User Guide for Mac 10.1

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Preface

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- Support: desktopsupport@telestream.net

Website Links:

- How to Buy: http://www.telestream.net/purchase/store.htm
- Support:
  http://www.telestream.net/telestream-support/wire-cast/support.htm
  - View our Library of Tutorials & Webinars
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We'd Like to Hear from You!

Telestream welcomes comments, feedback, and suggestions about your experience with Wirecast. You can reach us at desktopsupport@telestream.net

If you have suggestions about improving the tutorials or this guide, other Telestream documents, or our Website, please Email us at techwriter@telestream.net.

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Nevada City, CA 95959

You can call Telestream, LLC. via telephone at (530) 470-1300.

Introduction

Introduction

This guide is intended to help you understand how each feature of Wirecast operates and to provide you with information to help you make the best presentations possible.

Topics

- *Wirecast Versions*
- *Wirecast Workflow*
- *Tutorials*
- *Two Ways to Use this Application*
- *Using AutoLive*
- *Main Window Layout*

Wirecast Versions

Wirecast is available in two versions: *Studio* and *Pro*.

Wirecast *Studio* provides you with live video streaming that enables two guests on Rendezvous, unlimited capture, live production, and encoding of HD and SD sources for live streams broadcast to multiple servers and platforms simultaneously. Wirecast streams to Facebook, YouTube, Twitter and more.

Features that pertain specifically to Wirecast *Studio* are indicated by the *Studio* icon (shown below):

Wirecast *Pro* is the professional edition and includes all the features of Wirecast *Studio*. It adds, up to seven guests on Rendezvous, 8-track audio output, Replay, support for more capture devices and IP cameras, web stream input, program feed output, live

scoreboards, 3D virtual sets, and ISO recording. Features that pertain specifically to Wirecast *Pro* are indicated by the *Pro* icon (shown below):

PRO

Wirecast Workflow

Wirecast is a powerful cross-platform live video switching, production, and encoding software. Because of its versatility in handling a variety of inputs and outputs, it typically fits in the middle of your broadcasting workflow. Wirecast can take the place of more traditional *T-bar* hardware switchers, graphics and title generators, or simply act as the back-end encoder for large switching systems.

Below is a diagram of the basic Wirecast workflow. In general, you will capture your live input devices (such as live camera feeds, iOS cameras, computer desktop, web feeds and more), produce your show using the full range of Wirecast production features (chroma key, graphics, titles, scoreboards, etc.), and then stream it live to web, LAN, or record locally.

Wirecast works with cameras, capture cards, and audio devices. It prepares media and then outputs it either by streaming to the Internet, CDNs, multicast/unicasts via LAN, locally via virtual output or second display.

Tutorials

It is suggested that you first work through the tutorials in the *Tutorials* section. They are quick, informative, and the easiest way to become familiar with Wirecast.

Wirecast also provides a built-in tutorial environment that corresponds with the tutorials provided in *Tutorials*. The tutorials take about thirty minutes and provide a brief overview of how to set up a basic presentation and create your own broadcast.

It is also suggested that you read *Making Great Broadcasts*. This topic shows you how you can easily make changes in your setup and improves the quality of your presentations.

Two Ways to Use this Application

There are two different ways you can use Wirecast:

- **Presenter Is Operator** The person conducting the presentation also operates Wirecast.
- **Presenter Plus Operator** The presenter concentrates on the content and someone else operates Wirecast. In this mode, the presenter never needs to know in detail how Wirecast works.

Presenter Is Operator

In this mode of operation, the person conducting the presentation simultaneously operates Wirecast.

Here are some suggestions for using Wirecast when you are both the presenter and operator:

- **Keep it simple** Set up Wirecast to make it easy for you to be the operator and the presenter. Set up your logo and titles so that you need to make very few changes during your presentation. Use a minimum number of shots so it's easy for you to see which shot to choose.
- **Keep the AutoLive feature on** This enables you to present your shots with just one click. Though this limits your ability to perform complex presentations, it is the best way when the presenter is also the operator. To turn AutoLive on or off, select it under the Switch menu.
- **Pre-configure your shots** Make sure that all the shots are created prior to your presentation. Do not try to create or modify shots while broadcasting them.
- **Use hot-keys for switching shots** Wirecast provides a hotkey editor that enables you to easily assign hotkeys to your shots.

Presenter Plus Operator

In this mode of operation, an engineer (or operator) is responsible for using Wirecast, and the presenter concentrates on the content of the presentation.

Here are some suggestions for using Wirecast when you have both an operator and a presenter:

- **Keep the AutoLive feature off** This enables you to make several changes at one time before taking the changes live. However, to quickly make a shot live, press the Command+Ctrl keys and click the shot. The AutoLive control is located under the Switch menu
- **Open the Preview window** The operator should use Preview mode to examine everything before it becomes live. The Preview display control is located under the Layout menu.
- **Use the Layer Windows to make more shots available** Select New Layer Window from the Window menu to open additional layer windows so you can quickly flip between shots on several layers.

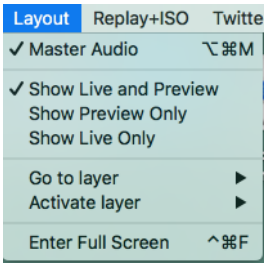
Startup

To start Wirecast, double-click the Wirecast icon that was placed on your desktop during installation.

When Wirecast starts up, you can (optionally) view the new features by clicking on the play button. Click *Continue* when you are finished.

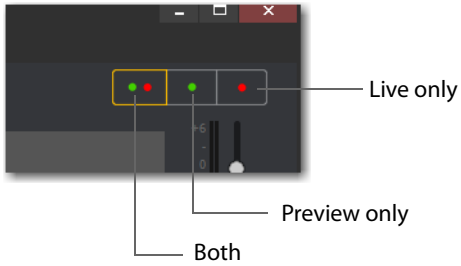
Main Window Layout

Wirecast enables you to select which functions are displayed in the Main window. These functions are added or removed from the main window using the Layout menu.



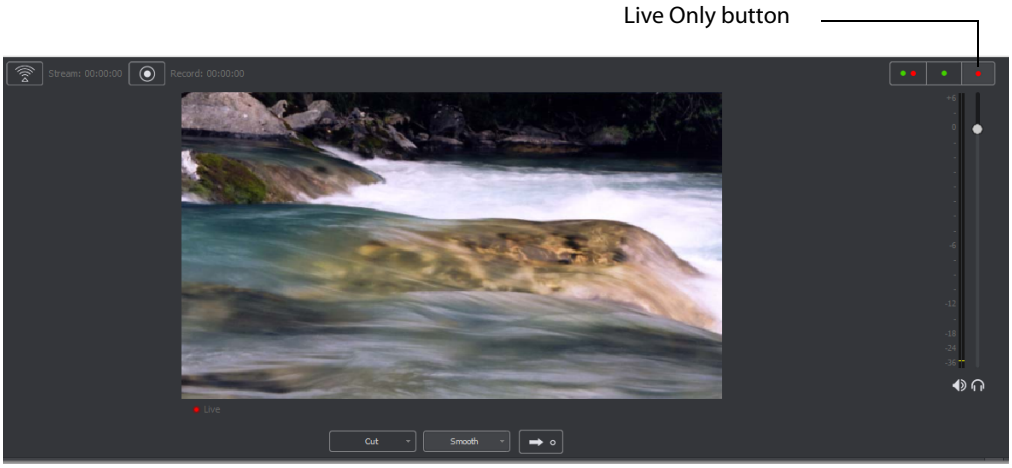
Master Audio Displays or hides the Master Audio controls. (A check mark to the left of the menu item indicates that the audio controls are displayed.) Master Audio controls are located on the left and right sides of the Main window.

Show Live and Preview Enables you to select between displaying: the Preview Window only, the Live Window only, or both. A check mark to the left of the menu item indicates which of these three modes are active. You can also select one of these three modes by clicking on the mode selection buttons in the top right corner of the screen.

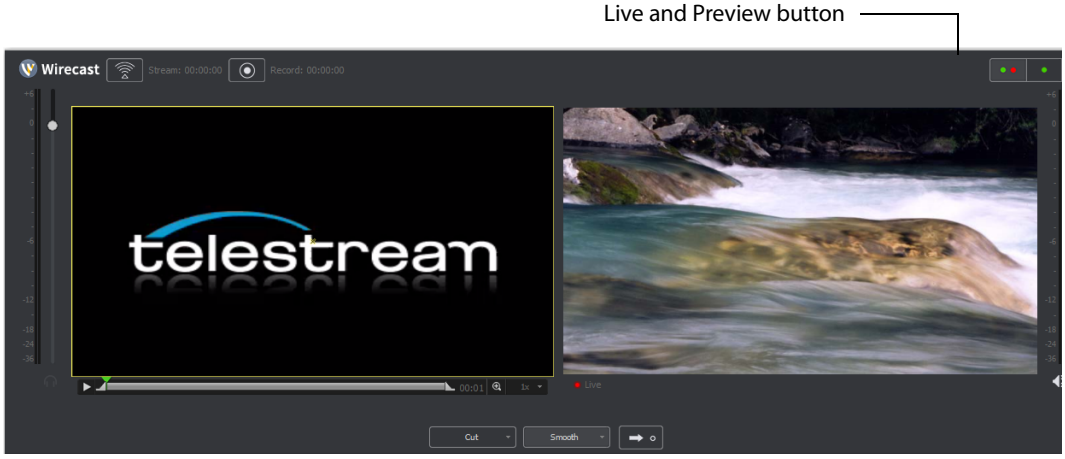


Show Preview Only selection:

Show Live Only selection:



Show Live and Preview selection:



Using AutoLive

Some users of Wirecast may want to single-click a shot to make it become live. Other users may want to make several changes to the broadcast before making them live. You can use both methods in Wirecast.

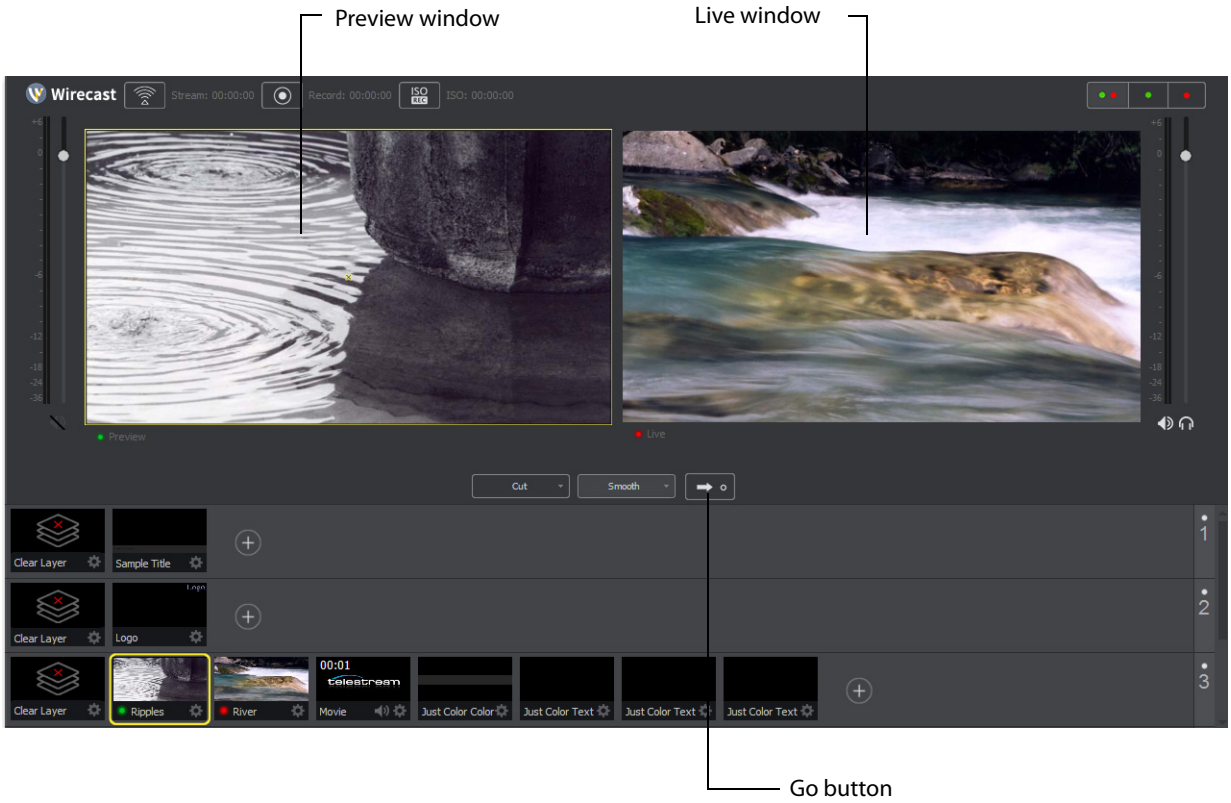
The AutoLive feature is designed to offer a single-click operation for those users who want to simply click from shot to shot. The Edit window (or other windows) is not affected by the status of AutoLive.

When AutoLive is on, clicking a shot in the Main window automatically places the shot in the Live window. As a result, the Go button becomes inactive.

When AutoLive is off, clicking on a shot displays it in the Preview window, then clicking the Go button is required to place the shot in the Live window.

Preview

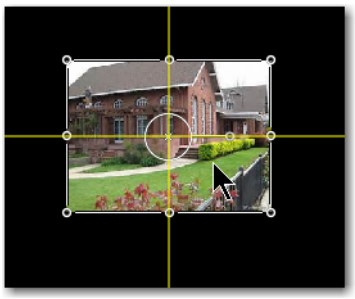
Preview displays what the broadcast will look like when you click the Go button. (The Go button is only active when AutoLive is off.) To display the Preview window, select *Layout* > *Show Live and Preview*, or *Layout* > *Show Preview Only*.



When you select an image in the Preview window, Resize and Rotate handles appear. Click and drag any of these handles to resize or rotate your image.

You can also snap an image in the Preview window to various alignments: Snap to Center, Snap to Edge, Snap to Corner, or Snap to an Image. The yellow guide lines appear when the image is ready to snap into place. To temporarily disable the snap action, hold down the Command key while moving an image into place (the yellow

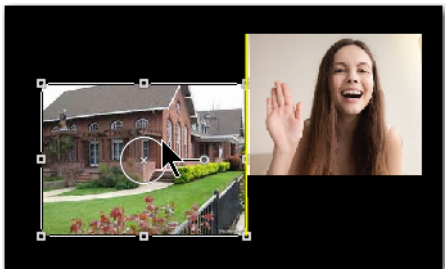
snap lines will not appear). Additionally, after selecting an image, the arrows keys can be used to nudge it into placement.



Snap to Center

Snap to Corner

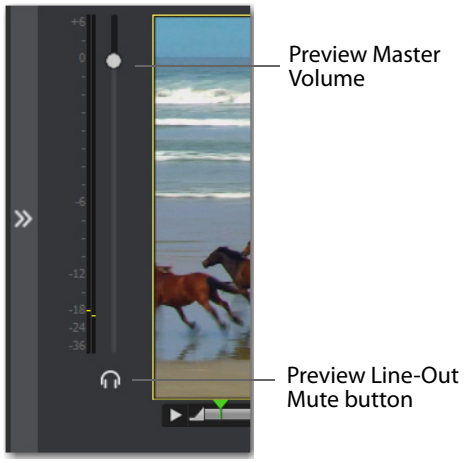
Snap to Edge

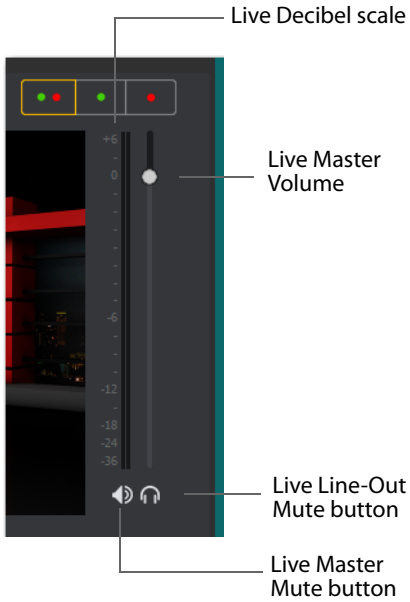


Snap to an Image

Master Audio

The Master Audio panel enables you to control the output volume level, mute audio output, and mute the line-out feed for Preview and Live windows. To display Master Audio for Preview and Live displays, click *Layout* > *Master Audio*. Click again to hide the Master audio controls.





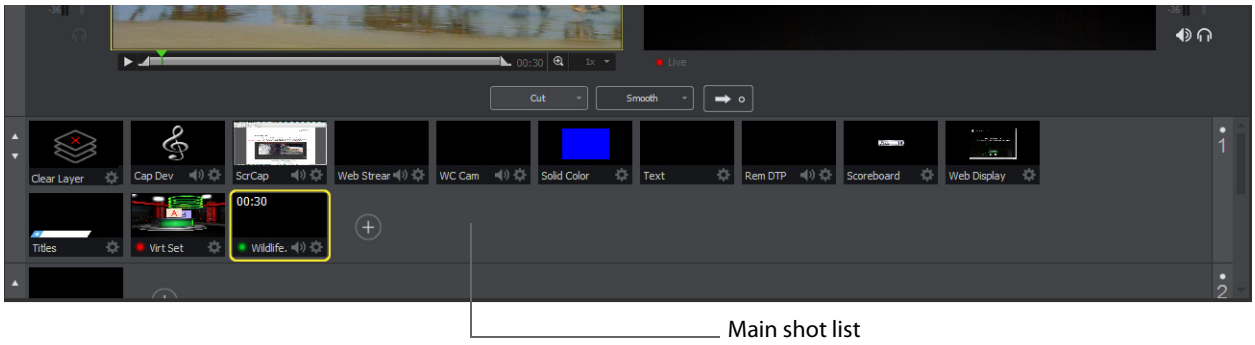
The Preview and Live Master Volume control enables you to adjust the master audio volume for Preview and Live separately. Click and drag the slider control up or down to set the volume. The decibel scale next to the slider indicates the audio level. When you take a Preview shot live, the Live audio controls are set to the levels set in Preview.

The Master Mute button mutes the Live window audio (what your viewers hear). Even when you mute the output, the encoder still generates audio but it is silent. If you do not want to broadcast audio, modify the Encoder Presets to not process audio through the encoder.

The *Preview Line-Out Mute* button and *Live Line-Out Mute* button control local volume (what you hear), not broadcast volume. When Line-Out is muted, audio is not sent to your headphones or speakers, but your viewers still hear the audio. The two controls are mutually exclusive -- you cannot have both on at the same time, but you can mute both.

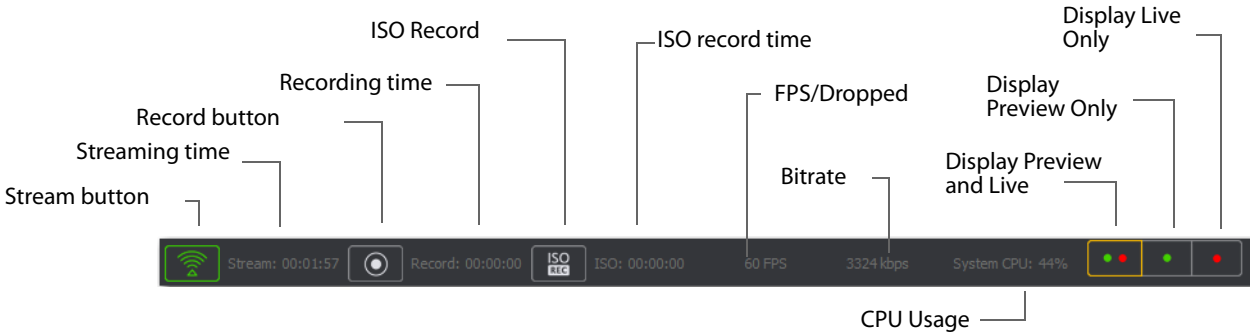
Main Shot List

The Main window displays the Shot List at the bottom of the window.



Control/Status Bar

Control buttons and status information are displayed at the top of the Main window.



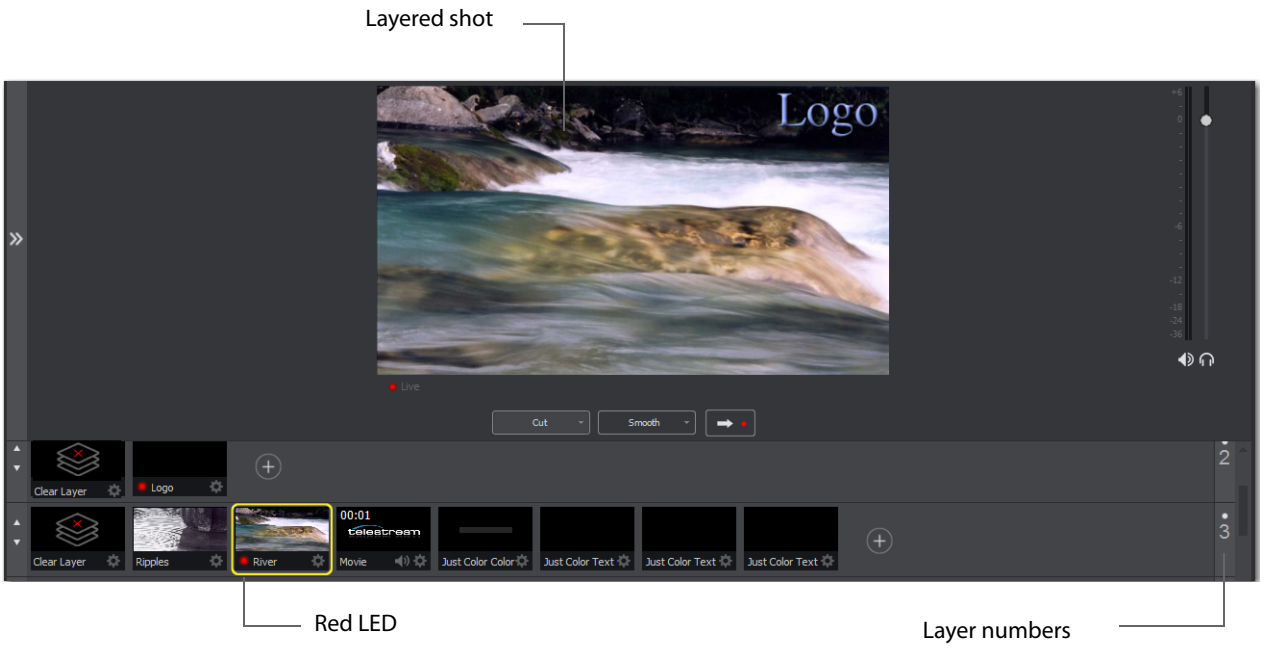
Wirecast displays the following controls and statistics:

- **Stream button** Click to begin streaming.
- **Streaming time** Displays how long you have been streaming. This value does not reset when you start/stop the broadcast. It is cumulative, which enables you to save portions of a broadcast to disk and still know the total amount of time.
- **Record Button** Click to begin recording.
- **Recording Time** This displays how long you have been recording. This value does not reset when you start/stop the broadcast. It is cumulative, which enables you to save portions of a broadcast to disk and still know the total amount of time.
- **ISO Record** Click to begin ISO recording.
- **ISO Record Time** Displays the ISO recording time.
- **FPS/Dropped** Displays the current FPS (frames per second) rate, or the number of frames dropped while streaming. Click on display to toggle between *FPS* and *Dropped Frames* modes. (Displayed only while streaming.)
- **Bitrate** Displays the streaming bitrate. (Displayed only while streaming.)
- **CPU Usage** Displays the usage of the CPU in percent. (Displayed only while streaming.)
- **Display Buttons** These three buttons enable you to choose to display the Preview window, the Live window, or both in a divided display.

Note: To avoid decrease in video quality, Wirecast should not be used at CPU usage above 80%. See the Telestream Website for suggested configurations. You can also view streaming statistics by selecting *Output* > *Show Statistics*.

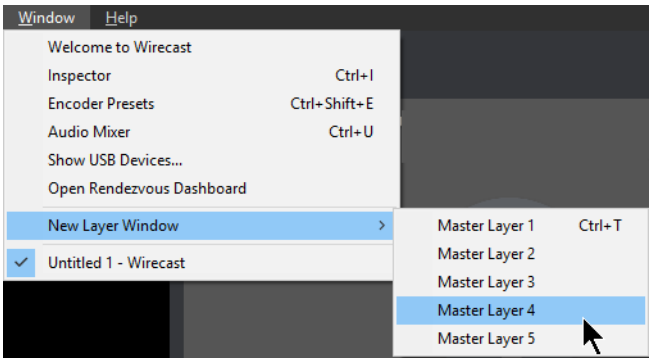
Layers

Wirecast displays five layers in the Main Shot List window. They are numbered 1 through 5 along the right side of the window. Each layer contains multiple shots that can be selected by clicking one. A red LED indicates that a shot is Live. (If AutoLive is turned on, when a shot is selected it is displayed in the Live window.) If you select multiple shots -- by selecting shots on multiple layers -- they will all be displayed in the Live window. But the shots are displayed in a layering manner, where layer 1 is on top and layer 5 is at the bottom (and layers 2 through 4 are layered in between). In the example below, the Logo in layer 2 is displayed on top of the River shot in layer 3.

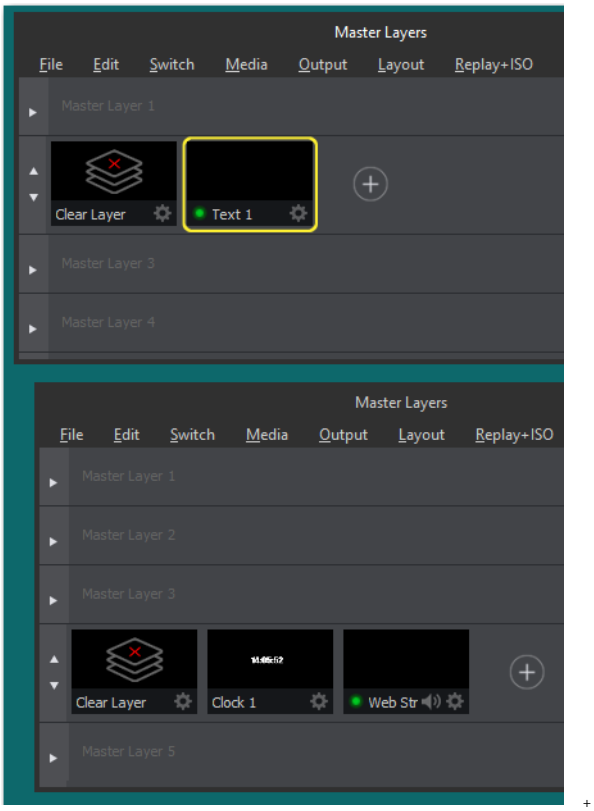


Layer Windows

You can also open the Shot List in a separate window. Select *Window* > *New Layer Window* to display a list of the layer windows you can open (Master Layer 1 through 5). Select the layer you want to open and a new, separate layer window is displayed.



This separate Shot List window works exactly like the Shot List panel in the Main window, except it enables you to open multiple Shot List panels.



Installation

Introduction

This topic guides you through installing (or upgrading) and activating Wirecast.

Topics

- *Installing*
- *Activating*
- *Uninstalling*
- *System Requirements*

Installing

To install Wirecast, follow these steps:

1. Download the installer from the Website at: http://www.telestream.net/wirecast/overview.htm

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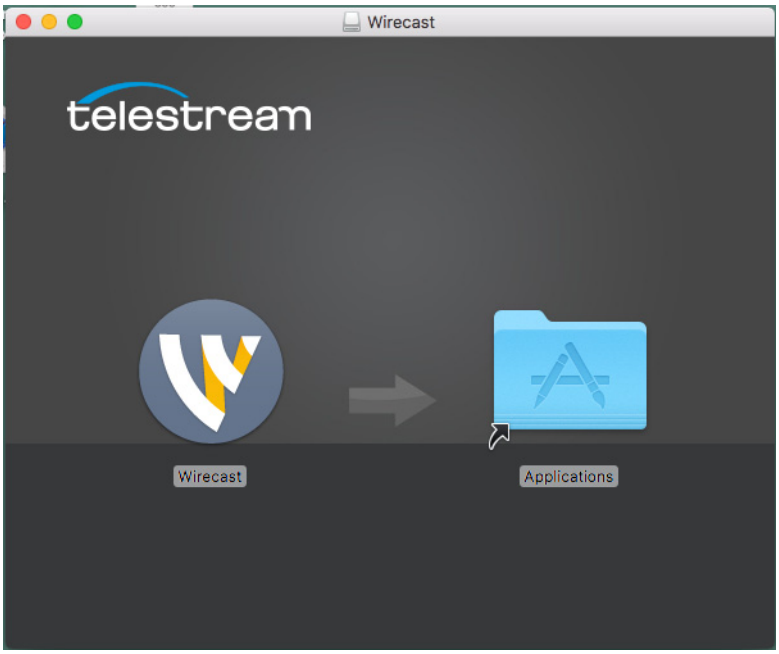
Note: During installation, you will be asked if you want to install the Virtual Microphone feature. If you do (recommended), check the displayed check box and continue the installation. Installing Virtual Microphone requires administrative rights.

---

2. Run the installer (.dmg) program.
3. Click Agree to the license terms.

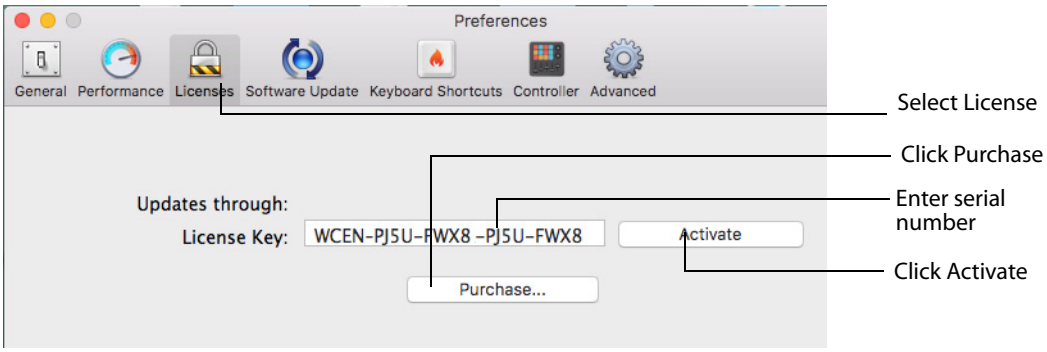
4. Open the Wirecast in the downloads folder, then click and drag the icon into the Applications folder. If a version of Wirecast already exists, the installer asks you if you want to replace the previous version.



Activating

When you purchased Wirecast a serial number was provided. This serial number must be registered in the Wirecast program to unlock the features of Wirecast. To register Wirecast follow these steps:

1. Run the Wirecast program.
2. Select *Preferences* from the Wirecast menu, select *Licenses*, then click *Purchase*. Once you purchase and obtain your license number, enter it into the Serial Number field and click *Activate*.



3. Close the Preferences window.

Your Wirecast program should now be fully activated.

Uninstalling

1. To uninstall Wirecast, place the Wirecast program in the Trash folder.

System Requirements

Operating System

- Minimum: MacOS Sierra
- Recommended: MacOS High Sierra
- (Wirecast does not support OS X El Capitan or previous versions)

Processor

- Minimum: i5 dual-core @ 2.3GHz
  NOTE: May be insufficient for 1080p+ or 60 fps workflows
- Recommended: i7 quad-core @ 2.8GHz+

Memory

- Minimum: 4GB RAM
- Recommended: 16GB+ RAM

Hard Drive

- Minimum: 2GB, 7200 RPM for record to disk
  NOTE: Additional hard disk space required for record to disk
- Recommended: 500GB+, Solid State OS Drive

Graphics Card

- Minimum: Intel HD, DirectX 11 capable
  NOTE: Insufficient for advanced Multi-Viewer workflows
- Recommended: Nvidia GeForce or AMD Radeon, 1GB+ video memory

Internet Connectivity

- Minimum: Open HTTP/HTTPS port 80, RTMP port 1935,
  port 7272 for Remote Desktop Presenter
- Recommended: If behind a firewall, check with your CDN for any sites to whitelist

Desktop Presenter

Use the remote version of Desktop Presenter 2.0.8 with Wirecast. It is available as a separate download at: http://dynamic.telestream.net/downloads/download-desktop-presenter.asp?prodid=desktoppresenter.

Rendezvous

Wirecast Rendezvous uses WebRTC technology that can be very resource intensive. For the best experience, we suggest considering the following when choosing hardware.

Note: The following recommendations are based on a single simultaneous stream of 720p30 x264 @ 4.0Mbps.

Bandwidth

- Add 4 Mbps
- Add 5+ Mbps
  NOTE: To maintain reliability, bandwidth per guest decreases as more are added

Processor

- i5 quad-core
- i7 quad-core

Note: These are minimum recommended processors. More demanding workflows may require a more capable CPU.

Internet Connectivity

- Requires internet connectivity with HTTP/HTTPS port 80, and RTMP port 1935 open for streaming, Remote Desktop Presenter requires opening port 7272.
- An internet connection is recommended for Wirecast license activation.
- For lowest quality (240p) streaming an upload rate of at least 650Kbps is required.
- 720p streaming requires an upload rate of at least 2500 Kbps.
- 1080p streaming requires an upload rate of at least 4500 Kbps.
- Consider lowering your canvas frame rate and/or streaming resolution to lower CPU usage.
- It is recommended that an upload rate of at least double the desired rate be available.
- Solid State Drive or fast RAID array recommended for ISO Recording and Replay functionality. Actual data rates will vary depending on quality level selected for ProRes recording, as well as the resolution and frame rate selected.
- For ProRes recording please refer to Apple's ProRes data rate specifications

Recommended Hardware Specifications

- Intel Core i3 CPU @ 1.7 Ghz or higher recommended for 540p streaming with x264 @ 30 fps.
- Intel Core i5 CPU @ 2.5 Ghz or higher recommended for 720p streaming with x264 @ 30 fps.

- Intel Core i7 CPU @ 3.0Ghz or higher recommended for 1080p streaming with x264 @ 30fps.

Note: 60 FPS streaming will result in increased CPU usage and a high bit rate (4Mbps or higher) for good quality.

- Minimum 4GB RAM, 2GB free hard disk space. Additional hard disk space required for recording to disk.

Hardware Accelerated Encoding Requirements

- Intel Quick Sync Video encoding requires an Intel CPU with an Intel® QuickSync Video core. List of Intel CPUs supporting QuickSync.
- NVIDIA NVENC encoding requires an nvidia GPU with Kepler architecture or newer. NVIDIA only maintains a general list of supported GPUs.
- Apple Hardware Accelerated H.264 encoding requires a Mac with an integrated Intel GPU.

Tutorials

Introduction

The best way to get started using Wirecast is to quickly work through all its main features. This tour presents a series of three tutorials, each designed to help you understand how to create and stream presentations using Wirecast.

As you work through these tutorials, you will also become familiar with important Wirecast concepts and how you can use them to deliver high quality broadcasts. The more you know about Wirecast, the better it will serve your streaming objectives.

Because each tutorial builds on the skills and knowledge you learn in the previous tutorials, it is recommended that you take the tutorials in succession. Working through all the tutorials takes about thirty minutes.

As you gain hands-on experience creating video and audio presentations - which leads to a working knowledge of Wirecast and its components and architecture - you will gain proficiency in using Wirecast.

Tutorials

- *Tutorial 1: Basic Concepts*
- *Tutorial 2: Editing Shots*
- *Tutorial 3: Broadcasting*

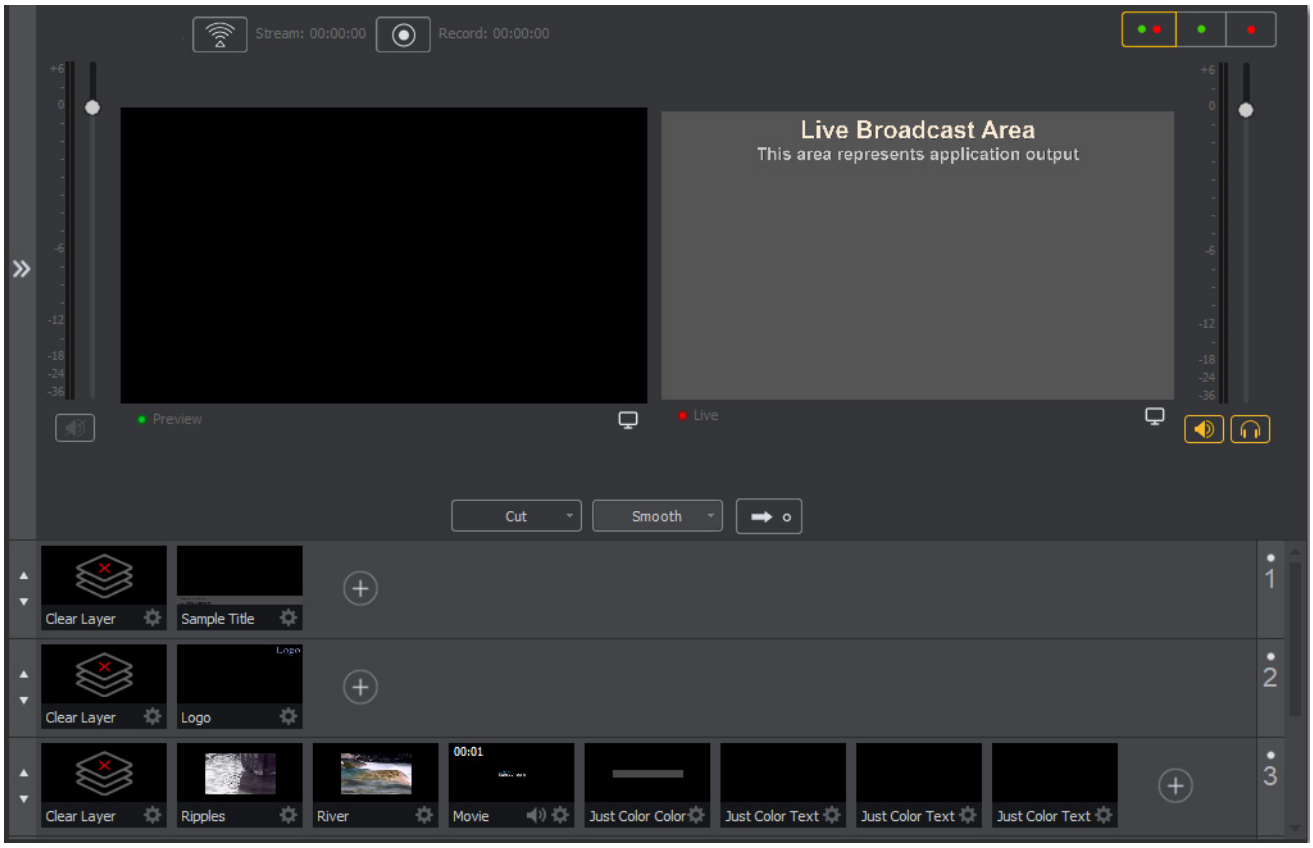
Note: You can run all of the tutorials without a license. However, a watermark on the video and an occasional voice-over on the audio are present until a valid license is activated.

