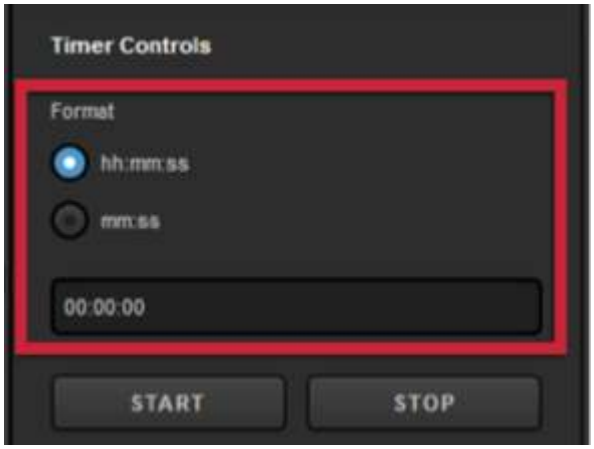
Once it is blue, use the buttons on your keyboard to create a hotkey (e.g., Shift+P).

> It cannot be a hotkey command that already has an action in Livestream Studio assigned to it.

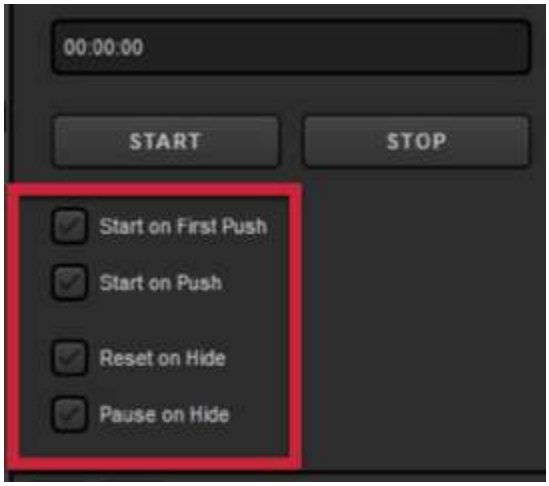


Now you can push your countdown graphic to Program like normal. Instead of pressing the buttons in the GFX module, you can use your keyboard to quickly and easily pause and continue your clock.

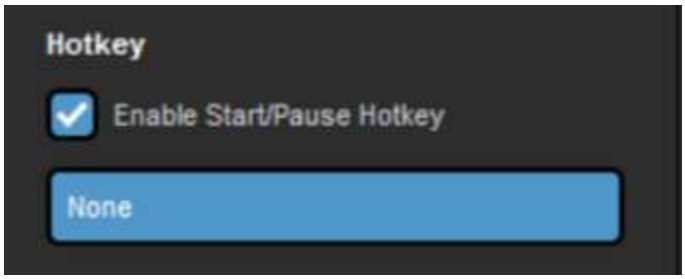
The last option for this layer is Timer, which gives you a clock that counts up from zero. As with the Countdown from option, you can set the format and start and stop the timer.



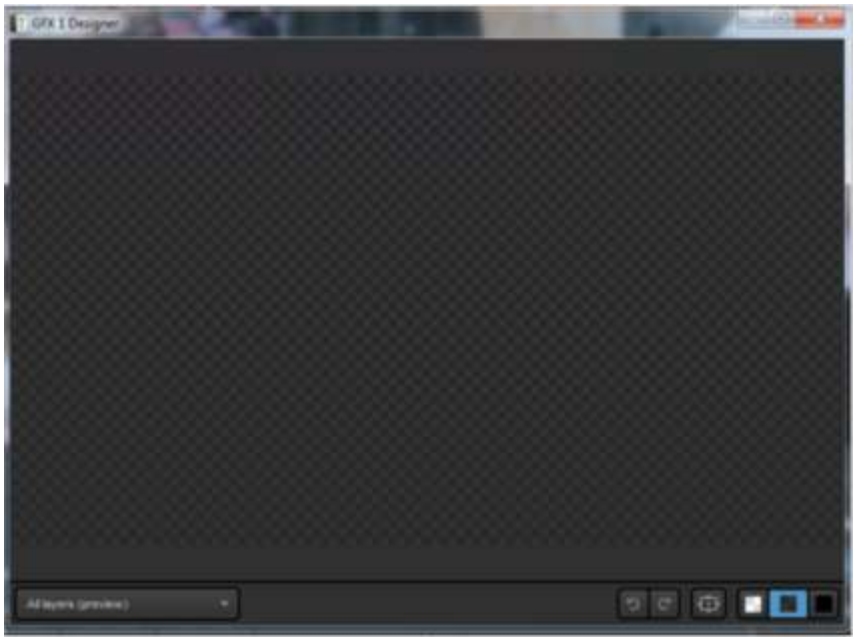
Below these controls are the actions the graphic will take when first pushed to and pulled from Program.



The Timer also includes the ability to add a hotkey command for pausing and resuming.

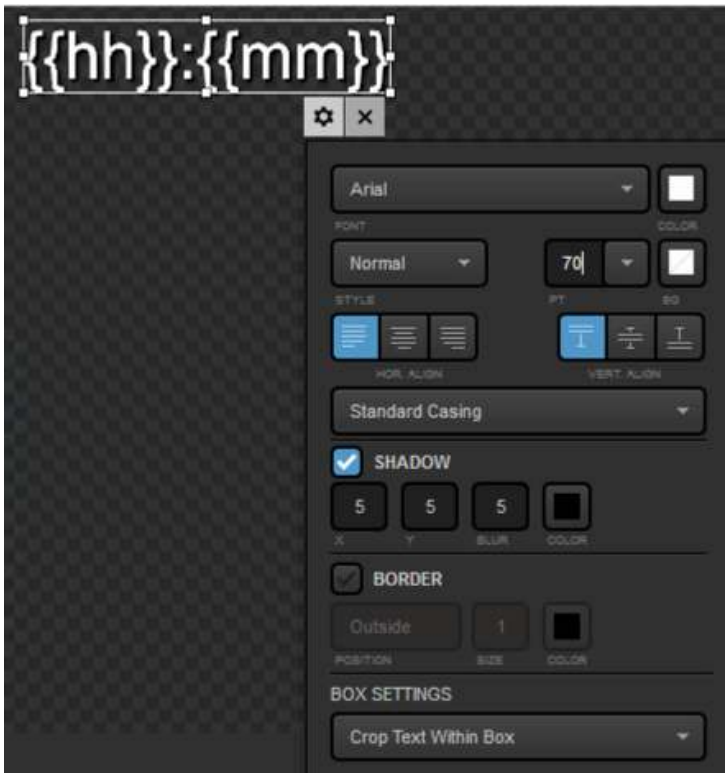


With any of the three options, be sure to click the paintbrush icon to enter the GFX Designer.

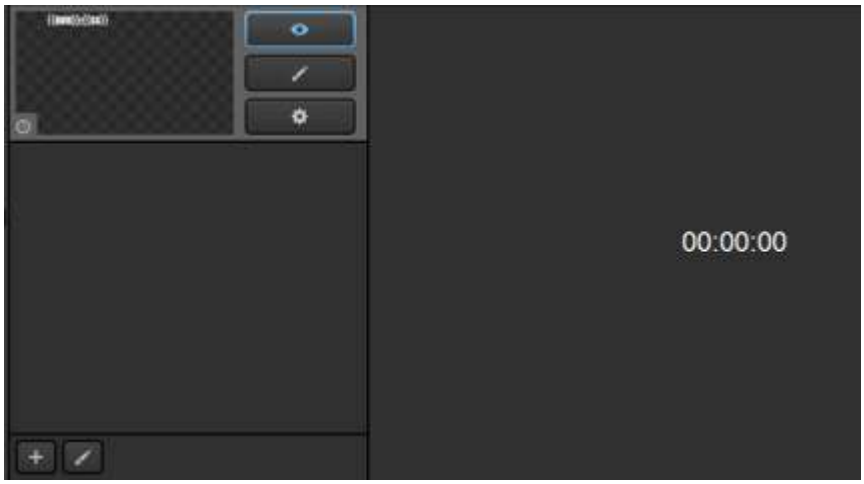


In the Timer layer, click on the list icon to add time fields. Check the presets first, as this may save time in designing the graphic.

Use the dropdown menu to customize how the clock looks.



When finished, close out of the GFX Designer, then click Back in the graphics layer settings. Your timer graphic can now be made visible and pushed to Program when desired.



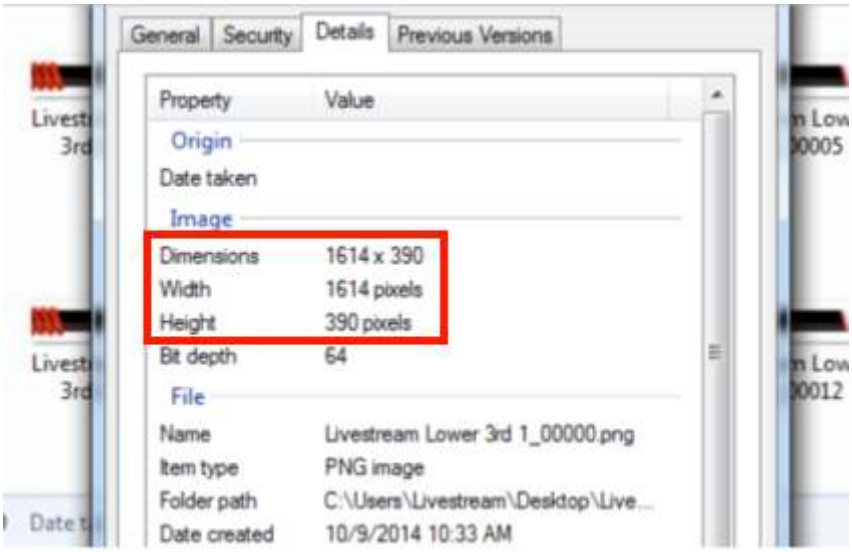
Importing Animated Graphics

Livestream Studio can accept either an .mov file or a folder of images that it will continuously loop through to create an animated graphics overlay.

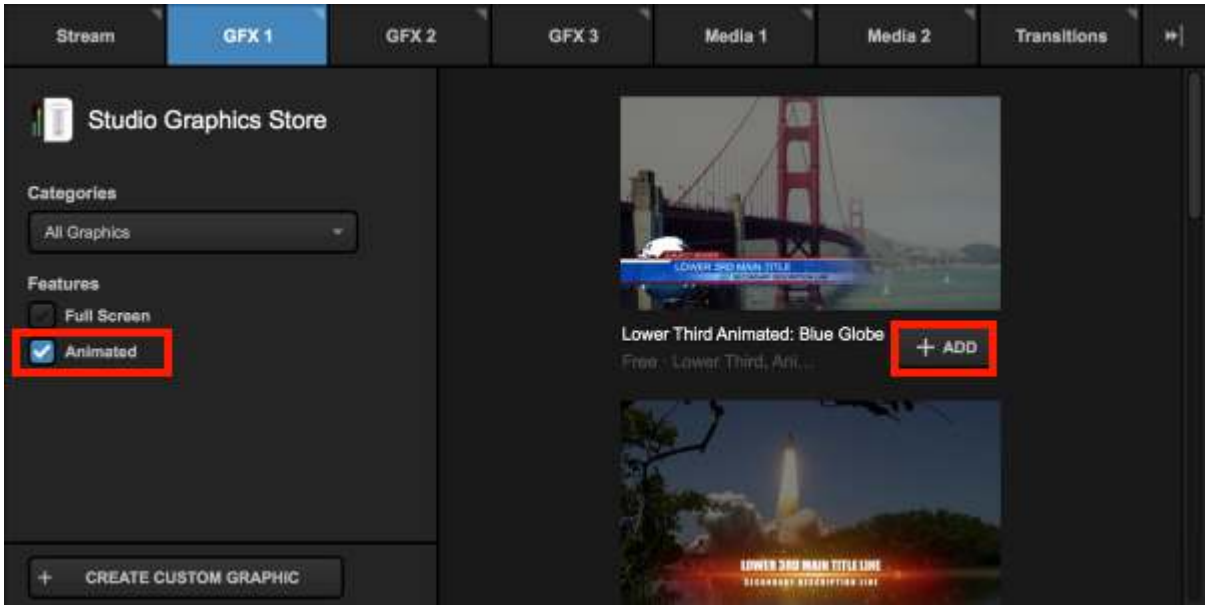
This feature is best for lower-third graphics and corner bugs. Larger animated graphics, such as backdrops, should be exported as videos and come in through a media bin.

To keep your images' backgrounds transparent, .PNG files are recommended if you are using an image sequence. Your .PNG files must be less than 8.3 million pixels. To determine a .PNG file's pixels, view that file's properties and multiply the height by the width. For this graphic, which has subtle animations, 1614 x 390 = 629,460 pixels.

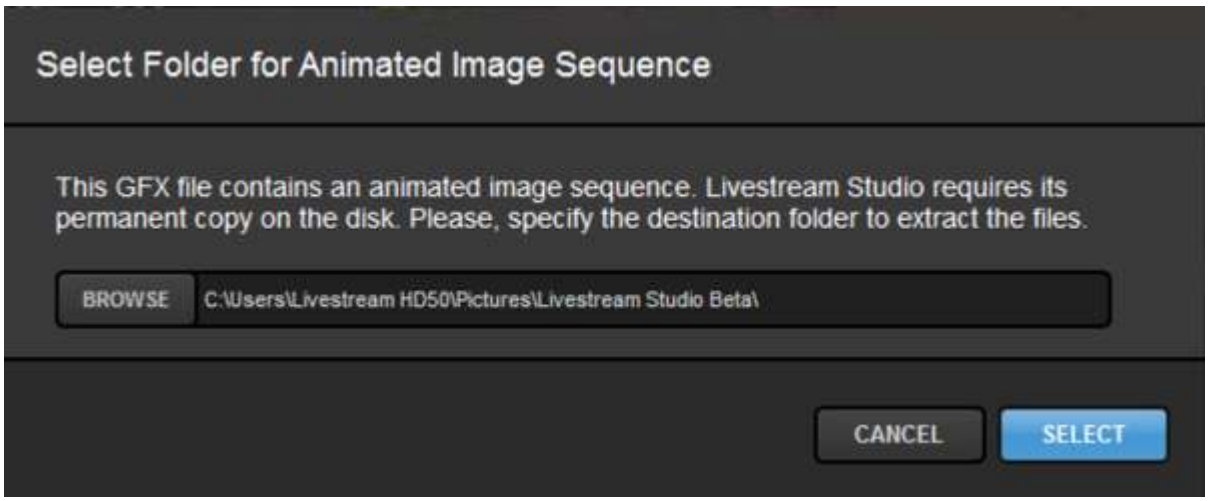
If you use an .mov file instead, be sure your video matches the same project format as your Studio project to ensure no upscaling or downscaling occurs.



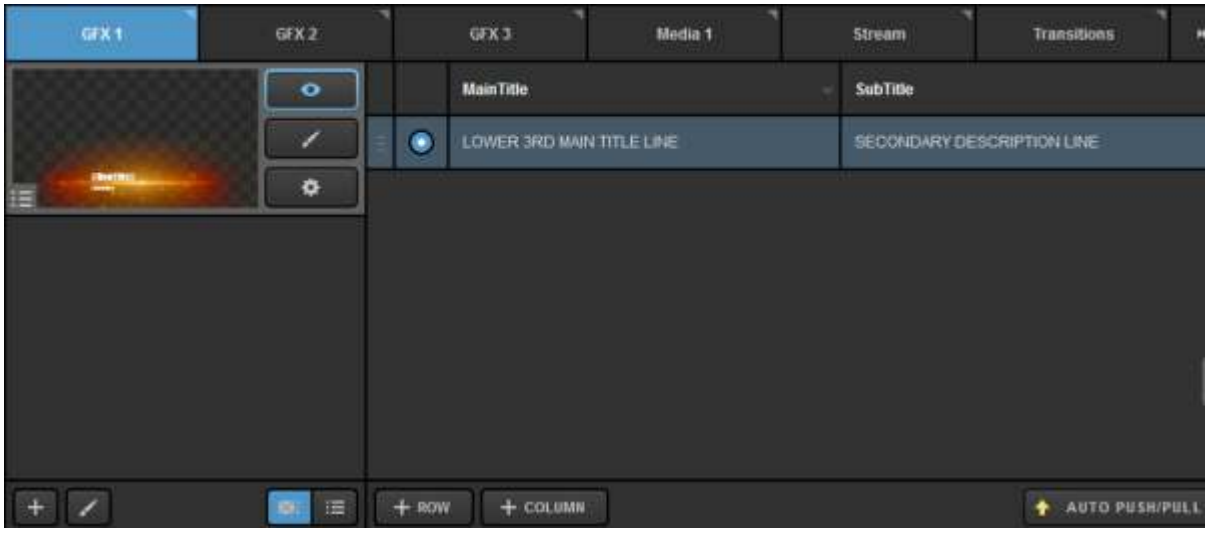
To add an animated graphic, go to a graphics overlay channel. There are a number of templates available for free in the Livestream Graphics Store. To quickly access one, select the Animated option under Features. Scroll through the template options on the right side and click +ADD below the corresponding design.



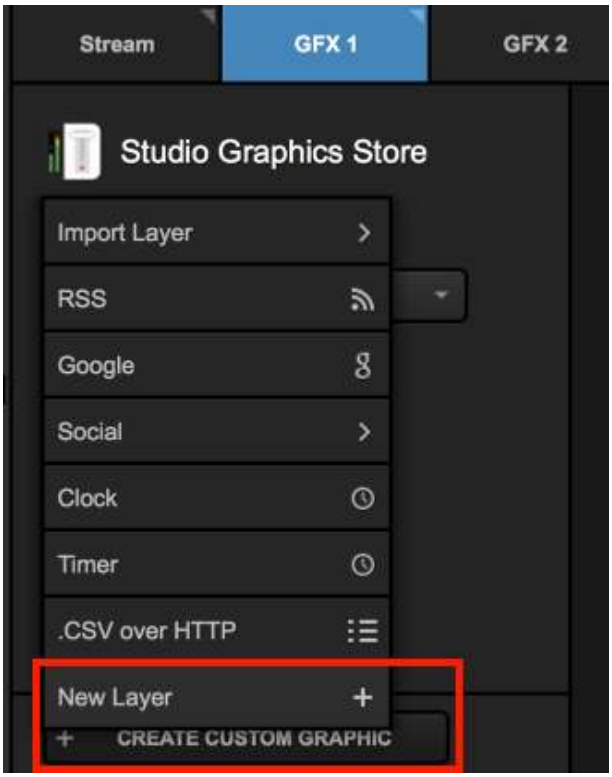
Livestream Studio will prompt you to select where you want to save the file on your computer's hard drive. Choose your destination and then click Select.



The graphics file will load in Livestream Studio and you can edit it in the same fashion as with any other graphic.

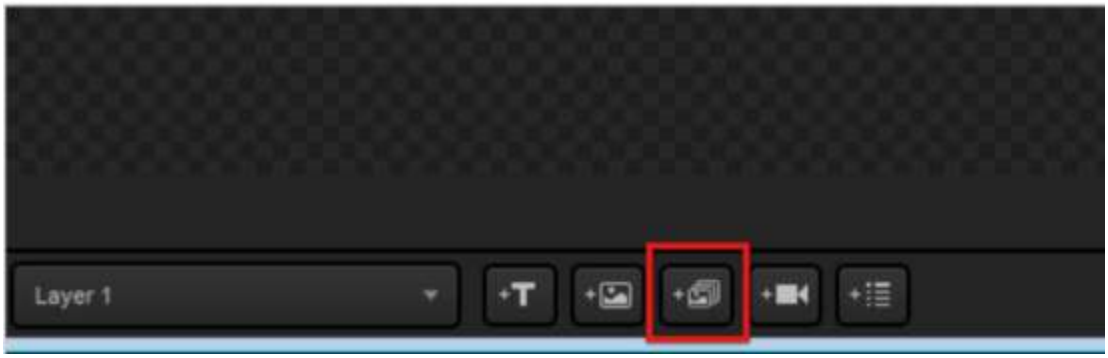


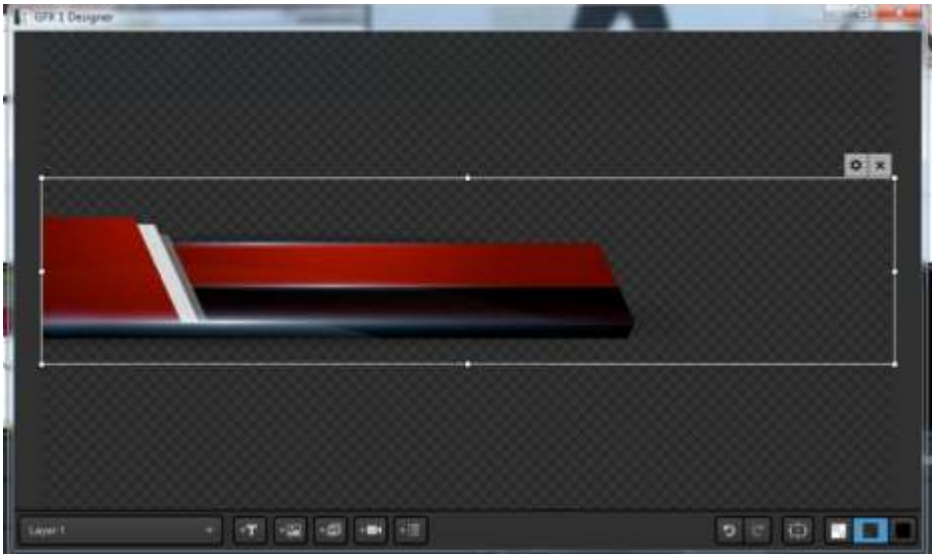
You can also add your own .png sequence or .mov file by selecting Create Custom Graphic > New Layer.



If you are adding a custom layer, open the designer by clicking the paintbrush icon, then click the sequence icon. Select your .mov file, or open the folder that has your .PNG file sequence and select the first file in that folder. The graphic will take a moment to render and then appear in the GFX Designer.

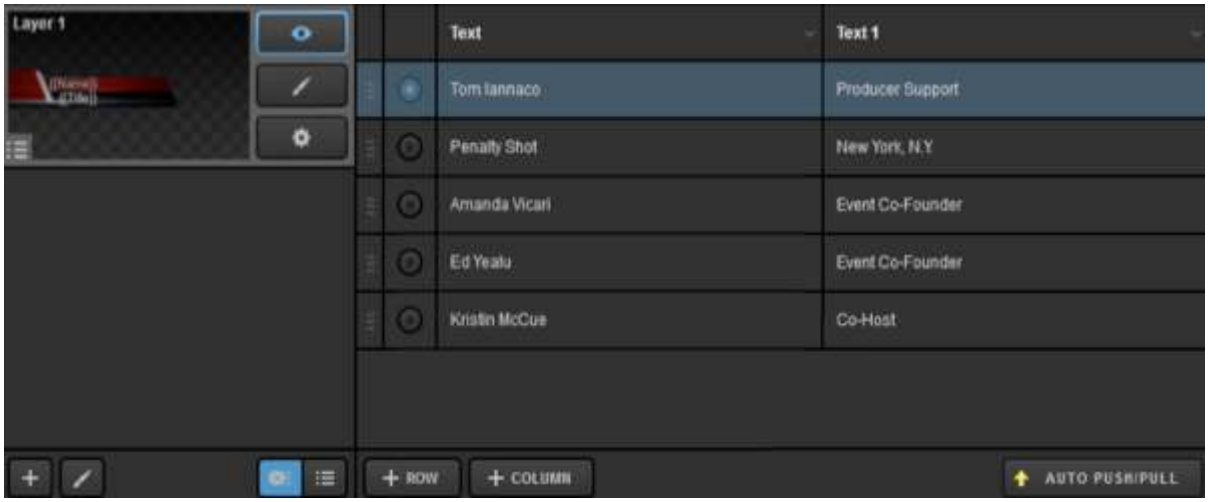
There is no way to make the sequence stop looping. A workaround for this is to add multiple still frames at the end of the desired sequence to give you time to pull the overlay out of Program before it loops again.





From there, designing the overlay follows the same procedure as designing still graphics (adding data fields, etc.).

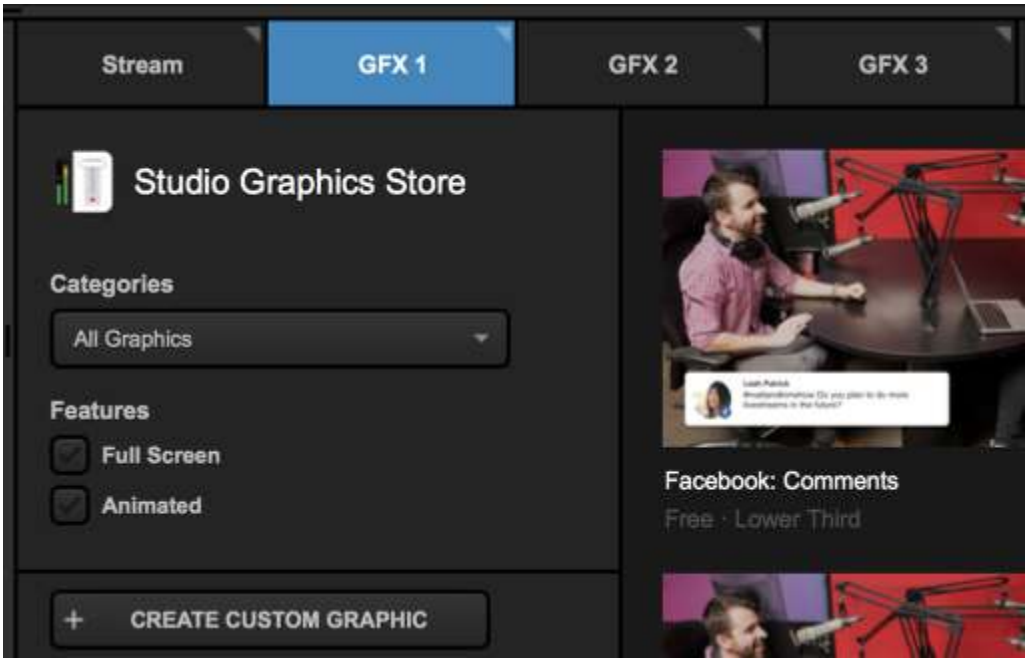
All other functions of the graphics overlay, including adding data, changing settings, and pushing and pulling the layer are the same as other graphics.



Create a text crawler or ticker in Studio

Livestream Studio's graphics overlay bins support the ability to scroll static or data text in a vertical or horizontal direction at a customizable speed.

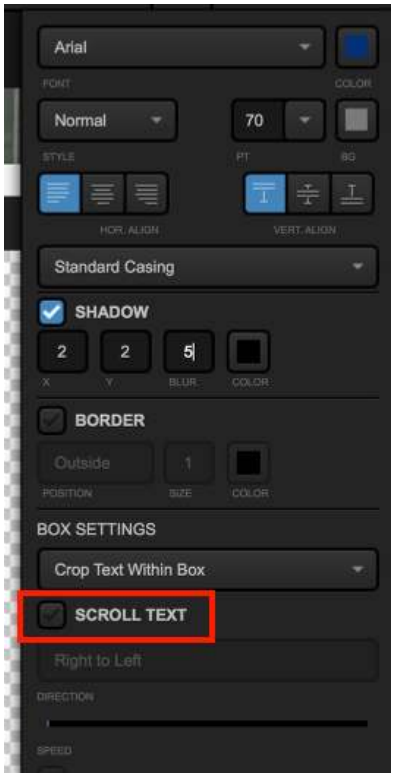
First you need to design you graphics layer. Open a GFX tab and either choose from a pre-built template or select Create Custom Graphic.



Once your layer is created, select the paintbrush icon to enter the GFX Designer.

Select either Static Text or use a Text data field. This feature does not work on images or video assets. This example will use Static Text.

Type in your message and use the gearwheel to design it as you normally would (fonts, colors, etc.) At the bottom of the text settings menu is a checkbox for Scroll Text.

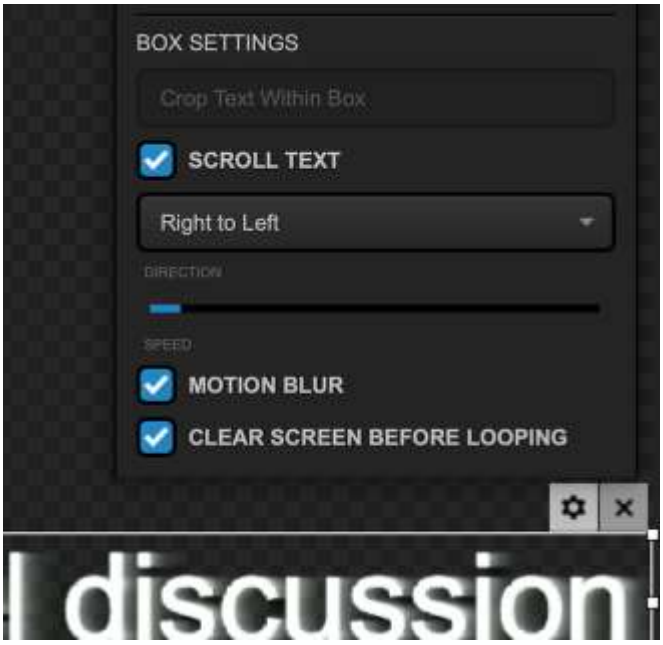


Checking this box will reveal more options. You can choose the direction (Right to Left, Left to Right, Bottom to Top, or Top to Bottom).

Below this is the speed meter, which by default is at its slowest; drag the bar to the right for a faster scroll speed.

Below this are two checkboxes:

- Motion Blur: Softens the text which may make it easier to read while in motion.
- Clear screen before looping: The text will completely scroll through the box before the beginning of the message reappears. If you don't select this, the beginning of the message will immediately follow the end of the message.
  - If you use dynamic text, a row of text will always clear the screen before the next row of text begins to scroll through.



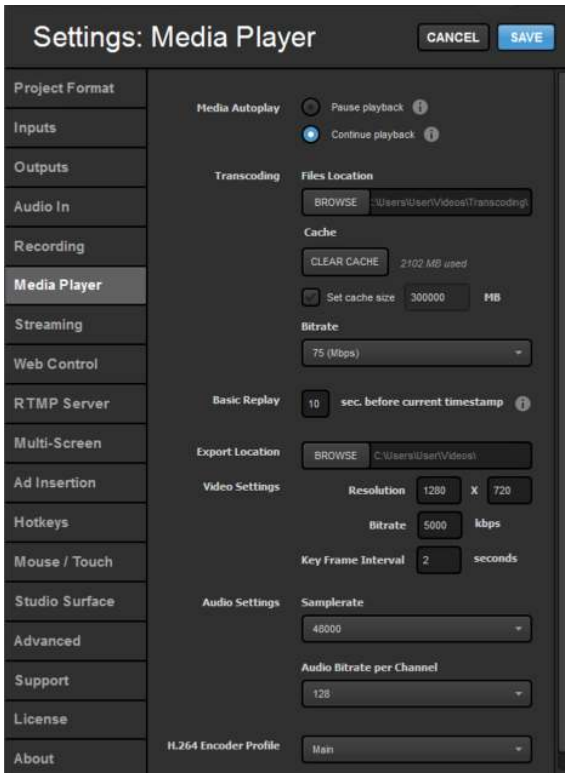
The same settings work for data text sources. When dealing with multiple rows of text, the scroll will start with the top item and work its way down the list and loop back to the top automatically. If you select Clear screen before looping, one row will clear the screen entirely before the next items starts scrolling in.

From here, mix your scrolling text in as you would with any other graphics overlay.

Media Playback

Configuring Media Playback Settings

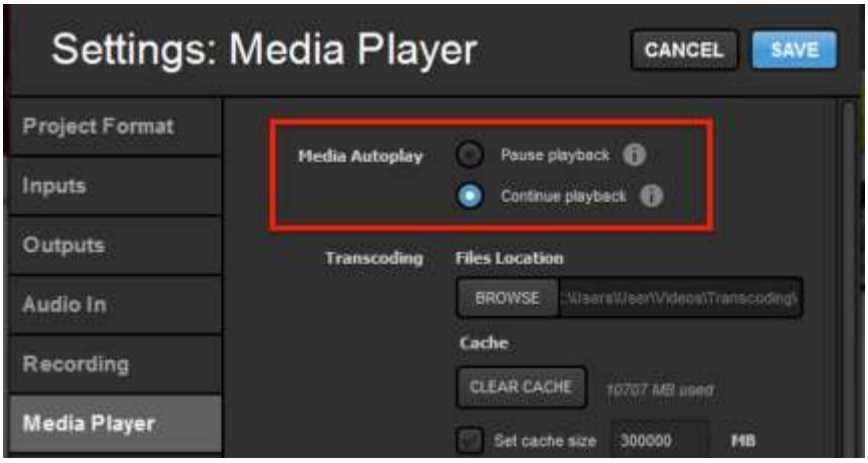
In Studio settings, go to the Media Player tag to configure settings for your media bins.



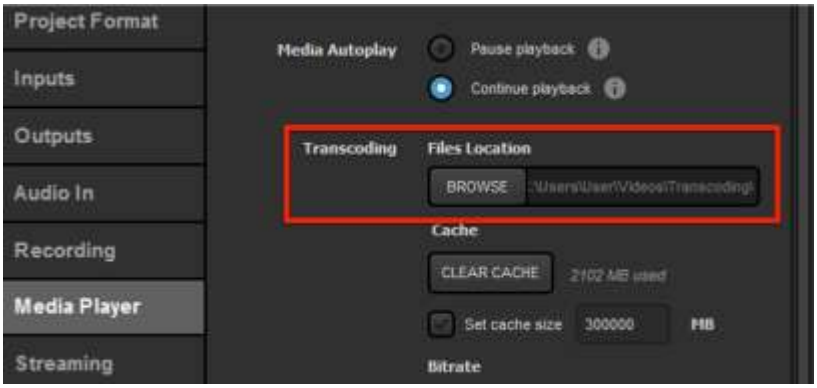
Media Autoplay allows you to choose if a video will either pause or continue playing when a media source is transitioned out of Program. It also determines whether the video will continuing playing from its current location (Pause) or start from the beginning of the IN point (Continue).

Pause Playback: The video will pause when manually transitioned out of Program. It will also pause when it reaches the OUT point and not transition out of Program.

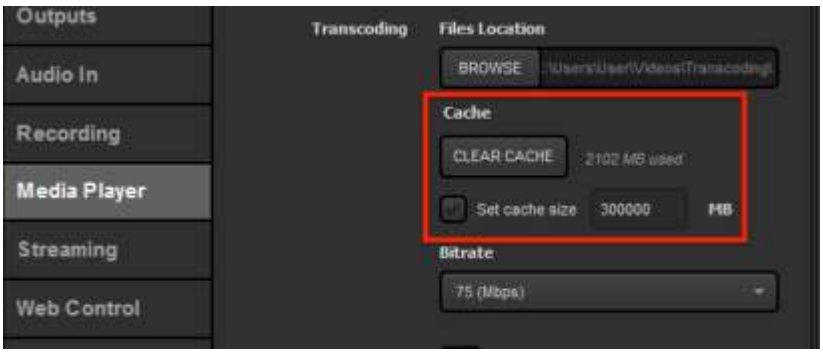
Continue Playback: Video will continue playing when manually transitioned out of Program. It will also transition out of Program at the OUT point automatically.



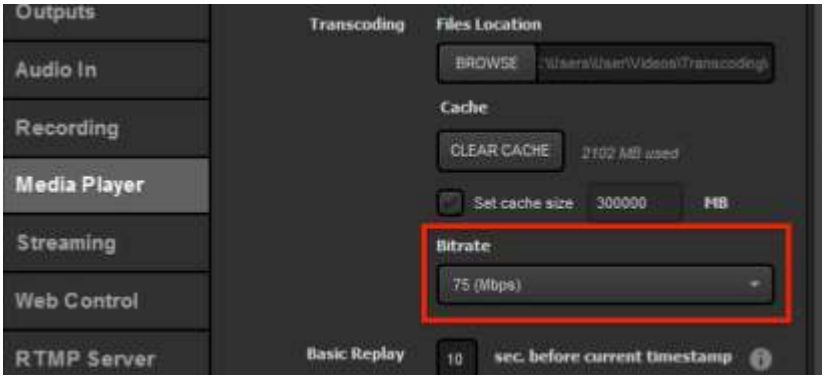
Transcoding Files Location is where any transcoded videos (i.e., videos you bring into your media bin) will be saved. You can bring those videos into a media bin again without transcoding.



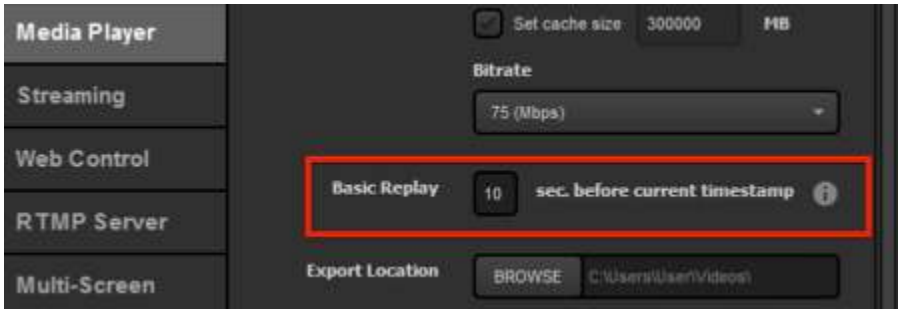
Transcoding Cache lets you control the amount of data stored in the transcoding folder before files are deleted. You can also manually clear the cache here.



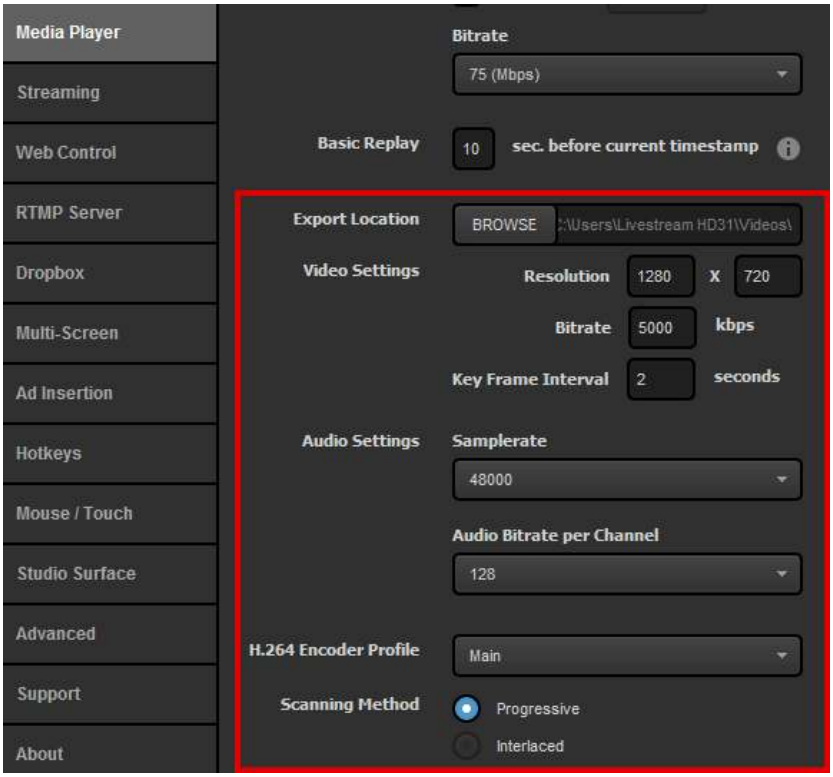
Transcoding Bitrate determines the bitrate to which the videos are transcoded. Higher bitrates will have higher resolution but also create larger files.



Basic Replay lets you tell Livestream Studio how far back from the current timestamp to set an In point. The Out point will be set to the current timestamp.



You can export videos or portions of videos from your media bin. You can choose their export location and video settings here.



When your media bin settings are configured to your liking, click Save.

Media Playback Supported Video Formats

Livestream Studio can accept most common video format files.

The codecs listed below are from "Supported media formats in Media Foundation (Windows)." Supported media formats in Media Foundation (Windows). Microsoft, 28 Nov. 2012. Web. 7 Feb. 2013: http://msdn.microsoft.com/en-us/library/windows/desktop/dd757927%28v=vs.85%29.aspx.

Please note that Studio does not support Apple-only based formats (e.g. ProRes).

File Containers:

Format	File Extensions	Media Source	Media Sink	Requires
3GP	.3g2, .3gp, .3gp2, .3gpp	MPEG-4 File Source	3GP File Sink	Windows 7
Advanced Streaming Format (ASF)	.asf, .wma, .wmv	ASF Media Source	ASF Media Sink	Windows Vista
Audio Data Transport Stream (ADTS).	.aac, .adts	ADTS File Source	None	Windows 7
AVI	.avi	AVI File Source	None	Windows 7
MP3	.mp3	MP3 File Source	MP3 File Sink	File source: Windows Vista File sink: Windows 7
MPEG-4	.m4a, .m4v, .mov, .mp4	MPEG-4 File Source	MPEG-4 File Sink	Windows 7
Synchronized Accessible Media Interchange (SAMI)	.sami, .smi	SAMI Media Source	None	Windows Vista
WAVE	.wav	AVI File Source	None	Windows 7

Audio Codecs

Format	Decoder	Encoder	Requires
µ-law Coding	Audio Compression Manager (ACM) µ-law Codec	None	Windows Vista
Advanced Audio Coding (AAC)	AAC Decoder	AAC Encoder	Windows 7
MP3	Windows Media MP3 Decoder	None	Windows Vista
GSM 6.10	ACM GSM 6.10 Codec	None	Windows Vista
Windows Media Audio (WMA)	Windows Media Audio Decoder Windows Media Audio Voice Decoder	Windows Media Audio Decoder Windows Media Audio Voice Decoder	Windows Vista

Media Foundation provides wrappers for several ACM codecs listed in the previous table. However, Media Foundation does not support arbitrary ACM codecs.

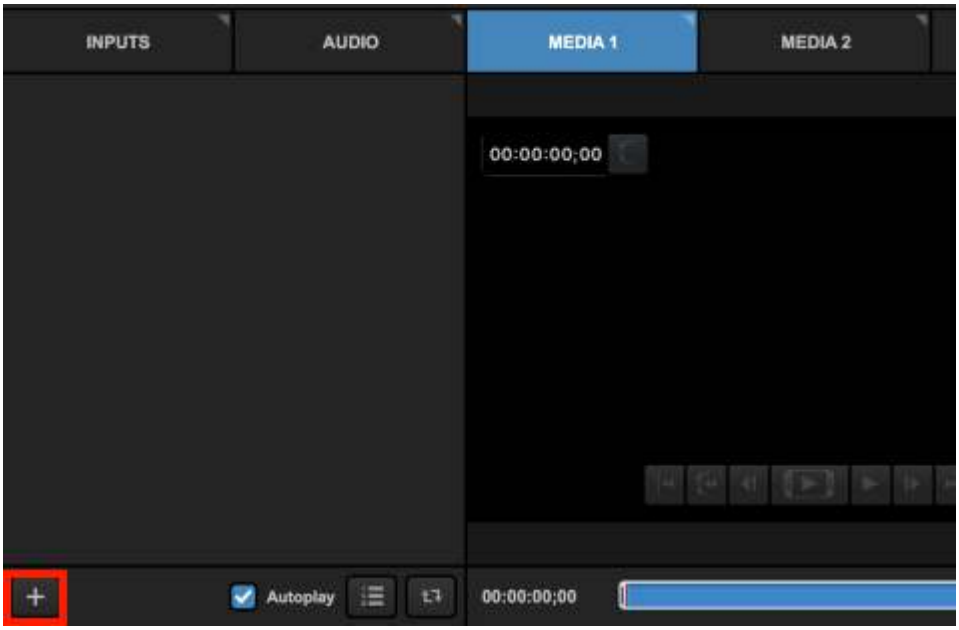
Video Codecs

Format	Decoder	Encoder	Requires
DV Video	DV Video Decoder	None	Windows 7
H.264	H.264 Video Decoder	H.264 Video Encoder	Windows 7
MJPEG	MJPEG Decoder	None	Windows 7
MPEG-4 Part 2	MPEG-4 Part 2 Video Decoder	None	Windows 7
MPEG-4 v1/v2/v3	Windows Media MPEG-4 V3 Decoder Windows Media MPEG4 V1/V2 Decoder	None	Windows Vista
Windows Media Video (WMV)	Windows Media Video 9 Decoder Windows Media Video 9 Screen Decoder	Windows Media Video 9 Encoder Windows Media Video 9 Screen Encoder Windows Media Video 7/8 En- coder	Windows Vista

Importing Videos into the Media Playback Module

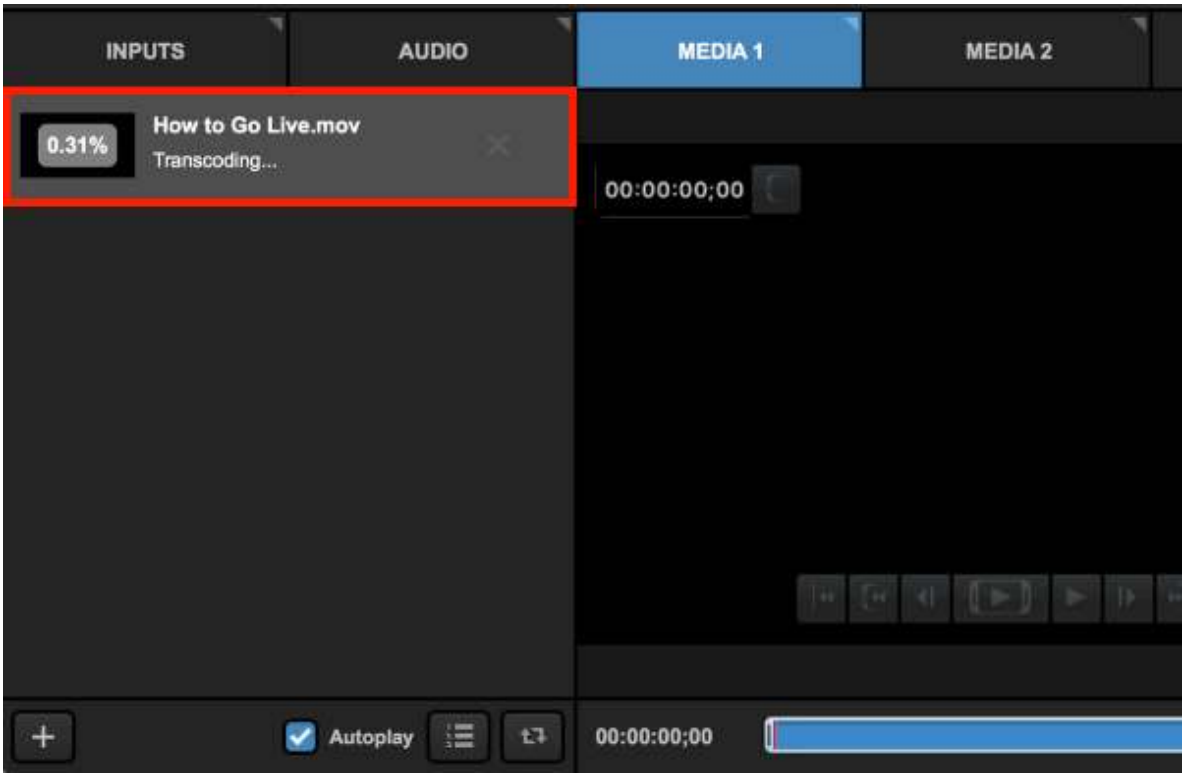
Livestream Studio has a video transcoder built into its Media bins.

In your media bin, press the + button in the bottom left corner.



Browse your computer for your video, then select it from the file explorer. Livestream Studio will begin transcoding your video immediately.

If your video file is a Motion JPEG AVI and matches your project format, the media bin will not need to transcode the file. Systems that have hardware encoding can also directly import H.264 MP4 files of the same project format.



Transcoding time depends on the clip length.

If you are having trouble transcoding your video, check that it can successfully playback in Windows Media Player. Videos that cannot be played in Window Media Player will likely not be able to be transcoded in Livestream Studio's media bins.

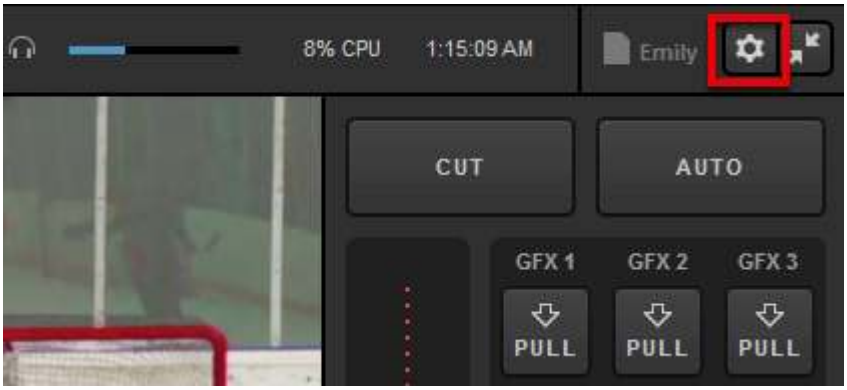
Use Dropbox to Import Video Files

Videos saved in a Dropbox account can be imported into the Media bins in Livestream Studio.

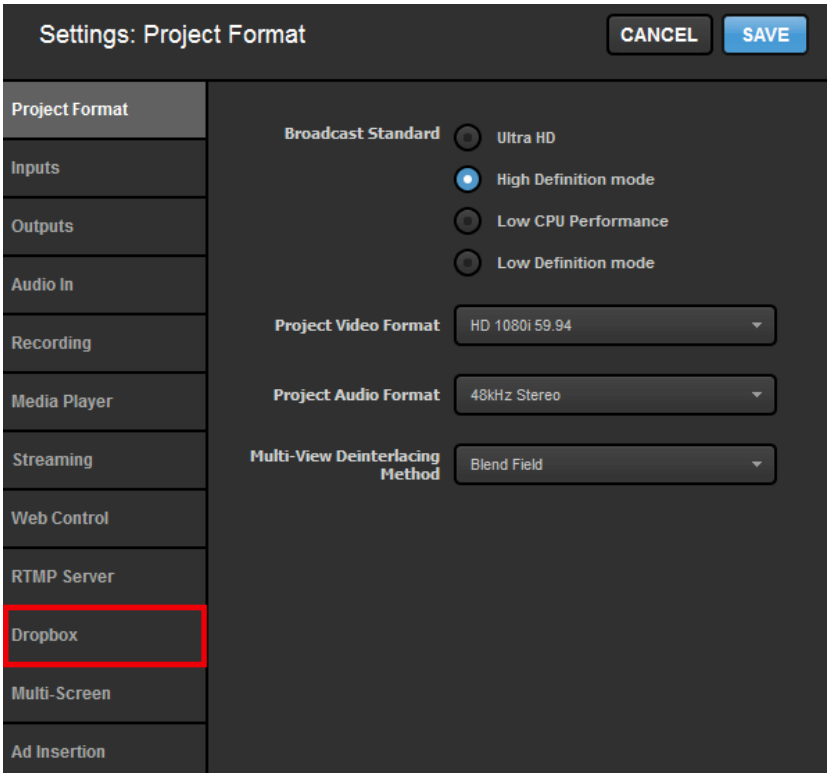
For the best experience, we recommend simplifying your Dropbox folder structure to no more than 1 or 2 subfolders. Multiple subfolders can cause extended sync times with Dropbox

Connect Dropbox to Livestream Studio

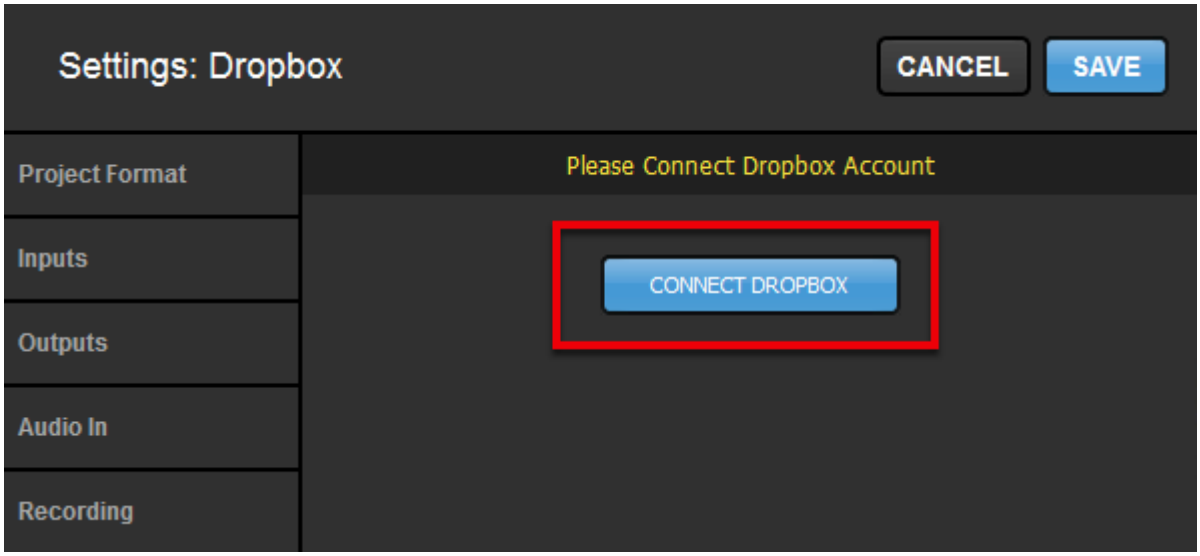
Start by clicking the gear wheel in the upper right corner to enter Settings.



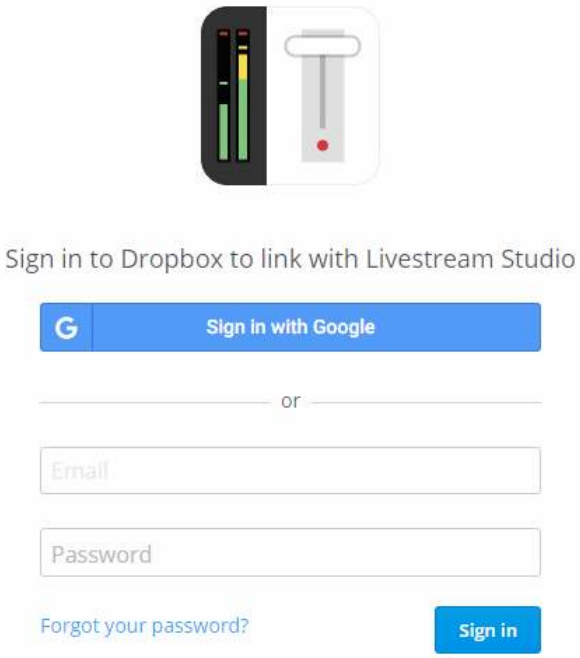
Navigate to the Dropbox tab.



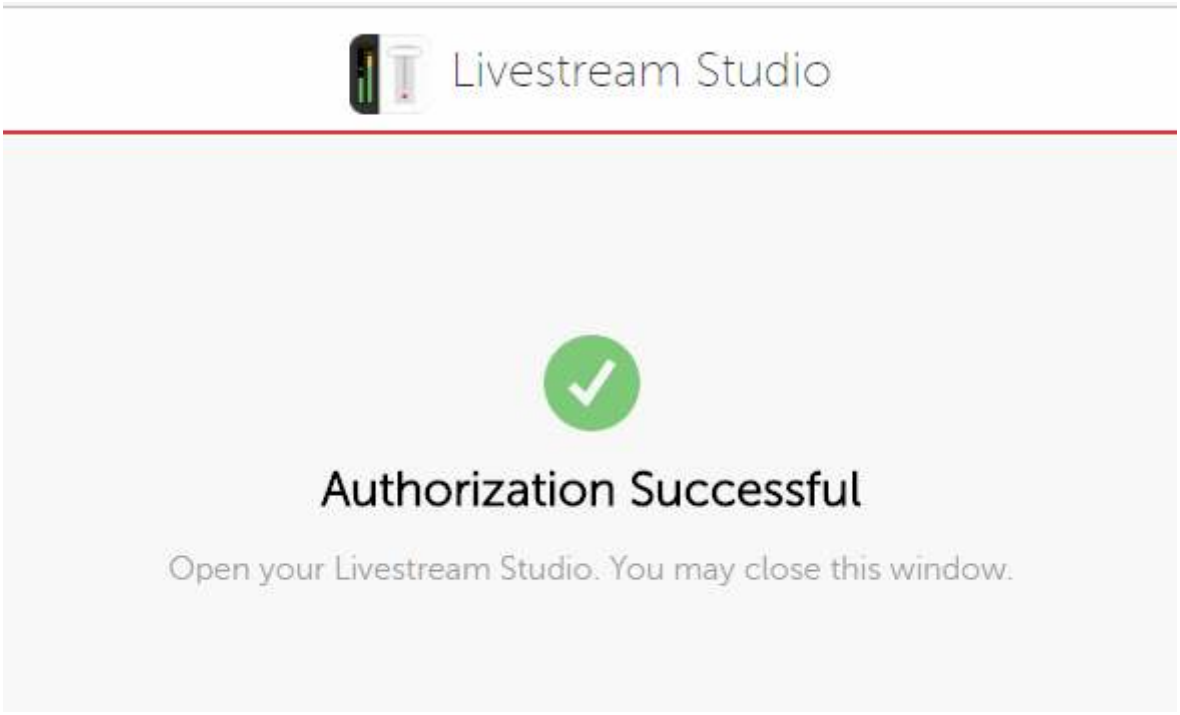
Click Connect Dropbox.



Your browser will open. Sign in to your Dropbox account in order to connect it to Livestream Studio.

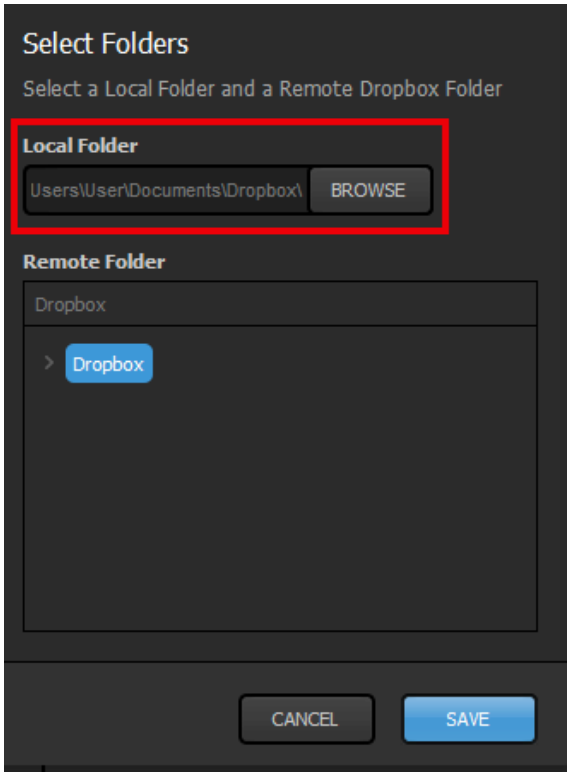


When authorization is successful, return to Livestream Studio.

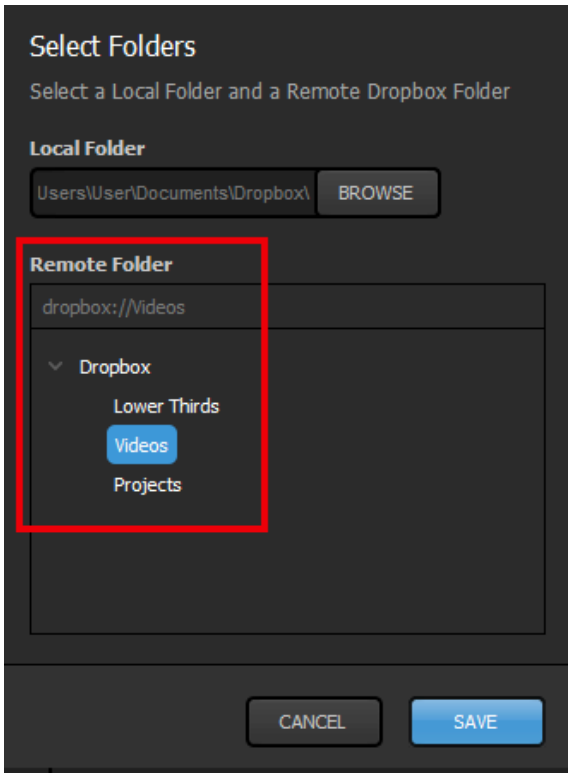


The settings will indicate that you are logged in. Click Select Folders.

Choose a Local Folder from your computer's hard drive. This will allow any files you save to your Dropbox, such as transcoded videos, to also be saved locally.

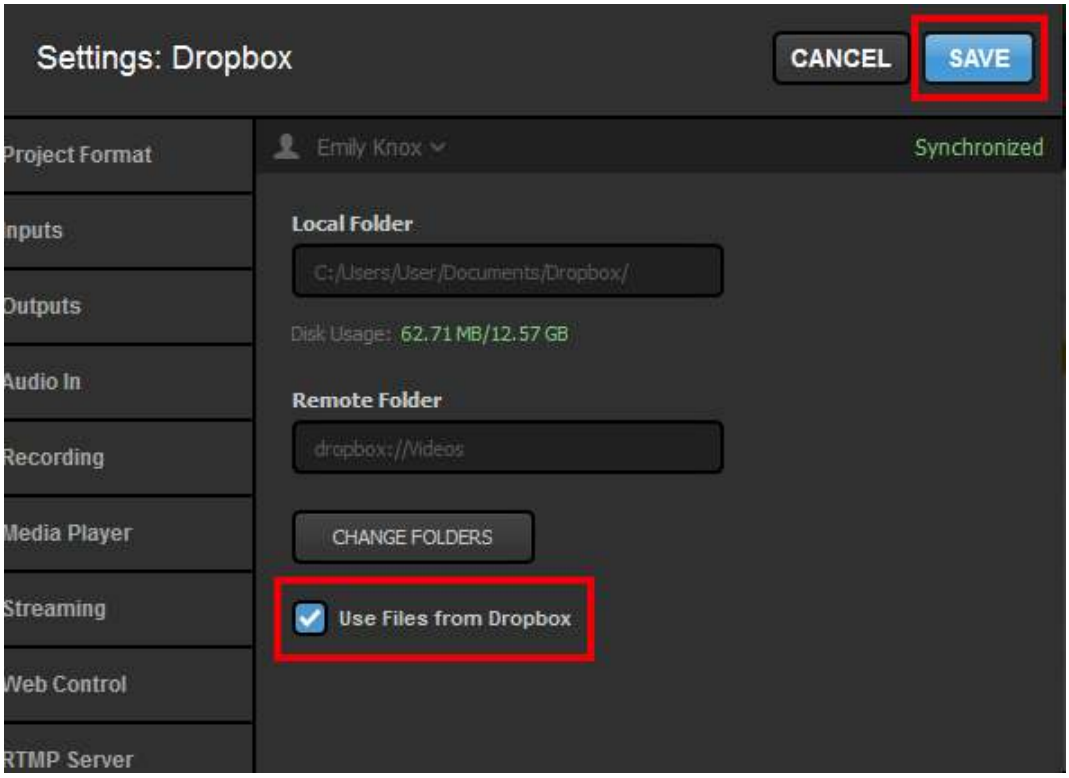


Then choose the folder within your Dropbox where the videos you want to use are stored. This can be either your general Dropbox or a folder within your Dropbox (in this example, "Videos"). Click Save when you are done.