Note: For licensing information, select *Preferences* from the Wirecast menu, select *License*, then click *Purchase*. Or, you can contact Telestream at: desktopsales@telestream.net.

Tutorial 1: Basic Concepts

The goal of this tutorial is to provide you with a quick but successful experience creating and streaming a presentation using Wirecast.

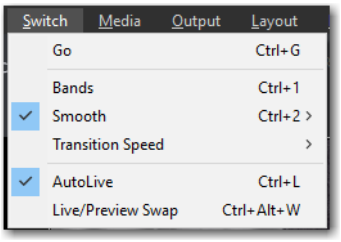
This tutorial requires that you open the tutorial document in Wirecast. To do this, select *Create Document for Tutorial* from the Help menu in Wirecast.



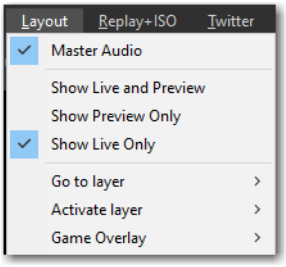
Note: If you are running the tutorial with Wirecast in demonstration mode, the Wirecast logo appears from time to time and audio output has a periodic voice-over.

Tutorial Prep

To prepare for this tutorial you need to make several changes. Under the Switch menu, make sure Smooth and AutoLive options are turned on (check mark displayed), and *Live/Preview Swap* is turned off (no check mark displayed).

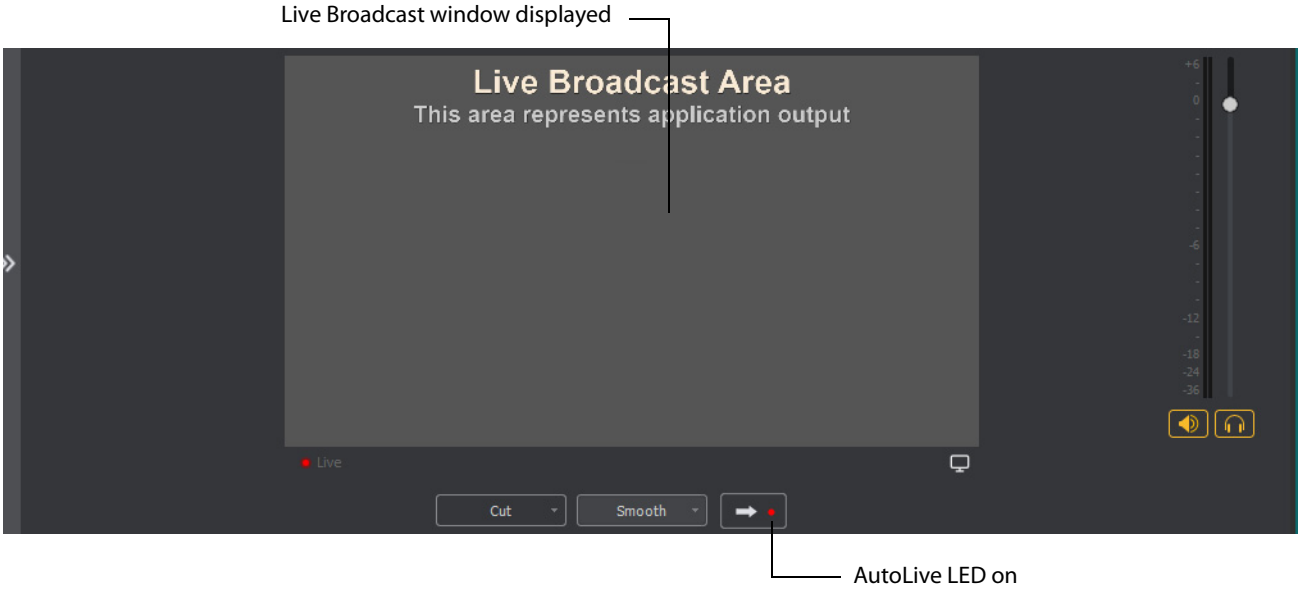


Under the Layout menu, make sure *Show Live Only* is selected (check mark displayed).



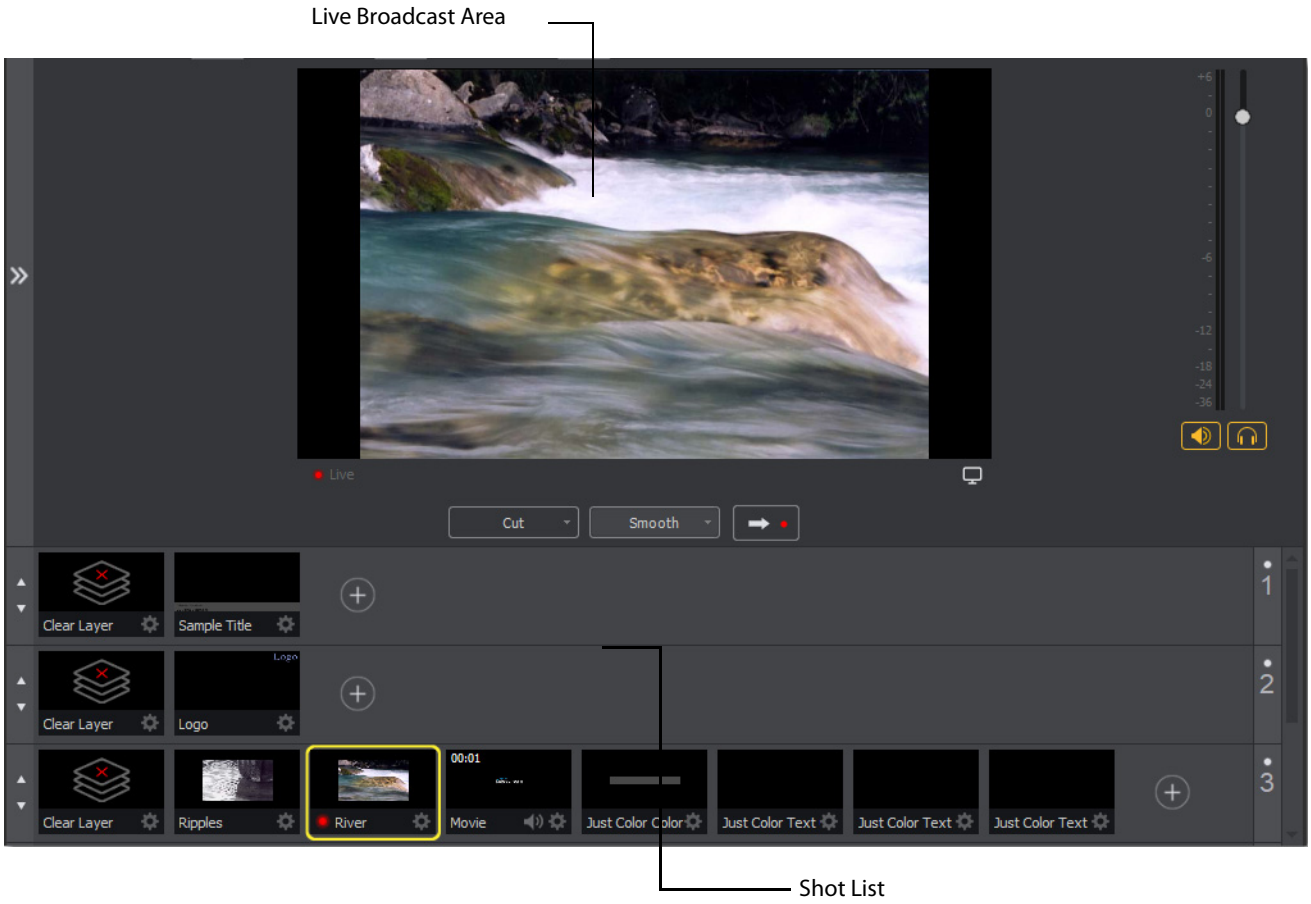
All of these options will be changed later in the tutorial.

The Wirecast Main window shows the AutoLive LED turned on and the Live Broadcast window (only) displayed.



The Main Window

Wirecast has two main display areas: Live Broadcast area and the Shot List. The Live Broadcast area is in the upper portion of the window displaying what Wirecast streams to your viewers (or what it records to disk). The Shot List, in the lower half of the window, displays the shots available for streaming.



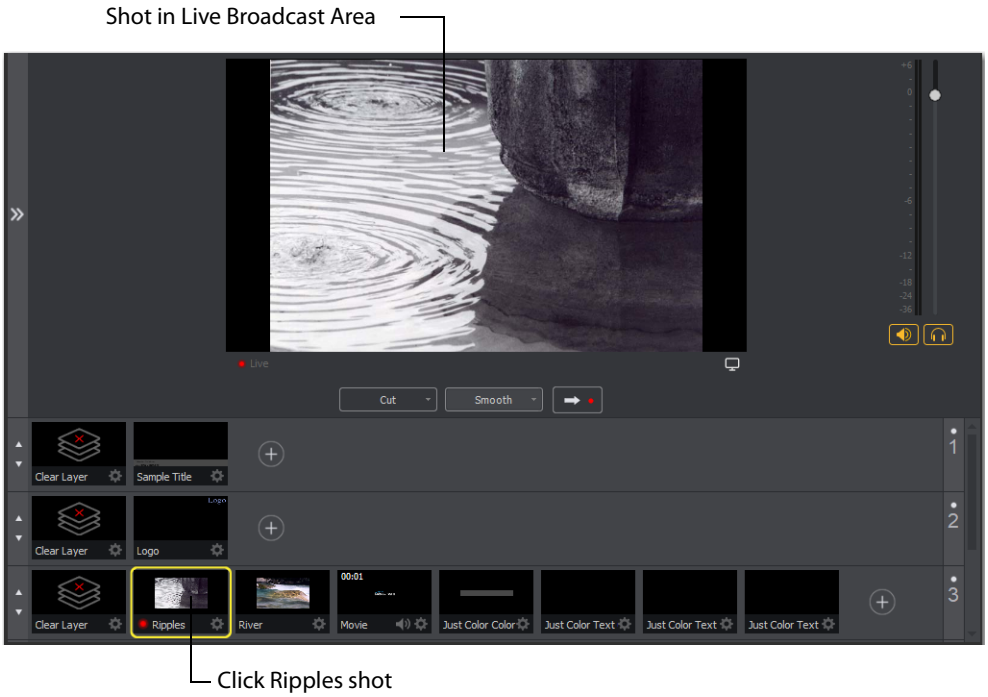
What Is a Shot?

Wirecast uses the concept of a "shot" to construct presentations. A shot contains some form of media (picyures, video, etc.), along with any settings for that media. In its simplest form, a shot contains one piece of media such as a photo or a video clip. But it can also be something more complex, like a live camera with a title and background music. Or a shot can even be something even more complex like a Playlist of shots.

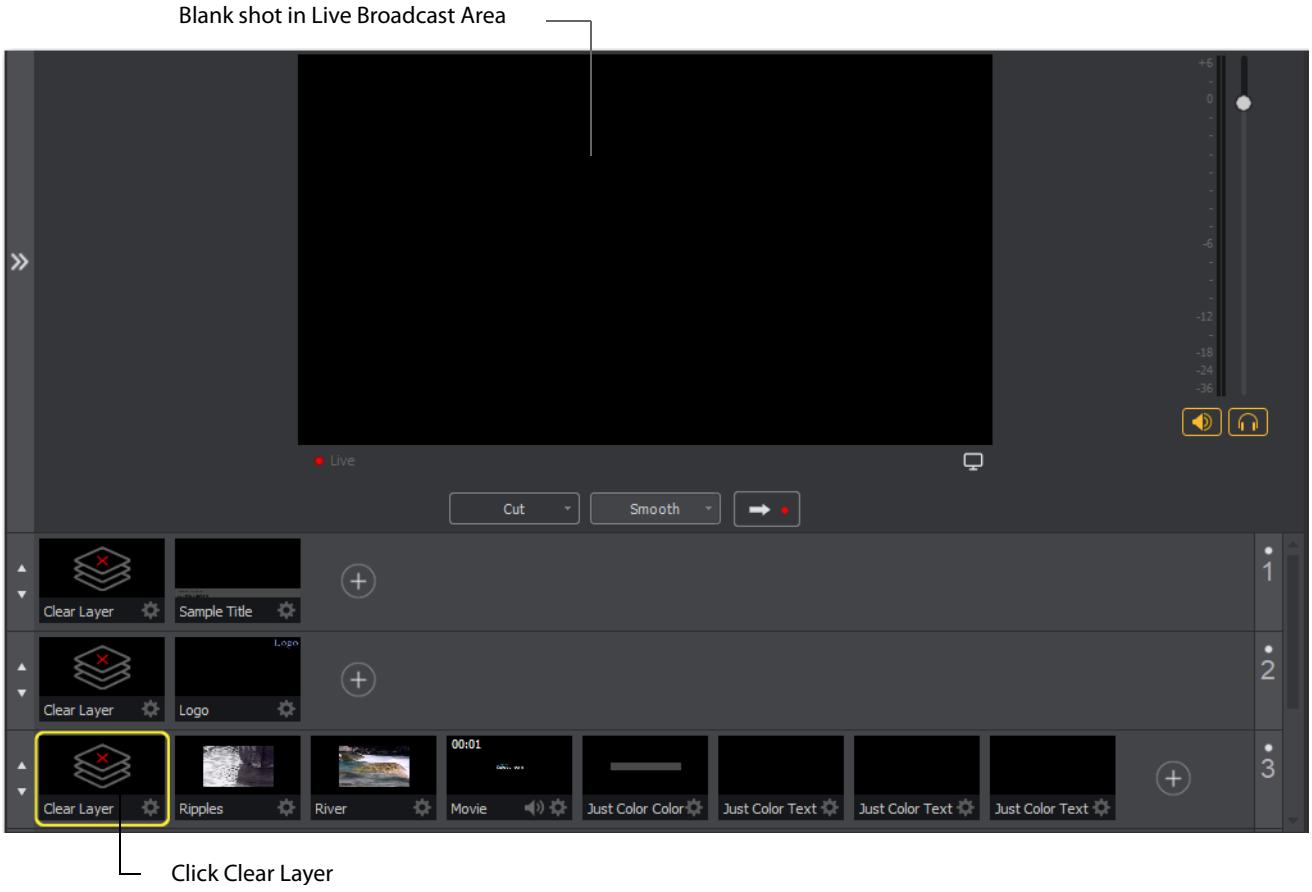
A shot can be edited and its settings can be changed (See *Tutorial 2: Editing Shots*). Shots are important because they enable you to configure a lot of information before you stream your presentation. This enables you to concentrate on creating a good production during your broadcast.

Switching Between Shots

Individual shots are displayed in the Shot List. Click the Ripples shot in the Shot List area and the image fades into the Live Broadcast Area display. This is called “taking a shot live”.



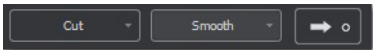
Click the shot labeled *Clear Layer* and the Ripples image fades to a blank screen. The Clear Layer shot enables you to display a blank shot, which is sometimes needed.



Transitions

In the previous examples, a "fade action" occurred when you clicked on a shot. This is because the *smooth* transition is the default.

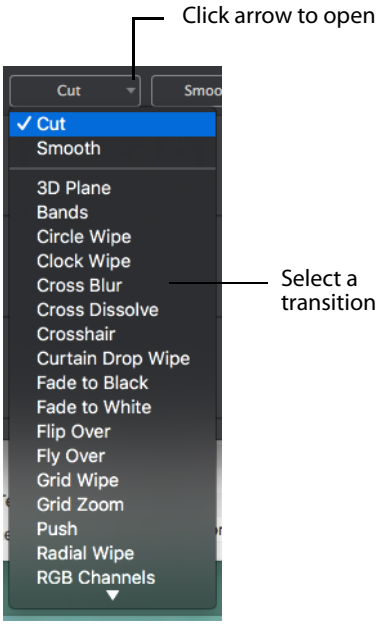
Transition controls are located just below the Live Broadcast Area where the two default transitions are shown: *Cut* and *Smooth*.



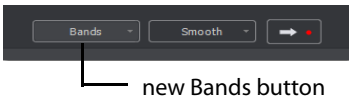
When *Cut* is selected, transitions are executed immediately. When *Smooth* is selected, transitions fade in and out (as demonstrated above).

But there are more than just two kinds of transitions, and only two transitions can be assigned to the Transition Panel. To select a different transition, click the small arrow on the right side of either transition button. When the list appears, select a new transition

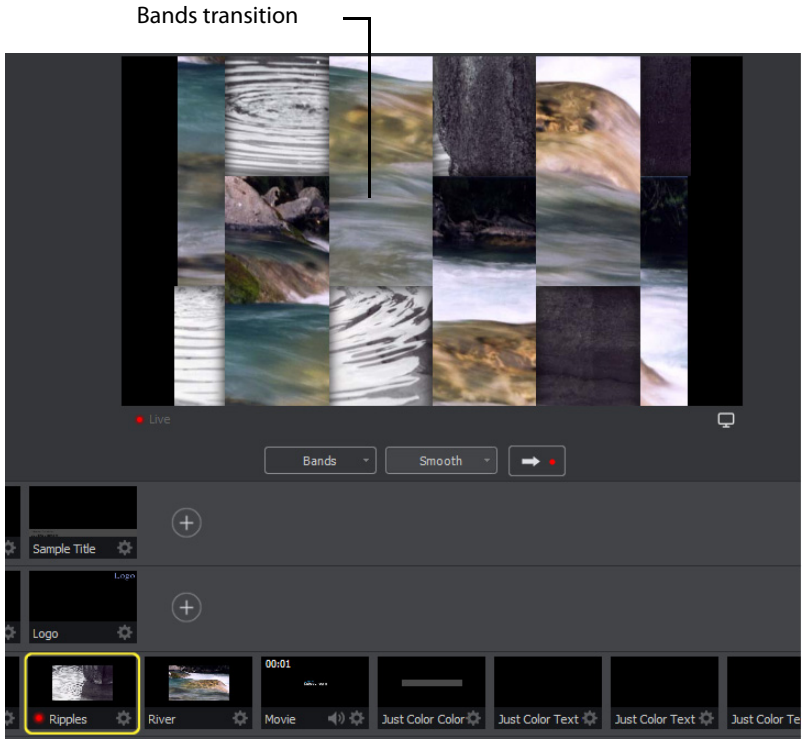
to be assigned to that button. You can also click the transition button itself and drag the mouse downward until the menu of selections is displayed.



For example, to change the left transition button from *Cut* to *Bands*, click the Cut button and drag downward until the menu appears. Select *Bands* from the menu. Bands should now be displayed as the left button.



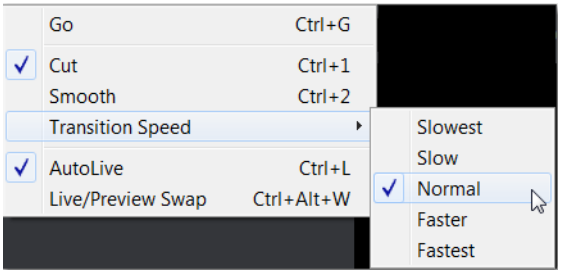
Now click back and forth between the River and Ripples shots using Bands (Bands button selected).



These two transition buttons can also be selected by using the following key combinations: Command+1 and Command+2.

Transition Speed

You can also control how fast a transition occurs, by selecting *Switch >Transition Speed*. Your choices range from *Slowest* to *Fastest*.



Go Button

The Go Button (or Command+G) enables you to make a transition.

Clicking the Go button does nothing when Wirecast is in AutoLive mode. The only exception is that it will update a live shot if you have made changes to it using the Shot Editor. Later in this tutorial you will discover how to use the Go button to transition between different shots when AutoLive is off.

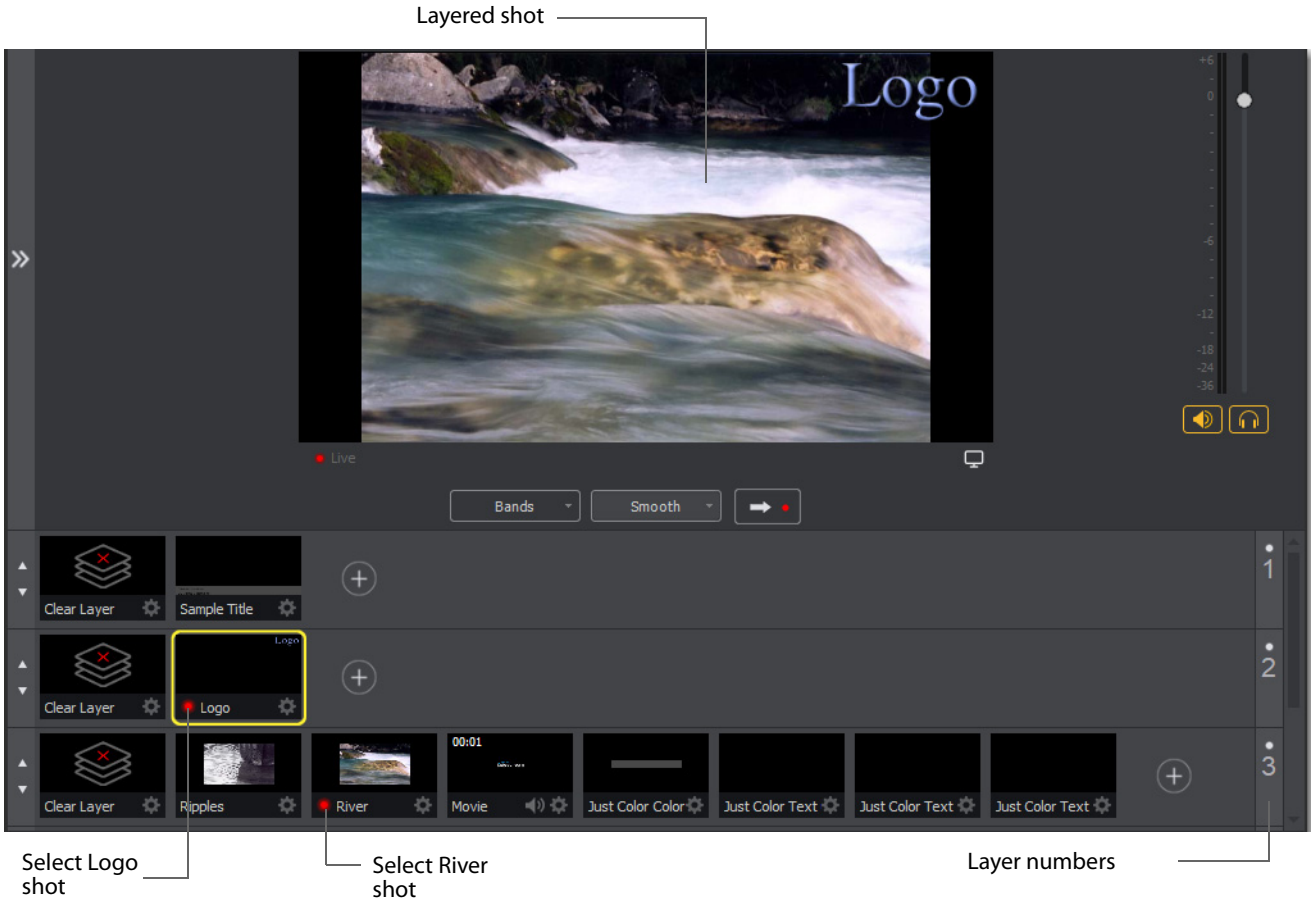
Layers

Note: Before you start this section, please select Smooth as your transition.

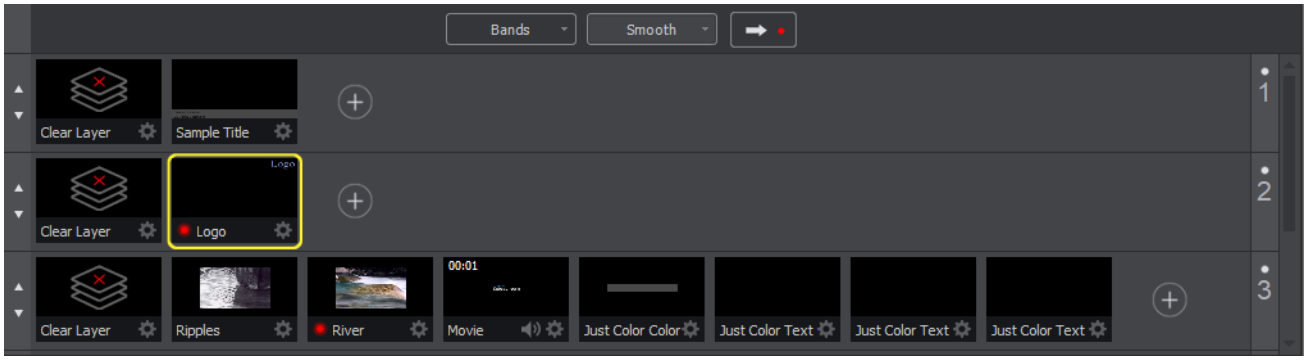
Wirecast enables you display several shots in the Preview and Live windows at the same time by rendering them one on top of another according to Wirecast's Layer system. This is an excellent way to add and remove objects in your broadcast.

Wirecast displays five layers in the Main Shot List window. They are numbered 1 through 5 along the right side of the window. Each layer contains shots that can be selected by clicking a shot. A red LED indicates that a shot is selected. When a shot is selected it is displayed in the Live Broadcast window. If you select multiple shots (by selecting a shot on more than one layer) they will all be displayed in the Live Broadcast window. The shots are displayed in a layering manner, where layer 1 is on top and layer 5 is at the bottom (and layers 2 through 4 are layered in between).

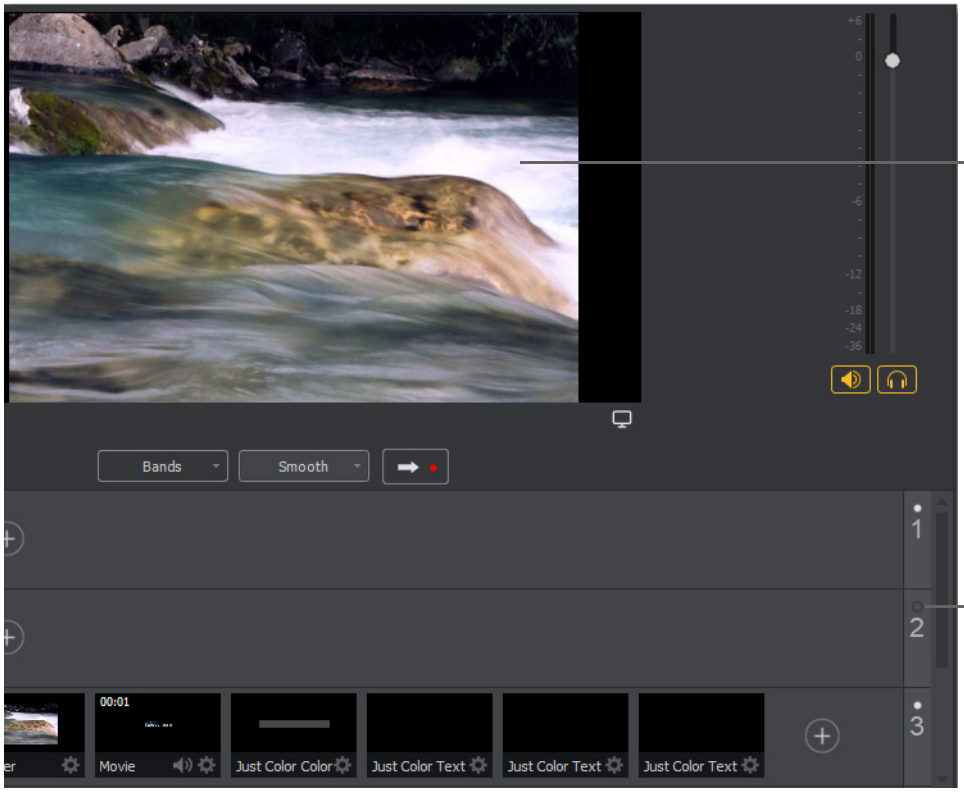
Select the Logo shot in layer 2 and the River shot in layer 3. The result is a layered shot containing both images.



Layers are displayed in a particular order: Layer 1 is on top, Layer 2 below it, Layer 3 below Layer 2, etc. This tutorial, so far, has been operating on Layers 2 and 3. Clear Layer, Ripples, River shots (and more) are on Layer 3, but Layer 2 has only a logo and a Clear Layer shot.



Each layer can be turned on or off by clicking the white LED light on the far right side of the layer window. Click the Layer 2 LED to remove the Logo shot.



Click the LED again to turn Layer 2 back on and restore the Logo image.

Auto Live

So far in this Tutorial, Wirecast has been running in AutoLive mode. This means that any selection you make in the Shot List is automatically placed into your Live Broadcast window. This mode is very useful for those users who want to set up all of their shots at once and then single-click them as they run their presentation. But the disadvantage of this single-click method is that you can only see one shot change at a time. Once you click a shot, your viewers also see it (with no preview for you of how it looks before broadcasting the new shot).

Turn AutoLive Off

An red LED, next to the Go button is lit when you are in AutoLive mode.

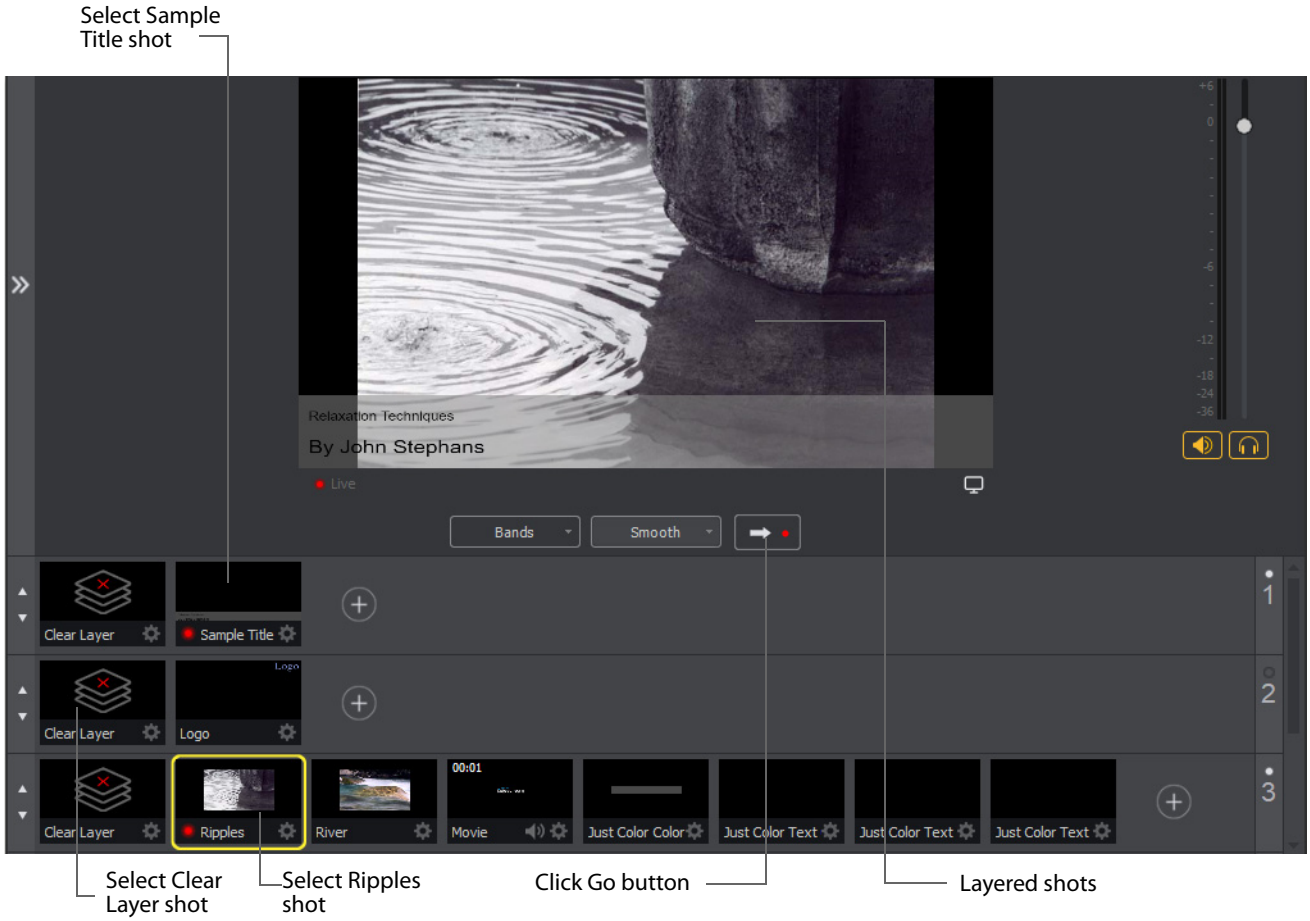
For this tutorial, make sure AutoLive is off by un-checking *AutoLive* in the Switch menu. When you do this a dialog box is displayed informing you that AutoLive is off and transitions must be made using the Go button. Click *OK* in the dialog box to continue.

Try clicking the Ripples and River shots, and notice that nothing happens in the Live Broadcast window because AutoLive is turned off. Now click the Ripples shot and then click the Go Button. The Ripples shot is immediately placed into the Live Broadcast window. Click the River shot and, as expected, nothing happens. Click the Go button and the River shot replaces the Ripples shot in the Live Broadcast window.

Note: When AutoLive is off, you must always click the Go button (or press the Command+G keys) to display the selected shot in the Live Broadcast Area.

Multiple Changes

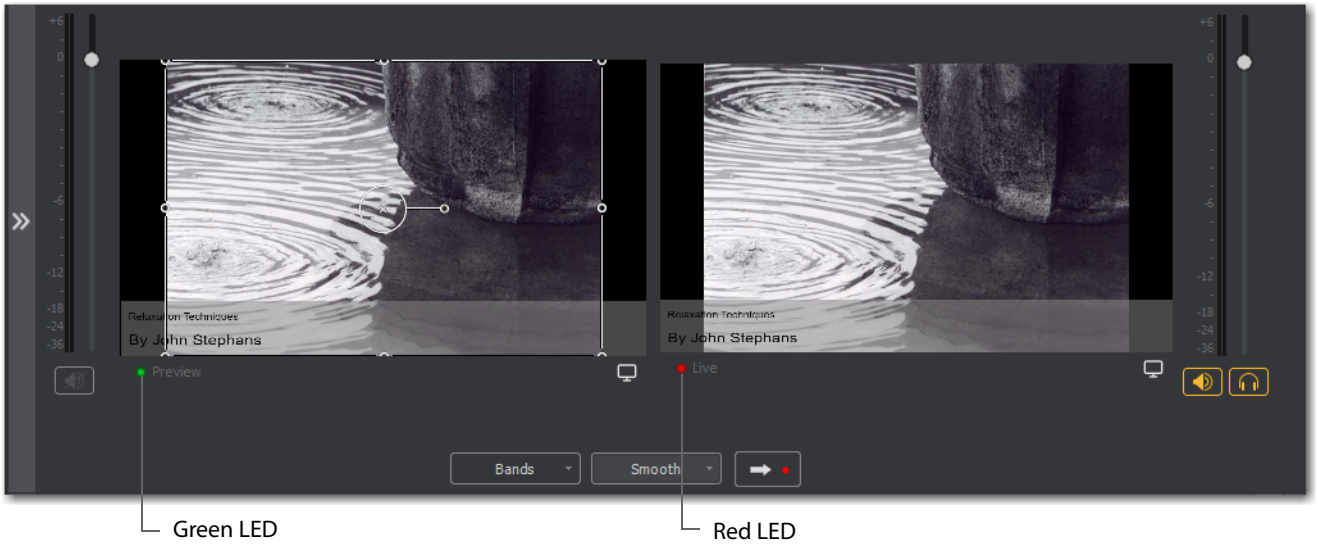
The benefit of having AutoLive off is that you can make several changes to your shot first, and then have all changes placed into the Live Broadcast window at the same time. To do this, first verify that AutoLive is off. Click *Sample Title* in layer 1, click *Clear Layer* Shot in Layer 2, and then click the *Ripples* Shot in Layer 3. Click the Go button (or Command+G) to make the *Ripples* and *Sample Title* shots live at the same time.



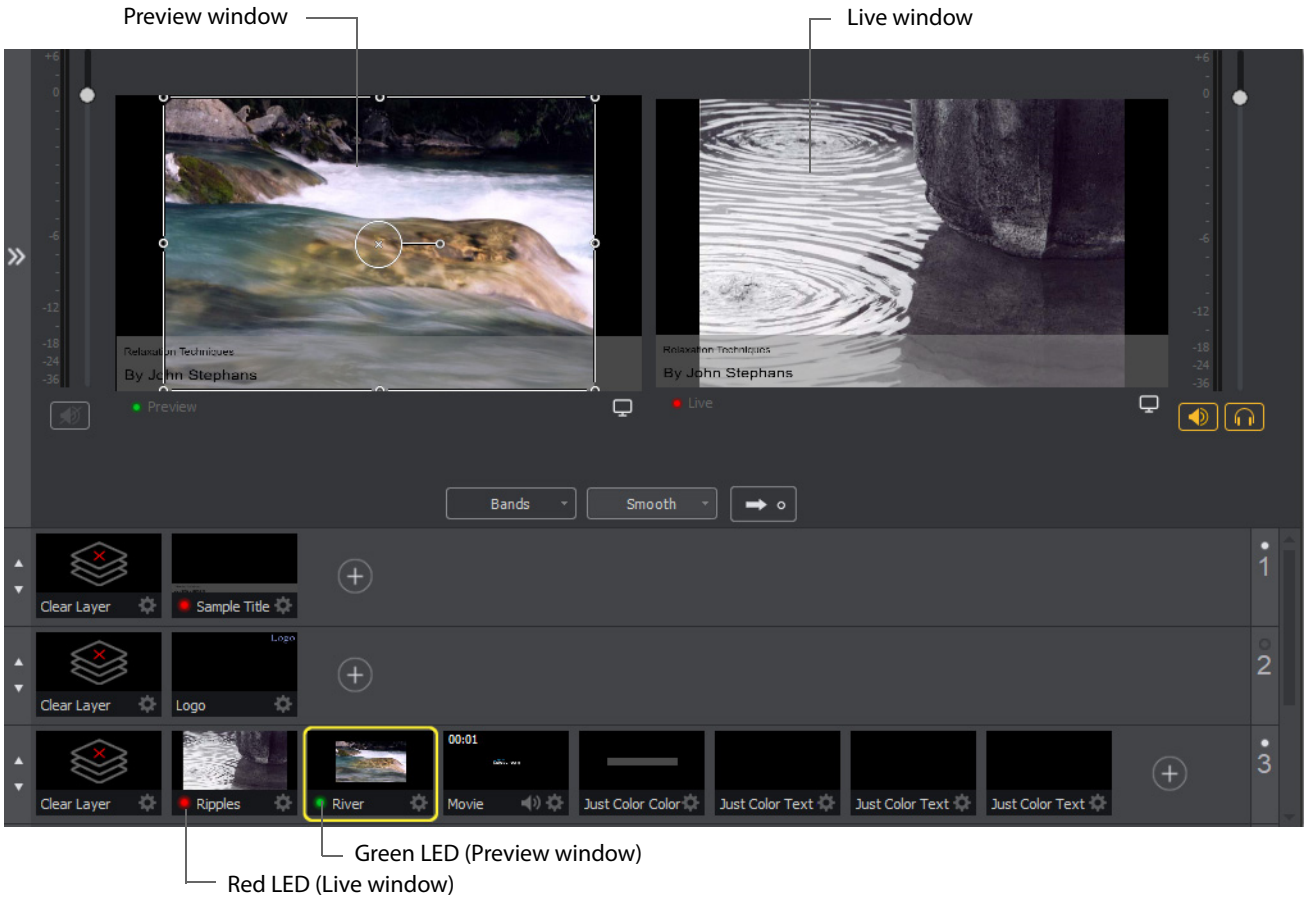
Preview

One problem you may have noticed while running this tutorial is that you cannot see the changes you are making before broadcasting them. To solve this problem, Wirecast enables you to see a preview of what you broadcast.