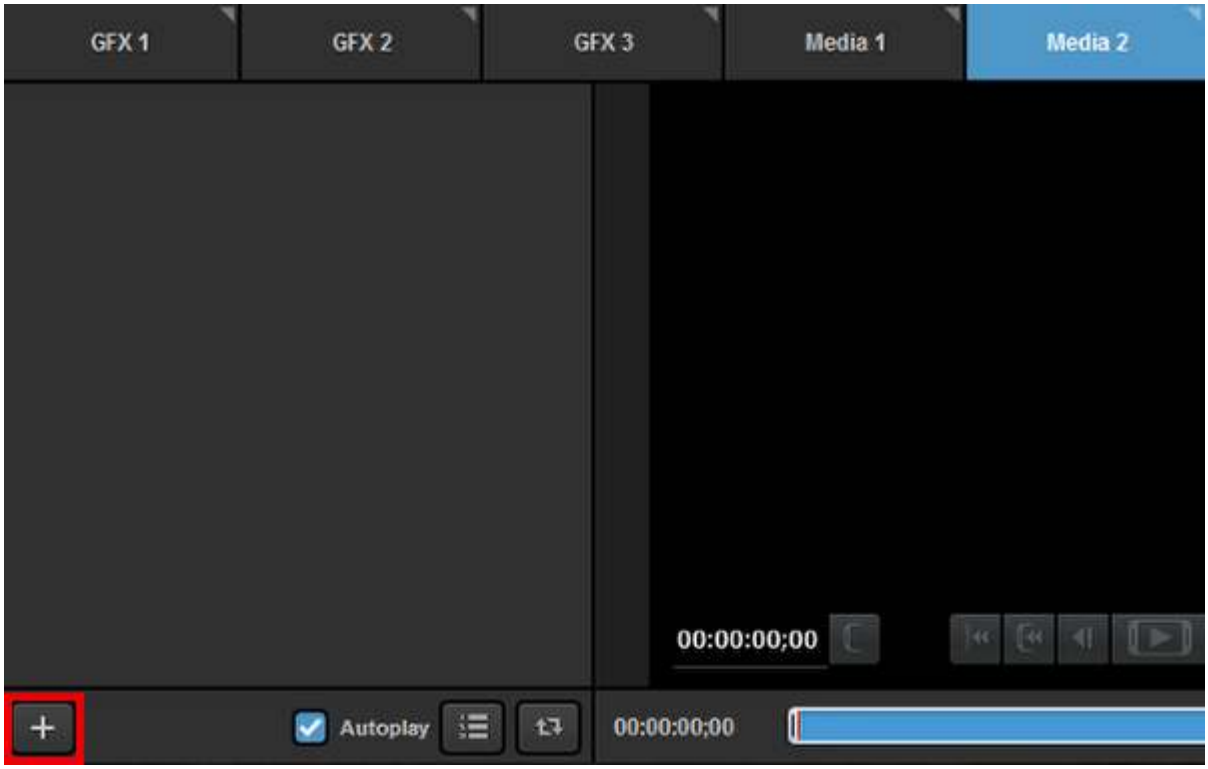
Your Dropbox account will sync to Livestream Studio.

Make sure that Use Files from Dropbox is checked. Then click Save.

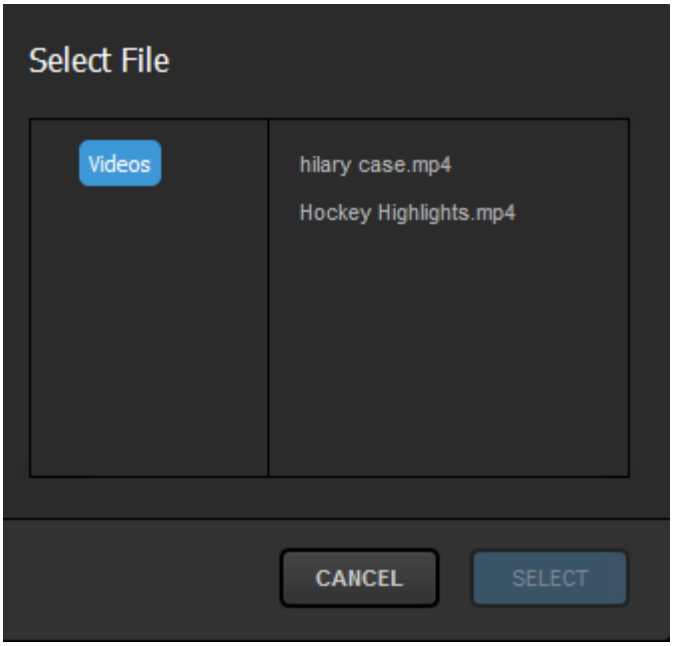


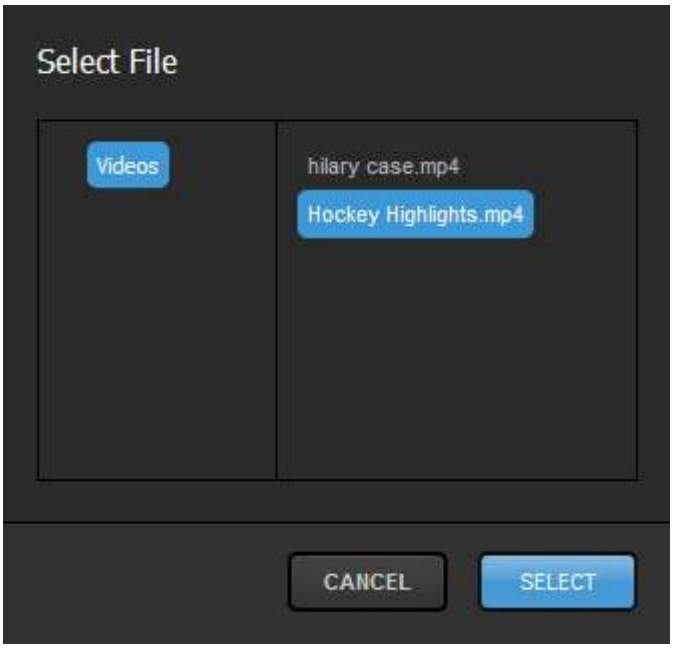
Import Videos from Dropbox

Navigate to one of your Media bins. Click the + button in the lower left corner of the module.

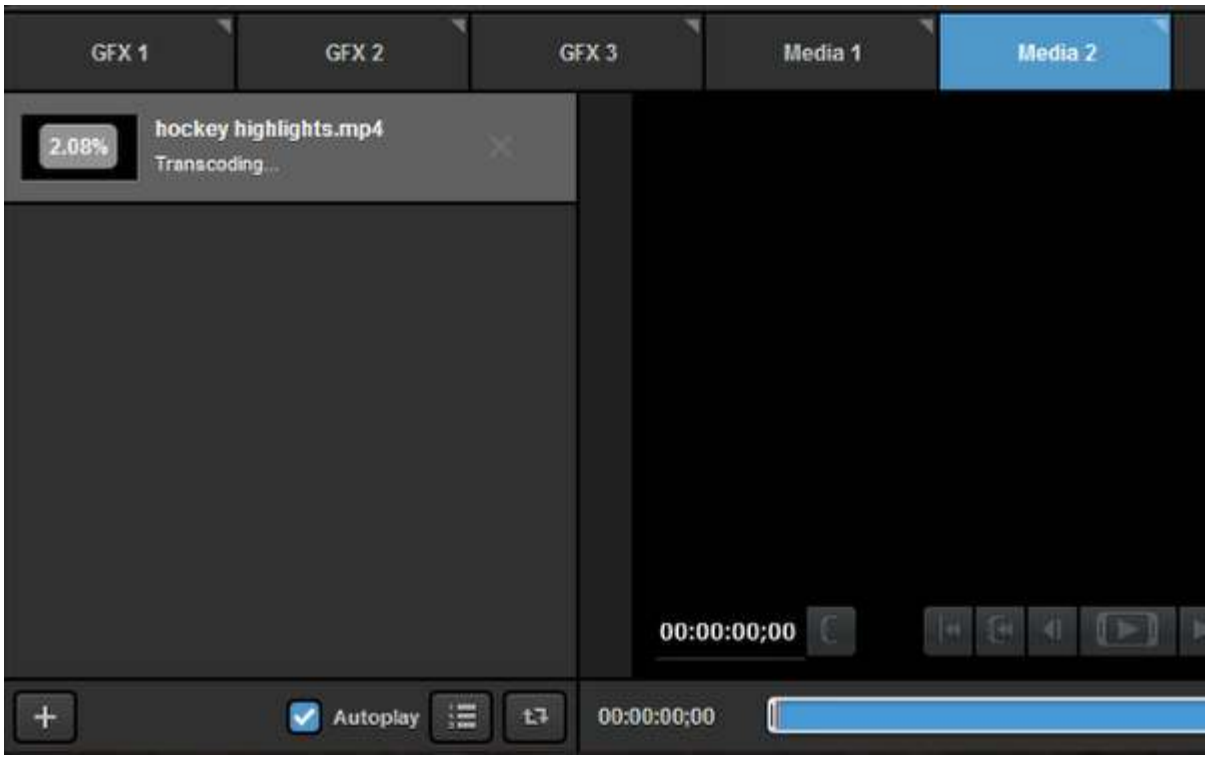


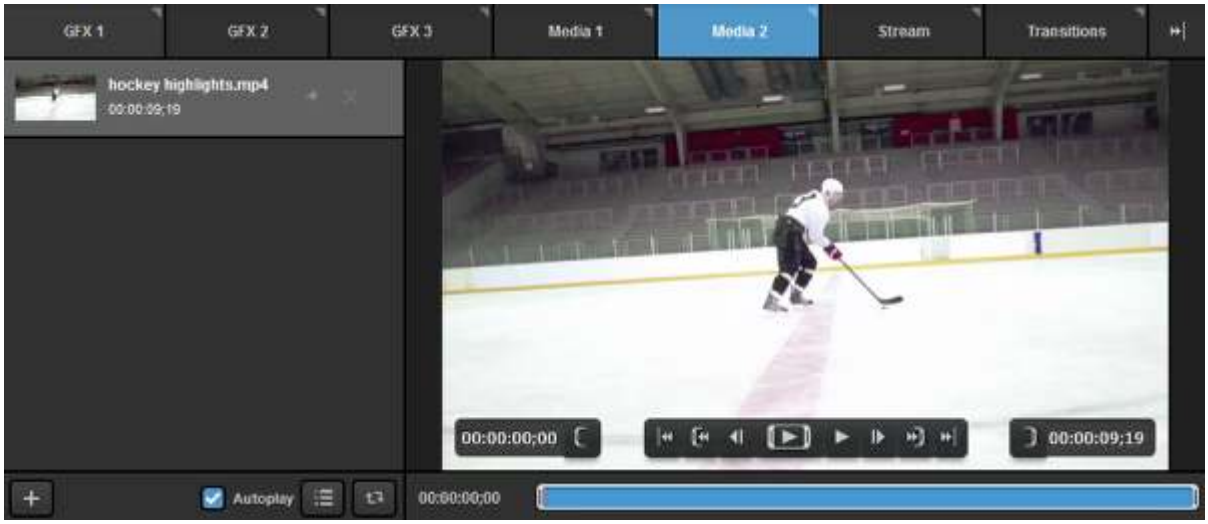
Your Dropbox folder will open. Click on the video you wish to import, then click Select.





The video will start transcoding in the media bin. When it is finished, you will be able to play it back as normal.

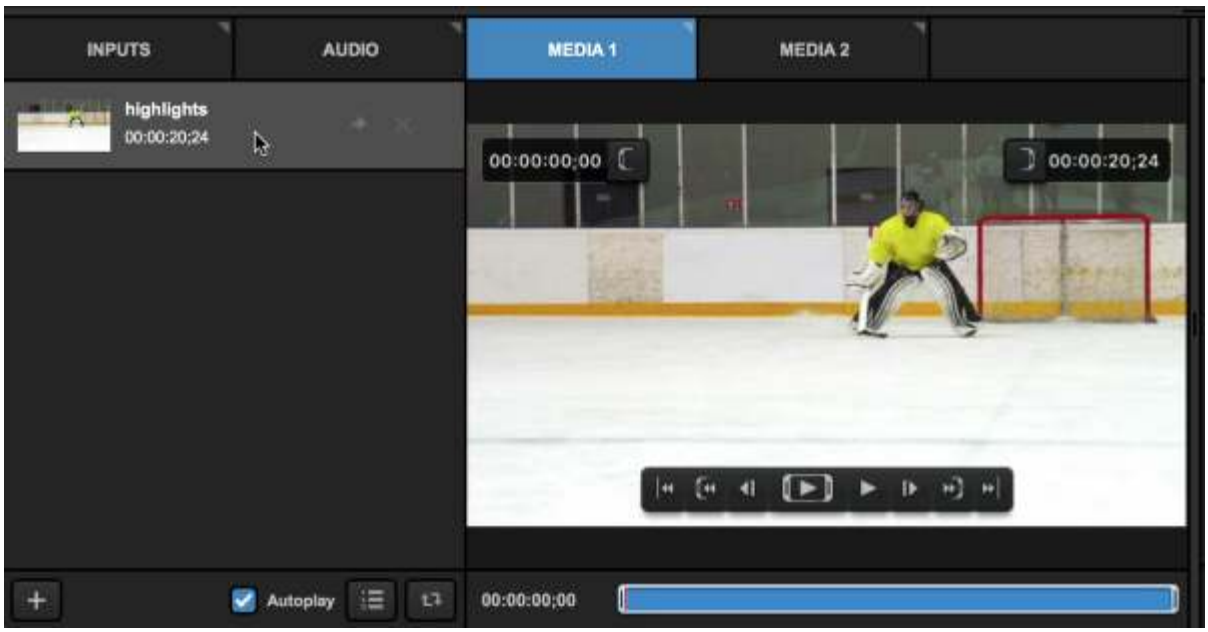



GFX 1
GFX 2
GFX 3
Media 1
Media 2
Stream
Transitions
hockey highlights.mp4
00:00:09;19
00:00:00;00
00:00:09;19
Autoplay
00:00:00;00

Controls & Options in Livestream Studio Media Bin

Each Media Bin comes with a variety of controls and options for playing back your clips.

Select the desired clip you want to play to highlight it. It will appear in the player to the right.

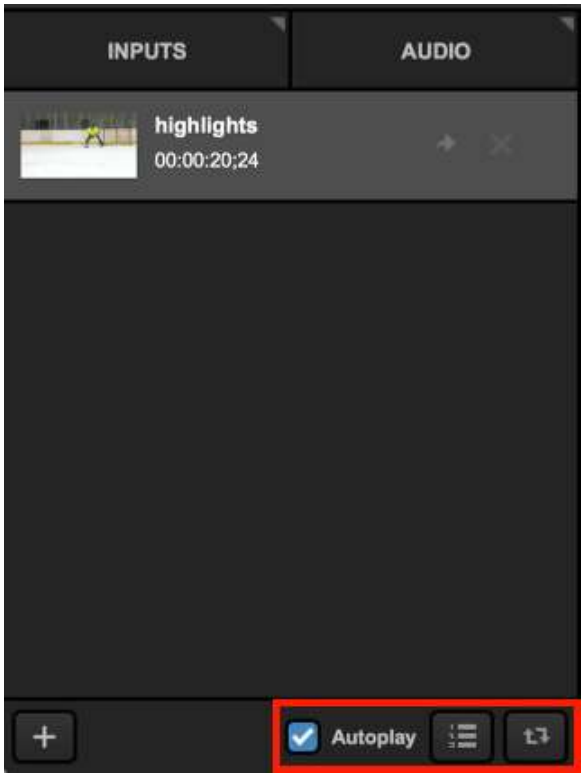


The bottom left of the module includes general playback options. If you want to your video to start playing as soon as you transition it into Program, make sure Autoplay is checked. Otherwise, your video will start on a freeze frame.

To the right of Autoplay is Playlist, which will play all video files in your bin chronologically with no break or black frames in between. When the last clip plays, Studio will automatically transition from the Media Bin to the source in Preview.

Next is the Loop Playback button, which will play the selected video on repeat rather than play the next clip or transition to the Preview source.

Selecting both Play as List and Loop Playback will play all of your clips in order, then restart from the top when the last clip ends.

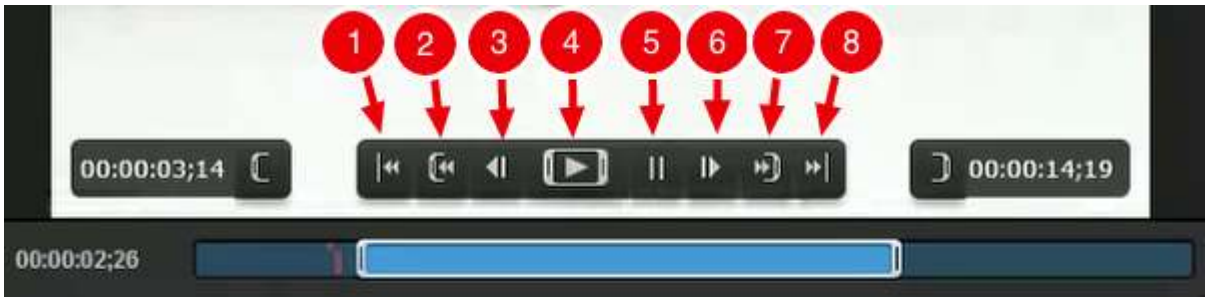


At the bottom of the player are player controls and a blue time bar. Use your mouse to drag the red scrubber to any point within the clip.

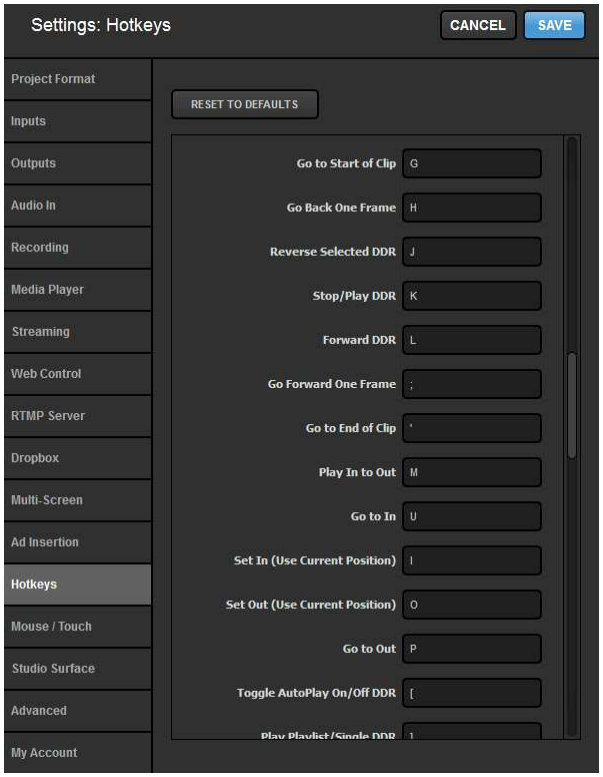
With your mouse, you can drag and drop both ends and set In and Out points if you want to playback only a portion of your clip. You can also set In and Out points by dragging the scrubber to the desired point and pressing the corresponding In or Out bracket button above the timeline.

The main playback controls primarily control where the scrubber moves to. They are:

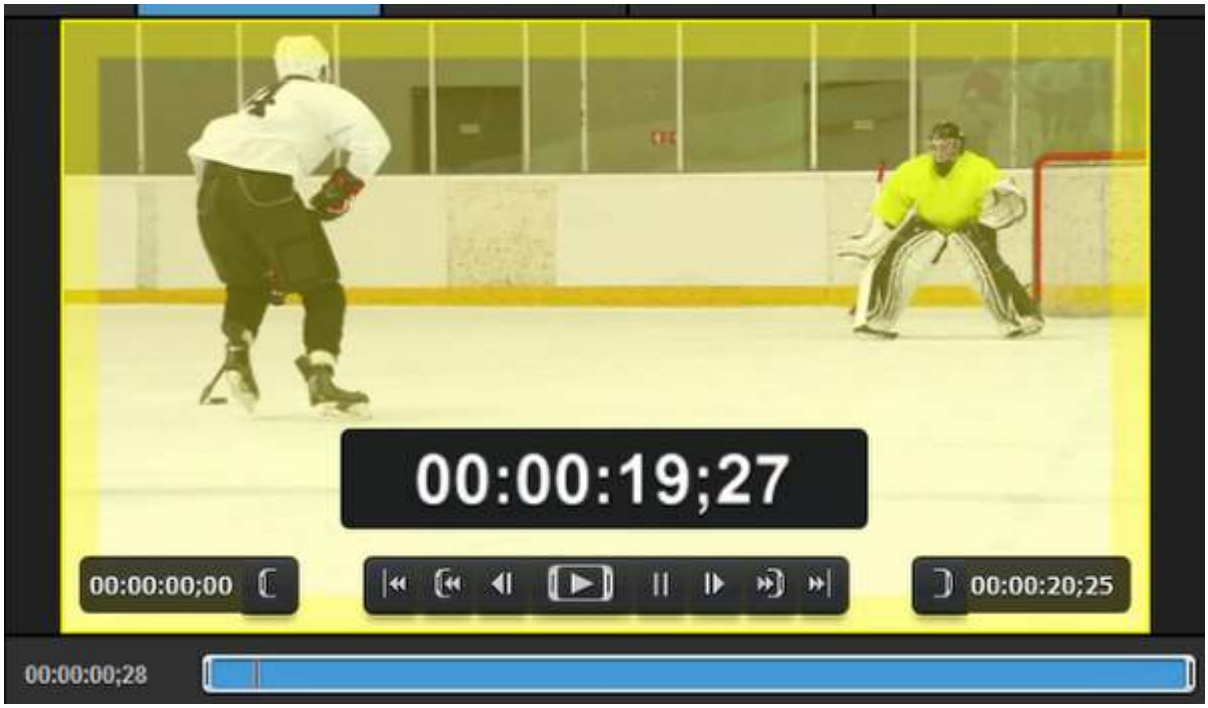
1. Jump to beginning of the entire clip
2. Jump in In point
3. Frame back
4. Play from In point to Out point
5. Play from scrubber's current location to the end of the clip
6. Frame forward
7. Jump to Out point
8. Jump to end of the entire clip

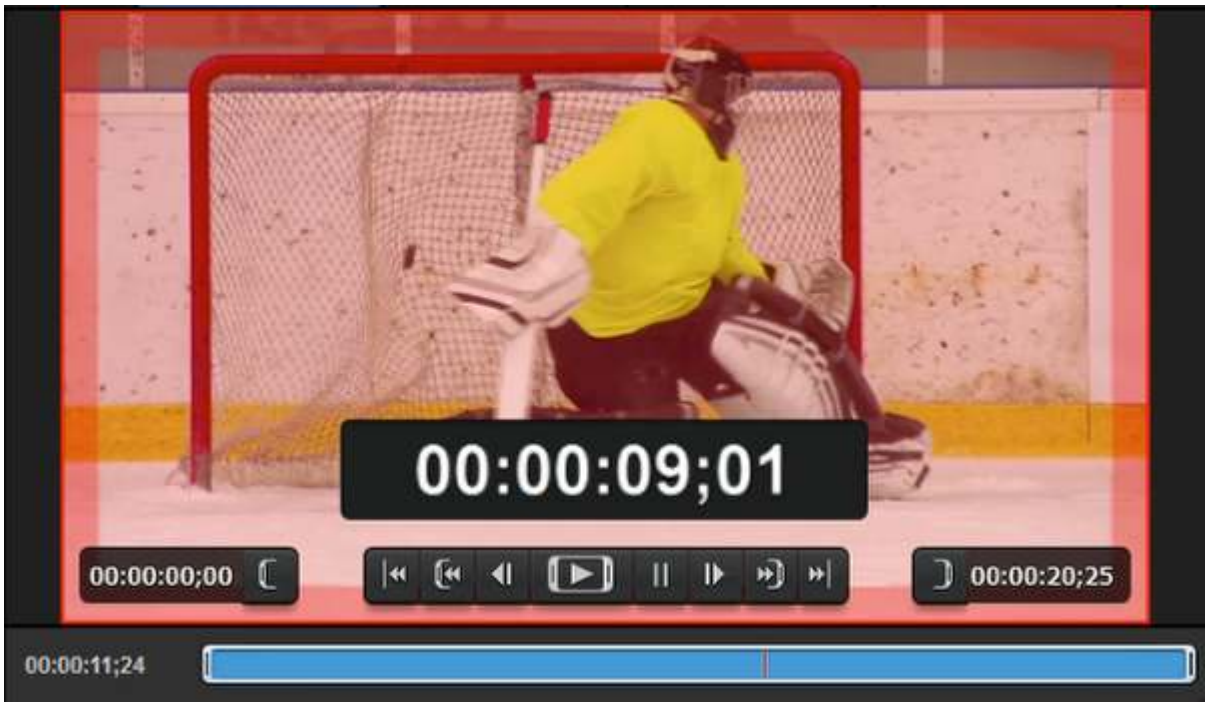


There are default hotkeys set for various media playback options, which you can find and custom configure by navigating to Settings: Hotkeys.



When Loop Playback is turned off, Studio will countdown your video from 20 seconds (yellow) and then 10 seconds (red), allowing you to prepare your next source in Preview. When the clip reaches zero, Studio will seamlessly transition from the Media Bin to the source in Preview.

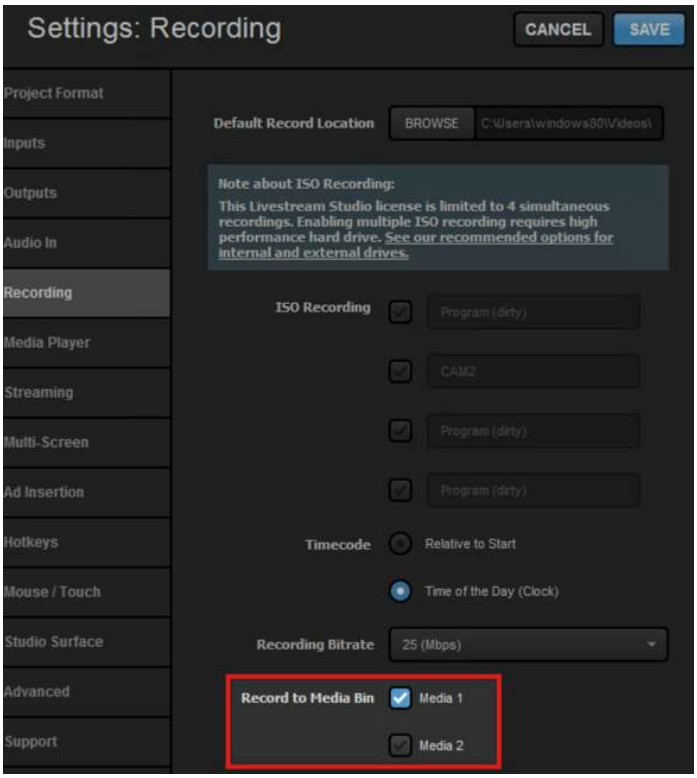

00:00:19;27
00:00:00;00
00:00:20;25
00:00:00;28


00:00:09;01
00:00:00;00
00:00:20;25
00:00:11;24

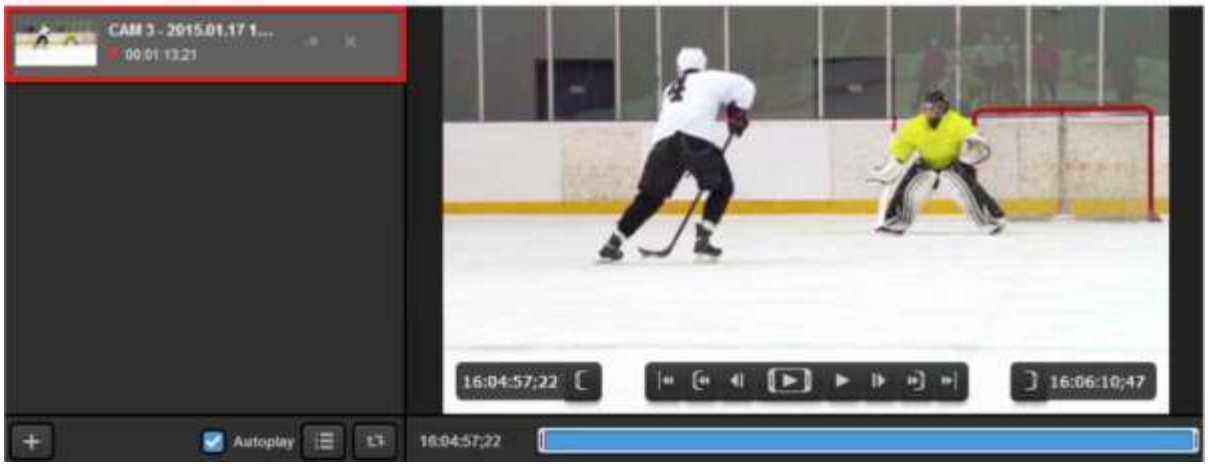
Basic Video Replay While Recording

Livestream Studio allows you to play back media while you are recording it for easy, basic replay options during a live event.

To start, make sure that one of your Media Bins is selected in the Recording section of the Livestream Studio settings.



Your media will automatically populate within the selected Bin once the recording has started.

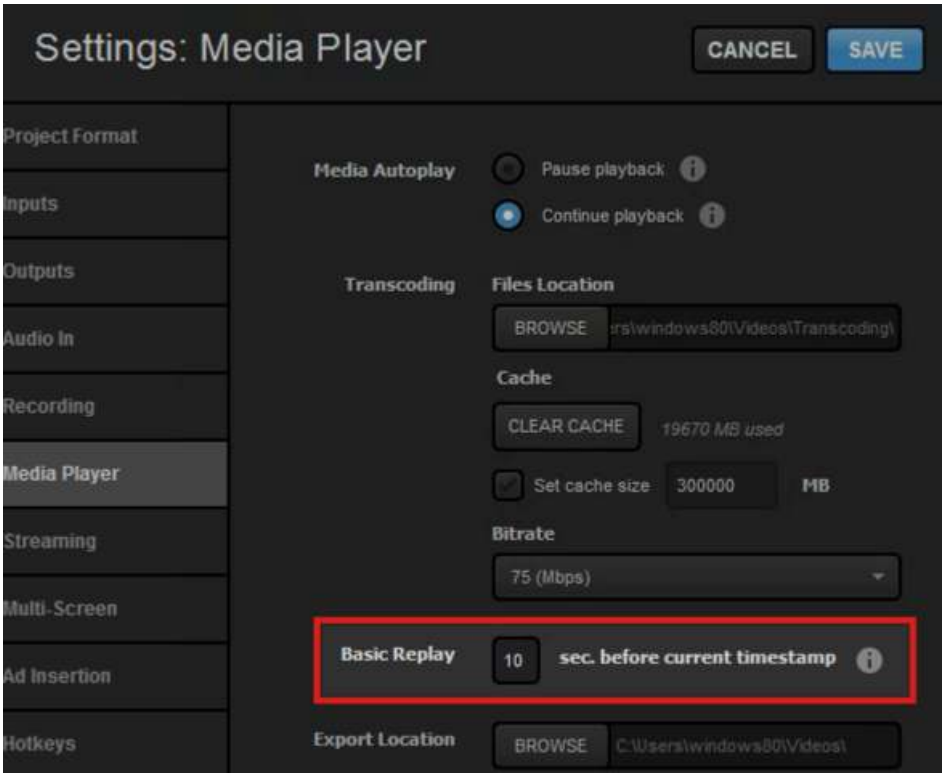


The red dot to the left of the clip duration indicates that this clip is currently being recorded.

When recording, the clip in your Media Bin will behave much like any other media. You can set an IN and an OUT point for playback and scrub along the timeline as well. The main difference is that the timeline is growing as long as the recording process is active which does not occur when using pre-recorded media.

By default, pressing R on your keyboard will set IN and OUT points on your clip for the most recent 10 seconds. Transitioning that media bin into Program will automatically playback that section of your recording. You can adjust this setting under the Media Player tab in settings.

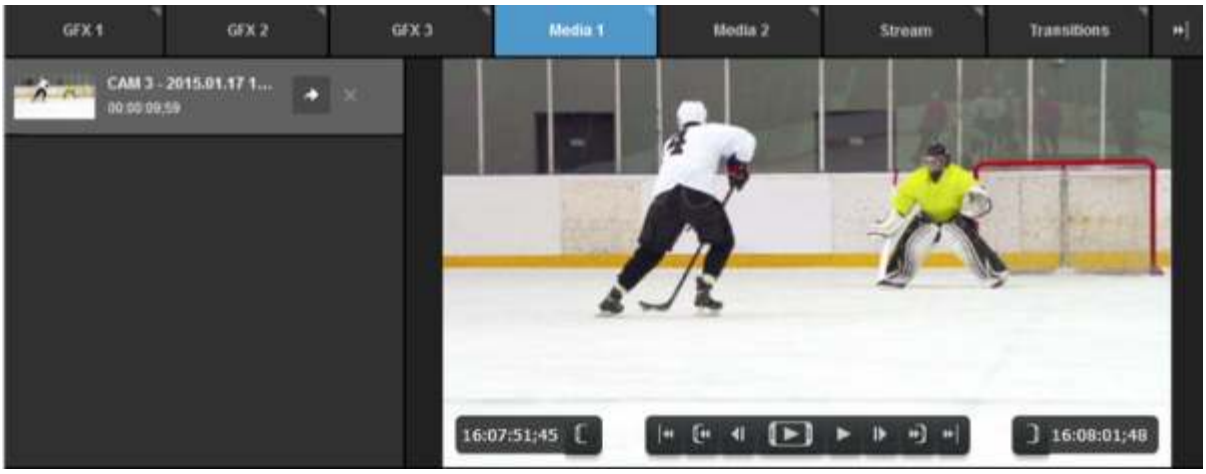
Make sure Continue playback (in Settings: Media Player) is turned on and Loop playback and Play as list (buttons in the Media Bin) are turned off. This will cause your clip to playback and then switch back to the source in Preview automatically. The Media Bin will display a countdown until the clip ends, and then switch with Preview with no black frames or freeze frames.


Settings: Media Player
CANCEL
SAVE
Project Format
Inputs
Outputs
Audio In
Recording
Media Player
Streaming
Multi-Screen
Ad Insertion
Hotkeys
Media Autoplay
Pause playback
Continue playback
Transcoding
Files Location
BROWSE
rs\windows80\Videos\Transcoding\
Cache
CLEAR CACHE
19670 MB used
Set cache size
300000
MB
Bitrate
75 (Mbps)
Basic Replay
10
sec. before current timestamp
Export Location
BROWSE
C:\Users\windows80\Videos\

Exporting Clips from Livestream Studio

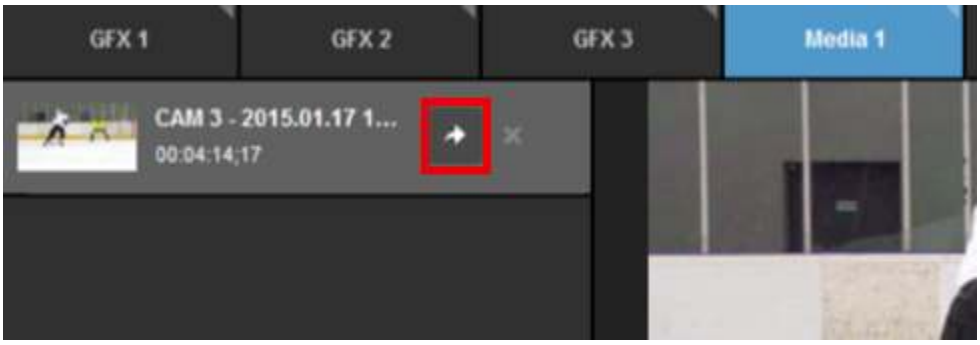
The media bins have an export tool that allows you to save your recordings or clips of recordings in them as .mp4 files on your hard drive.

First, select a video you want to export.



Set In and Out points for your clip. If you want to export the full video, make sure the brackets enclose the entire timeline.

When you are ready to export your clip, click on the arrow icon next to the video's name.



The double arrow button at the top of the interface turn blue and show a small progression bar as your clip is exporting.

Click on the button to view your transcoding queue. This will tell you how much time is left in your clip and the status of any other transcoded or exported video.

Remote Cameras

Activating Bonjour Service for Remote Camera Sources

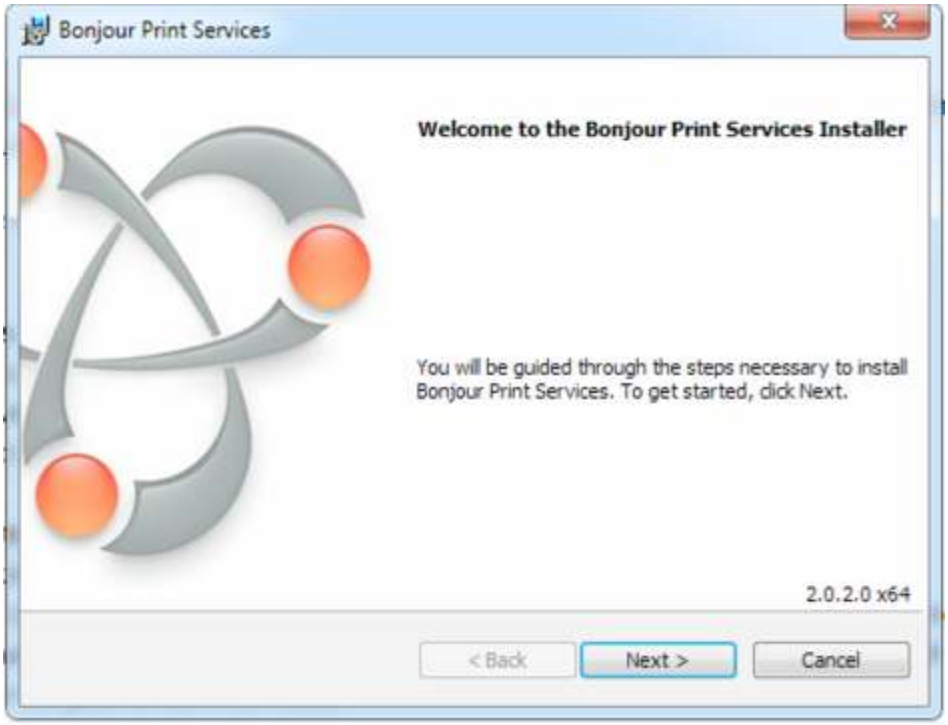
In order to use remote cameras in Livestream Studio, you must make sure you have Bonjour service installed and activated on your Windows computer. Remote cameras will not work without Bonjour running.

Bonjour is pre-installed on Studio hardware units (e.g. HD31, HD51, HD550, etc.) and is always running on Mac systems. Customers who only purchased the software should have gotten a prompt to install it.

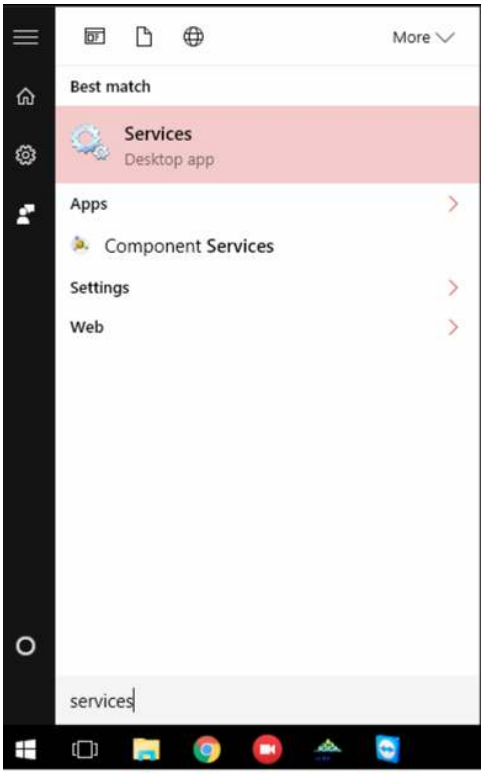
To install Bonjour manually, click here and click **Download**.

Once the software has finished downloading, open the installation wizard.

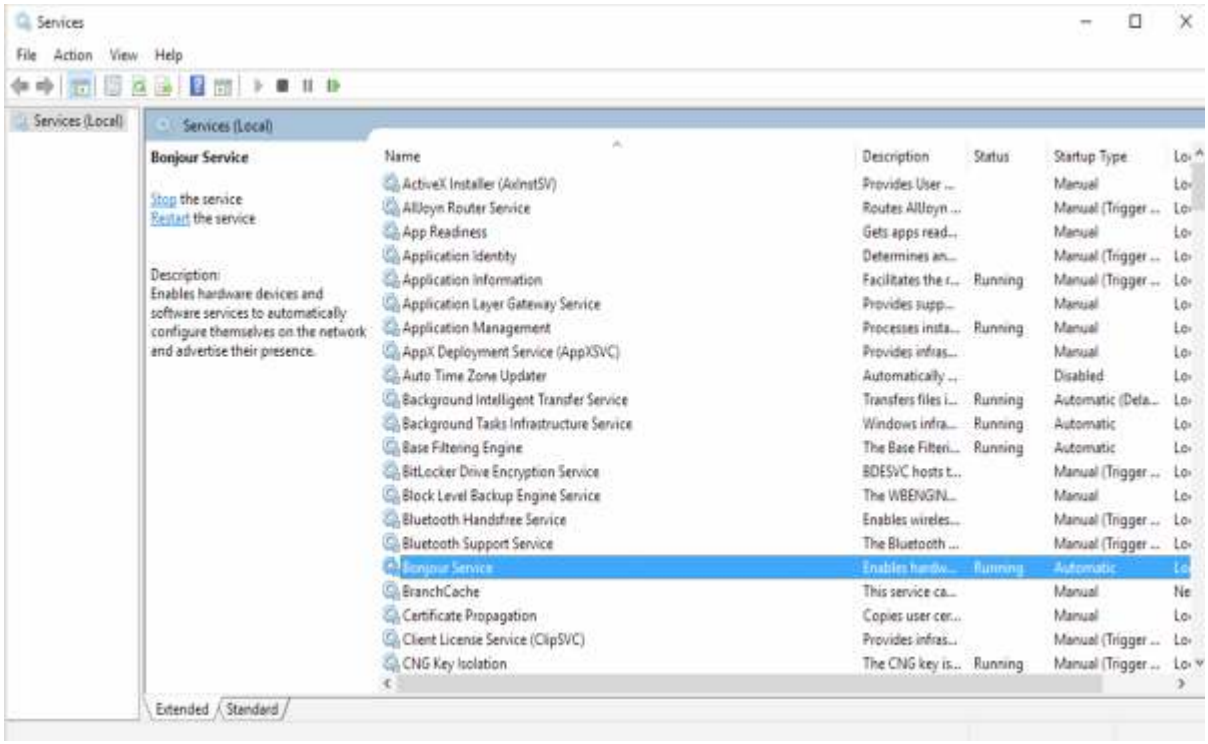
Follow the on-screen prompts to complete the installation.



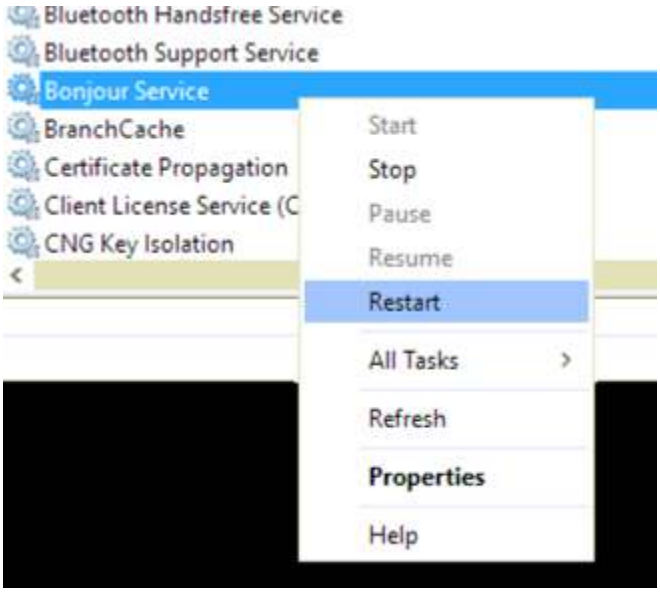
To ensure Bonjour is running, first make sure Studio is closed. Then open the start menu and type Services. Click the Services icon that appears at the top of the menu.



Look for Bonjour Service in the menu and select it.



Right-click it and click Restart.



Close out the menu and relaunch Studio. Remote cameras on your network should now be detected by Studio.

Overview of Studio Remote Camera Options

Livestream Studio includes a variety of ways to bring in a source over your local network or by other remote means. Below is an overview of what remote sources Studio supports.

Remote Desktop Client (Windows & macOS)

With the Livestream Remote Desktop Client for Windows and Mac, you can bring another computer's desktop screen or camera source(s) and audio into Studio over your local network. Install and run the small application onto the system you want to use as a source and make sure that it's connected to the same network as the computer running Studio. Then you can add it as a remote input.

NewTek NDI Inputs

Studio can accept any input outputting a signal via NewTek's NDI protocol, such as PTZ cameras, Adobe Premiere Pro, and much more. Provided both products are on the same network, Studio can communicate with the NDI source and bring it in as an input at very low latency.

Mevo Cameras

Through our partnership with Mevo Inc., any Mevo camera can be a remote camera input in Studio over your local network. Connect Mevo to your network and it will be available as a remote camera option in Studio (provided it is not already streaming or recording on its own). You can then control a handful of Mevo's options and settings directly in Studio.

Livestream Mobile App (iOS & Android)

If you want to bring in your mobile device's camera, you can do so via the Livestream mobile app for iOS and Android. This will require you to log into a Livestream account; if you don't have one you can join via the app for free. Also, be sure your mobile device is connected over Wi-Fi to the same network to which your Studio system is connected.

Livestream Broadcaster Devices

If you own any Livestream Broadcaster product, you can set it to Studio mode and use it to bring in any HDMI source over your local network.

In addition to local network remote cameras, there are a few other ways to bring in sources outside of your network.

Remote Guests

Send a URL to anyone regardless of their location to bring in their webcam and microphone via their desktop browser.

RTMP Input

Send a stream from another encoder to Studio directly via an RTMP URL and Stream key provided by Studio. This is a good alternative to bringing a mobile device into Studio via apps such as StreamLabs.

Stream Playback

Playback streams from Livestream or other providers (latency varies).

Using the Remote Desktop Client for Windows

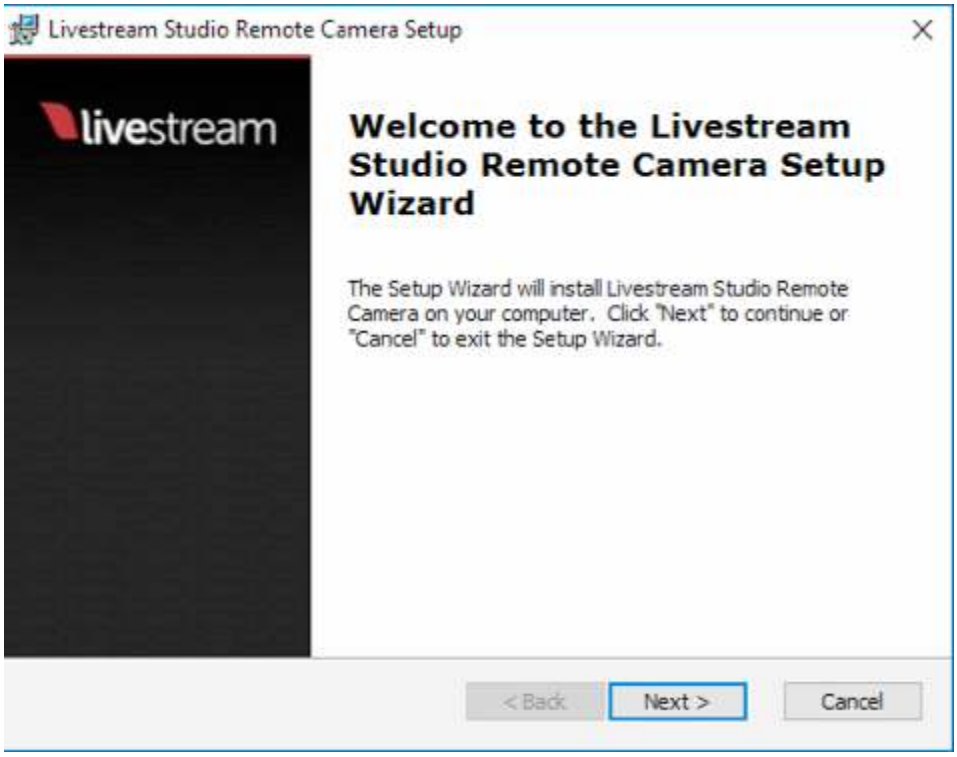
In Livestream Studio, you have the option of using a Windows desktop system as a remote camera source by connecting it to Studio over your local network connection. This is great for adding a slideshow presentation into your production.

Installing & Configuring the Remote Client

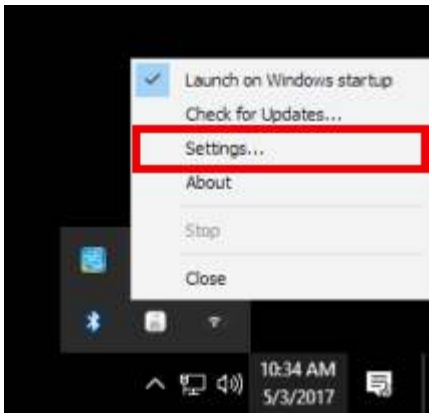
First, be sure to connect your remote Windows computer to the same network access point to which the computer running Livestream Studio is connected.

Download the Remote Desktop Client onto your Windows computer here.

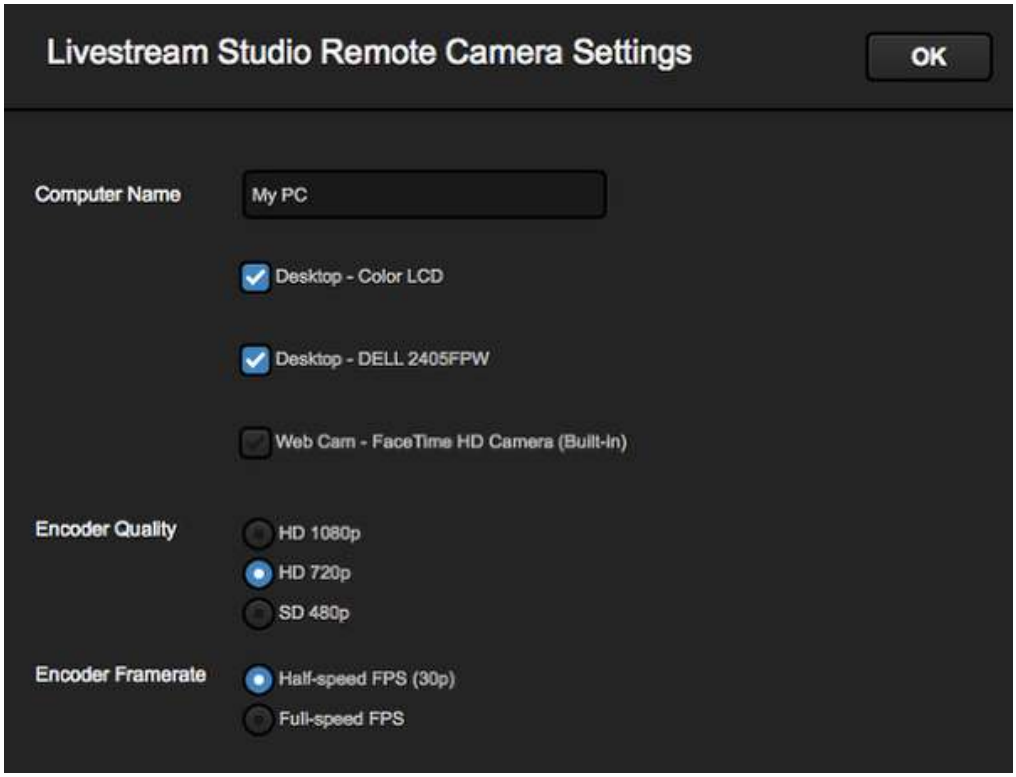
Open the downloaded file and follow the on-screen steps to run the installation wizard, then click **Finish**.



Remote Camera will launch in the background of your PC. Right-click on the icon in the bottom toolbar and select Settings.



Here you can adjust your remote camera's name as well as set which video and audio signals are visible from that PC. In this example, only the Desktop screen is visible, but other video sources that are later added to this computer can also be detected (e.g. webcams).



Computer Name: The name that will appear in the remote camera module for your remote camera source.

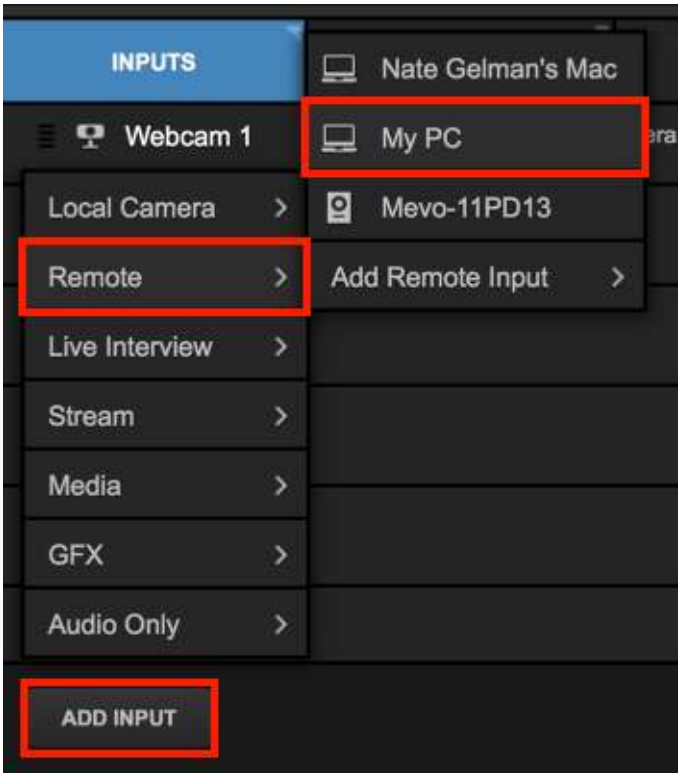
Checked sources will be available to use from this system as a remote camera source. This includes any connected cameras and screens. Uncheck any sources you do not want to Studio to access.

Encoder Quality: The resolution you want the video to stream over your network to Livestream Studio. Slower CPU's should use a lower resolution.

Encoder Framerate: The frame rate you want the video to stream over your network to Livestream Studio. Slower CPU's should use 'half-speed FPS (30p).'

Add the Remote Desktop to Studio

Back in Livestream Studio, go to the Inputs tab. You can add your remote PC to Studio by selecting Add Input > Remote, then select the name of your PC.



The Remote source will be added to your list of inputs. You can rename it if you wish or change it to a different remote source from the drop-down menu that appears. You will also see a status (e.g. "Perfect streaming") indicating its connection strength.

To configure settings for the remote input in Studio, select the gearwheel to the right of the input.

Under the General tab, you'll see additional options:

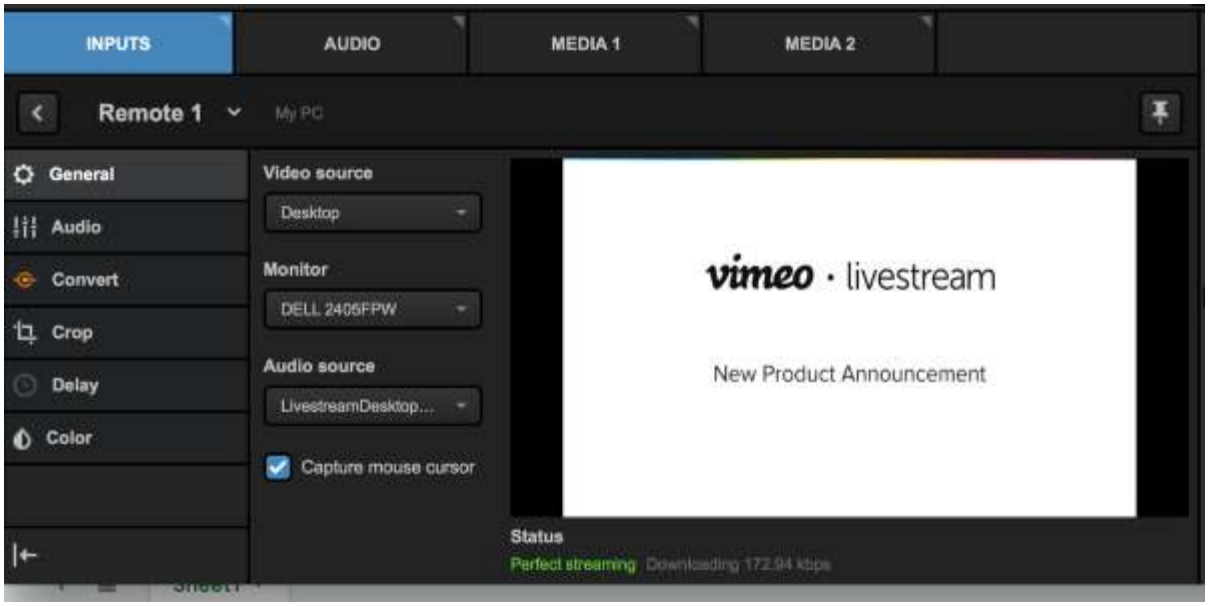
Video Source: The remote client has the ability to use either the system's desktop, an attached webcam, or an installed Blackmagic capture device as a video source. Use the drop-down menu to select which one you want to use.

Monitor: If you select 'Desktop' as the video source and the remote system has multiple displays, you can configure which display you would like to use as a source by selecting it from the drop-down menu.

Capture Device: If you select a Blackmagic Capture Device as your video source and have more than one installed on your system, choose which one you want to use.

Audio Source: You also have the option of selecting from any of your available audio devices. The default is the standard system audio output.

Capture Mouse Cursor: Unselect this option if you would not like to see the mouse cursor on the remote system.



Learn more about configuring additional input settings.

Troubleshooting

If you are not seeing any options on the list within the Remote Cam tabs, please check the following:

- Make sure the remote system is on the same network, connected to the same Router or Access Point as your Studio system.
  - If the system is on the same network but using a different access point, the Remote Camera will not properly connect.
- Check that the following ports are open if you use a firewall:
  - UDP: 5353, 60936 - 61036
    TCP: 60936 - 61036
- Check that Bonjour Service has started.

Using the Remote Desktop Client for macOS

In Livestream Studio, you have the option of using a macOS desktop system as a remote camera source by connecting it to Studio over your local network connection. This is great for adding a slideshow presentation into your production.

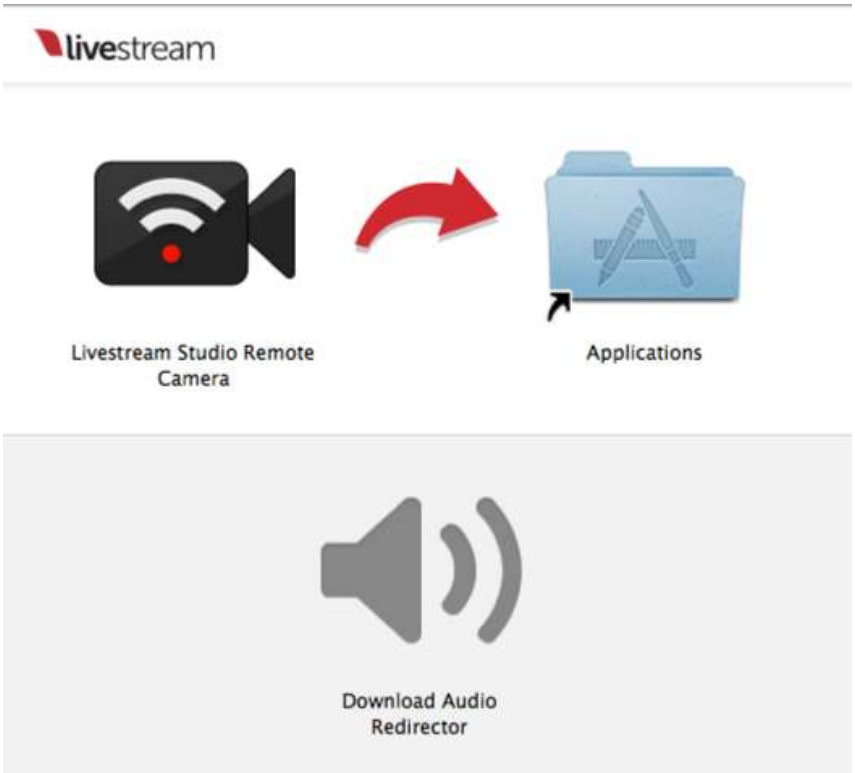
Installing the Remote Client

First, be sure to connect your remote macOS computer to the same network access point to which the computer running Livestream Studio is connected. You will then need to install the Studio Remote Desktop client.

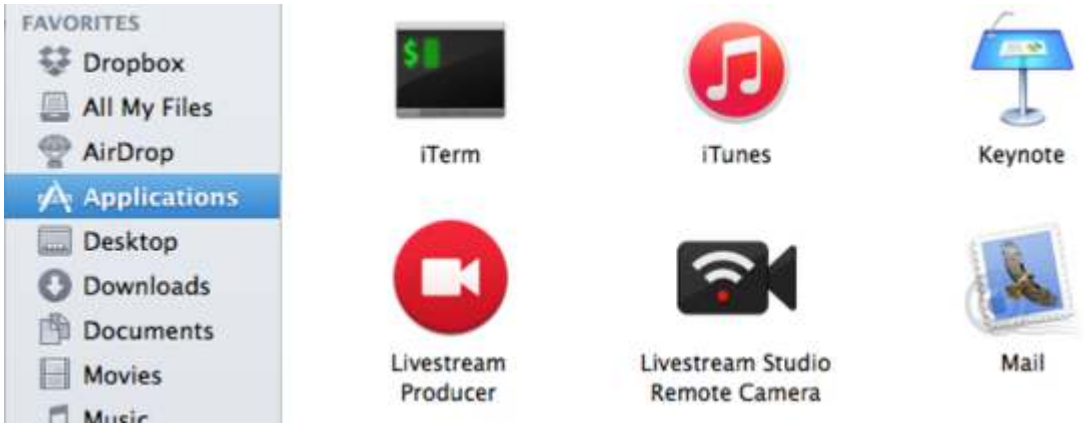
Download the small program here.

Double-click the Livestream Studio Remote Camera.dmg file in your Finder to start the installer.

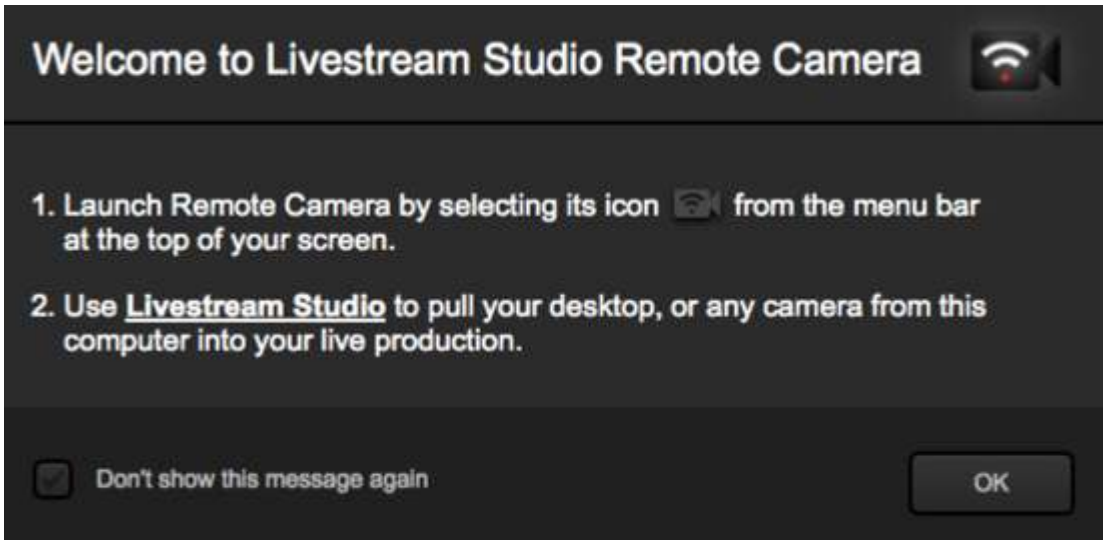
Drag the Livestream Studio Remote Camera into the Applications folder.



Go to the applications folder and double click on Livestream Studio Remote Camera to open the application.

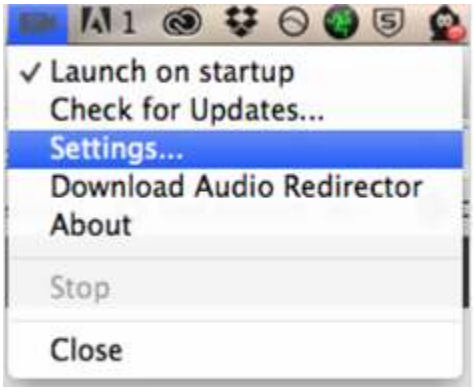


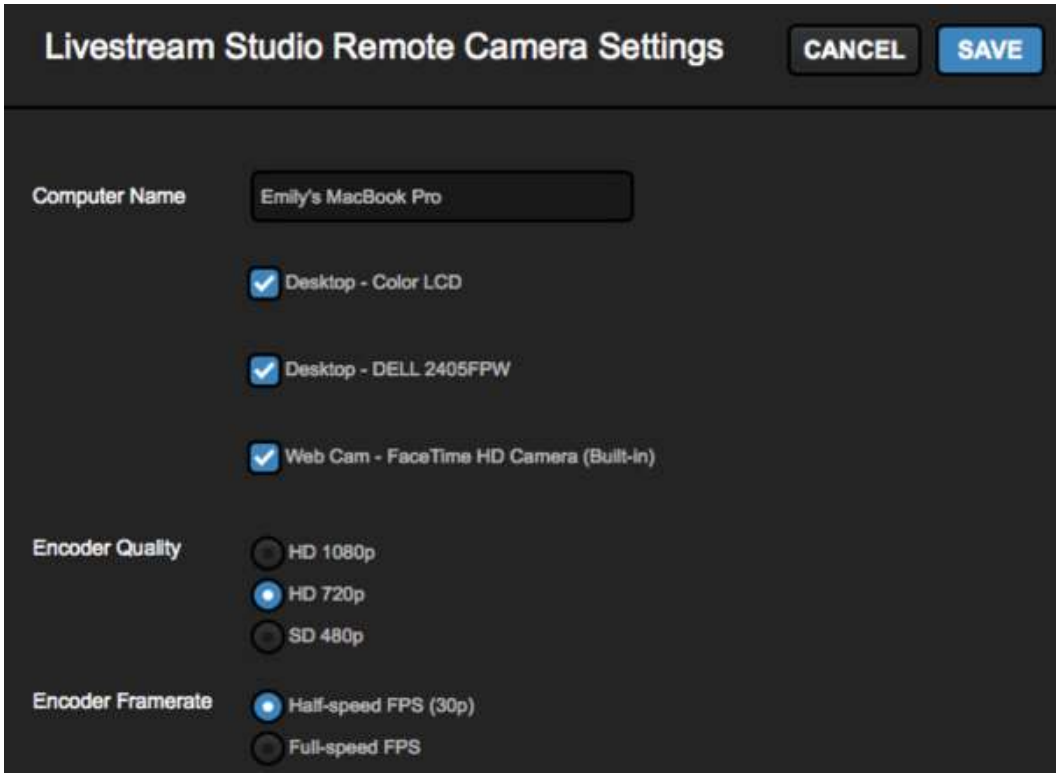
You will see this window pop up indicating that the remote camera icon will appear in your menu bar at the top of your screen. You can choose to prevent the message from appearing again.