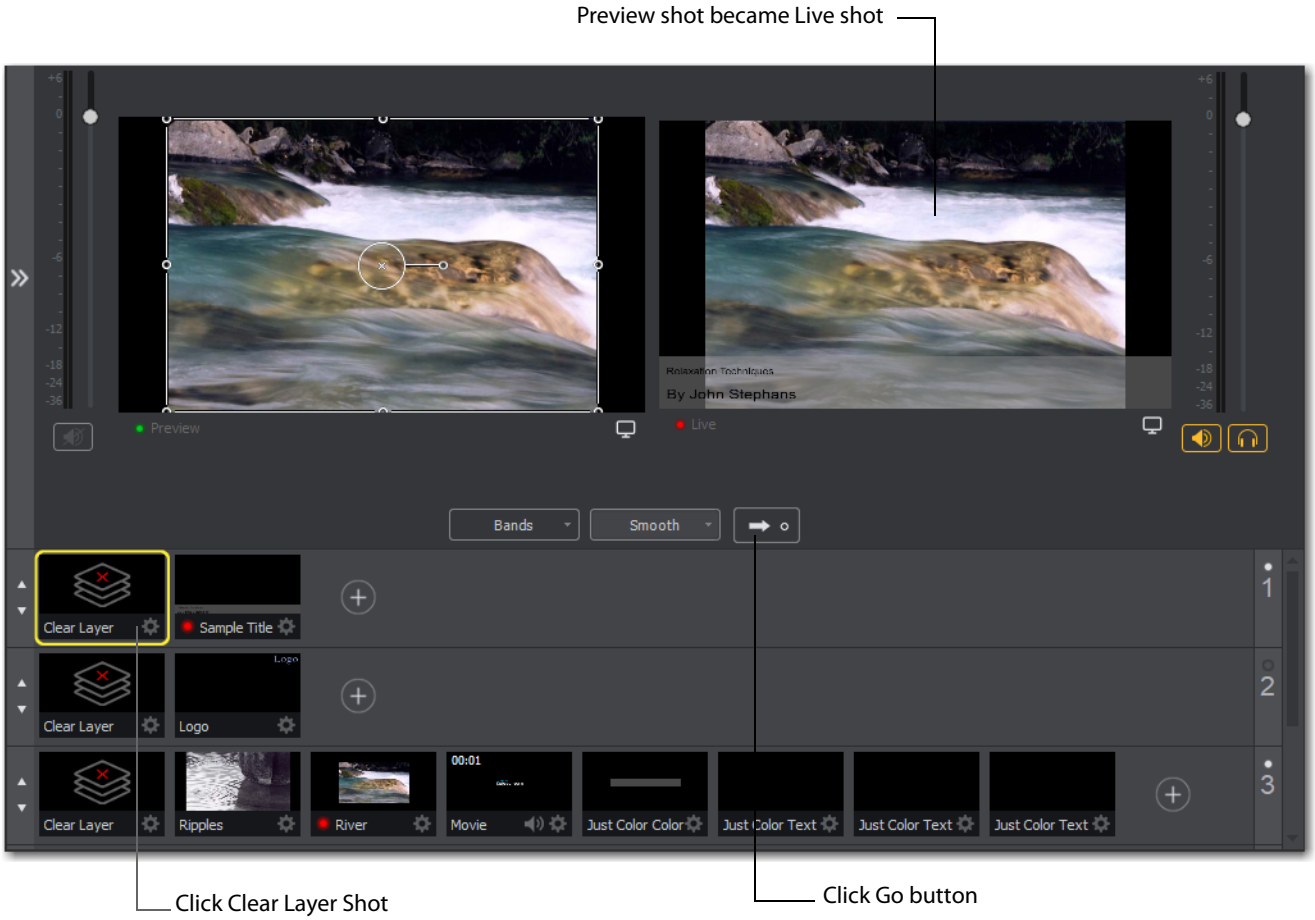
Select *Layout* > *Show Live and Preview* from the Main menu. A preview window is displayed to the left of the Live Broadcast window. The Preview window uses a green LED to identify it. The Live Broadcast window uses a red LED to identify it. These two colors (green and red) are also used to identify which shots are associated with the Preview or Live windows.



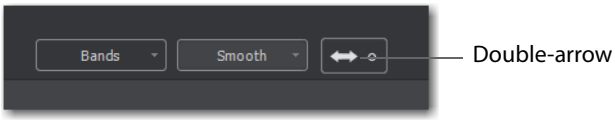
Click the River shot on Layer 3. The River shot is displayed in the Preview window. When shots are selected they display a green or red LED to indicate selection for Preview or Live windows.



Now click the Go button to place the River shot into the Live window. Click the Clear Layer shot in Layer 1 to remove the title from the River shot in the Preview window.

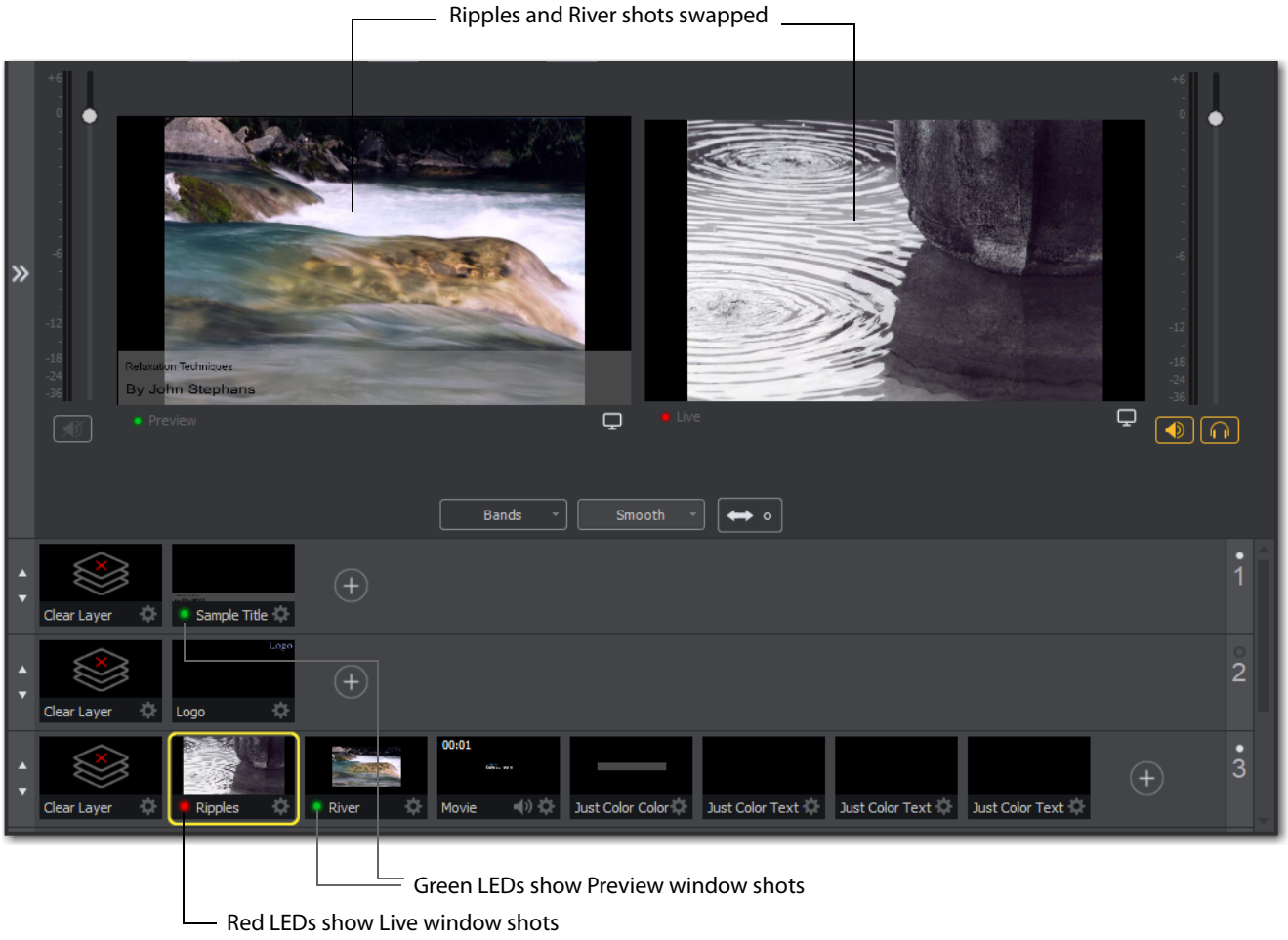


Turn on the Live/Preview Swap option by selecting Switch > Live/Preview Swap (check mark displayed). Notice that the Go Button displays a double-arrow, indicating that the Live/Preview Swap option is on.



Select the Ripples shot and click the Go button to place the Ripples Shot into the Live window. Notice that the Ripples and River shots have swapped (between Preview and Live windows). The shot LED's have also changed color. The green shot LEDs indicate all shots included in the Preview window and the red LEDs indicate the shots included in

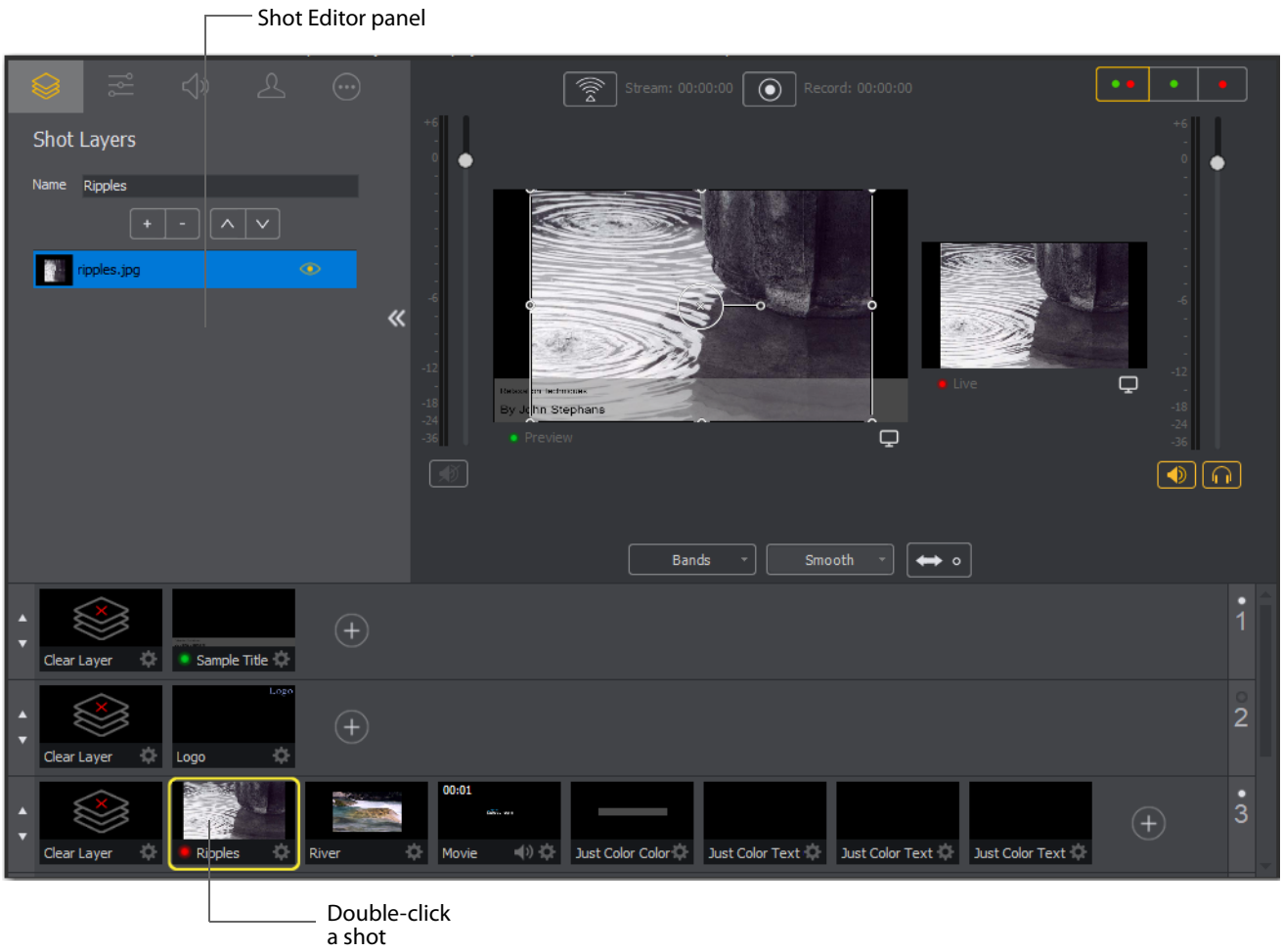
the Live window. This lets you know what your last Live window looked like as you prepare your next shot in the Preview window.



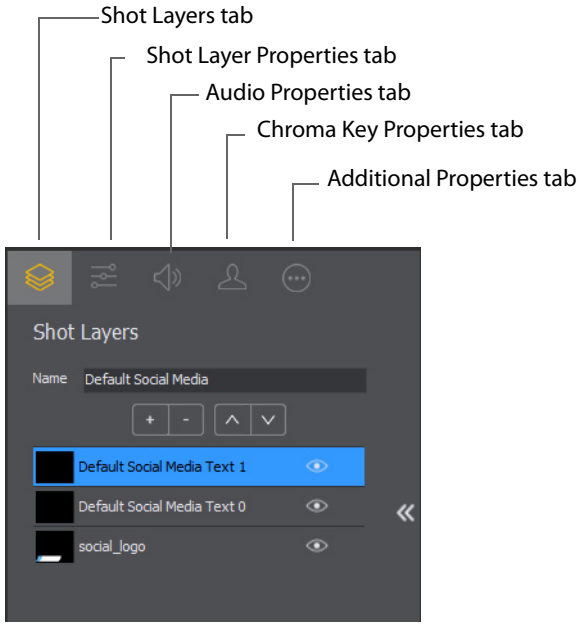
Tutorial 2: Editing Shots

The first tutorial used only the Main window, and explained various ways in which you can use an existing shot. But shots can also be created and edited. This tutorial demonstrates how to edit your shots.

To edit a shot, double-click its icon in the Shot List. This opens the Shot Editor panel.



The shot editor has five tabs: Shot Layers, Shot Layer Properties, Audio Properties, Chroma Key Properties, and Additional Properties.



Shot Properties Enables you to add and delete sources and change the display order (change layering within the shot).

Shot Layer Properties Enables you to change the size, position, and other properties of a shot source.

Audio Properties Enables you to set audio levels and other controls. You can also monitor audio levels.

Chroma Key Properties If a source in your shot uses a chroma key, this tab enables you to configure the chroma key settings. Each source in a shot can have its own chroma key settings.

Additional Properties Enables you to set any additional properties for a source in your shot: System Device properties, Screen Display properties, Twitch Widgets (Chat and Followers), etc.

See *Shot Editor* for details on how to use the Shot Editor.

Tutorial 3: Broadcasting

This tutorial demonstrates how to setup and broadcast your Wirecast presentations. You can broadcast to a specific computer (Unicast), multiple viewers (Multicast), or even record your broadcast to disk.

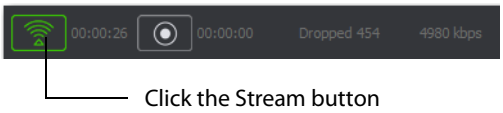
There are two main components for broadcasting your presentation (or saving it to disk): Encoding and Selecting a Destination.

You need to decide how you are going to encode your broadcast. Encoding is the type of compression used (JPEG, MPEG4, etc.). Wirecast comes configured with many common encoding options. (Dee *The Encoder Presets Window* for details.).

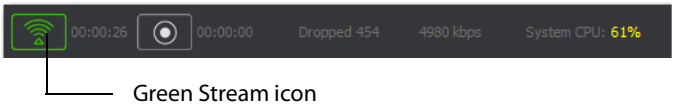
A destination for the broadcast must be selected. You can send it to a server for broadcast or save it to disk.

Streaming

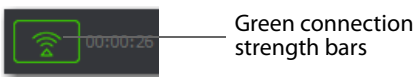
Click the *Stream* button to start streaming.



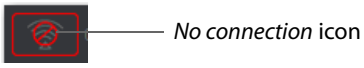
The Stream icon will blink until a connection is made. Once you are connected the Stream icon turns green. If you cannot connect an error message will display.



Connection strength is indicated by how many bars are displayed in the Stream icon. Fewer bars indicates a weaker (slower) connection.

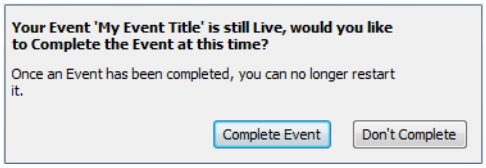


If the connection is ever broken, a *no connection* icon is displayed in place of the bars.

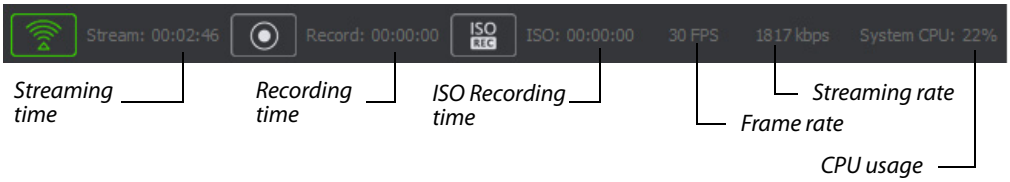


When the connection recovered, the *no connection* icon is replaced with the green bars.

Click *Stream* again to stop streaming. You can also record your broadcast by clicking *Record*. When you stop streaming, if you.

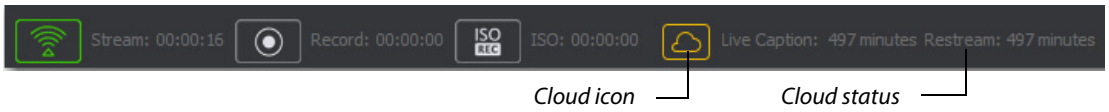


While streaming, status is displayed.



If you are streaming to Facebook, additional status is displayed on the right side of the status bar.

If you are streaming via the Cloud, additional status is displayed on the right side of the status bar.



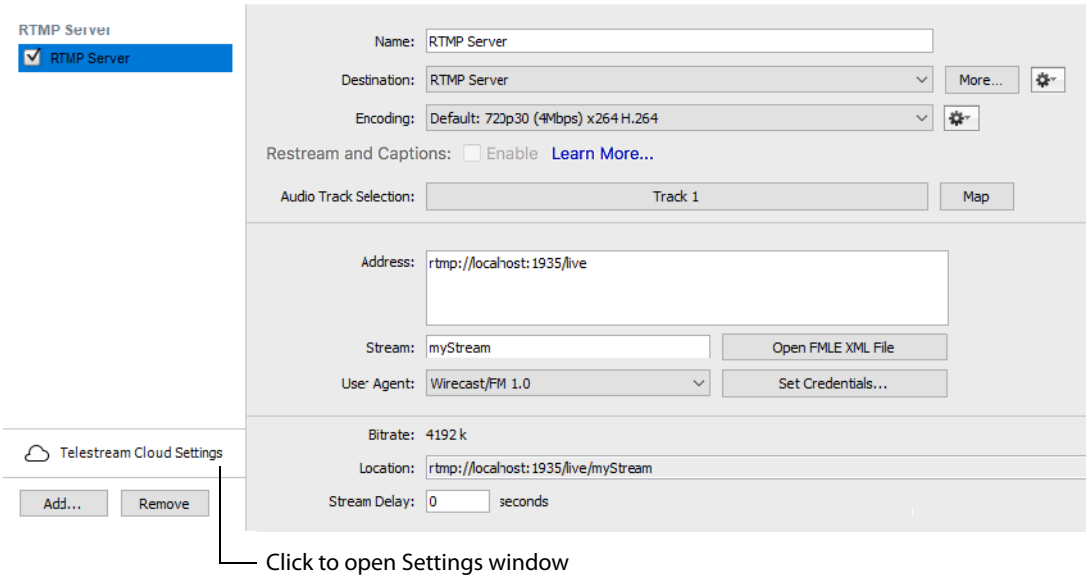
Telestream Cloud Settings

The Telestream Cloud enables you to add automated live captioning to your broadcast. But it also allows you to do "re-streaming" (multi-distribution of your broadcast through the Cloud).

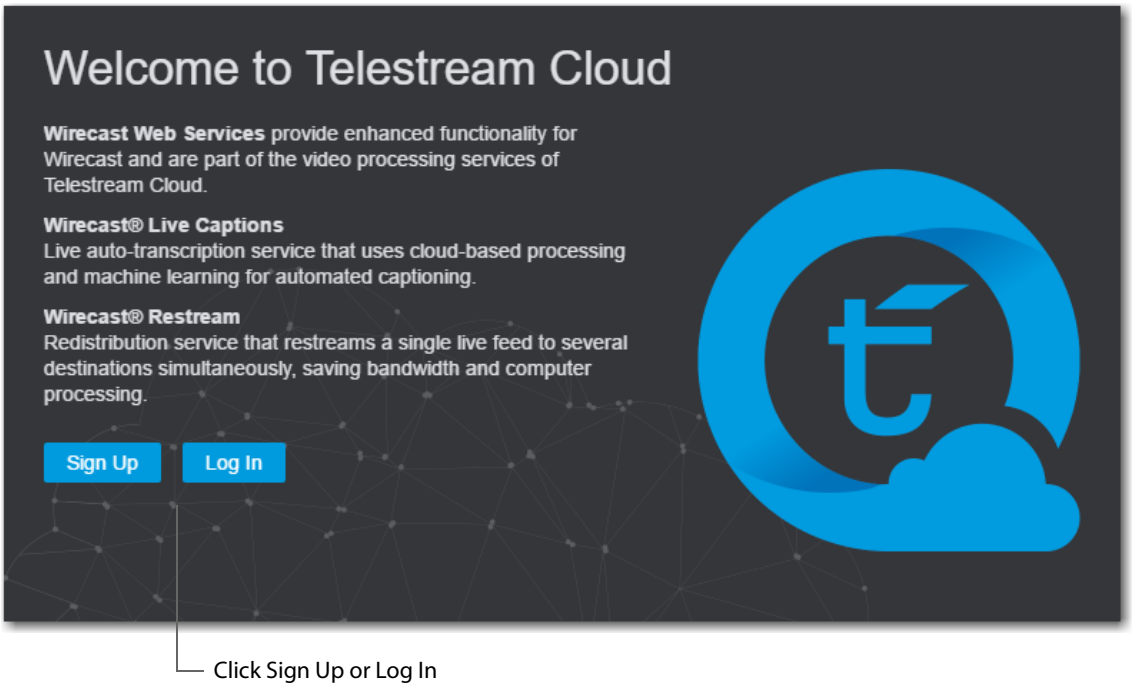
When you request automated captioning, the Cloud server will send out the audio portion of your broadcast for translation into text. When the text is received, it is embedded as 608/708 captions in the outgoing stream.

When you request stream redistribution, the Cloud takes your single stream source received from Wirecast and distributes it to multiple endpoints in a high bandwidth environment.

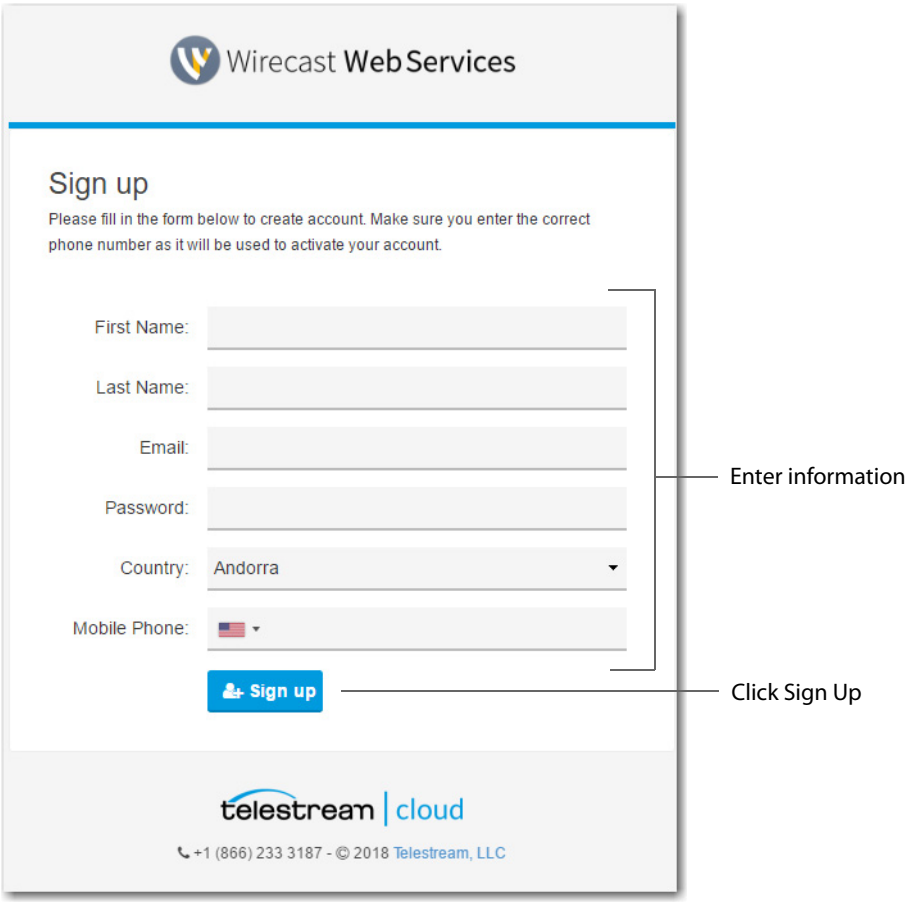
Cloud settings are accessed on the Output Settings window (*Output* > *Output Settings*). Click *Telestream Cloud Settings* to open the Cloud Settings window.



If you are not already Logged In to the Cloud, a Welcome window will display. Log in by clicking *Log In*. If you are not Signed Up with Telestream Cloud, you can do so by clicking *Sign up*.

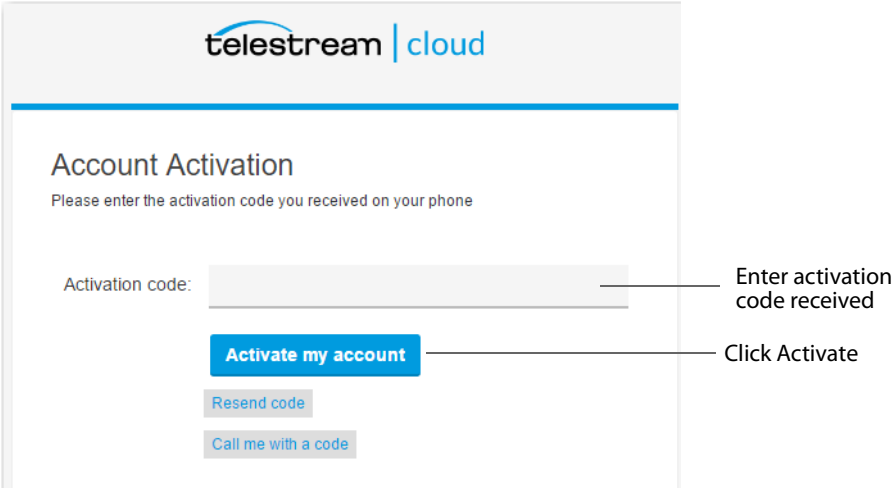


If you click Sign Up, a sign up window will display. Enter all requested information and click Sign Up.



When the Activate Account window displays, wait until you receive your Activation Code via phone call or text. Enter the activation code and click *Activate my account*. If

you do not receive an activation code, or if the code does not work, request a new one by clicking *Resend Code*.

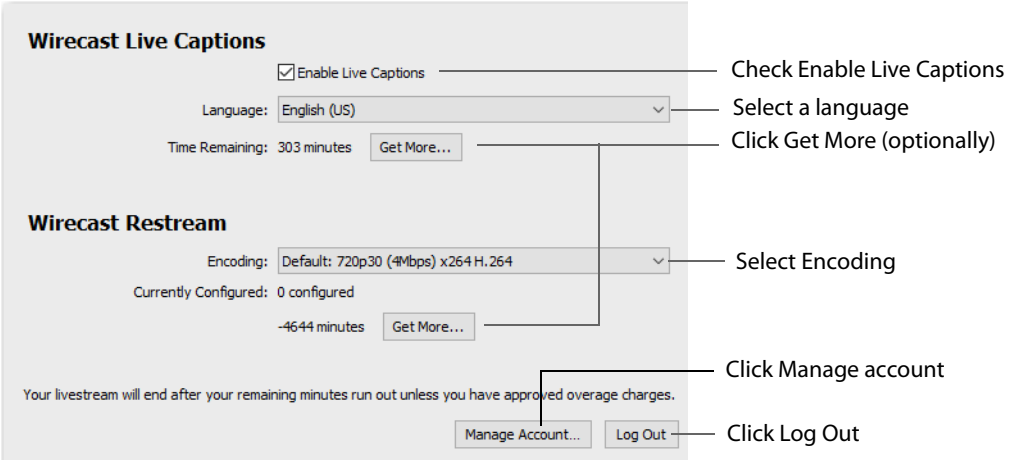


Once you are logged in, clicking the *Telestream Cloud Settings* button will open the Cloud Settings window.

For captioning, select a language. You can, optionally, enable live captioning.

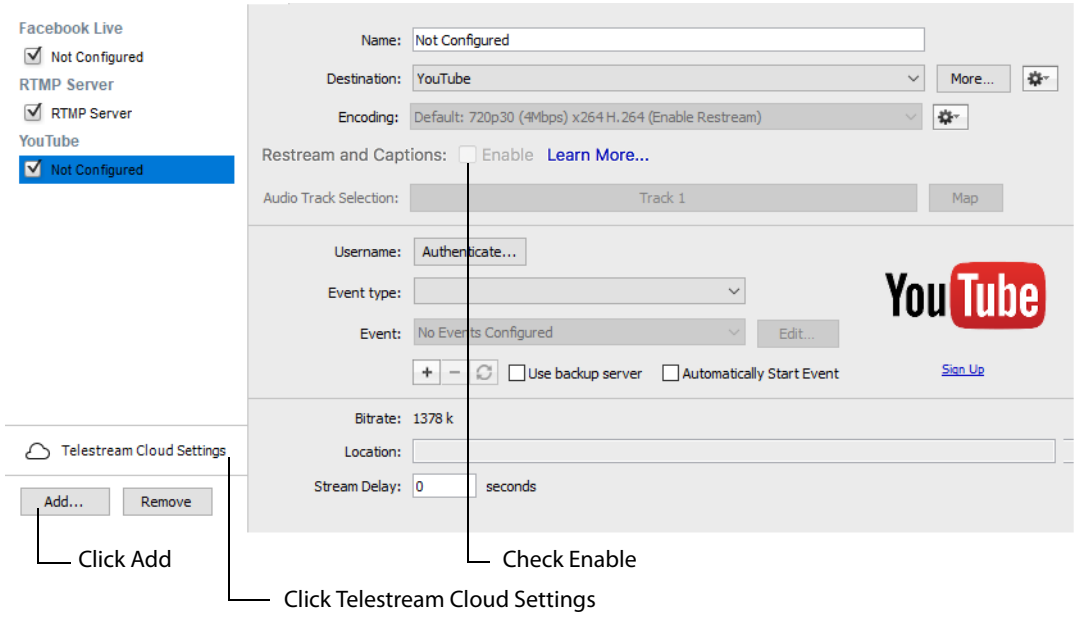
Note: When you check this option, *all* of your streaming destinations via the Cloud will include automatic live captions.

For re-streaming, select Encoding for all destinations that are re-streamed via the Cloud. Click the *Get More* or the *Manage Account* button to navigate to the Telestream Cloud Dashboard.



When you are ready to select multiple streaming destinations to be used by the Cloud, open the Output Settings window (*Output* > *Output Settings*) and select multiple streaming destinations by clicking the *Add* button. Check *Enable* for all destinations to

be included in the Cloud streaming distribution. Click *Telestream Cloud Settings* to open the Cloud Settings window.



Note: When *Enable* is checked, Encoding is grayed-out. This is because encoding for all distributed streams is set on the Cloud Settings page.

Main Window

Introduction

This section describes in detail how to use Wirecast's main window.

Topics

- *Overview*
- *Control/Status Bar*
- *Preview/Live Broadcast Area*
- *Countdown Clock Display*
- *Transition Controls*
- *Add Shot Menu*
- *Shot Selection Area*
- *Layers*
- *AutoLive*
- *Live Icons*

Overview

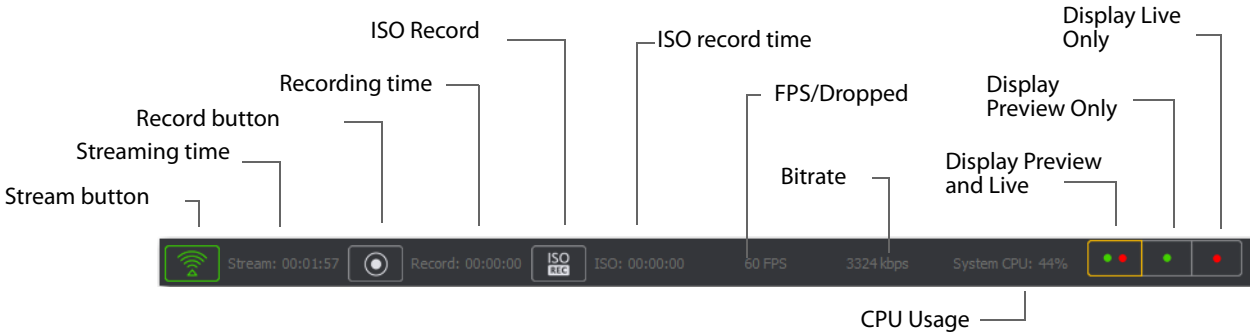
Wirecast's main window is comprised of these display areas:

- **Controls/Status Area** The top area with the Stream and Record buttons.
- **Preview/Live Broadcast Area** The large area in the center.
- **Transition Controls** The area with the Transition (Cut and Smooth) and Go buttons.

- **Shot Selection Area** The area displaying the shot icons (available shots).

Control/Status Bar

Control buttons and status information are displayed at the top of the Main window.



Wirecast displays the following controls and statistics:

- **Stream button** Click to begin streaming.

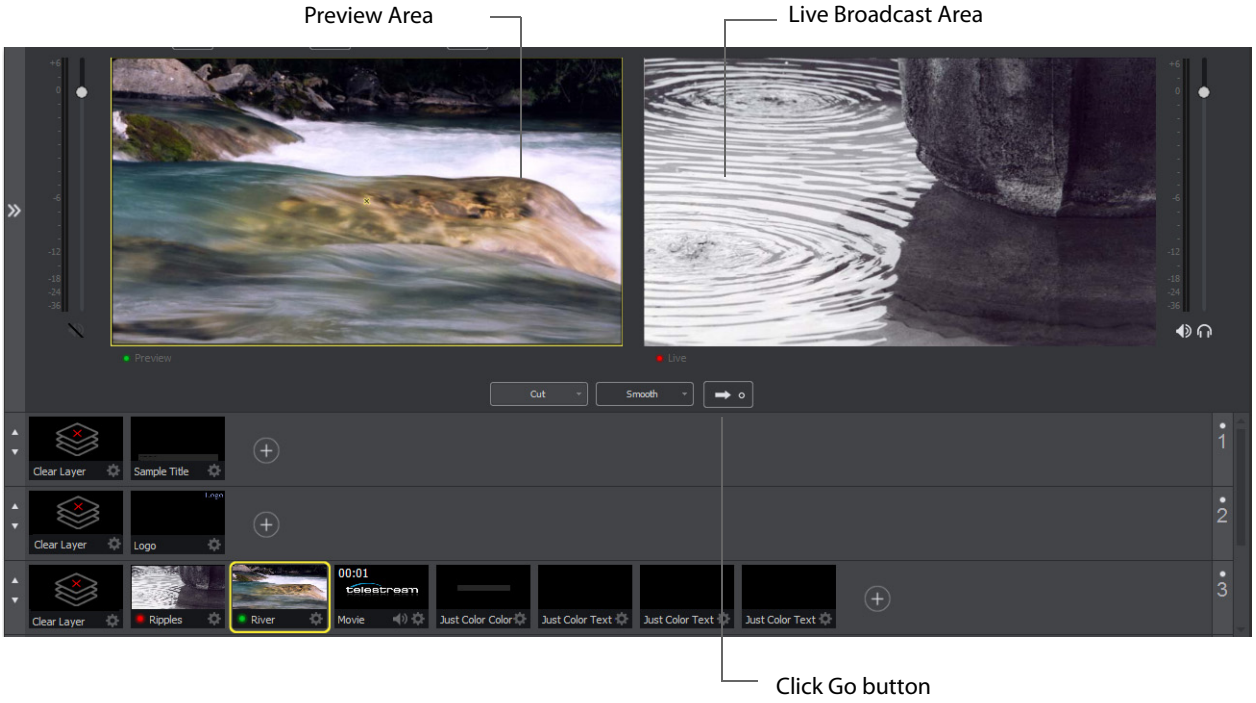
- **Streaming time** This displays how long you have been streaming. This value does not reset when you start/stop the broadcast. It is cumulative. This enables you to save portions of a broadcast to disk and still know the total amount of time.
- **Record Button** Click to begin recording.
- **Recording Time** This displays how long you have been recording. This value does not reset when you start/stop the broadcast. It is cumulative.
- **ISO Record** Click to begin ISO recording.
- **ISO Record Time** Displays the ISO recording time.
- **FPS/Dropped** Displays the current FPS rate or the number of frames dropped while streaming. Click on display to toggle between FPS and Dropped. (Displayed only while streaming.)
- **Bitrate** Displays the streaming bitrate. (Displayed only while streaming.)
- **CPU Usage** Displays the usage of the CPU in percent. (Displayed only while streaming.)
- **Display Buttons** These three buttons enable you to choose to display the Preview window, the Live window, or both in a divided display.

Note: To avoid decrease in video quality, Wirecast should not be used at CPU usage above 80%. See the Telestream Website for suggested configurations.

Preview/Live Broadcast Area

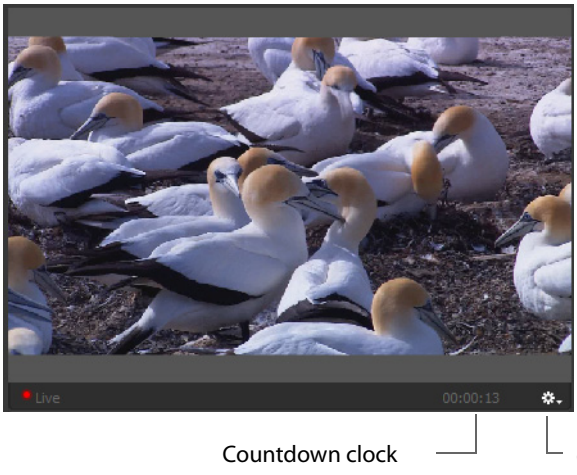
When you open a new document, the Live area shows what is broadcast to your viewers before the encoding or compression. When AutoLive is off, you can make several changes without your viewers seeing the change. This is most useful when you are using an engineer to run your broadcast. When you are making changes to your broadcast, you may want to see those changes before broadcasting them. Preview allows you to do this.

To see the preview, select *Preview* from the Layout menu. This sets up the Main Window with the Preview Area on the left and the Live Broadcast Area on the right. Clicking the Go button makes the preview shot become Live.



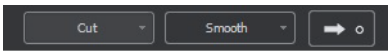
Countdown Clock Display

The Main window displays a countdown clock whenever a video shot is playing. If you have multiple video shots playing, click the gear menu icon to select which shot will be associated with the countdown clock.



Transition Controls

The transition area is in the middle of the Main Window:



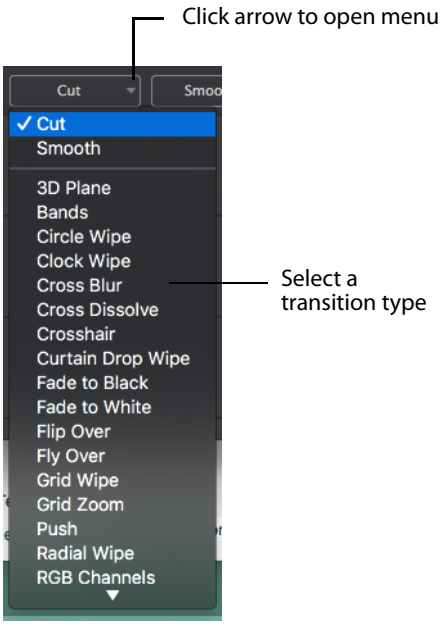
There are two Transition buttons, but each can be configured to present one of many possible transition types. In the image above, the two configured transitions are: Cut and Smooth. Since Smooth is selected (button darkened), any transition executed by clicking Go is a smooth transition.

Changing Transitions

If you click the Cut button, it becomes selected and making it the current transition type:

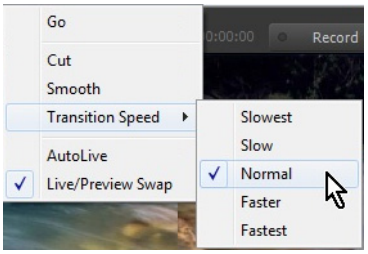
You always have two different transition types available. You can also select one of the two buttons by pressing Command+1 or 2 keys for the two transition types displayed.

If you click the down-arrow on the right side of either transition button, you can select a new transition to assign to that button.



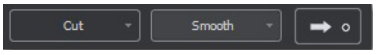
Transition Speed

The transition speed is set by selecting *Switch* > *Transition Speed*. There are five settings: Slowest, Slow, Normal, Faster, and Fastest.



Go Button

The Go Button (or Command+G) enables you to make a transition occur at any time.



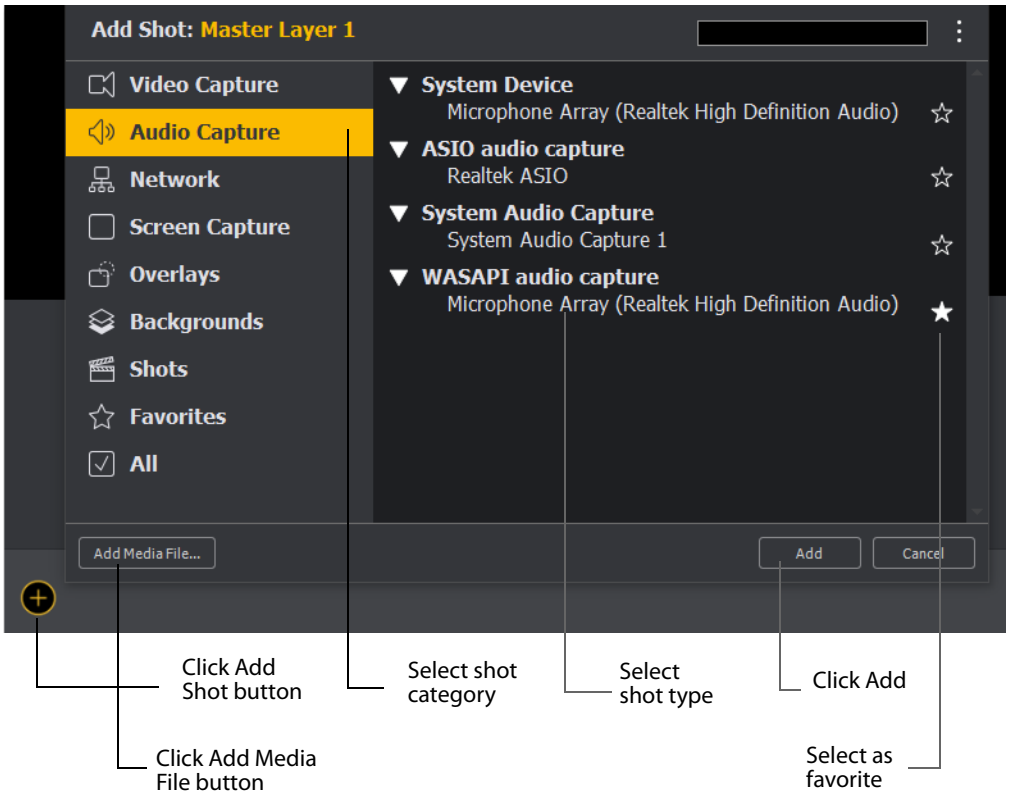
Clicking the Go button does nothing when Wirecast is in AutoLive mode, except to update a live shot if you have made changes to it using the Shot Editor.

Add Shot Menu

The Add Shot menu provides a way to add live sources, file sources, the Desktop Presenter program, shot graphics, shot audio, and shot templates, etc. Click the Plus Button (+) to open the Add Shot menu.

When the Add Shot menu displays, select a shot category, select the type of shot to add, then click the *Add* button.To add a media file, click the *Add Media File* button., navigate to a media file, click *Open*, then click the *Add* button.

To select a source as a *Favorite* (cause it to display in the Favorites menu) click the star icon to turn it white.



Video Capture

- **System Device** Select a system device and click the *Add* button. (See *Capture Devices Properties*).

Audio Capture

- **System Device** Select a system device and click the *Add* button. (See *Capture Devices Properties*).
- **ASIO Audio Capture** Select an ASIO audio capture device and click the *Add* button.
- **System Audio Capture** Select an audio capture device and click the *Add* button.
- **WASAPI Audio Capture** Select a WASAPI capture device and click the *Add* button.

Network

- **IOS Cam** Select an ISO Camera device and click the *Add* button.
- **Rendezvous** Select to create a new Rendezvous session, or select to reconnect to a previously created session. Click the *Add* button when finished.
- **Web Display** Creates a new Web Display shot. Select and click the *Add* button. (See *Web Display Properties*).

- **Web Stream** Creates a new Web Stream shot. Select and click the *Add* button. (See *Web Stream Properties*).

Screen Capture

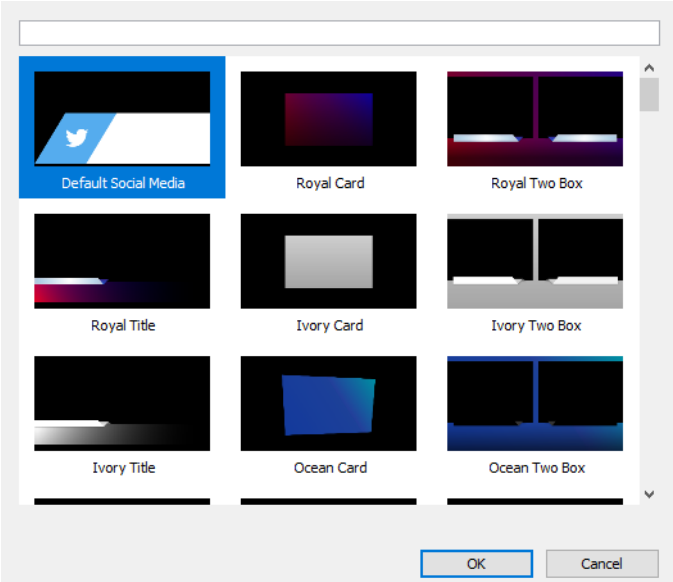
- **Remote Desktop Presenter** Creates a new Remote Desktop Presenter shot. Select and click the *Add* button. (See *Remote Desktop Presenter Properties*).
- **Screen Capture** Creates a new Screen Capture shot of any monitor or window on your computer. You can also capture your iPhone or iPad in Wirecast by connecting your device using an Apple certified lightening cable, and then adding it as a source by selecting *Screen Capture* from the Source menu. Select and click the *Add* button. (See *Screen Capture Properties*).

Note: Some apps when screen captured, take control of your mouse and the cursor is not displayed. You can, at any time, press command + Tab keys to reduce the capture window size and enable you to use your mouse. You must be using an iOS device running 8.x connected to your Mac OSX 10.10 Yosemite computer with a lightening cable. The cable should be Apple certified to guarantee proper detection. You will need to "trust" the computer in order for it to be detected.

Overlays

- **Clock** Creates a new Clock shot that displays time. Select and click the *Add* button. (See *Clock Properties*).
- **Image Carousel** Creates a new Image Carousel shot that shows a sequence of images. Select and click the *Add* button.(See *Image Carousel Properties*).
- **Scoreboard** Creates a new Scoreboard shot. Select and click the *Add* button. (See *Scoreboard Properties*).
- **Text** Creates a new Text shot. Select and click the *Add* button. (See *Text Shot Properties*).

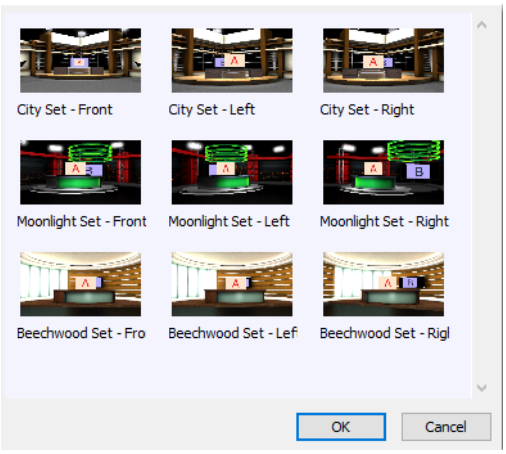
- **Title** Creates a new Title shot. When the window of titles displays, select a title and click OK. Click the *Add* button when finished. (See *Titles Properties*).



- **Twitter Feed** Creates a Twitter Feed shot. Select and click the *Add* button. (See *Twitter Feed Properties*).

Backgrounds

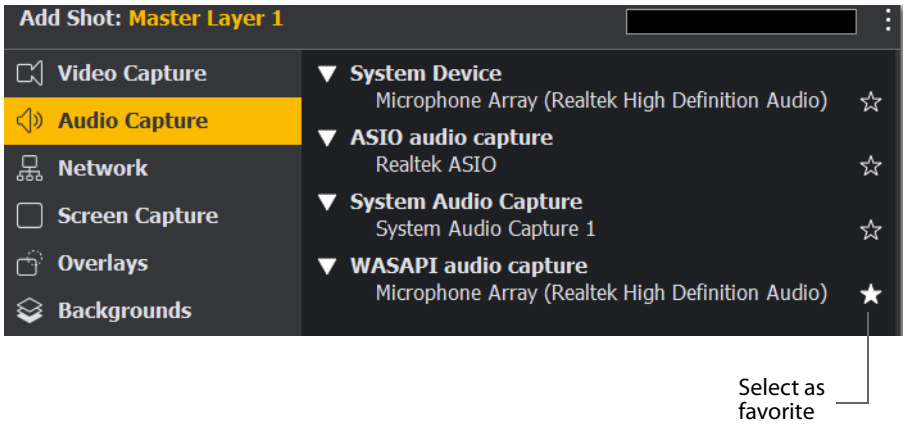
- **Web Display** Creates a new Web Display shot. Select and click the *Add* button. (See *Web Display Properties*).
- **Solid Color** Creates a new Solid Color shot. Select and click the *Add* button. (See *Solid Color Properties*).
- **Virtual Set** Creates a new Virtual Set shot. When the window of sets displays, select a set and click OK. When finished, click the *Add* button. (See *New Virtual Set Properties*).



Shots

- **New Shot** Creates a new shot. Select and click the *Add* button.
- **New Playlist Shot** Creates a new Playlist shot. Select and click the *Add* button.
- **New Shots From Clipboard** Creates a new shot that has been copied to the clipboard. This is how you duplicate a shot. Select and click the *Add* button.

Favorites Displays a list of shots that have been marked as a Favorite by clicking on the star on the right side of each shot in the Add Shot Menu.

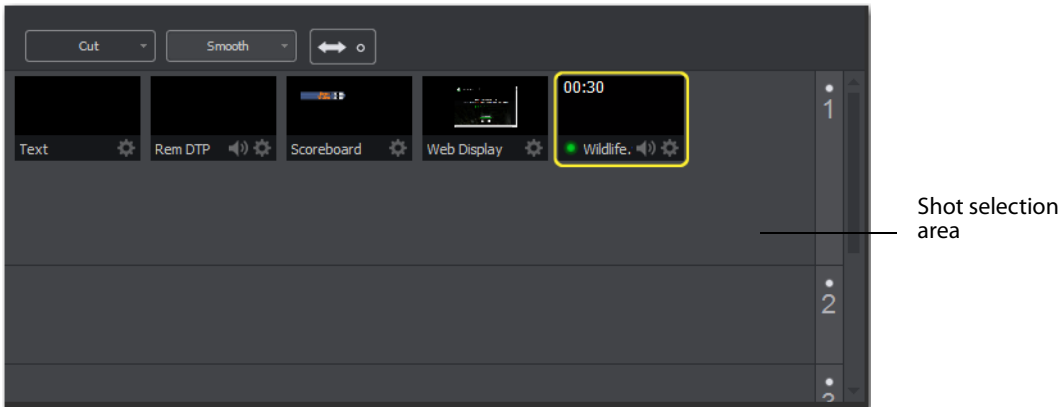


All Displays all sources in one list.

Add Media File Creates a Media File shot (video clip or picture). When selected, a navigation widow displays. Navigate to a media file location, select a media file, and click *Open*. (See *Media File Properties*).

Shot Selection Area

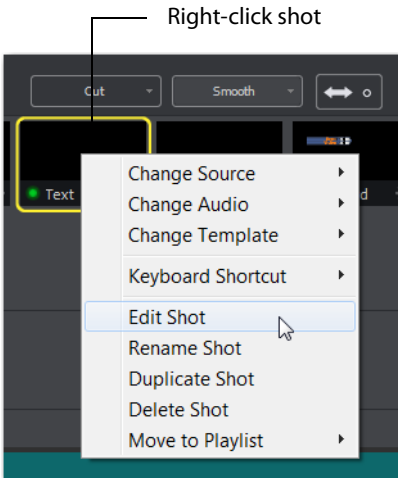
The bottom part of the Main Window contains the Shot Selection Area, also called the Shot List.



The shot icons can be made to display any live activity in the source it represents (cameras, streaming, etc.). See *Performance* in the Preferences section for turning on Live Icons.

Changing Shots

Right-click on any shot to display the shot menu.

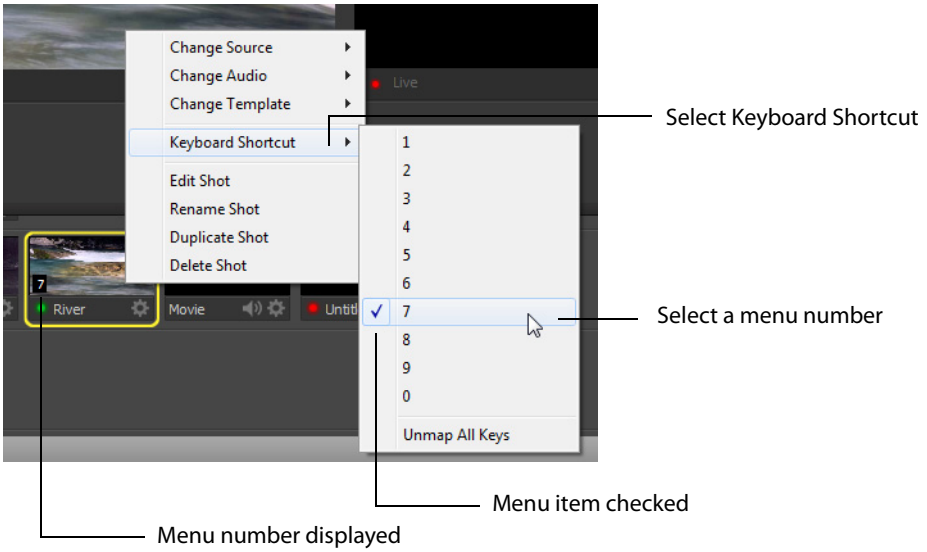


Change Source Select Change Source to change the source of your shot. Upon selection, a menu of sources will display enabling you to make a selection.

Change Audio Select Change Audio to change the audio of your shot. Upon selection, a menu of audio sources will display enabling you to make a selection.

Change Template Select Change Template to change the template of your shot. Upon selection, a menu of templates will display enabling you to make a selection.

Keyboard Shortcut You can create a keyboard shortcut to any shot. To do this, select *Keyboard Shortcut*, then select a menu number to associate with that shot. After you have selected a menu number, that menu item is checked and the number is displayed in the shot icon.



To take a shot using the assigned hotkey, press the number key assigned to that shot.

You can assign multiple shots to the same menu number as long as they are on different layers. When you use the assigned hotkey all the shots assigned to it will be taken. Selecting a checked menu item will uncheck it and unassign the shot.

Select *Unmap All Keys* to remove all hotkey assignments.

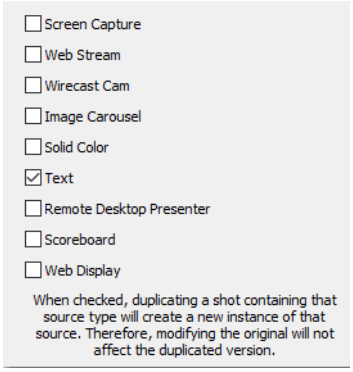
Note: See also the section on *Hot Keys* for Hot Key management.

Edit Shot You can edit a shot by clicking the double arrows (located on the left side of the Preview window) to the right, revealing the shot editing panel. You can also edit a shot by double-clicking on it, by right-clicking it and selecting Edit Shot, by selecting Edit Shot from the Edit menu, or by selecting it and pressing the Command+E keys.

Rename Shot You can rename a shot by right-clicking it and selecting Rename Shot, or by selecting Rename Shot from the Edit menu. You can also rename a shot by selecting it and pressing the Command+R keys.

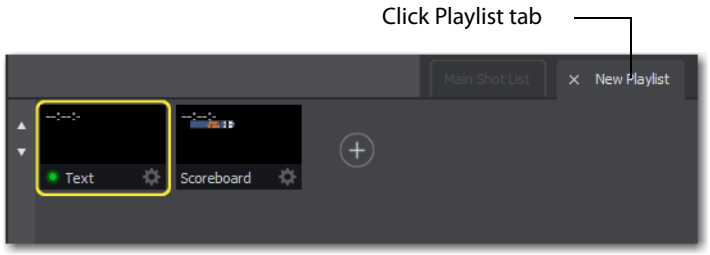
Duplicate Shot You can duplicate a shot by right-clicking it and selecting Duplicate Shot, or by selecting Duplicate Shot from the Edit menu. You can also duplicate a shot by selecting it and pressing the Command+D keys.

Duplicate Shot Options Check a source to create a new instance of it when duplicating the shot containing it. Multiple selection is allowed.



Delete Shot You can delete a shot by right-clicking it and selecting Delete Shot, or by selecting Delete Shot from the Edit menu. You can also delete a shot by selecting it and pressing the Command+Backspace keys.

Move to Playlist Moves this shot to the selected playlist. If you have existing playlists, that can be viewed by selecting the Playlist tab. You can move a shot to another playlist, back to the main layer, by right-clicking the shot and selecting *Move to Playlist*.



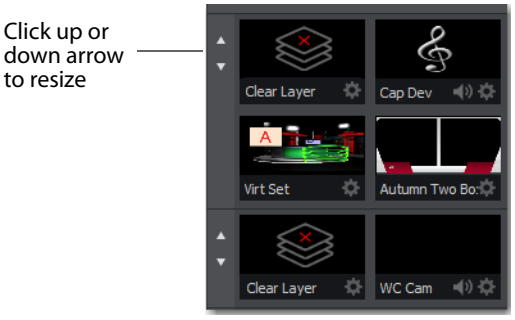
Moving a Shot to Another Layer

You can move a selected shot to another layer by selecting *Move to Layer* from the Edit menu, then selecting the target layer from the drop-down menu. You can also move the cursor to the bottom of a shot icon (until the cursor becomes a hand), and then drag the shot icon to a different layer.

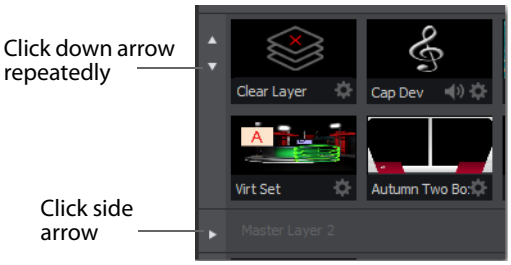
When shots are created, they are assigned to a specific layer. They exist on that layer until they are moved or deleted. (See *Layers*.)

Resizing the Shot Icons

You can resize the shot icons on any layer by clicking the up or down arrow on the left side of the layer window. Click the up arrow to make all the icons larger; click the down arrow to make them smaller. Clicking the down arrow when the shot icons are in their smallest state causes the layer window to become hidden.



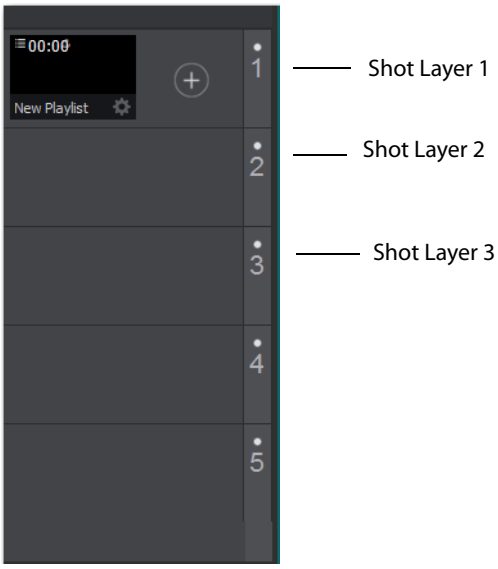
To show or hide a layer, click the down arrow until layer is hidden. To show a layer, click the side arrow that represents a hidden layer.



Layers

Wirecast allows you to put shots on any of five different layers. Layering shots enables Wirecast to merge them together, from back (lowest layer) to front, to form a single visual image during broadcast.

When Wirecast first opens, all of the five layers of shots are displayed. You must scroll down (or expand the window) to see the other layers.

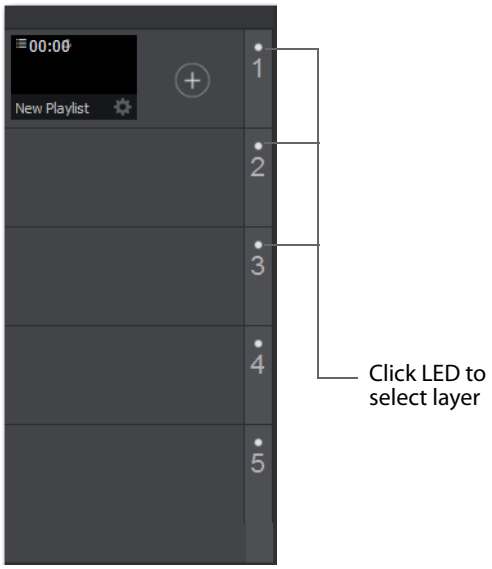


What is a Layer?

Layers are, by default, named 1 through 5. Layers determine the order when presenting images in the Live Broadcast Area. The Bottom layer (5) is drawn first, then the other layers are added, in order, up to Layer 1. Using multiple layers is a powerful way to show a company logo, a background, or a title, independent from each other.

Changing Layers

To select a layer, click its LED to turn it on (click it again to turn if off). When a layer is selected, the selected shot in that layer is displayed in the Preview/Live Broadcast area. If multiple layers are selected all selected shots are displayed.



Moving a Shot to Another Layer

A shot can be moved to another layer by clicking and dragging the shot from one layer to another within the Main Shot window. To do this, hover over the shot Title Bar with the mouse until the hand icon displays, then click and drag the shot to another layer.

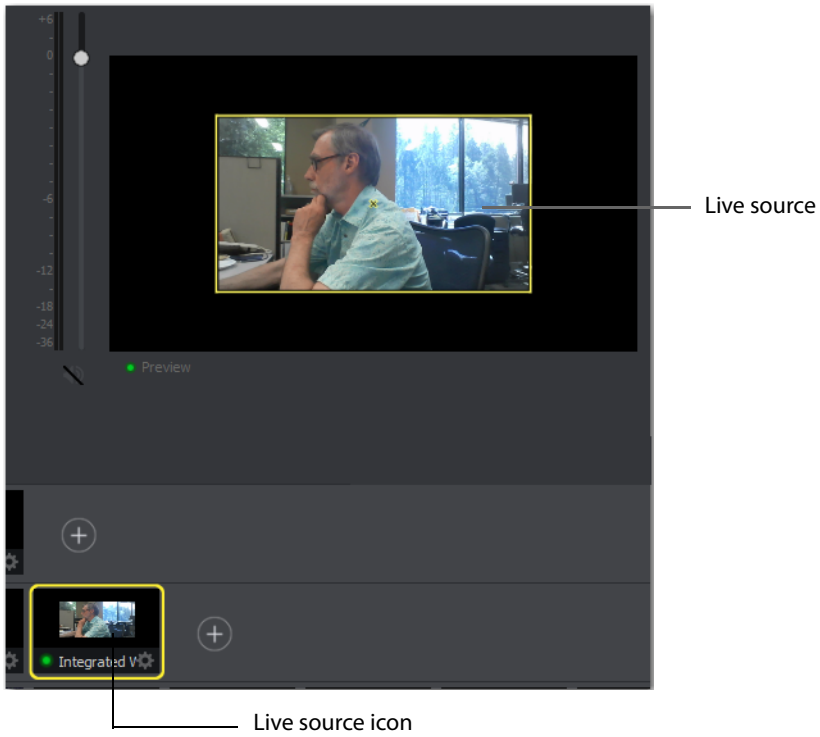
When shots are created, they are assigned to a specific layer. They exist on that layer until you move them or delete them.

AutoLive

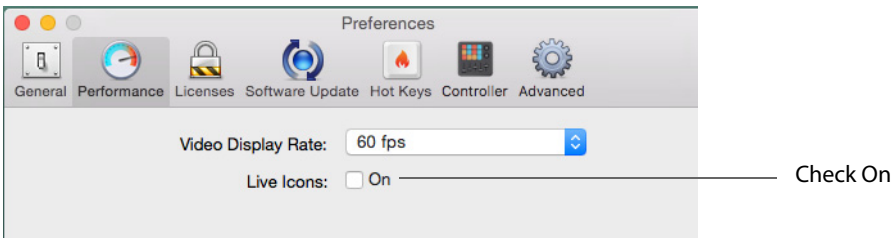
AutoLive is turned on and off by selecting *Switch* > *AutoLive*. When AutoLive is on, changes made in the Shot List are automatically taken Live in the broadcast (using the current transition and duration). If you click a shot when AutoLive is off, the shot is not sent to live broadcast. In this mode you take the shot live manually, by clicking the Go button, or by pressing the Command+G keys.

Live Icons

You can, optionally, make your live source icon display its source (camera, Web stream, etc.) in real time. This means that inside the icon, you will see what the live source sees.



To turn on the *Live Icon* option (default is *off*), select the *Performance* tab in Preferences, then check the Live Icons checkbox.



Note: There tends to be a degrading quality when an icon is live. So, if the CPU is reaching its maximum, turn off Live Icons to reduce CPU usage.

Keyboard Shortcuts

Introduction

This section provides a list all of keyboard shortcuts used in Wirecast. They are arranged according to how they appear in the drop-down menus in the main window.

Note: See also the section on *Hot Keys* for Hot Key management.

General Shortcuts

Misc Shortcuts	Keyboard Shortcut
Display Shot	<shot number key*>
Enter	Selects left-hand transition button and clicks Go button
Space bar	Selects right-hand transition button and clicks Go button
i	Sets the media IN point
o	Sets the media OUT point
e	Sets the Replay IN point
=	Increments Home score
-	Decrements Home score
]	Increments Visitor score
[	Decrements Visitor score

* See Keyboard Shortcut in Changing Shots.

Wirecast Menu

Menu	Keyboard Shortcut
Preferences	command+comma
Hide	command+H
Hide Others	control+command+H
Quit	command+Q

File Menu

File Menu	Keyboard Shortcut
New	command+N
Open	command+O
Import Media	command+Shft+I
Save	command+S
Save As	command+Shft+S
Close Window	command+W

Edit Menu

Edit Menu	Keyboard Shortcut
Undo	command+Z
Redo	command+Shft+Z
Cut	command+X
Copy	command+C
Paste	command+V
Select All	command+A
Edit Shot	command+E
Rename Shot	command+R
Duplicate Shot	command+D
Delete Shot	command+Delete

Switch Menu

Switch Menu	Keyboard Shortcut
Go	command+G
Cut	command+1
Smooth	command+2
AutoLive	command+L
Live/Preview Swap	control+command+W

Media Menu

Media Menu	Keyboard Shortcut
Start Playing All Movies	command+P
Pause All Movies	command+Shft+P

Output Menu

Output Menu	Keyboard Shortcut
Output Settings	command+Y
Start/Stop Broadcasting > Start All	command+B
Start/Stop Recording > Start All	command+K

Layout Menu

Layout Menu	Keyboard Shortcut
Master Audio	control+command+M
Main Shot List	control+command+L
Go to Layer > Master Layer 1	Shift+command+T
Go to Layer > Master Layer 2	Shift+command+F
Go to Layer > Master Layer 3	Shift+command+N

Replay Menu

Replay Menu	Keyboard Shortcut
	NO SHORTCUTS

Twitter Menu

Twitter Menu	Keyboard Shortcut
	NO SHORTCUTS

Window Menu

Window Menu	Keyboard Shortcut
Minimize	command+M
Inspector	command+I
Encoder Presets	control+command+E
Audio Mixer	command+U

Help Menu

Help Menu	Keyboard Shortcut
	NO SHORTCUTS

Adding Media

Introduction

In addition to live video from your cameras, Wirecast enables you to work with media created outside of Wirecast. This section introduces some common media types you can use with Wirecast. You can add media by selecting *Import Media* from the File menu.

Topics

- *Images/Opacity*
- *Supported Codecs*

Images/Opacity

Wirecast supports a wide variety of still images types (TIFF, GIF, JPEG, PNG, etc.). Some of these formats offer some form of opacity (or transparency). This is often called an Alpha Channel. Wirecast works seamlessly with these formats making them the preferred methods for using graphics and logos which have transparency.

GIF and Transparency

GIF files are a special case because they only offer transparency and not a true Alpha Channel. The GIF format enables you to define part of the image as transparent (completely invisible), but does not enable you to define it as partially transparent. Some GIF images use transparency for much of the image. However, near the edges of the visible data, transparency cannot be used. This happens quite often when there is a shadow near the edges of the visible data. The author of the GIF often assumes a certain background color (white, for example) and that color becomes embedded in the actual image.

When Wirecast displays these types of images, the edges of the visible data shows the background that was saved in the GIF. This is not a defect in Wirecast and, therefore, Wirecast can only present the data as it exists in the GIF. The solution is to obtain the

original image and re-save the image as either TIFF or PNG. Both of these formats offer full Opacity.

Keynote Movies

Wirecast supports some special features of Keynote Movies which enable you to move back and forth between the pages from within Wirecast. With this feature you can visually annotate and walk through your Keynote for your viewers.

Using Movies

To use the movie in Wirecast, follow these steps:

1. Drag & drop the Keynote movie into the Shot List in the Main Window.
2. Click the movie to take it live in the Live Broadcast Window. (Or, if you have AutoLive off, click the Go button.)
3. To go forward in the Keynote movie, select *Play to next point* from the Media menu (or, press the Command+Right Arrow keys). The Keynote movie plays to the next section using the transition you selected in Keynote.
4. To go backward in the Keynote movie, select *Jump to previous point* from the Media menu (or, press the Command+Left Arrow keys). All media in the Live area jumps to the previous point.

Windows Media

Windows Media Files (WMV and WMA) are not supported by Wirecast. The solution is to convert the media into a different type, such as MPEG-4.

Real Media

Real Media Files (.RM) are not supported by Wirecast. The solution is to convert the media into a different type such as MPEG-4.

Supported Codecs

Shown below is a list of supported video and audio codecs.

Video Codec	MOV (M4V)	MP3	MPEG-4 ISO (MP4)	WAV	AIFF (AIFF, AIF)	ASF (WMV)	WEBM
AVC	YES	NO	YES	NO	NO	NO	
H264	YES	NO	YES	NO	NO	NO	
DVC25	YES	NO	NO	NO	NO	NO	NO
DVCPRO50	YES	NO	NO	NO	NO	NO	NO

DVCPRO100	YES	NO	NO	NO	NO	NO	NO
MJPEG	YES	NO	NO	NO	NO	NO	NO
ProRes	YES (mac only)	NO	NO	NO	NO	NO	NO
QuickTime Animation	YES	NO	NO	NO	NO	NO	NO
VP8	NO	NO	NO	NO	NO	NO	YES
VP9	NO	NO	NO	NO	NO	NO	YES
Windows Media Video	NO	NO	NO	NO	NO	YES (windows)	NO
Audio Codecs							
AAC	YES	NO	YES	NO	NO	NO	NO
MP3	YES	YES	NO	NO	NO	NO	NO
Opus	NO	NO	NO	NO	NO	NO	YES
PCM	YES	NO	NO	YES	YES	NO	NO
Vorbis	NO	NO	NO	NO	NO	NO	YES
Windows Media Audio	NO	NO	NO	NO	NO	YES (windows)	NO

Shot Editor

Introduction

The Shot Editor is used to view a shot, edit it, or create a new one. This section describes how to use the Shot Editor.

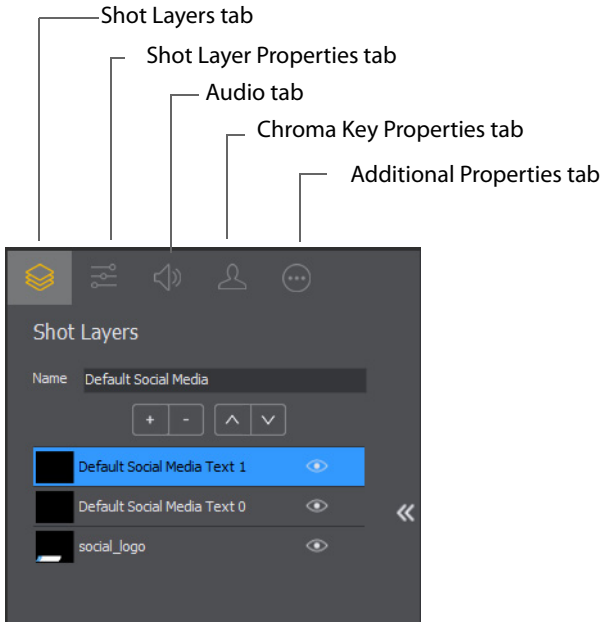
Topics

- *Overview*
- *Shot Layers Tab*
- *Shot Layer Properties Tab*
- *Audio Properties Tab*
- *Chroma Key Properties Tab*
- *Additional Properties Tab*
  - *Capture Devices Properties*
  - *Rendezvous Properties*
  - *Image Carousel Properties*
  - *Clock Properties*
  - *Media File Properties*
  - *Remote Desktop Presenter Properties*
  - *Scoreboard Properties*
  - *Solid Color Properties*
  - *Text Shot Properties*
  - *Web Display Properties*
  - *Web Stream Properties*
  - *Titles Properties*
  - *Twitter Feed Properties*
  - *New Virtual Set Properties*
  - *SyphonInject™ Sources*

Overview

To edit a shot, double-click the shot to open the shot editor. You can also single-click the shot to select it, then click the double-arrow on the left of the Main window to open the shot editor panel.

The shot editor has five tabs: Shot Layers, Shot Layer Properties, Audio, Chroma Key Properties, and Additional Properties.



Shot Layers Enables you to add and delete sources and to change the display order (layering within the shot).

Shot Layer Properties Enables you to change the size, position, and other properties of a shot.