Make sure the remote system is on the same network as your Livestream Studio system. It will run in the background until you close it. You can close it by clicking on the icon in the menu bar and clicking Close.

When the Remote Client is running, you can click the icon and click Settings to make further adjustments to your remote camera source.





Computer Name: The name that will appear in the remote camera module for your remote camera source.

Checked sources will be available to use from this system as a remote camera source. This will include any connected cameras and screens. Uncheck any sources you do not want to use.

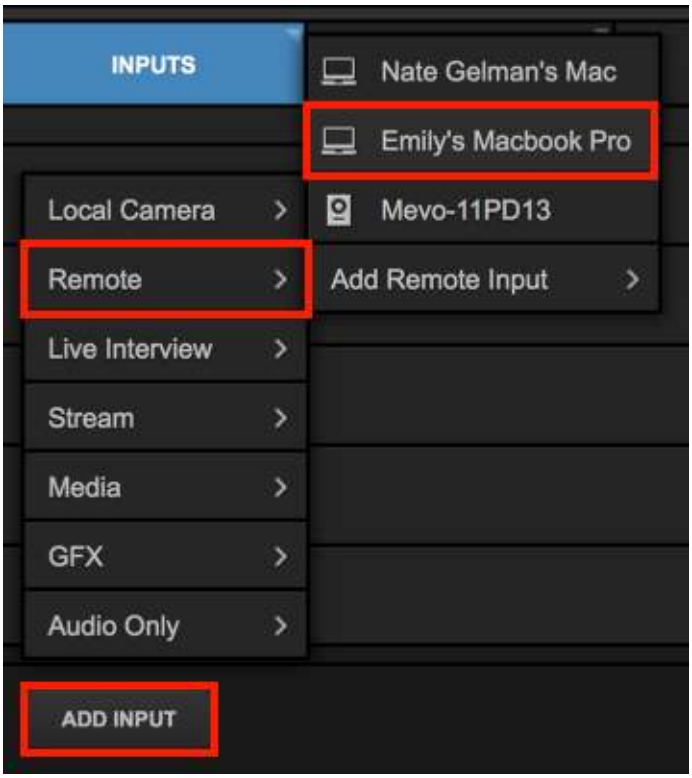
Encoder Quality: The resolution you want the video to stream over your network to Livestream Studio. Slower CPU's should use a lower resolution.

Encoder Framerate: The frame rate you want the video to stream over your network to Livestream Studio. Slower CPU's should use 'half-speed FPS (30p).'

Adding and Configuring a Remote Source in Livestream Studio:

Once the client is installed on the remote system and is running, you can use it as a source in Livestream Studio.

In Studio, navigate to the Inputs tab then select Add Input > Remote. If Studio can find the remote system over your local network connection, you should see it come up as an option.



Select your Mac computer to activate it in Studio. It will appear in the bottom of the Inputs list.

You can hover your cursor over the name (e.g. "Remote 1") and click the pencil icon that appears to rename it. If you need a different remote source, click the drop-down menu to select one. Next to this will be an indicator informing you of the connection status (e.g. "Perfect Streaming").

Click the gear wheel next to the far right of the remote camera source in the list to access further settings.

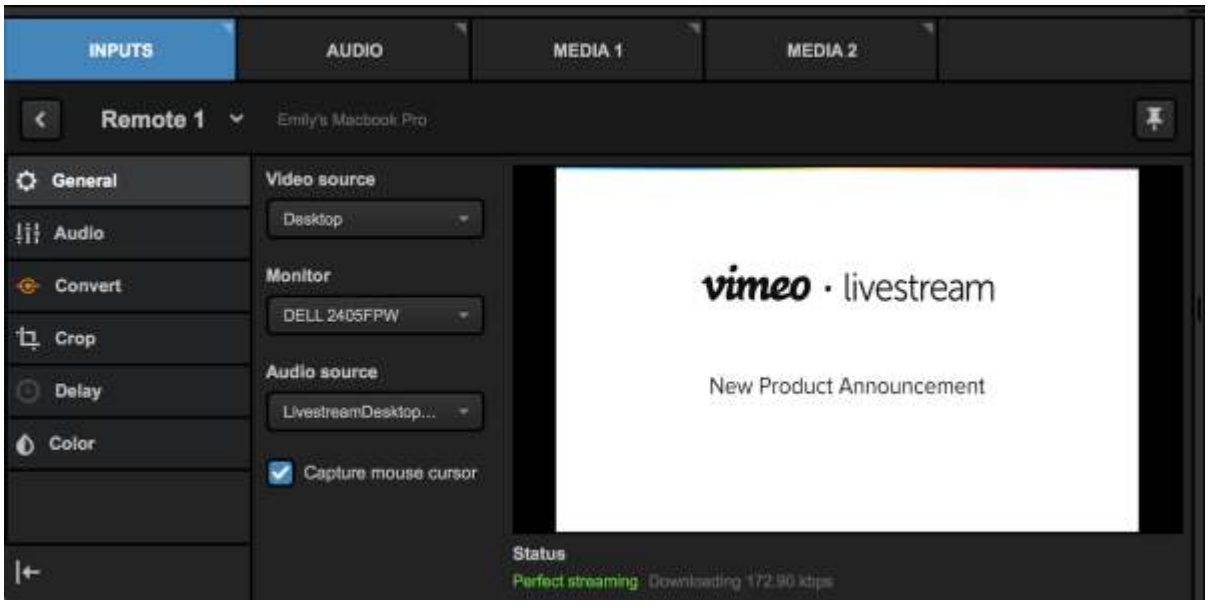
Video Source: The remote client has the ability to use either the system's desktop, an attached webcam, or an installed Blackmagic capture device as a video source. Use the drop-down menu to select which one you want to use.

Monitor: If you select 'Desktop' as the video source and the remote system has multiple displays, you can configure which display you would like to use as a source by selecting it from the drop-down menu.

Capture Device: If you select a webcam or other connected camera as your video source and have more than one installed on your system, choose which one you want to use.

Audio Source: You also have the option of selecting from any of your available audio devices. The default is the standard system audio output.

Capture Mouse Cursor: Unselect this option if you would not like to see the mouse cursor on the remote system.



Learn about additional input settings.

Troubleshooting

If you are not seeing any options on the list within the Remote Cam tabs, please check the following:

- Make sure the remote system is on the same network, connected to the same Router or Access Point as your Studio system.
- If the system is on the same network but using a different access point, the Remote Camera will not properly connect.
- Check that the following ports are open if you use a Firewall:
  - UDP: 5353, 60936 - 61036
  - TCP: 60936 - 61036
- Check that Bonjour Service service is enabled on the Studio system.

Adding Remote Guests

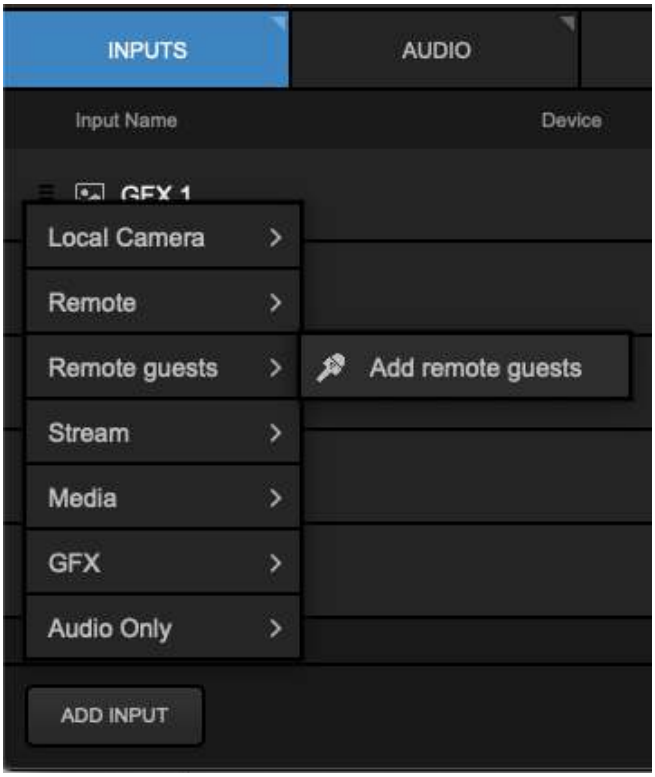
You can add a live webcam or desktop source from another location into your Studio production. This is called Remote Guests (formerly known as Live Interview) and is a helpful solution when trying to produce a virtual event.

Guest(s) will need an Internet connection, Google Chrome, a webcam, and a microphone connected to their computer.

It is strongly recommended that audio is provided to any local hosts or interviewer directly via the headphone out jack on your Studio unit using headphones, IFB's, etc. Otherwise, there will be a distinct echo in your stream during the interaction.

Invite Remote Guests

Navigate to the **Inputs** tab. Select **Add Input** > **Remote Guests** > **Add remote guests**. (You can also go to Settings: Project Format and select **Remote guests tab** under User Interface.)



A Guests tab will open. Within this panel are two tabs, Invite and Chat.

When Invite is selected, you will see a Guest link, which you can copy to your clipboard and send to your guest(s) (via email, a messaging app, etc.)

Vimeo Enterprise users can add up to 10 guests; all other users can add up to 5.

This guest link will remain constant with your Studio project unless you click Reset guest link. Note that different projects will have different URLs.

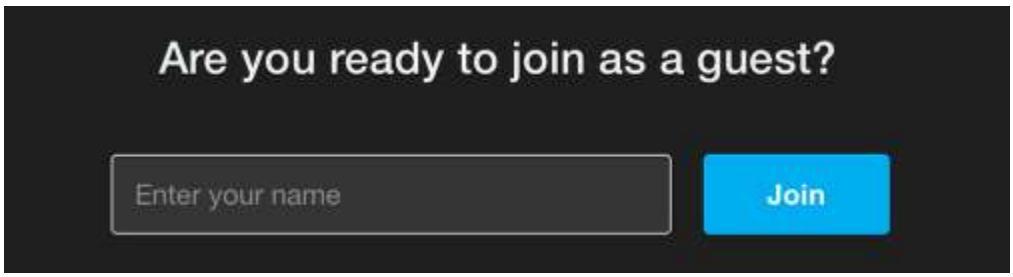
How Guests Join Studio

When the guest receives the link, they should open it in Google Chrome on a computer.

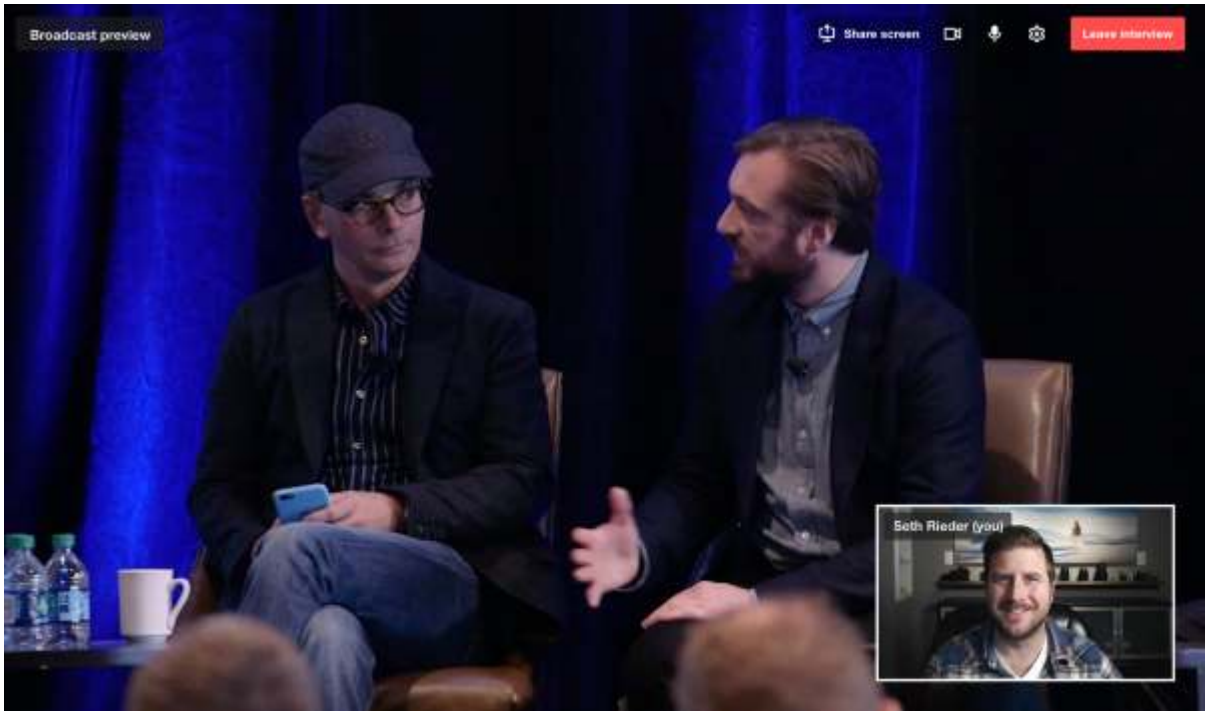
> Remote Guest only works with desktop Chrome; there is currently no support for this feature on other browsers or mobile devices.

Opening the link will bring the guest to the guest lobby. If this is the guest's first time opening this page, Google Chrome will request permission to access their camera and microphone. Mac users may also see a prompt to allow Chrome to access their camera and microphone; all of these permissions should be allowed.

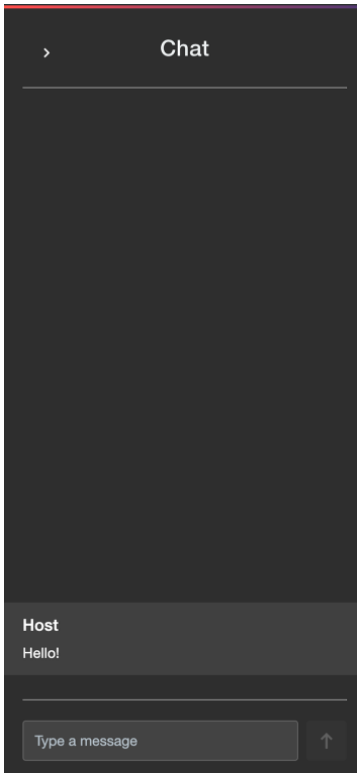
Once all devices are allowed, the guest can enter their name and click Join to connect to the Studio session.



When a guest has joined, they will see their camera feed in the bottom right corner overlaying the Program output, a Broadcast Preview notification, and hear Program audio.

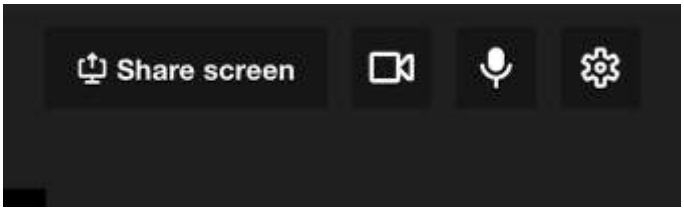


They also have access to the internal chat with you (the Host) and all connected guests. Guests can access the chat by clicking the expand arrow in the upper right corner of their portal.



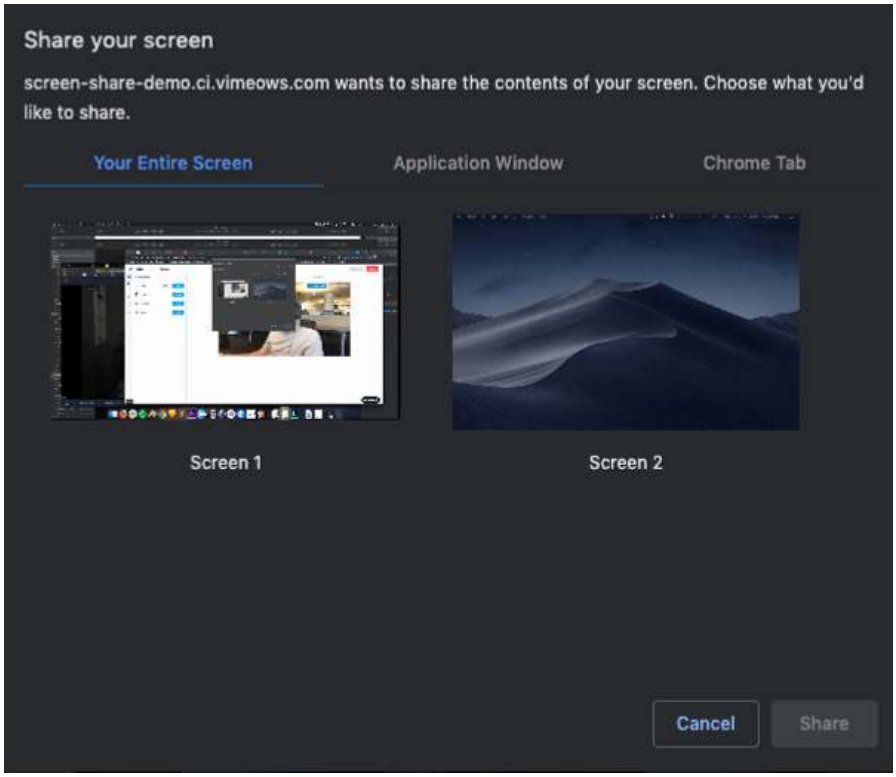
Screen Sharing and Other Guest Controls

Guests can choose to share their screen rather than their webcam by clicking the Share screen button in the upper right corner. This is useful if the guest is giving a presentation or demonstration on their computer.



This will open a Chrome window allowing them to choose between a full desktop screen, an application window (e.g. Microsoft PowerPoint), or a specific tab in Google Chrome.

Once they click Share, their webcam input will be replaced by the selected screen source.



Some other controls your Guests have include:

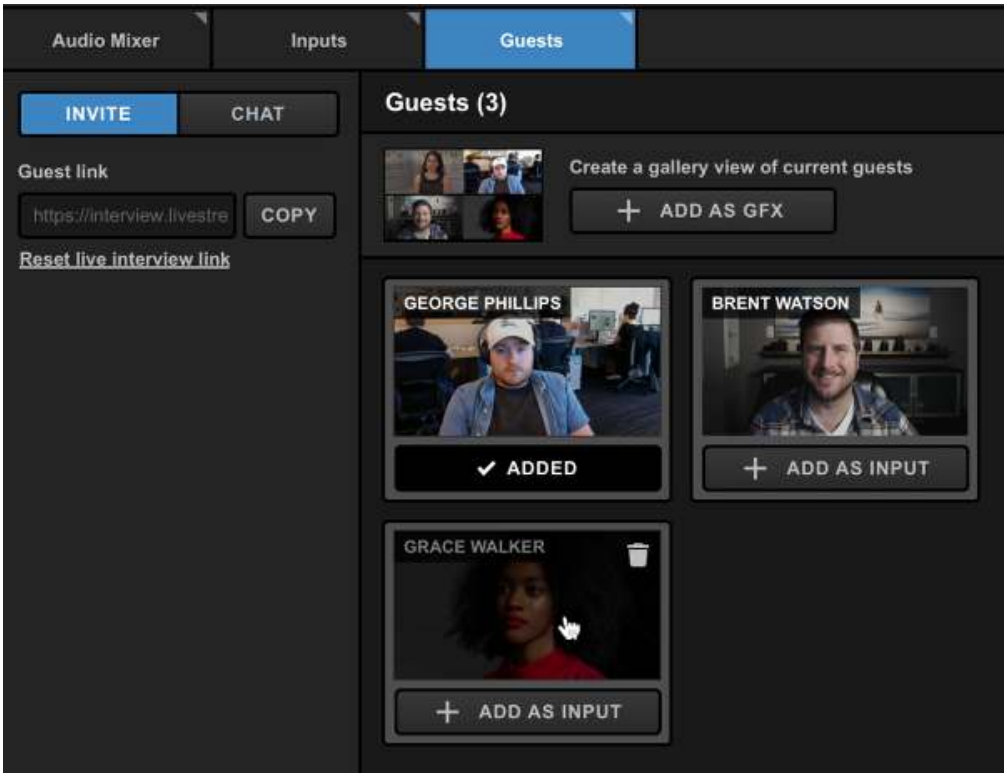
- Stop Video: Will stop sending their video (but will still send audio)
- Mute: Will stop sending audio to Studio (i.e. mutes their own microphone, continues to send video)
- Settings: Allows users to select a different webcam and audio source, if available.
- Leave Interview: They can exit the interview.

Showing Remote Guests in Studio

In Studio, you will see your guest(s) appear under the Guests tab after they have joined the Studio session. You can add any individual guest as an input to your multi-view by clicking the corresponding + Add As Input button. Their audio will also become available in the Audio Mixer. When you have more than one guest available, you can add each of them as individual inputs.

You can also quickly create a gallery-view graphics overlay directly from the Guests tab by clicking the + Add As GFX button. This will by default include all guests plus the first input in Studio (i.e. the first input listed in the Inputs tab) in a single picture-in-picture graphic.

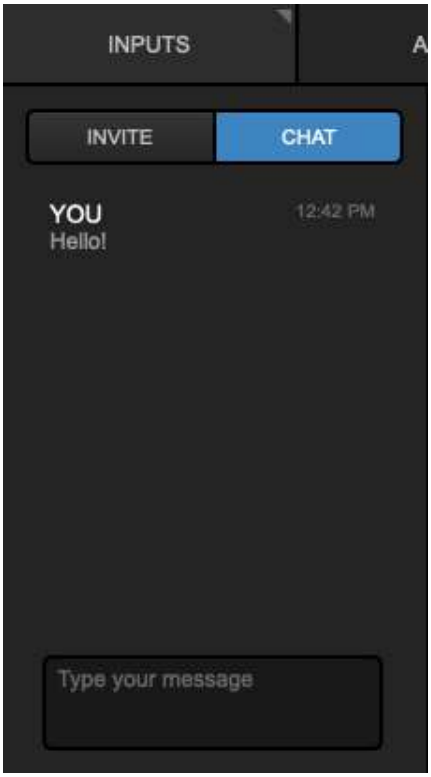
If you wish to use a different source as the host or build a static image around the inputs, you can edit and customize the overlay from the corresponding GFX Designer.



You can then switch in your graphics overlay using the corresponding GFX controls in the upper right corner of the Studio interface. Audio from all available inputs will come into Program alongside it.

When a guest is switched into Program (either individually or part of a group), they will see a red On Air indicator in the upper left corner, letting them know that they are live.

To open the internal chat with your guest(s), select the Chat tab on the left side of the panel.

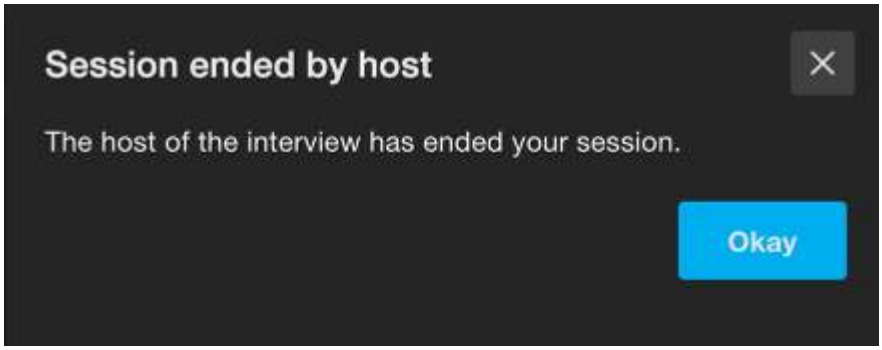


If you want someone else on your team to have control over switching guests in and out of Program, add your guests as inputs, then add your team member as a Web Control user.

Note that the remote inputs synchronization setting does not affect remote guest inputs.

Remove Guests from Studio

You can disconnect a guest from Studio by navigating to the Guests tab, hovering your cursor over their image and clicking the trash can icon. The guest will receive a notification that the host ended their session.



Troubleshooting: Guests' camera and microphone not appearing

If a guest is not seeing their camera or microphone activate in the guest lobby in their browser, there are two common causes for this: browser permissions and network firewalls.

Browser permissions

Browsers will request permission to access your guest's camera and microphone the first time they open the guest lobby page. If they are initially denied permission, they will need to go into their browser's settings and manually enable them.

If the guest is using Google Chrome, here's how to do this:

- Open Chrome.
- At the top-right, click the **More** icon (three vertical dots) > **Settings**.
- At the bottom, click **Advanced**.
- Under 'Privacy and security', click **Site settings**.
- Click **Camera** or **Microphone**.
- Turn **Ask before accessing** on.

They should then be able to permit your camera and microphone each time they click on a guest link.

Network firewalls

If the guest is using a corporate network (office, school, conventions center, etc.), where they or their IT team may need to ensure the proper firewall ports are open to incoming and outgoing communication.

In addition to the standard firewall ports all encoders need open, the guest will need to open the following which allows for WebRTC signaling and discovery:

- TCP 3478
- TCP 19305
- TCP 19307
- TCP 443

A quick test to know if the issue is down to blocked ports would be to connect the laptop to a mobile data hotspot on a phone for a few minutes and then test it again. If the webcam video comes through, then we know there is something blocking video on the original network.

Hardware & Network Recommendations For Using Remote Guests

Our team has tested out our remote guests feature on a handful of different desktop setups. Below is a non-exhaustive list of what we have tested and the extent to which we recommend using these setups for specifically in regards to remote guests.

Note that only Vimeo Enterprise users can add up to 10 remote guests; all other users can add up to 5 guests.

For more hardware recommendations for running Studio in general, see here.

Network recommendations

If you intend on having guests join your stream, make sure you are connected to the internet via Ethernet. You should have a download speed of 2.5Mbps per guest and an upload speed of 6.5Mbps per guest.

Guests joining your stream should ensure their network speeds are at least 6.5Mbps upload and 2.5Mbps download.

MacBook Pro 13" 2018 or newer or equivalent Windows laptop

- CPU: Intel Core i7
- RAM: 16 Gb
- Can stream properly to one destination at 720p30 (single bitrate)
- 1 GFX layer
- 1 media or camera source
- 5 remote guests

MacBook Pro 15" 2018 or newer or equivalent windows laptop

- CPU: Intel Core i7
- RAM: 16 Gb
- Can stream properly to one destination at 1080p30 (single quality)

- 1 GFX layer
- 1 media or camera source
- 5 remote guests

iMac 21.5" 4K, 2019 or newer or equivalent MacMini (late 2018)

- CPU: Intel Core i7 (3.2 GHz or better)
- RAM: 16 Gb
- Can stream properly to one destination at 1080p30
- 1 GFX layer
- 1 media or camera source
- 10 Remote guests

Windows PC

- CPU: Intel Core i7-8700K (3.7 GHz or better)
- RAM: 16 Gb
- Can stream properly to one destination at quality 1080p30
- 1 GFX layer
- 1 media or camera source
- 10 remote guests

The following Studio hardware units meet the hardware specifications to handle up to 10 remote guests:

- HD51
- HD51 4K
- HD550
- HD550 4K

NewTek NDI Integration in Livestream Studio

Livestream Studio includes NewTek NDI Integration, allowing you to input or output video sources over your local network with other NDI enabled software and devices.

What is NewTek NDI?

NDI, which stands for Network Device Interface, is an open protocol developed by NewTek that allows for high-quality video & audio signals to be transferred between devices over a local area network (LAN). In other words, different video software products with the NDI tools and applications installed--such as Livestream Studio, TriCaster, Adobe Premiere Pro, and more--can now communicate their video signals to each other over your local network with very low latency.

IS NDI|HX Supported?

Yes, provided that you are using Studio 5.0 or higher and you have the NDI|HX driver installed on the computer running Studio. You can find the driver download here.

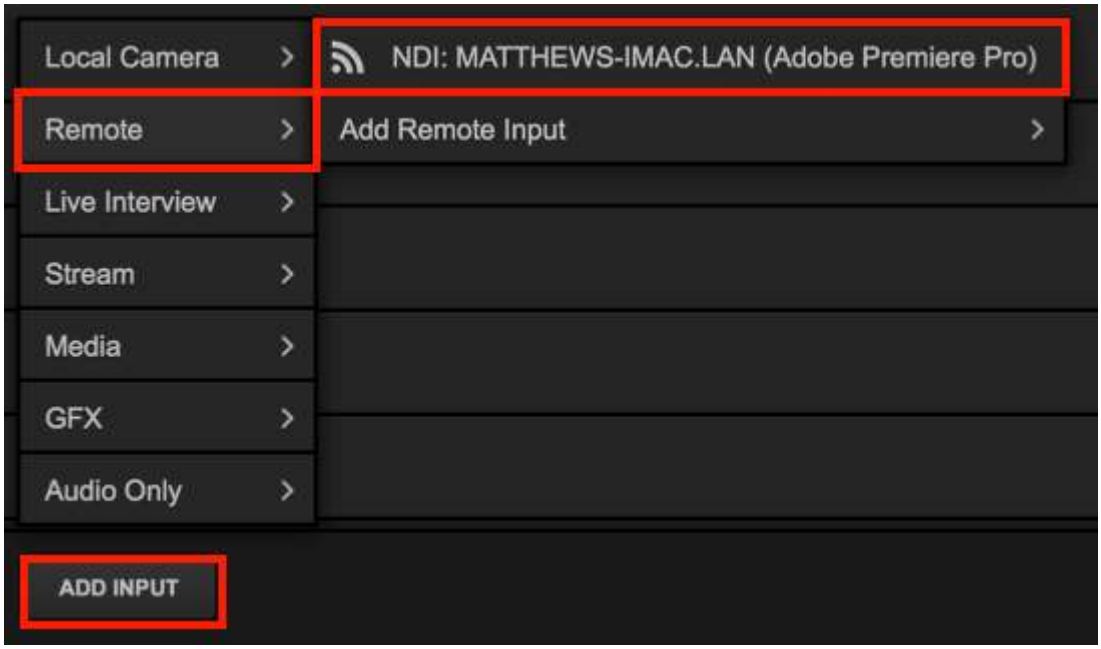
How Do I Set Up NDI Integration with Livestream Studio?

All you need to to do is make sure you are running version 4.5 (or later) of Livestream Studio and make sure it is connected to the same local IP (i.e. same network) as any other NDI enabled devices you wish to use with Livestream Studio. The integration is built into the software.

How Do I Bring In Another Source via NDI?

First, you need to have another NDI enabled source connected to the same network as your Livestream Studio system. This example will show a looping graphics sequence in Adobe Premiere Pro running on an iMac. Learn more about Newtek's NDI tools and downloads.

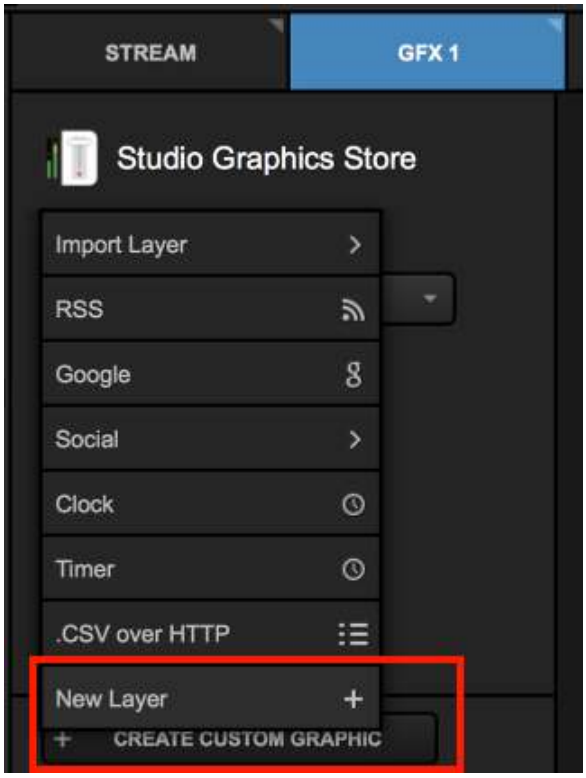
In Livestream Studio, navigate to the Inputs tab in the lower left corner. Select Add Input > Remote. Any available NDI source will appear in the menu for you to select.



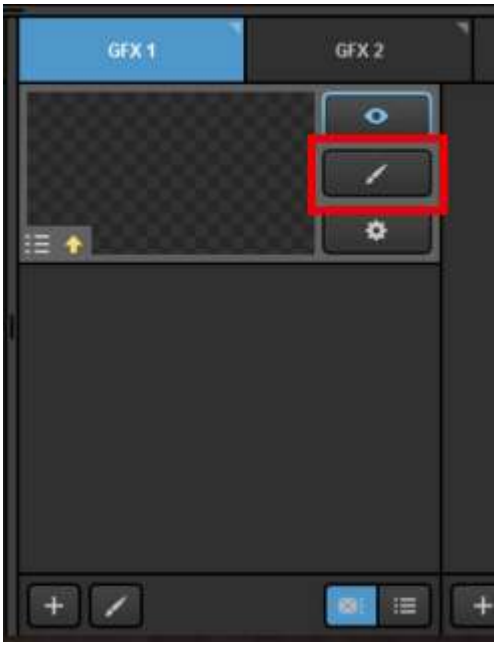
Your NDI source will appear in the bottom of your Inputs list and in your multi-view along with all other inputs. You can switch it into Preview and Program as you would any other source.

A key feature with NDI is alpha channel support. This means a source like the one shown above, which is a looping graphic with no background, can also be brought into Livestream Studio with a transparent background.

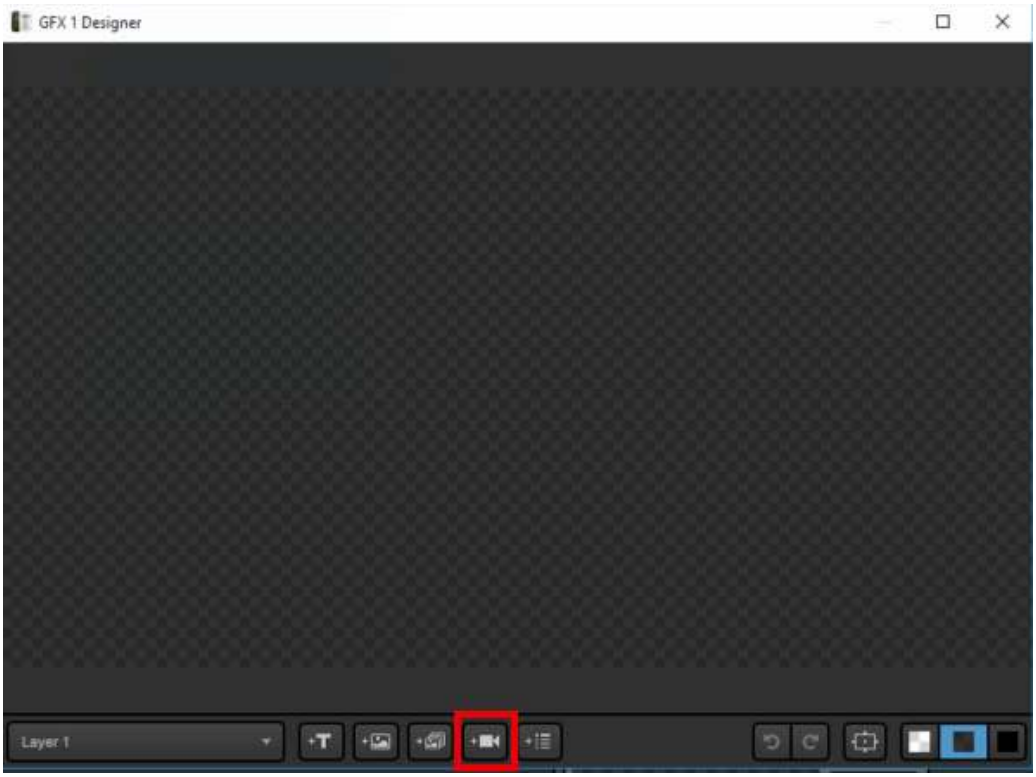
To enable this in Studio, navigate to one of the GFX menus, select Create Custom Graphic and click New Layer.



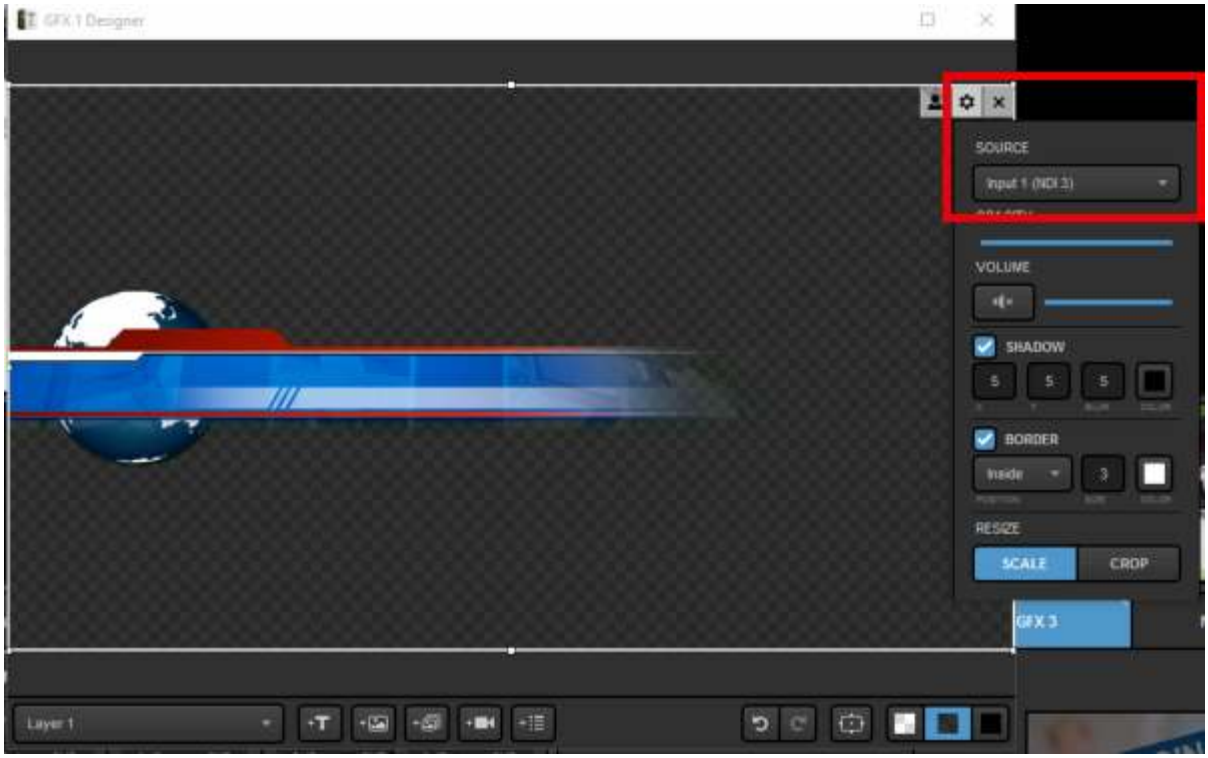
Click the paintbrush icon to open the GFX Designer.



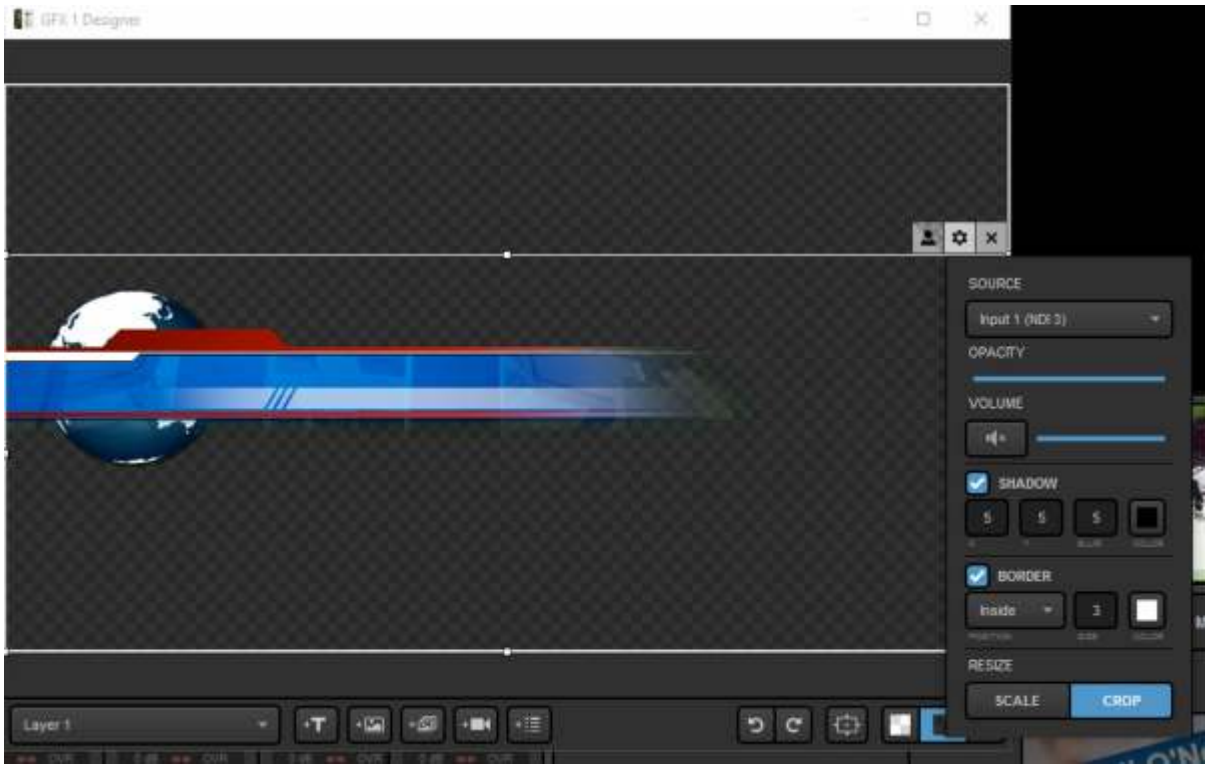
To bring in your NDI source as a graphic, click the camera icon.



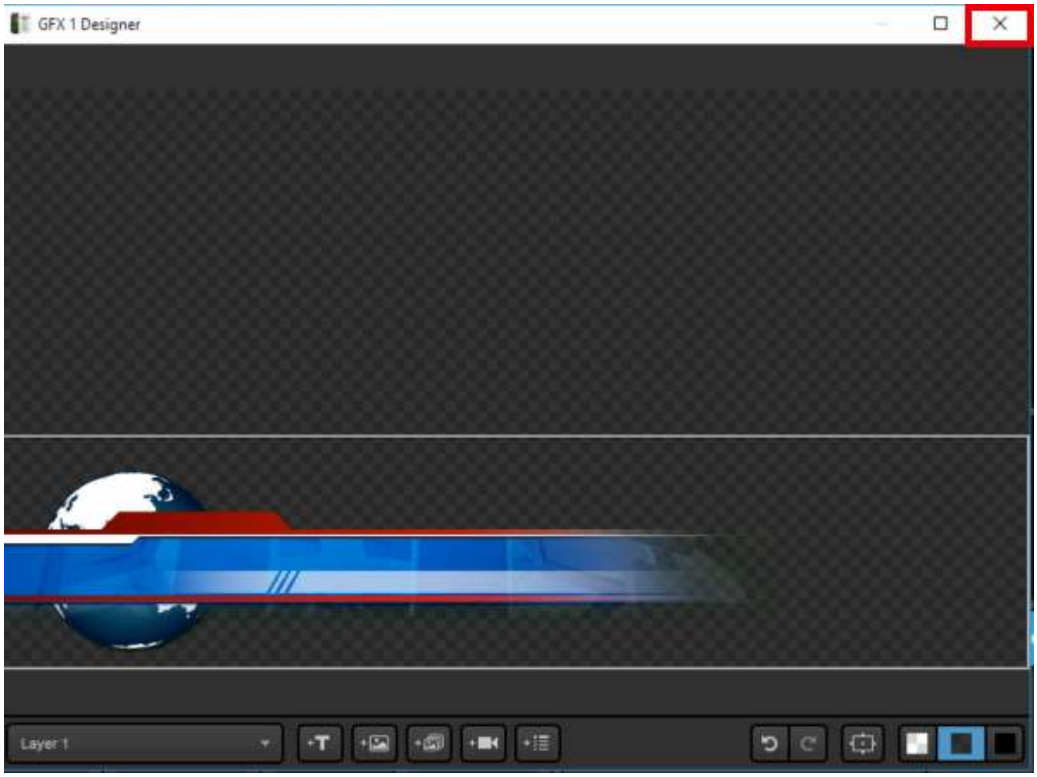
Your first input source will appear. Click the corresponding gearwheel to select your NDI source. Notice that the graphic has a transparent background, rather than a black one.



Make any appearance adjustments as necessary (in this example, we cropped the empty space and dragged the graphic to the bottom to make it a true lower-third graphic).



When you are satisfied with your NDI source's appearance, close the GFX Designer.

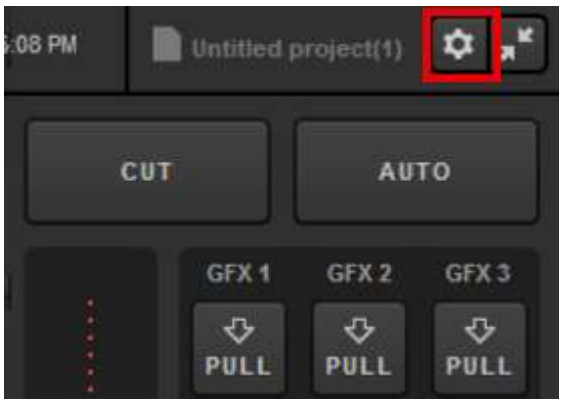


Now you can use your graphics overlay controls in the upper right corner of Livestream Studio to bring in your NDI source as a graphics overlay with alpha channel support.

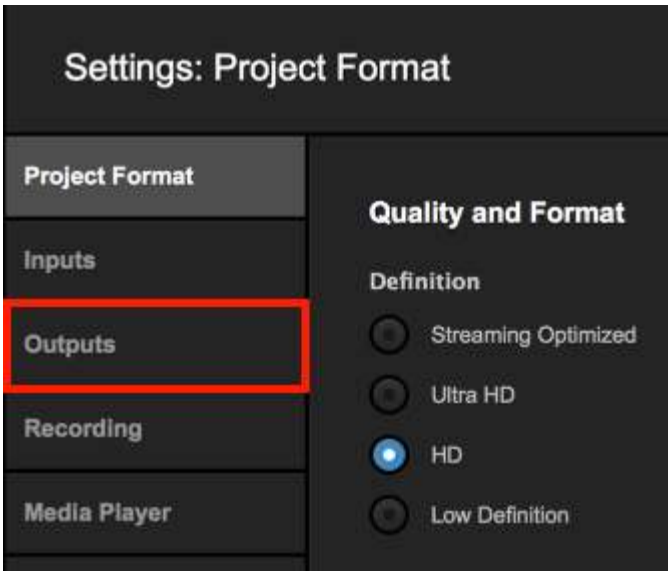
How Do I Output via NDI?

Setting up an NDI output is similar to setting up a normal live video output. The difference is that instead of using a video card and video cables to output your Program or another Studio source, you are outputting over your local network.

Click the gearwheel in the upper right corner to access settings.

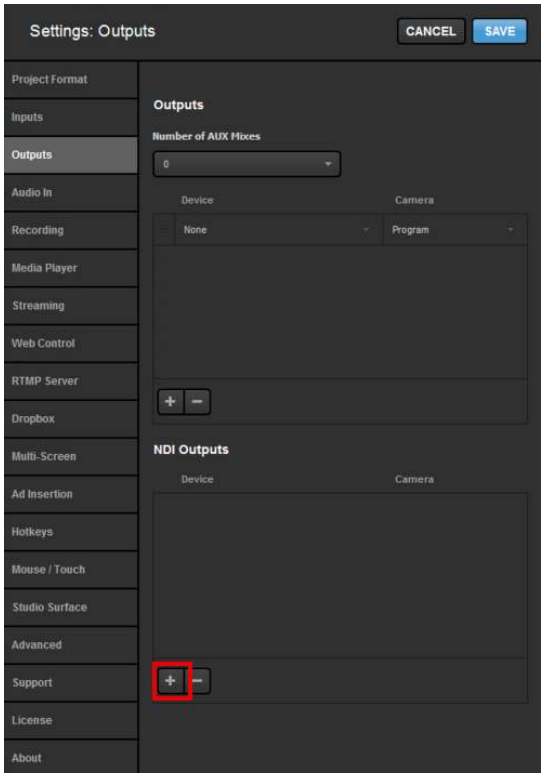


Navigate to the Outputs menu.



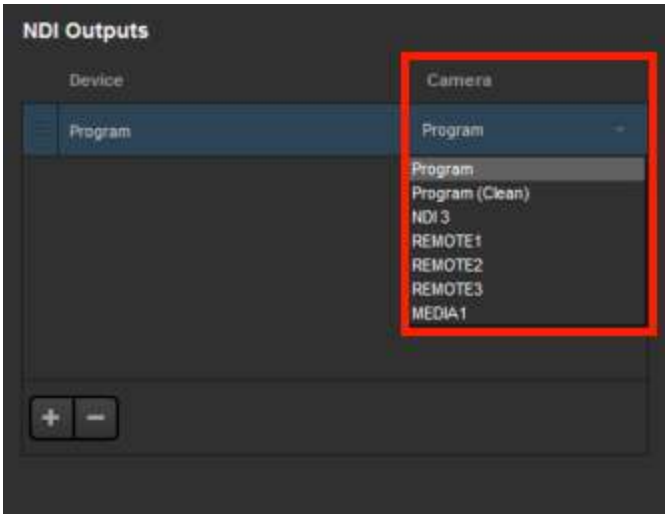
The lower half of the menu is the NDI Outputs section. Click the + button to add an NDI output.

Studio supports a maximum of five (5) NDI outputs.

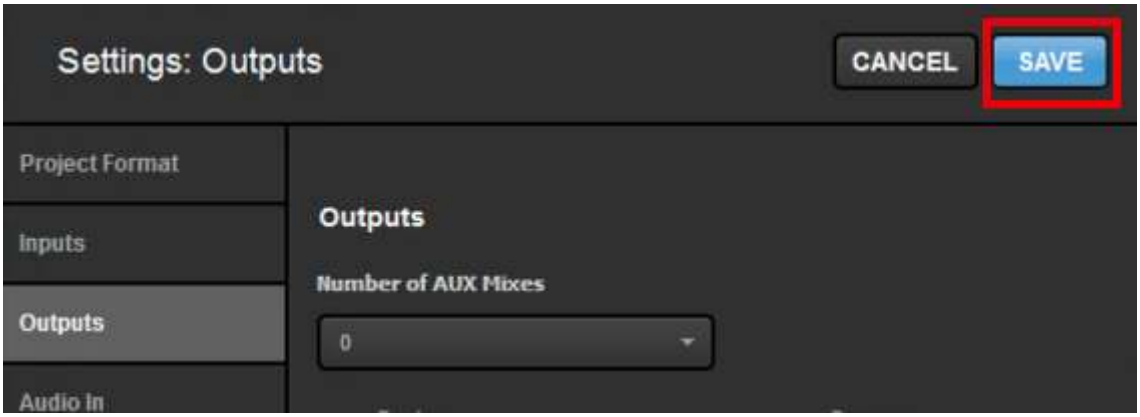


By default, your Program will appear as the output. Click the drop-down menu under Camera to select a different source.

You can rename the field under Device if you wish; this name is what your NDI output will be shown as in other NDI recognizing devices.



After selecting your output(s), be sure to save your settings.

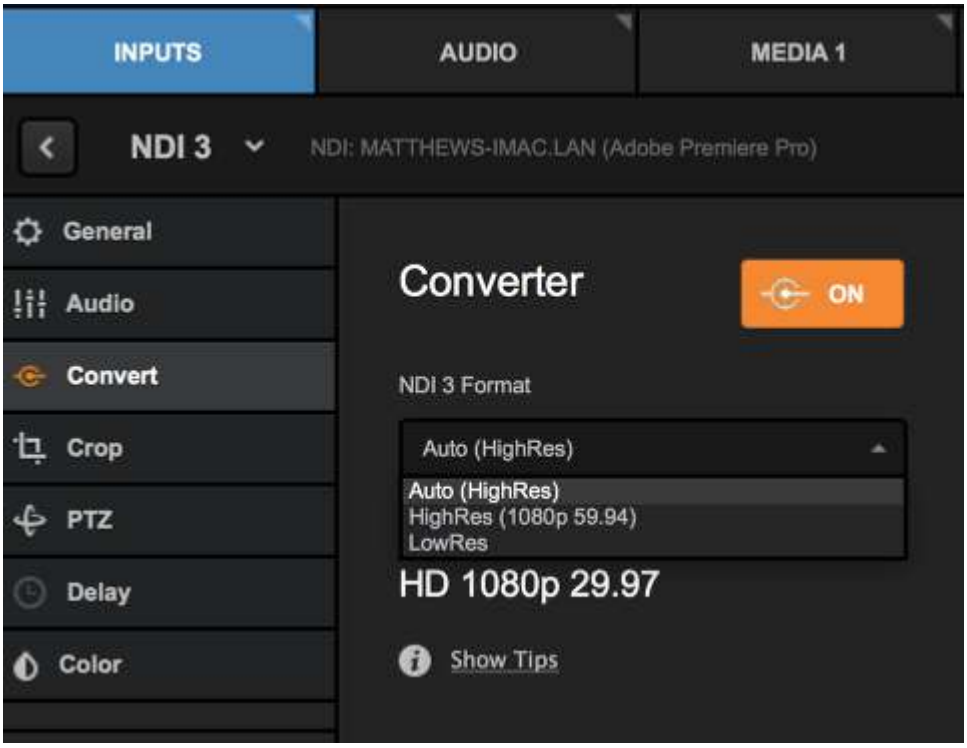


Now other NDI enabled devices and software on your network will be able to bring in your selected output(s) as a source or input (e.g. other Studio systems, vMix, TriCasters, etc.)

My NDI Sources are Buffering, How do I Prevent This?

If you notice buffering or lag in your NDI sources, you can reduce the bandwidth required to bring them in

Find your NDI source from the Inputs list and select the corresponding gearwheel to enter its settings. Navigate to the Convert tab on the left side.



By default, the converter is receiving the signal in HighRes mode. Open the drop-down menu to switch to LowRes. This will convert the NDI to a lower resolution, which will soften its appearance but deliver the video signal more steadily.

Setting Up Studio as an RTMP Server

With Livestream Studio, you can send a stream from a third-party encoder via RTMP directly to Studio and bring that stream in as a source.

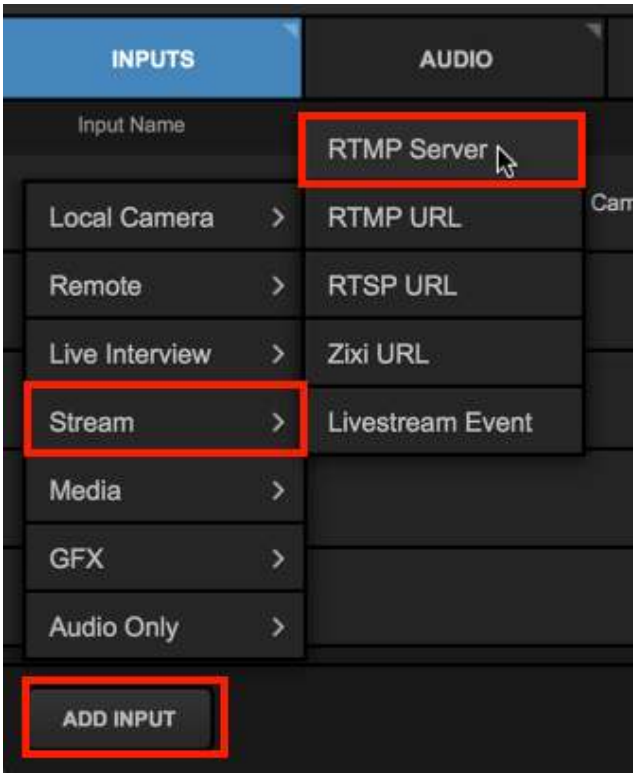
Important: In order for this feature to work successfully, your network must have Port 1935 open to **all** communication, as it is a UDP connection. This port also needs to be forwarded to the internal IP address of the machine using the server.

If your encoder is streaming to Studio from an external location (i.e. not from the same network), you must ensure that both systems are on a public-facing IP address in order for your encoder and Studio to communicate with each other.

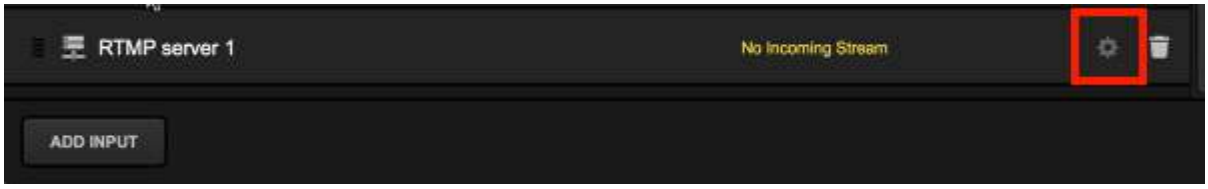
Speak with your IT administrator if your network requires these changes to be made.

RTMP Input Basics

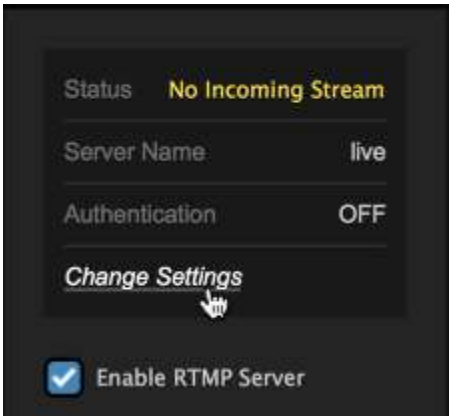
Go to **Inputs** and navigate to **Add Input** > **Stream** > **RTMP Server**.



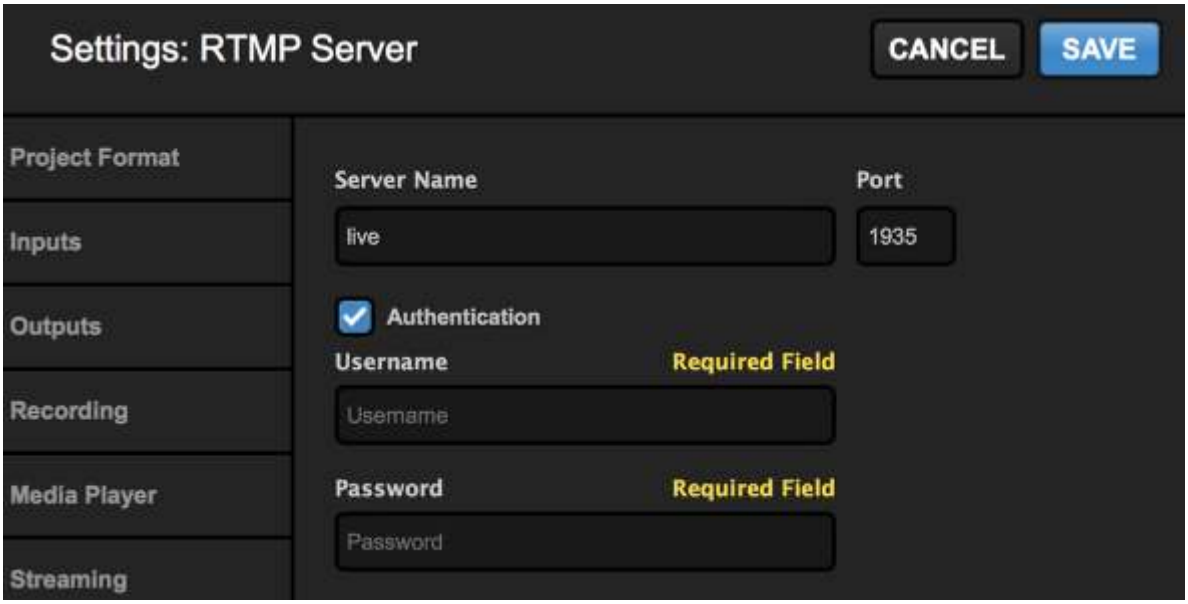
To configure the RTMP server, select the gearwheel icon to the right of the RTMP server input.



By default, authentication is turned off. If you would prefer to have a username and password affiliated with your RTMP Server, click Change Settings.

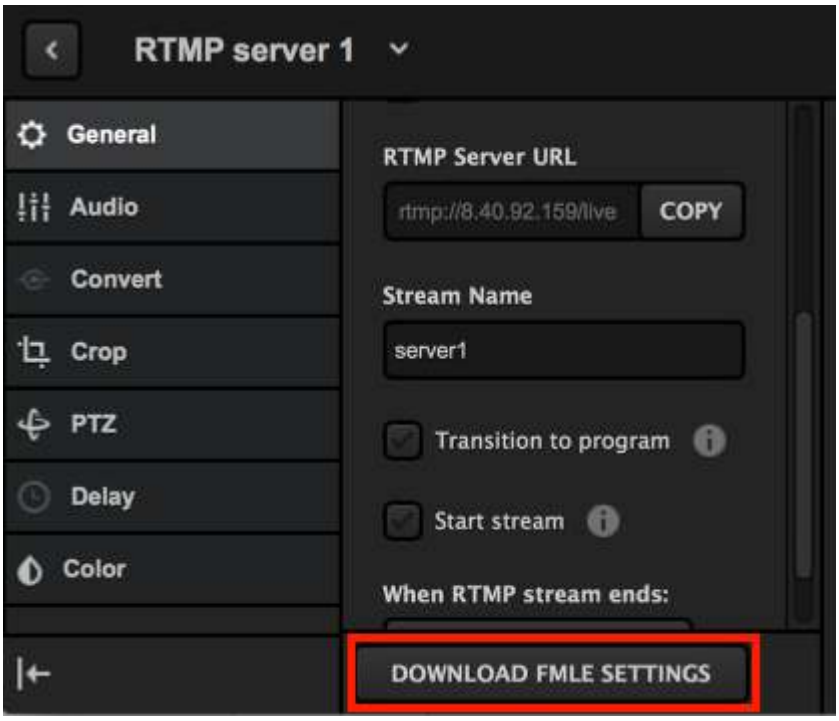


This will open the RTMP Server tab in Studio's settings. Check Authentication and enter the desired username and password; then click Save.



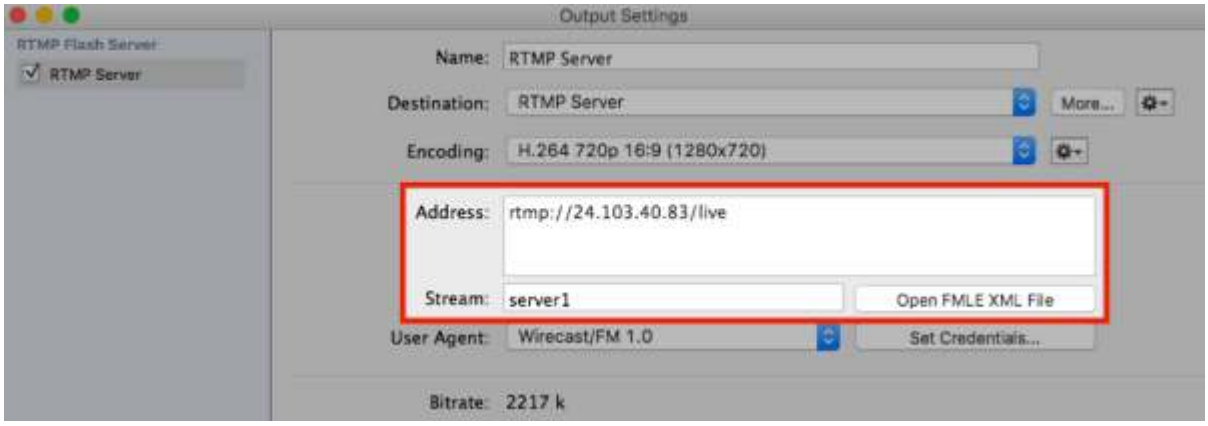
Scroll down in the General tab; your RTMP URL and Stream Name* are displayed in this menu.