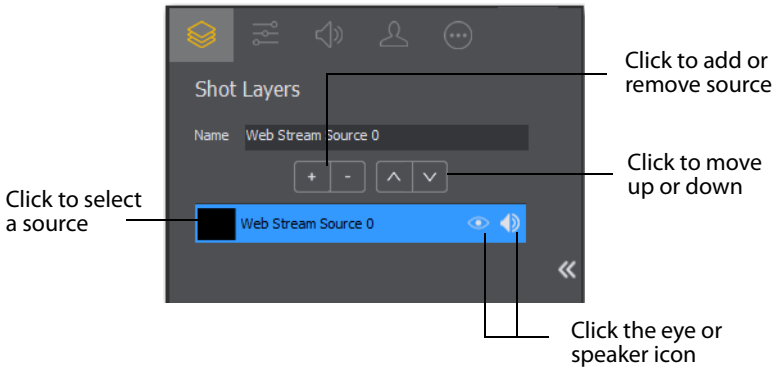
Audio Enables you to set and monitor the audio level.

Chroma Key Properties If a source in your shot uses a chroma key, this tab enables you to configure the chroma key settings. Each source in a shot can have its own chroma key settings.

Additional Properties Enables you to set any additional properties for a source in your shot: System Device properties, Screen Display properties, Twitch Widgets (Chat and Followers), Text properties, etc.

Shot Layers Tab

The Shot Layers tab lists all of the sources in the shot. You can add sources by clicking the plus (+) button, or delete a sources by select selecting it and clicking the minus (-) button. You can also reorder the sources in the list by selecting a source then clicking the up or down arrow to move it. Additionally, you can toggle (on or off) the visibility of a source by clicking the eye icon, or toggle the source audio by clicking the speaker icon.

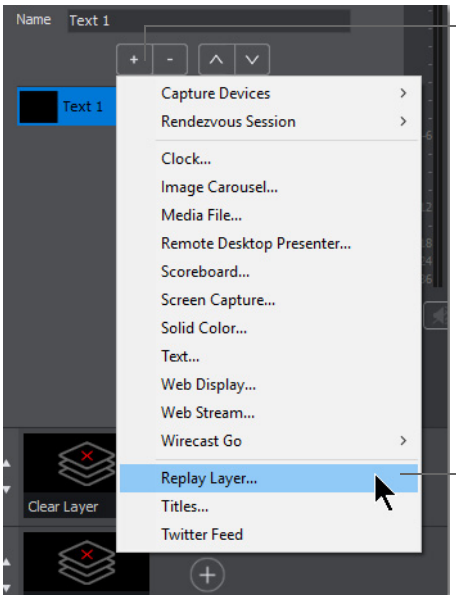


Replay Layer

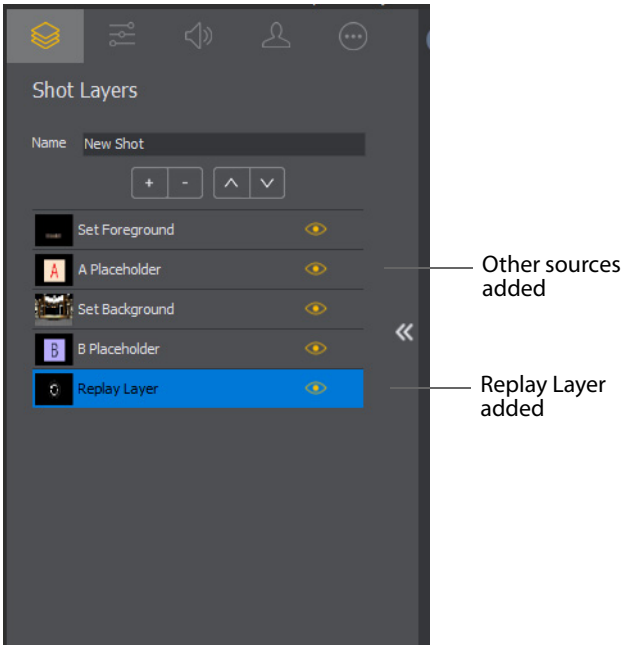
The Replay Layer is a placeholder layer that can be added to any Shot for the purpose of creating a Replay Template Shot. Once the Shot is selected in the Replay Settings it can be used as a template for any created Replay Shot.

To configure and use a Replay Layer, follow these steps:

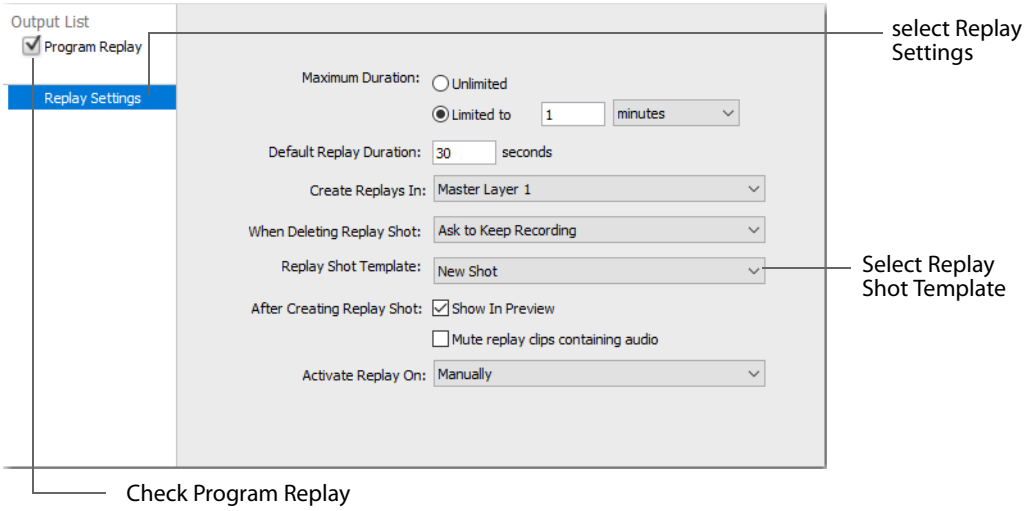
1. Create a new shot, then click the plus (+) button and select *Replay Layer* to add a source.



2. Add additional graphics, titles or other sources to the shot as needed.

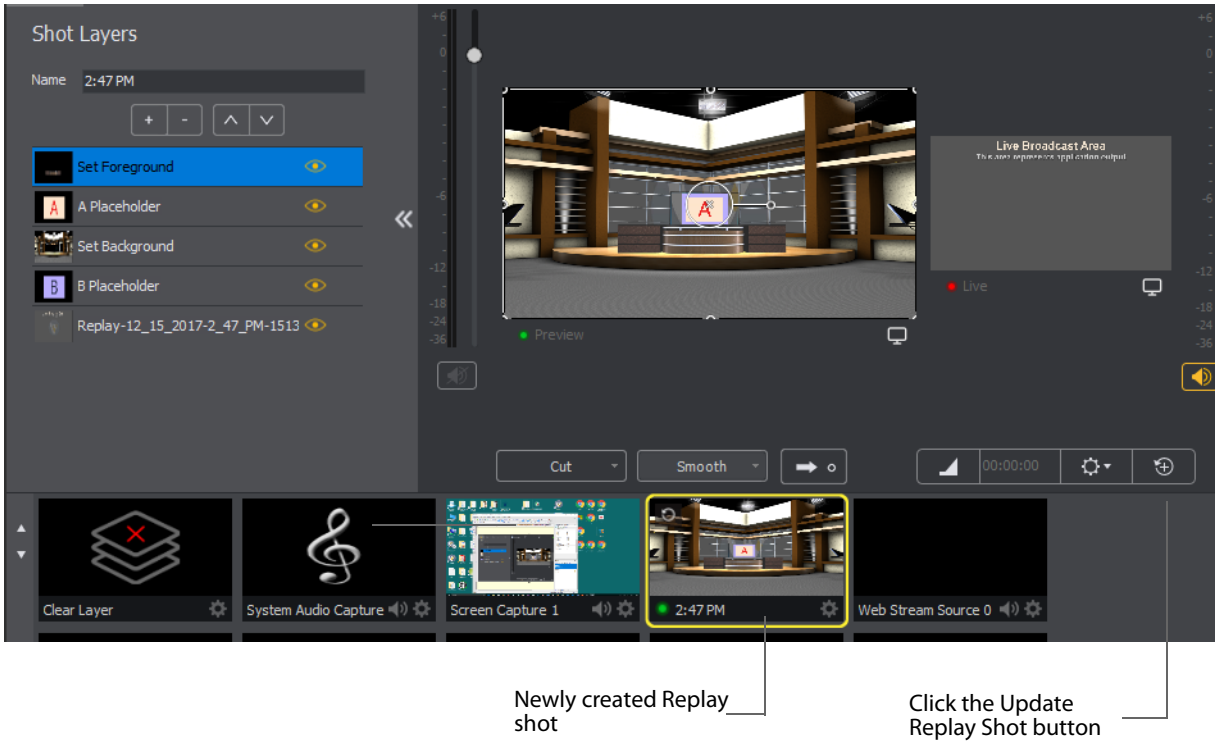


3. Select *Replay+ISO* > *Configure*, then select *Replay Settings*. Select a Replay Shot Template (the newly created shot with Replay Layer), check *Program Replay*, and click *OK*.



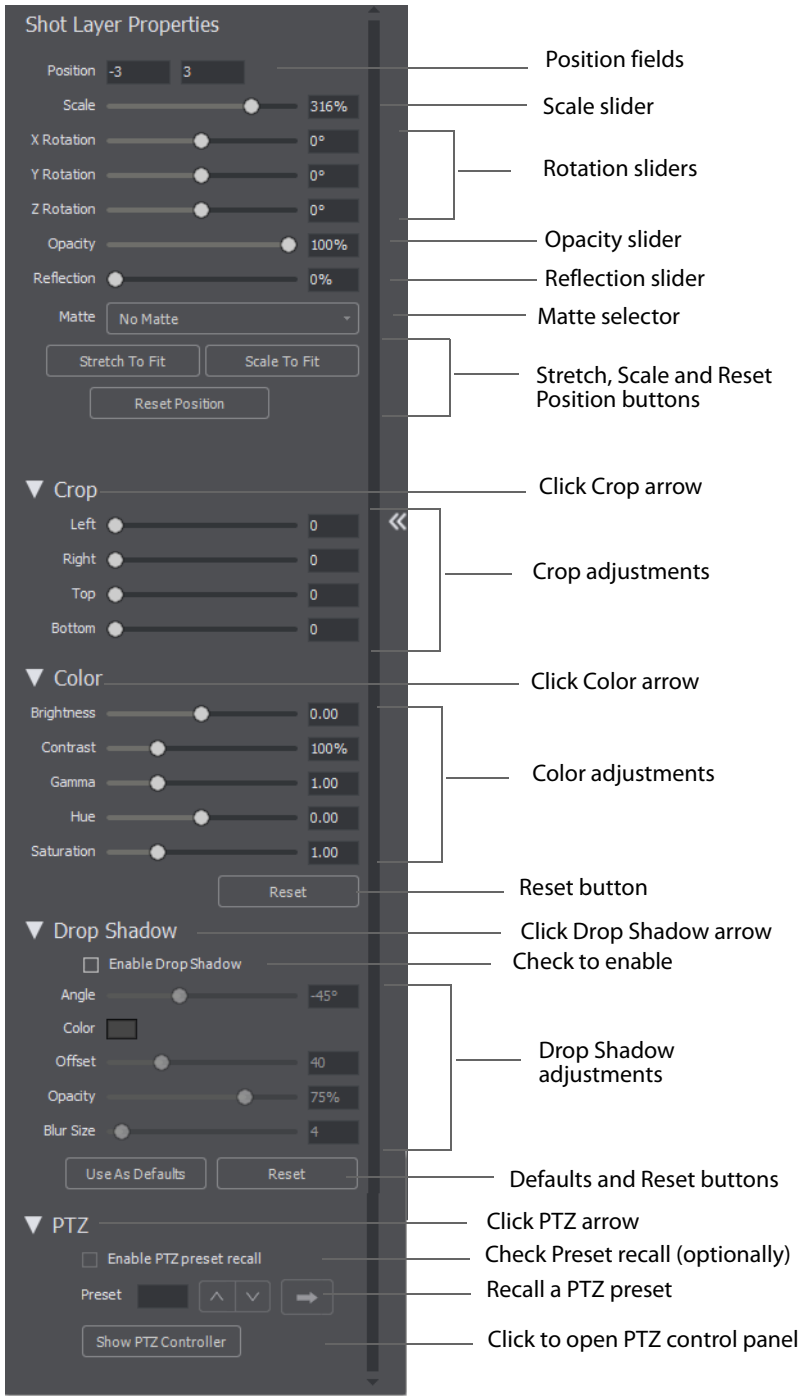
4. Enable the Replay system by selecting R*eplay+ ISO* > *Start All.*

5. Click the Update Replay Shot button to create a Replay shot using the new template.



Shot Layer Properties Tab

The Shot Layer Properties tab enables you to make adjustments to the sources in your shot.



Position Displays the position of the selected source in your shot. Position "0 0" represents the middle of the shot area. To move a source, click and drag it to a new location in the shot.

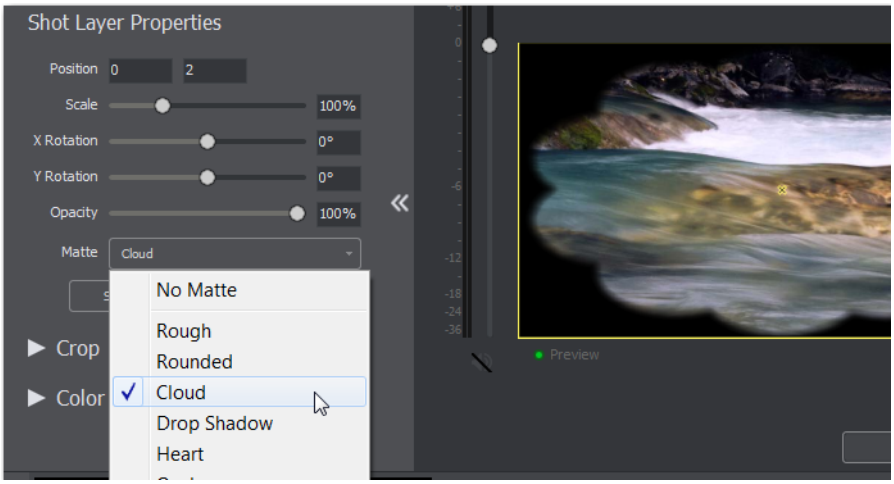
Scale Slide the *Scale* slider to change the size of your source. (See also *Scale To Fit* below).

X Y Z Rotation Slide the X (Horizontal), Y (Vertical), or Z (Straight-through) axis sliders to rotate the source. (See also *Reset Position* below).

Opacity Slide the Opacity slider to adjust the degree of transparency of your image.

Reflection Slide the Reflection slider to adjust the degree of reflection below your image.

Matte A Matte is the boarder around a shot. Select a matte to be used by clicking the down-arrow on the Matte menu. Default is *No Matte*. You can also use any media file as a *custom* matte. To do this, create a new shot of the media file you want to use as a matte. This file now appears in the Matte drop-down menu where you can select it.



Stretch to Fit Click the *Stretch to Fit* button to stretch the source to expand to its maximum size in the shot. This may distort the display of the source.

Scale to Fit Click the *Scale to Fit* button to force the source to expand to its maximum size in the shot.

Reset Position Click the *Reset Position* button to force the source to return to its original size (scale) and rotation positions.

Crop Click the Crop triangle to open the cropping adjustment pane. Slide the Left, Right, Top, and Bottom sliders to crop your source image.

Color Click the Color triangle to open the color adjustment pane. Slide the color controls to adjust the color.

Reset Click the *Reset* button to reset the color controls to their default settings.

Drop Shadow Click the Drop Shadow triangle to open the Drop Shadow adjustment pane. Check the checkbox to enable the controls.

- **Angle** Move the slider to change the angle of the Drop Shadow.
- **Color** Click in the color field to open the color palette. Select a shadow color and luminance by sliding the vertical and horizontal sliders. Click outside the color edit box to close the palette.
- **Offset** Move the Offset slider to adjust the direction (0 to 360 degrees) the shadow text is offset from the actual text.
- **Opacity** Slide the Opacity slider to adjust the degree of transparency of your source.
- **Blur Size** Move the slider to adjust the amount of blur in the drop shadow.

Use As Defaults Click to set the current drop shadow configuration as the default setting. All future enabled drop shadows will be set this by default. Clicking this button does not retroactively update previously created shots. Drop shadow settings on individual shots can still be changed.

Reset Click to restore the drop shadow settings back to the default values. You can also restore the drop shadow settings to Wirecast application defaults by holding the Shift key down and clicking *Reset*.

PTZ Click the PTZ triangle to open the PTZ control panel.

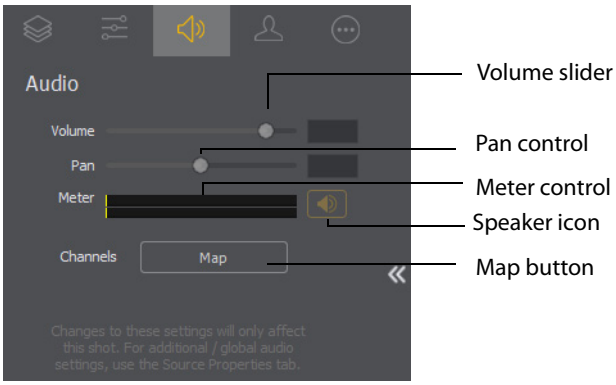
Enable PTZ Preset Recall Check the checkbox to enable the PTZ recall controls.

Preset Click the up and down arrows to find a PTZ preset to recall, then click the Right Pointing Arrow button to recall the preset.

Show PTZ Controller Click to display the PTZ Controller panel. (See *PTZ Controller*).

Audio Properties Tab

The Audio Properties tab enables you to control and monitor audio. You can set the audio level, mute and monitor the audio, and map channel outputs.



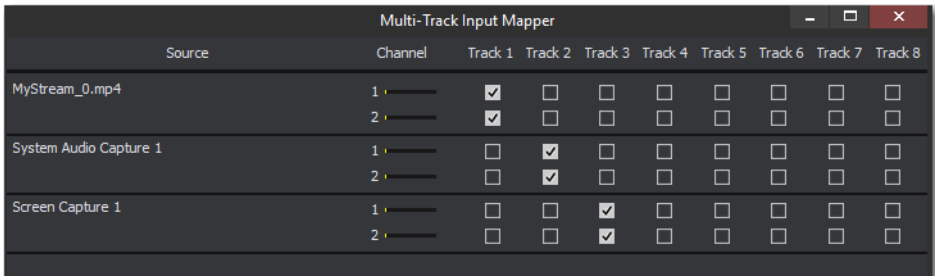
Volume Adjust the slider to set the audio volume level.

Pan Adjust the slider to pan between left and right audio.

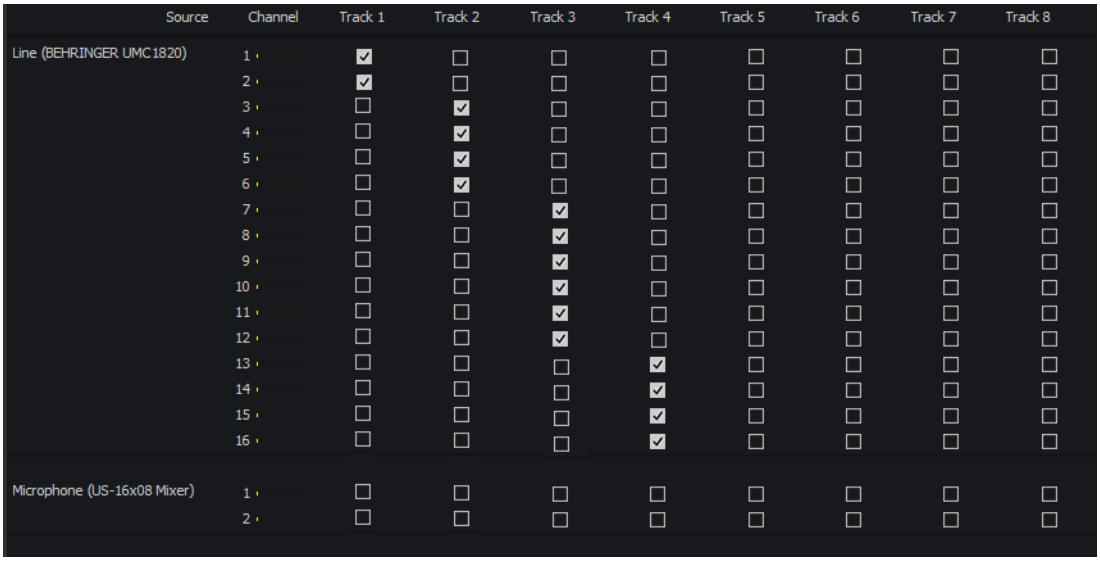
Meter Monitors the audio level. You can also mute the audio by clicking the audio icon.

Speaker Click to mute the audio output. Icon turns gray when muted. Click the icon again to un-mute the audio.

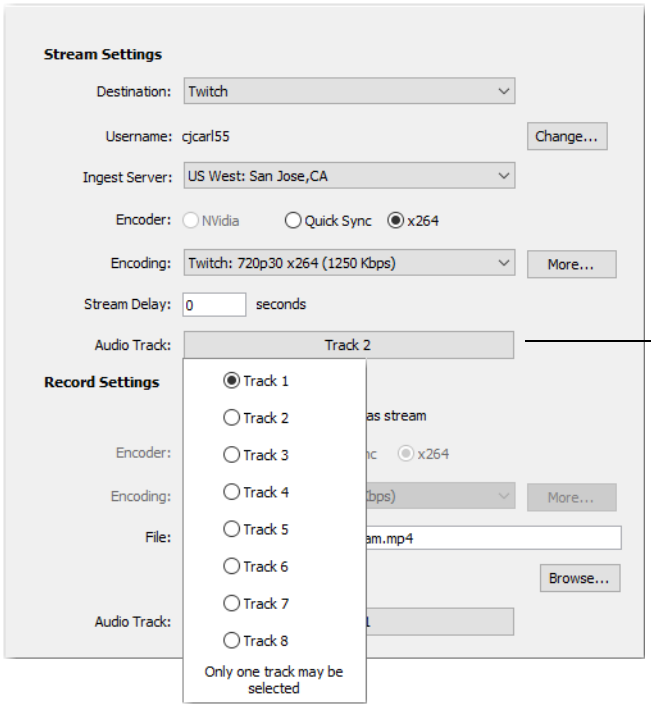
Map Click to open the audio mapping window. Check a square to map an audio channel to an audio track. Any audio can be tracked to any or all tracks. However, you will typically assign a group of channels to one track and other groups to other tracks.



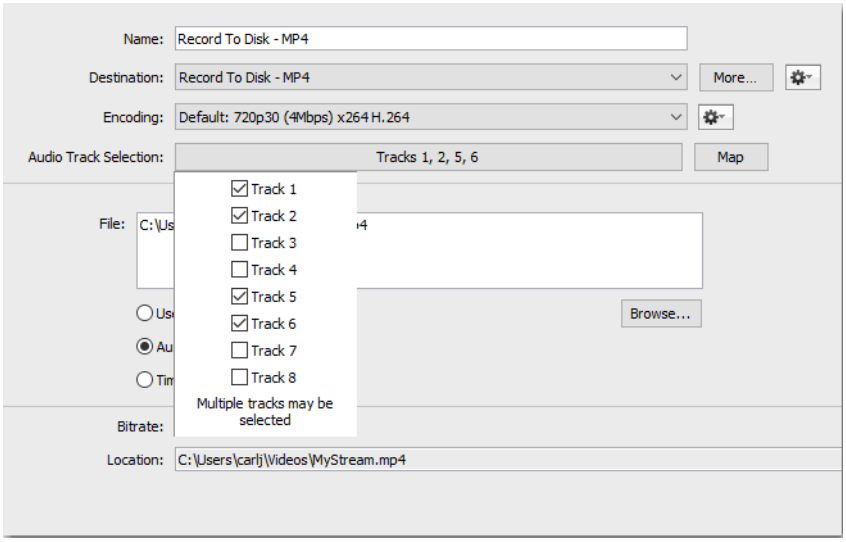
If you have created a shot using a 16 input device, the mapping window will display all 16 channels.



The audio track that is actually used is selected from the Audio Track menu in the Output Settings window. Unlike recording (below), only one track can be selected.



If you are recording, you can select multiple audio tracks.

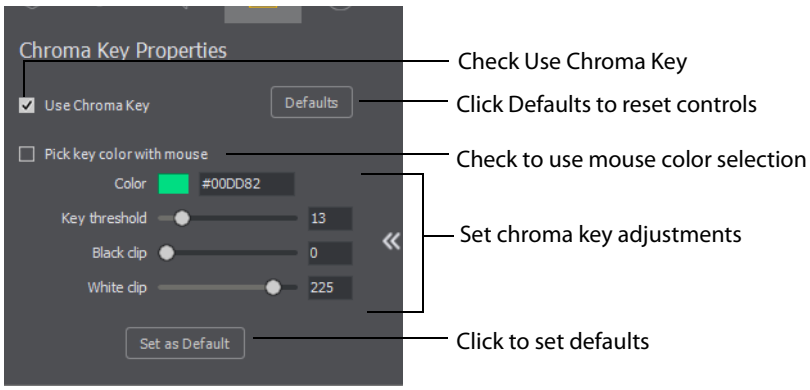


Chroma Key Properties Tab

Chrome Key (also called “green screen”) enables you to replace all green areas of your display (or any other color you choose) with a background image. For example, if you

are in front of the traditional green screen, by "keying out" the green and leaving the background transparent, you will appear to be in front of your background.

The Chroma Key Properties tab enables you to turn on/off chroma keying and make chroma key adjustments.



Use Chroma Key Check to turn on chroma keying. Uncheck to turn it off. Click the Defaults button to reset all Chroma Key controls.

Pick key color with mouse Check to use your mouse to select a chroma key color. Hover over the a desired color in the selected source, and click the left mouse button to select that color. All adjustments will be made using the selected color as the key.

Color Click the color square to open the Color Pallet. Select a color to use as the chroma key color and click OK.

Key Threshold Slide the *Key Threshold* slider to adjust the amount of keying in your source.

Black Clip Slide the *Black Clip* slider to adjust the black threshold level (how much black is used in keying).

White Clip Slide the *White Clip* slider to adjust the white threshold level (how much white is used in keying).

Set As Default Click to set the current Chroma Key configuration as the default setting. All future Chroma Keys will be set this by default. Clicking this button does not retroactively update previously created shots. Chroma Key settings on individual shots can still be changed.

Additional Properties Tab

The Additional Properties tab provides various adjustments to your selected source, depending on the kind of source selected. There are many kinds of sources: System Devices, Screen Captures, Web Displays, Scoreboards, etc.

Capture Devices Properties

Capture Device enables you to capture just the audio of the output. Capture Devices have a variety of settings. To open a Capture Device source, select *Capture Devices* from the source menu in the shot window.

RealTek Example

Here is an example of a Realtek High microphone array.

Source Name Displays the name of the source. To change the source name, enter a new one.

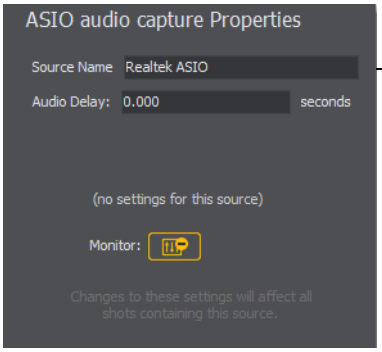
Audio Delay Enter the amount of time (in seconds, as short as 1 ms) to delay the audio signal to sync it up with a video source.

Monitor Click the *Monitor* icon to cause audio to play through your monitor output. The icon is gold when selected (turned on). If unselected, audio will not play through the monitor output for this source. Selected is the default.

NDI™ Sources

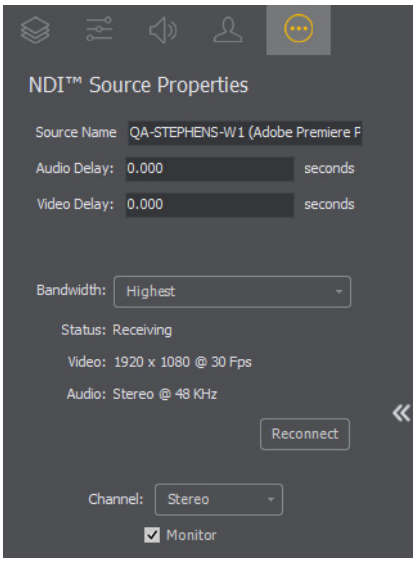
Any NewTek NDI™ sources on your local network will be discovered by Wirecast and listed as an NDI™ Source under Capture Devices in the Source Input Menu.

Adding an NDI™ source will create a new shot for that source.



New NDI source

If you have selected an NDI™ source, the NDI™ Source Properties tab will display. In addition to the controls above, an NDI™ source has the following controls.



Video Delay Enter the amount of time (in seconds, as short as 1 ms) to delay video.

Bandwidth Select the bandwidth to use: *Highest* (max quality), *Lowest* (max efficiency), or *Audio Only* (video bandwidth not applicable).

Reconnect Click to reconnect the NDI™ source.

Channel Select *Stereo, Left,* or *Right* to determine the audio source for both channels. *Stereo* sends the left audio source to the left channel and the right audio source to the right channel. *Left* sends the left audio source to the both channels (left and right). *Right* sends the right audio source to the both channels (left and right).

Monitor Check the *Monitor* check box to cause audio to play through your monitor output. If the check box is unchecked, audio will not play through the monitor output for this source. Checked is the default.

Note: NDI™ networking requires that your network has port 5353 open for mDNS device discovery, as well as one port per video channel (starting from port 5960 and onward) transmitted by an NDI™ source, plus one additional port for messaging.

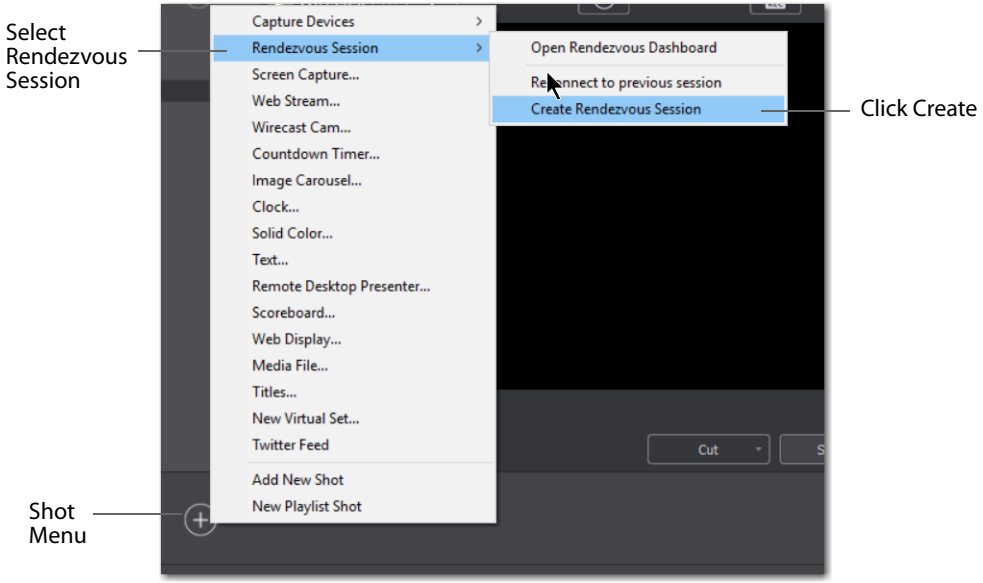
Rendezvous Properties

Rendezvous provides an easy way to organize a video conference with up to two guests in Wirecast *Studio*, and up to seven guests in Wirecast *Pro*. You can bring in live video feeds from a computer or smart device running a supported web browser, or from iOS devices running the Wirecast Go app.

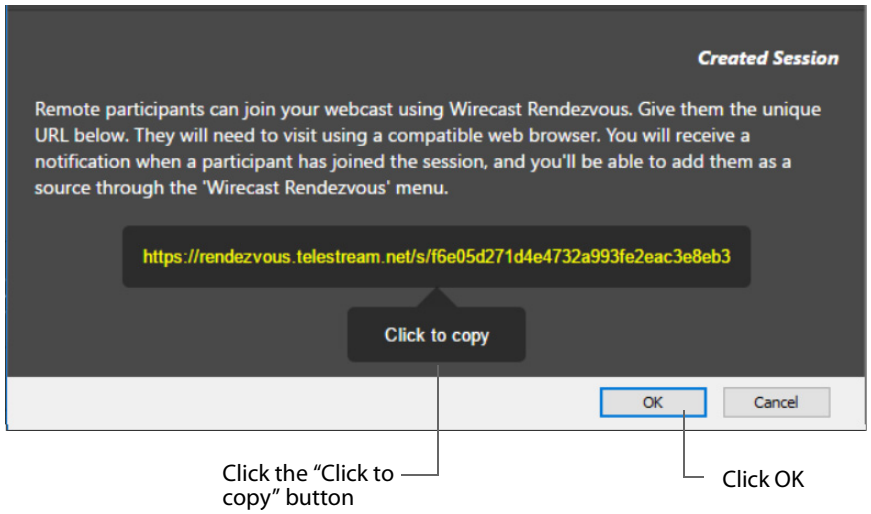
- *Creating a Rendezvous Session*
- *Joining a Rendezvous Session*
- *Adding a Participant Shot*
- *Participant Options*
- *Ending a Rendezvous Session*

Creating a Rendezvous Session

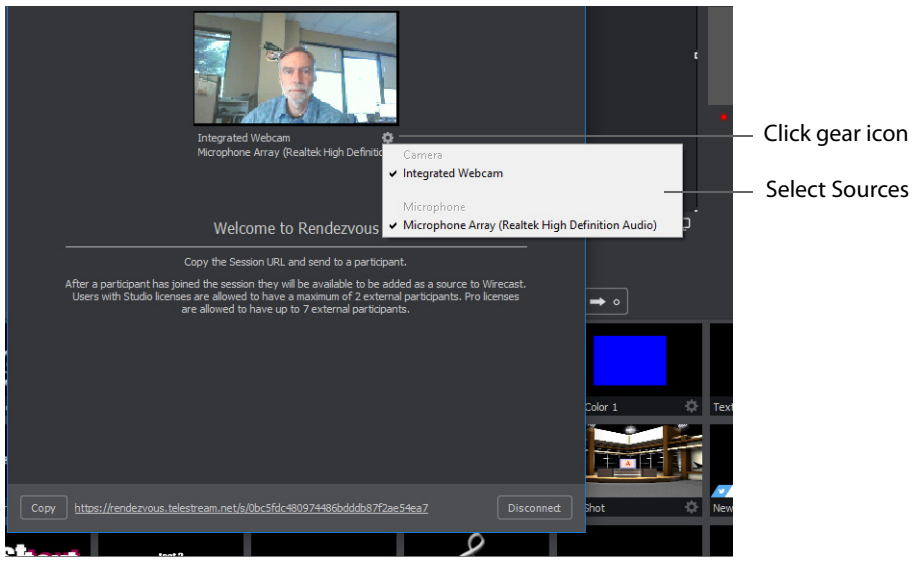
To open a Rendezvous session, select *Rendezvous* from the Shot Menu, then select *Create Rendezvous Session*.



In the Create Session window click on the *Click to Copy* button to copy the Rendezvous URL to the clipboard. Send this URL to the participants that you want to invite to the broadcast. Click *OK* when finished.



When the Rendezvous Dashboard displays, select a local video and audio source by clicking the gear icon. You can also make a copy of the participant URL (if you have not already done so).



Send the session URL (copied above) to your participants and instruct them to use this URL in a browser to join the Rendezvous session you just created.

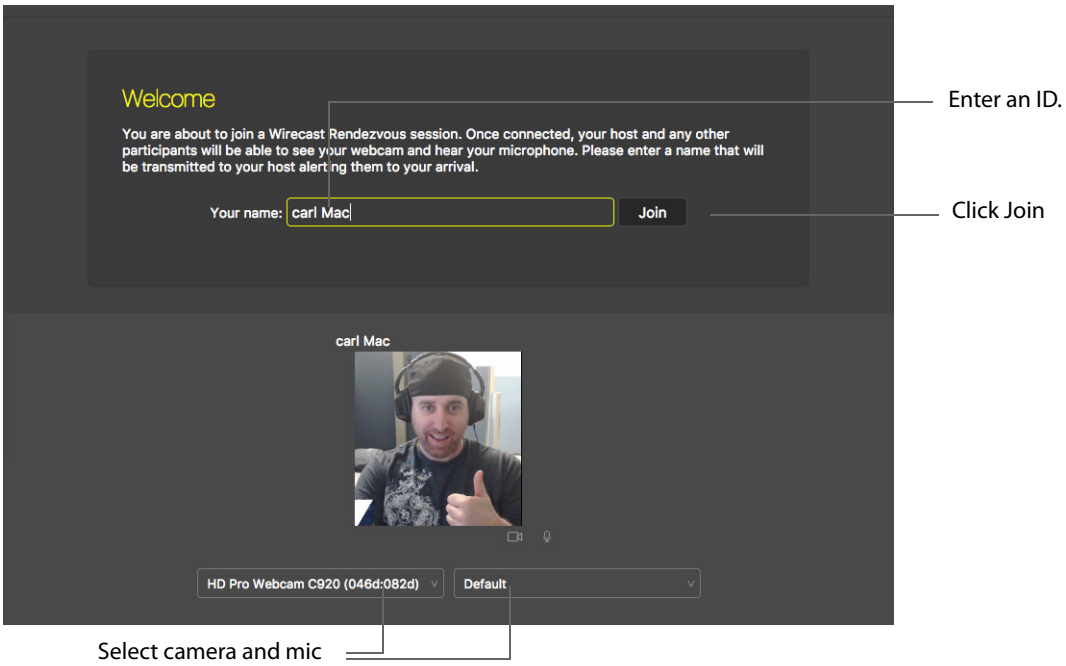
Note: The only browsers supported by Wirecast for joining a Rendezvous session are Chrome and Firefox.

Joining a Rendezvous Session

To join a Rendezvous session on a remote computer (or smart device), paste the obtained URL into a browser and press the Enter key to initiate a connection with Wirecast.

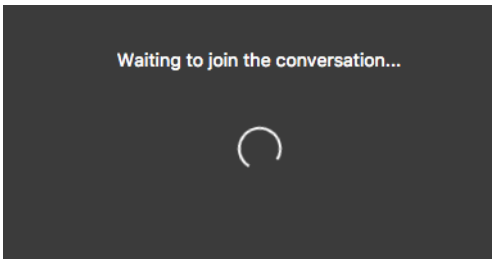
Note: The only browsers supported by Wirecast for joining a Rendezvous session are Chrome and Firefox.