To save time copying and pasting, Studio gives you the option to Download FMLE Settings, which you can then import into your encoder.

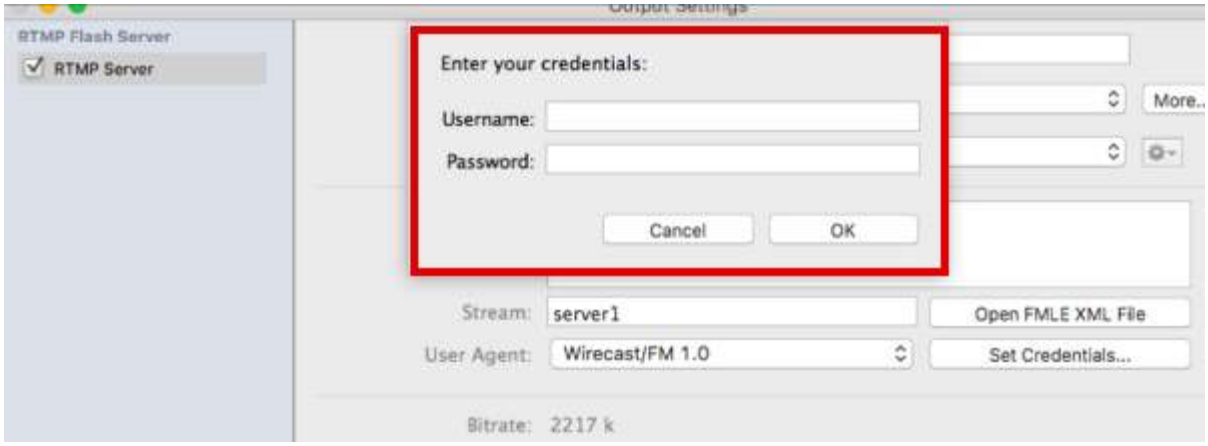


In your third-party encoder (e.g., Wirecast, OBS, etc.), open your RTMP settings and enter the RTMP URL and Stream Name* from Studio into the corresponding fields.

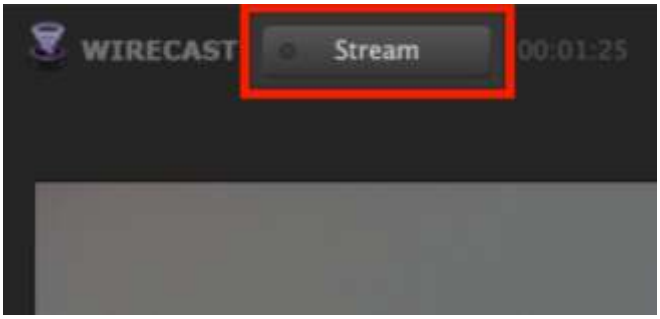
**"Stream Name" goes into the Stream Key field.*



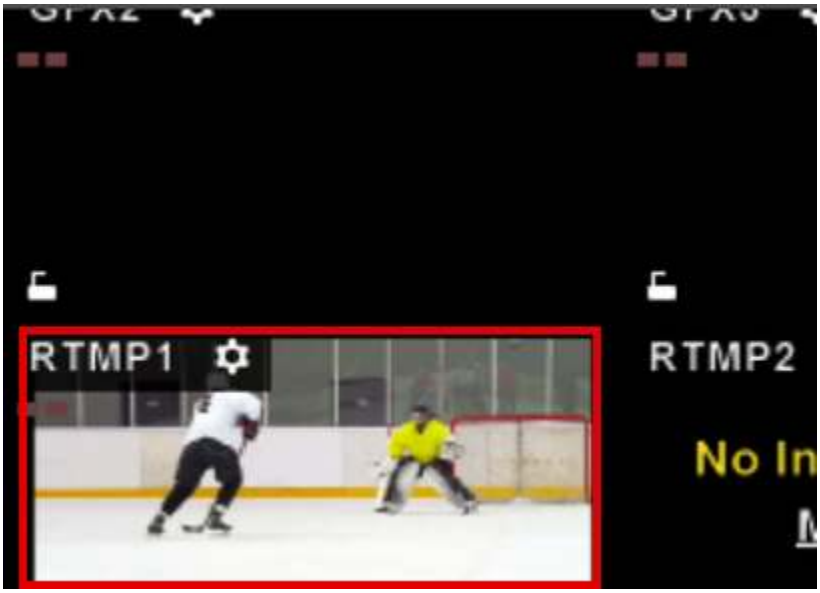
If you enabled authorization, enter your RTMP Input's username and password into your third-party encoder.



Start streaming from your third-party encoder to your RTMP Input.



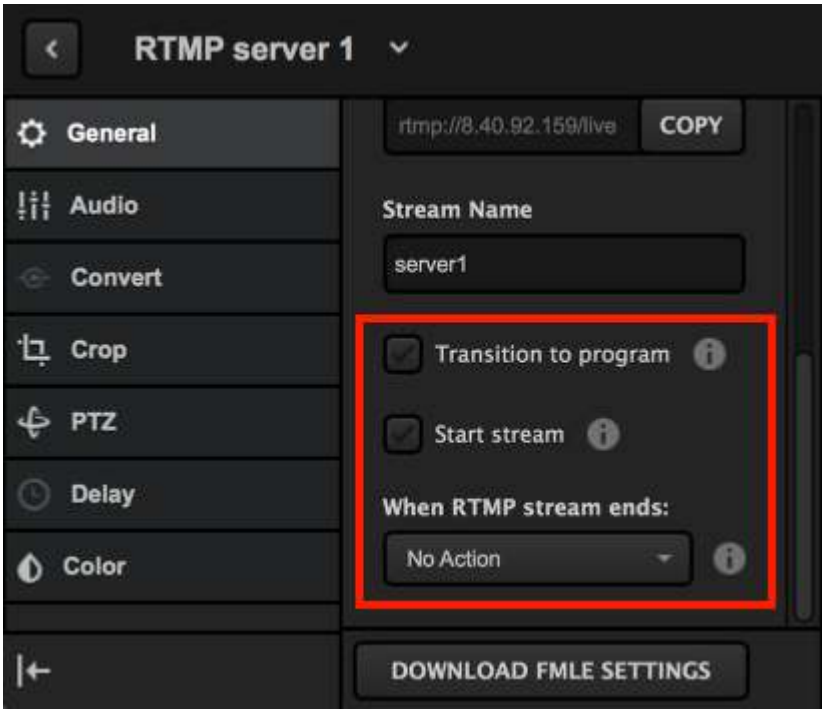
In the Livestream Studio multi-view, the video output from your third-party encoder will appear in your RTMP Input.



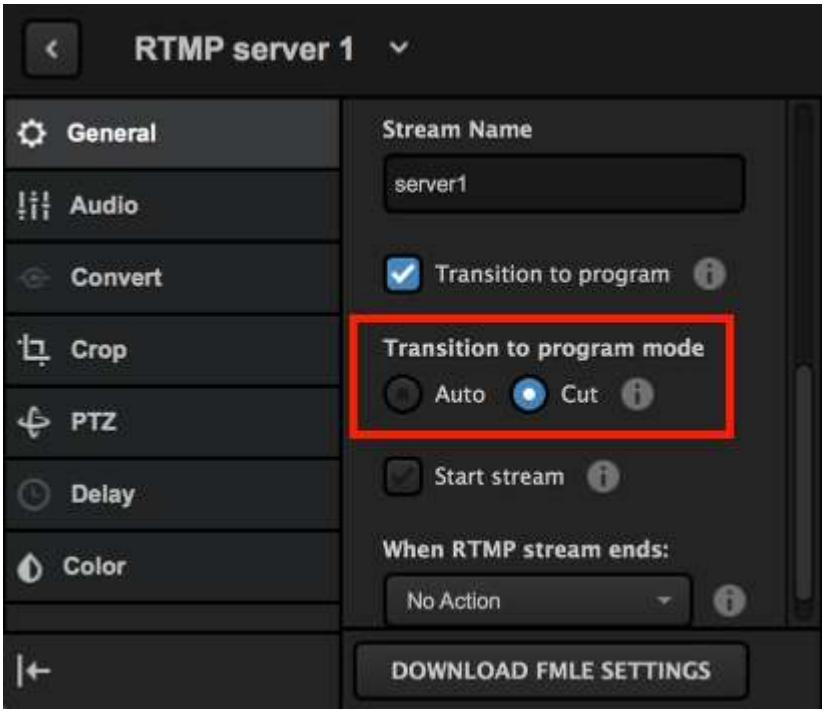
You can transition your RTMP Input into Program, just as you would with any other source. When you end the stream from your third-party encoder, the source will no longer be visible in Livestream Studio.

Advanced Settings

In the RTMP input's General settings, scroll down to find additional settings.



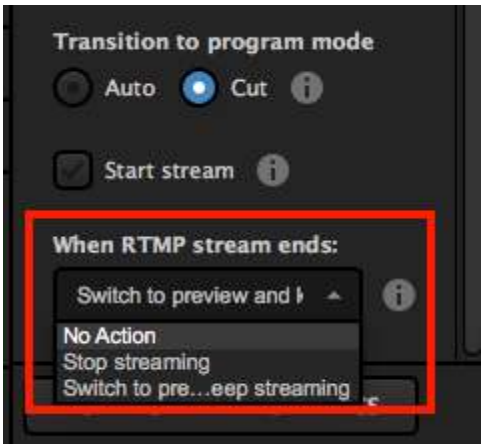
Checking Transition to Program will automatically switch the RTMP input into Program as soon as Studio receives the stream. Select your Transition to program mode, which allows you to choose whether your input will Cut or Auto-Transition into Program once the stream is received.



Next is Start Stream, which can prompt Studio to automatically start streaming to your selected provider(s) in Livestream Studio (e.g. Livestream) as soon as it receives the RTMP input.

When RTMP stream ends allows you to select what Livestream Studio should do when you stop streaming from your third-party encoder. The options are:

- No Action: Studio will not react to the RTMP stream stopping
- Stop Streaming: Studio will end its stream. Check the Stream tab to a prompt on what to do with your stream's archive on the selected streaming destination (e.g. save as draft, post, delete).
- Switch to Preview and Keep Streaming: Studio will continue streaming, but transition the Preview source into Program.



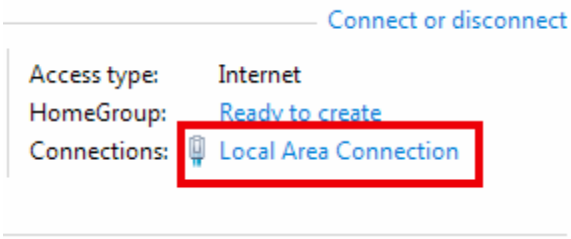
With these settings enabled, your RTMP source will now automatically appear in Program and Livestream Studio will start streaming to your chosen provider without any additional action needed.

You can also configure RTMP input settings via Livestream Studio Web Control.

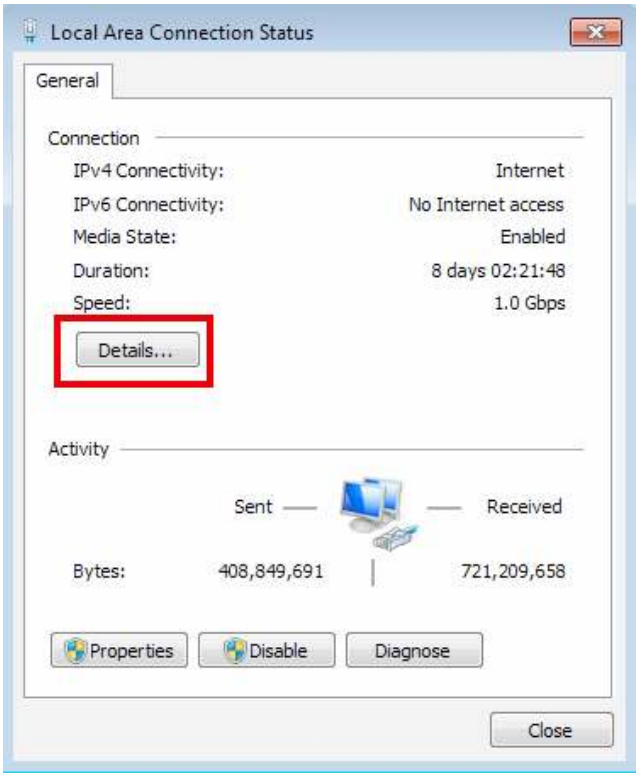
Troubleshooting

If you attempt to stream from your encoder and are unable to reach the RTMP server, it could be that Studio is not displaying your machine's internal IP address. Follow the steps below to get the correct IP address

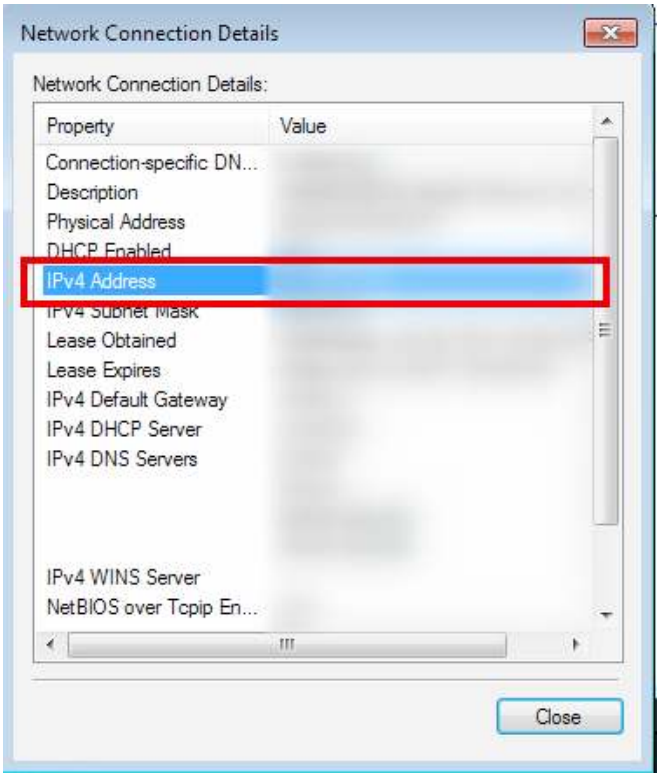
Go to your Windows network settings and find your connection status; click Local Area Connection.



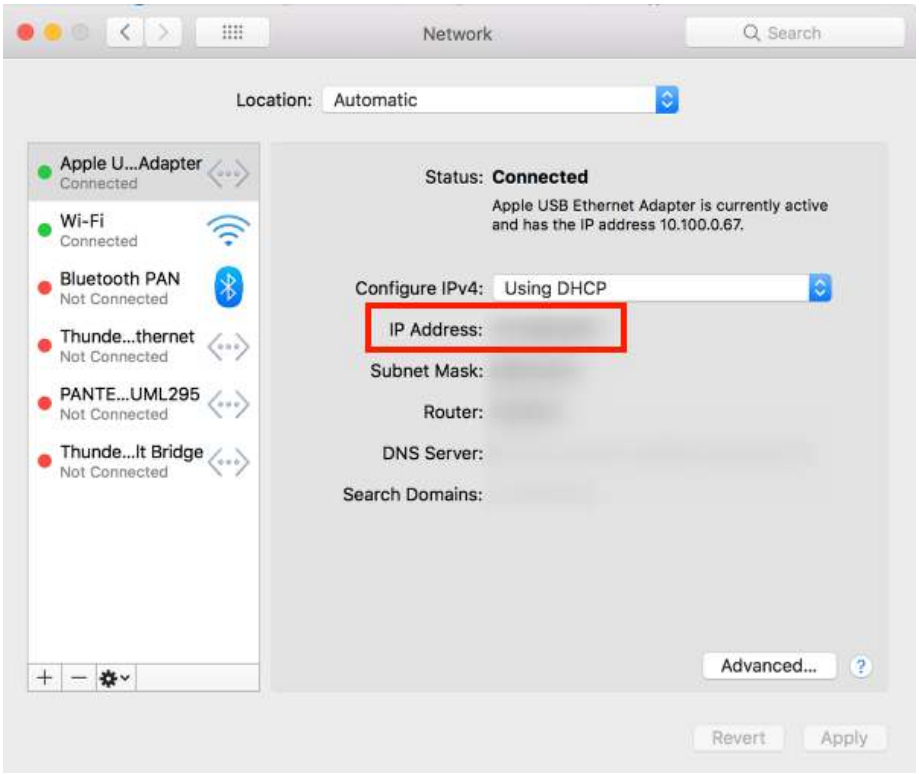
Select Details.



The IPv4 Address is the IP address that you need. Replace this with the IP address displayed in RTMP URL in your encoder (e.g. rtmp://10.20.30.40/live). The stream name remains the same.



If you are using a Mac system, open System Preferences > Network. Use the IP Address listed here in the RTMP URL.



You should now be able to go live to your Studio RTMP server.

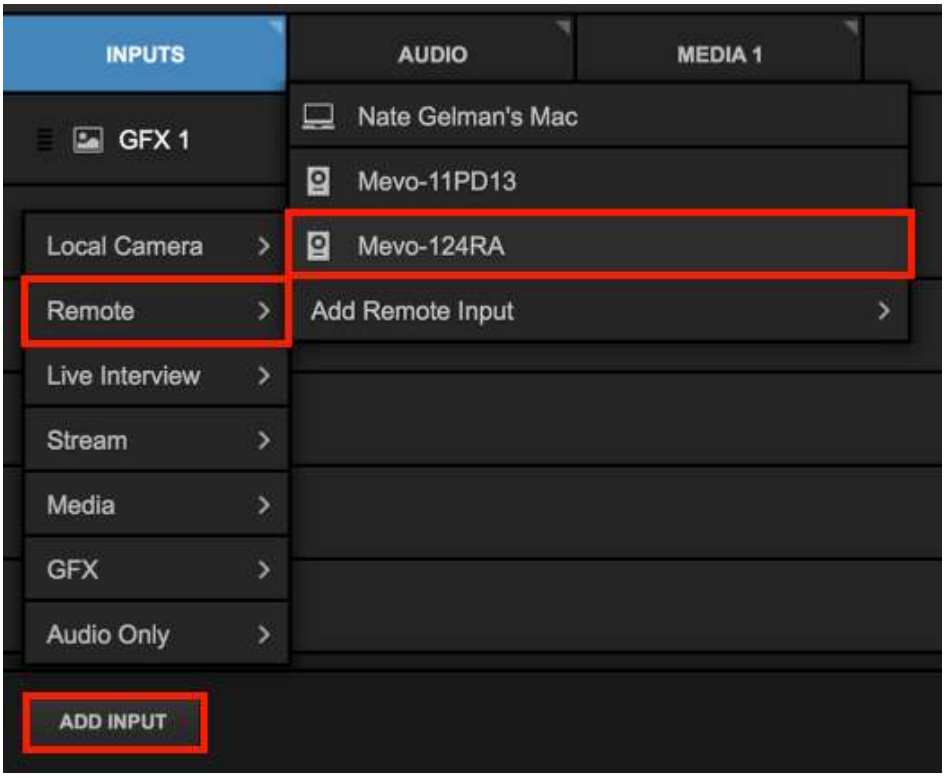
Using Mevo as a Remote Camera

Livestream Studio can accept Mevo as a remote camera source when connected to the same network.

Make sure that your Mevo is turned on and connected to the same local network as your Livestream Studio machine. If it is not connected to the same network (i.e. to the same access point), Studio cannot recognize Mevo.

When Mevo is on your network, Studio will automatically detect it. There is no need to open the Mevo app to enable it as a remote camera.

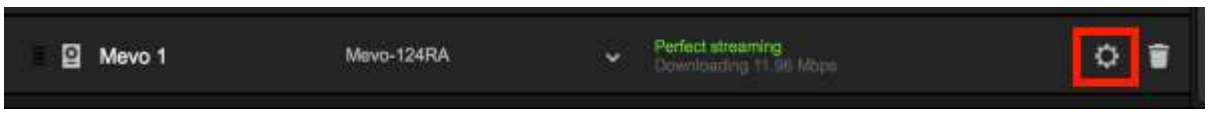
You must be on Studio version 6 and Mevo version 1.13 with the latest firmware. These are not compatible with older versions and do not support this workflow. When you launch the Mevo app and are connected to your camera's hotspot, you will see a prompt to Update Firmware if your camera is not updated.



You cannot start a separate stream or recording from Mevo while Studio Remote Camera Mode is enabled.

Your Mevo will appear on the bottom of your Inputs list. You can rename it by hovering your cursor over its name and selecting the pencil icon that appears. You can select a different remote source by opening the drop-down menu. When your Mevo is connected, a status message will appear here as well (e.g. "Perfect streaming").

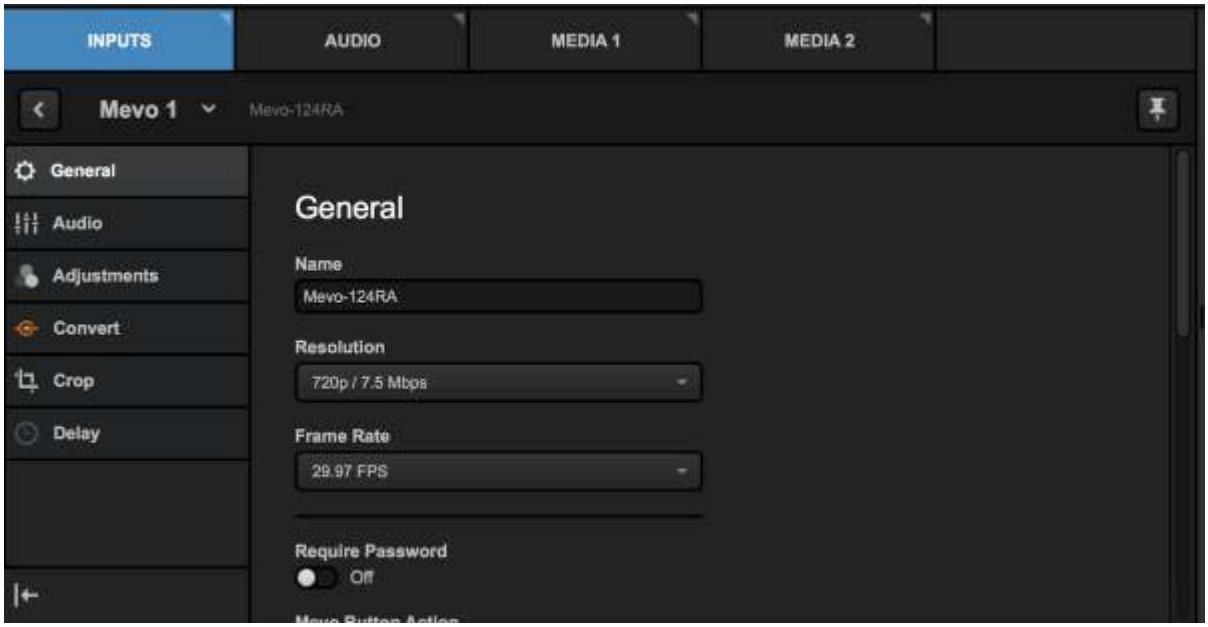
To further configure and control your Mevo, select the corresponding gearwheel icon to the right.



Many of Mevo's basic settings in the Mevo app are configurable directly in Studio in the General tab. This includes the camera's name, resolution, frame rate, password protection, the Mevo button's setting, auto turn off, auto-wide on app disconnect, and speaker and LED ring settings.

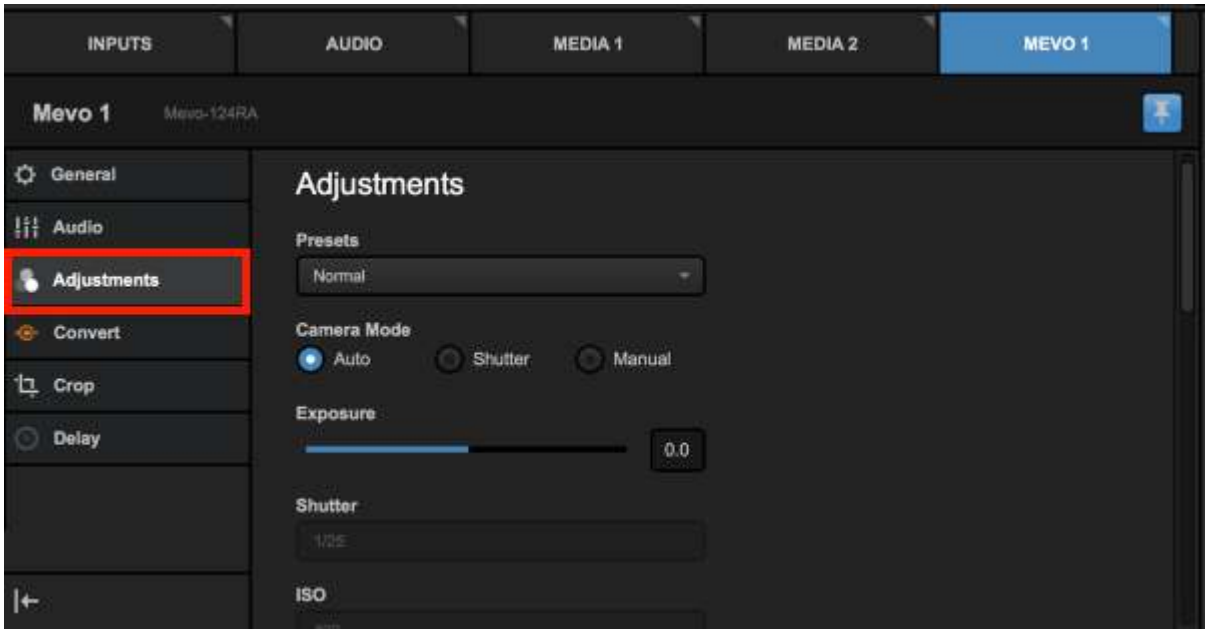
Any of these settings that you change in Studio will also be reflected inside the Mevo app. Keep in mind each setting will need a few seconds in order to take effect.

> ⚠ If you adjust the Mevo's resolution within Studio's input settings menu, this will cause the Mevo to restart. Do not change this setting inside Studio's inputs' menu if you are live or about to go live.



In addition to these general settings, the Adjustments tab will allow you to customize the Mevo's image, including exposure, shutter speed, ISO, white balance, brightness, contrast, saturation, sharpness, view angle, exposure metering, image flip, electronic image stabilization (EIS), and anti-flicker settings.

These are the same settings found in the Mevo app's Adjustments menu and any changes made to these in Studio will be reflected in the Mevo app.



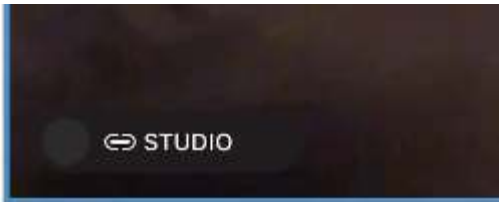
Use the Crop functionality in Studio to adjust your Mevo's shot. This allows you to configure up to four preset shots with motion and transition control.

Studio does not include some Mevo features such as face detection, live follow, and auto-pilot; these features are only controllable via the Mevo app. If you do use these features in the Mevo app, you will not be able to control your Mevo shot inside Studio until you switch to a generic shot or wide shot in the Mevo app.

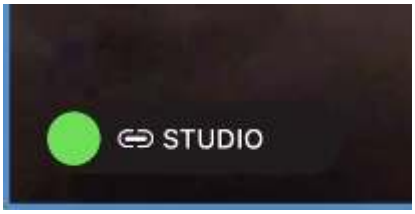
Control Mevo Remote Camera in the Mevo App

You can still use the Mevo app to control your camera instead of Studio if you prefer.

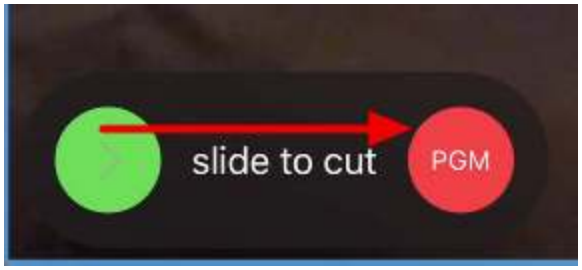
After adding Mevo as an input in Studio as described above, connect your Mevo app to your camera via Wi-Fi. You will notice the bottom left corner now shows a dark gray button indicating it is linked to Studio but is not currently in Preview or Program. If you tap this button, the option to push it to the Preview (PRV) or Program (PGM) monitors in Studio will appear.

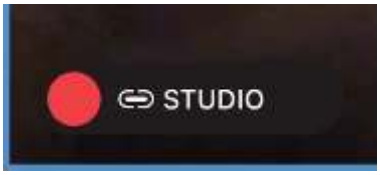


Use your finger to slide the gray button to either PRV or PGM to put your Mevo into either Preview or Program in Studio, respectively.



Once Mevo is in the Preview or Program monitor, tap the button again and slide it to switch it between the monitors in Studio.





While Mevo is being used as a Remote Camera in Studio, you may still live edit your Mevo shot in your Mevo app. This would include features such as face detection and live follow, but please note that while these features are in use, you will not be able to change Mevo's shot via Studio until you cut to a generic crop or a wide shot.

Your Mevo will output all crops and edits to Studio. Additionally, whichever crop preset in Studio is activated will adjust to reflect the edit made in the Mevo App. Notice below, the cursor is not touching the Take / Edit buttons, but the orange box (Preset 1) crops anyway; this was an edit made inside the Mevo app.

Selecting 1080p / 15.0Mbps will disable all Camera Assistant features (Face Detection, Live Follow, Auto Pilot, Static Shots). Panning and zooming via the Mevo app are also disabled, but you *can* cut/crop your shot or use the crop features inside Studio.

Once your Mevo is connected, check here for best practices and recommendations for using Mevo as a remote camera source.

Troubleshooting

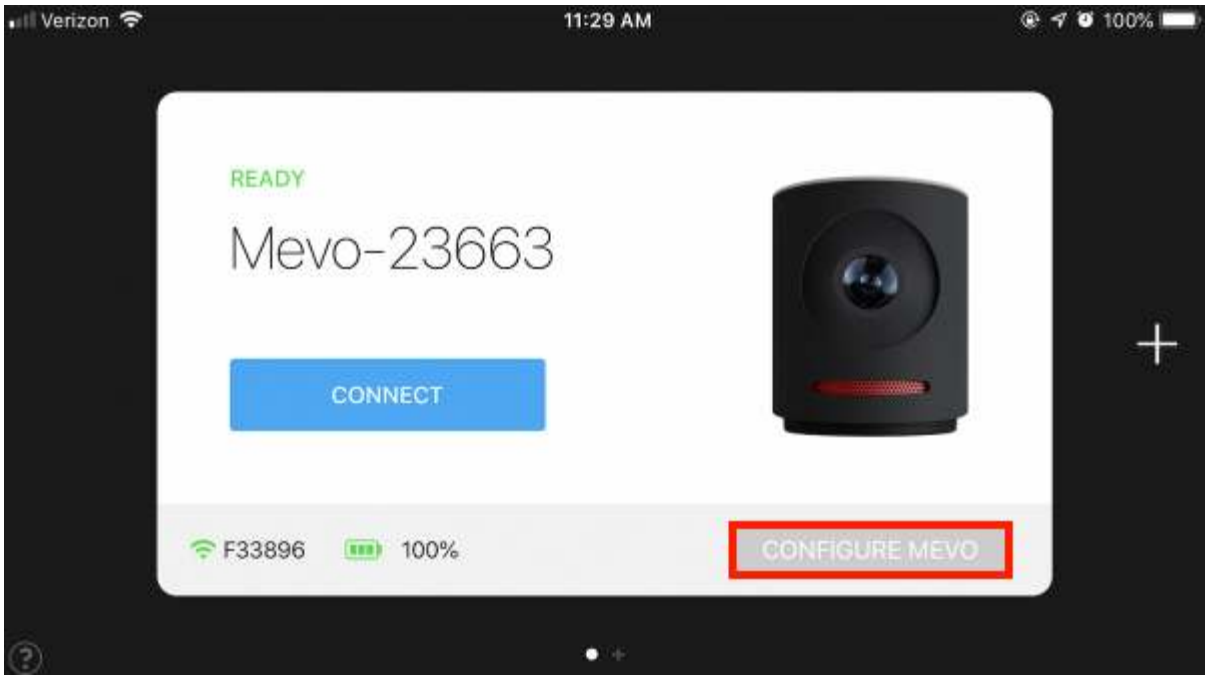
If you are not seeing any options on the list within the Remote Cam tabs, please check the following:

- Make sure the remote system is on the same network, connected to the same Router or Access Point as your Studio system.
  - If the system is on the same network but using a different access point, the Remote Camera will not properly connect.
- Check that the following ports are open if you use a firewall:
  - UDP: 5353, 60936 - 61036
    TCP: 60936 - 61036
- Check that Bonjour Service is started.
- If you've checked all the above steps **and** you are connecting over Ethernet, there could be a rare IP configuration issue.
- If Mevo is still not appearing, try connecting via IP address.

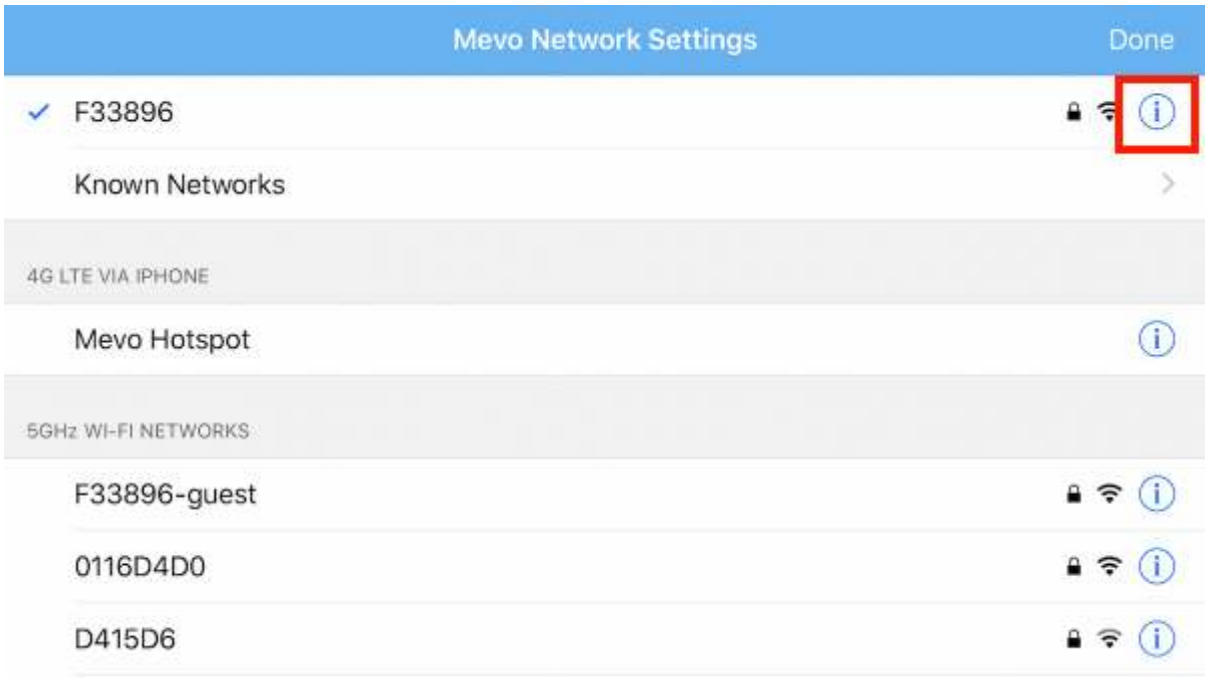
Connect Mevo to Studio via IP

If your local network has firewall or anti-virus restrictions in place and causes your Mevo to not appear automatically as a standard Remote Input, you can connect a Mevo to Studio by finding its IP address and entering it into Studio.

To find your Mevo camera's IP address, launch the Mevo app on your mobile device, tap **Configure Mevo** and connect Mevo to the the same network to which your Studio system is connected.



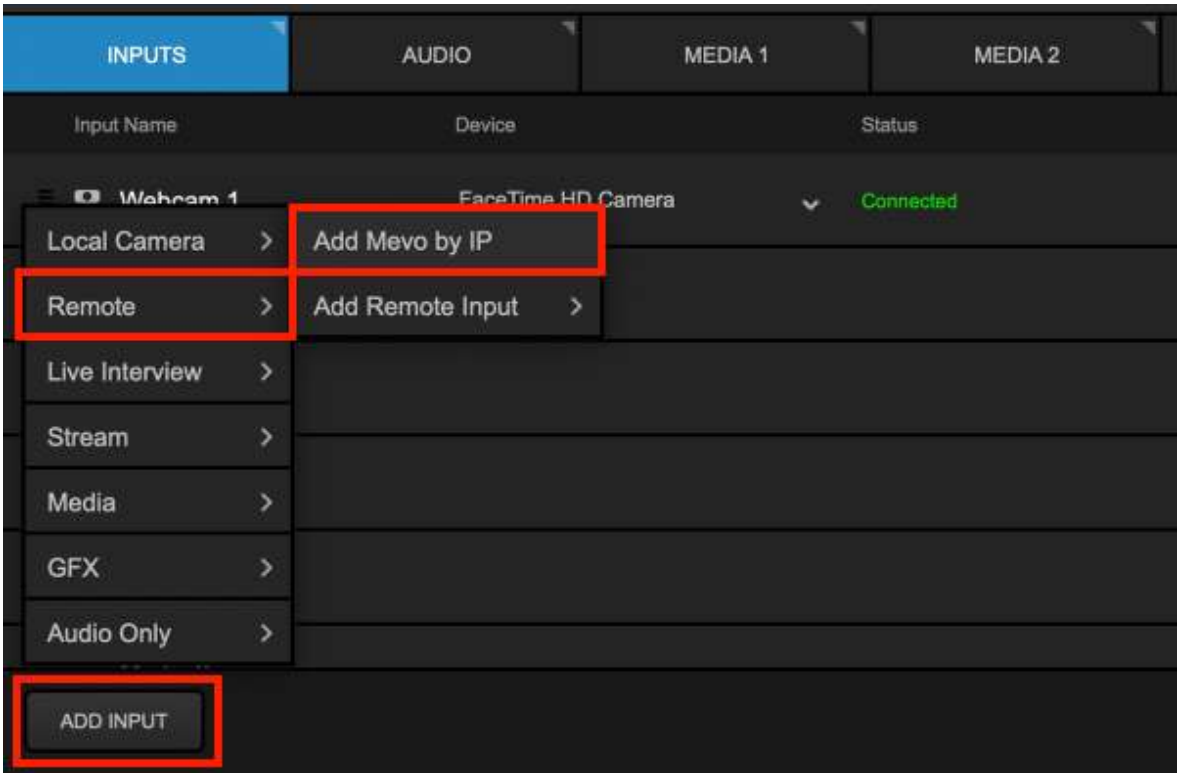
Once Mevo is connected, tap the **Info (i)** icon to the right of the network name.



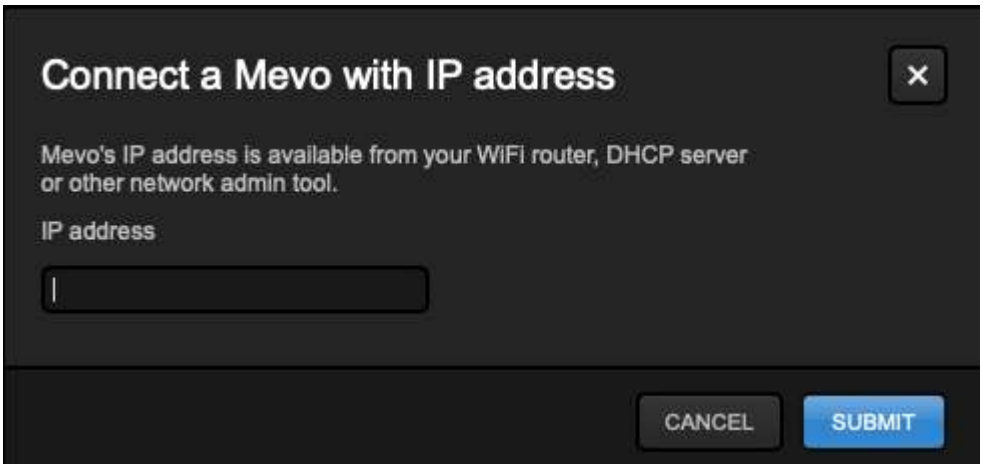
Select the Manual IPv4 tab; below this is the IP address, which will be four numbers separated by periods.

You can also get Mevo's IP address from other network admins tools such as your Wi-Fi router or DHCP server.

In Studio, open the Inputs tab, navigate to Add Input > Remote, then select Add Mevo by IP.



The below window will open prompting you to enter Mevo's IP address. Enter the IP address from Mevo, then click Submit.



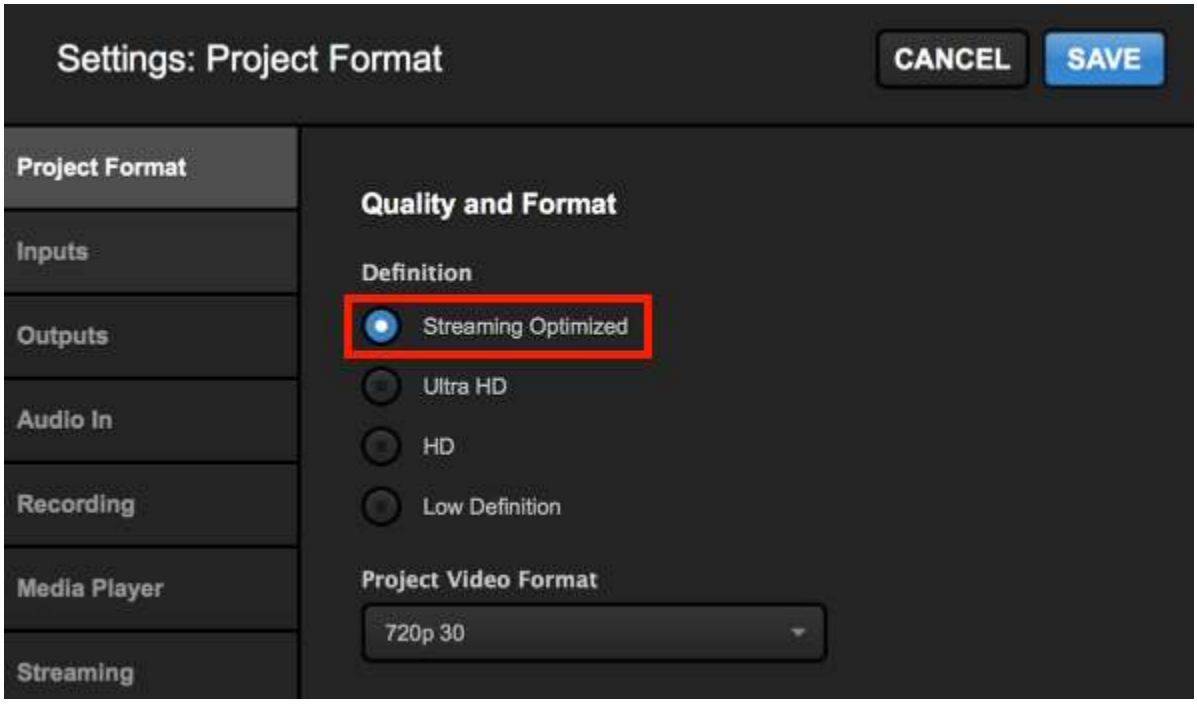
After a moment, Mevo will connect to Studio, after which you can configure its settings and switch into your production as you would if you connected through the standard remote camera process.

Best Practices for Mevo as a Remote Camera Source

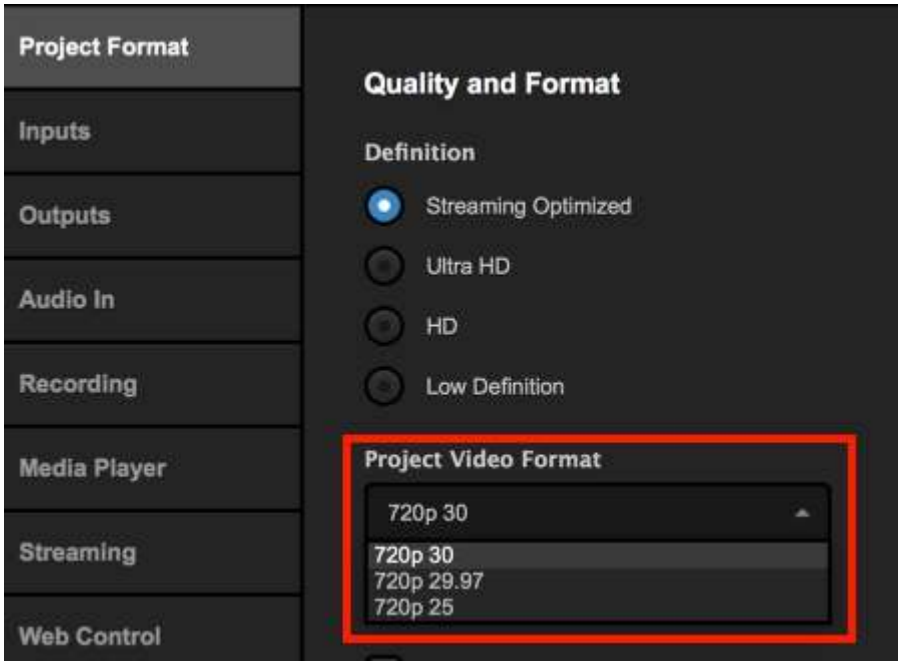
If you intend to use Mevo as a remote camera source in Livestream Studio, our team has some configuration recommendations for optimal performance.

Project Format

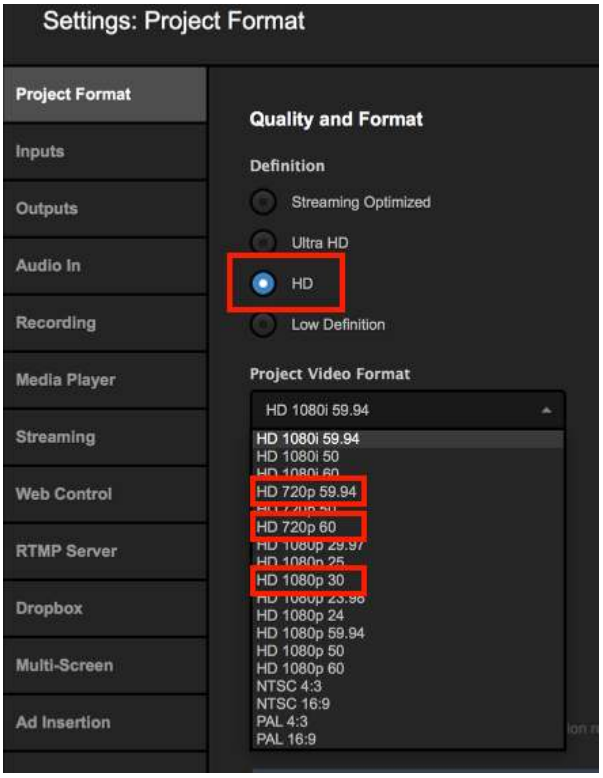
First, under Settings: Project Format, you should select Streaming Optimized.



Choose a Project Format that matches your Mevo's Frame Rate. Doing this will increase the quality while also reducing CPU usage that would otherwise be used to resize the Mevo's video feed.



If you need to output from Studio via HDMI or SDI, then you will need to select an HD format. In Settings: Project Format, change the Definition to HD. This in case, we recommend using either 720p59.94, 720p60, or 1080p30. These will produce the best image quality but will increase CPU usage.



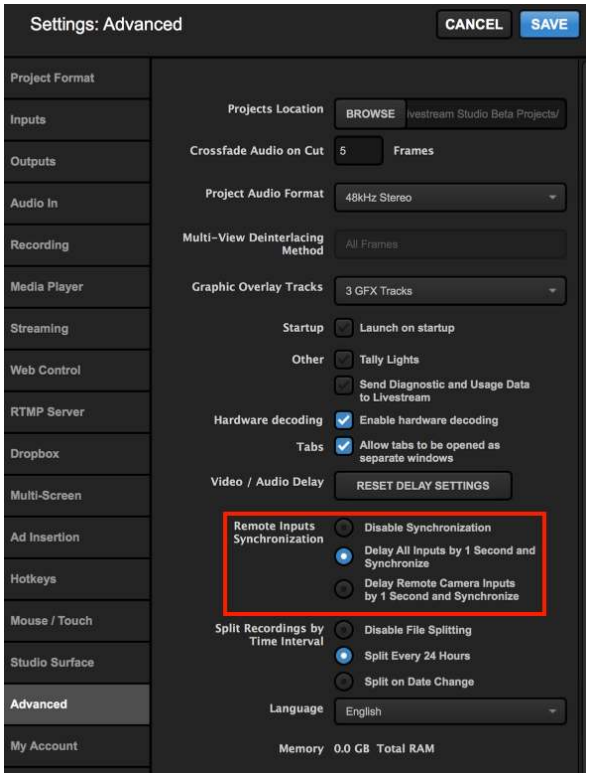
When you select your Project Format, click Save.

Camera Synchronization

To avoid sync issues, it's best that you set your direct input sources to be delayed by one second. Studio has an easy setting to do this.

Click the gearwheel in the upper right corner of Studio, then click the Advanced tab.

Navigate to the Remote Inputs Synchronization setting and select Delay All Inputs by 1 Second and Synchronize. This will allow your wired inputs to compensate for the latency experienced by wireless sources (in this case, Mevo) and sync them together.



Be sure to save your settings.

Bringing a Broadcaster Signal into Livestream Studio

Livestream Studio allows you to use your Livestream Broadcaster device as a remote camera source.

Connect your Broadcaster to the same network as the Livestream Studio computer.

Livestream Broadcaster Pro

Power on the device and use the bottom Menu joystick to connect it to the same network that your Livestream Studio system is connected to.

After connecting it, push in the joystick to enter the menu and select Stream Mode.

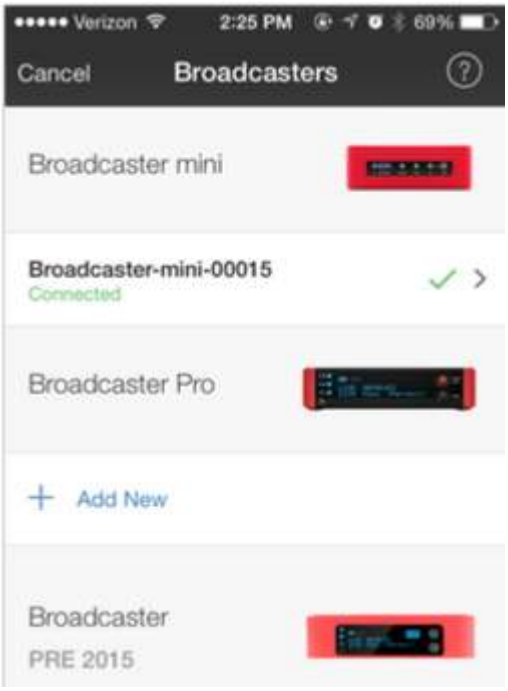
Toggle the joystick to Studio.

The Broadcaster Pro will indicate that it is connected and ready to send its signal to Livestream Studio.

In Livestream Studio, navigate to the Inputs tab in the lower left section. Select Add Input > Remote. You can select your Broadcaster Pro from here, which will add it the bottom of your inputs list and your multi-view.

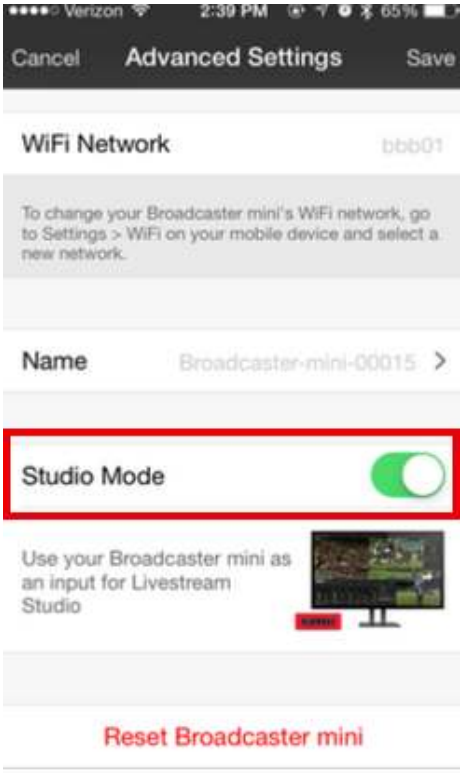
Livestream Broadcaster mini

You can also connect a Broadcaster mini to Livestream Studio as a remote camera. When you finish pairing it through the Livestream app, using the same network your Livestream Studio system is connected to, select it from the Broadcaster list.

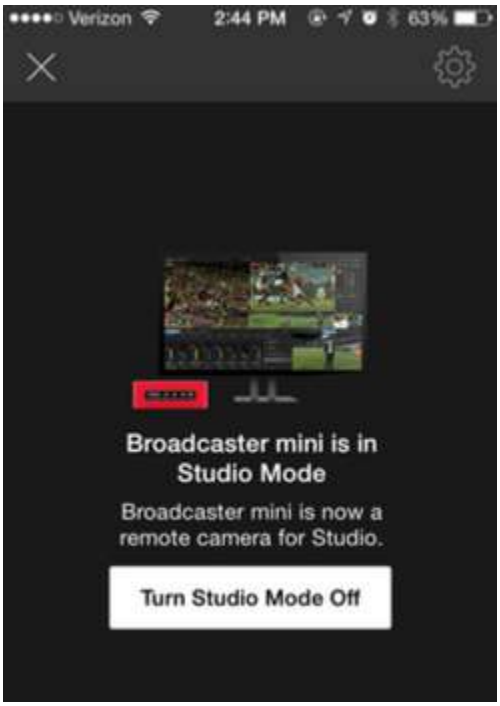


It will open the camera viewfinder. Click on the gearwheel in the top right corner to access settings.

Scroll down and you will see Studio Mode. Toggle the switch on (green) to enable Studio Mode. Then click Save in the upper right corner.



The mobile app will indicate that your Broadcaster mini is in Studio mode.



In Livestream Studio, navigate to the Inputs tab in the lower left section. Select Add Input > Remote. You can select your Broadcaster mini from here, which will add it the bottom of your inputs list and your multi-view.

Livestream Broadcaster (V1)

Bringing a Broadcaster into Livestream Studio as a remote camera is very similar to bringing the Broadcaster Pro into Livestream Studio.

Select Stream Mode from the Broadcaster menu, and then select Studio.

This will activate your Broadcaster as a live remote camera source.

In Livestream Studio, navigate to the Inputs tab in the lower left section. Select Add Input > Remote. You can select your Broadcaster from here, which will add it the bottom of your inputs list and your multi-view.

Troubleshooting

If you are not seeing any options on the list within the Remote Cam tabs, please check the following:

- Make sure the remote system is on the same network, connected to the same Router or Access Point as your Studio system.
  - If the system is on the same network but using a different access point, the Remote Camera will not properly connect.
- Check that the following ports are open if you use a firewall:
  - UDP: 5353, 60936 - 61036
    TCP: 60936 - 61036
- Check that Bonjour Service is started.

Bringing an iOS Camera Signal into Livestream Studio

The Livestream mobile application currently has issues with displaying your video properly. As an alternative, consider using the RTMP Input feature on Studio to stream from your device to Studio using an RTMP streaming mobile app (some examples are StreamLabs and BroadcastMe, among others).

Livestream Studio allows you to use your iOS device as a remote camera source. You will need a Livestream account in order to use this feature.

Download the Livestream iOS application. Connect your iOS device via Wi-Fi to the same network as your Livestream Studio system.

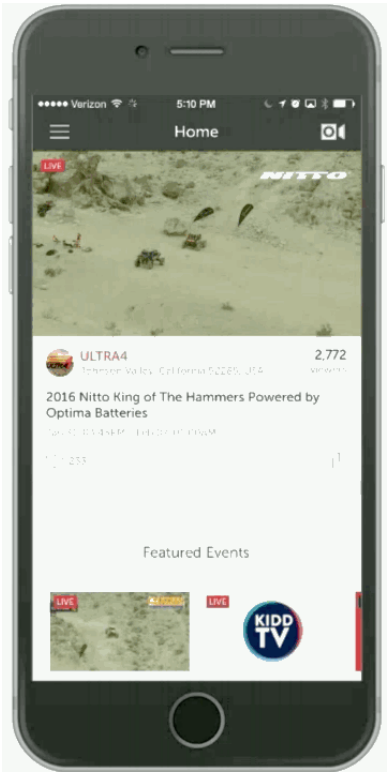
Open the Livestream iOS application and log into your Livestream account.

Don't have a Livestream account? Tap Continue with Email, then Sign up. This will create a free account on Livestream and grant you access to the mobile app's features, including Studio Remote Camera. Keep in mind a free Livestream account does not allow you to go live to the Livestream platform unless you pay for a Livestream plan.

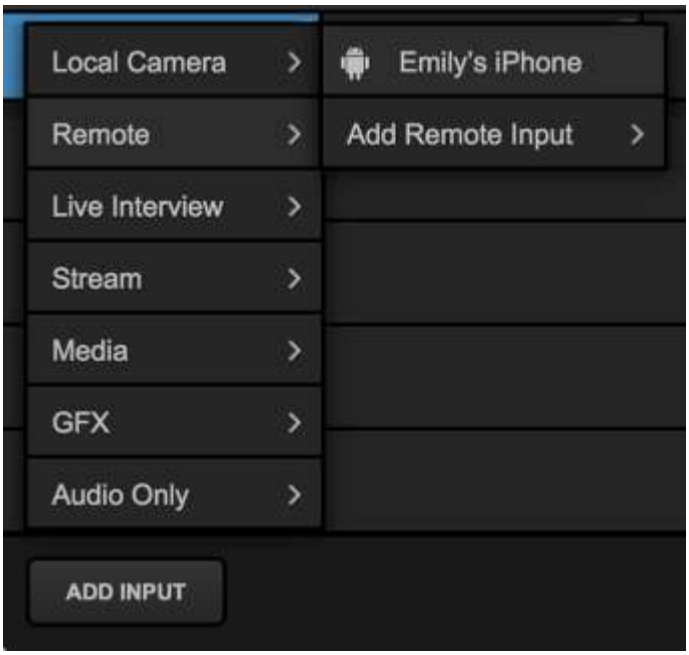
Tap the menu icon in the upper right, then tap the gear wheel. This will open the application settings.

Tap Studio Remote Camera and make sure Studio Remote Camera is enabled.

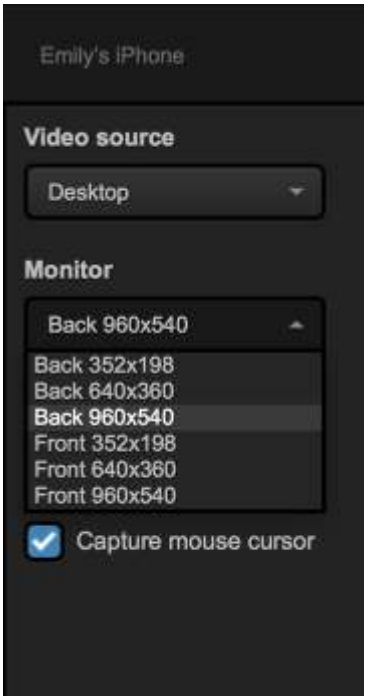
Then select the blue Livestream Studio Remote Camera bar.



In Livestream Studio, go to the Inputs tab in the lower left corner. Select Add Input > Remote. If your device is connected to the same access point as Studio, it will appear as an option for you to select.



If you click on the gear wheel next to your remote iOS source, you can change settings such as which camera is being used and at what resolution.



Troubleshooting

If you are not seeing any options on the list within the Remote Cam tabs, please check the following:

- Make sure the remote system is on the same network, connected to the same Router or Access Point as your Studio system.
  - If the system is on the same network but using a different access point, the Remote Camera will not properly connect.

- Check that the following ports are open if you use a firewall:
  - UDP: 5353, 60936 - 61036
    TCP: 60936 - 61036
- Check that Bonjour Service is started.

Bringing an Android Camera Signal into Livestream Studio

The Livestream mobile application currently has issues with displaying your video properly. As an alternative, consider using the RTMP Input feature on Studio to stream from your device to Studio using an RTMP streaming mobile app (some examples are StreamLabs and BroadcastMe, among others).

Livestream Studio allows you to use your Android device as a remote camera source. You will need a Livestream account in order to use this feature.

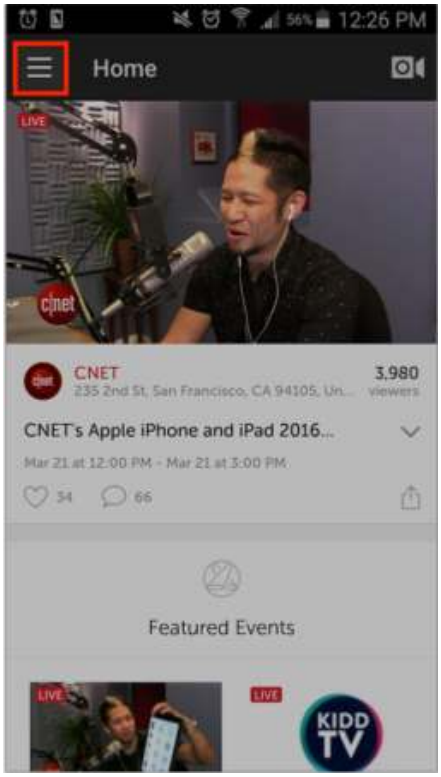
Download the Livestream Android application.

Connect your Android device's Wi-Fi to the same network that your Livestream Studio system is connected to.

Open the Livestream Android application. You will need a Livestream account to proceed with using the app.

Don't have a Livestream account? Tap Continue with Email, then Sign up. This will create a free account on Livestream and grant you access to the app's features, including remote camera. Keep in mind this will not allow you to go live to Livestream unless you pay for a plan.

Tap the menu icon in the upper left corner, then the gearwheel.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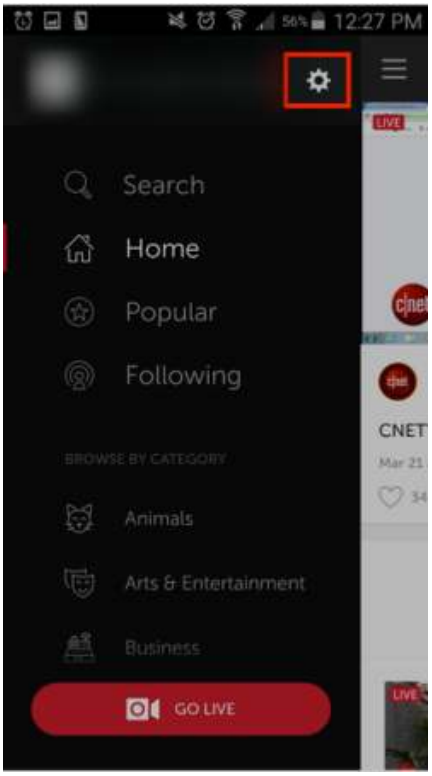
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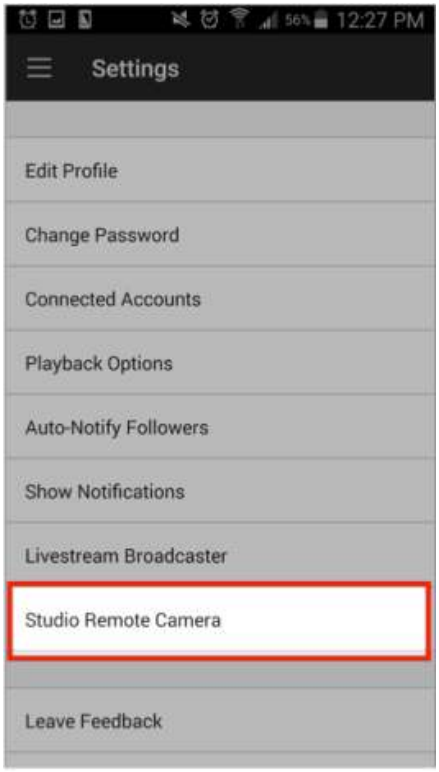
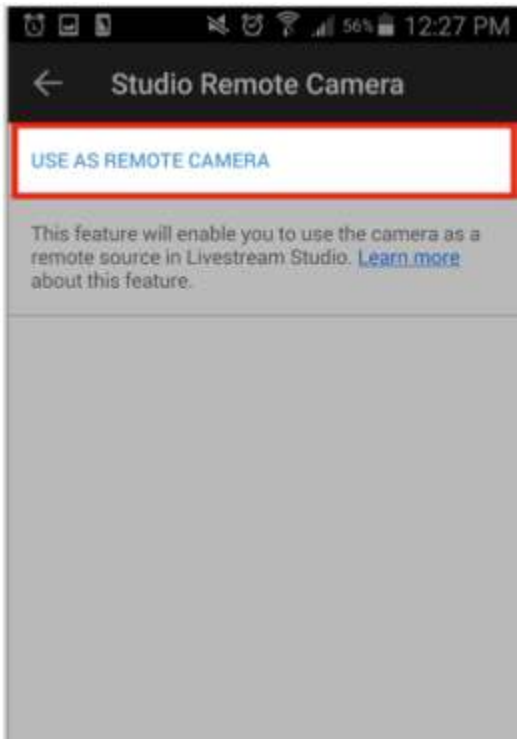
This will open your settings menu. Tap Studio Remote Camera.

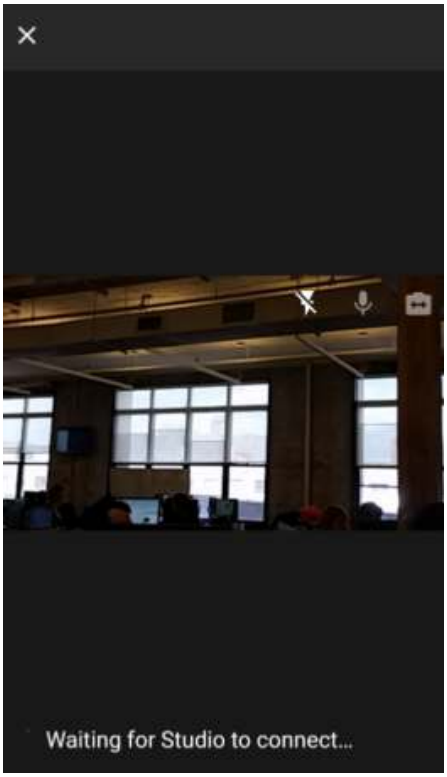


Tap Use as Remote Camera.

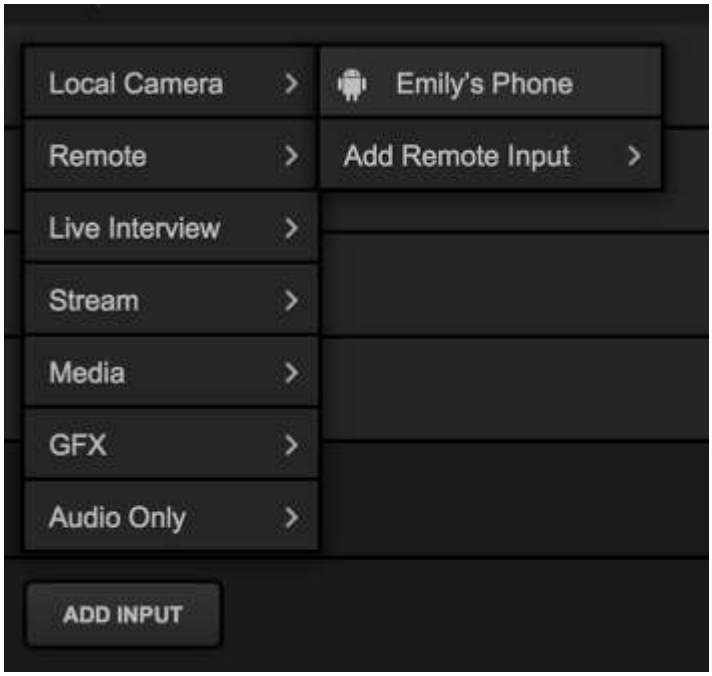


This will activate your Android device as a live Remote Camera source. The notification will read "Waiting for Studio to connect..."

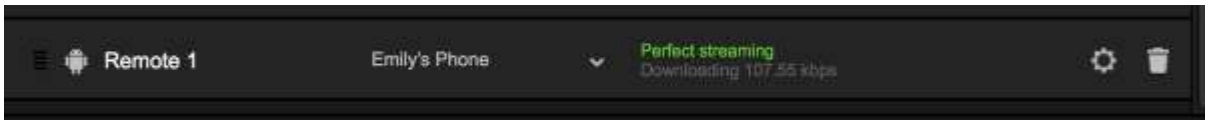
You can hold your camera at portrait or landscape mode; the picture will still hold a 16:9 aspect ratio.



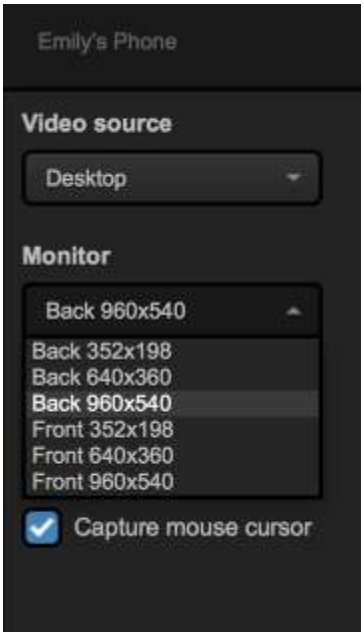
In Livestream Studio, navigate to the Inputs tab in the lower left corner. Select Add Input > Remote. If your Android device is connected to the same access point as Studio, it will appear in the list of remote devices for you to select from.



The Android remote camera will be added to the bottom of your Inputs list, where you can choose a different remote camera and see the connection status (e.g. "Perfect streaming"). Click the corresponding gearwheel on the right to access additional settings.



You can adjust which camera your device is using (front or back) by opening the Monitor drop-down menu.



Troubleshooting

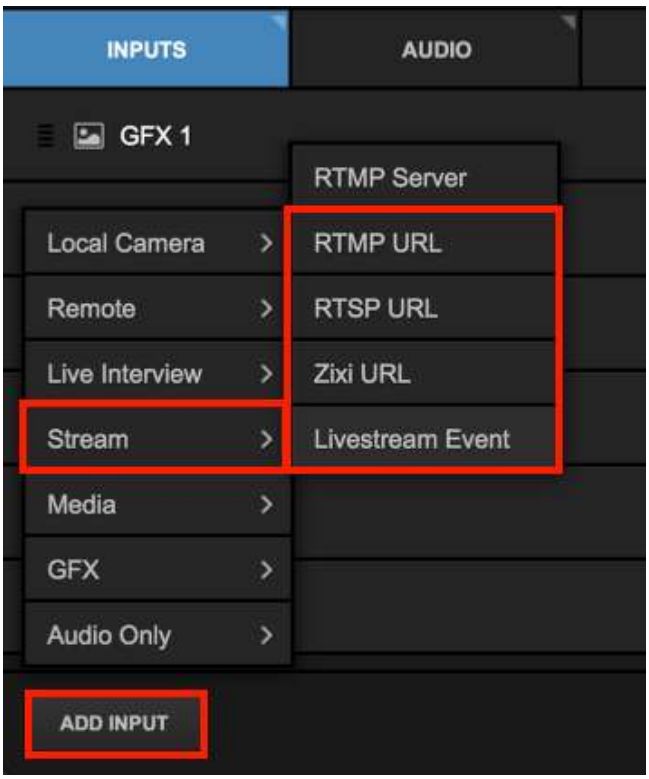
If you are not seeing any options on the list within the Remote Cam tabs, please check the following:

- Make sure the remote system is on the same network, connected to the same Router or Access Point as your Studio system.
  - If the system is on the same network but using a different access point, the Remote Camera will not properly connect.
- Check that the following ports are open if you use a firewall:
  - UDP: 5353, 60936 - 61036
    TCP: 60936 - 61036
- Check that Bonjour Service is started.

Bringing Other Streams into Livestream Studio

If you have a video source streaming to another destination, you can pull that stream into your Livestream Studio as a remote camera source.

Navigate to the Inputs tab in the lower left corner. Select Add Input > Stream. There will be a few options here.

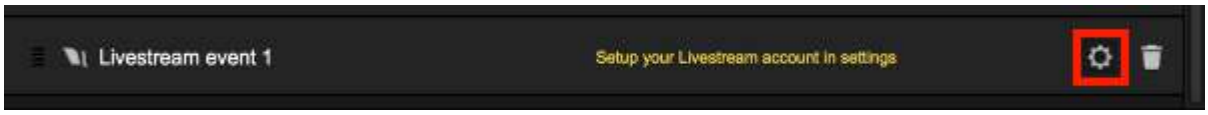


RTMP Server is a different way to bring a stream into Livestream Studio and is covered here.

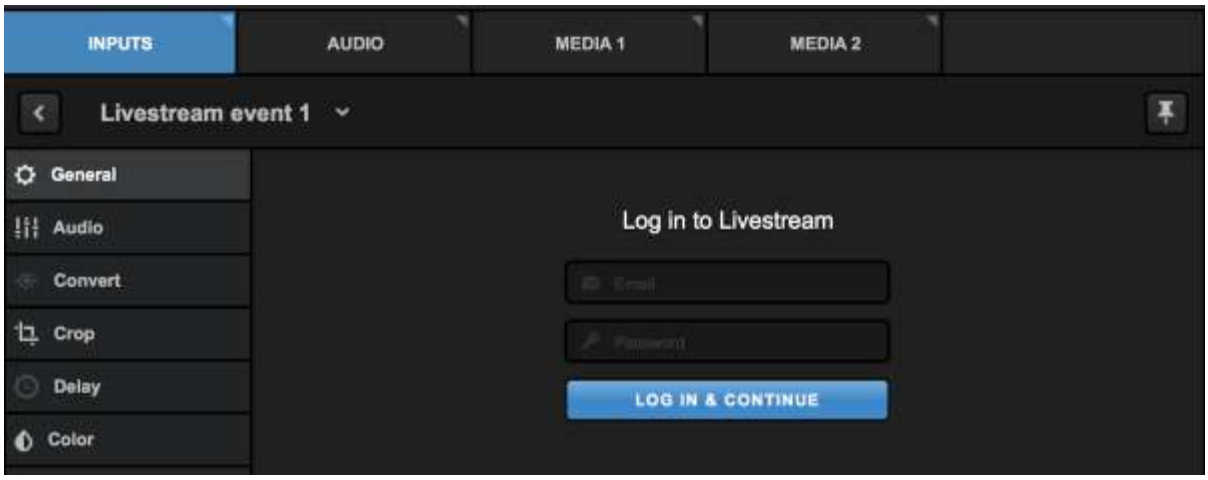
Livestream Event allows you to pull in a stream from an event on Livestream.com as a remote camera source. You must have the login credentials for the account hosting the event you wish to bring in.

After adding a Livestream Event as an input, it will appear in the bottom of your inputs list and in your multi-view. You can hover your cursor over the name (e.g. "Livestream evnet 1") and click the pencil icon that appears to edit it.

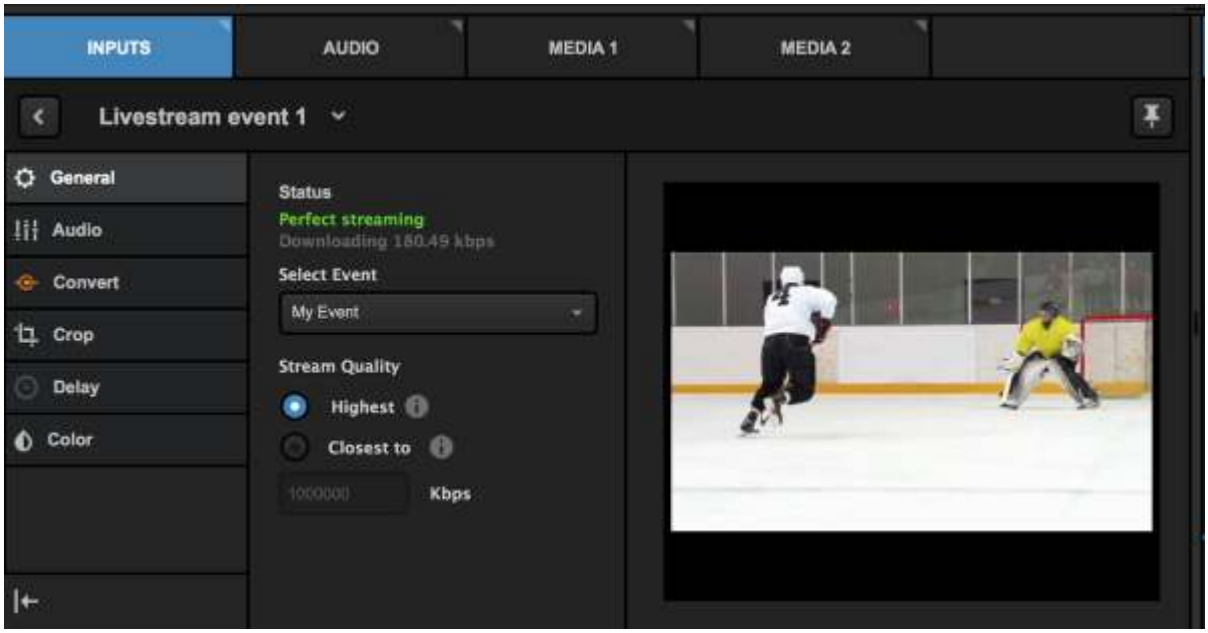
Select the corresponding gearwheel to the right to configure the input.



Log into the Livestream account that's hosting the stream you wish to bring in.

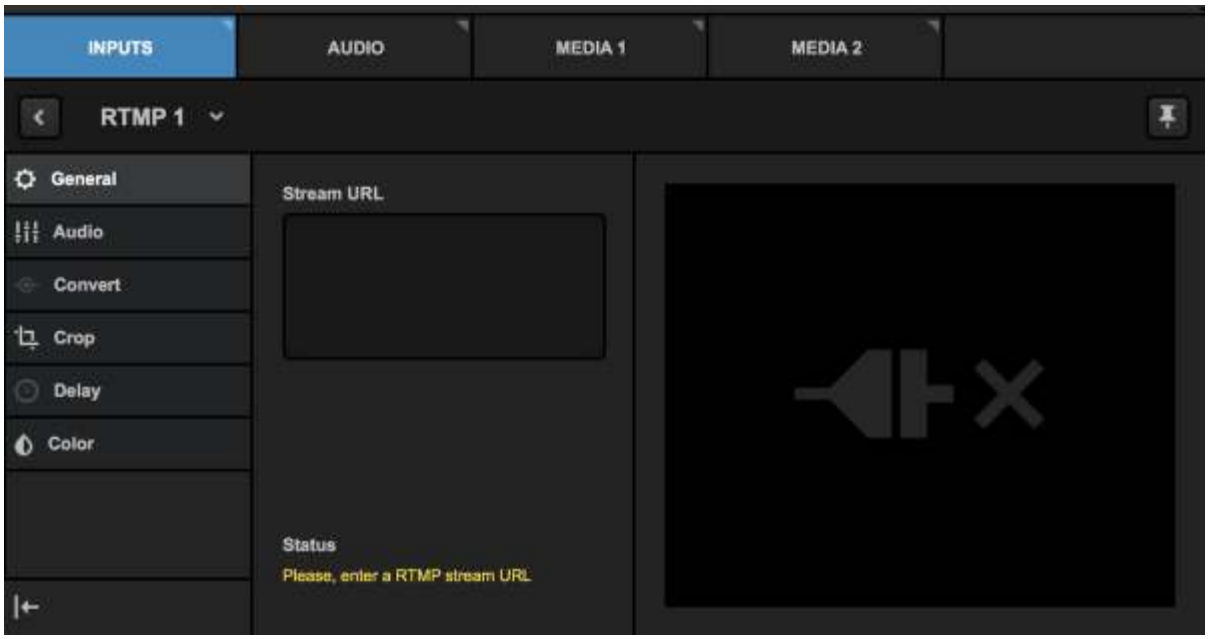


By default, Studio can detect which of your events are live and bring it in automatically. Alternatively, you can choose an event manually.



You can also bring in streams via RTMP, RTSP, and Zixi playback URLs, which can be provided by the stream's hosting platform. Select the protocol your stream is using from Inputs > Add Input > Stream.

Enter the appropriate playback URL for accessing the stream into the Stream URL text box, then press the Enter key.



The stream will appear in the module. Expected latency will vary depending on connectivity strength, but will likely hover around ten seconds.

Learn more about additional input settings.

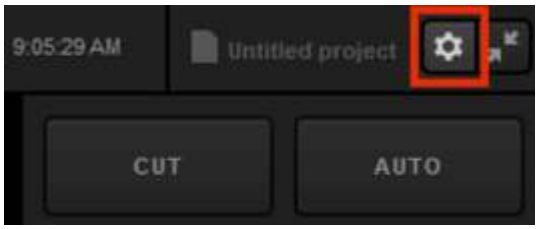
Remote Cameras and Direct Inputs out of Sync

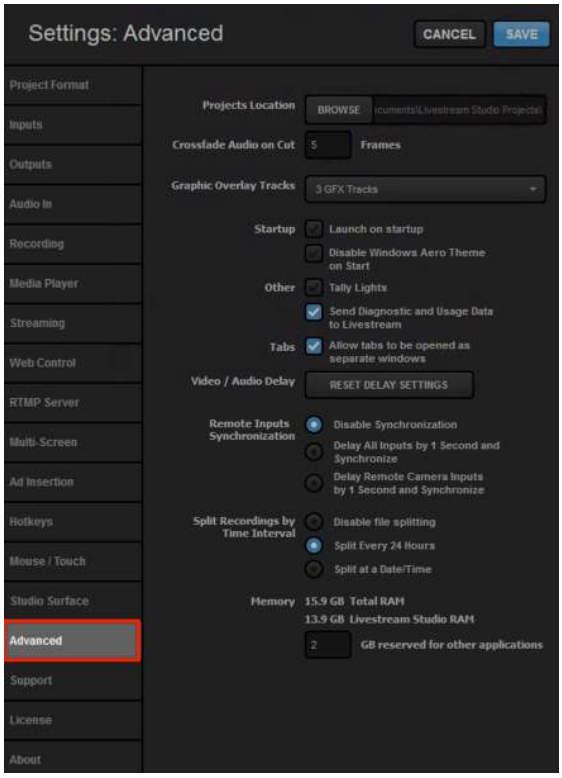
It's common for hard-wired cameras and remote cameras connected via the local network to not be exactly synced up. This is due to the nature of their individual workflows; wireless signals generally travel slower than directly connected signals.

To resolve this, Studio has a simple setting to sync all your camera sources together.

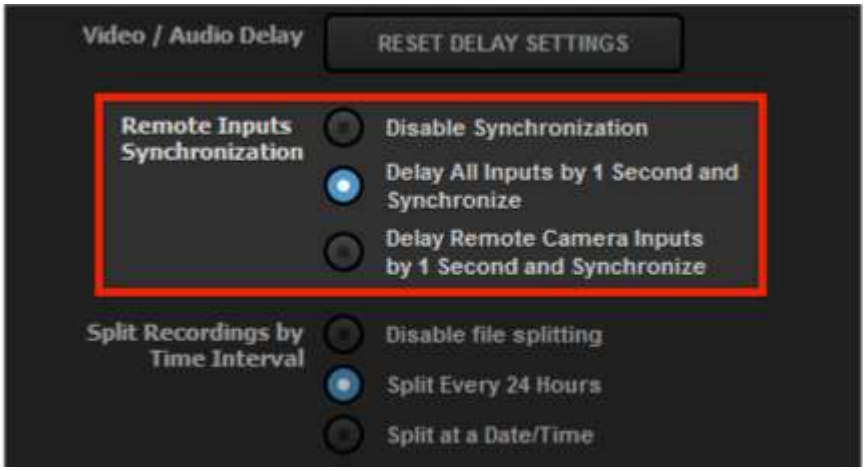
Click the gearwheel in the upper right corner of Studio, then click the **Advanced** tab.

This only works for remote cameras utilizing the same network as Studio, such as the Remote Desktop Client for Mac and Windows and Mevo cameras. This does not apply to Remote Guests, RTMP server, or other streams.





Navigate to the Remote Inputs Synchronization setting and select Delay All Inputs by 1 Second and Synchronize. This will allow your wired inputs to compensate for the latency experienced by wireless sources and sync them together.



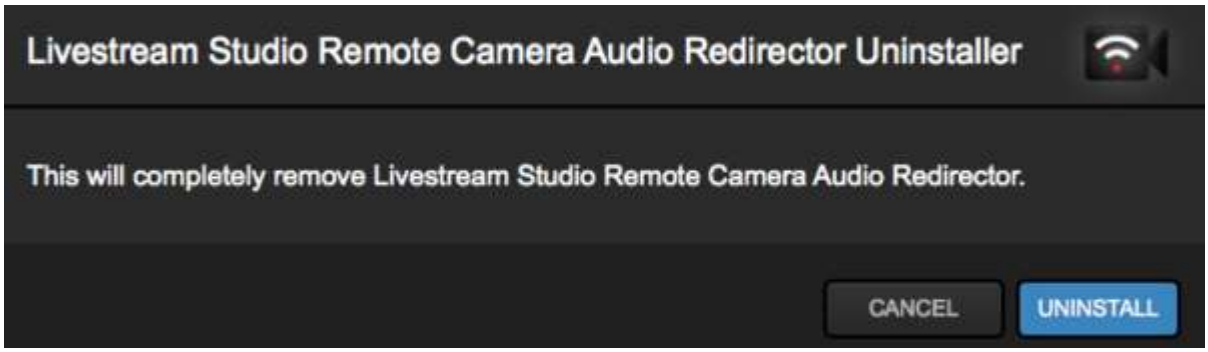
If you are only using remote camera sources, then select Delay Remote Camera Inputs by 1 Second and Synchronize.

Be sure to save your settings.

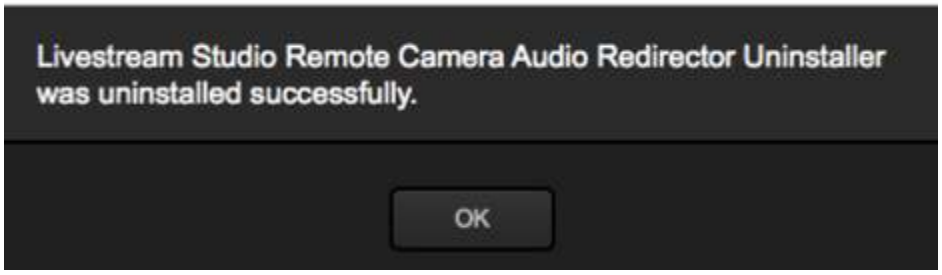
Uninstall Mac OS X Remote Camera and Audio Redirector

To uninstall the Remote Camera Desktop Audio Redirector, navigate to your Applications folder and locate the LSAudioRedirectorUninstaller application. Double-click it.

This message will pop up asking you to confirm that you want to uninstall the Audio Redirector. Click Uninstall.



When the script finishes running, this message will pop up, confirming the Audio Redirector has been uninstalled successfully.

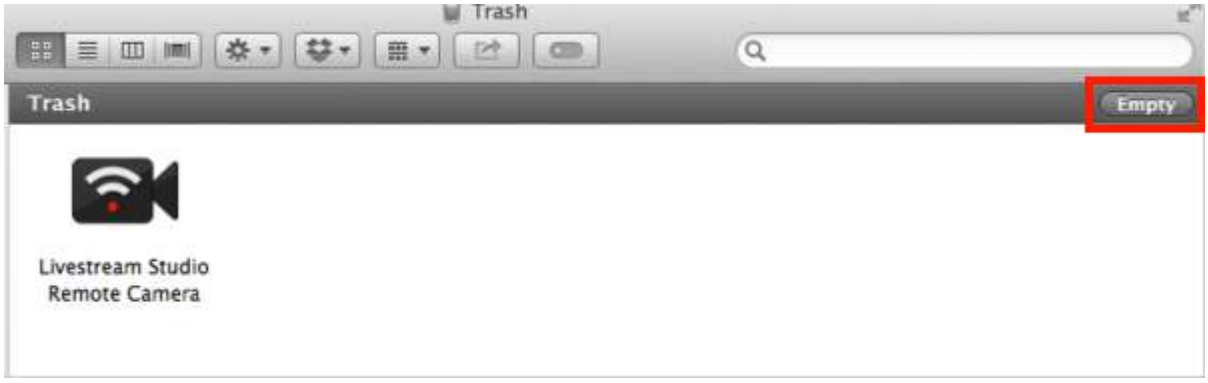


To uninstall the Remote Camera Desktop Client on a Mac system, first close the application by clicking the icon in the top menu bar.

Locate the Remote Camera application in your Applications folder.

Drag the application to Trash.

Empty the trash.



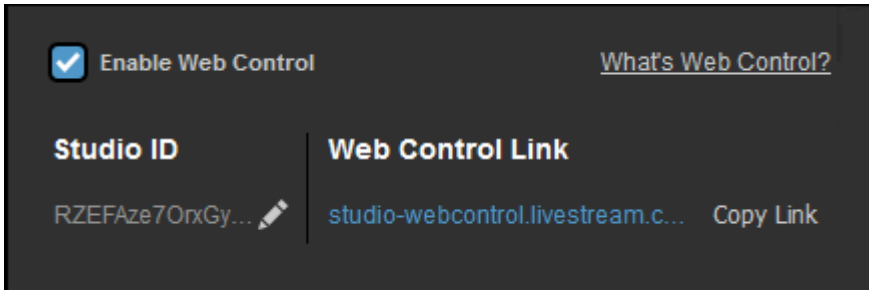
Web Control

What is Studio Web Control?

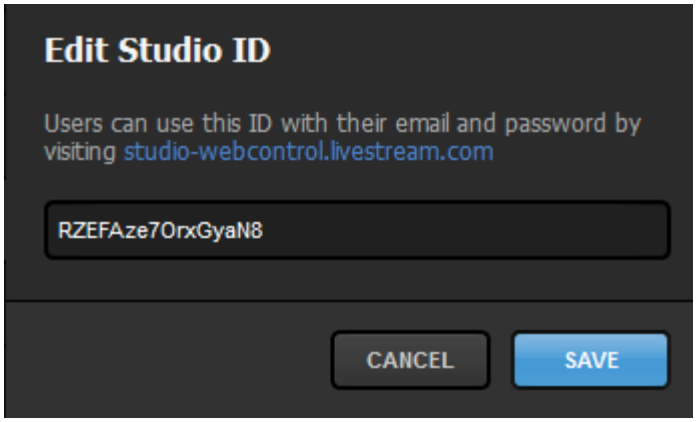
Studio Web Control allows you to give yourself or others access to a Livestream Studio system directly from a supported browser.

On your Studio system, go to settings, then click the Web Control tab. Click the checkbox next to Enable Web Control to see more options.

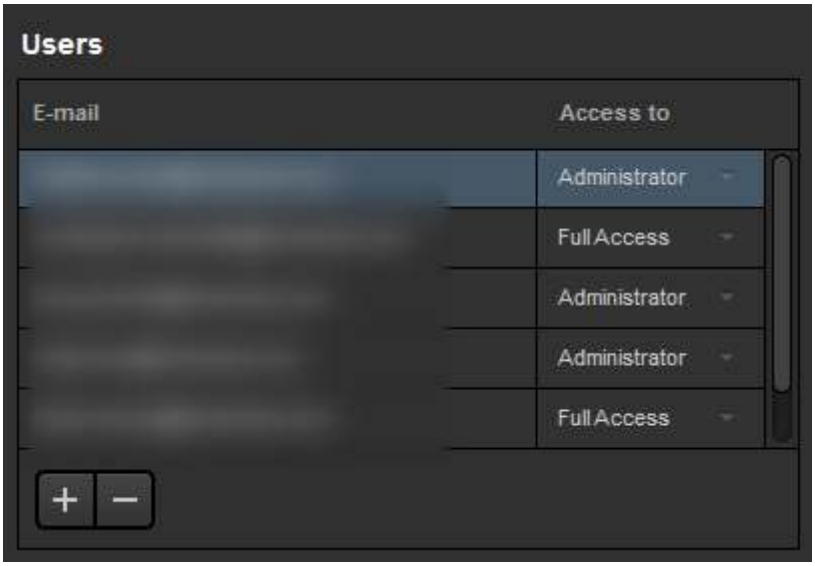
First, you will see a Studio ID and a Web Control Link. These are used to add users to your Studio system.



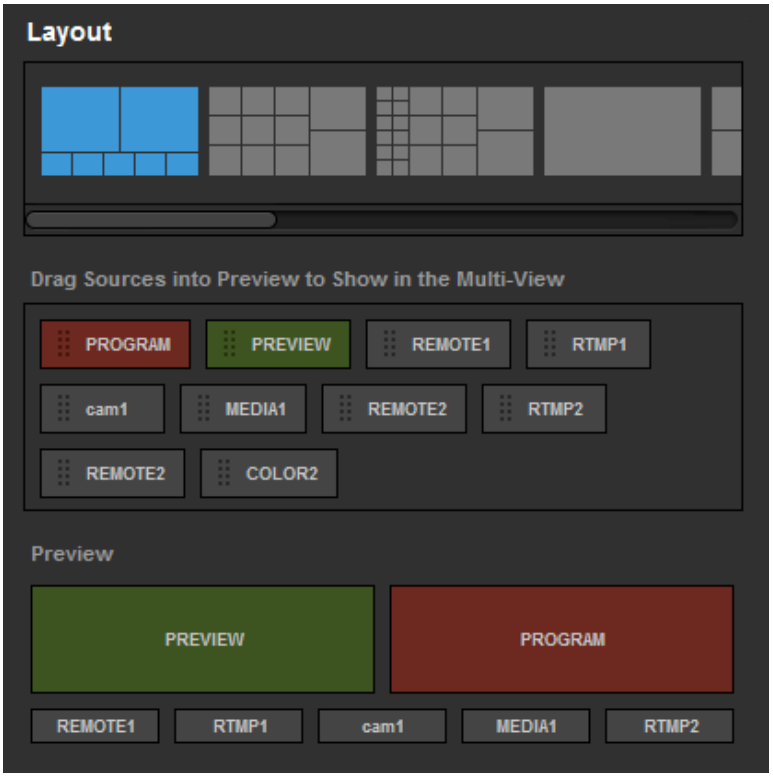
You can use the default ID that populates, or create your own by clicking the pencil icon to edit it. Click save when you are done, or cancel to keep the previous name.



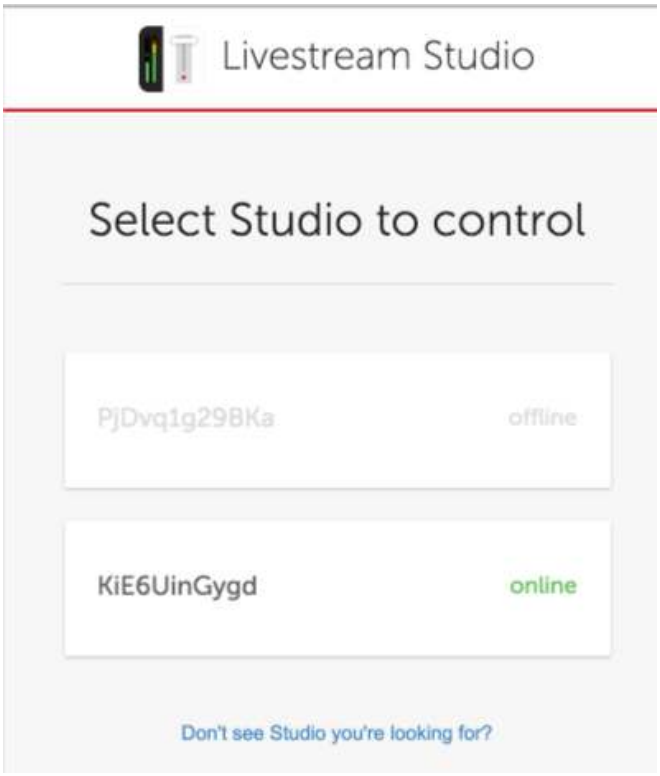
Below is your list of allowed users that you have invited to your Studio Web Control. You can also adjust how much access each user has to your Studio.



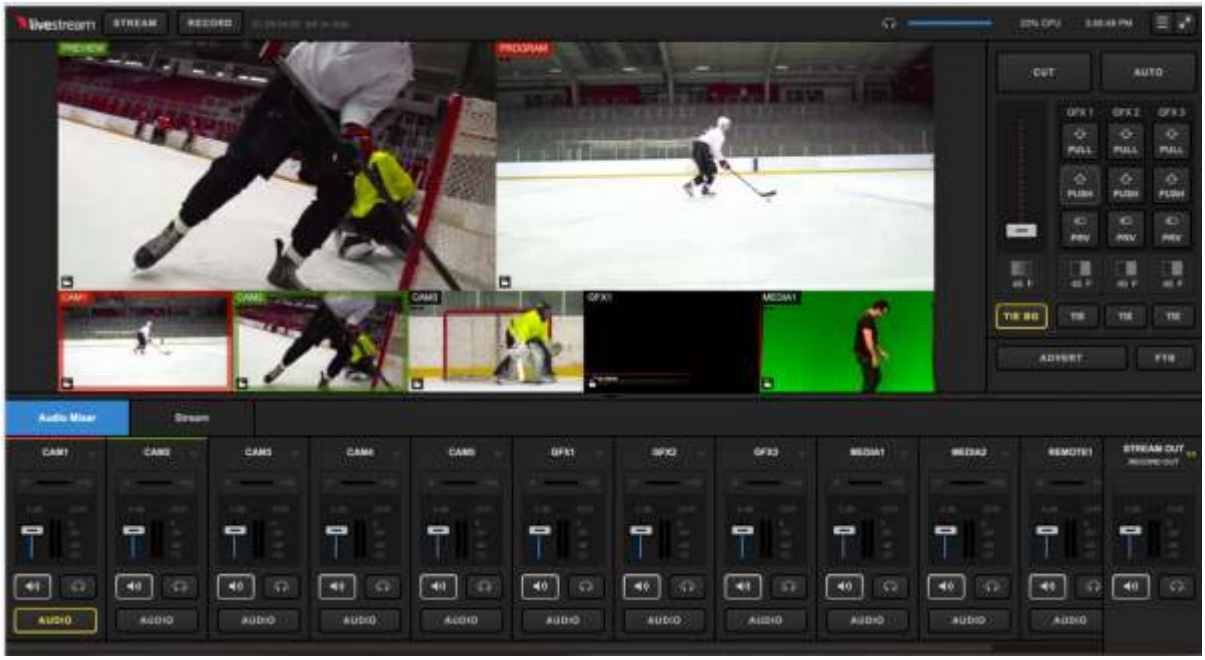
Finally you can choose how your Studio Web Control is laid out in the module below. Choose a layout and drag and drop sources you wish to see into the position you want them in.



When you log into Studio Web Control using your Livestream or Vimeo account credentials, any Studio system you have been added to will be listed below as offline or online. Select your online Studio.



A window such as the one below will open for users granted Full Access:



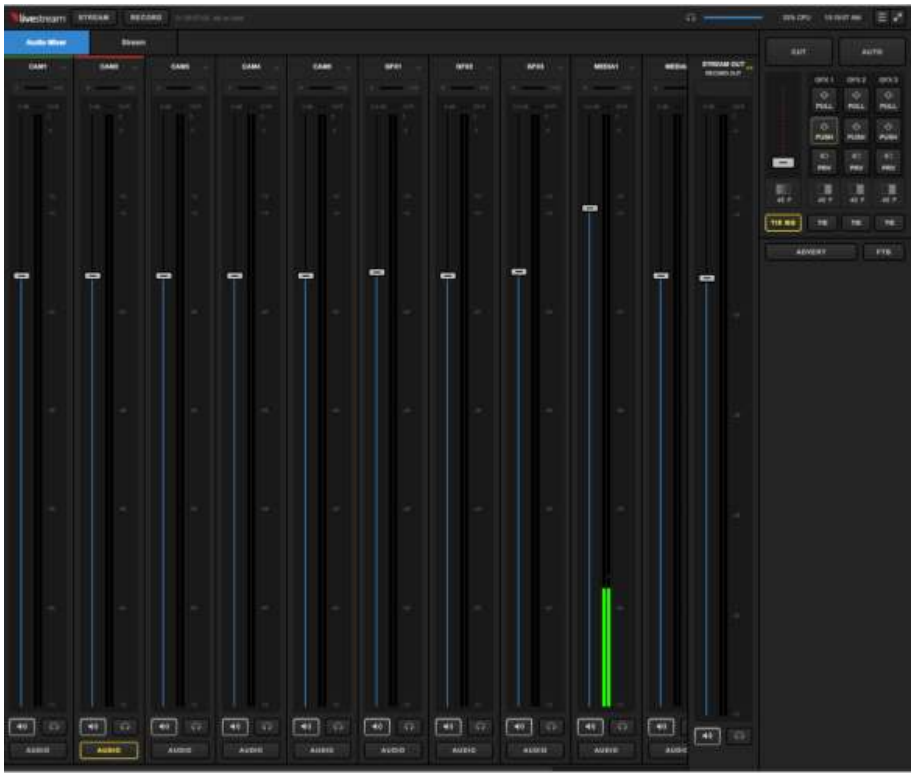
Here is where those users will be able to the see and control the multiview, control the audio mixer, operate the transition controls as well as insert mid-roll advertisements and fade to black. They can also click the menu icon in the upper right corner to change their view and log out.

Read only users will see a similar window to those given Full Access, with the exception of a 'Read Only' ribbon in the upper right control. These users can see every part of the interface that Full Access users can, but they cannot control it or make any changes.

Users granted access to the multiview will see something similar to below, depended on your layout settings.

They can click on the sources to put into Preview and Program. They can also click Stream and Record at the top of the module to go live and start recording, respectively.

Users granted access to controls only will see the audio mixer, stream module, GFX modules, all the options seen under the transition controls. However, they do not have the ability to see or control the multiview.



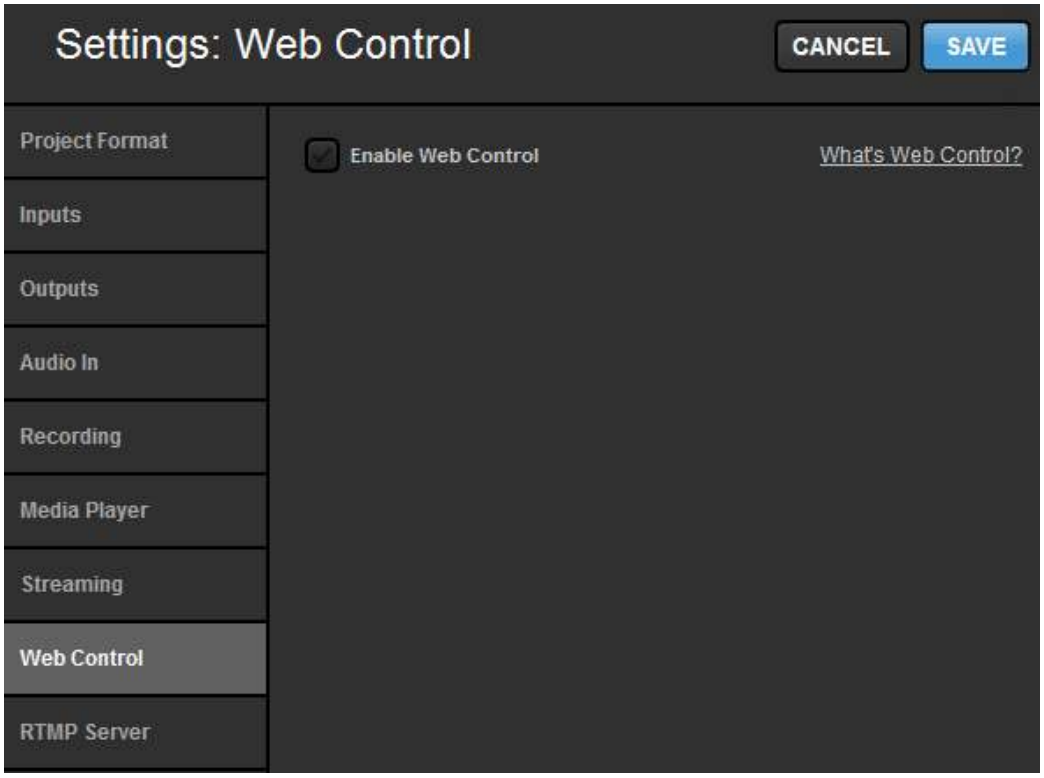
All users can log out of web control by click the menu icon in the upper right corner and clicking Log Out.

If you're using Web Control on the same network (LAN) as Studio, the information between the two will be exchanged peer-to-peer (P2P) over the LAN rather than over the internet.

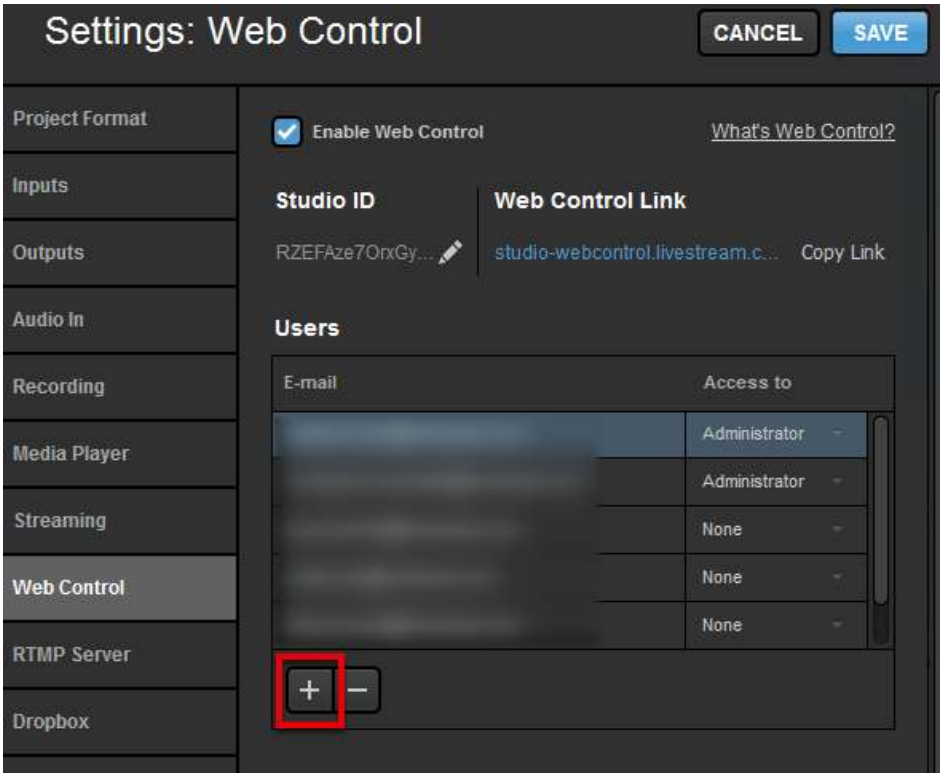
Add a User to Studio Web Control

You can add additional users to control your Studio via Google Chrome and other supported browsers.

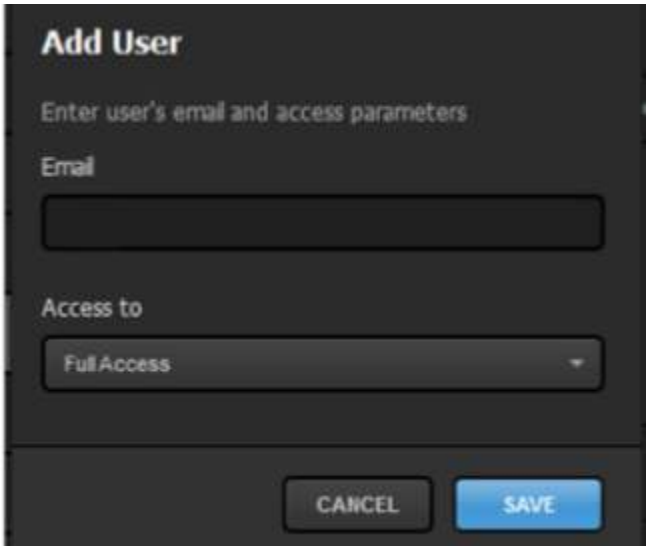
In your Livestream Studio system, go to Settings > Web Control.



Enable Web Control by clicking the check box, then navigate to the Users box.



To add a user, click the + button. The following window will appear.



Enter the person's email address and how much access you wish to grant them. The options are:

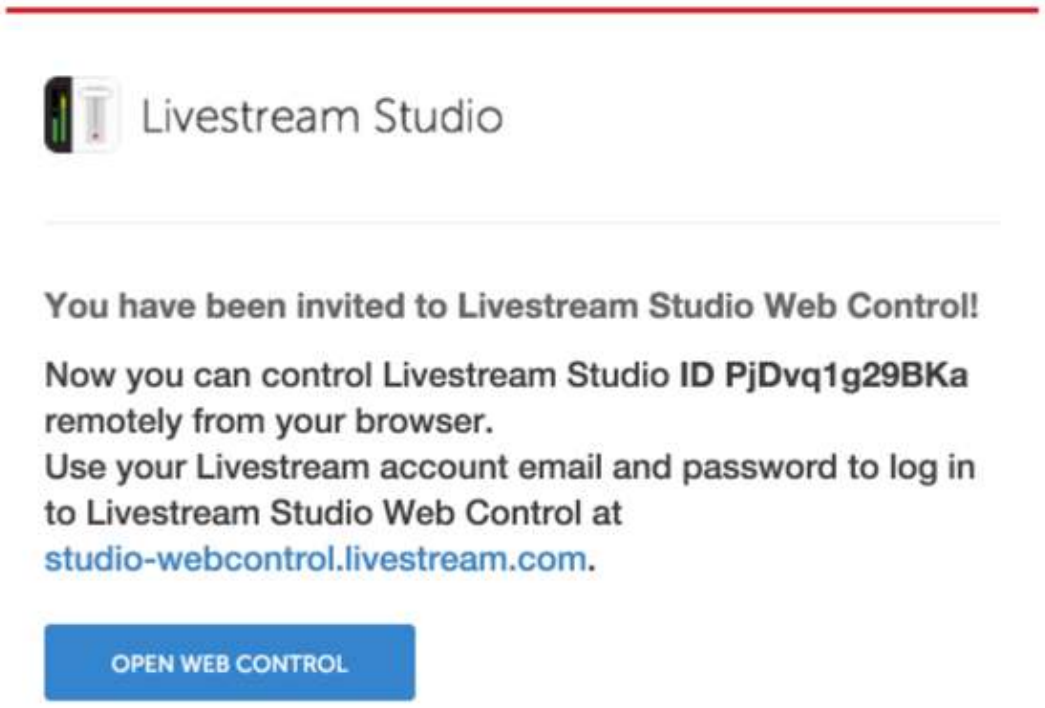
- Administrator - full access plus ability to change access for themselves and other users

- Full access - full use of all Studio Web Control features (multi-view and controls); cannot change other users access.
- Read only - can only view web control with no ability to control Studio
- Multiview - can see the multi-view as configured from Studio and use mouse controls to put sources in Preview and Program
- Controls only - can control audio mixer, GFX, stream tab, RTMP inputs, and other transition controls in web control but cannot see the multi-view.

Click Save and then save your Studio settings. The user you have invited to access your Studio via Web Control will not be able to join it until you save your settings.

> You can always adjust what kind of access each user has when you go back into the settings. Doing so will kick them out of any current session and they will have to re-enter the Studio Web Control interface again.

The email address you sent the invite to will receive the following email:



The user should click the blue Open Web Control button or the studio-webcontrol.livestream.com URL. They will be prompted to log into a Livestream or Vimeo account if they are not already, and then directed to the Studio Web Control interface that they have been given access to.

The user must have an account on Livestream or Vimeo in order to log into Studio Web Control. If they do not have an account, they can click Join Livestream or Vimeo. The user must use the email address that was invited to Studio Web Control.

Supported Browsers and Devices for Studio Web Control

In order to use Web Control with Livestream Studio, customers must use the most recent versions of Google Chrome, Mozilla Firefox, or Safari on the following operating systems only:

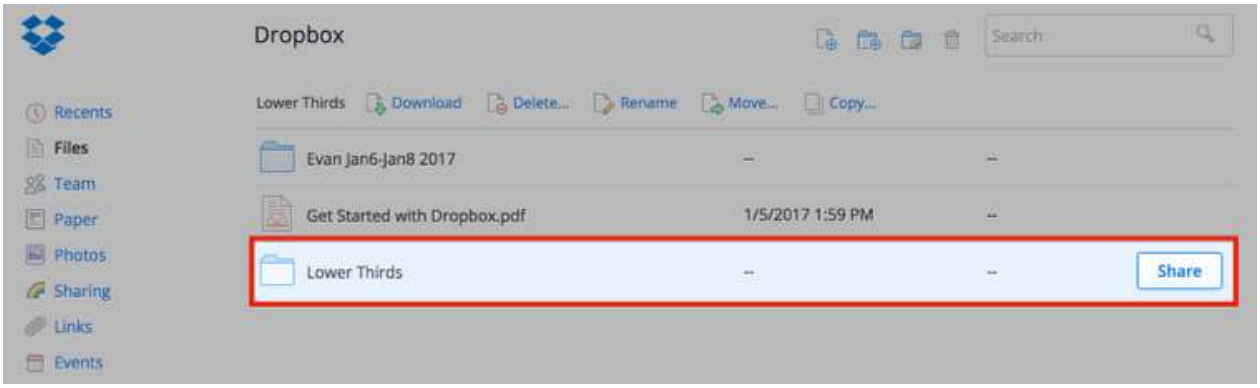
- macOS
- Windows
- Chromebook
- Android

Web Control is **not** supported on Microsoft Edge and all iOS devices.

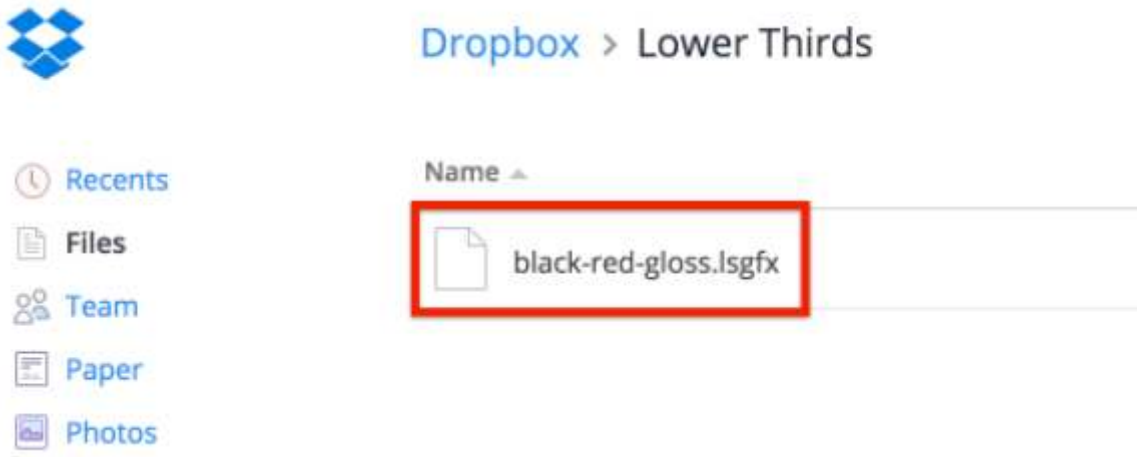
Using Graphics Overlays in Studio Web Control

Web Control, the Livestream Studio feature allowing the ability to control certain aspects of Livestream Studio via a web browser that supports WebRTC (e.g., Google Chrome, Mozilla Firefox), includes the ability to add .lsgfx files via Dropbox, insert data, and have full control over your graphics overlays' settings.

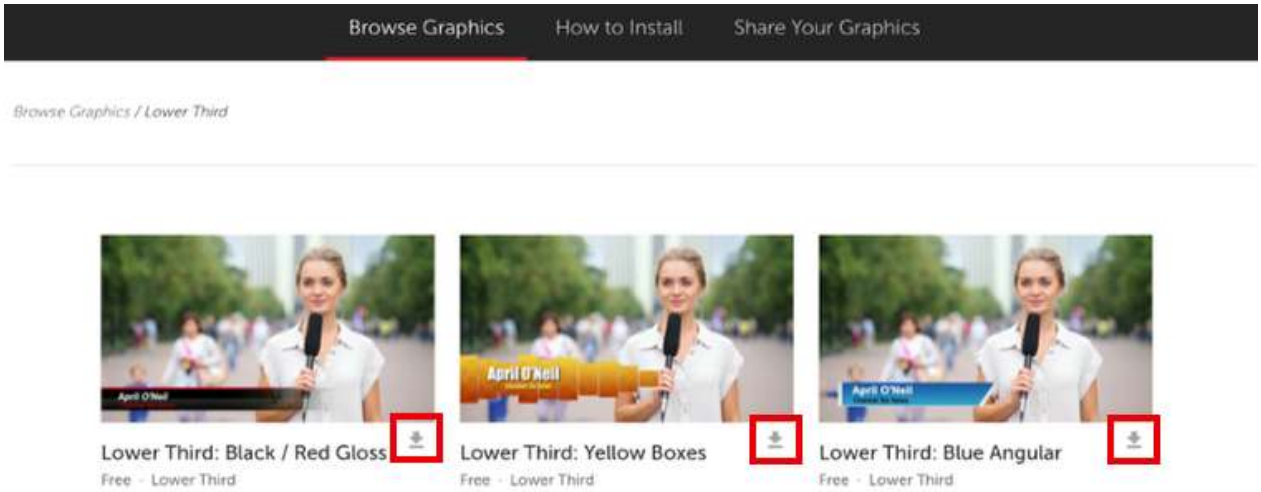
A Dropbox account is required in order to use this feature. Log in to Dropbox and locate your folders (or create a new one).



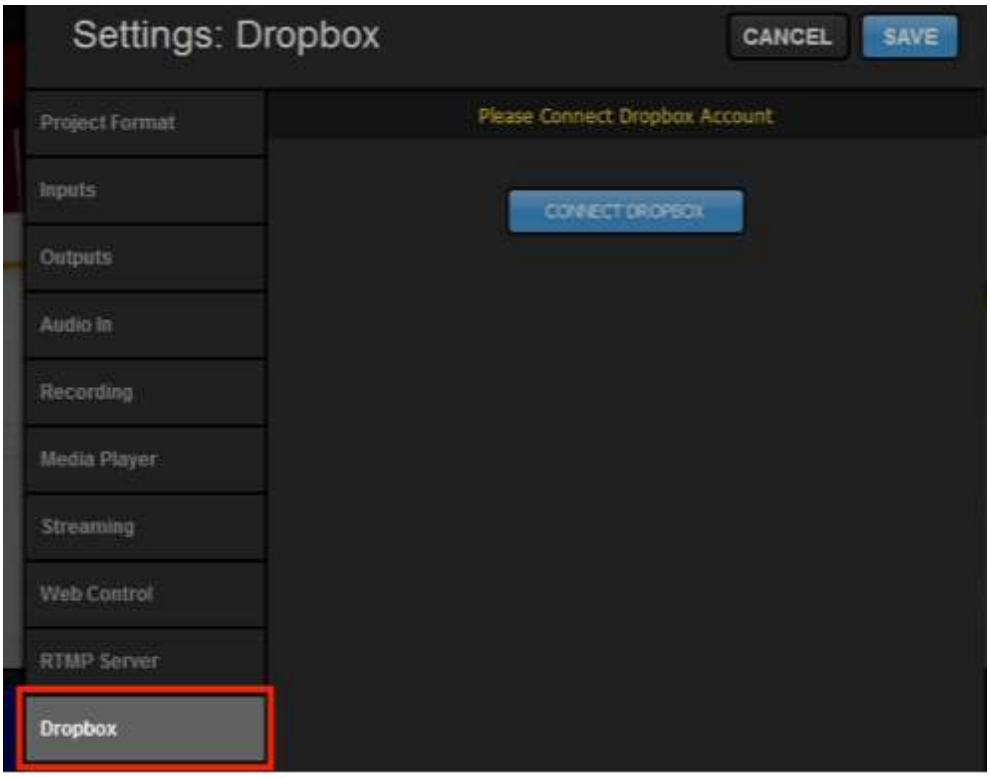
Save the .lsgfx files you wish to use in Livestream Studio in this folder. Only .lsgfx files are supported in Studio Web Control.



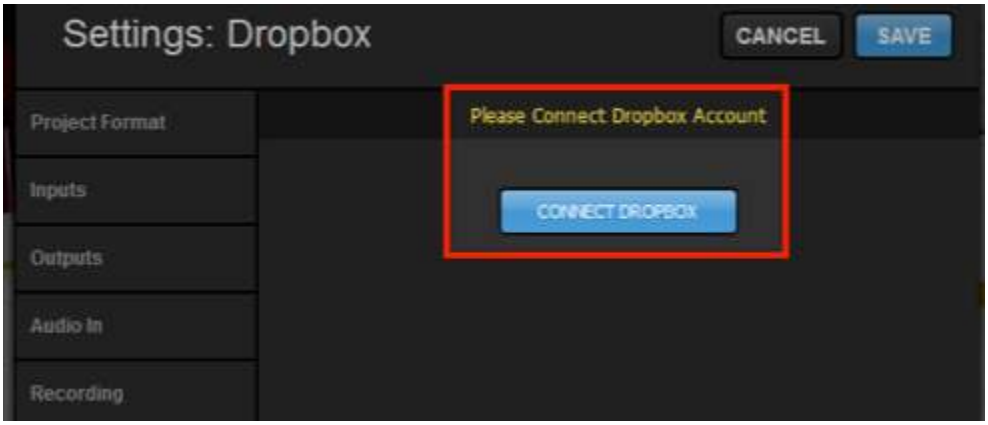
Sample .lsgfx files can be found in the Studio Graphics Store or can be created when you export a graphics overlay layer that you *manually created* in Livestream Studio.



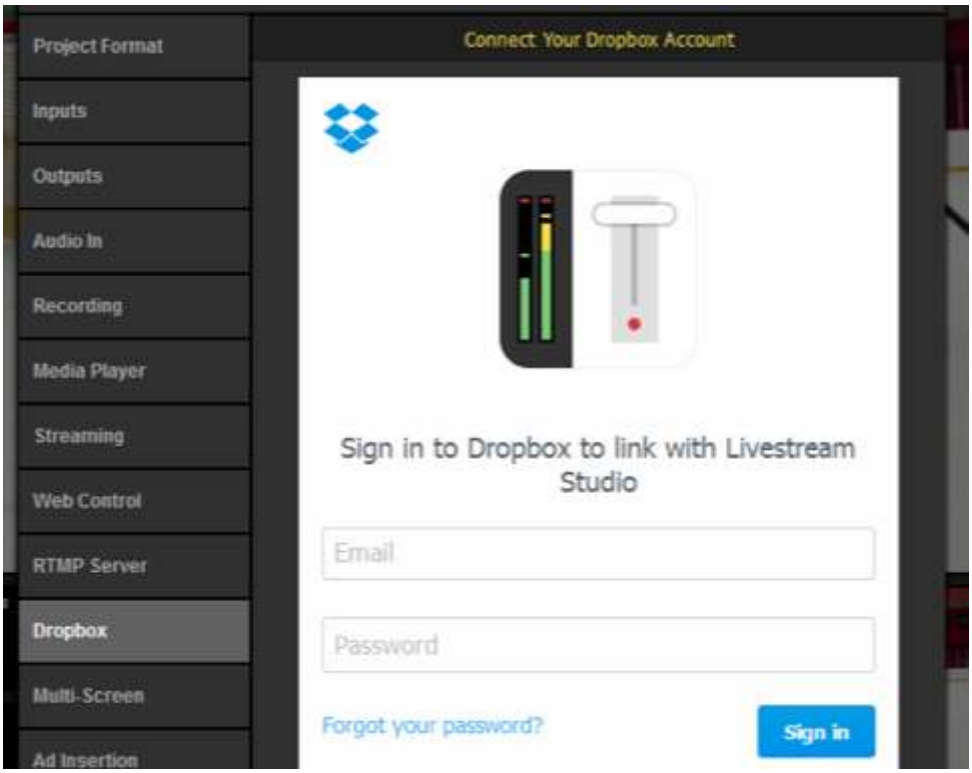
The first step is within the Livestream Studio software. Navigate to Settings, then select the Dropbox tab.



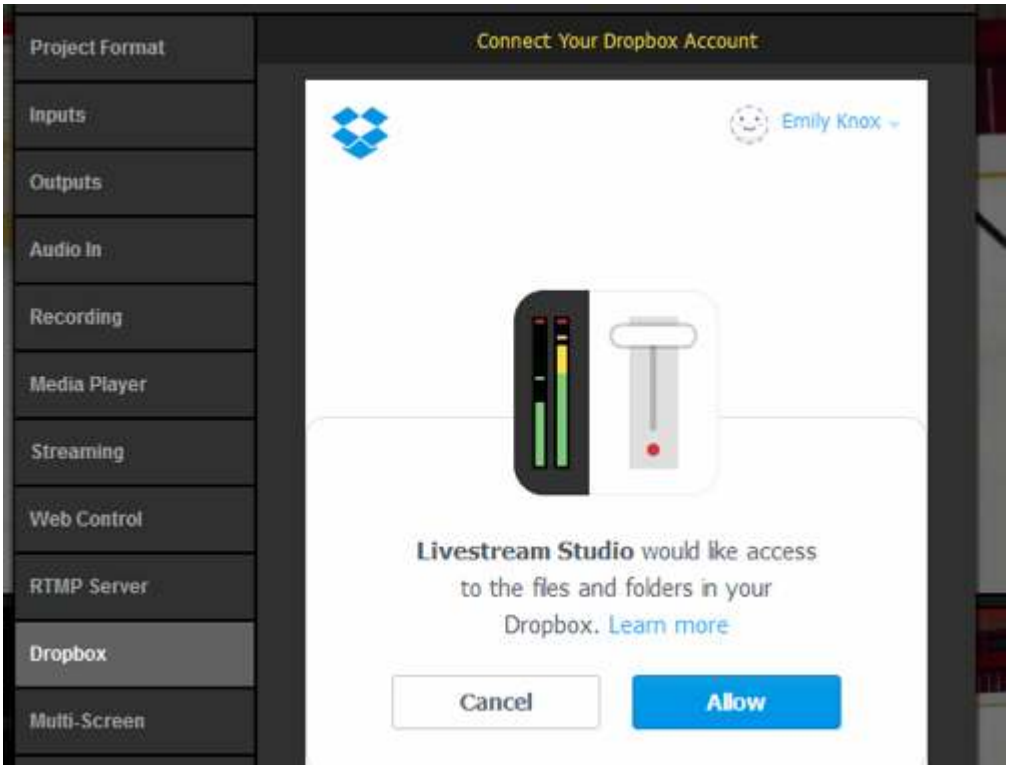
Click Connect Dropbox.



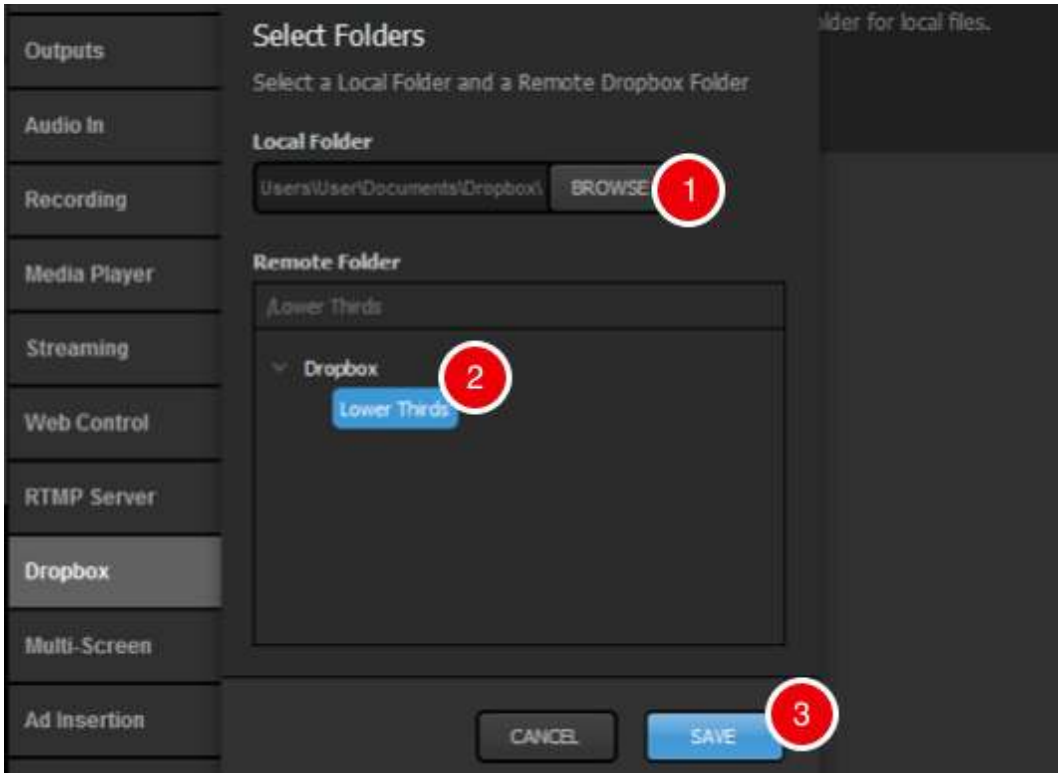
Log in to your Dropbox account by entering your account credentials and clicking Sign in.