When the Wirecast Rendezvous window appears, select a camera and microphone from the drop-down menus at the bottom of the window (if a camera and mic are not automatically chosen, or if you want to use others that are available). Enter an identification in the Your Name field and click *Join*.



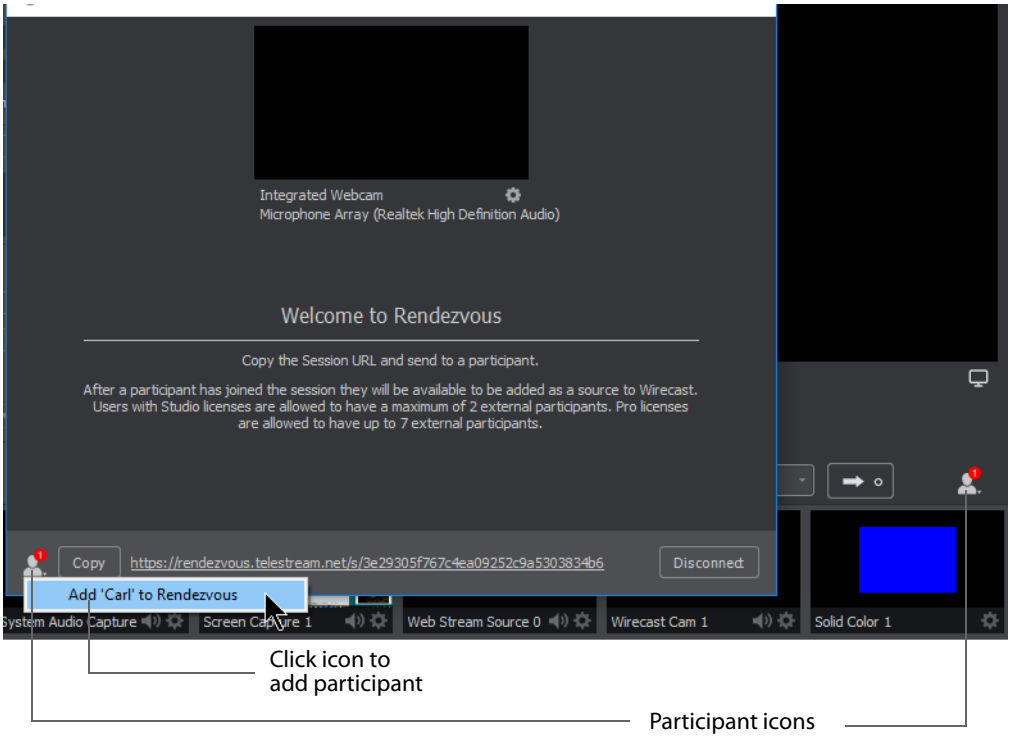
Note: *Wirecast Go,* running on iOS devices, can join a Rendezvous Session by opening the URL. Android devices can join a session by opening a Session URL (sent to them) using a Chrome browser.

After you click Join, the Rendezvous window will display a *Waiting to join* message until the Wirecast host has added you as a participant.



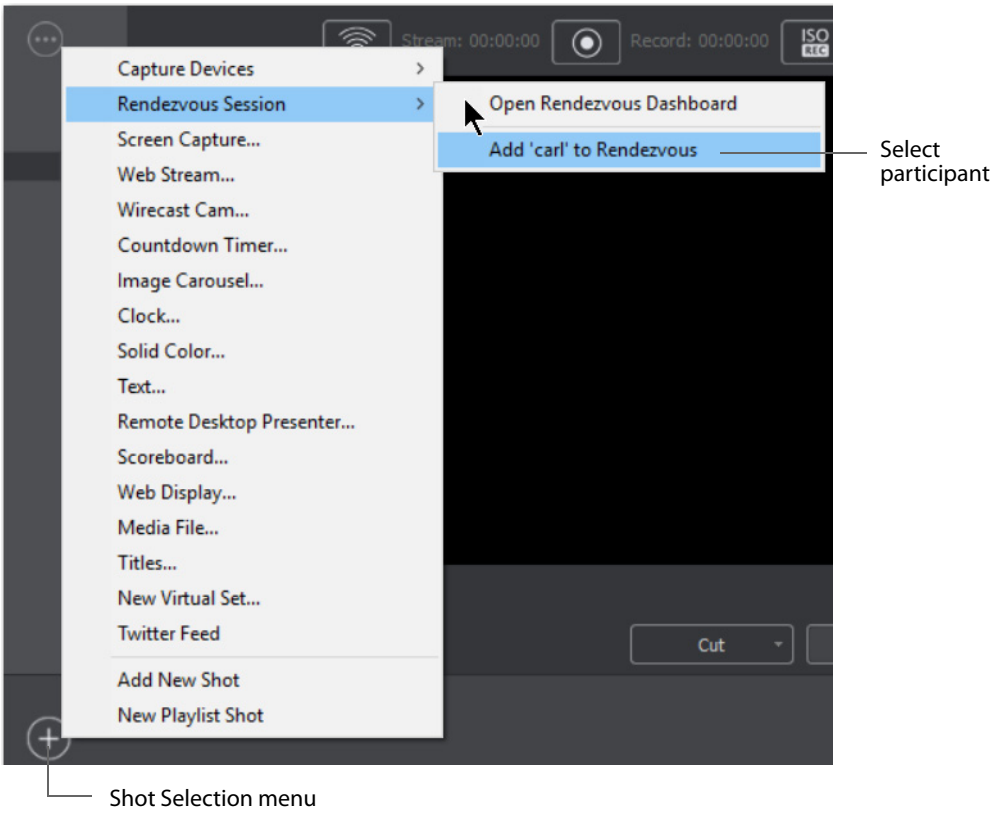
Adding a Participant Shot

Whenever participants are waiting to join the Rendezvous session, a participant icon displays in both the Wirecast Main window and the Rendezvous Dashboard. Click on the icon and select a participant to add it to the session.

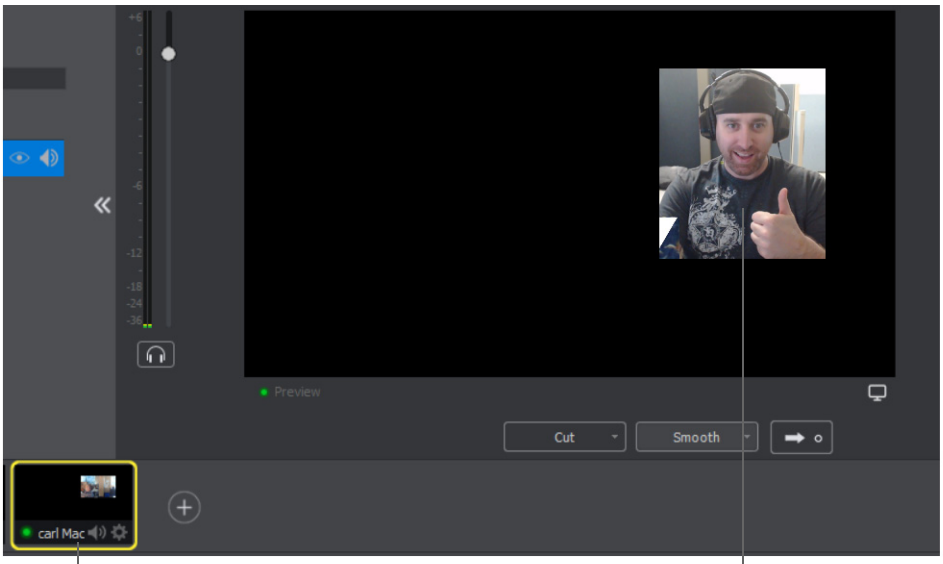


Note: You can skip this step and go directly to creating a shot of a participant, which will automatically add them when the shot is created.

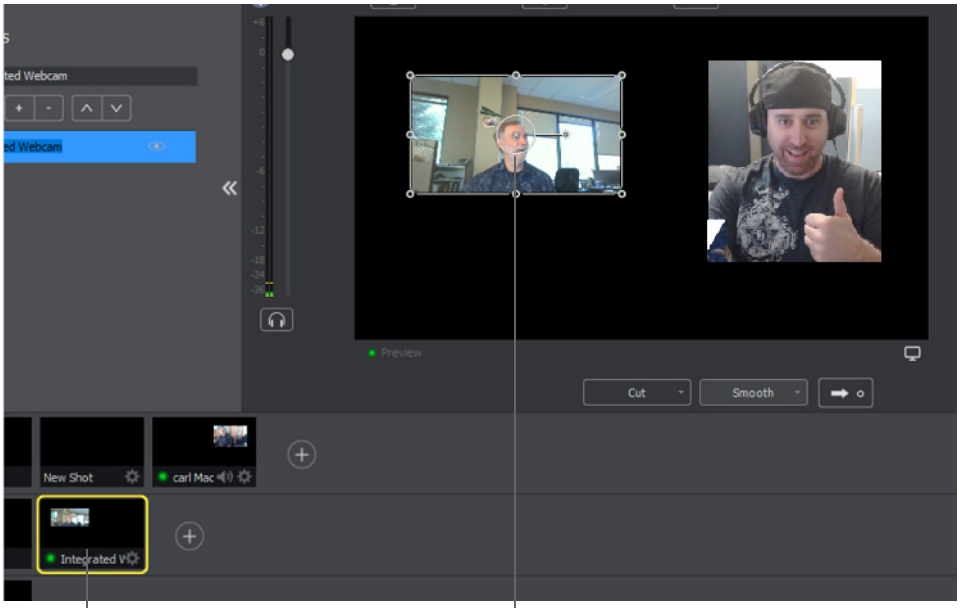
Create a shot of a participant by selecting *Rendezvous Session* > *Add <target ID> to Rendezvous* from the Shot Selection menu. The participant is automatically added when you create this shot.



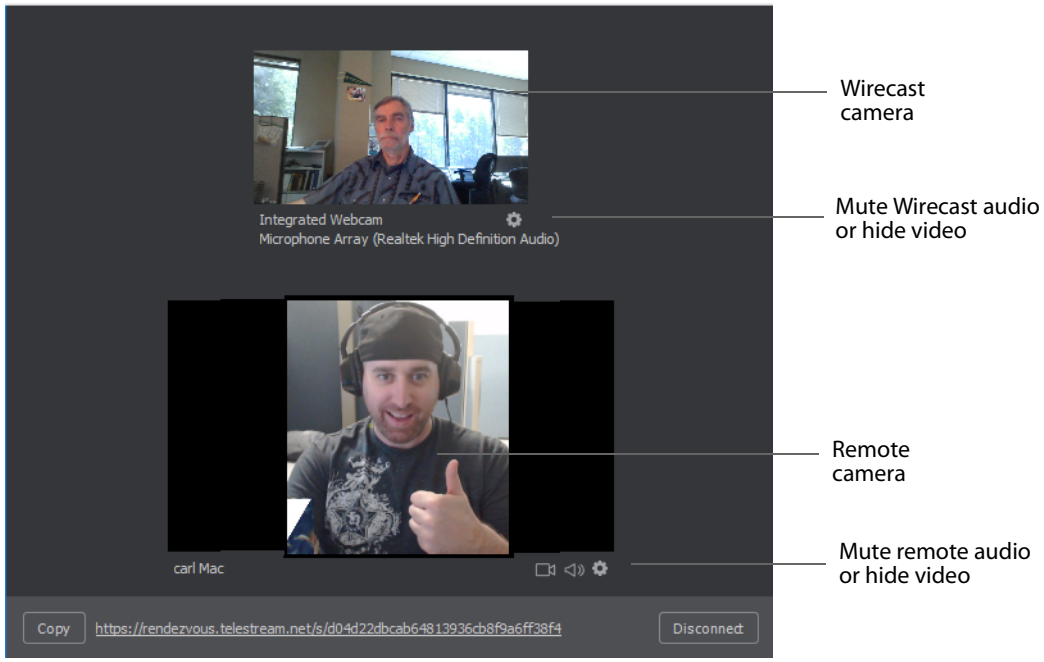
Your new Rendezvous shot will display on the shot level from where it was selected. Select the shot to have it display in the preview window where you can place it and size it as needed.



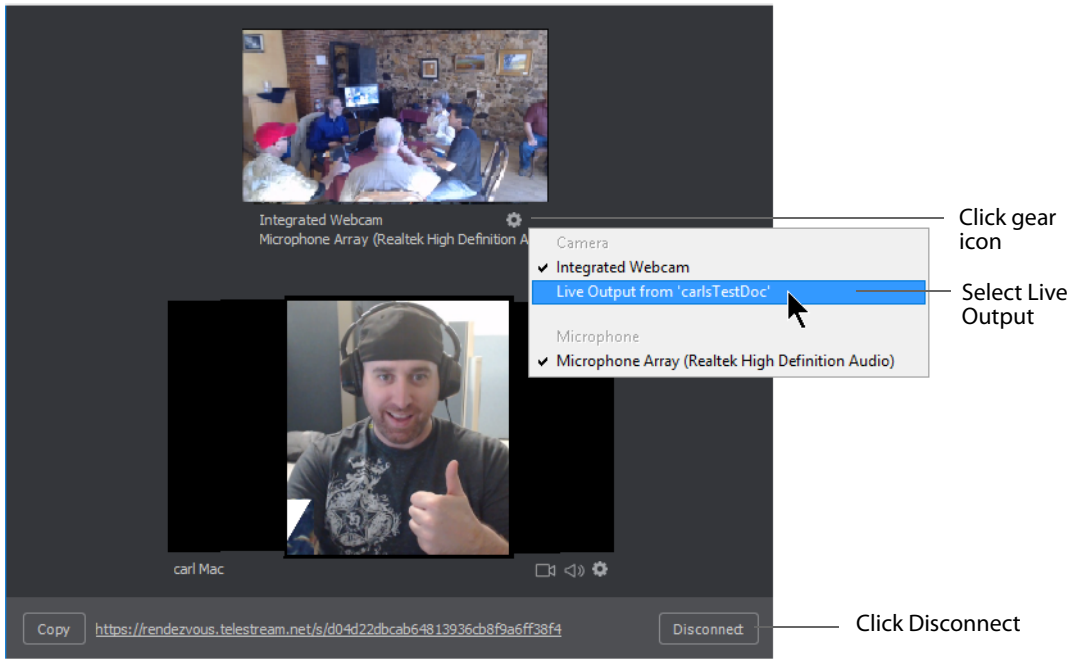
You can also select your local camera and mic as an integrated Webcam shot on another layer and add it to the preview window by selecting it.



From the Rendezvous Dashboard in Wirecast, you can mute audio or hide the camera of your local sources (or of those who have joined).

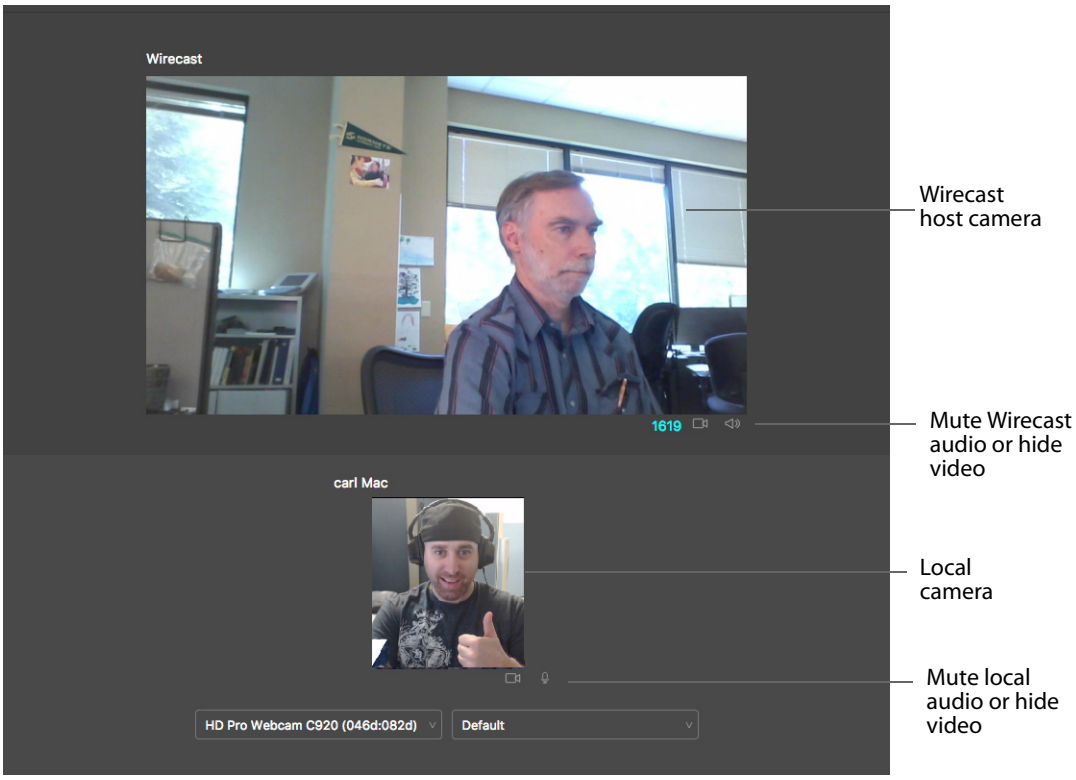


You can also select the Live Broadcast window as your Rendezvous display (instead of your local camera). To do this, click the gear icon and select *Live Output*. To end the Rendezvous session, click *Disconnect*.

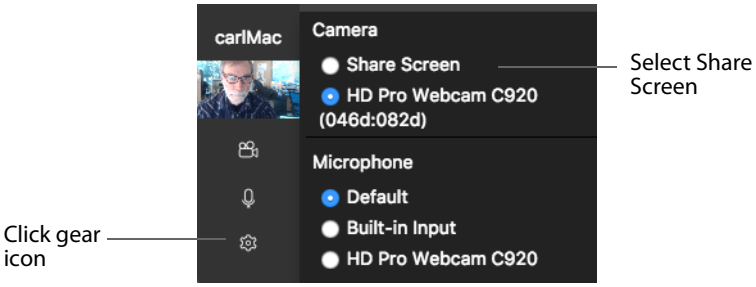


Participant Options

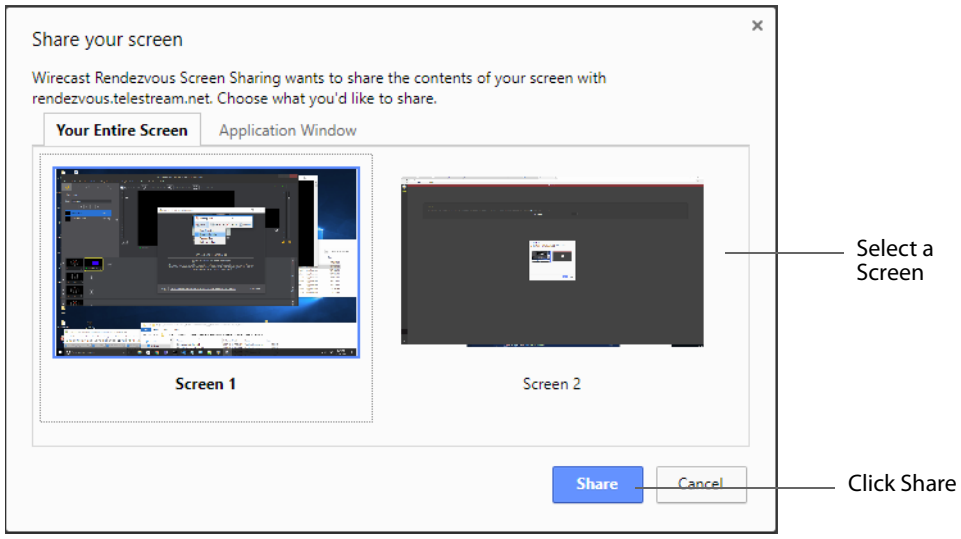
Once you have successfully joined the Rendezvous session, the window will display the camera shot from Wirecast and from your local computer. In this window you can mute the audio or hide video of your resources or those coming from Wirecast.



You can also share your screen (instead of your camera) by Clicking on the gear icon and selecting *Share Screen*.

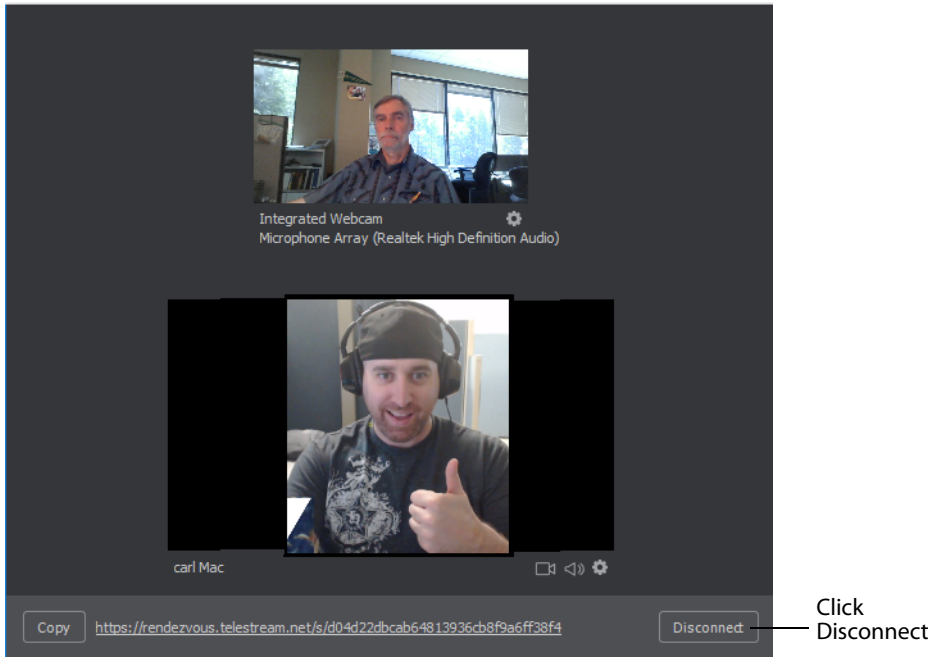


When the Share Screen window displays, select the screen you want to share and click *Share*.

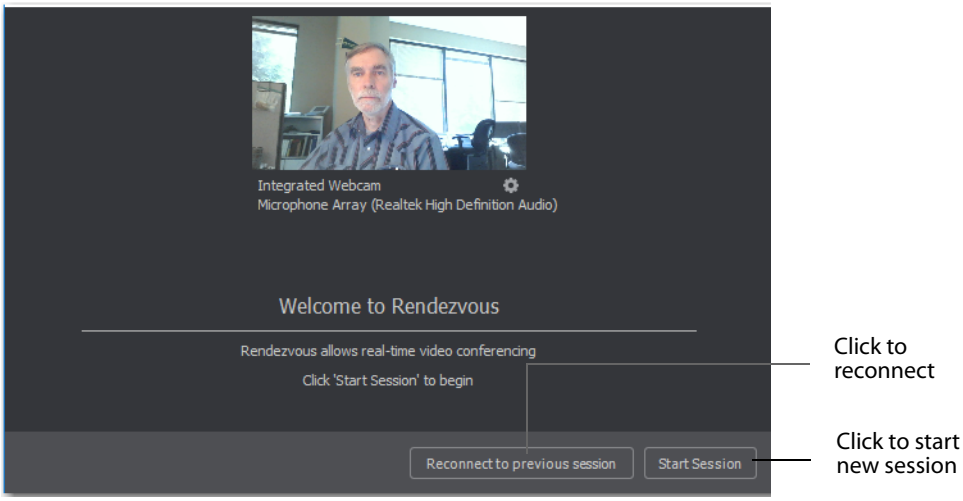


Ending a Rendezvous Session

When you are ready to close your session, click *Stop Session*.

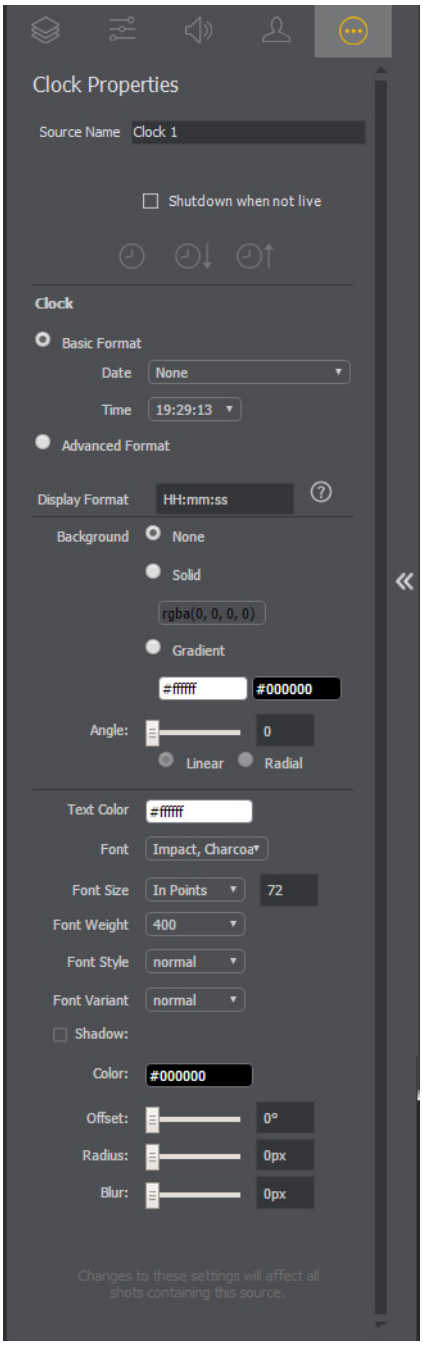


When you disconnect from a Rendezvous session, your camera is removed in the participant's browser and the participant's camera is removed from your local session window. To reconnect to the previous session click *Reconnect to previous session*. When you do this, everything is restored as long as the remote browsers are still open. If a remote browser has been closed, it can still reconnect by re-joining, using the same URL that was used previously. You can also start a new session by clicking *Start Session*, but you will have to copy and send a new URL to all potential participants.



Clock Properties

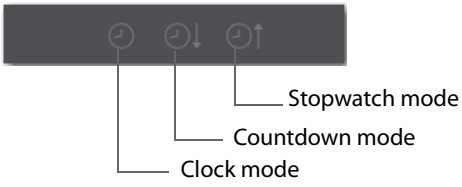
A Clock shot displays time. Clock Properties have the following settings.



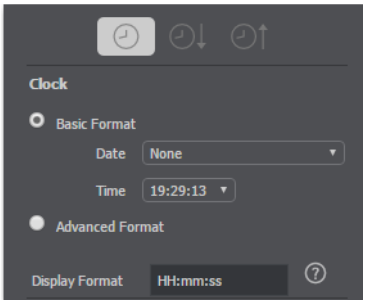
Source Name Displays the name of the source. To change the source name, enter a new one.

Shutdown Check to force the clock to shutdown when not live.

Clock Modes Select Clock, Countdown, or Stopwatch.

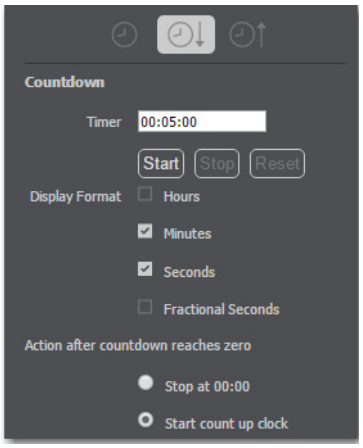


Clock Mode:



- **Basic** Select *Basic* for basic clock functionality. Select Date and Time display formats from the drop-down menus. (Display Format window is disabled).
- **Advanced** Select *Advanced* to enter a custom hour-minute-second format. Enter custom time format into Display Format window. Click question mark ("?") icon to display custom format types.

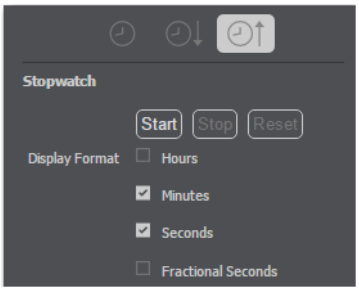
Countdown Mode:



- **Timer** Enter the time value from which to start counting.
- **Start, Stop, Reset** Click *Start* to begin counting down. Click *Stop* to end counting down. Click *Reset* to reset clock to Timer value.
- **Display Format** Select time elements to display: Hours, Minutes, Seconds, and Fractional Seconds.

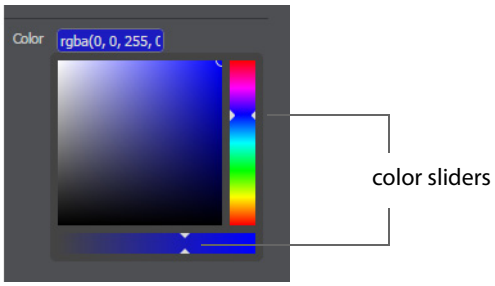
- **Action After** Select *Stop at 00:00* to prohibit count up mode. Select *Start count up clock* to cause clock to start counting up after count down is finished.

Stopwatch Mode:



- **Start, Stop, Reset** Click *Start* to begin counting. Click *Stop* to end counting. Click *Reset* to reset stopwatch to zero.
- **Display Format** Select time elements to display: Hours, Minutes, Seconds, and Fractional Seconds.

Background Select *Solid* and click in the color field to open the color palette. Select a color and luminance by sliding the vertical and horizontal sliders. Click outside the color edit box to close the palette.



Select *Gradient* and click in the color field to select a new background gradient color from the palette.

Angle When Gradient is selected, the Angle slider is activated. Move the slider to change the angle of the gradient display. Select also *Linear* (line) or *Radial* (circle) to change the shape of the gradient display.

Text Color Click the box to open the color selection panel. Select a new text color from the palette.

Font Select the desired font used for your messages. If you select Web Font, a Web Font field will display below. You can also select any of the fonts installed on your computer.

Font Size Select the type of font size: points, small, medium, large, etc. If *In Points* is selected, a box to enter font size (in points) is displayed.

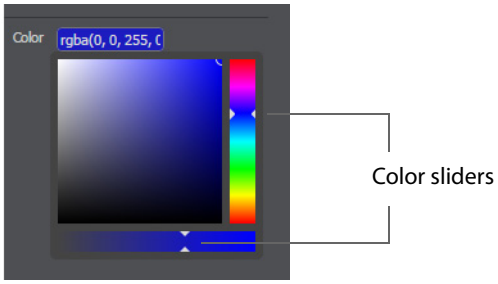
Font Weight Select the font weight: 100 to 900.

Font Style Enter the font style: Normal, Italic, or Oblique.

Font Variant Select a font variant: N*ormal* (capital and small characters displayed normally), or *Small-caps* (Capitals with small letters displayed as small capital letters).

Shadow Check to activate the text shadow slider controls.

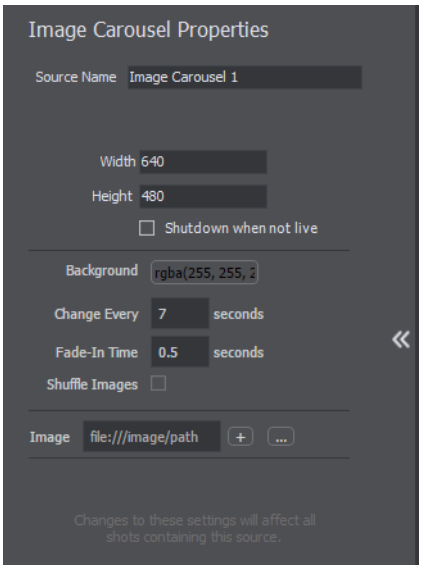
- **Color** Click in the color field to open the color palette. Select a shadow color and luminance by sliding the vertical and horizontal sliders. Click outside the color edit box to close the palette.



- **Offset** Move the Offset slider to adjust the direction (0 to 360 degrees) the shadow text is offset from the actual text.
- **Radius** Move the Radial slider to adjust the distance the shadow text is offset away from the actual text.
- **Blur** Move the Blur slider to adjust the amount of blur in the shadow text

Image Carousel Properties

An Image Carousel shot shows a sequence of images. Image Carousel Properties have the following settings.



Source Name Displays the name of the source. To change the source name, enter a new one.

Width/Height Displays the width and height of the display source. To change the width or height, enter a new value.

Change Every Sets how often the images are changed, in seconds.

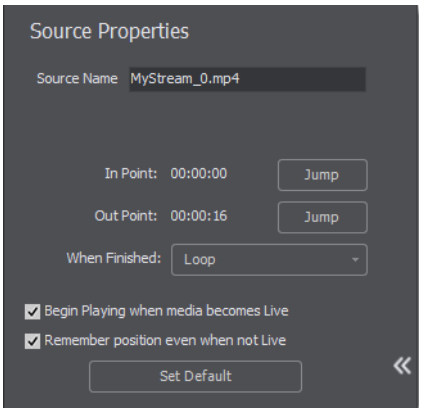
Fade-In Time Sets how long it takes for each image to fade in, in seconds. Enter zero for instantaneous display of images.

Shuffle Images Check to shuffle the display order of the images. When unchecked, images are displayed as they are ordered in the image list.

Image Displays Carousel images in a list. Click the plus (+) icon to add an image to the list. To remove an image, click the "X" to the right of the image on the list. You can also click the browse button (...) to navigate to an image to add.

Media File Properties

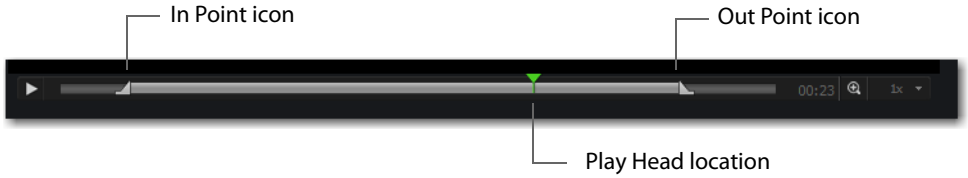
A Media File is a video clip or a picture. To open a Media File source, select *Media File* from the source menu in the shot window. Media Files have the following settings.



Source Name Displays the name of the source. To change the source name, enter a new one.

In Point Click *Jump* to move the play head to the In Point in the media file. The In Point is set by dragging the In Point icon to the desired beginning position on the play bar.

Out Point Click *Jump* to move the play head to the Out Point in the media file. The Out Point is set by dragging the Out Point icon to the desired ending position on the play bar. The green triangle is the current location of the Play Head.



When Finished Select what happens when the media finishes playing. *Loop* causes the media to begin playing again. *Hold* cause the media to stop and hold the last frame in

the Live window. *Remove* causes the media to be removed from the Live window when it finishes playing.

Begin playing when media becomes Live When checked, the media begins playing as soon as it is made Live.

Remember position even when not Live When checked, the media will always start playing where ever it was playing when it was stopped, even if it was removed from the Live window and made Live again. When unchecked, the media will start from the beginning every time it is taken Live.

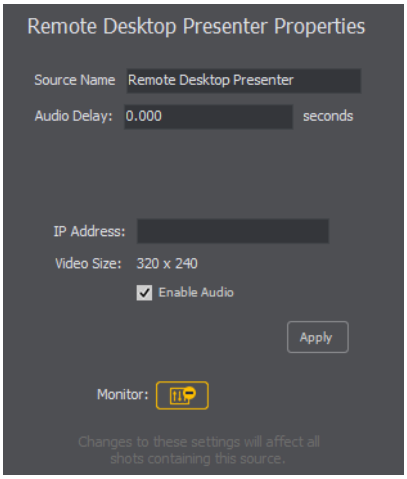
Set Default Click to set the media display to default settings.

Remote Desktop Presenter Properties

The Remote Desktop Presenter (RDTP) is a utility application that enables Wirecast to broadcast the desktop of any computer running the Telestream Desktop Presenter program. To open a Remote Desktop Presenter source, select *Remote Desktop Presenter* from the source menu in the shot window.

Desktop Presenter is normally auto-detected by Wirecast and is automatically added to the list of sources. However, if a RDTP is not detected, or if you want to add one in a remote location you can manually add it by selecting *New Remote Desktop Presenter* from the Source menu in the Main window.

Remote Desktop Presenter Properties have the following settings.



Source Name Displays the name of the source. To change the Source Name, enter a new one.

Audio Delay Enter the amount of time (in seconds, as short as 1 ms) to delay audio.

IP Address Enter an IP address of the target computer.

Enable Audio When checked, the audio from the remote desktop is enabled.

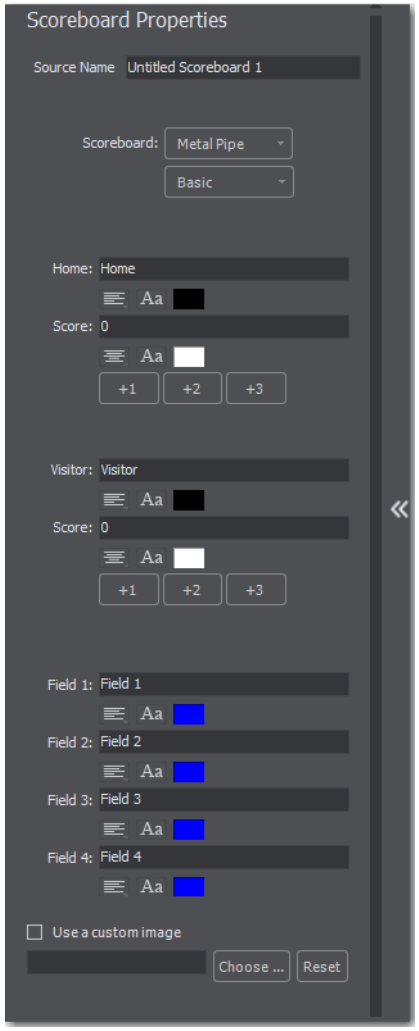
Apply Click the Apply button to update any changes.

Monitor Click the *Monitor* icon to cause audio to play through your monitor output. The icon is gold when selected (turned on). If unselected, audio will not play through the monitor output for this source. Selected is the default.

Scoreboard Properties

Scoreboards allow you to add a scoreboard graphic to your broadcast that can be dynamically updated. Multiple scoreboards can be added. Unlike most other elements in Wirecast, changes to the Scoreboard go live instantly without requiring a transition. Once the scoreboard is live, the preview image is exactly as it is seen in your broadcast. To open a Scoreboard source, select *Scoreboard* from the source menu in the shot window.

Scoreboards Properties have the following settings.



Source Name Displays the name of the source. To change the Source Name, enter a new one.

Scoreboard Select how the scoreboard will look using two drop-down menus. The upper menu selects the scoreboard style: Pipe, Shade, Corner, etc. The lower menu selects how the display fields are laid out: Basic, Right Stats, or Bottom.

Home/Visitor/Score The Home, Visitor, and Score fields contain the home and visitor team names and their current score. The three icons to the right of these fields control the text alignment, font size, and font color. Click on each icon to open its control window.