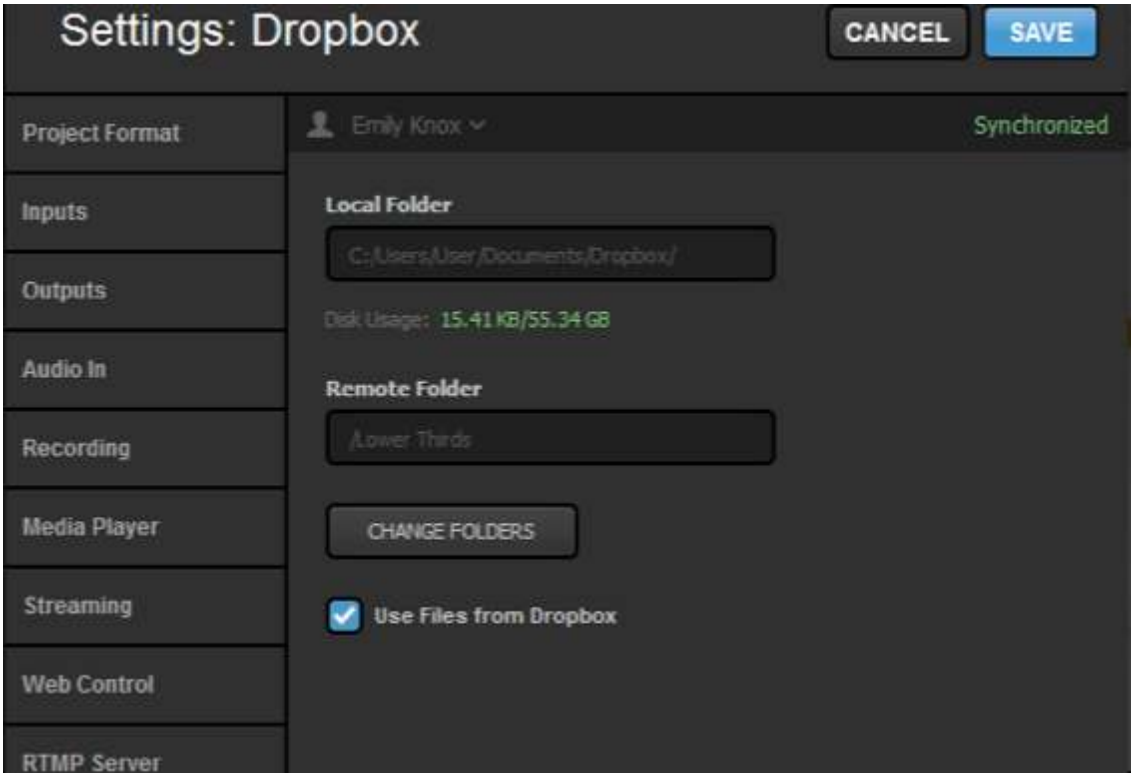
Studio will request permission to access your files in Dropbox. Click Allow.



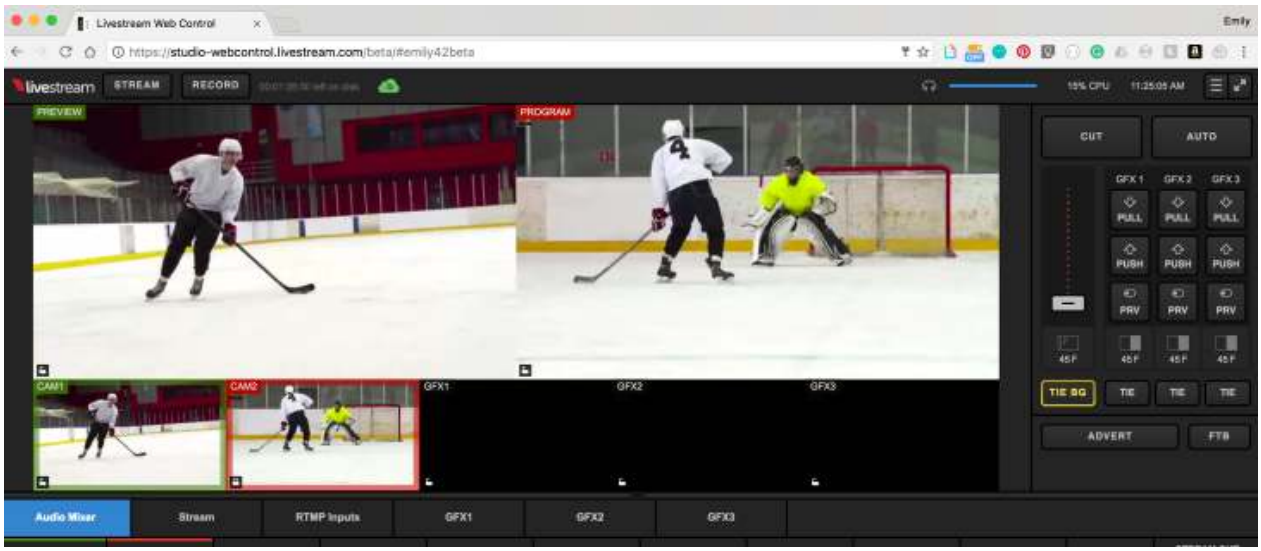
You will need to select a folder on your local drive to save your imported file to and a folder in your Dropbox from which to select .lsgfx files. Once you made your choices, click Save.



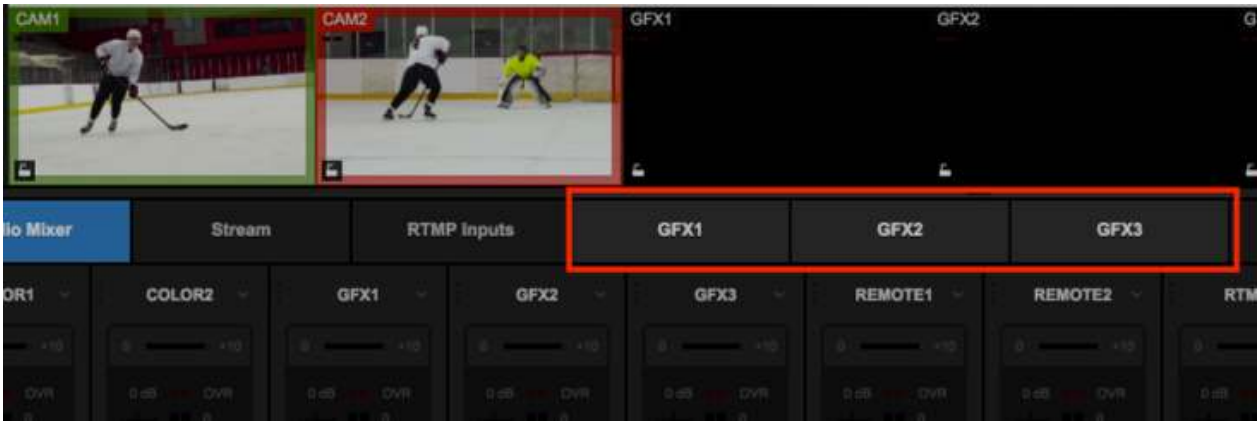
Studio will indicate that your Dropbox account is synchronized with Studio.



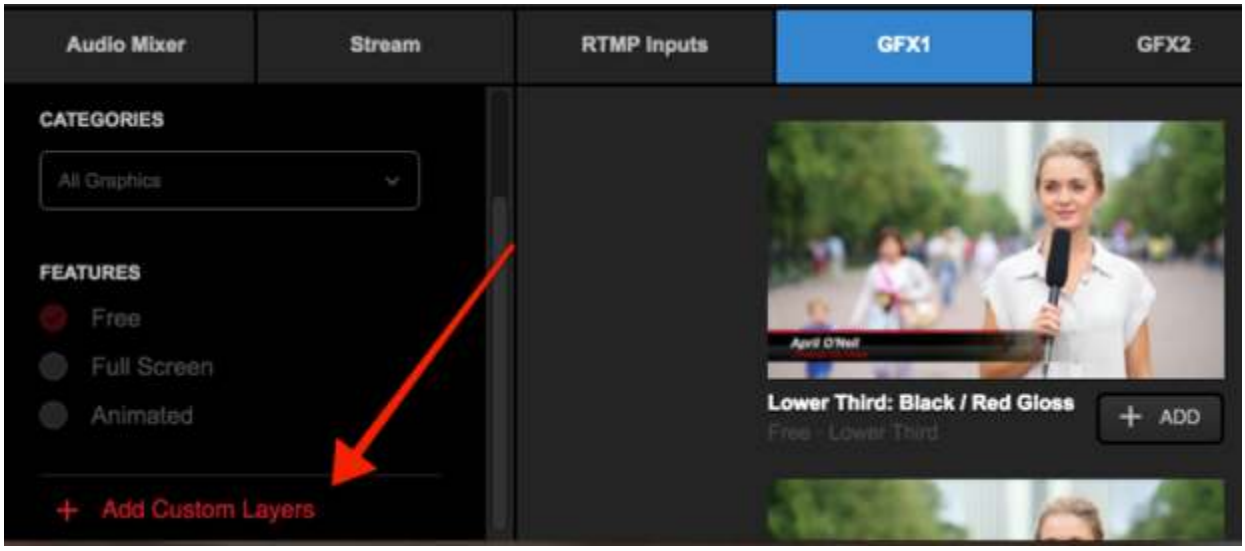
Next, log in to Web Control and open your Studio (assuming you have already added yourself as a user).



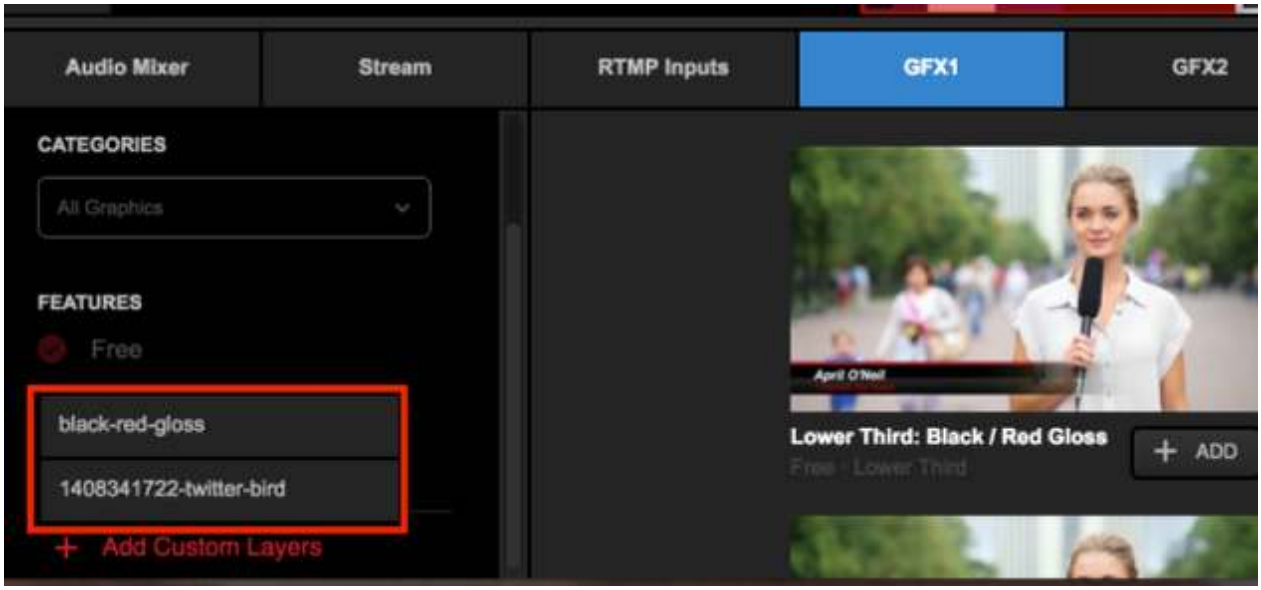
You should notice the three graphics overlay tabs in the bottom portion of the screen; select one of them to continue.



You can either browse the free Graphics Store within the Web Control graphics overlay module or scroll down and click Add Custom Layers.

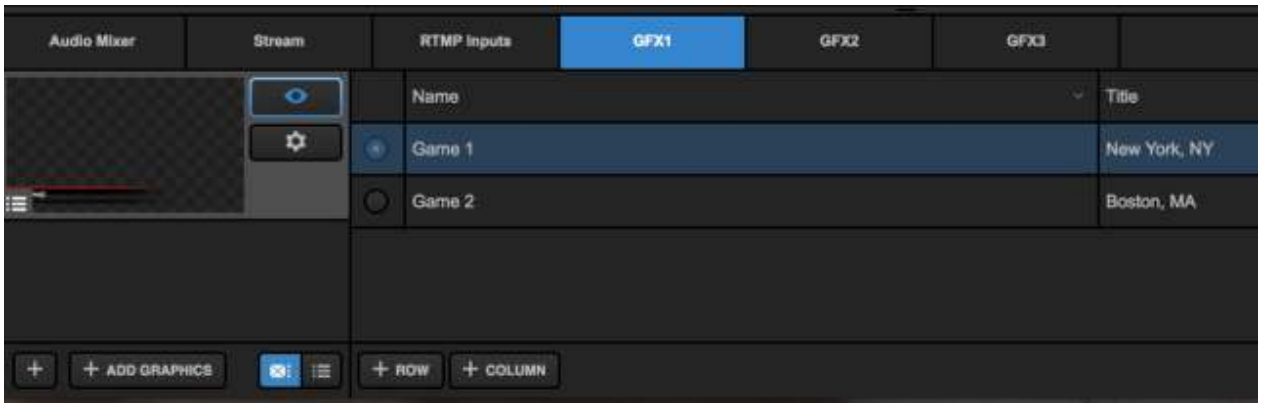


Any .lsgfx files saved in your selected Dropbox folder will be listed here. Click the name of the file you wish to use.

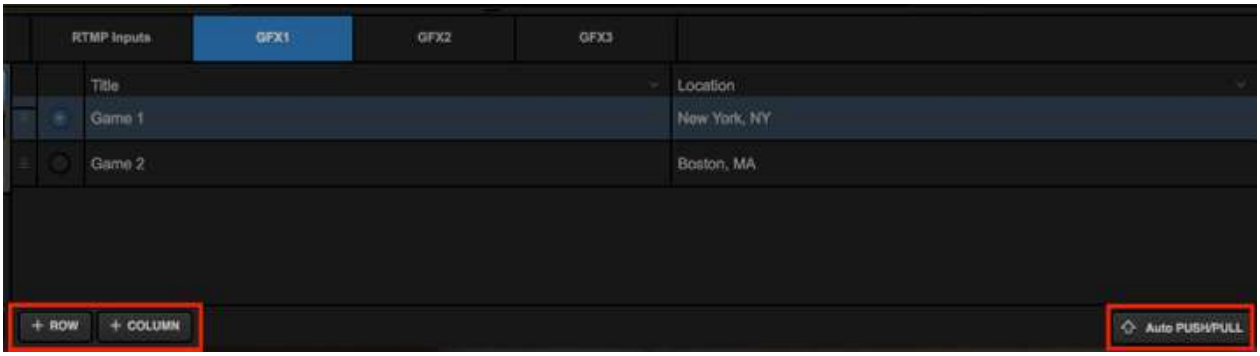


The graphics file will load with its design and settings on the left and its data on the right.

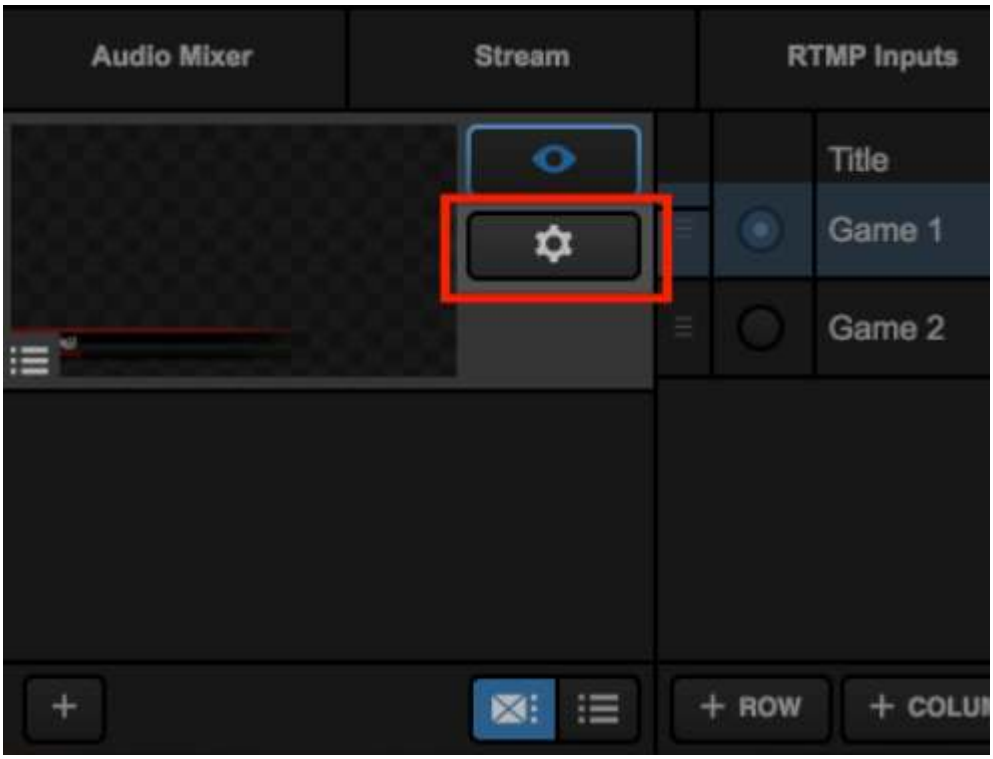
> It is not possible to open the GFX Designer in Web Control. The appearance of the graphic can only be edited within the Studio software.

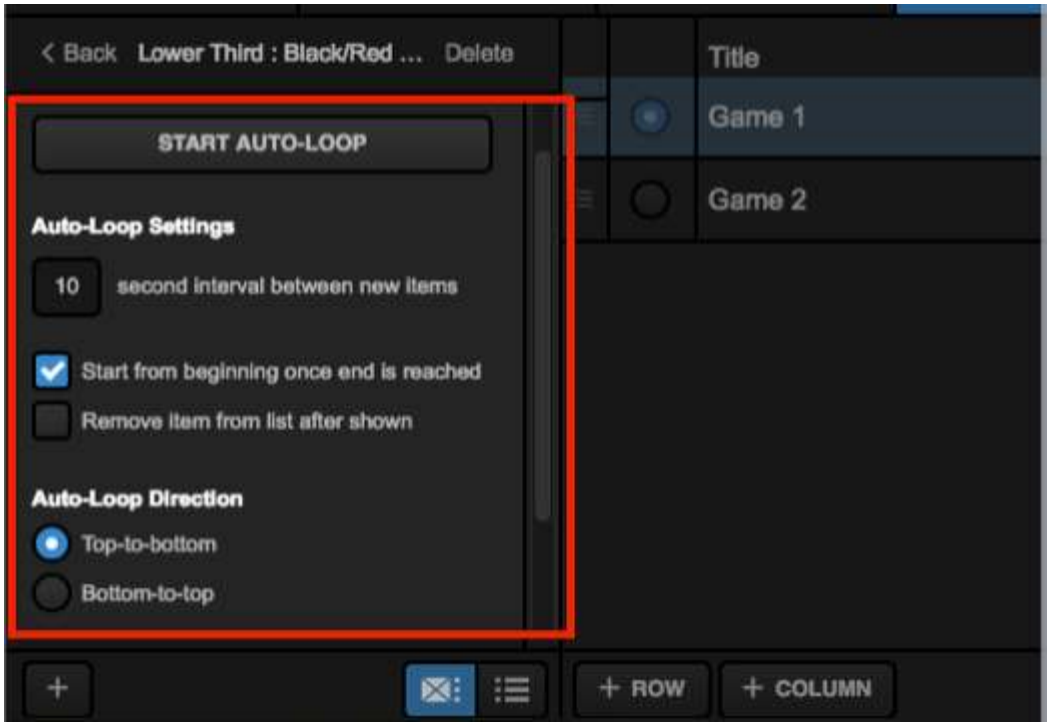


On the right side, you have the ability to add data rows and columns and enable the Auto Push/Pull feature when selecting different rows.

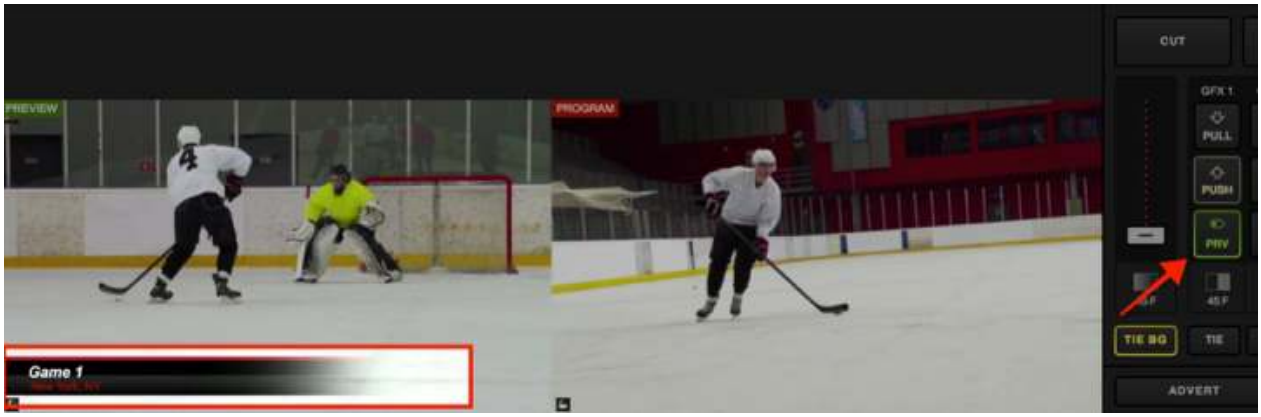


Clicking the gearwheel on the left side will open the settings available with that graphic, such as auto-loop timing, direction, and starting point.





Overlaying graphics in Web Control is the same as in Studio software. Click the corresponding PRV button to show your graphics overlay in Preview.



Click PUSH to transition the graphic overlay into Program.

Now, you will see the graphics overlay in your Program monitor.

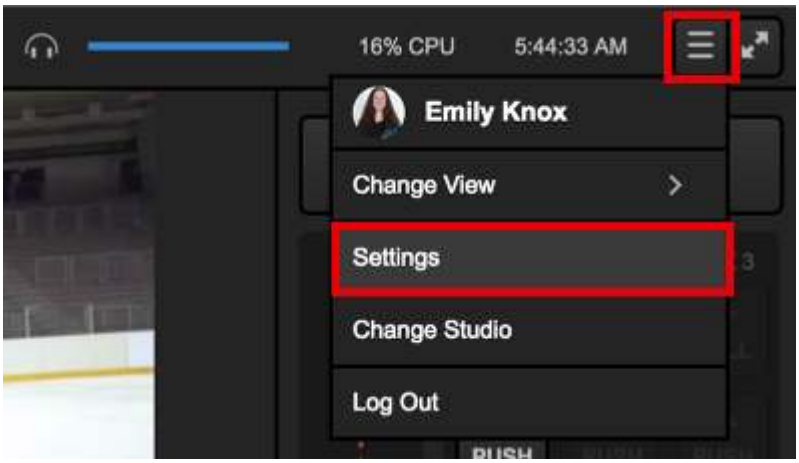
To remove it from Program, click the corresponding PULL button.

PROGRAM
Game 1
GFX 1
PULL
PUSH
PRV
45 F
45 F
TIE BG
TIE
ADVERT

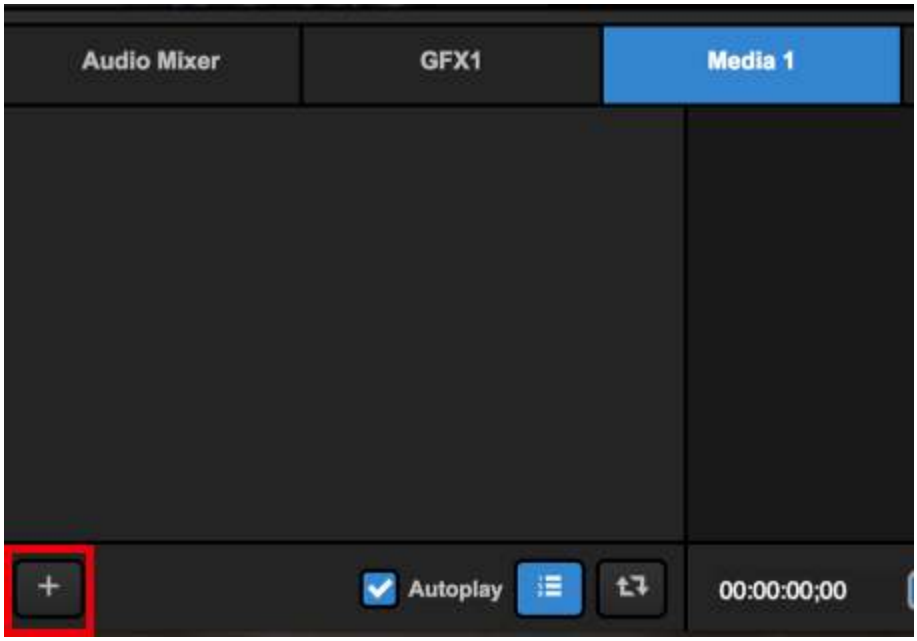
Media Playback in Web Control

You can import videos from Dropbox into your Media bins via a Web Control supported browser.

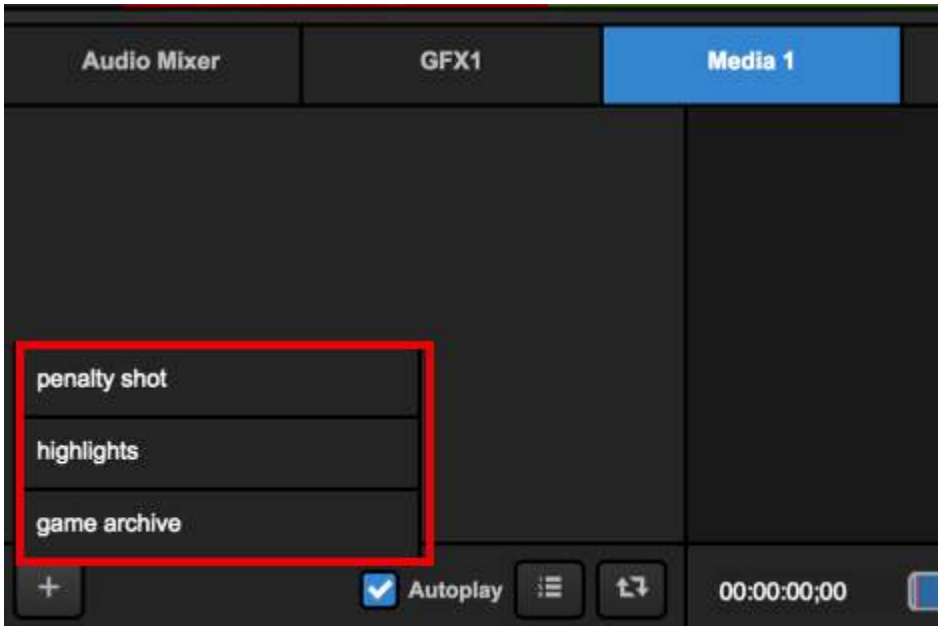
Open Web Control for your Studio system. If you have not already integrated a Dropbox account with Studio, you can do so by opening the Settings menu in the upper right corner, then navigating to the Dropbox tab. The steps to integrate Dropbox with Studio are the same with Web Control.



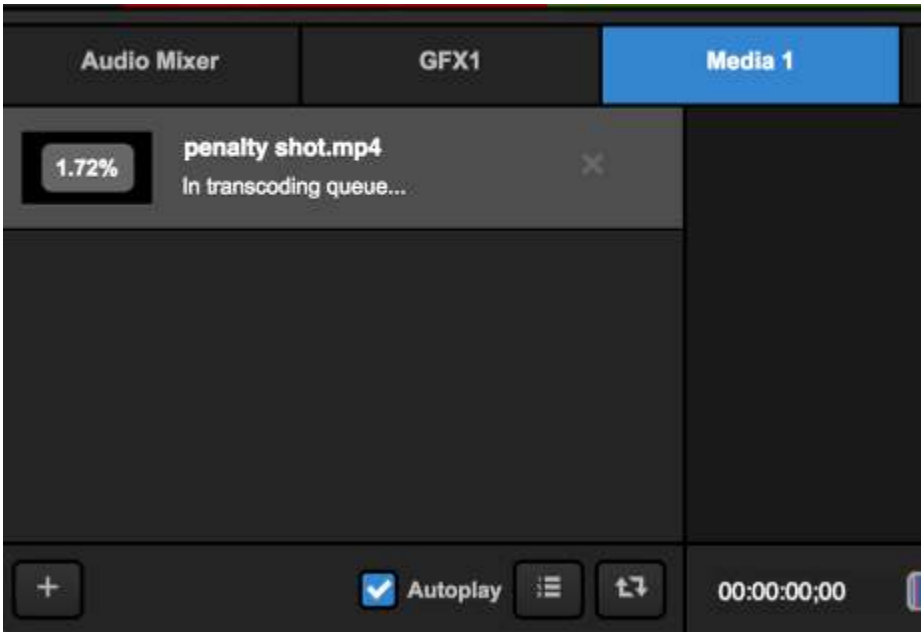
Once Dropbox is connected to Studio, select one of the Media tabs in Web Control and click the + button in the bottom left corner.

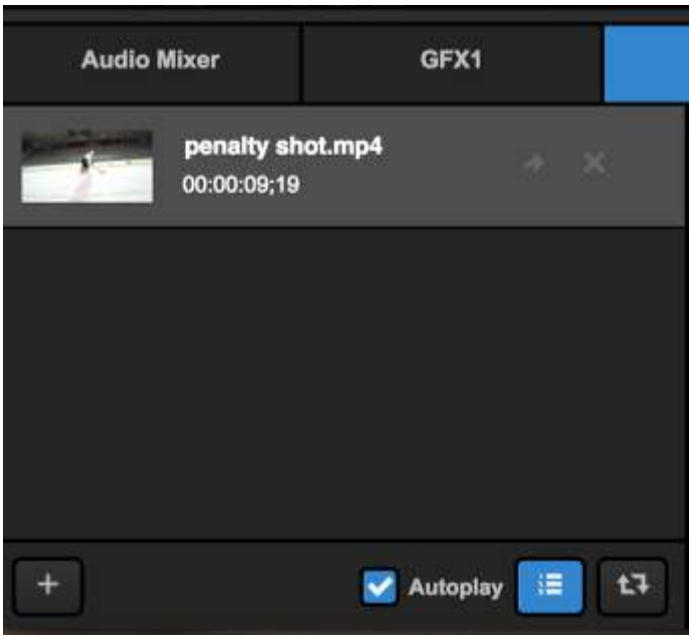


Any video file that is stored in your selected Dropbox folder will appear in the pop-up menu. Select the file you wish to import into Studio.



The file will begin transcoding. When transcoding completes, you will see a thumbnail of the clip on the right side of the panel.



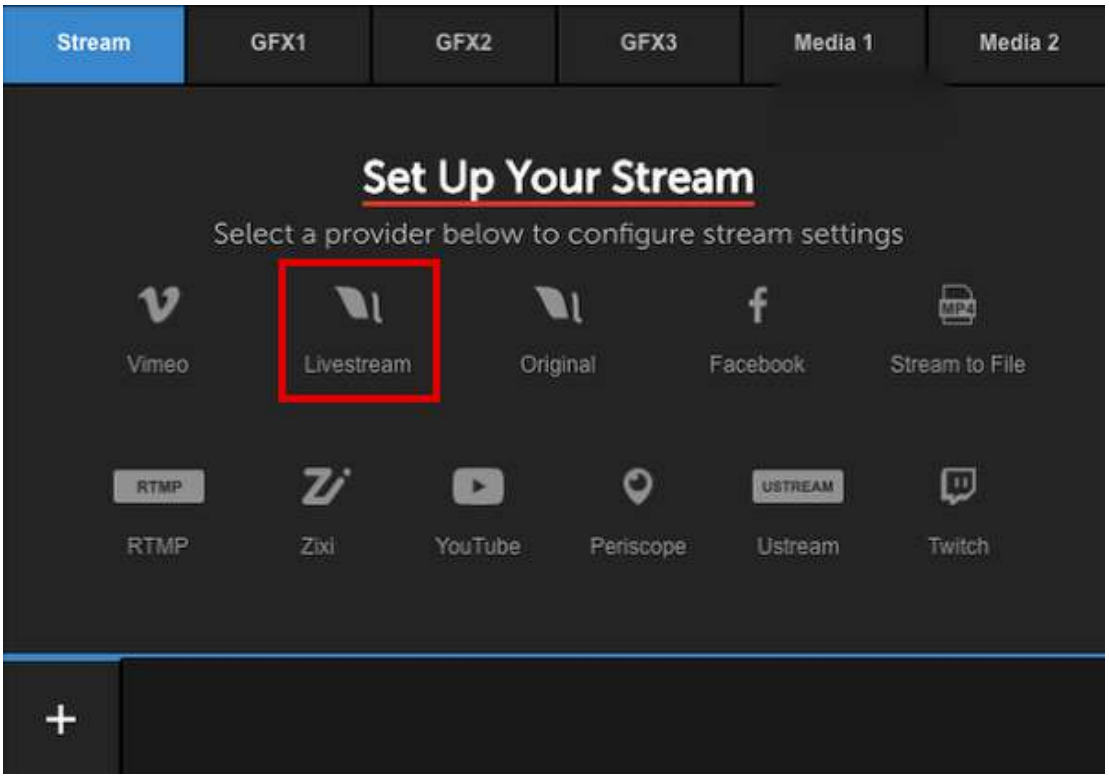


All player controls and options function exactly the same way in Web Control as they do in the Studio software.

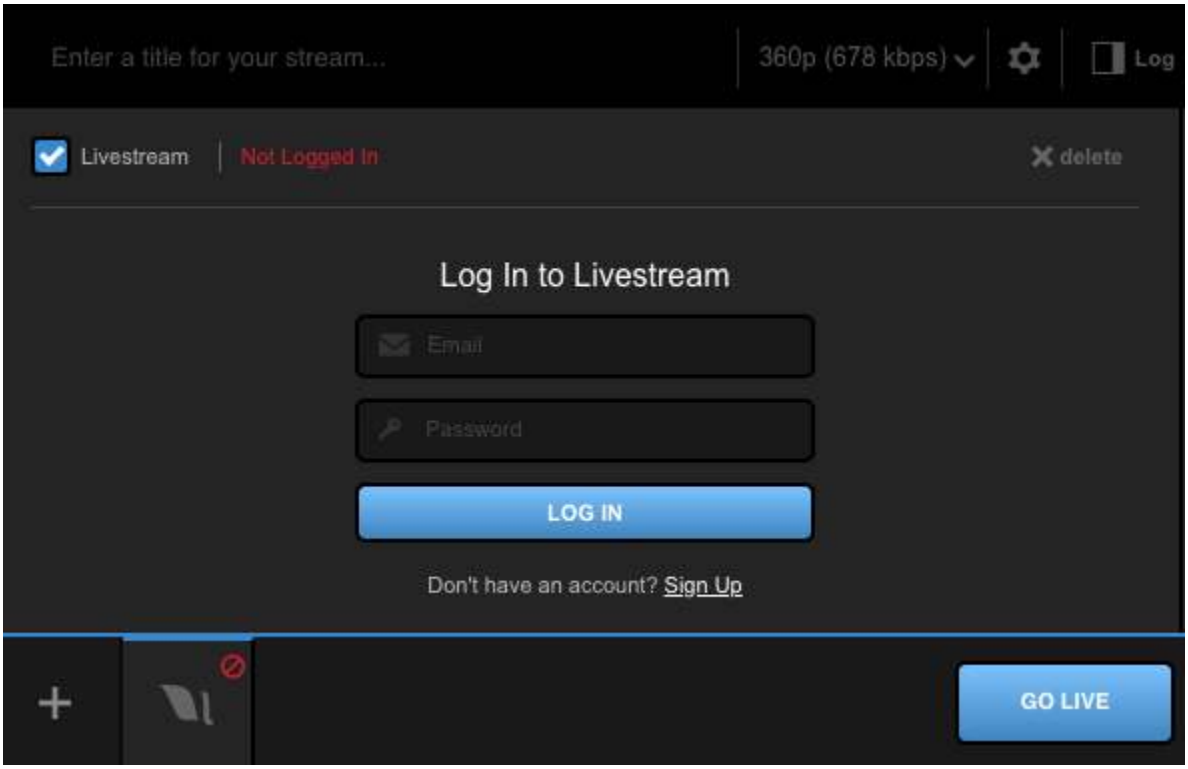
Studio Simulcasting via Web Control

Simulcasting via Livestream Studio can now be set up via Studio Web Control. It works similarly to setting up simulcasting within the Livestream Studio software.

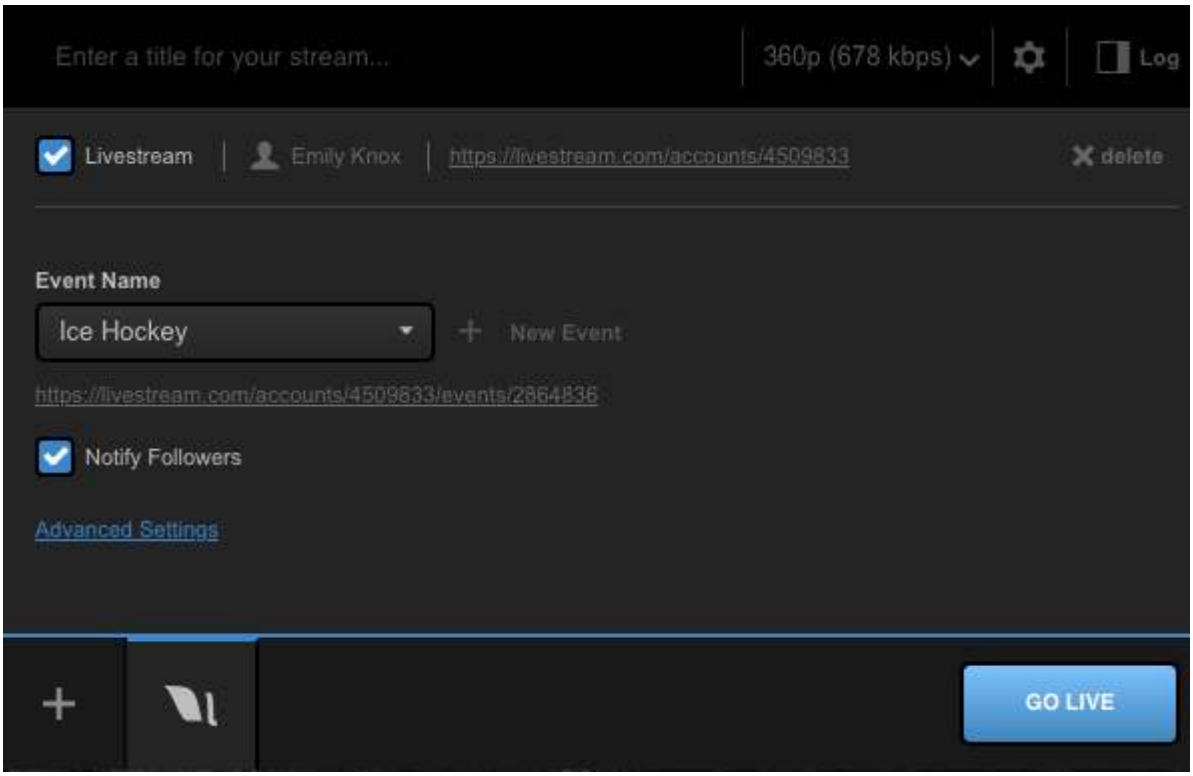
Log in to Web Control and navigate to the lower left corner. Select the **Stream** tab. Choose one provider to start with; this example will use Livestream.



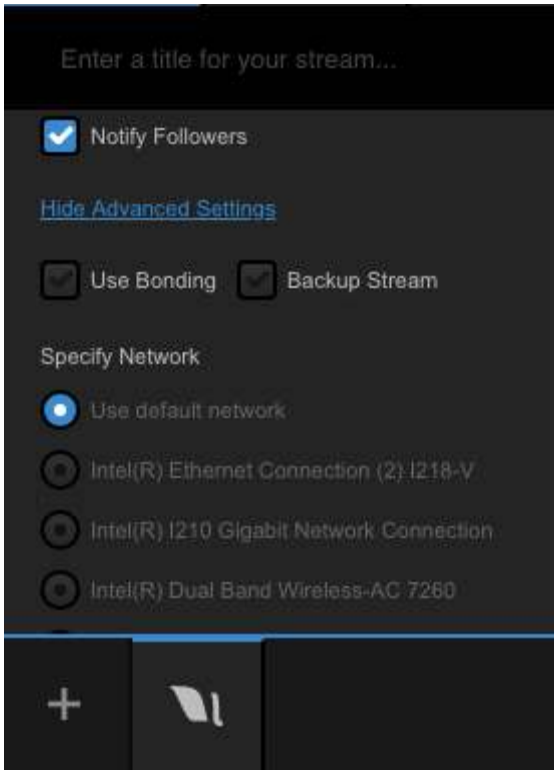
Log in to your account.



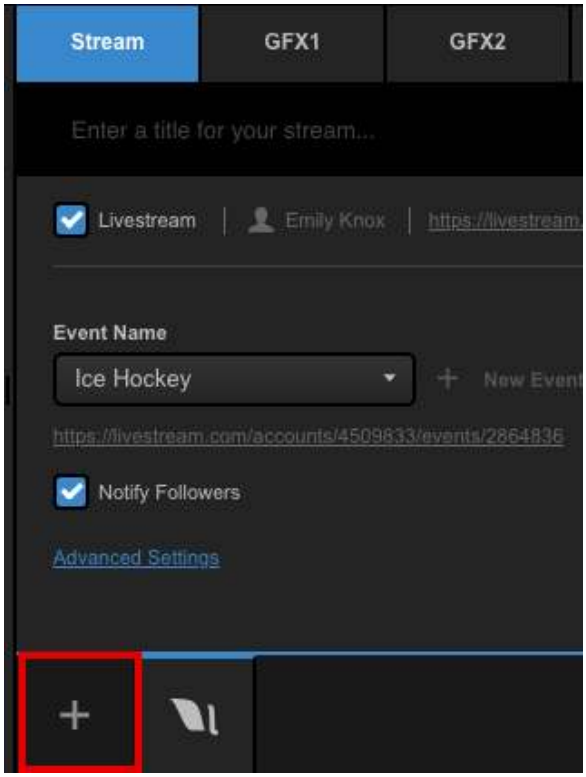
Configure your provider's settings. For example, choose your Livestream event and whether or not to notify your Livestream followers when you go live.



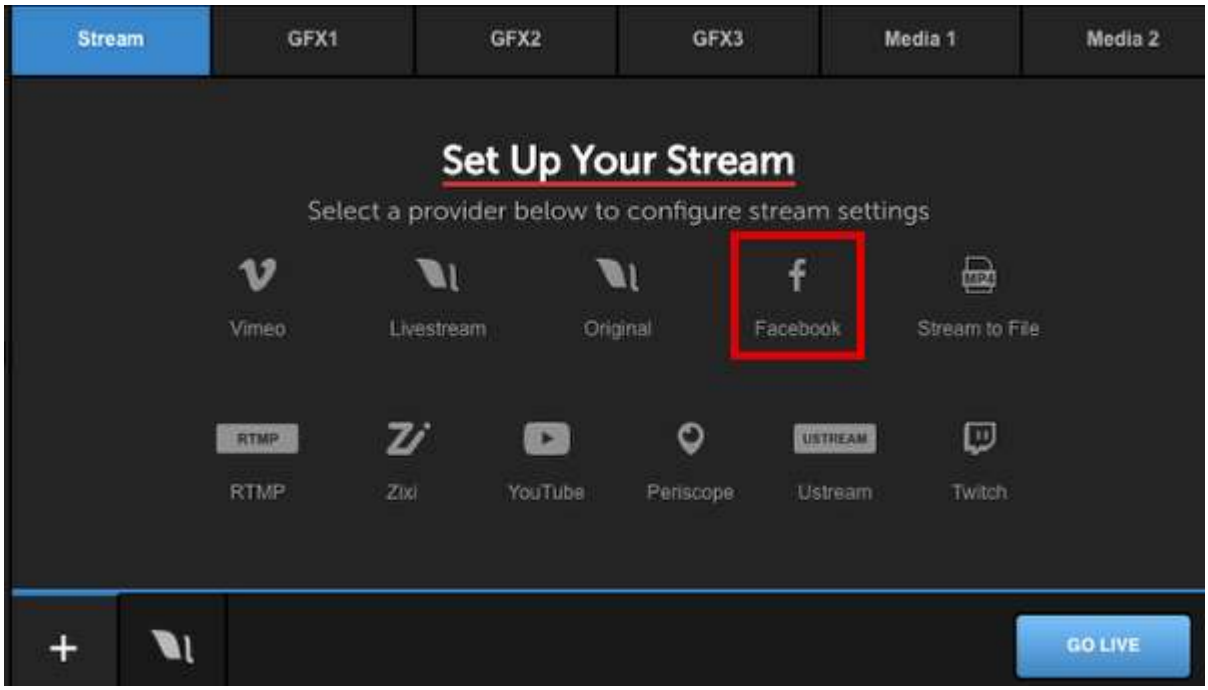
Click Advanced Settings to reveal further options below; in Livestream's case, using bonding. All providers will allow you to specify a network to stream through.



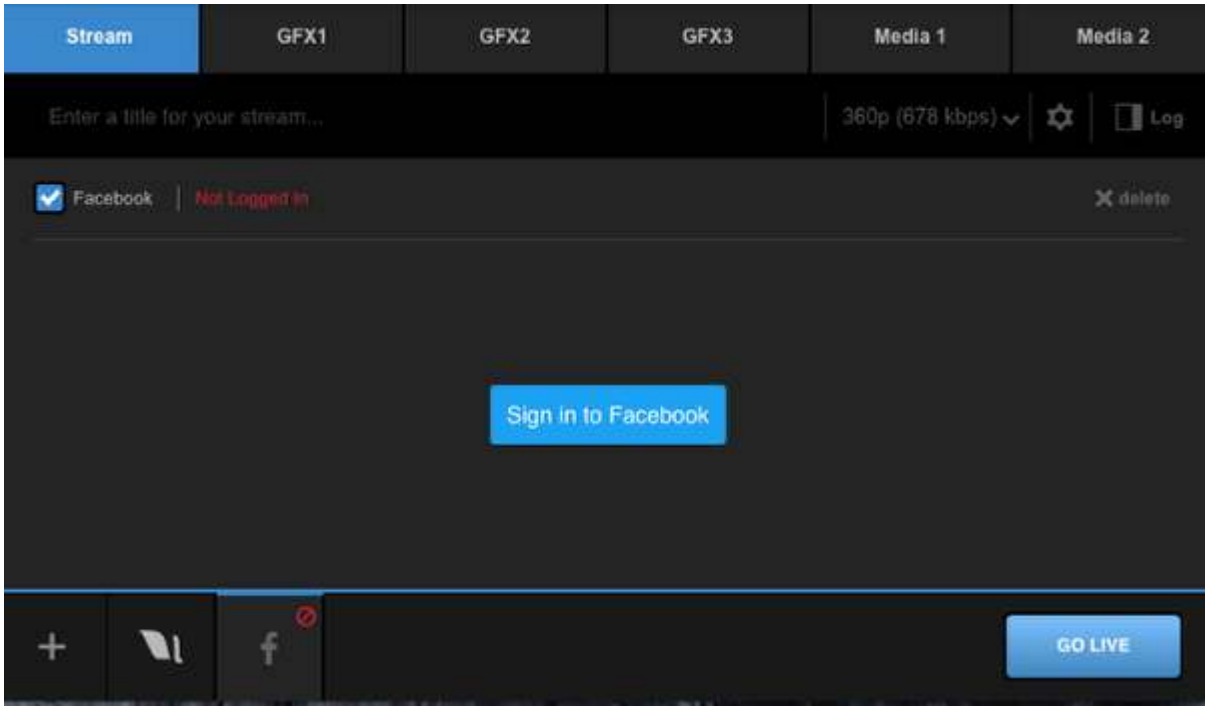
When you have finished configuring your settings for your first provider, select the + icon in the lower left corner to add another provider.



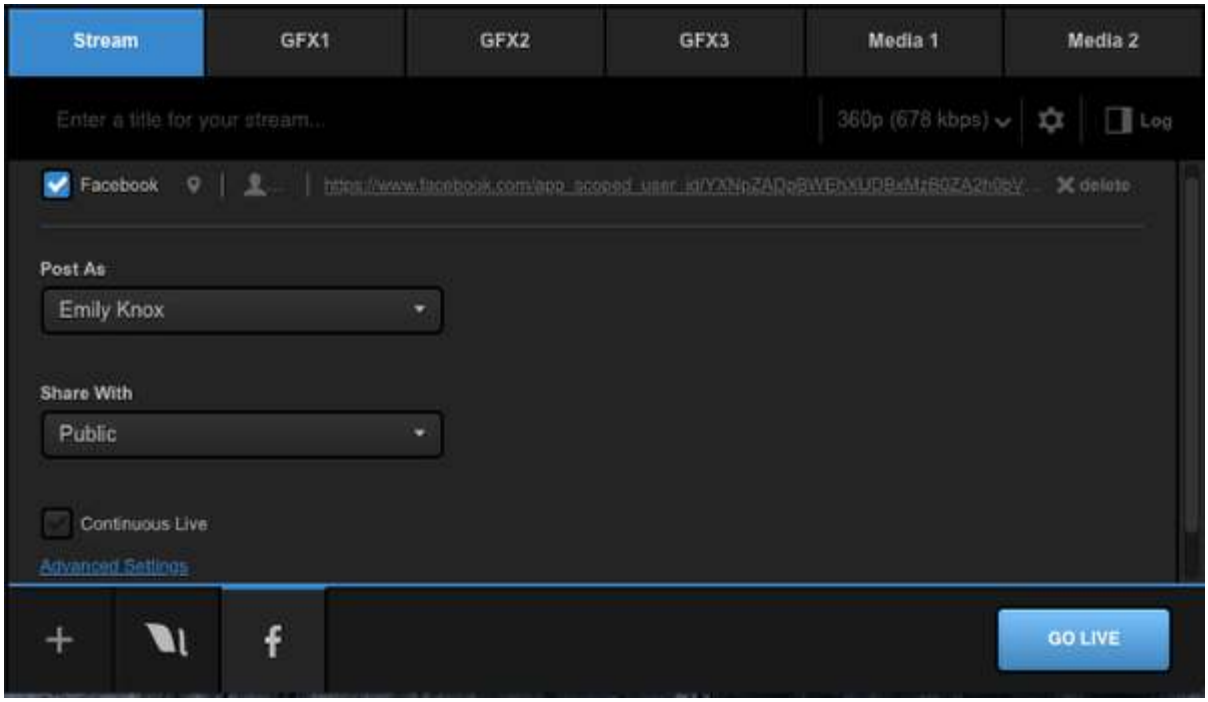
Choose another provider (this example uses Facebook).



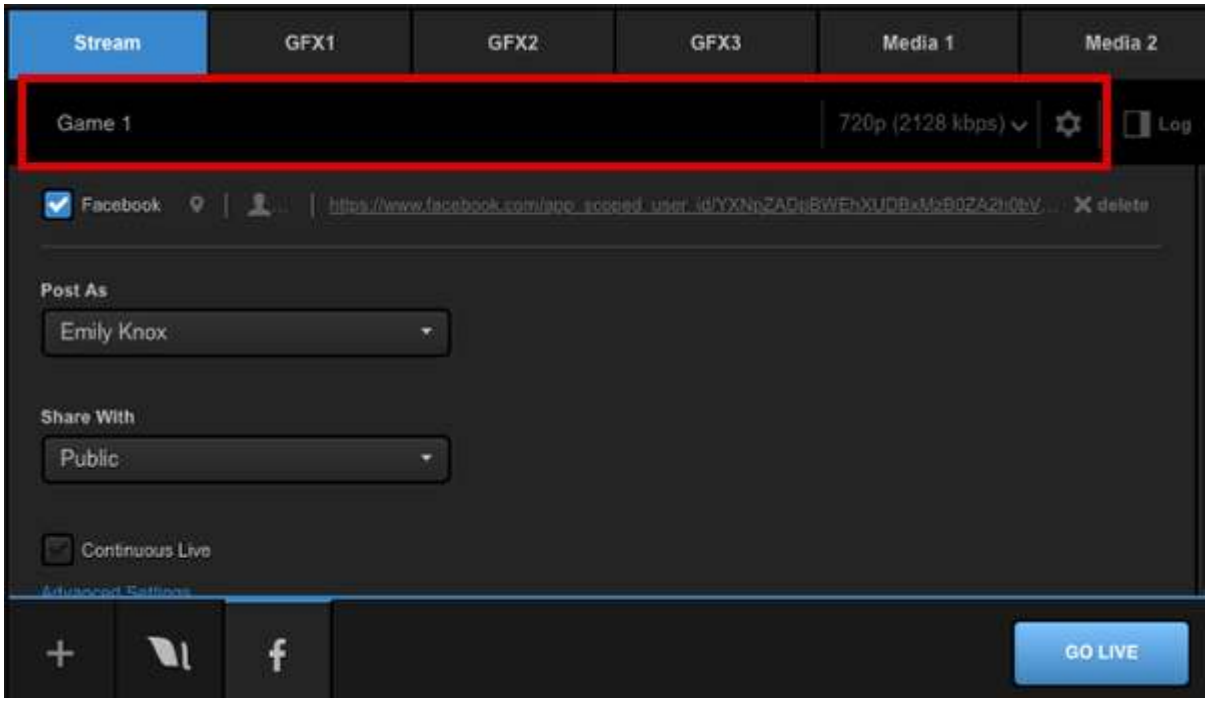
Sign in to your account. This may open a new browser window. Once you are signed in, navigate back to Web Control.



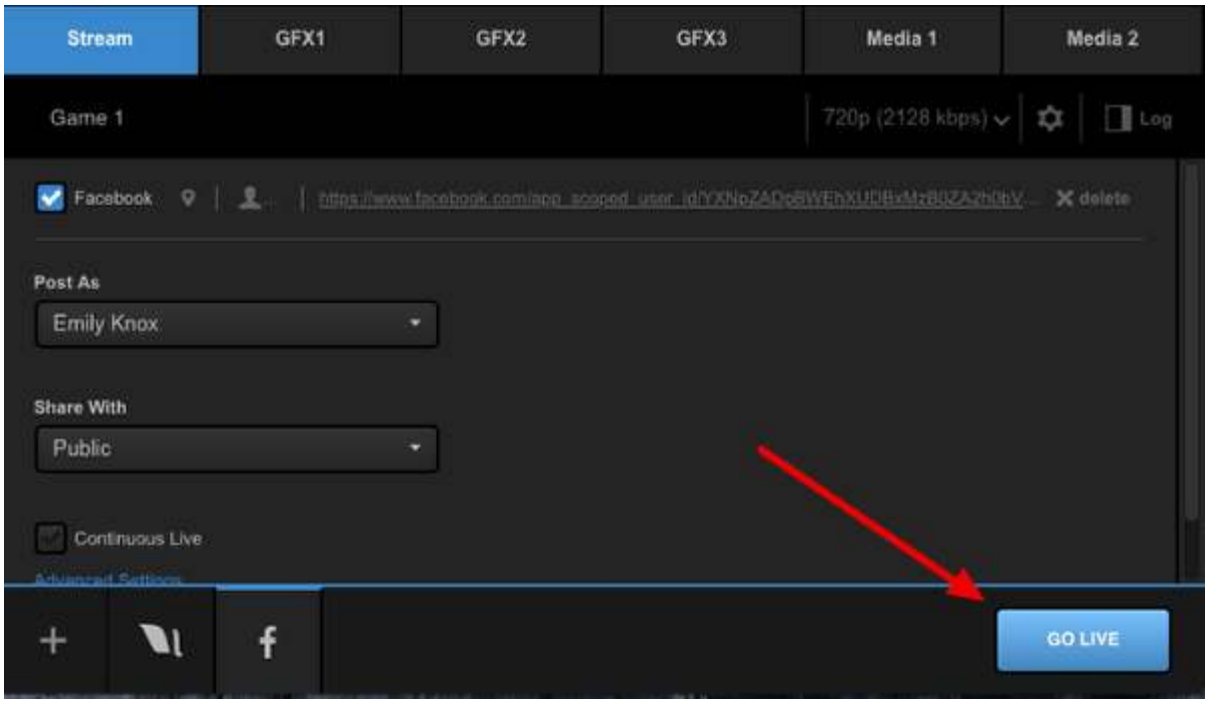
The provider's icon will appear as a new bottom tab within the module. Clicking it will allow you to configure settings for that streaming destinations (e.g. where on Facebook you are streaming, audience, tag location, etc.)



Now you can give your stream a title and choose a streaming quality. Keep in mind that not all quality options are supported by all providers (e.g. Facebook does not currently support 1080p or higher).

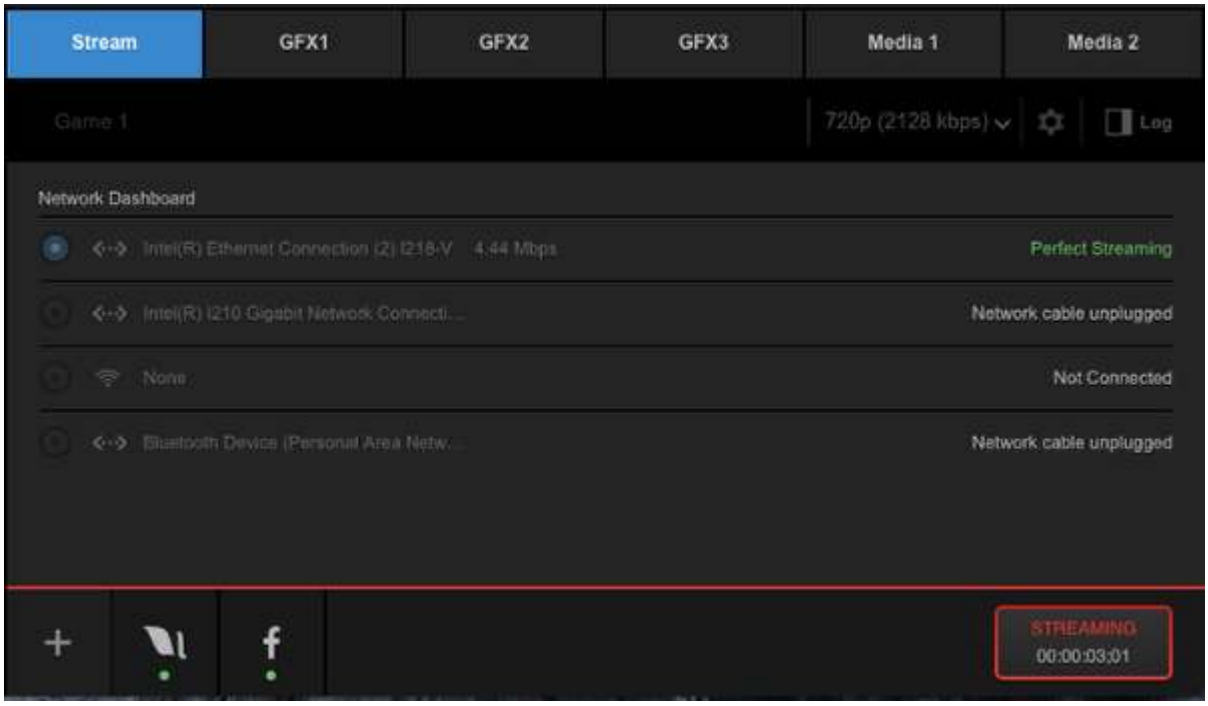


To start streaming, click Go Live in the lower right corner of the Stream module.

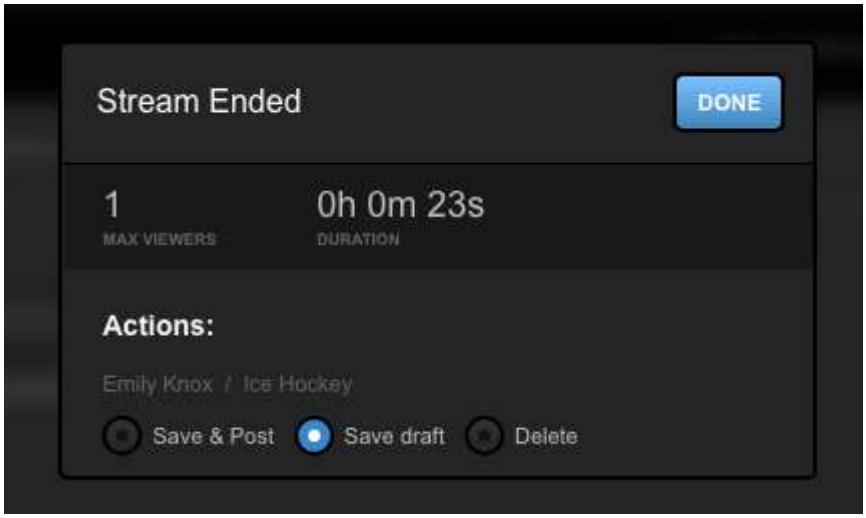


Your stream will begin immediately and the Stream module will turn into a dashboard explaining your outgoing bitrates, frame rates, viewer counts, and any error messages or warnings regarding your stream.

When you are down streaming, click the red Streaming button in the lower right corner.



You stream will end immediately and a dialogue box will open with information regarding your stream and any action items required (e.g. post the video on demand to your event page).

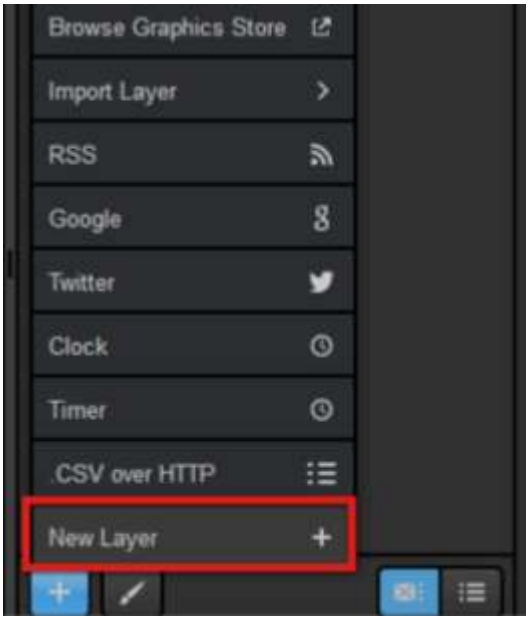


Advanced Features

Using Chroma Key

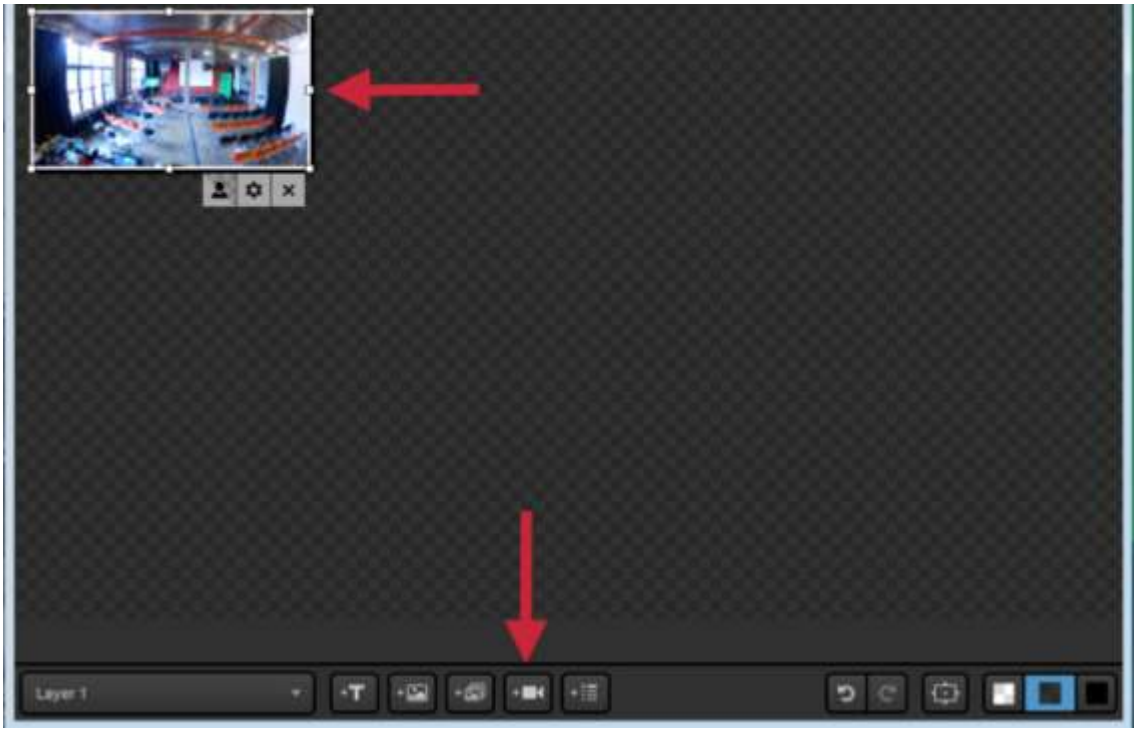
Livestream Studio includes chroma key, giving users the ability to remove a color from the video source, typically a background color to replace with an image such as a virtual set.

Chroma key is done through the graphics module. Start by adding a new layer to any graphics overlay channel.

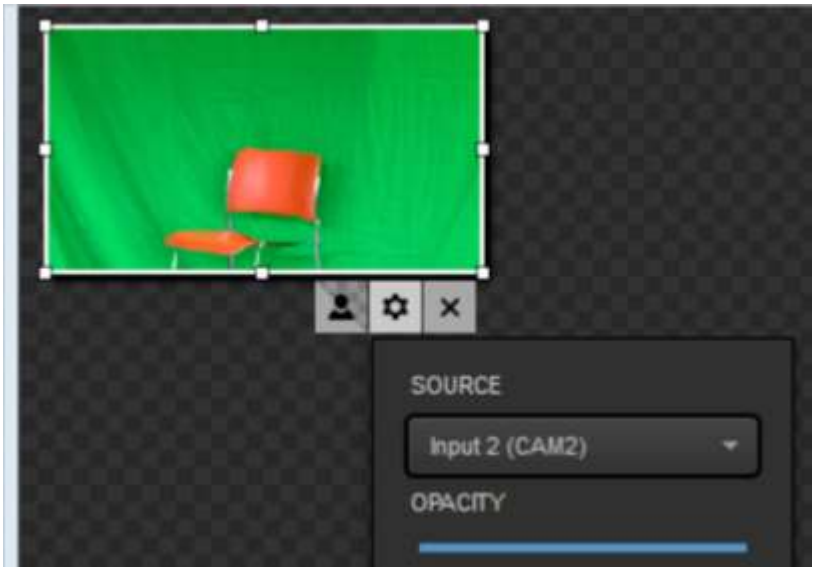


Click the paintbrush icon to enter the GFX Designer.

Next, click on the camera icon to add an input source to your graphics layer.

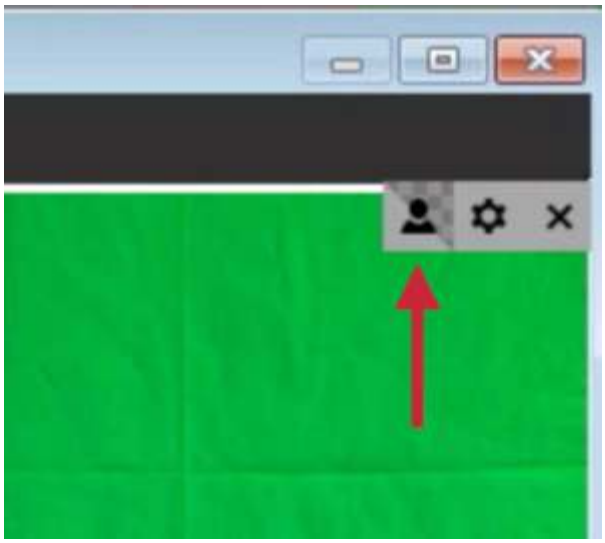


Click the gearwheel to select which input source you want to use for chroma key.

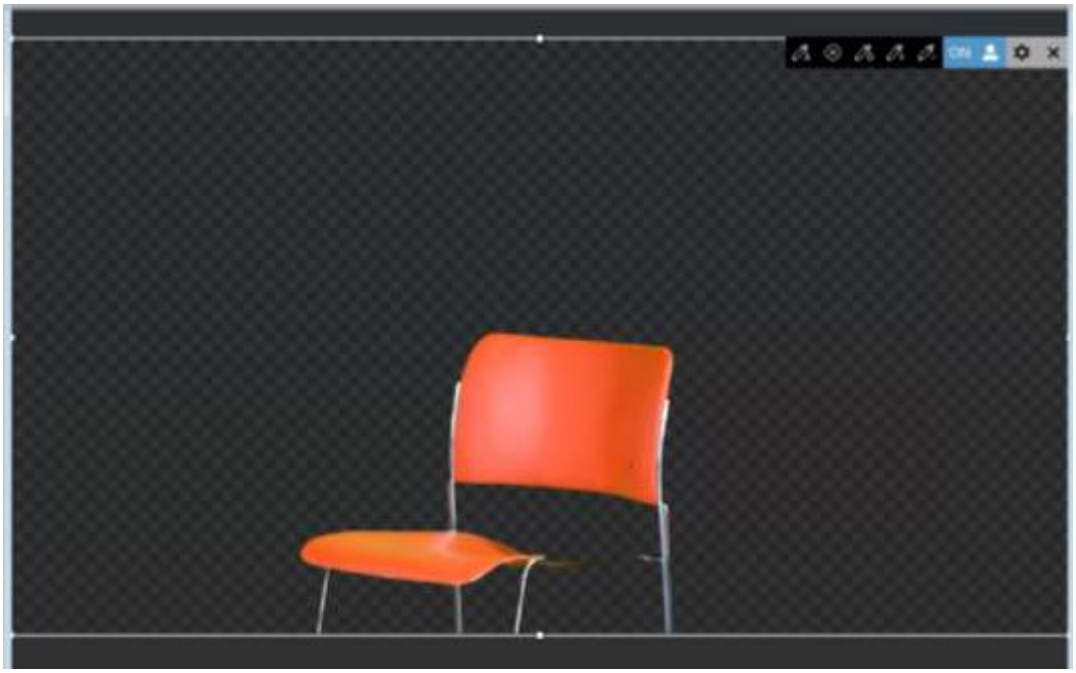


You can adjust how your input source looks inside the GFX Designer as necessary, such as scaling it to fit the whole screen.

Click the person icon to turn on chroma key.



Livestream Studio will automatically detect the most prominent color (green in this example) and key it out once chroma key is turned on.

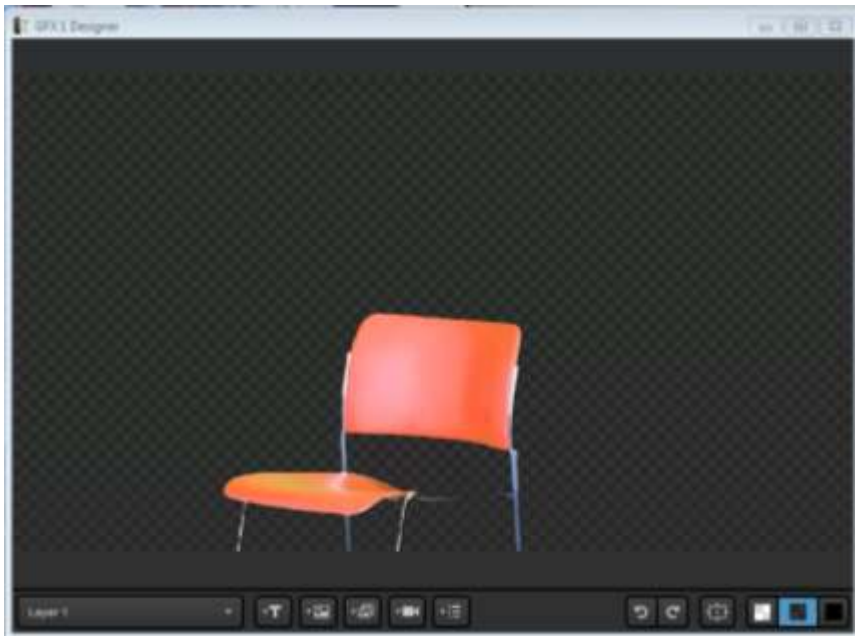


Next, close out of the GFX Designer and put either a camera, media source, or graphics source into Program from your multi-view. The example above has a white background video from Media 2.

Now push your graphics overlay layer into Program by clicking the corresponding PUSH button.

You should now see your chroma keyed input source overlaying your Program source.

To make further adjustments to your chroma key graphic, go back to the GFX Designer.



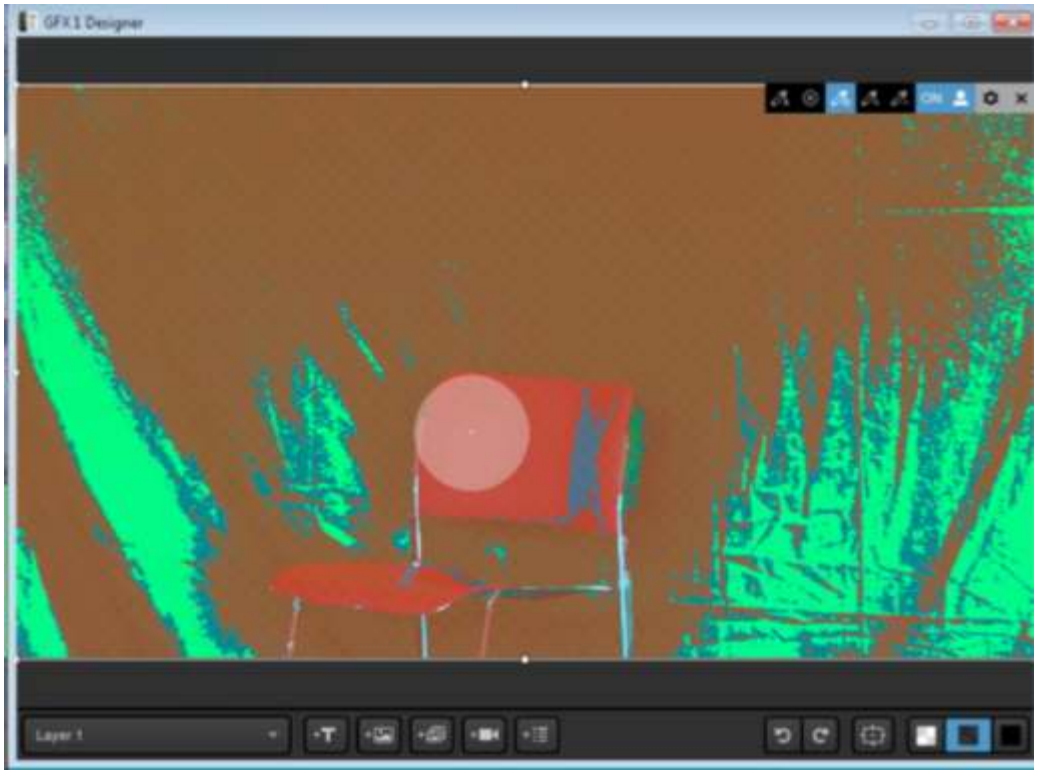
When you select your input source in the graphics overlay while chroma key is turned on, you will see other options in the upper right corner.

To erase all chroma keying on your input source, click the X icon. Note that the green background has returned to the picture.

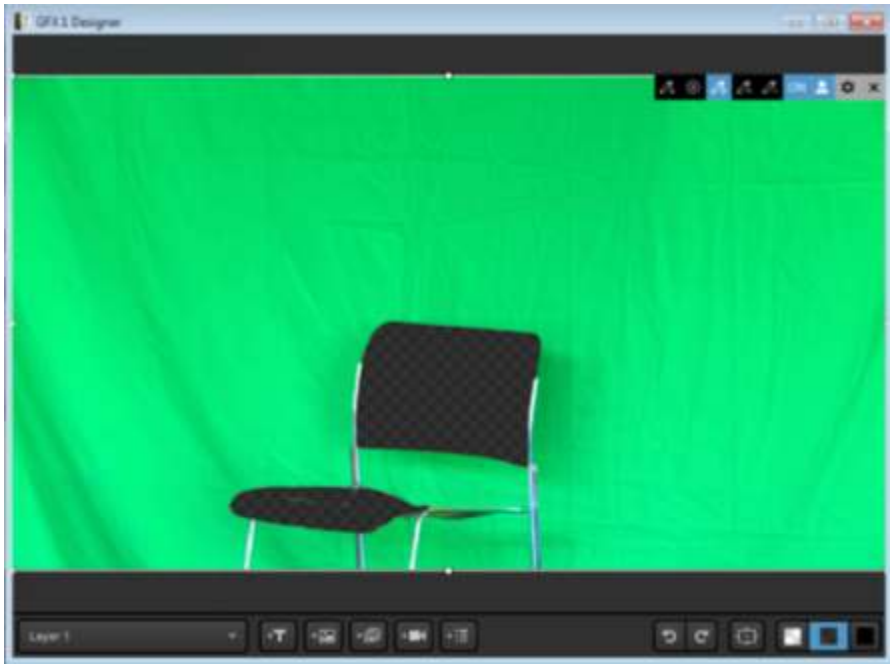
To apply automatic chroma keying (i.e., key out the most prominent color), click the icon of the eyedropper with an A.

The eyedropper-circle icon will allow you to do rough keying by hand. Select this option, then hover your mouse to the area you want to key (e.g. the back of the chair).

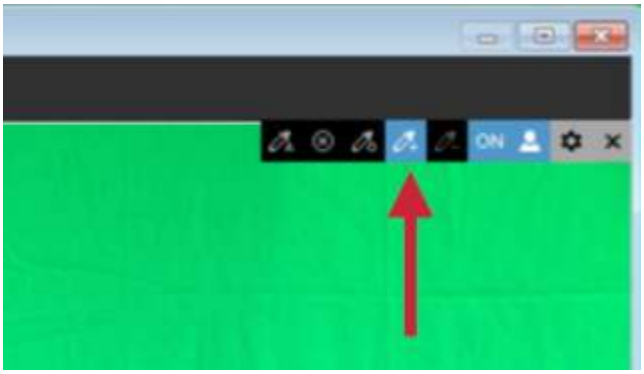
Click and drag your mouse to start real-time keying. You can increase or decrease the keying color range, which will be indicated by a circle around the area.



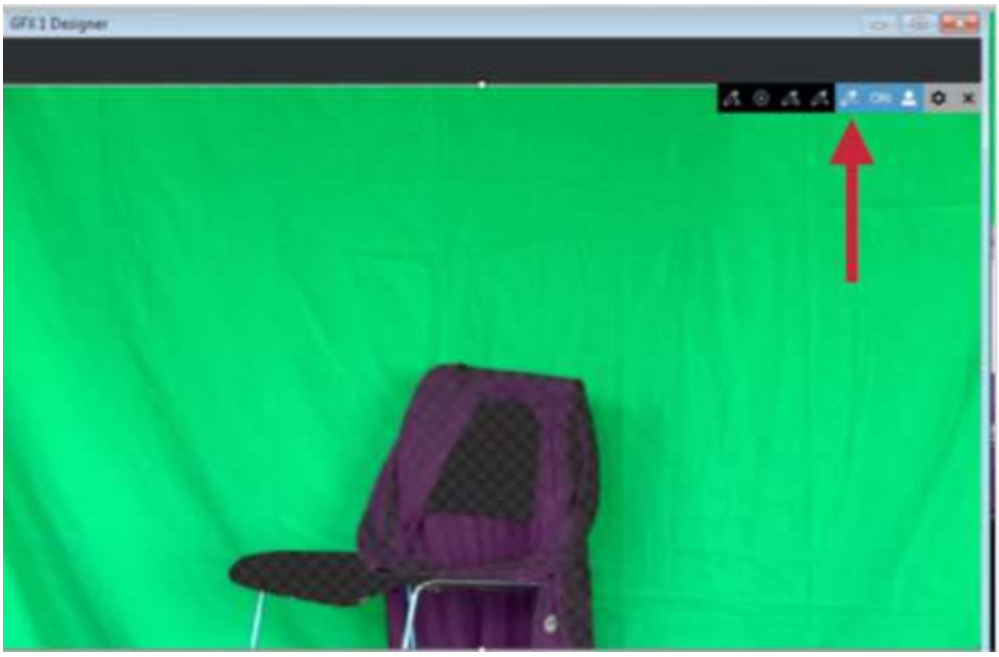
The end result should be similar to the image above, where the colors within the range that was selected are now on the chroma key palette and thus not visible.



The eyedropper with a plus sign either initializes the chroma key or adds color hues to the chroma key palette. This is helpful if there are shadows in your background that did not key out fully.



The eyedropper with a minus sign will exclude colors from your chroma key palette. This is helpful if a color on your set is similar to the color you keyed out and is faded. In this example, the orange chair is keyed out and the red sweater is also largely keyed out.



After using the eyedropper minus tool on the red sweater, you can now see the sweater; orange is still on the chroma key palette.

Please note that other graphics or images in the same graphics layer will be visible. Use caution with this type of workflow, as it is likely to increase your CPU usage.

Hardware Encoding and Decoding with Livestream Studio

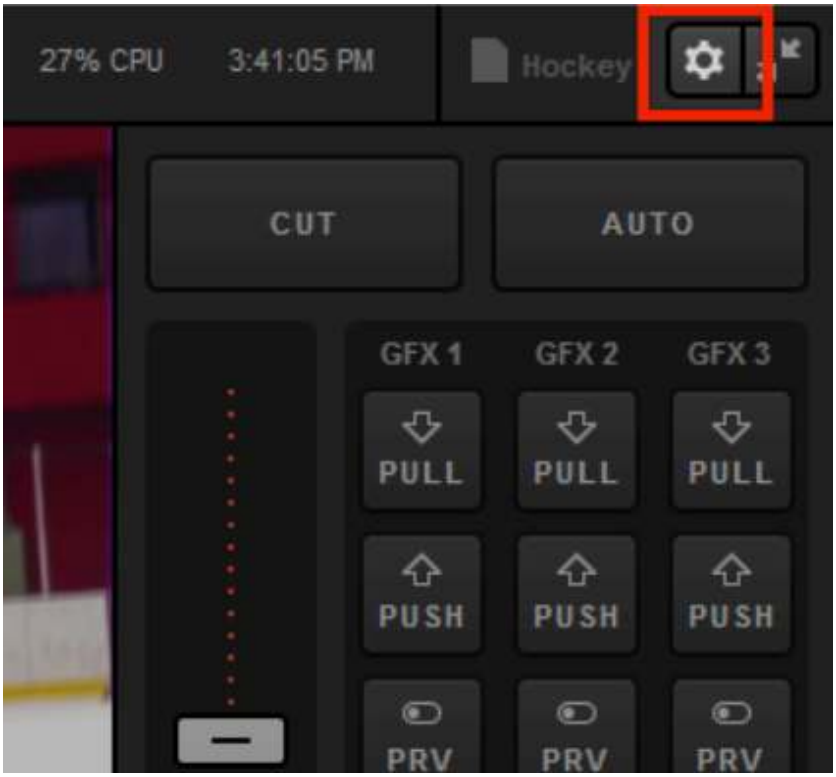
Studio includes hardware encoding and hardware decoding which moves the video processing to a dedicated GPU, greatly reducing your CPU usage while running Studio.

These features are only available on computers with Intel processors that include Quick Sync Video (which are listed here) or have an NVIDIA GeForce card that includes NVENC and NVDEC. We have instructions on how to determine if your computer has an Intel Quick Sync processor or has an NVIDIA card that supports NVENC and NVDEC.

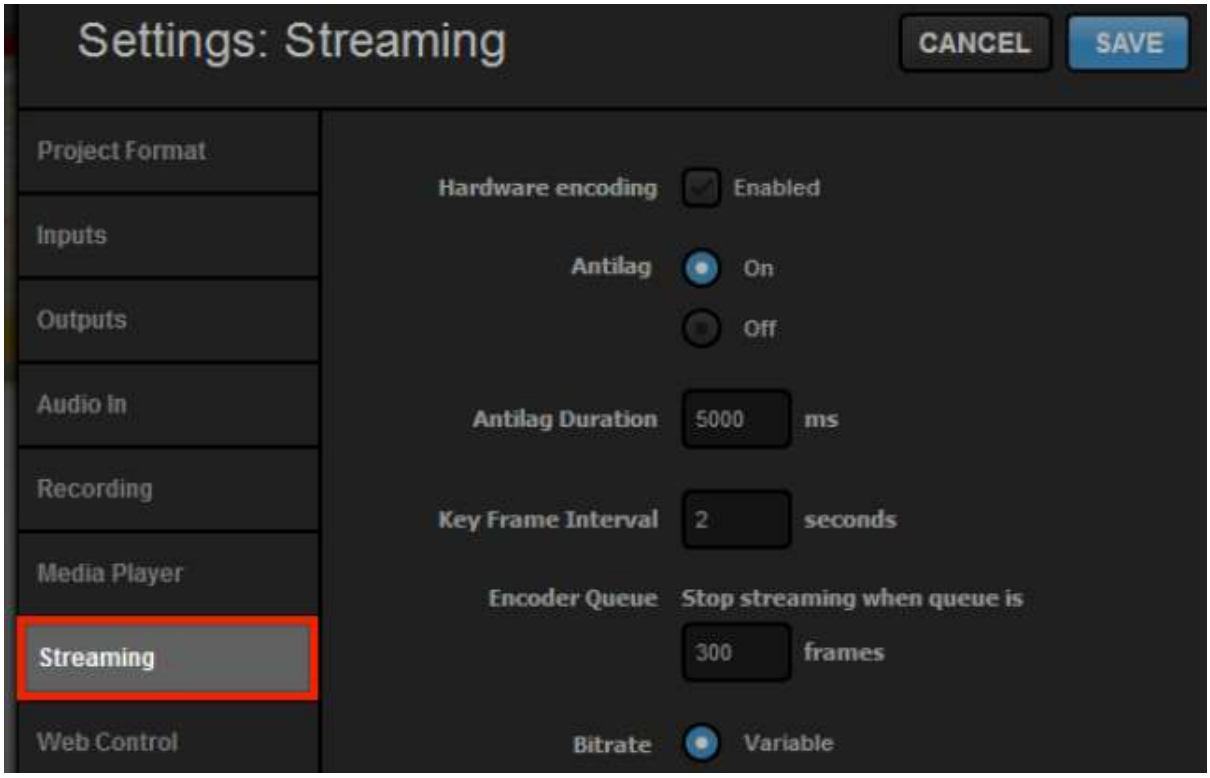
The HD31, HD51 4K, and HD550 4K are the only *Livestream-built* units that have the required hardware that includes these features. Many laptops include them as well.

Computers that do not have the proper hardware installed will not display these features in Studio.

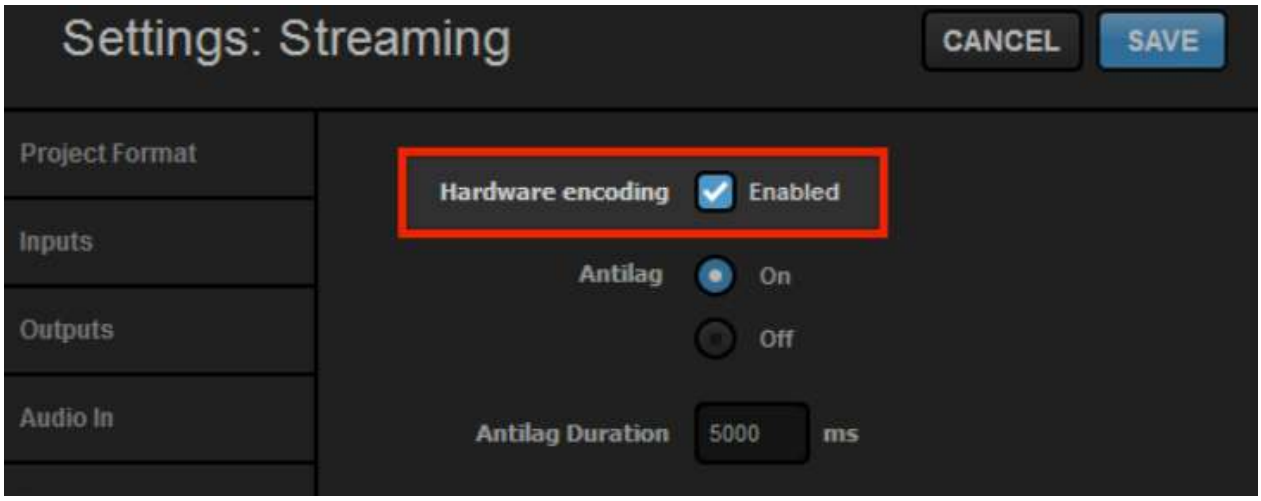
To enable hardware encoding in Livestream Studio, click the Settings icon in the upper right corner of the interface.



Navigate to the Streaming menu.

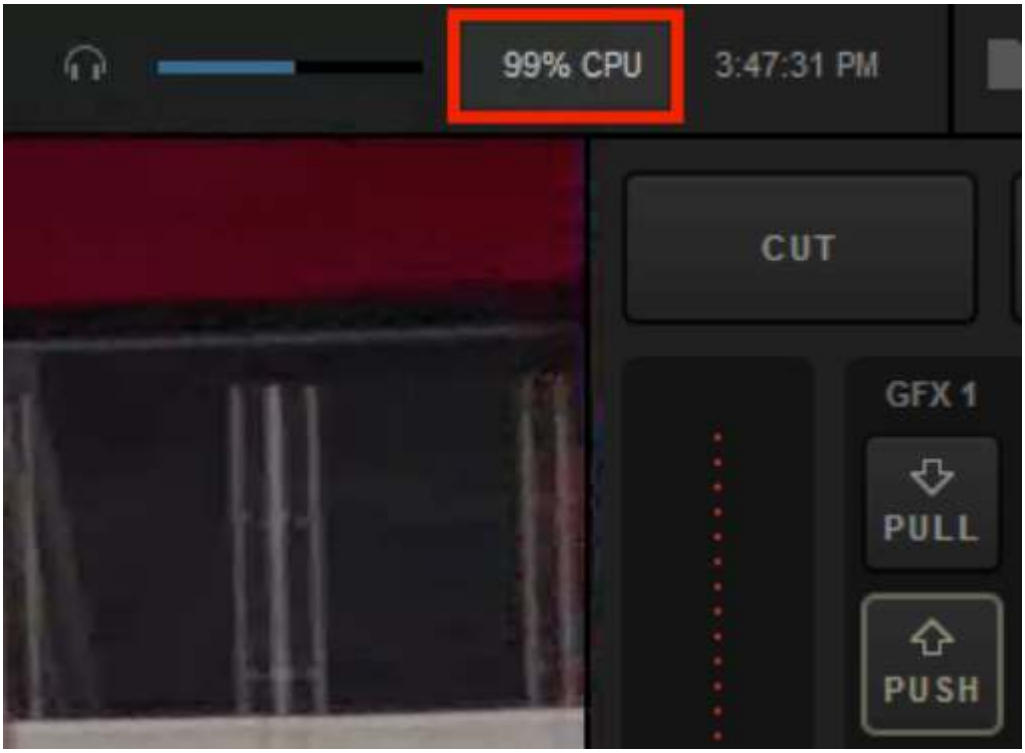


At the top of the menu, check Hardware Encoding. Then click Save.

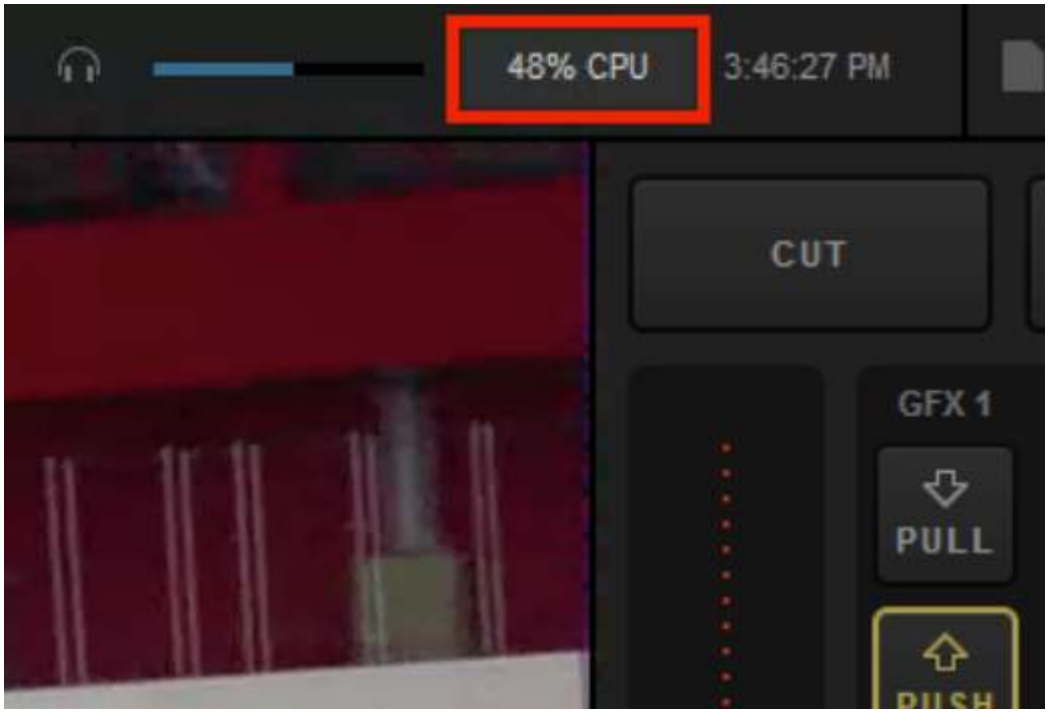


As an example, here is the processor being used on a Windows 10 computer.

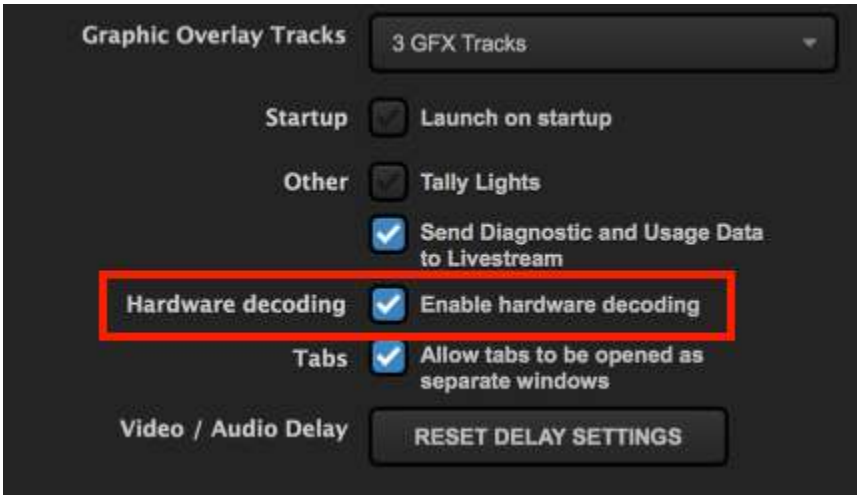
The CPU usage when hardware encoding is turned off—streaming a single bitrate averaging 2128kbps, with 2 media bins, and 1 animated graphics overlay—is nearly 100%. The stream timed out after about 1 minute due to lack of resources.



In comparison, the CPU usage with the same workflow while hardware encoding is turned on was cut in half, down to 48%.



To enable hardware decoding, navigate to the Advanced menu in settings. Make sure Enable hardware decoding is checked. This will reduce the CPU resources needed to bring in your camera sources.



Enabling hardware encoding will also give the ability to stream to Vimeo using high-efficiency video coding (HEVC). This means you can send a higher quality video at half the bitrate (or the same quality at half the bitrate) than you otherwise would.

How Do I Know if My Intel Processor Includes Quick Sync?

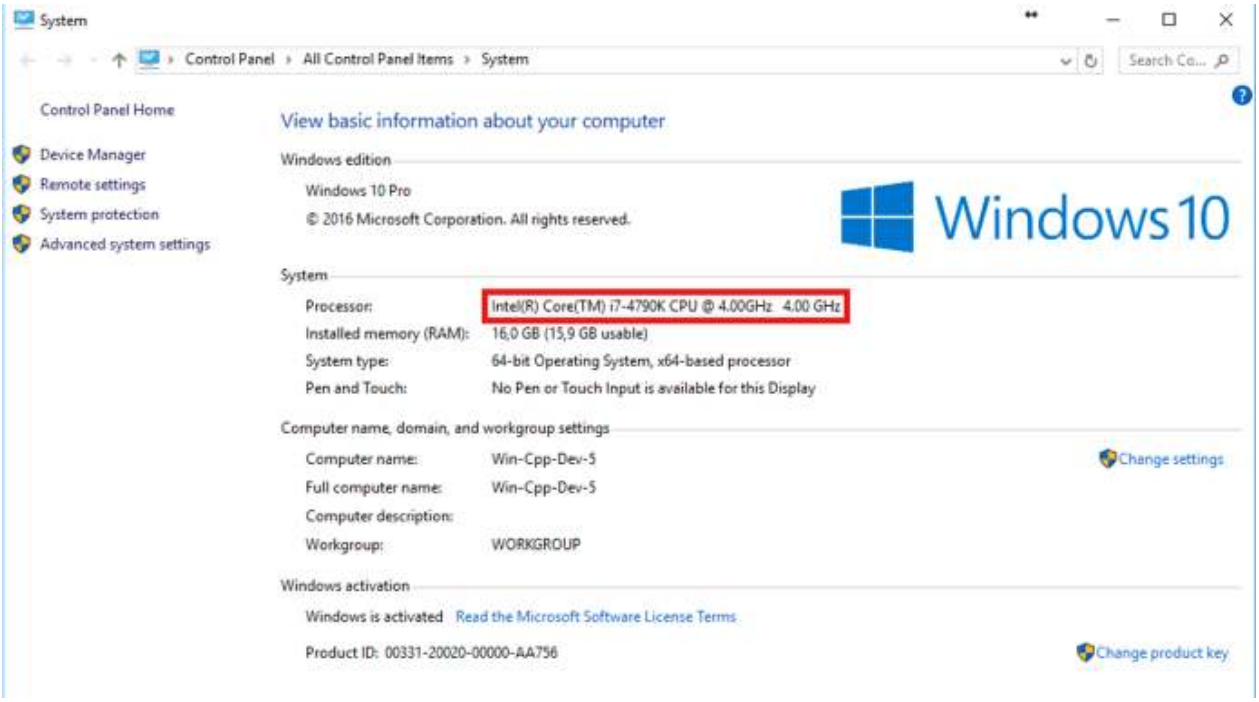
In order to be able to use the hardware encoding feature in Livestream Studio, you must have the proper hardware installed on your computer. One of these options is having a processor that include Intel Quick Sync. (The other is NVENC via NVIDIA GeForce GPUs.)

Intel Quick Sync is Intel's version of dedicated video encoding and decoding hardware core. Rather than using a general GPU, this core is located on the processor die and is dedicated just for video processing.

Studio will automatically detect if you have the proper hardware or not. You can quickly check this by going to the Settings: Streaming menu. If Hardware Encoding does not appear at the top of the menu, then you do not have the GPU hardware.

To determine if your processor includes Quick Sync, first you need to determine your CPU model.

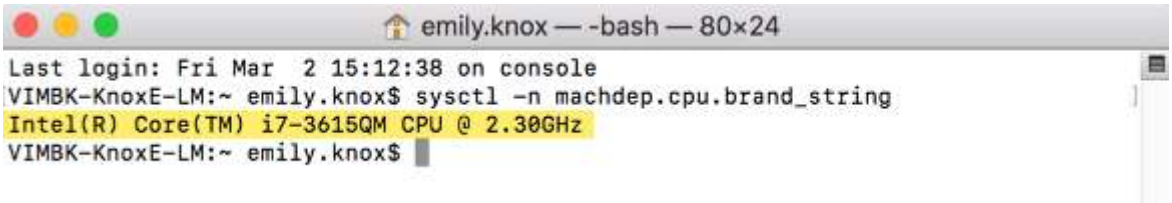
- Windows 7: Open the Start menu, right-click Computer, then click Properties.
- Windows 8 & 10: Right-click the Start menu, then click System.



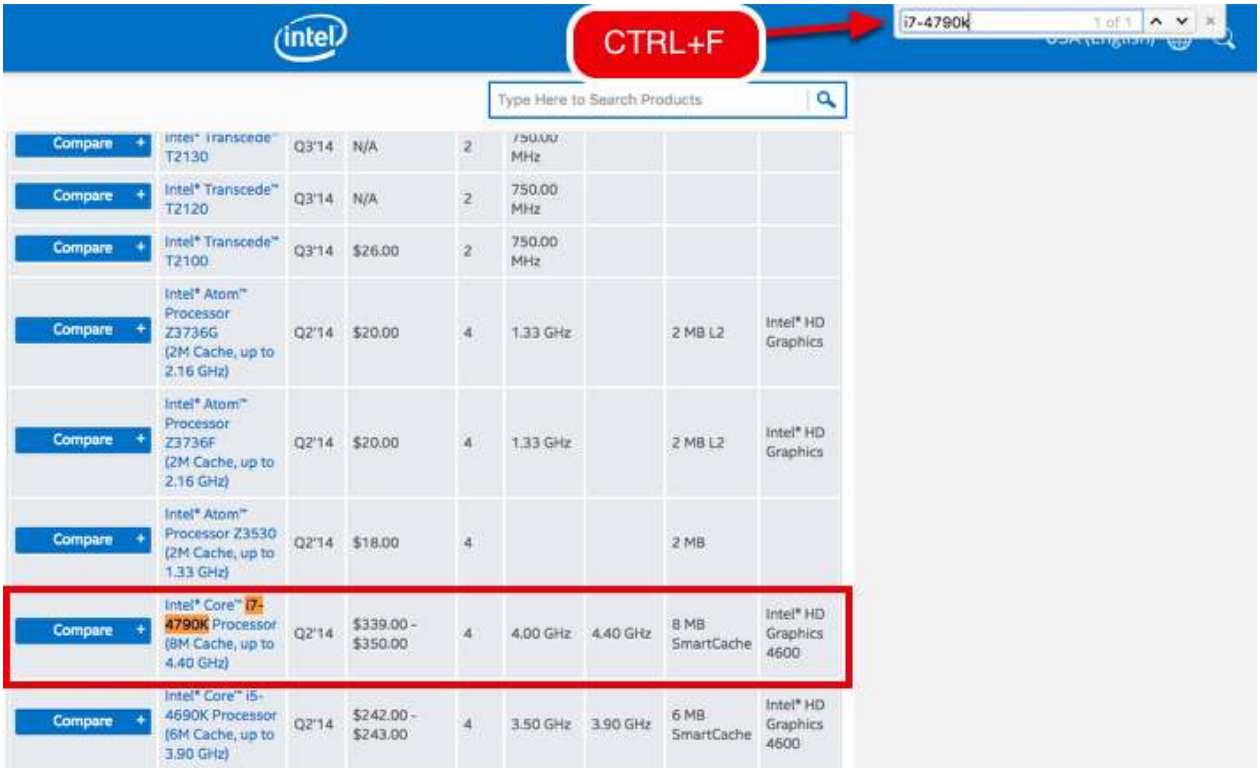
If you are running Studio on a Mac, to find the exact CPU model you will need to open the Terminal application. Enter the following command, then press the Return key:

```
<p>sysctl -nmachdep.cpu.brand_string</p>
```

Your CPU model will be displayed underneath.



In a web browser, navigate to this list and find your CPU model (Tip: Use the CTRL+F/CMD+F search function in your browser and type in the model ID).



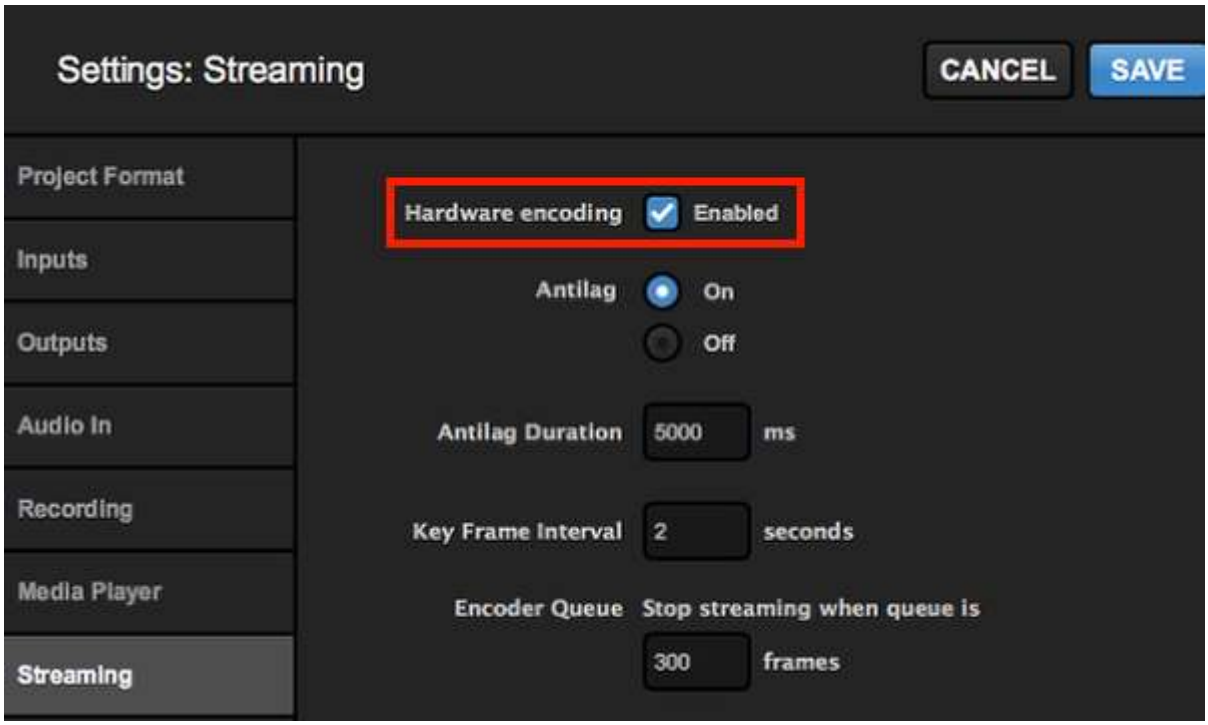
Compare	Intel® Transcede™ T2130	Q3'14	N/A	2	750.00 MHz			
Compare	Intel® Transcede™ T2120	Q3'14	N/A	2	750.00 MHz			
Compare	Intel® Transcede™ T2100	Q3'14	$26.00	2	750.00 MHz			
Compare	Intel® Atom™ Processor Z3736G (2M Cache, up to 2.16 GHz)	Q2'14	$20.00	4	1.33 GHz		2 MB L2	Intel® HD Graphics
Compare	Intel® Atom™ Processor Z3736F (2M Cache, up to 2.16 GHz)	Q2'14	$20.00	4	1.33 GHz		2 MB L2	Intel® HD Graphics
Compare	Intel® Atom™ Processor Z3530 (2M Cache, up to 1.33 GHz)	Q2'14	$18.00	4			2 MB	
Compare	Intel® Core™ i7-4790K Processor (8M Cache, up to 4.40 GHz)	Q2'14	$339.00 - $350.00	4	4.00 GHz	4.40 GHz	8 MB SmartCache	Intel® HD Graphics 4600
Compare	Intel® Core™ i5-4690K Processor (6M Cache, up to 3.90 GHz)	Q2'14	$242.00 - $243.00	4	3.50 GHz	3.90 GHz	6 MB SmartCache	Intel® HD Graphics 4600

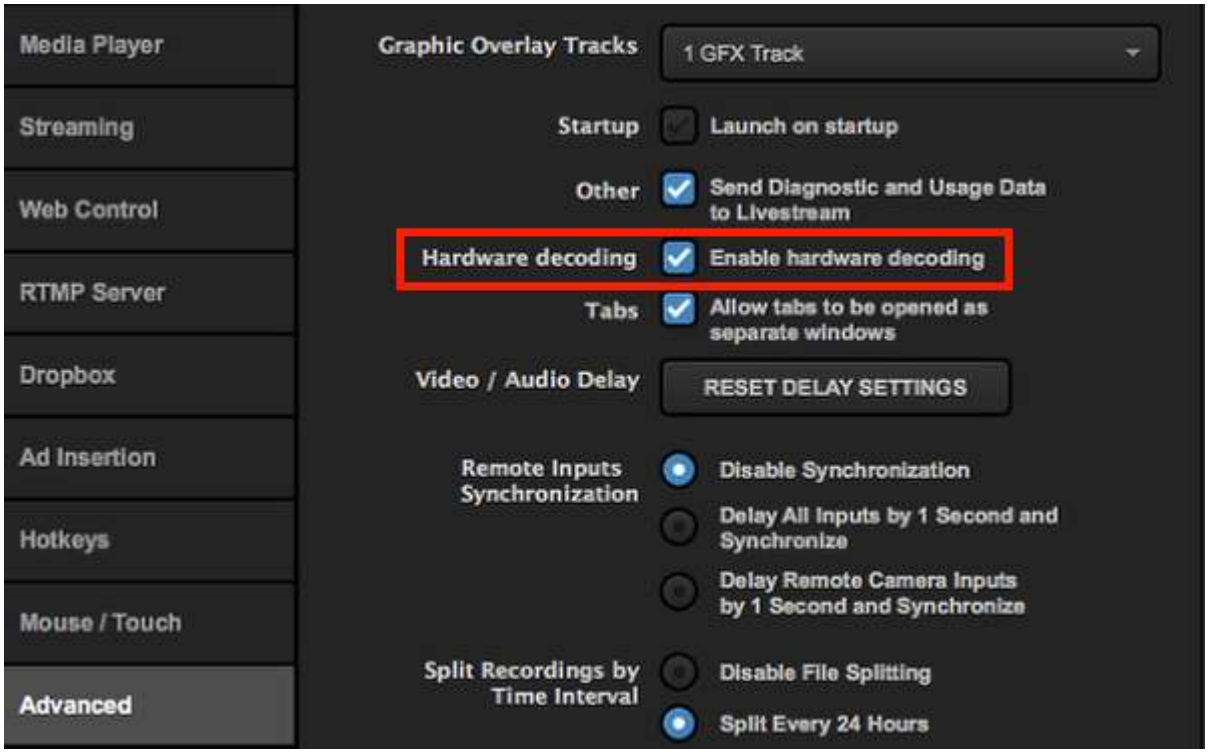
If your CPU does not appear in the list, then you do not have Intel Quick Sync available with your computer's processor.

How Do I Know if My GPU Supports NVENC and NVDEC?

In order to be able to use the hardware encoding and hardware decoding features in Livestream Studio, you must have the proper hardware installed on your computer. One of these options is via NVENC (encoding) and NVDEC (decoding), which process the video via a supported NVIDIA GeForce graphics card.

The first sign of knowing whether your PC supports these features is to go into Studio and check Settings: Streaming for Hardware Encoding, then check Settings: Advanced for Hardware Decoding. If these options do not appear in these menus, then, unfortunately, you do not have the supported hardware.





We have successfully tested the following NVIDIA GeForce models:

- GTX1050
- GTX950
- GT730 (GK208-400-A1 - other versions of this model have been reported to not work)
- GTX650

To find out if a specific model supports these features, visit the NVIDIA GPU Support Matrix. The first table on this page represents cards that support hardware encoding (NVENC); the second table (below) is for cards that support hardware decoding (NVDEC). Below each of these tables are three green buttons which are different NVIDIA product lines; clicking all of these will expand and complete each respective list.

Tesla P4 / P6	Pascal	GP104	1	2	2	Unre
Tesla P40	Pascal	GP102	1	2	2	Unre
Tesla P100	Pascal	GP100	1	3	3	Unre
Tesla V100	Volta	GV100	1	3	3	Unre
Tesla T4	Turing	TU104	1	1	1	Unre

For a **complete list**, click on the buttons below to open the complete tables

GeForce / TITAN | QUADRO | GRID / TESLA

Search for the the model name of the GPU on your system (e.g. GTX 1050). The quickest way to do this is to hold CTRL+F (Windows) or CMD+F (Mac) and type the model name into the page search. The browser will jump to the first matching result.

If your model name is on the first set of tables and lists "YES" under the H.264 (AVCHD) YUV 4:2:0 column, then your GPU supports hardware encoding in Livestream Studio.

NVENC Support Matrix

BOARD	FAMILY	CHIP	# OF CHIPS	# OF NVENC /CHIP	Total # of NVENC	Max # of concurrent sessions	H.264 (AVCHD) YUV 4:2:0
GeForce							
GeForce GT 1030	Pascal	GP108	1	0	0	0	NO
GeForce GTX 1050 / 1050 Ti	Pascal	GP107	1	1	1	2	YES
GeForce GTX 1050 / 1050 Ti	Pascal	GP106	1	1	1	2	YES

If it appears in the second set of tables and lists "YES" under the H.264 (AVCHD) column, then it supports hardware decoding.

If your NVIDIA card falls outside of these parameters, then NVENC and/or NVDEC may not be supported on that card

Using a Bonded Network to Stream

Livestream Studio has the ability to stream via a bonded connection, allowing you to stream over multiple Ethernet, Wi-Fi or 4G/LTE network connections, increasing your bandwidth while also allowing you to create network redundancy.

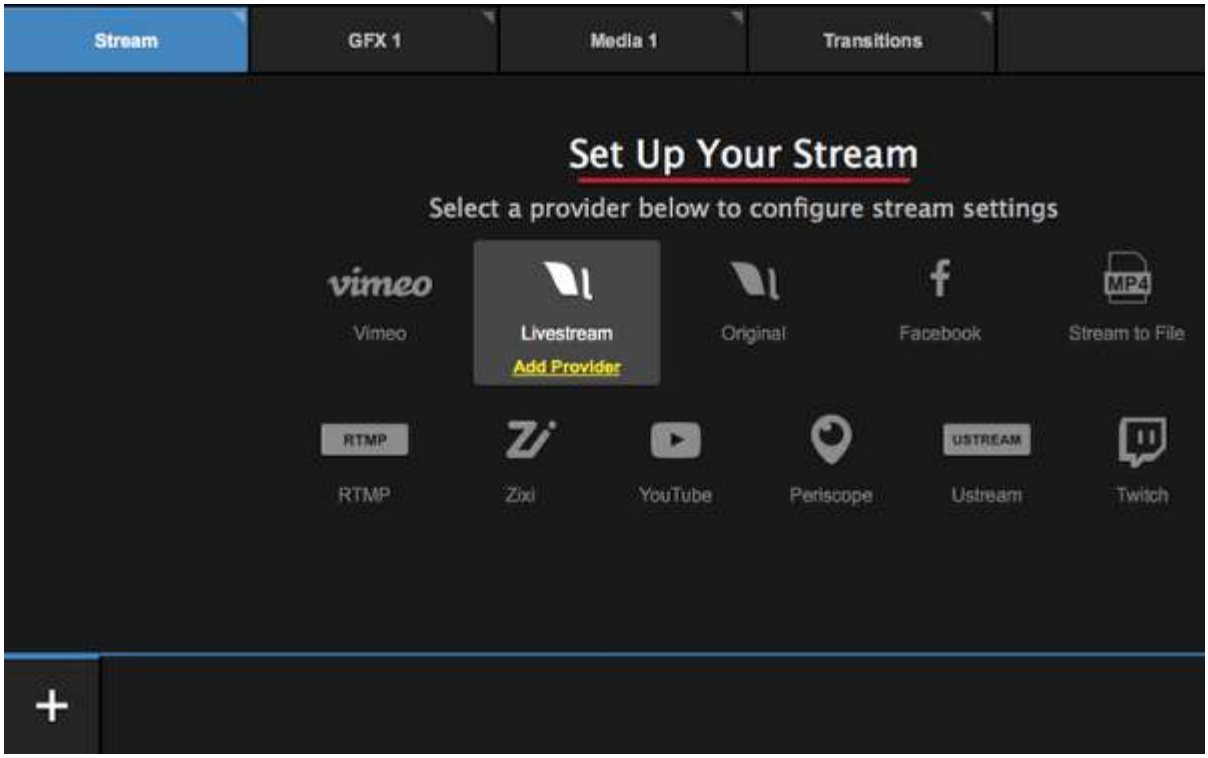
Important: Bonding is only available when streaming to Livestream or via Zixi. If choosing multiple providers, be aware that other providers will use only the network you selected when configuring each provider's stream settings.

While Windows should recognize and automatically install any necessary drivers for USB modems, the drivers can also be manually downloaded from the modem vendor's site. Ensure that all networks can access the Internet.

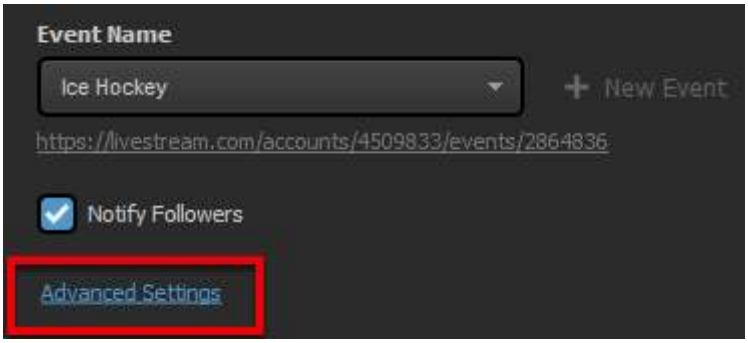
In order to successfully stream with a bonded connection, ports UDP 2088 and TCP/IP 80 need to be open in addition to standard Firewall ports.

As a best practice, it's recommended that USB devices are spread across your PC's various USB ports and hubs. This avoids taxing each USB hub and ensures that each modem's connection is used.

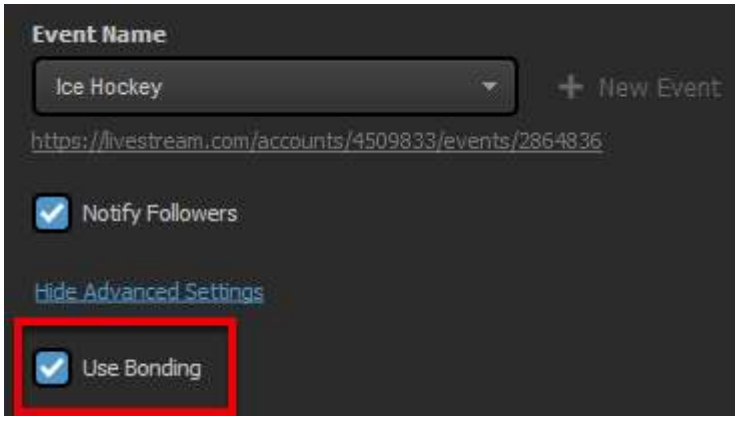
In Livestream Studio, navigate to the Stream tab and login to your Livestream account.



Select your event, then click Advanced Settings.

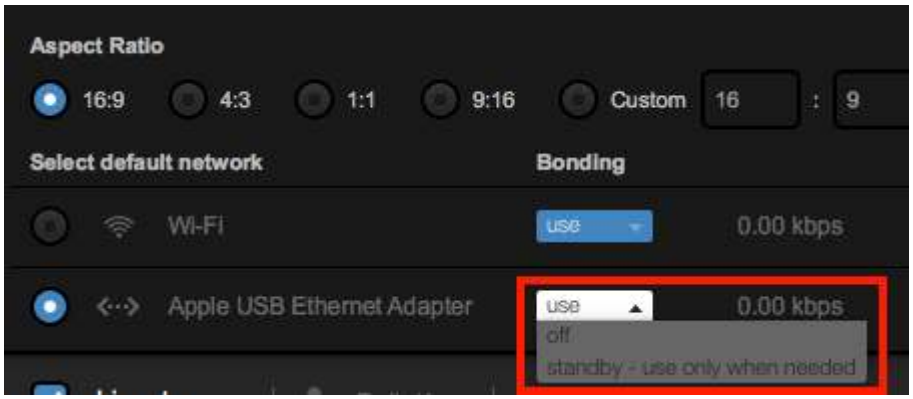


Check Use Bonding, then click Done.

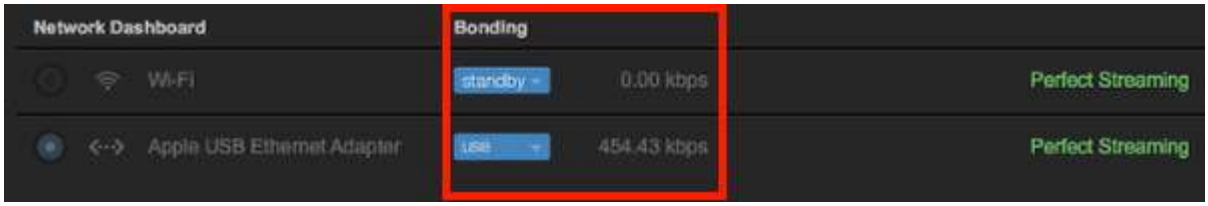


At the top-right corner of the Stream module is a gearwheel. Select this to configure default settings for your stream, including your default network. Here you will see a Bonding column with each corresponding network and a small dropdown menu with the following options:

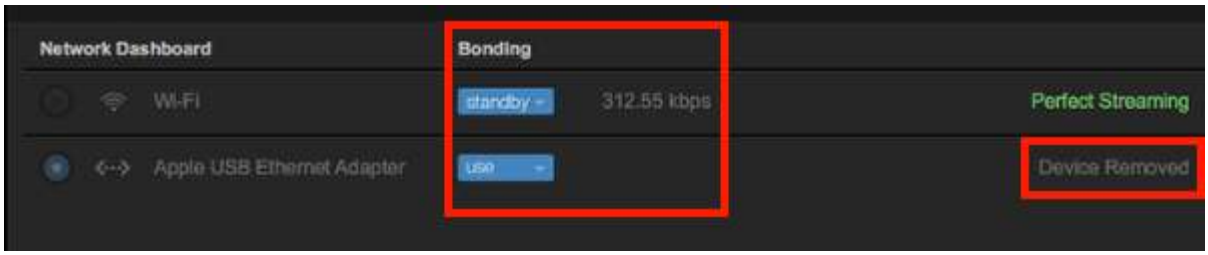
- Use: Networks with this option selected will combine together and distribute the stream.
- Standby - use only when needed: This network will not be used unless all other active networks lose connection. For example, if you have a 4G USB modem plugged in with data caps, you may want to consider saving that as your backup connection to avoid data overage charges.
- Off: Will not be used at any point during your broadcast regardless of the status of other network connections.



When you go live, your network dashboard will show information for each network, such as the bitrates each active one is distributing and if one disconnects.



Your standby networks will not stream unless a problem occurs with all of your selected primary networks (i.e. those with Use selected).

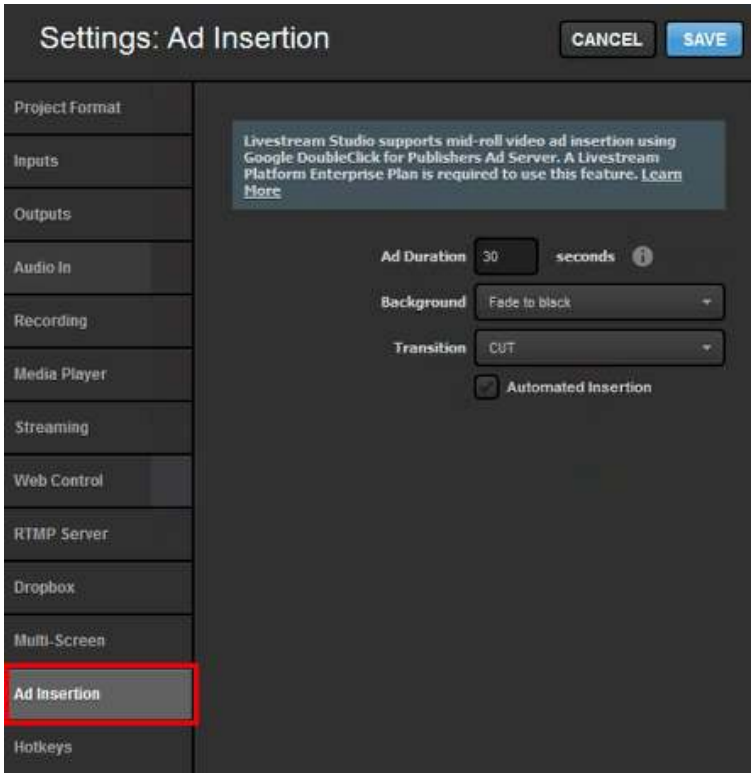


Configuring Mid-Roll Advertisements

Owners of the Livestream Studio software who also have an Enterprise plan on Livestream can now insert a mid-roll advertisement during a live broadcast with the press of a button. In order for this feature to work, make sure you have set-up and configured a Google Ad Manager (formerly known as Google DFP).

Once the Google DFP account is properly configured with Livestream, launch Livestream Studio.

Open the settings menu and navigate to the Ad Insertion menu.



Within this menu tab, you'll find the following options:

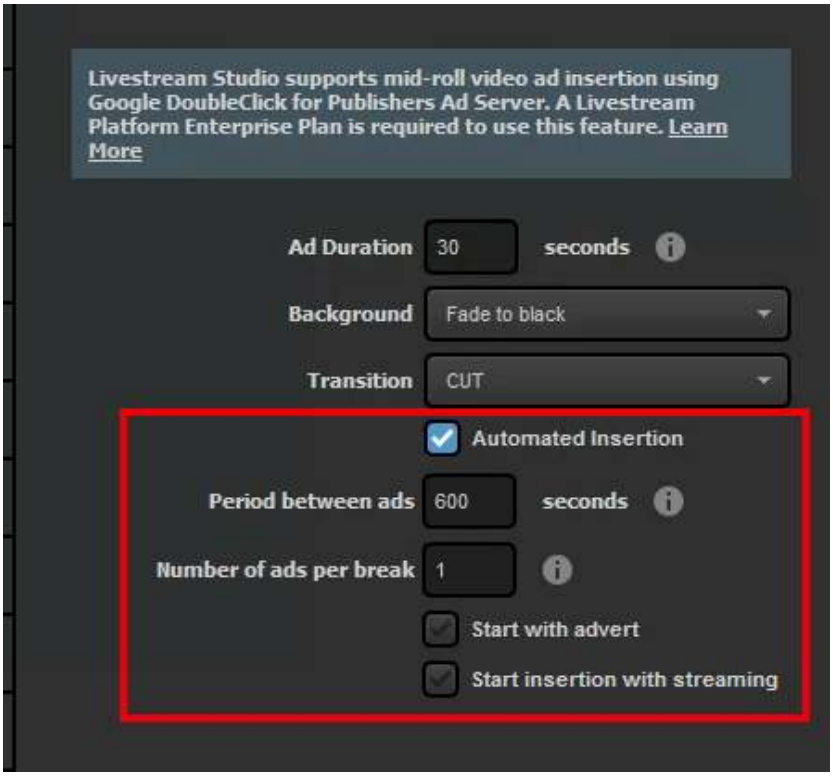
Segment Duration: adjust the length of the mid-roll advertisement segment. This is how long an advertising segment will last before it starts over. When you click Advert again, Livestream Studio will

switch to the Preview source at the end of the segment.
Background: Adjust the image displayed behind the advert. Options include:

- Fade to Black
- Any of the available GFX/Color/Media inputs

Transition: Adjust the transition in and out of the advert. Options include Cut and Auto.

Automated Insertion: Checking this will bring up additional settings if you want your advertisement to run at a set interval. This can be helpful if you have strict time limitations or have to meet certain sponsorship requirements.



Period between ads: The time, in seconds, between your advertisements being triggered.

Number of segments per period: How many segments roll before advertisements are no longer triggered.

Start with advert: Segment will begin by playing the advertisement, rather than starting with showing what you selected to go in the background.

Start insertion with streaming: When you go live, the first content your viewers will see is your advertising.

After configuring the Ad Insertion Preferences, click Save. To activate a mid-roll manually, click the Advert button below the transition controls.

When inserting an advertisement via the Livestream Studio Software, the following should occur:

- Depending on your choice of background, the Program window will change to reflect the selected option.
- The Advert button will become red and include a Countdown timer.
- On the top Left of the Program window, it will read "OUTPUT Advertisement: [Transition] is locked until End". In the below example the option selected is "Fade to Black".

After clicking Advert again, it will switch to a countdown to when your stream will return to content.