BG Color Sets the background color for the Home or Visitor field display. Click the color icon to open the control window.

+1, +2, +3 Click these score increment buttons to increase the Home or Visitor score display.

Field 1-4 Displays information inside the scoreboard depending on the layout chosen using the Scoreboard menus. The three icons to the right of these fields control the text alignment, font size, and font color. Click on each icon to open its control window.

Use a Custom Image Check to enable the *Choose* button.

Choose Click to navigate to the location of your custom image.

Reset Click to remove a custom image.

Note: Because Wirecast updates the scoreboards dynamically, It is recommended that you fill in the additional information fields while using a layout that hides them. Then, change to a layout that reveals those fields when ready, otherwise your viewers see you typing in those fields live.

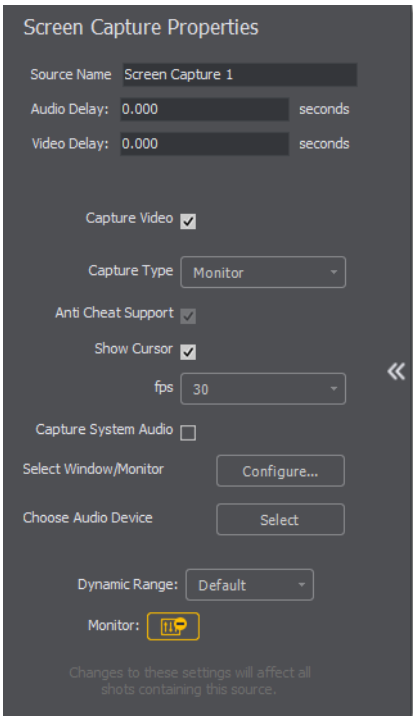
There are four hotkeys associated with the Scoreboard.

=	Increments Home score
-	Decrements Home score
]	Increments Visitor score
[	Decrements Visitor score

In order for these hotkeys to be active, the scoreboard must be displayed in the Live window and the Wirecast main window must be in focus (selected as the active Windows window).

Screen Capture Properties

A Screen Capture displays any monitor or window on your computer. To open a Screen Capture source, select *Screen Capture* from the source menu in the shot window. Screen Captures have the following settings.



Source Name Displays the name of the source. To change the source name, enter a new one.

Audio Delay Enter the amount of time (in seconds, as short as 1 ms) to delay audio.

Video Delay Enter the amount of time (in seconds, as short as 1 ms) to delay video.

Capture Video Check to enable Capture Type, Show Cursor, and fps settings (described below).

Capture Type Select *Monitor* (captures your entire monitor), *Window* (captures the currently selected window), or *Game* (captures the game currently played on your PC). If you select *Game*, you can also configure how your game is captured by selecting options offered under Select Window/Monitor (described below).

Anti Cheat Support Enables anti-cheating support for game capture.

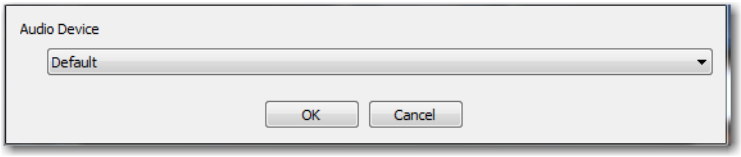
Show Cursor Check to show the cursor in your streaming. Uncheck to hide it.

fps Select the FPS, from 10 to 60 frames per second as the capture rate. An FPS of 60 is the best frame rate, but it requires greater streaming bandwidth.

Capture System Audio Check to capture system audio when streaming. Uncheck to mute the audio.

– **Select Window/Monitor** Click the *Configure* button to display the *Select Window* dialog.

Choose Audio Device Click the *Configure* button to display the *Select Audio Device* dialog, then select an audio device from the drop-down menu.



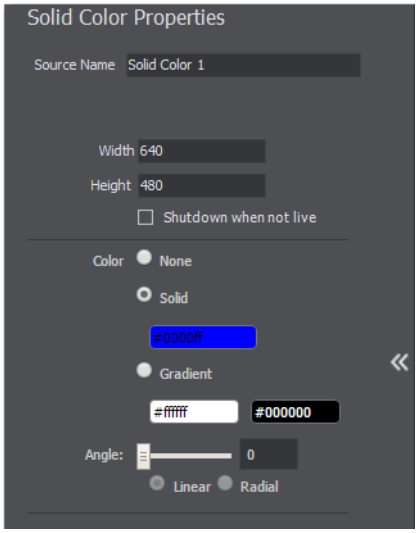
Note: Some apps, when screen captured, take control of your mouse and the cursor is not displayed. You can, at any time, press command + Tab keys to reduce the capture window size and enable you to use your mouse.

Dynamic Range Select dynamic range setting: Default, Full or Limited.

Monitor Click the *Monitor* icon to cause audio to play through your monitor output. The icon is gold when selected (turned on). If unselected, audio will not play through the monitor output for this source. Selected is the default.

Solid Color Properties

Solid Color displays a solid color background. To open a Solid Color source, select *Solid Color* from the source menu in the shot window. Solid Color Properties have the following settings.

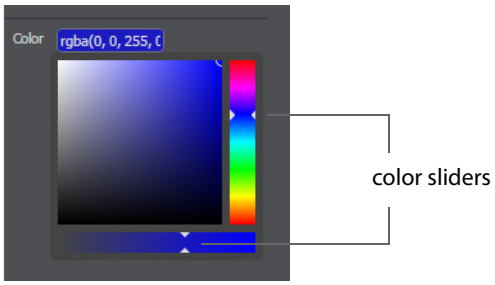


Source Name Displays the name of the source. To change the Source Name, enter a new one.

Video Delay Enter the amount of time (in seconds, as short as 1 ms) to delay video.

Width/Height Displays the width and height of the display source. To change the width or height, enter a new value.

Color Select *Solid* and click in the color field to open the color palette. Select a color and luminance by sliding the vertical and horizontal sliders. Click outside the color edit box to close the palette.

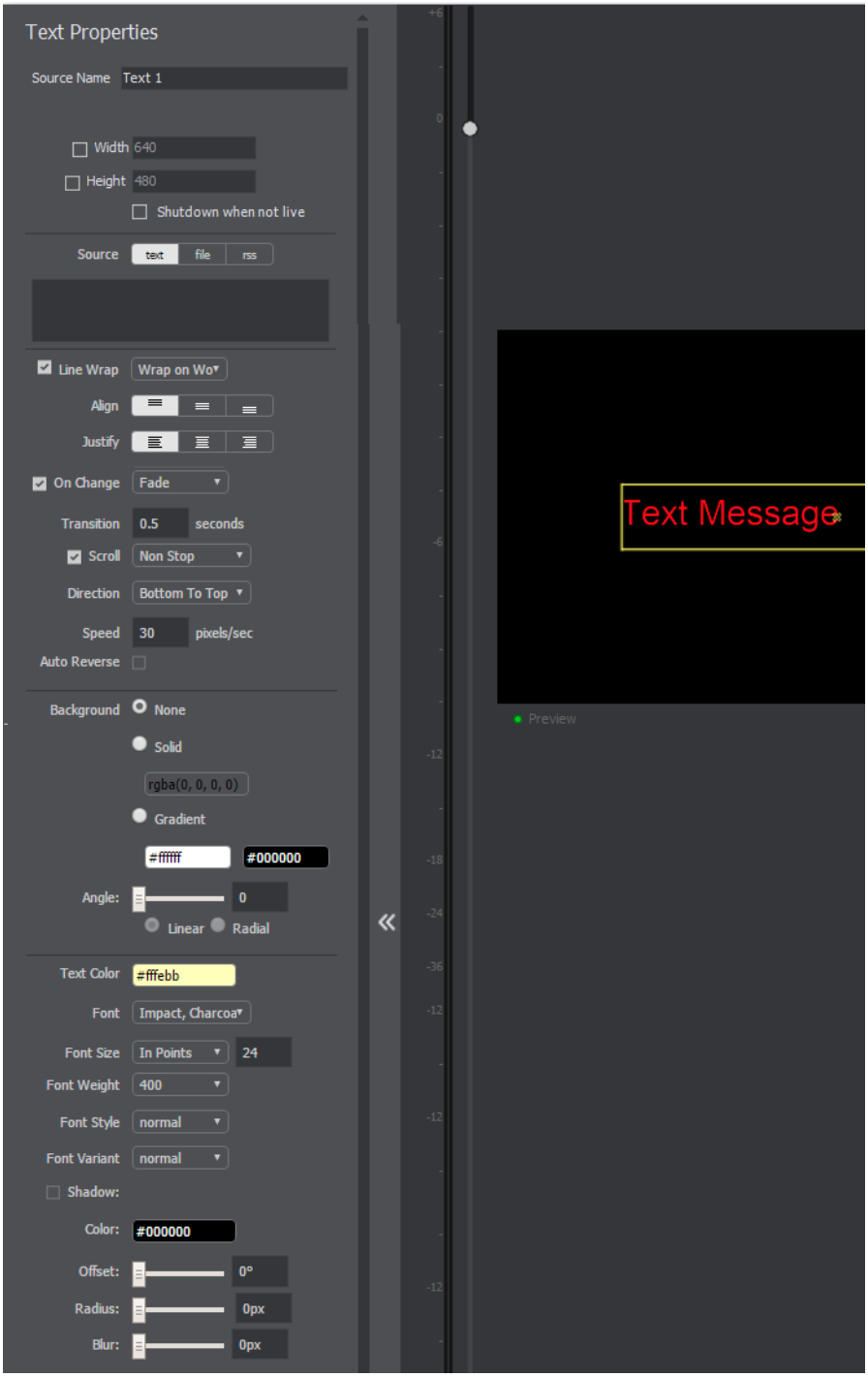


Select *Gradient* and click in the color field to select a new background gradient color from the palette.

Angle When Gradient is selected, the Angle slider is activated. Move the slider to change the angle of the gradient display. Select also *Linear* (line) or *Radial* (circle) to change the shape of the gradient display.

Text Shot Properties

Text displays a text phrase. To open a Text source, select *Text* from the source menu in the shot window. Text Properties have the following settings.



Source Name Displays the name of the source. To change the Source Name, enter a new one.

Width/Height Displays the width and height of the display source. To change the width or height, enter a new value.

Shutdown Check to cause the text to not be displayed until the shot is place into the Live window.

Source Select the source of your text: *Text* (directly entered) or *File* (navigate to a text file), or *RSS* (ticker tape RSS feed). If you select *Text*, enter your text in the text box below the source selector. If you select *File*, enter a file name in the File Path box displayed, or click the navigation button (three dots) and find your text file. The text from your file will be automatically displayed. The file has to contain UTF-8 encoded text in order for it to be rendered correctly. Only the first 64KB of the text file will be loaded and displayed. If you select *RSS*, enter a URL in the URL box displayed.

Line Wrap When checked, the displayed text wraps around to the next line to fit into the window as it is resized. Select wrap mode from the drop-down menu: *Wrap on Word* or *Break Word*.

Align Enables you to align the text at the top, middle, or bottom of the display.

Justify Enables you to justify the text along the left, center, or right side of the display.

On Change When checked, a transition menu is displayed offering a choice of transition types: Fade, Drop In, Drop Out, and Slide. Transitions occur when text is changed.

Transition Enter the length (in seconds) of the transition time. (This field is displayed only when the *On Change* box is checked.)

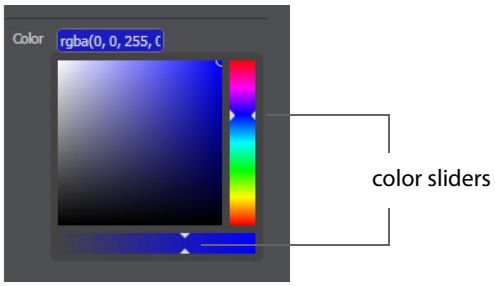
Scroll When Scroll is checked, you can enter both a scroll mode and a direction. There are two scroll modes: *Non Stop a*nd I*f it Does Not Fit*.

Direction Select the direction of the scrolling: Top to Bottom, Bottom to Top, Left to Right, or Right to Left. This field is displayed only when the *Scroll* box is checked

Speed When Scroll is checked, enter the speed (in pixels per second) that you want your message to scroll through the display.

Auto Reverse When checked, the display reverses the scrolling direction when it reaches the top or bottom of the list.

Background Select *Solid* and click in the color field to open the color palette. Select a color and luminance by sliding the vertical and horizontal sliders. Click outside the color edit box to close the palette.



Select *Gradient* and click in the color field to select a new background gradient color from the palette.

Angle When Gradient is selected, the Angle slider is activated. Move the slider to change the angle of the gradient display. Select also *Linear* (line) or *Radial* (circle) to change the shape of the gradient display.

Text Color Click the box to open the color selection panel. Select a new text color from the palette.

Font Select the desired font used for your messages. If you select Web Font, a Web Font field will display below. You can also select any of the fonts installed on your computer.

Font Size Select the type of font size: points, small, medium, large, etc. If *In Points* is selected, a box to enter font size (in points) is displayed.

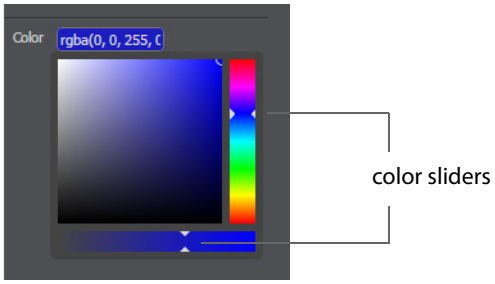
Font Weight Select the font weight: 100 to 900.

Font Style Enter the font style: Normal, Italic, or Oblique.

Font Variant Select a font variant: N*ormal* (capital and small characters displayed normally), or *Small-caps* (Capitals with small letters displayed as small capital letters).

Shadow Check to activate the text shadow slider controls.

Color Click in the color field to open the color palette. Select a shadow color and luminance by sliding the vertical and horizontal sliders. Click outside the color edit box to close the palette.



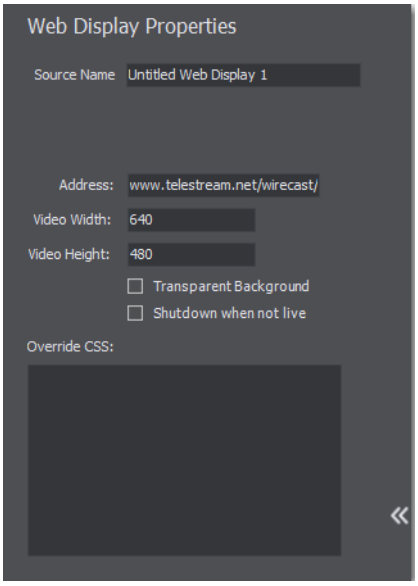
Offset Move the Offset slider to adjust the direction (0 to 360 degrees) the shadow text is offset from the actual text.

Radius Move the Radial slider to adjust the distance the shadow text is offset away from the actual text.

Blur Move the Blur slider to adjust the amount of blur in the shadow text

Web Display Properties

Web Displays show a web source defined by a web address (URL). To open a Web Display source, select *Web Display* from the source menu in the shot window. Web Display Properties have the following settings.



Source Name Displays the name of the source. To change the source name, enter a new one.

Address Displays the web address (URL) of the source. To change the address, enter a new one.

Width/Height Displays the width and height of the display source. To change the width or height, enter a new value.

Transparent Background Check to make the background transparent in your shot.

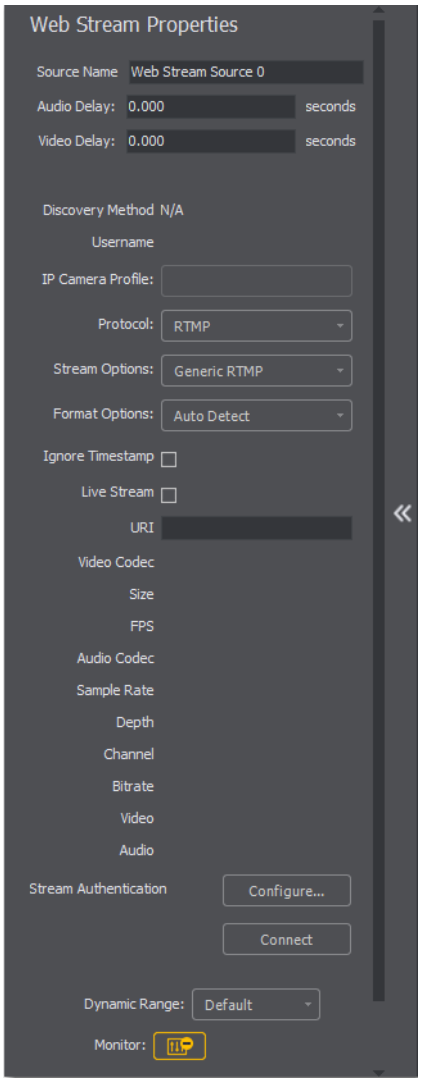
Shutdown when inactive Check to turn off the audio and disable it from the shot when playing videos.

Override CSS Enter Cascading Style Sheet code to override the default code for this web display.

Web Stream Properties

The Web Stream option allows RTMP, RTSP, MMS, or HTTP streams to be taken directly into Wirecast. This is useful for incorporating remote IP Cameras or other network streams into a broadcast. Sources are automatically detected and are also identified as *IP Camera Profile* or *Bonjour* detection. To open a Web Stream source, select *Web Stream* from the source menu in the shot window.

Web Stream Properties have the following settings.



Source Name Displays the name of the source. To change the Source Name, enter a new one.

Audio Delay Enter the amount of time (in seconds, as short as 1 ms) to delay audio.

Video Delay Enter the amount of time (in seconds, as short as 1 ms) to delay video.

IP Camera Profile Select a device profile for a network camera. (Only some network cameras provide this).

Protocol Select the protocol to use with your incoming stream.

Stream Options Select a set of options based on the protocol you selected (the sub-protocol of the stream). RTSP can be transmitted over UDP, TCP, or HTTP. RTMP can be transmitted non-encrypted, over http, encrypted. If unsure what to use, select *Auto Detect*.

Format Options Select a video format to use for transcoding. If you select *Auto Detect* (the default) Wirecast with automatically detect the format to use from the incoming stream.

Ignore Stream Timestamp When checked, stream timestamps are ignored. Every Audio/Video frame has a Presentation timestamp, a time that tells the player when to show the frame. Checking this box causes the Web Stream to ignore the presentation timestamp set by the video stream and just use the current system clock.

Live Stream When checked, specifies that the stream is a live stream and video on demand. For Wowza servers, it does not do anything, but for Adobe Media Servers, Live Stream must be checked for live streams.

URI Enter the address of your input stream. (For example: *rtsp://127.0.0.1:8080/my_stream.sdp*, or *http://10.0.0.1/my_stream, or rtmp://hades.telestream.net:1935/live/myStream*).

Configure Click *Configure* to enter your username and password.

Connect Click *Connect* to connect to your configured Web Stream.

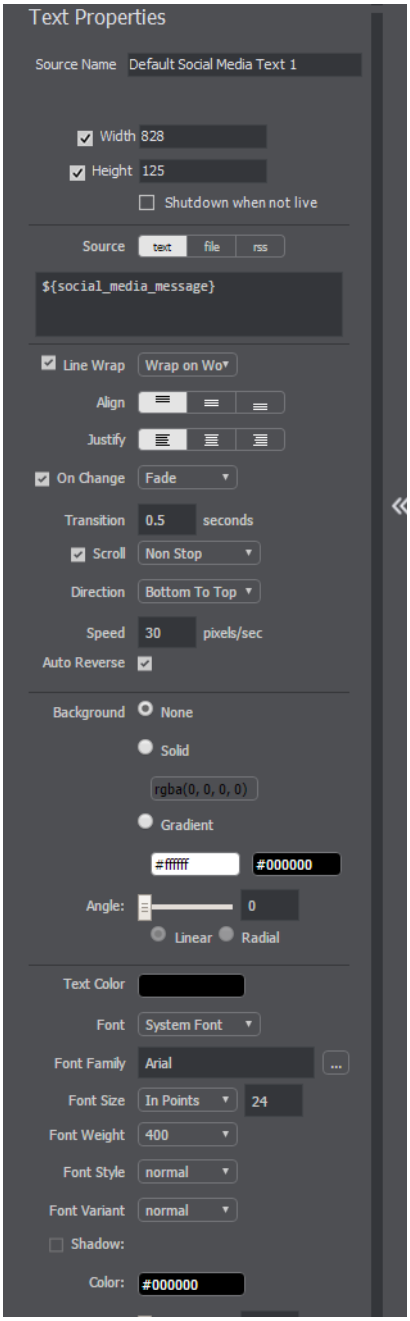
Dynamic Range Select dynamic range setting: Default, Full or Limited.

Monitor Click the *Monitor* icon to cause audio to play through your monitor output. The icon is gold when selected (turned on). If unselected, audio will not play through the monitor output for this source. Selected is the default.

Titles Properties

A Title is a text displayed in a banner window. Wirecast offers a wide variety of title banner templates to use in your streaming. To open a Title source, select *Titles* from the source menu in the shot window.

Titles have the following settings.



Source Name Displays the name of the source. To change the source name, enter a new one.

Width/Height Displays the width and height of the display source. To change the width or height, enter a new value.

Shutdown Check to cause the text to not be displayed until the shot is place into the Live window.

Source Select the source of your text: *Text* (directly entered) or *File* (navigate to a text file), or *RSS* (ticker tape RSS feed). If you select *Text*, enter your text in the text box below the source selector. If you select *File*, enter a file name in the File Path box displayed, or click the navigation button (three dots) and find your text file. The text from your file will be automatically displayed. The file has to contain UTF-8 encoded text in order for it to be rendered correctly. Only the first 64KB of the text file will be loaded and displayed. If you select *RSS*, enter a URL in the URL box displayed.

Line Wrap When checked, the displayed text wraps around to the next line to fit into the window as it is resized. Select wrap mode from the drop-down menu: *Wrap on Word* or *Break Word*.

Align Enables you to align the text at the top, middle, or bottom of the display.

Justify Enables you to justify the text along the left, center, or right side of the display.

On Change When checked, a transition menu is displayed offering a choice of transition types: Fade, Drop In, Drop Out, and Slide. Transitions occur when text is changed.

Transition Enter the length (in seconds) of the transition time. This field is displayed only when the *On Change* box is checked.

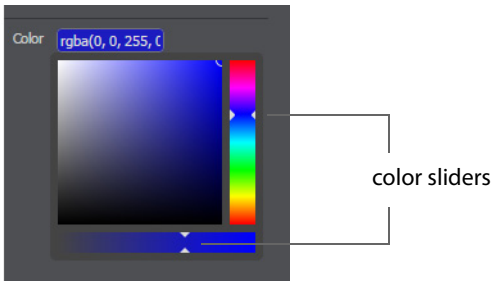
Scroll When Scroll is checked, you can enter both a scroll mode and a direction. There are two scroll modes: *Non Stop a*nd I*f it Does Not Fit*.

Direction Select the direction of the scrolling: Top to Bottom, Bottom to Top, Left to Right, or Right to Left. This field is displayed only when the *Scroll* box is checked

Speed When Scroll is checked, enter the speed (in pixels per second) that you want your message to scroll through the display.

Auto Reverse When checked, the display reverses the scrolling direction when it reaches the top or bottom of the list.

Background Select *Solid* and click in the color field to open the color palette. Select a color and luminance by sliding the vertical and horizontal sliders. Click outside the color edit box to close the palette.



Select *Gradient* and click in the color field to select a new background gradient color from the palette.

Angle When Gradient is selected, the Angle slider is activated. Move the slider to change the angle of the gradient display. Select also *Linear* (line) or *Radial* (circle) to change the shape of the gradient display.

Text Color Click the box to open the color selection panel. Select a new text color from the palette.

Font Select the desired font used for your messages. If you select Web Font, a Web Font field will display below. You can also select any of the fonts installed on your computer.

Font Family Select the style of the font: Arial, Bookman, etc.

Font Size Select the type of font size: points, small, medium, large, etc. If *In Points* is selected, a box to enter font size (in points) is displayed.

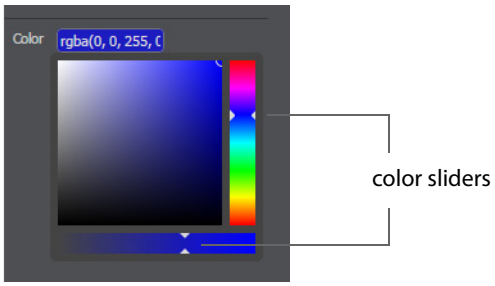
Font Weight Select the font weight: 100 to 900.

Font Style Enter the font style: Normal, Italic, or Oblique.

Font Variant Select a font variant: N*ormal* (capital and small characters displayed normally), or *Small-caps* (Capitals with small letters displayed as small capital letters).

Shadow Check to activate the text shadow slider controls.

Color Click in the color field to open the color palette. Select a shadow color and luminance by sliding the vertical and horizontal sliders. Click outside the color edit box to close the palette.



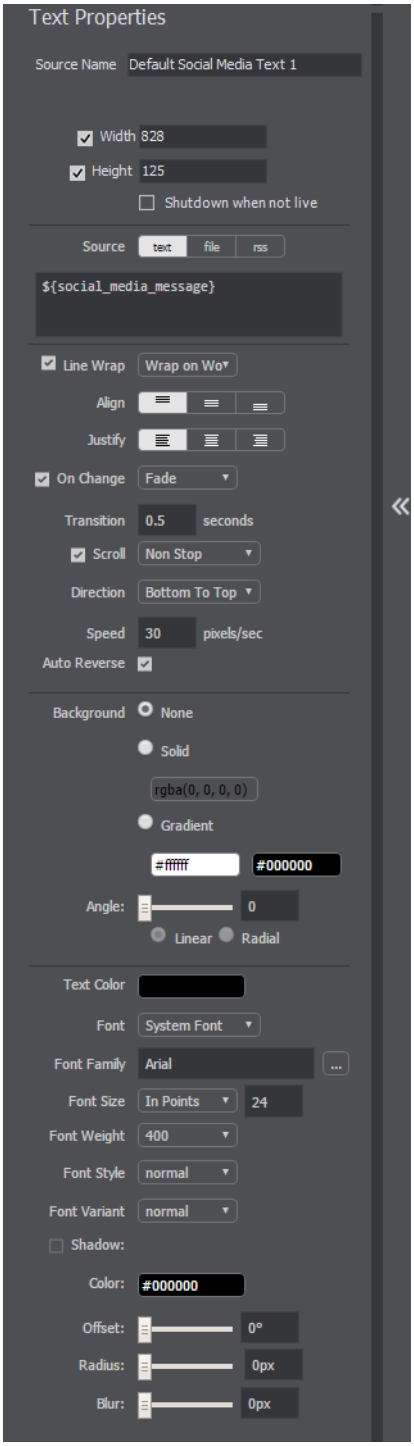
Offset Move the Offset slider to adjust the direction (0 to 360 degrees) the shadow text is offset from the actual text.

Radius Move the Radial slider to adjust the distance the shadow text is offset away from the actual text.

Blur Move the Blur slider to adjust the amount of blur in the shadow text

Twitter Feed Properties

Twitter Feed displays a list of Twitter messages. Twitter Feed Properties have the following settings.



Source Name Displays the name of the source. To change the source name, enter a new one.

Width/Height Displays the width and height of the display source. To change the width or height, enter a new value.

Shutdown Check to cause the text to not be displayed until the shot is place into the Live window.

Source Select the source of your text: *Text* (directly entered) or *File* (navigate to a text file), or *RSS* (ticker tape RSS feed). If you select *Text*, enter your text in the text box below the source selector. If you select *File*, enter a file name in the File Path box displayed, or click the navigation button (three dots) and find your text file. The text from your file will be automatically displayed. The file has to contain UTF-8 encoded text in order for it to be rendered correctly. Only the first 64KB of the text file will be loaded and displayed. If you select *RSS*, enter a URL in the URL box displayed.

Line Wrap When checked, the displayed text wraps around to the next line to fit into the window as it is resized. Select wrap mode from the drop-down menu: *Wrap on Word* or *Break Word*.

Align Enables you to align the text at the top, middle, or bottom of the display.

Justify Enables you to justify the text along the left, center, or right side of the display.

On Change When checked, a transition menu is displayed offering a choice of transition types: Fade, Drop In, Drop Out, and Slide. Transitions occur when text is changed.

Transition Enter the length (in seconds) of the transition time. This field is displayed only when the *On Change* box is checked.

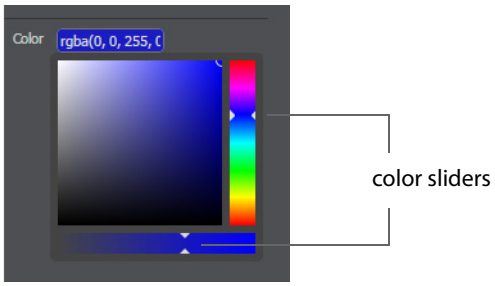
Scroll When Scroll is checked, you can enter both a scroll mode and a direction. There are two scroll modes: *Non Stop a*nd I*f it Does Not Fit*.

Direction Select the direction of the scrolling: Top to Bottom, Bottom to Top, Left to Right, or Right to Left. This field is displayed only when the *Scroll* box is checked

Speed When Scroll is checked, enter the speed (in pixels per second) that you want your message to scroll through the display.

Auto Reverse When checked, the display reverses the scrolling direction when it reaches the top or bottom of the list.

Background Select *Solid* and click in the color field to open the color palette. Select a color and luminance by sliding the vertical and horizontal sliders. Click outside the color edit box to close the palette.



Select *Gradient* and click in the color field to select a new background gradient color from the palette.

Angle When Gradient is selected, the Angle slider is activated. Move the slider to change the angle of the gradient display. Select also *Linear* (line) or *Radial* (circle) to change the shape of the gradient display.

Text Color Click the box to open the color selection panel. Select a new text color from the palette.

Font Select the desired font used for your messages. If you select Web Font, a Web Font field will display below. You can also select any of the fonts installed on your computer.

Font Family Select the style of the font: Arial, Bookman, etc.

Font Size Select the type of font size: points, small, medium, large, etc. If *In Points* is selected, a box to enter font size (in points) is displayed.

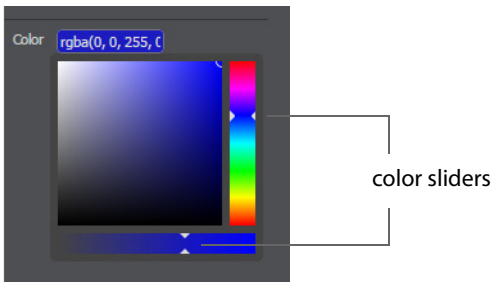
Font Weight Select the font weight: 100 to 900.

Font Style Enter the font style: Normal, Italic, or Oblique.

Font Variant Select a font variant: N*ormal* (capital and small characters displayed normally), or *Small-caps* (Capitals with small letters displayed as small capital letters).

Shadow Check to activate the text shadow slider controls.

Color Click in the color field to open the color palette. Select a shadow color and luminance by sliding the vertical and horizontal sliders. Click outside the color edit box to close the palette.



Offset Move the Offset slider to adjust the direction (0 to 360 degrees) the shadow text is offset from the actual text.

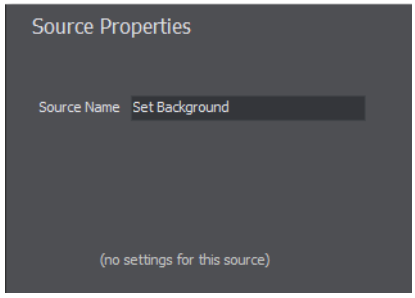
Radius Move the Radial slider to adjust the distance the shadow text is offset away from the actual text.

Blur Move the Blur slider to adjust the amount of blur in the shadow text.

New Virtual Set Properties

A *Virtual Set* is a pre-built source set, complete with graphics, to simulate a news-anchor desk in various configurations. For example, you can select a two-source virtual set that displays three layers of decor (overhead lighting, a curved desk and a pillared background) with two live sources. Virtual sets can be used as they are, or they can be edited to suit your needs. To open a New Virtual Set source, select *New Virtual Set* from the source menu in the shot window.

Virtual Sets have the following settings.



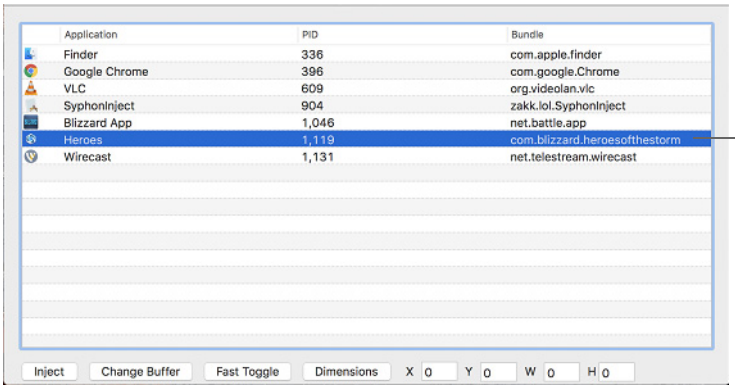
Source Name Displays the name of the source. To change the source name, enter a new one.

SyphonInject™ Sources

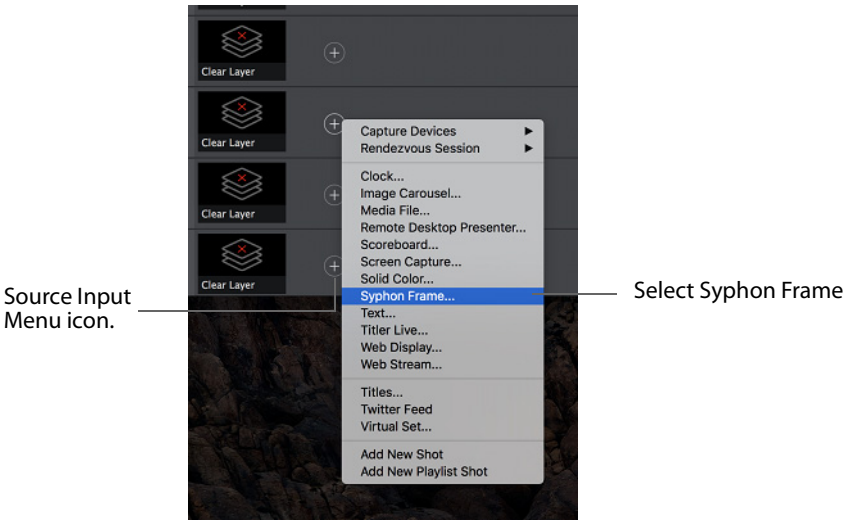
SyphonInject™ enables you to insert applications into your Wirecast streaming. To do this, follow these steps:

1. Download and install SyphonInject™.

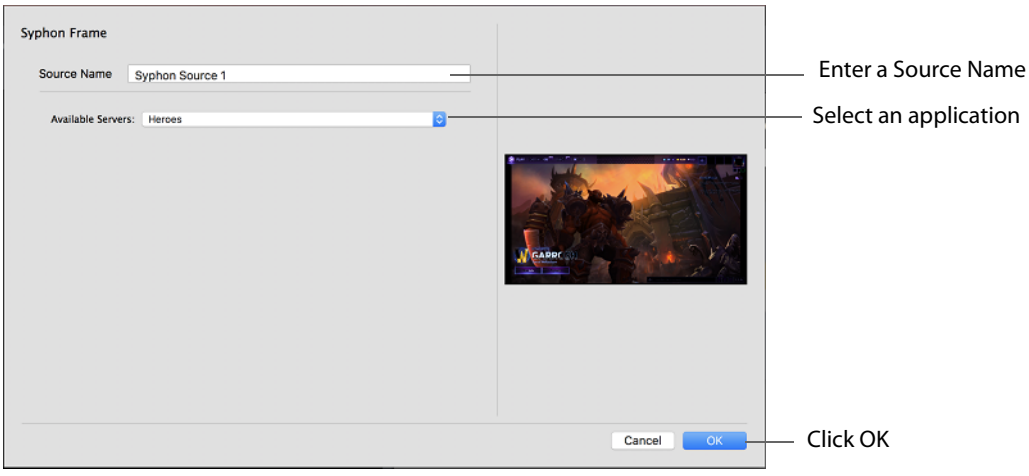
2. Run SyphonInject™ and select an application.



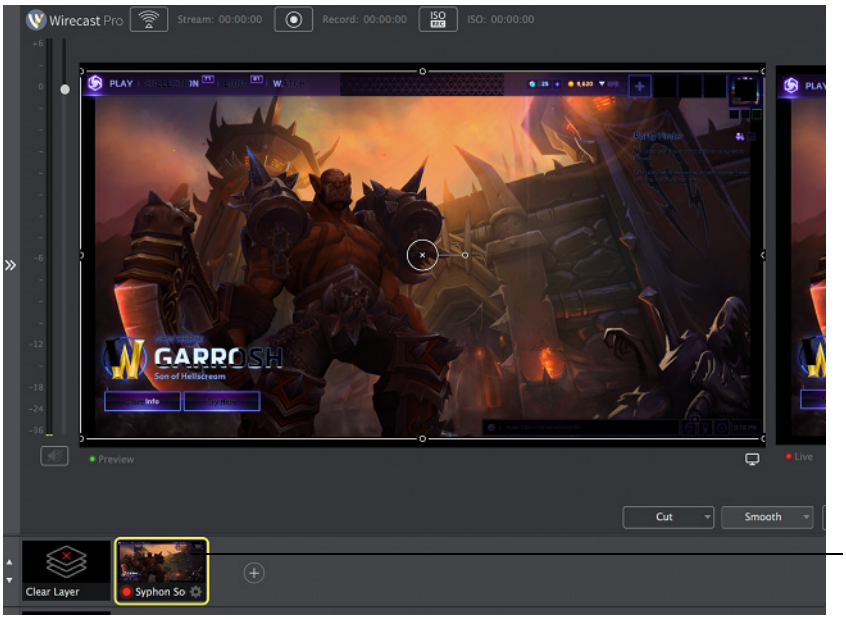
3. From the Source Input menu, select *Syphon Frame*.



4. When the Syphon Frame window displays, enter a source name and select an application from the drop-down menu. Click *OK* when finished.



5. Your application will be added as a shot. Click the shot icon to display it in your Preview window.



PTZ Controller

Introduction

The PTZ Controller enables you to control PTZOptics brand cameras. This feature is implemented using the VISCA-over-IP protocol, an IP-based protocol which sends specific camera control commands to the camera to change Pan, Tilt, Zoom, Focus, Exposure, and White Balance. You can configure, interact with, and create up to 255 preset settings in the PTZ Controller window.

Topics

- *Setting Up PTZOptics Camera*
- *Configuring Wirecast*
- *Setting Up Wirecast Shots*
- *PTZ Controller Panel*
- *PTZ Control in the Shot Editor*

Setting Up PTZOptics Camera

PTZOptics cameras ship with a Static IP address set to 192.168.100.88. To communicate with your cameras on your network, you will need to change this to be in range of your existing network.