Adding & Configuring Tally Lights

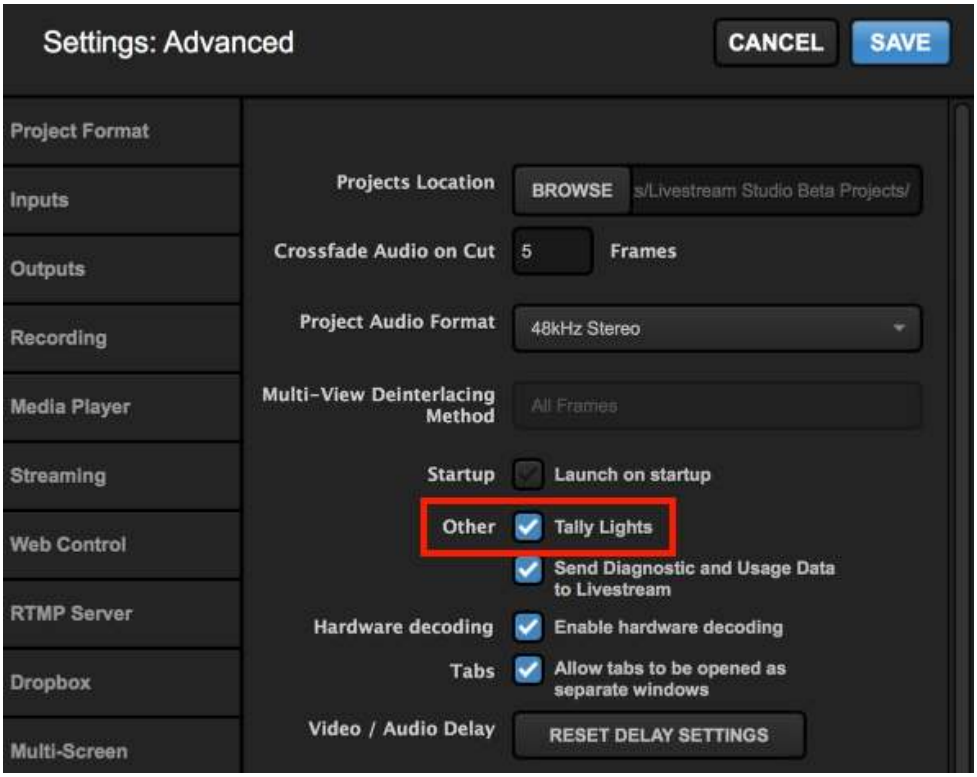
A tally light is a small signal-lamp typically seen on top of a camera. It is usually located above the lens or on the electronic viewfinder and communicates that the camera is 'live' - i.e. its signal is being seen in Program at that moment.

Tally light systems by MetaSETZ (http://www.metasetz.com) are currently the only systems supported by Livestream Studio.

Once you have acquired your Tally Light system, connect it to your computer via an available USB port. The system should recognize it and automatically install the drivers.

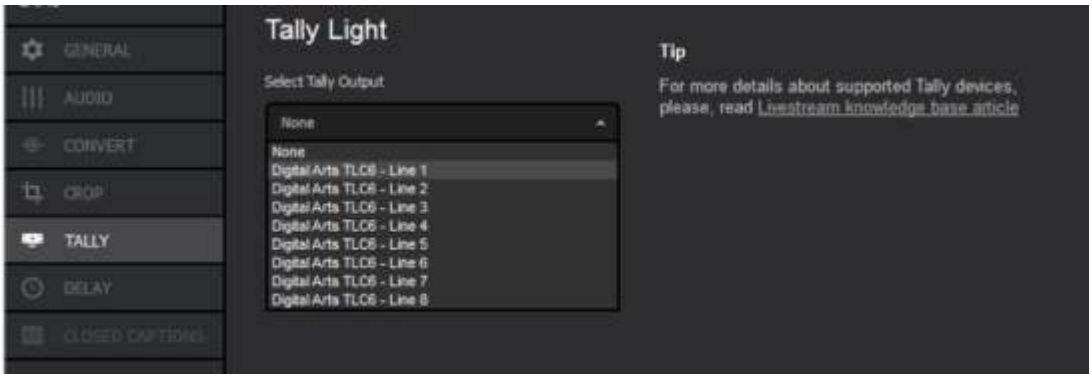
Open the Livestream Studio software and open Settings: Advanced.

Under Other, check the Tally Lights option. Save your settings.



Go to the Inputs tab and select the local input to which you want to assign a tally port, then click the corresponding gearwheel to the right to enter that input's settings.

Select Tally and assign one of the available tally ports to your camera as seen below. Do this for each of your cameras.



When the camera is set to Program, the selected Tally Light will turn on.

Create a Backup Stream to Livestream

Unfortunately, this feature is currently not functioning properly. Our development team is aware and working on a fix. We will update this article when a fix has been released.

You can create a backup stream to Livestream using Livestream Studio. This is helpful if you are looking to add redundancy to your workflow in the event of a bandwidth drop or power failure. You will need two systems running Livestream Studio. Determine which will be your primary encoder and secondary encoder.

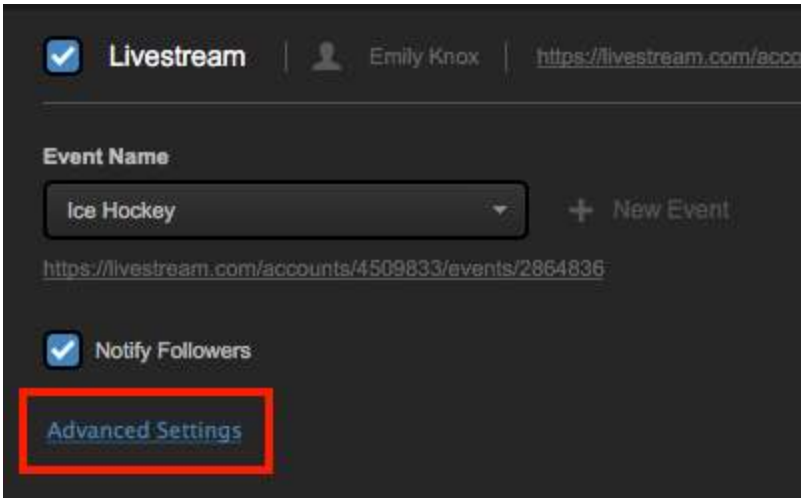
This feature only works when streaming to Livestream.com. Livestream Studio cannot create a backup stream for other providers.

Start your stream to Livestream on your primary encoder as you normally would.

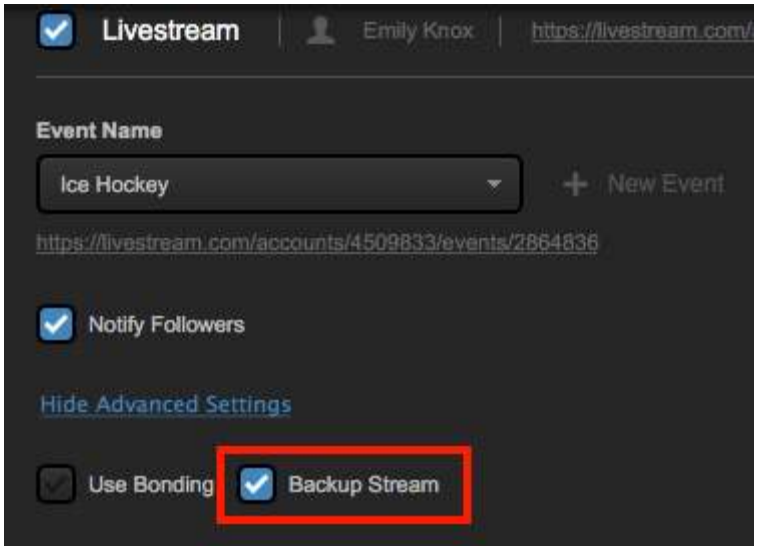
Open Livestream Studio on your secondary encoder. Navigate to the Stream module, log in to Livestream. Make sure the following streaming settings match the settings on your primary encoder:

- Event
- Streaming Quality

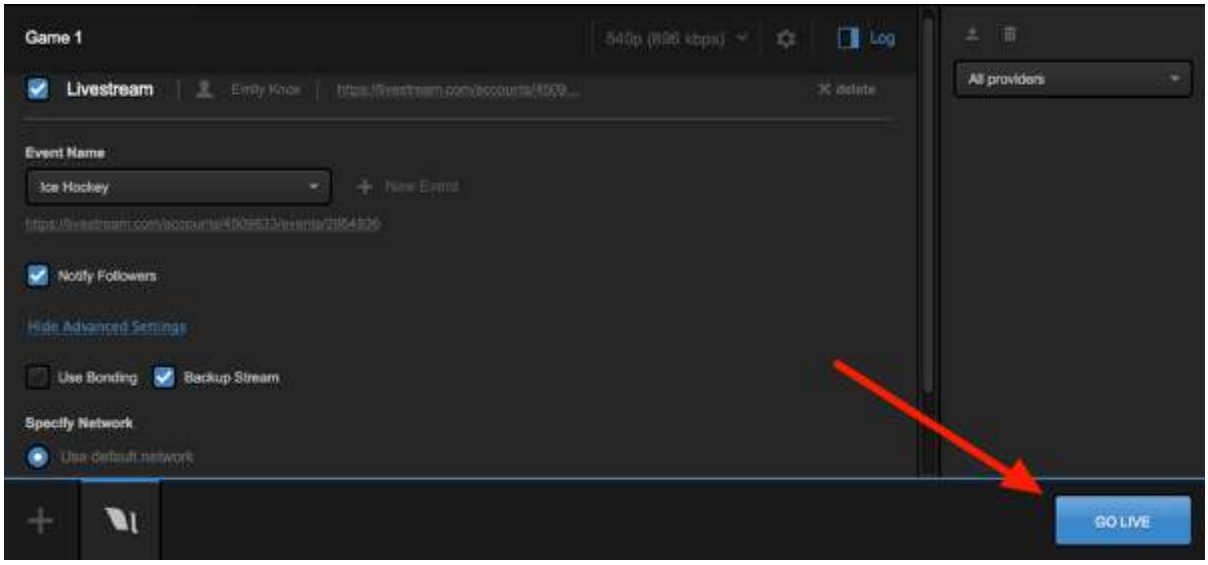
Next, select Advanced Settings.



Check Backup Stream.



When your settings are configured, select Go Live to start streaming your backup.



If the stream from the primary encoder fails due to bandwidth drop or power failure, the stream from secondary encoder will continue without interrupting the viewing experience on Livestream.

> ⚠ Important: Backup Stream is not available when using Bonding as your delivery method.

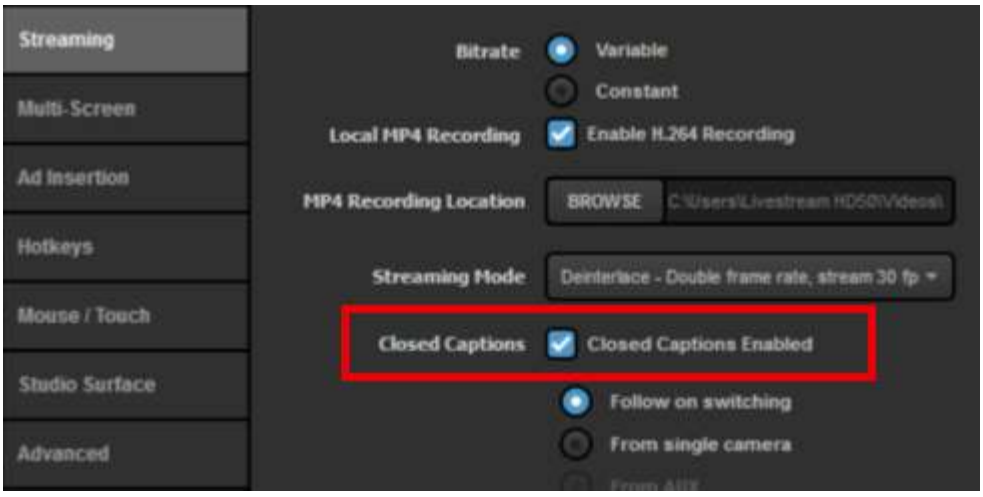
Enabling Closed Captioning Ingestion

Livestream Studio can ingest FCC compliant closed captioning data with their input sources and stream it out to Livestream.

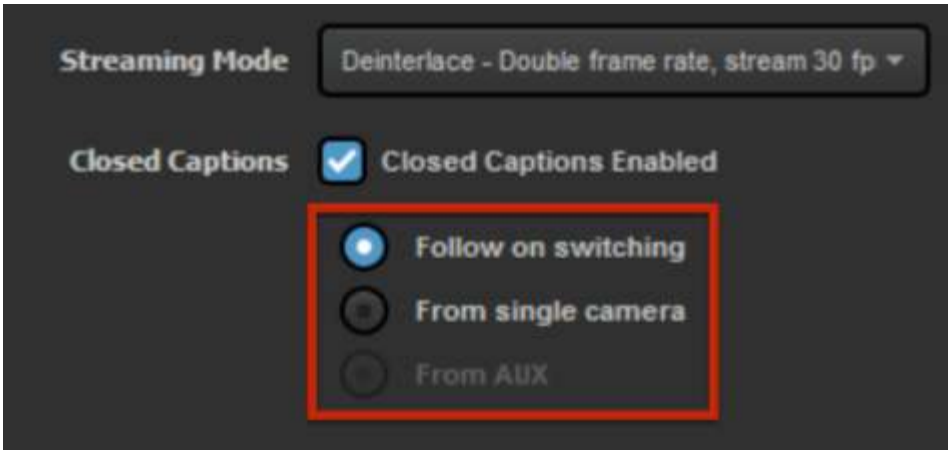
Livestream Studio supports ingesting CEA 708 closed captions via Blackmagic DeckLink devices. Most closed captioning encoders support this type of captions, as they are FCC compliant. Studio can then deliver CEA 608 captions to the Livestream player. If you are using another streaming provider, contact them regarding their player's closed captioning support. (The Vimeo player currently does not support live captions.)

Important: The captions must be embedded into a Blackmagic Design SDI input in order to be recognized. Closed captioning currently does not work when using Magewell capture cards, including the cards installed on the Studio One.

To enable closed captions forwarding to Livestream, go to settings and enter the Streaming menu. At the bottom, you will see Closed Captions. Check Closed Captions Enabled to allow for closed captioning data to be received.



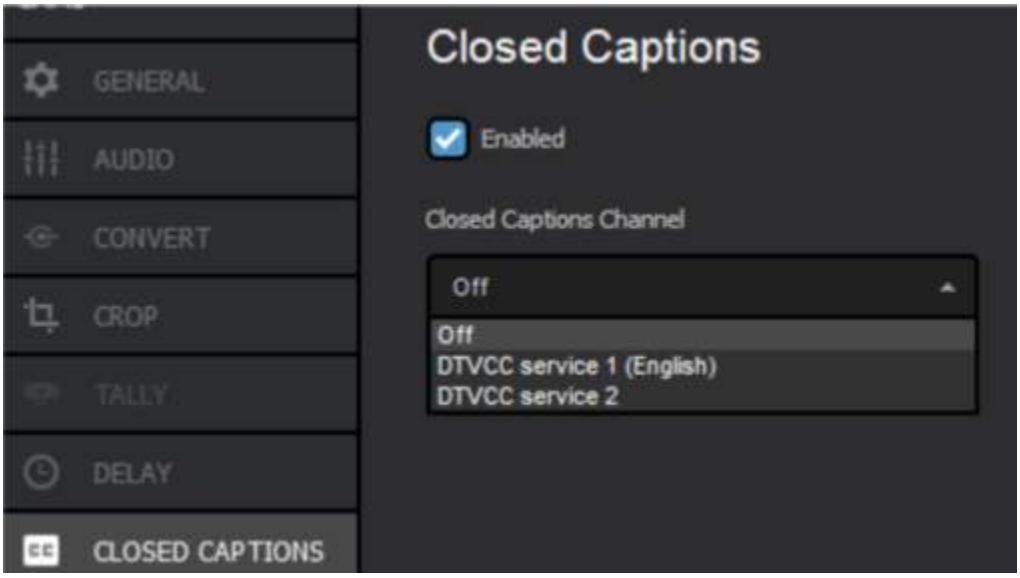
Next, select whether the closed captions are available only with the source they are coming from (Follow on switching), if the captions should show regardless of what source is in Program (From single camera), or only when the source is in AUX program (From AUX).



Save your settings, then go to the Inputs tab. Select the camera source(s) that has the closed captioning data embedded, then click the corresponding gearwheel to the right to configure its settings.

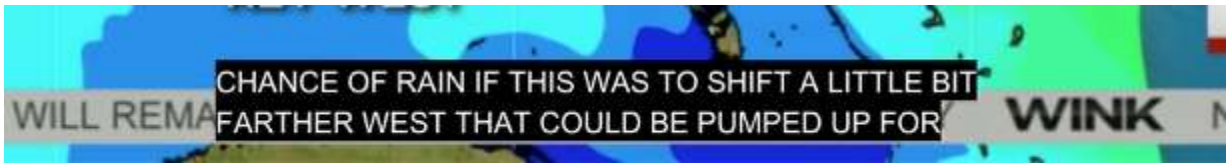
On the left side, select Closed Captions.

Check Enabled, and then select which channel your closed captions are coming through. This will require that the selected input source be a 10-bit input signal, rather than 8-bit.



When you go live, your captions will be available as an option in the destination's player as well as your Livestream VOD. Please note you will not see any captions in Livestream Studio or when you download the video file from your event page.

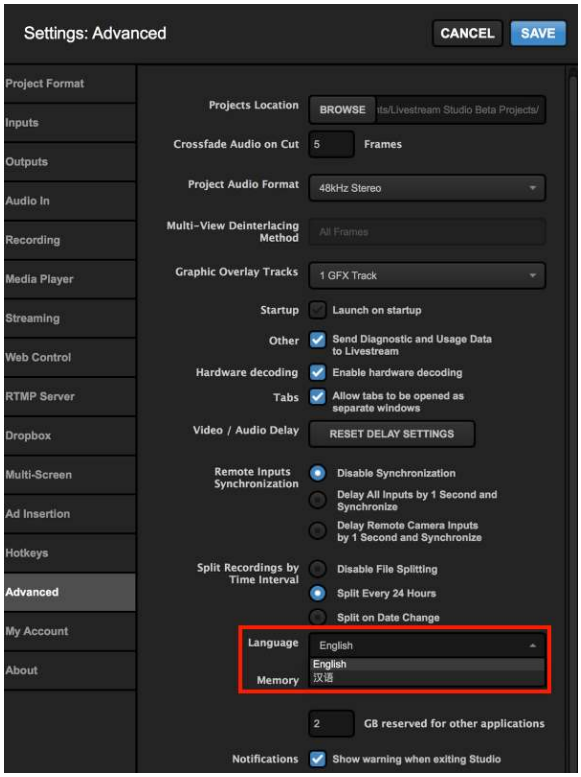
We cannot guarantee that captions will be available on Android due to the diverse nature of its versioning and devices.



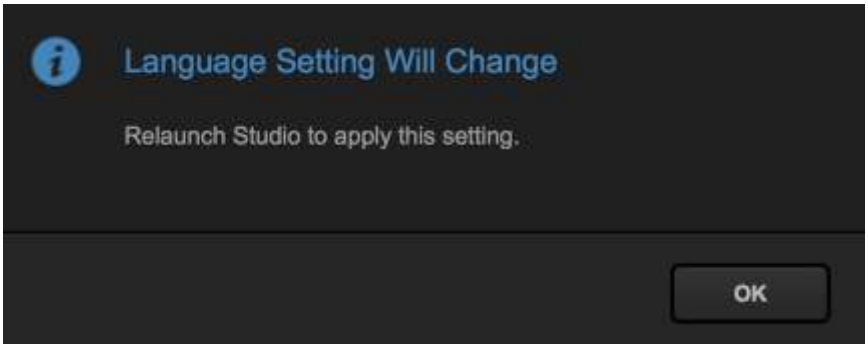
Changing Language in Livestream Studio to Chinese

Livestream Studio includes the ability to change the language of the Studio interface between English and Chinese.

Click the gearwheel button in the upper right corner of the Studio interface. Navigate to the Settings: Advanced menu. Towards the bottom will be the Language dropdown menu where you can select your preferred language.



You will be notified that your language setting has changed. It will be applied when you relaunch Studio.



If you ever do this accidentally, click the gearwheel in the Studio interface. The third tab from the bottom left is the Advanced menu. The third setting from the bottom of the menu is the language dropdown menu; select English, press the blue Save button, and relaunch Studio. The interface will return to English.

Import & Export Recorded Files Using Adobe Premiere Pro

⚠ Unfortunately, Adobe Premiere 2018 for Mac no longer supports MJPEG AVI files. This issue does not appear on Windows machines.

First, make sure you have Blackmagic Design Desktop Video installed on your system. Go to https://www.blackmagicdesign.com/support, select 'Capture and Playback,' and download Desktop Video.

- Open Adobe Premiere Pro and choose a new project
- Select the capture format
- Select the sequence settings

Important: These should match the video format settings of the Livestream Studio Project

Import the video clip.

- Go to: File > Import
- Select the video file and select open.

The imported file should appear in the clip bin.

- Drag the clip into the timeline.

The user will be prompted to change or keep sequence settings. Choose "Keep sequence settings."

Exporting video clips:

- Go to File > Export > Media
- Select "Match Sequence Settings"
- Enter an output name.
- Click "Export"

Import & Export Recorded Files Using Final Cut Pro 7

Follow the steps below in Final Cut Pro 7 to bring a clip into the editing software.

Note: If you are simply looking to export a recording as a compressed .mp4 file, you may want to consider trying the export feature in Livestream Studio's media bin.

1. Open Final Cut Pro and choose a new project.
2. Drag the video clip into the file bin.
3. Drag the clip into the timeline.

a. A prompt to "Change the Sequence Settings" will display.
b. Choose "Yes"

4. Go to Files > Export > Quicktime Movie
5. Choose "Sequence Settings"

Note: Settings must be exactly the same as the settings on the Livestream Studio™ project.

6. Save the clip.

Troubleshooting

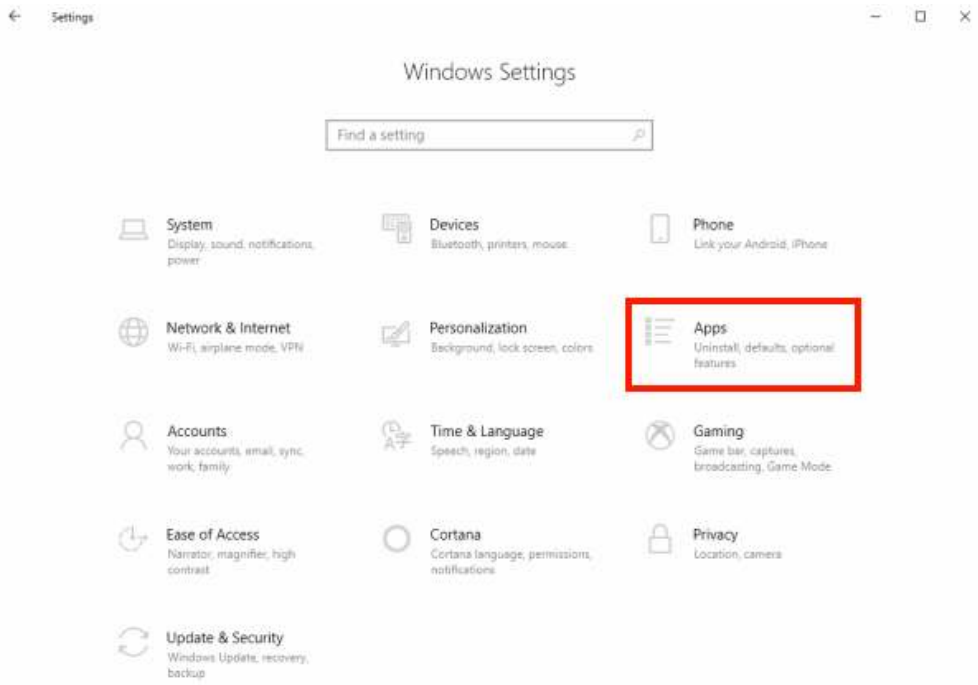
Uninstalling Livestream Studio

To uninstall Livestream Studio, first make sure that Studio is not running, regardless of which operating system you are using.

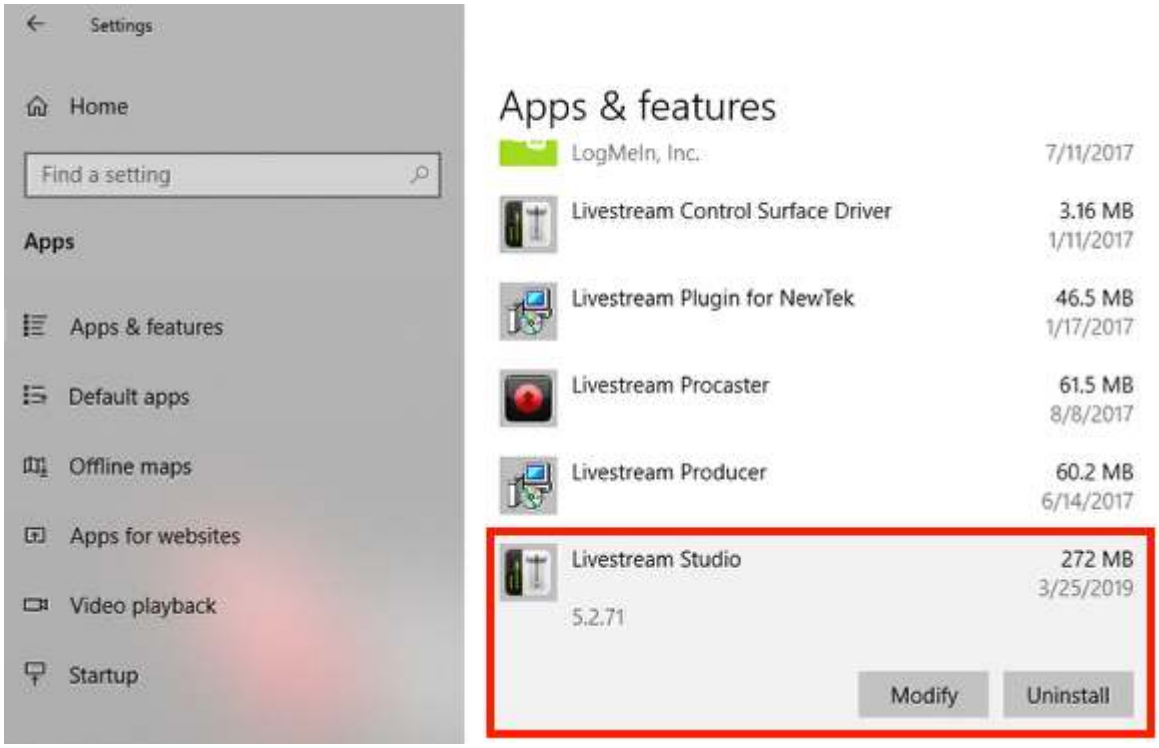
Uninstall Studio from Windows

Go to **Settings** (Start menu > gearwheel) and select the **Apps** menu.

> If you are running an older version of Windows (i.e. Windows 7), go to Control Panel and select **Uninstall a Program**.



Find and select Livestream Studio, then select Uninstall.



Follow the on-screen prompts to run the uninstaller. Once Studio is uninstalled, you can download the desired version from this page.

Uninstall from MacOS

To uninstall Studio from a Mac system, simply find Livestream Studio in your Applications folder and click and drag it to the Trash. Alternatively, right-click Livestream Studio in your Applications folder and select Move to Trash.

Once Livestream Studio is in the Trash, right-click the Trash icon and click Empty Trash.

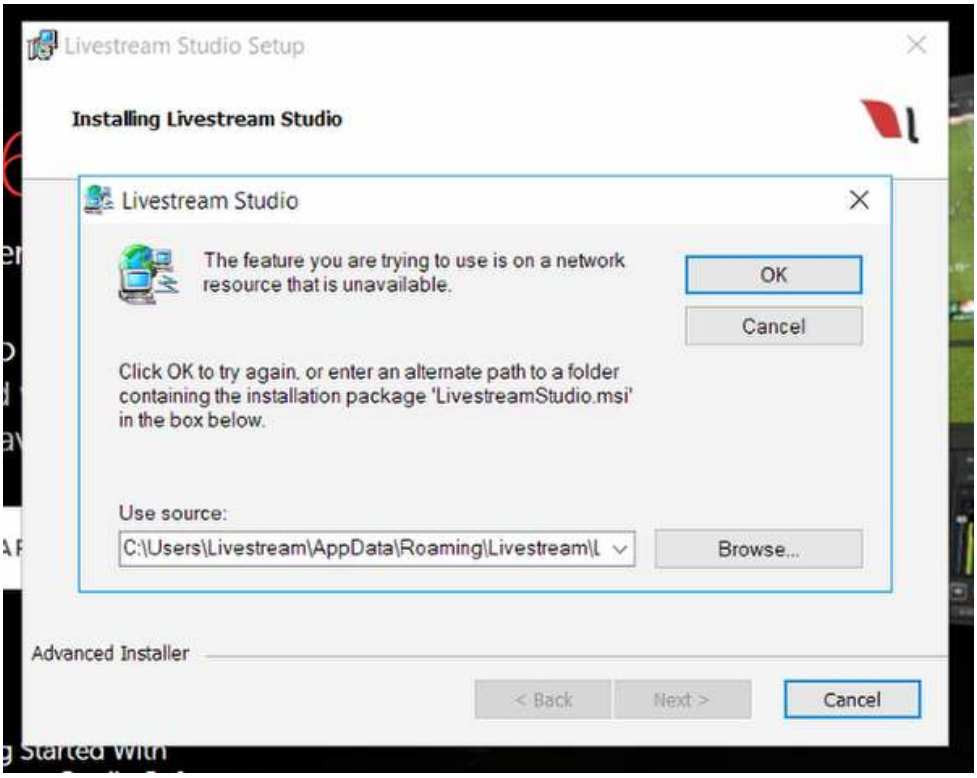
Livestream Studio is now uninstalled.

Network Resource Unavailable When Installing Studio

There is a known issue when attempting to install Livestream Studio on your Windows PC after rolling back your Windows version. Below outlines what the issue looks like and how to resolve it.

We have specifically seen this behavior when customers have rolled back from Windows 10 version 1709 to Windows 10 version 1703, but it possible with other Windows rollbacks as well.

After rolling back Windows, if you attempt to install Livestream Studio on your PC again, you may see a message indicating that a network resource is unavailable.



What happened is that Windows damaged some of Studio's data in the registry during the rollback.

To fix this, run the installer of the version of Studio you were running prior to the Windows rollback; if you are seeing this error, it was likely not the most recent version. You can find downloads to all of our previous installers in the Version History article.

Since technically this version of Studio already exists on your PC, the installation wizard will prompt you with options to Remove or Repair it; select Remove. This will fix the registry damage and thus allow you to install any version of Livestream Studio.

Studio Takes Longer than One Minute to Launch

If you notice that launching Livestream Studio suddenly goes from taking about 20 seconds to launch to over a minute, or the settings menu takes a long time to open, it may be due to a Windows feature called Fault Tolerant Heap (FTH).

In summary, FTH monitors for software crashes and attempts to mitigate future crashes. Microsoft provides a detailed explanation of FTH, including how to check what applications (e.g. Studio) are FTH enabled.

If you have experienced Studio crashing in the past, this feature may be active and causing slowness when launching Studio or opening the Settings menu. Our testing has shown that clearing the FTH cache can resolve this.

In order to do this, you must be using Windows as an Administrator and Studio must be closed.

Open Terminal as an administrator. Run the following command from an elevated command prompt:

```
Rundll32.exe fthsvc.dll,FthSysprepSpecialize
```

Running this command will clear all FTH applications, so applications that are currently functioning properly may begin to crash again after running this command.

After the command runs, restart Windows to apply the setting. After restarting, Studio should launch within the normal timeframe (20 seconds to one minute).

Studio Software Crashes From Launch

If you attempt to launch Livestream Studio and it crashes before the opening splash screen finishes loading, you may be missing important Windows components.

Please check the following:

- Ensure that Windows is fully-updated.

- Check that Livestream Studio has been installed under the Administrator account on your computer.

- Make sure you have installed Visual C++ 2013 Redistributable Package x64 on your computer.

Windows 10 Users

If you experience this behavior, it may be due to having Windows 10 N or Windows 10 KN editions installed. These versions do not come with the Windows Media Feature Pack, which is required in order for Livestream Studio to run. You can download the pack from Microsoft's website here.

We have only encountered this behavior on Windows machines. If you experience this while using Studio on macOS, please contact us to investigate.

Offline Mode and Access Warning Messages

When you access Studio via your Vimeo or Livestream subscription, you need an internet connection in order for Studio to authenticate your account. If you lose this connection, Studio will enter offline mode.

Once you've logged into Studio successfully, you can keep using Studio as long as your internet connection remains in tact.

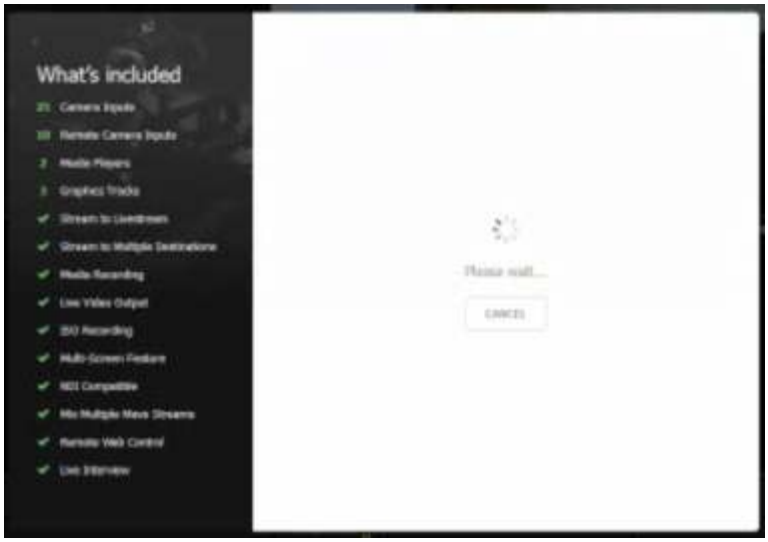
If your connection is interrupted, Studio will enter offline mode, which will allow you to keep using Studio for up to 7 days after disconnection, even if your subscription ends in that timeframe. A countdown for how long your offline access is active can be found by navigating to the Settings menu, then selecting the My Account tab.

If you haven't successfully reconnected within the 7-day time frame, Studio will log you out and prompt you to log in again.

Also take note that if you log in within incorrect credentials, you log in with an expired subscription, or you exceed your license limit, you will have limited access to Studio and see numerous warnings indicating that your connection isn't valid. You may only log into Studio with an active Vimeo Premium, Vimeo Enterprise, or paid Livestream account within your license limit.

Can't Access Studio From Login Window

Some customers who access Livestream Studio via a subscription (rather than a USB dongle or hardware unit) have encountered a constant spinning wheel and cannot get past the first login window to access the software interface.



If you experience this, there are a few steps to take that can resolve this:

- Check that Windows is fully up to date. Some customers have resolved this issue by simply running Windows updates.
- Clear your Internet Explorer SSL state. We have specifically seen clearing browser cache in Internet Explorer help resolve this issue.
  1. To access the Delete Browsing History dialog:
     - If you are using Internet Explorer 8, on the Tools menu, click Internet Options.
     - If you are using Internet Explorer 9 or 10, click the gearwheel icon, and then click Internet Options.
  2. Click the Content tab.
  3. Click Clear SSL state, and then click OK.
- Clearing your cache in Internet Explorer as instructed on this webpage has helped with this issue in the past as well.

> We have only encountered this behavior on Windows machines. If you experience this issue while using Studio on macOS, please contact us to investigate.

Livestream Studio Not Fitting Within Screen

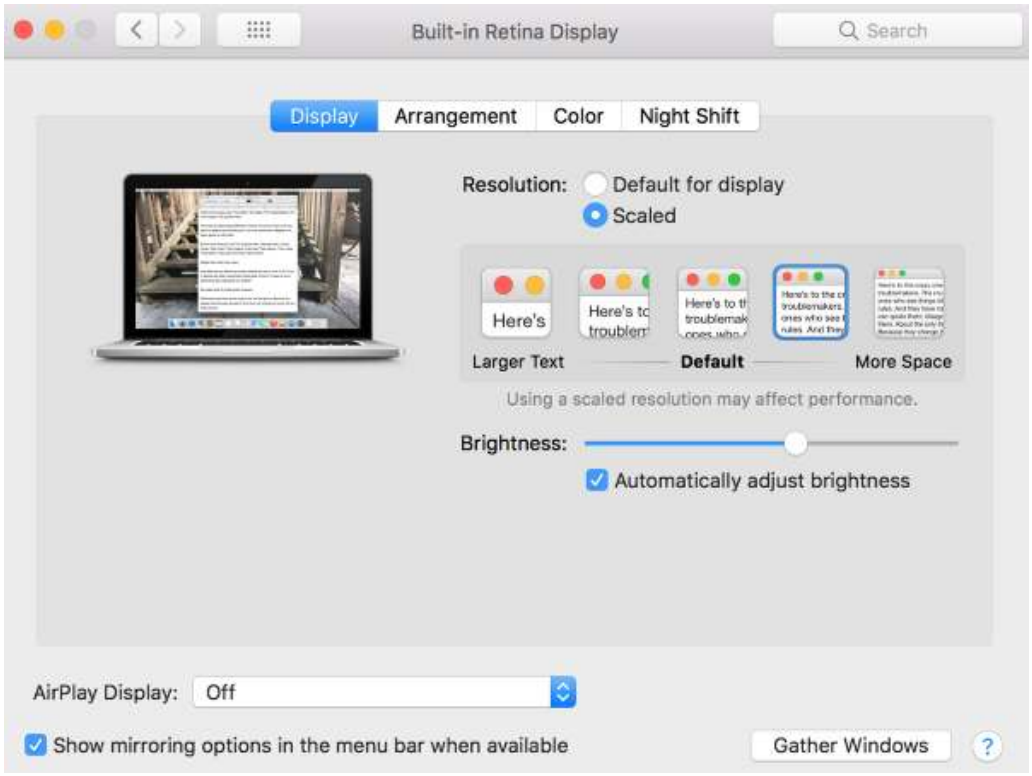
When using Livestream Studio, it's ideal for your display resolution to be set to 1920x1080. Otherwise, you may not be able to see the full software interface on your screen. If your display does not support a resolution this high, there are workarounds detailed below.

If you are using Windows:

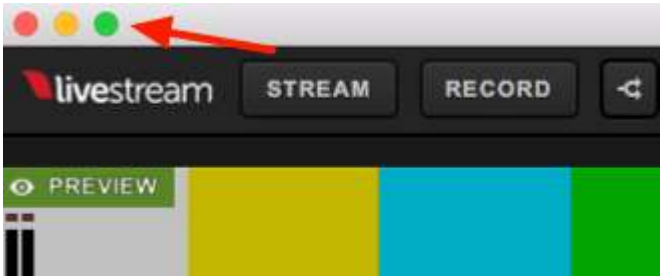
1. Launch Livestream Studio
2. Press ALT+Spacebar on your keyboard
3. Select Maximize on the menu that pops up

Customers using Studio on Mac can fix this by going to System Preferences > Displays. Under Resolution, select Scaled.

Built-in Mac displays can be scaled based on appearance; select an option closer to More Space. Secondary displays will allow you to choose a numerical resolution.



Alternatively, you could also click the green fullscreen button in the upper left corner of the Studio window.

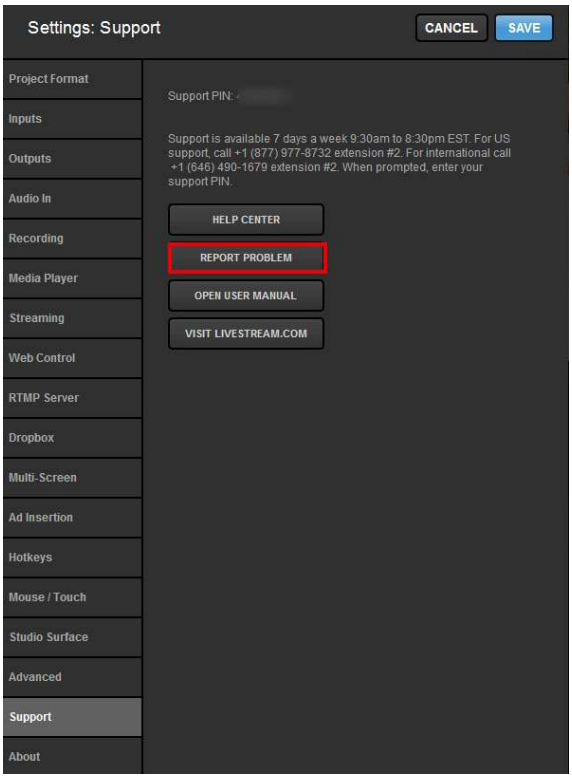


Livestream Studio should now fill out your display without any parts of the interface being cut off.

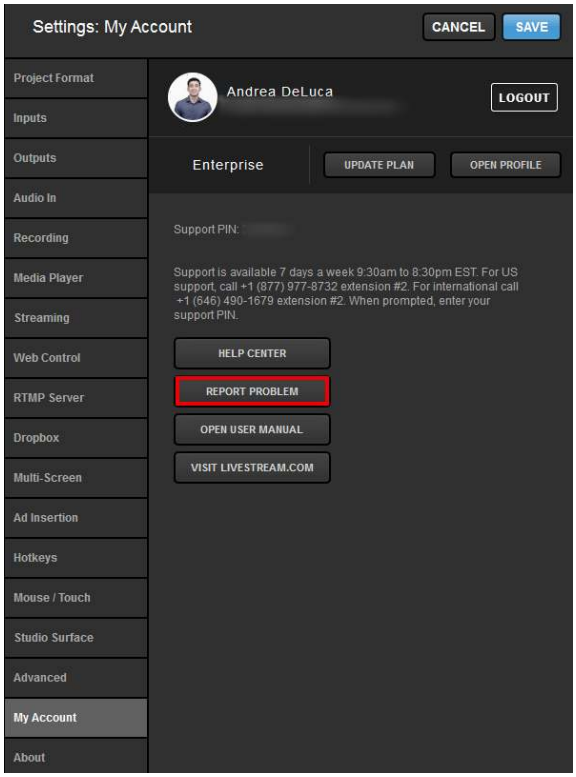
Send Studio Logs to Livestream

If you continually experience issues streaming with Livestream Studio, the best way to troubleshoot with our customer care team is to report a problem and send logs via Studio.

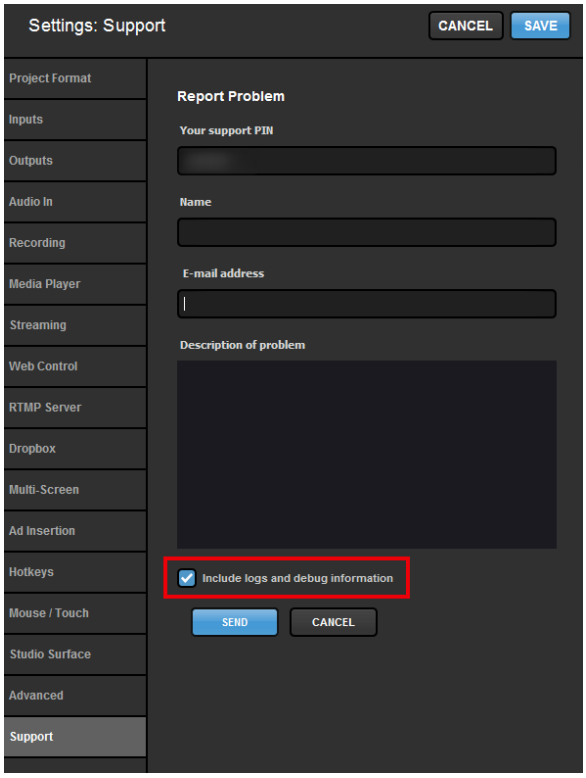
If you are accessing Studio on a hardware unit (HD31, HD51, HD550, etc.) or via a red USB dongle, then navigate to Settings: Support and select Report Problem.



If you are accessing Studio via your Livestream account login, go to Settings: My Account and select Report Problem.



Fill in the required information and make sure Include logs and debug information is checked. Then click Send. Our team will respond as soon as possible.


Settings: Support
CANCEL
SAVE
Project Format
Inputs
Outputs
Audio In
Recording
Media Player
Streaming
Web Control
RTMP Server
Dropbox
Multi-Screen
Ad Insertion
Hotkeys
Mouse / Touch
Studio Surface
Advanced
Support
Report Problem
Your support PIN
Name
E-mail address
Description of problem
Include logs and debug information
SEND
CANCEL

How to Use the Studio USB Recovery Drive

Included with all Livestream Studio hardware units are USB recovery drives, which you can use whenever there is a Windows system failure or any situation in which you would like to restore your system to Windows default settings. The full process takes about 20 minutes.

Please read and fully understand all of the instructions before starting the process. If you have any questions or concerns, please contact customer care.

Before beginning this process, make sure you have your Windows License number available to you. It is included in the 'Studio Bits and Bops' box that is shipped with your Studio hardware unit.

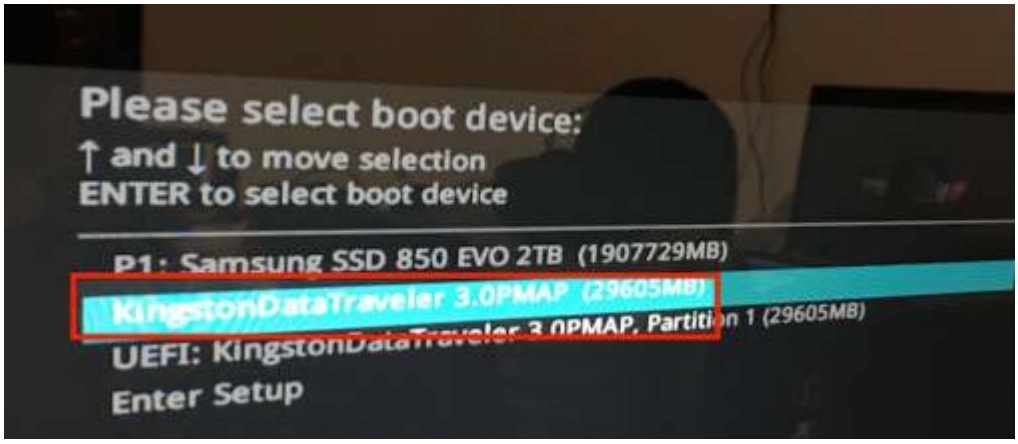
1. Back up any files you wish to preserve. This process is destructive and will return the system to factory settings and result in the loss of all user files.

2. Insert your USB Restore Drive into any of your Studio unit's USB ports.

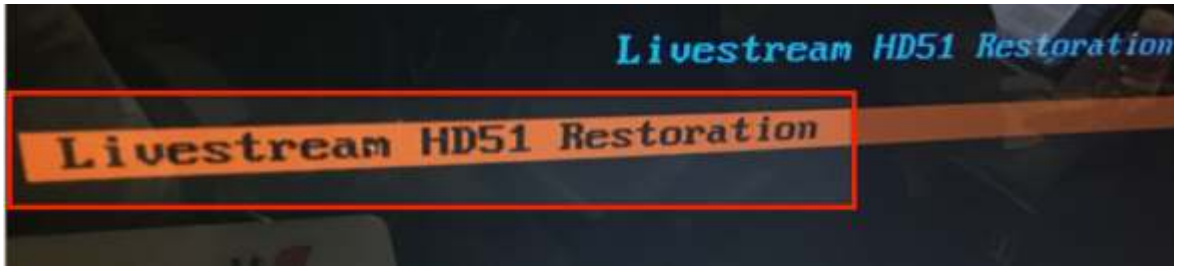
3. Power the system on using the power button.

4. Once the Livestream logo appears for the first time, tap the “F8” key repeatedly to enter the Boot Menu.

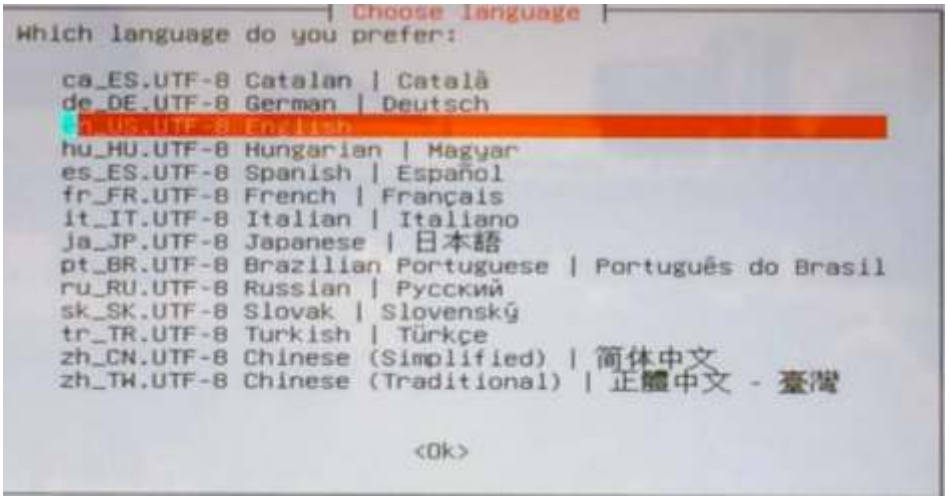
5. In the Boot Menu, select 'KingstonDataTraveler 3.0PMAP,' then hit the Enter key.



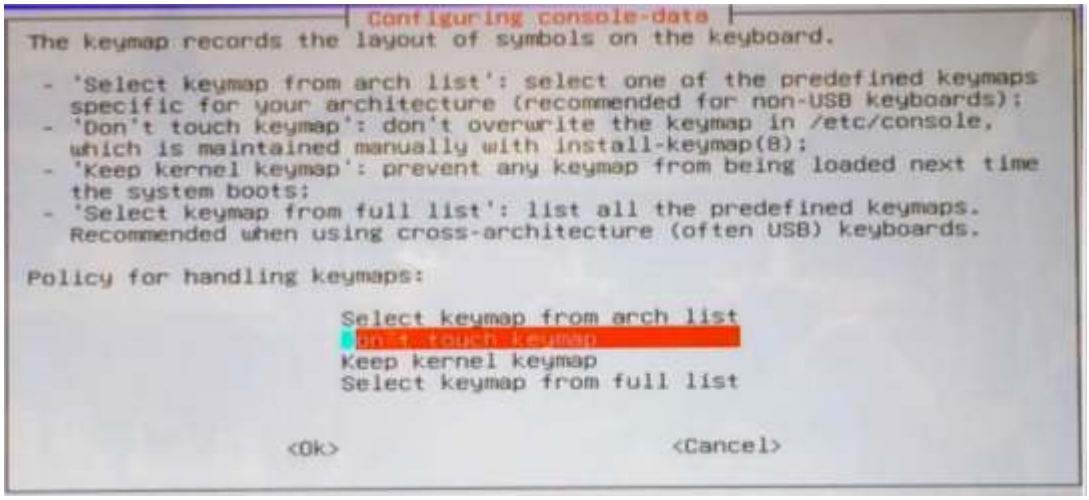
6. You will be presented with the main menu following a few seconds of load time. Your Studio unit's Livestream restoration option will be selected. Hit the Enter key.



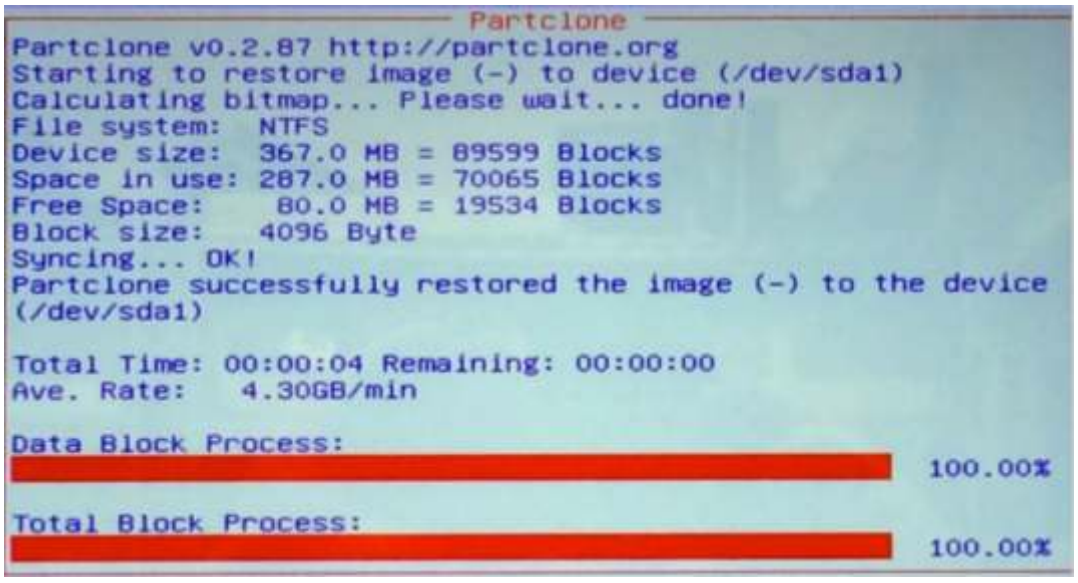
7. In the 'Choose language' screen, press the 'Enter' key to select the default option of English.



8. At the 'Configuring console-data' screen, press the 'Enter' key to select the default option of Don't touch keymap.

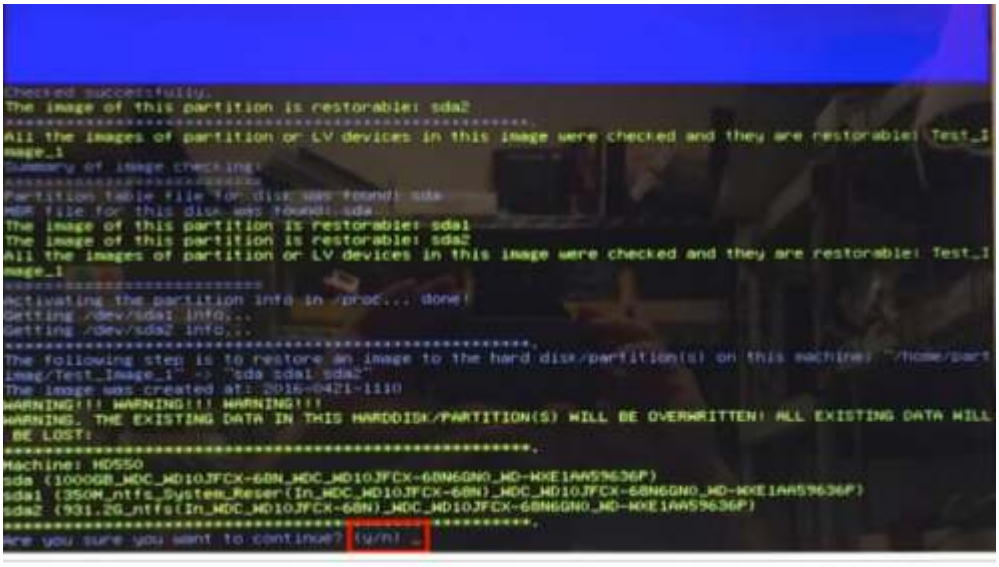


9. Wait for the system to complete its image verification. This process will take about 10 minutes. ETA and the progress bar will be visible on the screen to indicate the process.



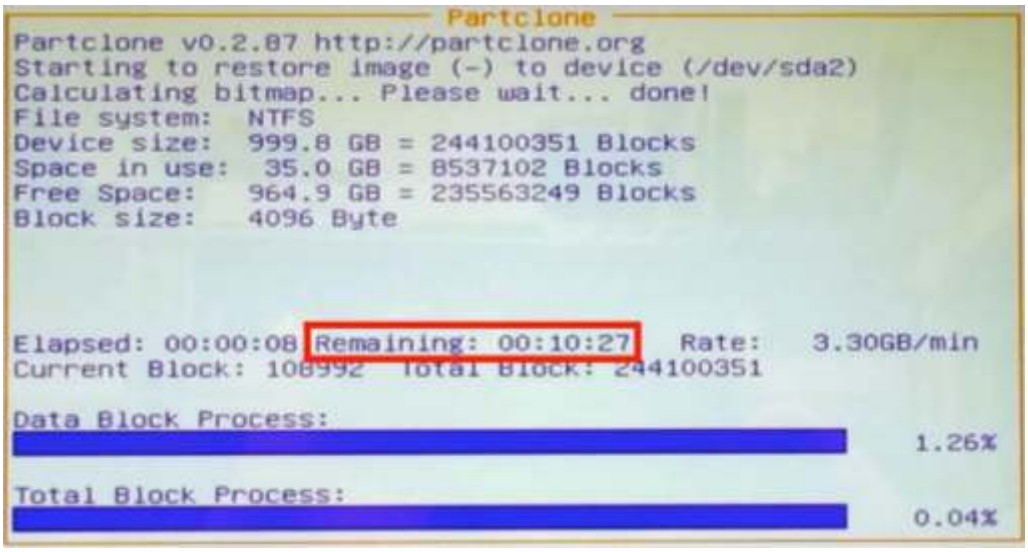
10. Once completed, you will be presented with the following screen. Type '**y**,' then press the 'Enter' key.

⚠ NOTE: If you have not backed up any files you wish to keep, press "CTRL+C" to exit and secure your files. Progressing past step 10 will result in data loss.



11. Confirm your selection by typing '**y**' key again and pressing the "Enter" key (NOTE: Data loss will occur *immediately* once the 'Enter' key is pressed).

12. Wait for the imaging process to complete. This should take roughly the same amount as time as the process in Step 9.



13. The machine will reboot on its own. Your system should be restored to its factory configuration. You can now remove the USB drive from the USB port.

What is Livestream Studio's Warranty?

Our full Livestream Studio warranty is available here. We recommend you review the terms in full.

Some major points include:

- Livestream Studio hardware products have a one (1) year warranty.
- If the Studio dongle is lost or stolen, it is the responsibility of the customer to report the loss to Livestream; Livestream may charge a replacement fee.
- You have thirty (30) days to return an item from the date of purchase if you purchased directly from the Livestream Store.
- Livestream products purchased through other retailers must be returned in accordance with their respective returns and refunds policy.

My Studio PIN Is Invalid. What Do I Do?

Phone support PINs included with a Studio USB dongle or hardware unit are only valid for up to one (1) year after purchase.

After one year, support for Studio is only available via our contact form unless you have phone support as part of your Livestream or Vimeo membership.

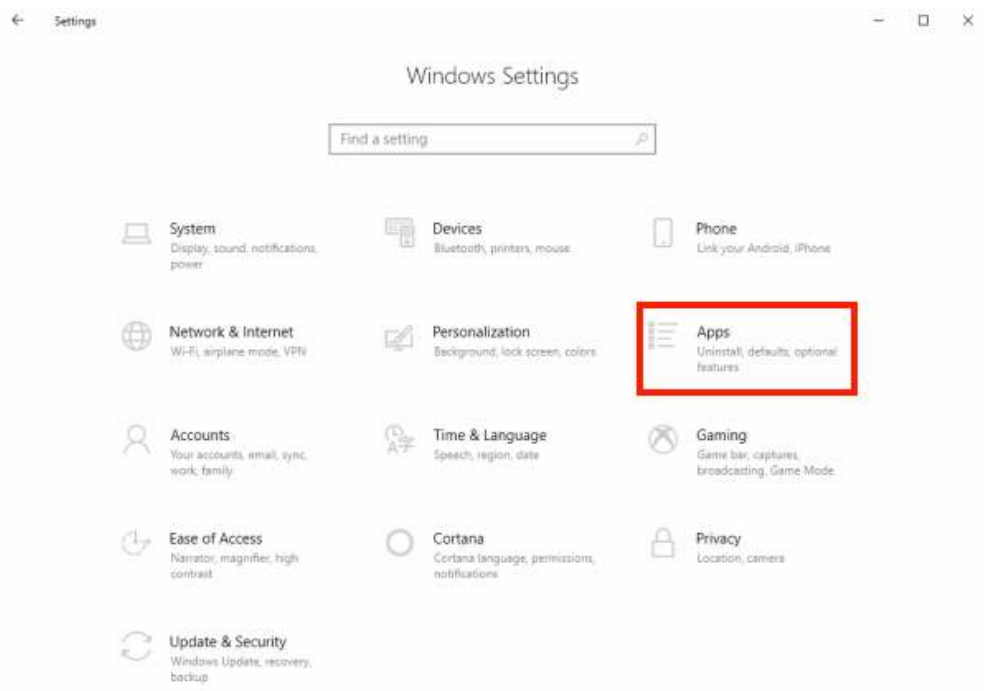
Uninstalling Livestream Studio Beta

To uninstall a Beta version of Livestream Studio, first make sure that Studio Beta is not running, regardless of which operating system you are using.

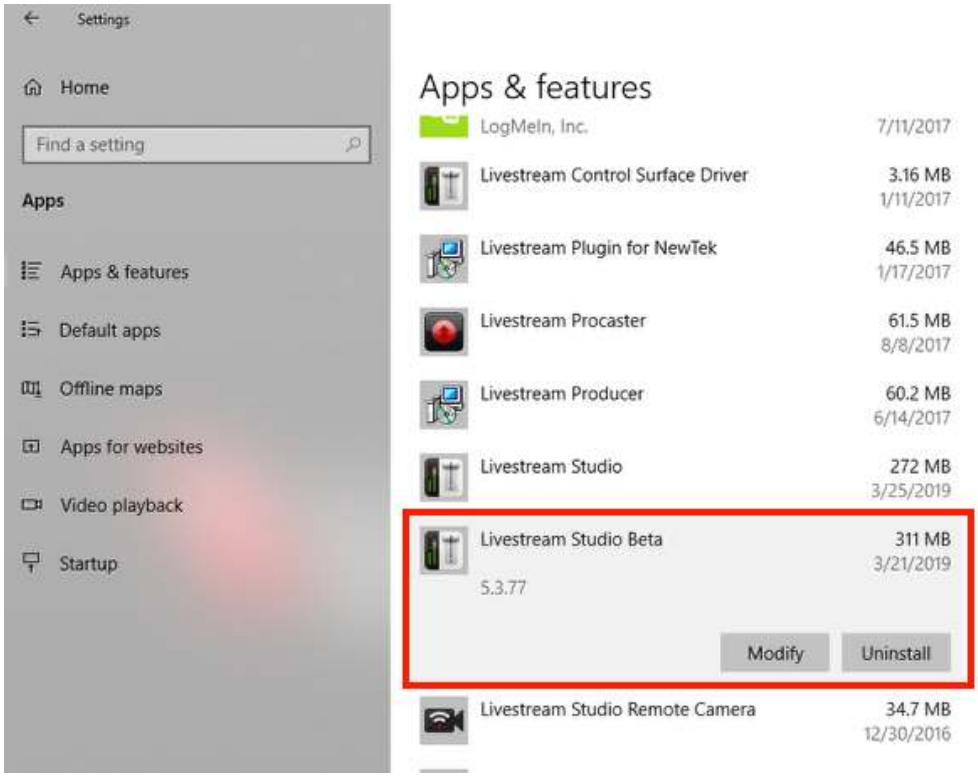
Uninstall Studio from Windows

Go to the Settings menu in Windows (Start > gearwheel), and select the **Apps** menu.

> If you are using an older version of Windows (i.e. Windows 7), go to Control Panel > Uninstall a Program.



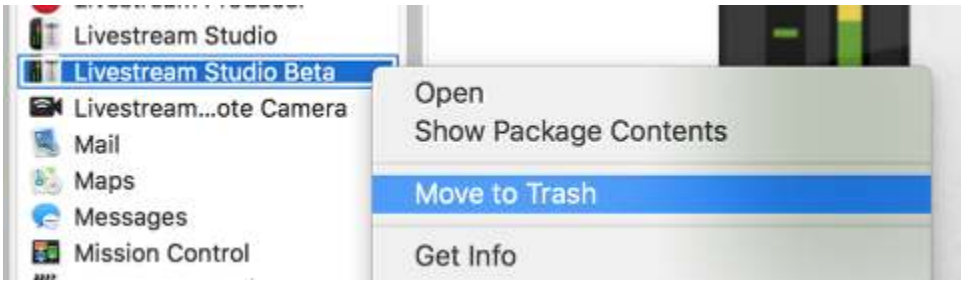
Find and select Livestream Studio Beta, then select Uninstall. *Make sure you selected the Beta and not the main "Livestream Studio" program.*



Follow the on-screen prompts to run the uninstaller. Once Studio Beta is uninstalled, you can download the desired version from this page.

Uninstall from MacOS

To uninstall Studio Beta from a Mac system, open the Finder and locate Livestream Studio Beta in your Applications folder and click and drag it to the Trash. Alternatively, right-click Livestream Studio Beta in your Applications folder and select Move to Trash. *Make sure you selected the Beta and not the main "Livestream Studio" application.*



Once Livestream Studio Beta is in the Trash, right-click the Trash icon and click **Empty Trash**.

Livestream Studio Beta is now uninstalled. You can download the desired version from this page.