To set up your PTZOptics camera IP address, follow these steps:

1. To obtain a usable IP address for your camera, ensure you can access the video feed of your camera over HDMI or SDI (not IP). Since the IP address will be changing, you need to use HDMI or SDI to access the video feed. Connect the HDMI port of the camera to a TV, or if you are already using a capture card with Wirecast simply add the source to your document and queue it up in Preview.
2. To set your Camera to DCHP (Automatic) and make it addressable by your PC, enter "# * 4" (sequentially) using the camera remote control. (Do not press the buttons simultaneously.) The camera will display a message in the video feed that says "DHCP OPEN", and then the camera will automatically reboot.

Note: If your camera did not display DHCP OPEN and restart automatically, you may need to contact PTZOptics for assistance unless you are proficient in manual IP assignment procedures not covered below.

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3. When the video feed displays, enter "# * 4" (sequentially) using the remote control to view the new DHCP address. The camera will now always request a new IP address, whenever it is plugged into a new network.

Note: This means the IP address can change, which is generally not preferable in a live environment.

If you prefer to set a static IP address for a permanent installation, follow these steps:

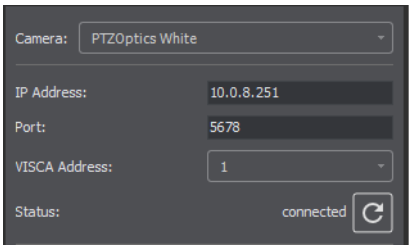
1. Open a web browser, and enter the IP address obtained in the previous steps. You can view that IP address by entering "# * 4" (sequentially) using the remote control
2. Enter *admin* for both the username and password.
3. Select *Network* in the navigation options, located at the top-left part of the web page.
4. Find the DHCP/STATIC setting.
5. Set IP Configuration Type to *Fixed IP Address*.
6. When the confirmation dialog window displays, click *Apply*, then click *OK*.
7. Recycle to power on the camera to reboot it.

Note: If you are have trouble setting the IP address on your camera, contact PTZOptics for assistance.

Configuring Wirecast

Now that you have an IP address for your camera, Wirecast can be configured by following these steps:

1. Select *Window* > *PTZ Controller* to display the PTZ Controller panel.

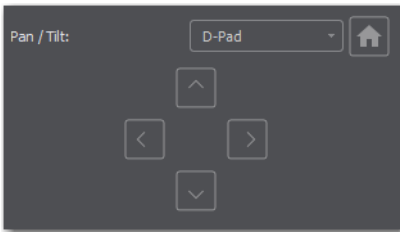


2. Select the video ingestion method from the Camera menu. This will be an HDMI or SDI capture device, or NDI if your device supports it.
3. Enter the IP address for your camera (determined previously in the camera setup).
4. Port and VISCA Address are set automatically to the default values for PTZOptics camera. You do not need to change these.
5. Click the Connection button to the far right of Status. Status will display *connected* when a connection is made.

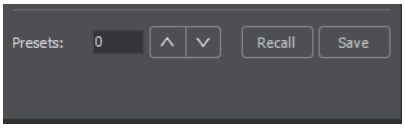
Setting Up Wirecast Shots

To setup a Wirecast shot using a camera setup, follow these steps:

1. Select *D-Pad* from the Pan/Tilt menu and move the camera to a desire position. (Pan the camera by clicking the left and right arrows, and tilt the camera by clicking the up and down arrows.)

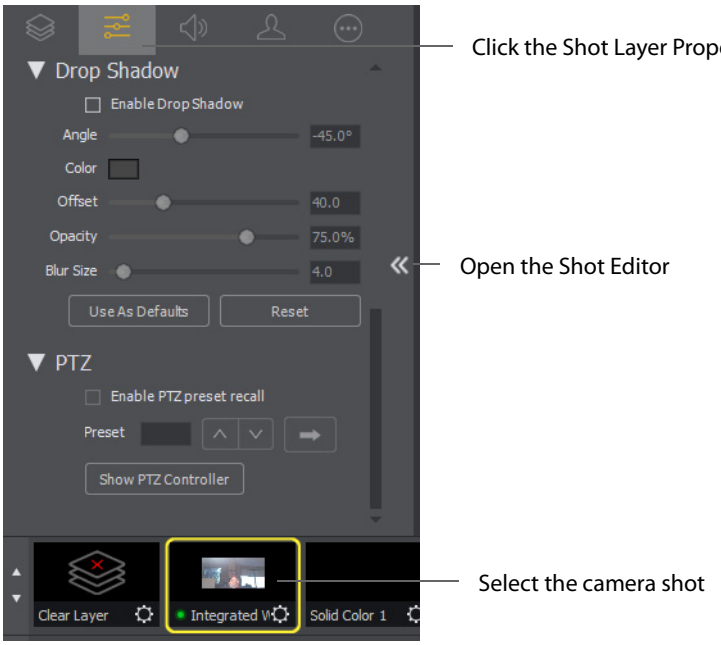


2. Enter a preset number (0 to 255) and click the Save button to save this camera position.

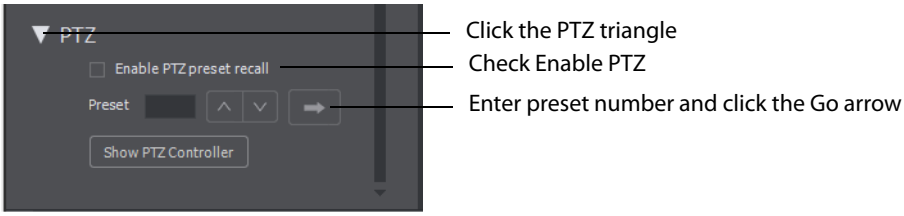


3. In Wirecast, create a camera shot.

4. Select your camera shot, open the Shot Editor, and click the Shot Layer Properties tab.



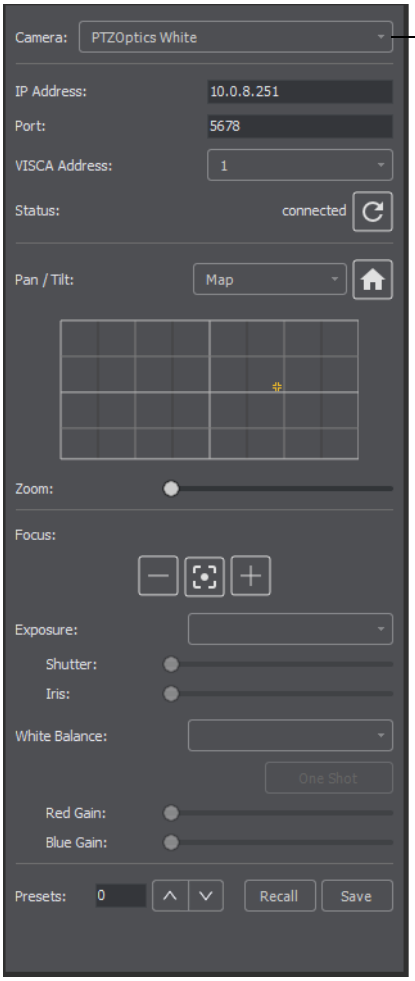
5. Click the PTZ triangle to display the PTZ controls. Check the *Enable PTZ preset recall* check box. Enter a preset number and click the Go arrow.



You are now able to move you camera by changing shots.

PTZ Controller Panel

The PTZ Controller panel is accessed by selecting *Window -> PTZ Controller*. In this panel you can enter a PTZ camera IP address, VISCA port, and VISCA address. The source selected in the Camera drop-down menu is associated with the settings entered in the PTZ Controller panel. You can switch between devices in the Camera drop-down menu and configure separate PTZ Cameras associated with that video source.



Camera drop-down menu

Camera

This drop-down list will show the currently selected video source and update the PTZ Controller window to display the associated VISCA and PTZ configuration. Clicking the drop-down list will display the available live video sources connected to Wirecast. Once a connection to a valid VISCA device has been established, the PTZ Controller panel will refresh to show the camera's current Pan/Tilt orientation. Changing the Camera source will change all the settings in the panel accordingly.

Note: A PTZ camera's VISCA configuration is discrete from the video feed. You can associate any available video source with any manually-entered VISCA device

information. This accommodates a workflow where the camera's video feed is being captured via a Capture Card.

IP Address

Enter the IP address of a valid VISCA-over-IP source on the network. This IP address is configured in your camera's network settings.

Port

Enter the IP port for the VISCA connection of the camera. This IP port is configured in your camera's network settings.

VISCA Address

Select the correct VISCA Address of the camera. This VISCA Address is configured in your camera's VISCA settings.

Status / Reconnect Button

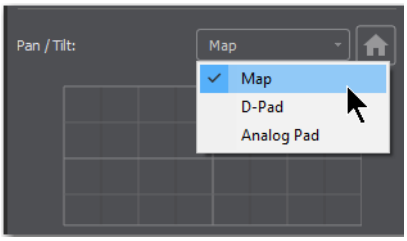
Displays the current VISCA connection status ("connected" or "invalid source") of your camera. Click the Reconnect button to force a reconnection.

Home Button

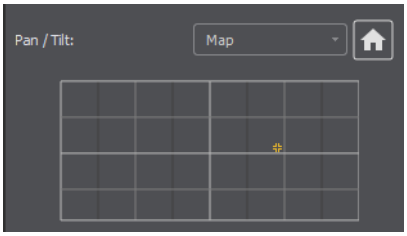
Click the House icon to reorient the PTZ camera to its default position (default centered, no zoom).

Pan/Tilt

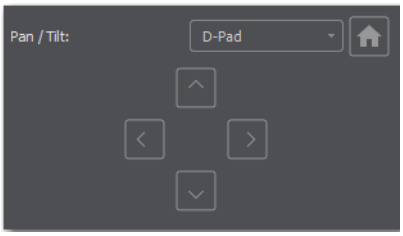
Select the desired PTZ control method (Map, D Pad, or Analog Pad) from this drop-down menu.



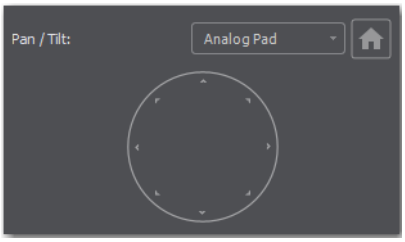
- Map – displays an X/Y plane with a yellow cross-hair representing the current Pan/Tilt orientation of the camera



- D-Pad – Pan the camera by clicking the left and right arrows, and tilt the camera by clicking the up and down arrows.



- Analog Pad – Click in the analog circle to reposition the camera pan and tilt.



Zoom

Move the slider to adjust the zoom factor of your camera.

Note: When the PTZ Controller panel is the selected window, you can press the arrow keys on the keyboard to adjust the Pan (left and right arrow keys) and Tilt (up and down arrow keys) of the camera. Alternatively the W, A, S, and D keys can also be used (W = Up, A = Left, S = Down, D = Right)

Focus

Click the Plus and Minus buttons to adjust the focus of the camera. The yellow button in the center toggles auto-focus on and off. Any manual adjustments made to the focus will automatically disable the auto-focus.

Exposure

Select the exposure mode from the Exposure drop-down menu.

- **Shutter** Move the slider to adjust the shutter of the camera. You can only adjust the Shutter when Exposure mode is not in auto-focus.
- **Iris** Move the slider to adjust the iris of the camera. You can only adjust the Iris when Exposure mode is not in auto-focus.

Note: Refer to PTZOptics documentation for more details about each mode.

White Balance

Select the white balance mode from the White Balance drop-down menu.

Note: Refer to PTZOptics documentation for more details about each White Balance mode.

One Shot

When the White Balance mode is set to *One Shot*, click this button to adjust the White Balance one time only.

Red Gain/Blue Gain

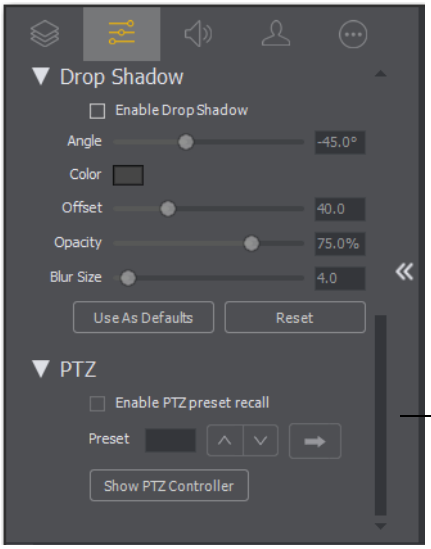
When not in auto-focus mode, you can use these sliders to adjust the red and blue gain of the video signal to compensate for white balance issues.

Presets

Enter a preset number and click *Save* to save current Pan, Tilt, and Zoom configurations of camera. To recall a preset, select a preset number by clicking the arrow buttons, then click the Recall button.

PTZ Control in the Shot Editor

You can select PTZ Controller Presets associated with a Shot Layer's video source from the Shot Layer Properties tab of the Preview Inspector. PTZ Control Presets are configured in the PTZ Controller Panel and associated with individual video sources.



Open the PTZ control pane by clicking on the PTZ triangle. Check *Enable PTZ preset recall* checkbox. Enter a preset number or click the up/down arrow buttons. Click the Go button (right pointing arrow) to cause the associated PTZ camera to recall that preset.

Once a Shot Layer has been configured with a PTZ Preset, sending that Shot to Preview will tell the associated PTZ Camera to recall that preset. If multiple Shots share the same video source with different PTZ Presets configured, the Shot which is currently Live will take precedence over subsequent PTZ Preset recall actions, but only until it has been switched away from Live.

The *Show PTZ Controller* button will open the PTZ Controller panel.

Playlist

Introduction

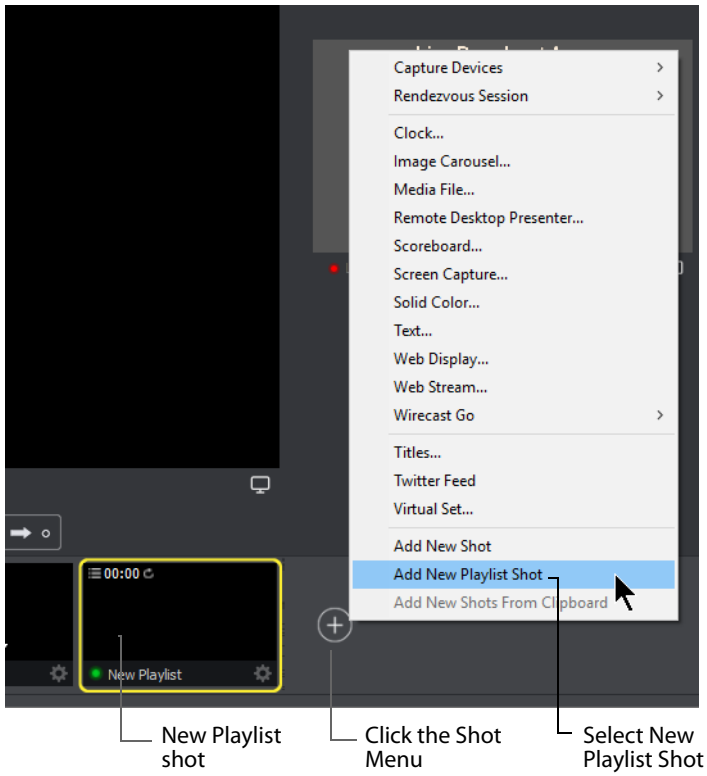
Playlist enables you to create a list of clips and play them as a single group. You can have multiple playlists and edit them as needed after they are created. You can also replay playlists (see *Replay + ISO*). This makes the combination of Playlist and Replay a very powerful production tool.

Topics

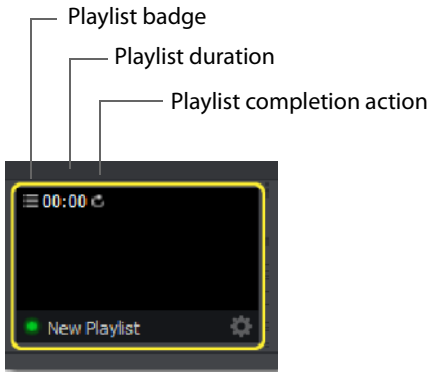
- *Creating a Playlist*
- *Adding Clips*
- *Playing Playlists*
- *Playlist Controls*
- *Countdown Clock Options*

Creating a Playlist

To create a new Playlist, select *New Playlist Shot* from the Shot Menu and a new Playlist shot icon is added in the shot window.

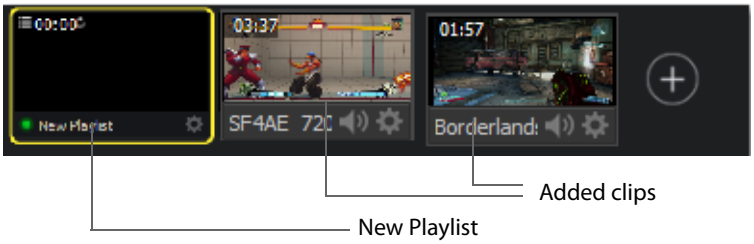


The Playlist shot icon displays a playlist badge, the playlist duration, and the playlist completion action.



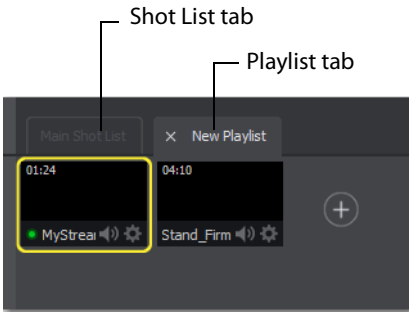
Adding Clips

To add clips to the playlist, first click and drag them onto the layer where the new Playlist is located.

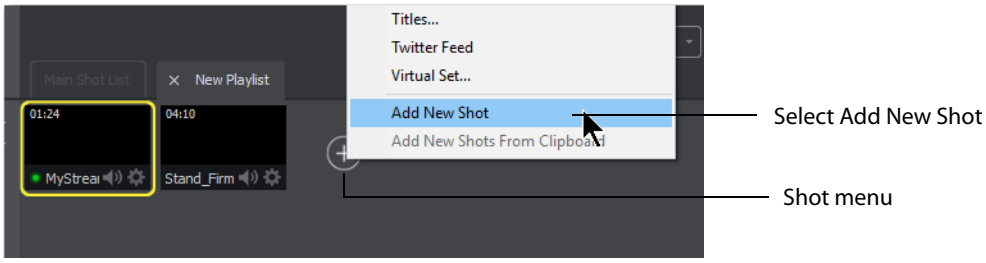


Click and drag each shot onto the playlist shot (you must click the bottom part of the shot icon to drag it). When you do this you must wait for the playlist shot to obtain a yellow border before releasing the click button.

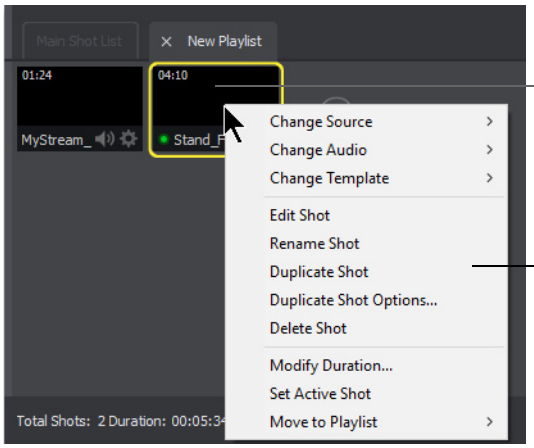
Double-click the Playlist icon to open the Playlist tab.



You can also add additional clips by selecting *Add New Shot* from the Shot menu.

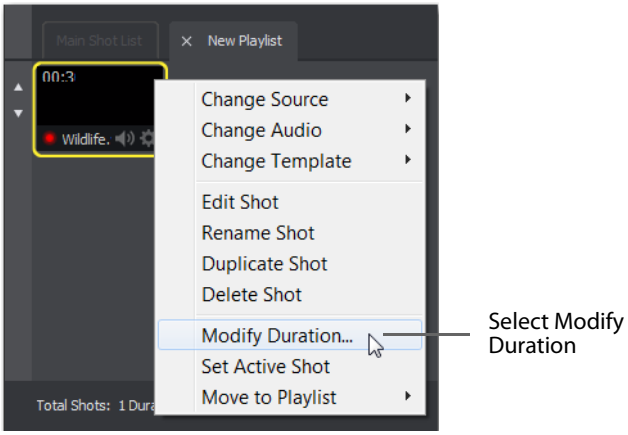


These added shots are now housed in the Playlist. You can still edit shots in the playlist by double-clicking on the shot in the playlist. You also have all of the Change Shot menu options available by right-clicking on the shot.



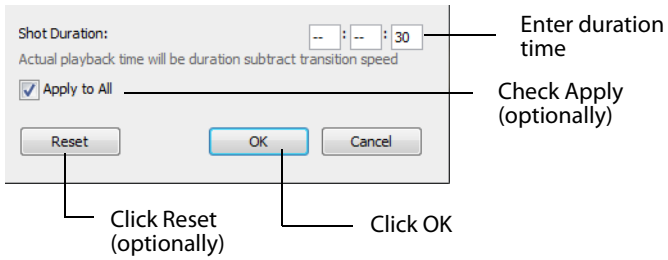
Note: Do not delete shots from a playlist while the playlist is running.

The Change Shot menu for Playlist shots has a *Modify Duration* option. By default, live sources have an infinite duration (since they are not a clip). So, you must assign a duration time. To do this, select *Modify Duration*.

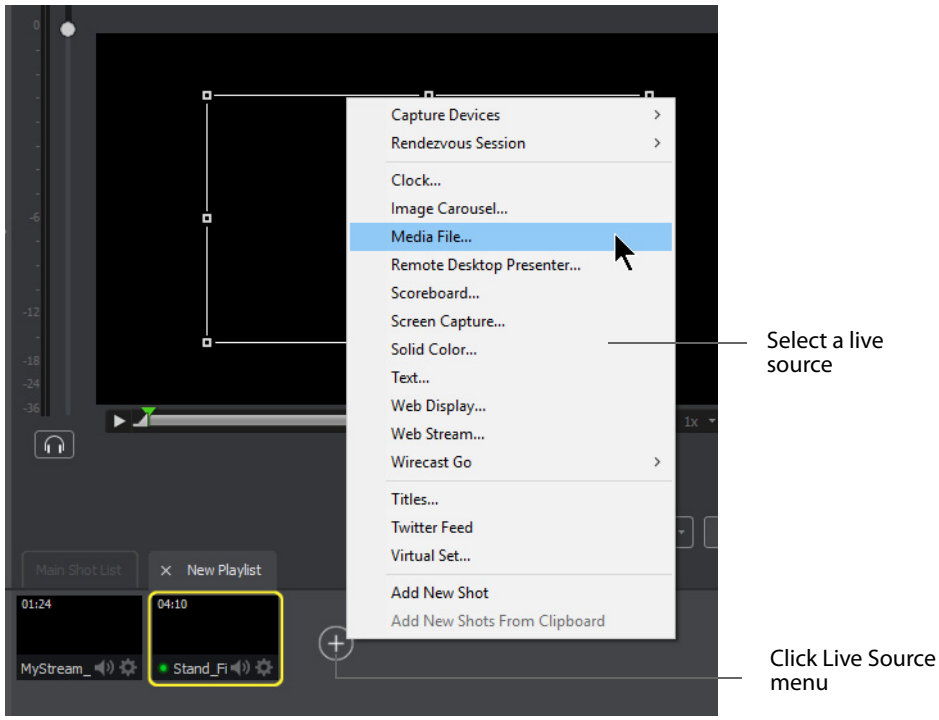


When the Shot Duration window displays, enter a new duration time value. Optionally, check *Apply to All* if you want this duration applied to all items in the playlist. You can

also, optionally, reset the duration to its original value by clicking *Reset*. Click *OK* when finished.



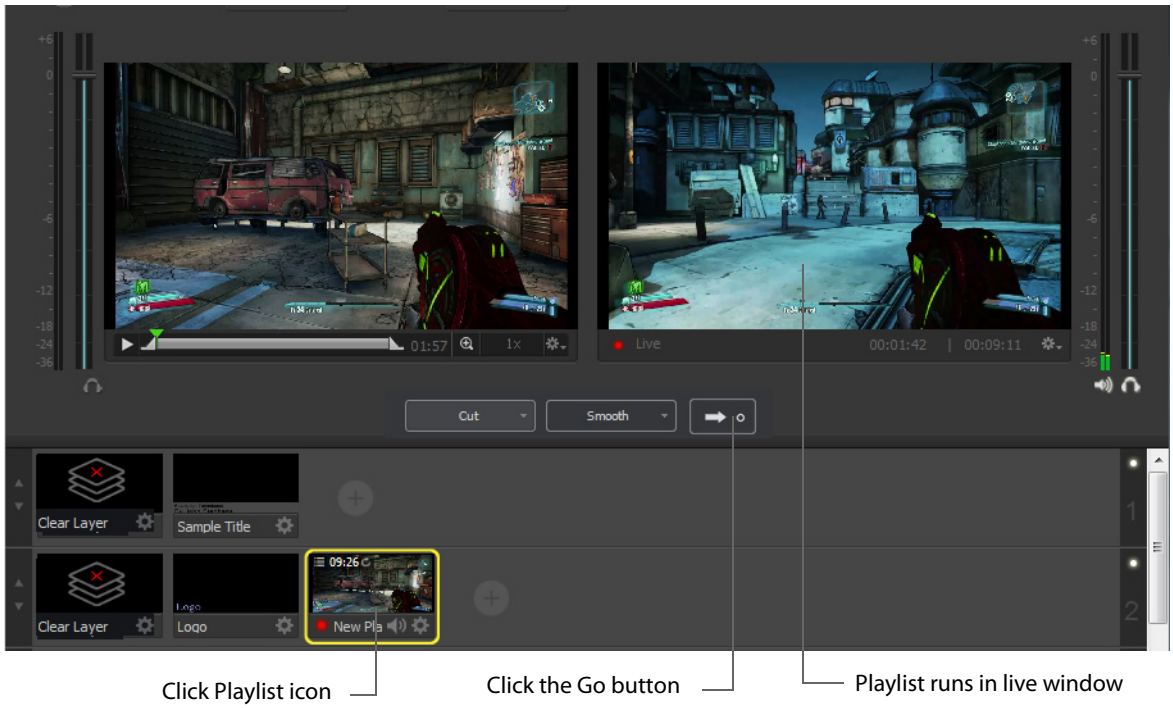
You can add live sources to the playlist by clicking the Live Sources menu and selecting a live source from the list.



Note: Wirecast does not support nested playlists (playlists within playlists).

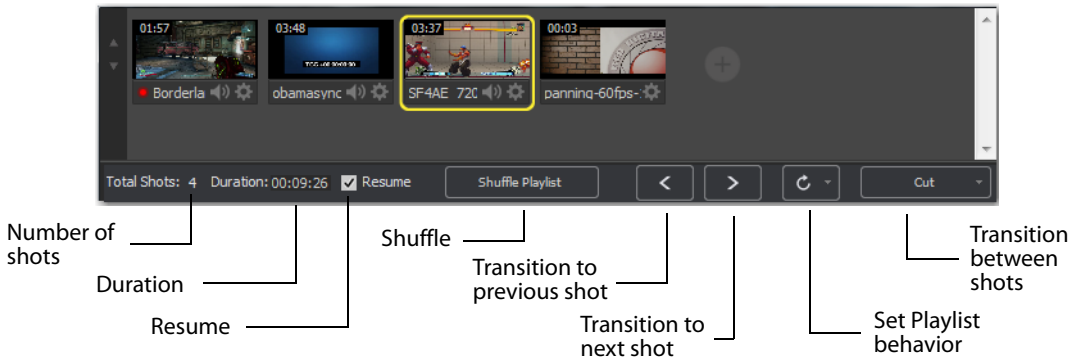
Playing Playlists

Playing back a playlist is the same as playing any other shot -- click the playlist shot to place it into preview, then click the *Go* button to place it into the Live window.



Playlist Controls

Playlists provide some basic playback controls, located at the bottom of the Playlist tab window. You can transition to the previous or next shot in the list, set playlist behavior, shuffle the playlist order, and more.



Number of Shots Displays the current number of shots in the playlist.

Duration Displays the duration of the playlist shots.

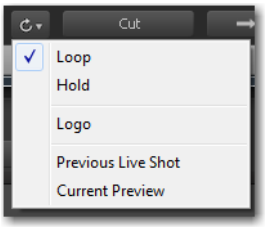
Resume When checked, if you exit the playlist, when you return the playlist will resume playing at the location (same shot) as when you exited.

Shuffle Click to shuffle the order of the playlist shots.

Transition to previous shot Transitions to the previous shot in the playlist if the playlist is currently live.

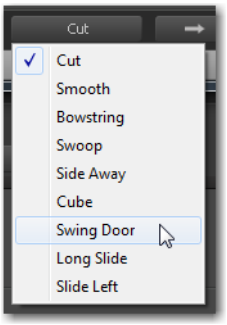
Transition to next shot Transitions to the next shot in the playlist if the playlist is currently live.

Set Playlist behavior Sets the behavior of the playlist when the last shot in the list has been played. A check mark indicates what menu item (behavior) is selected.



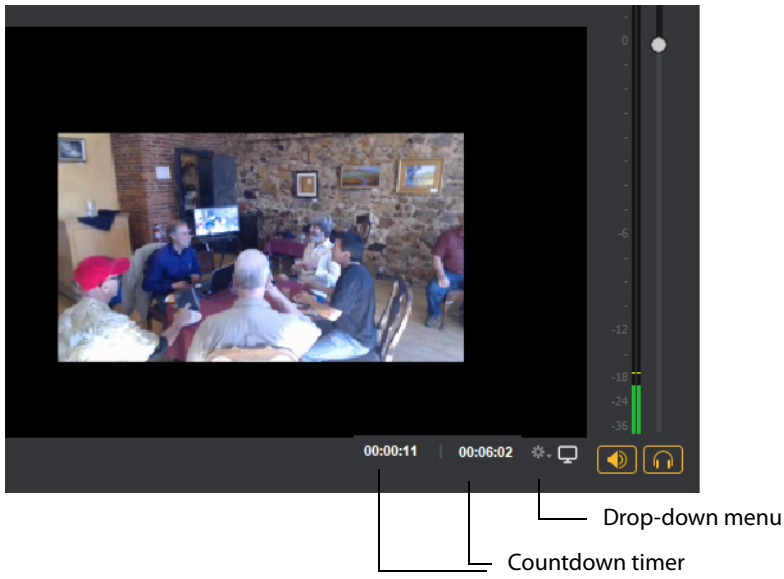
- *Loop* transitions back to the first shot, endlessly.
- *Hold* stays on the last shot. If the last shot is a clip, the last frame in the clip is displayed. If the last shot is a live shot, the live source stays active. If the last shot in a Playlist is a video clip Shot, it will obey the rules set for the video clip in the Media Properties Inspector tab under *Source Properties*. However, it will hold the Playlist on that last Shot if *Set Playlist Behavior* is set to "Hold". Therefore, if you want to see the last video in the Playlist pause on the last frame, you must set *When Finished* to "Hold" under Source Properties, in addition to setting the playlist behavior to "Hold". If you set *When Finished* to "Loop", under Source Properties, the last video in the Playlist will continue to loop.
- *Available Shots* transitions to another shot on the same layer. All available shots are listed as menu selections. (In the example shown, the only available shot is “Logo”.)
- *Previous Live Shot* transitions back to the shot that was live before the playlist began playing.
- *Current Preview* transitions the contents of Preview to the live window.

Transition between shots Sets the transition to use when switching between shots.

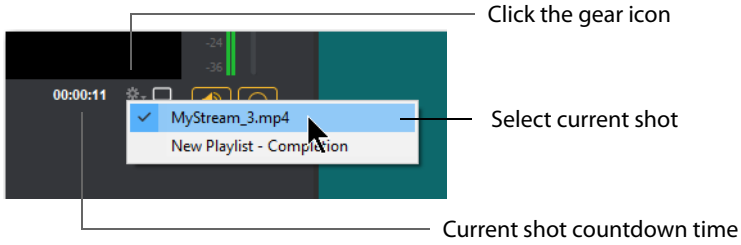


Countdown Clock Options

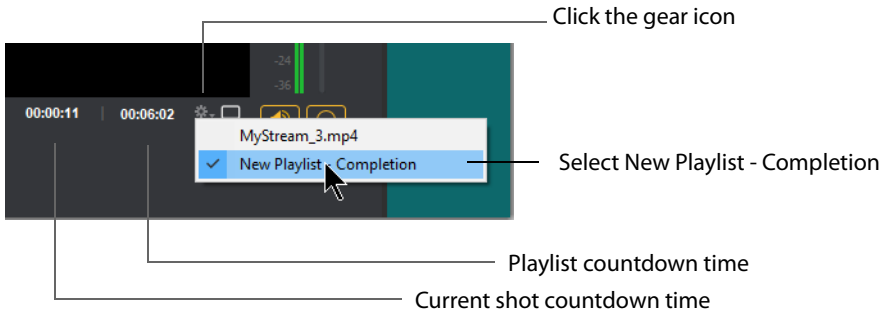
When a Playlist is playing, a drop-down menu (the gear icon) and countdown timers are displayed.



Click the gear icon to open the counter display mode menu. Select the top item (the name of the currently playing shot) to display its countdown time only.



Select the bottom item (*New Playlist - Completion*) to display the countdown time of the current shot and of the Playlist. (Notice that the current shot countdown display has moved to the left.)



Twitter

Introduction

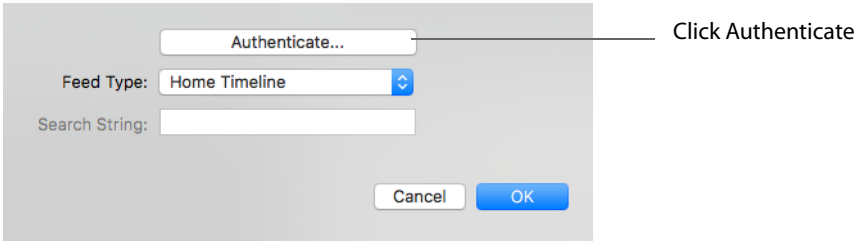
Twitter enables you to add Twitter messages to your broadcast and you can filter what messages are displayed.

Topics

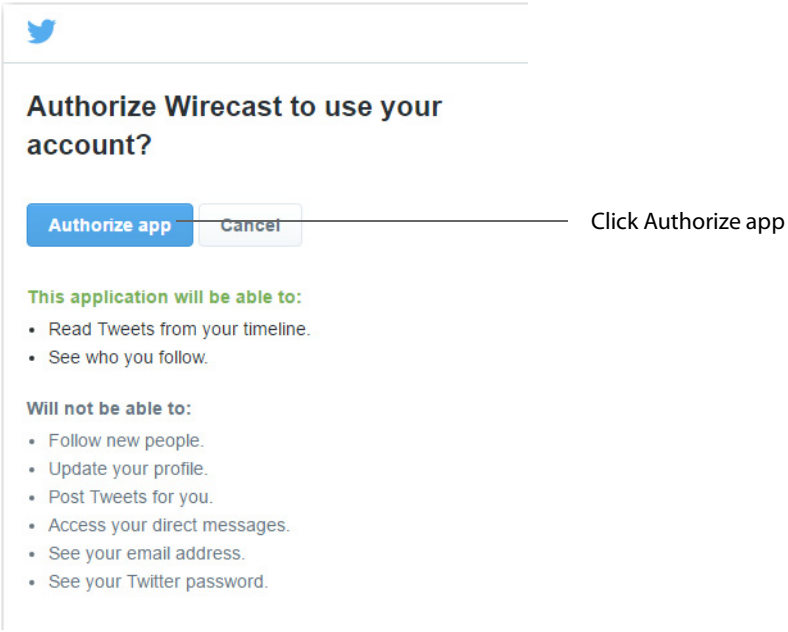
- *Settings*
- *Create Shot*
- *Message Feed*

Settings

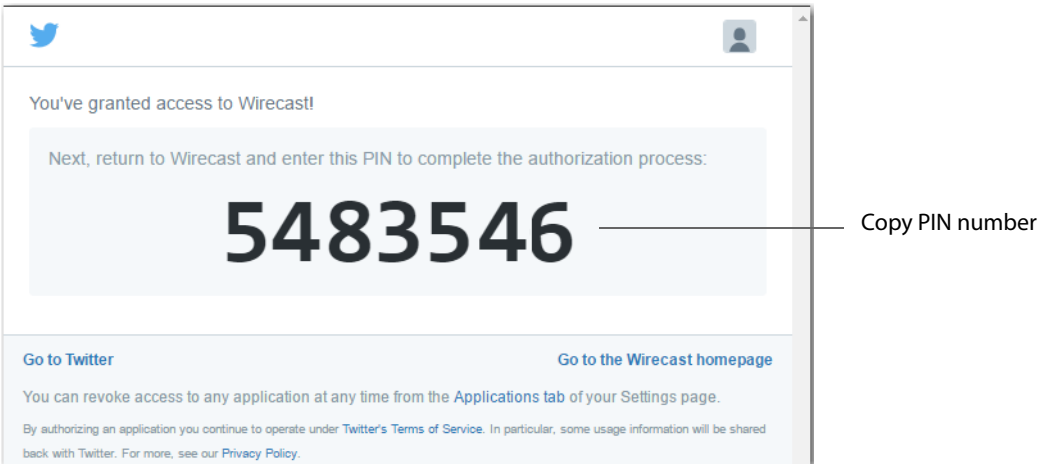
The first thing you need to do is Authenticate your account with Twitter. To do this select *Twitter* > *Settings*, then click the *Authenticate* button. Enter your pin when the PIN field displays. Select a Feed Type: Home Timeline, User Timeline, Favorites, Search. If you select Search, the Search String field becomes active. Click OK when you are finished.



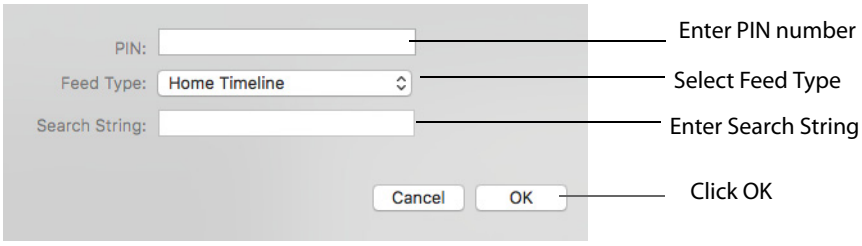
When the Twitter window displays, click *Authorize app*.



When the PIN window displays copy the PIN number. and close the window.



In the Twitter Settings window, enter (or paste) the newly copied PIN number, select the Feed Type, enter a Search String, then click *OK*.



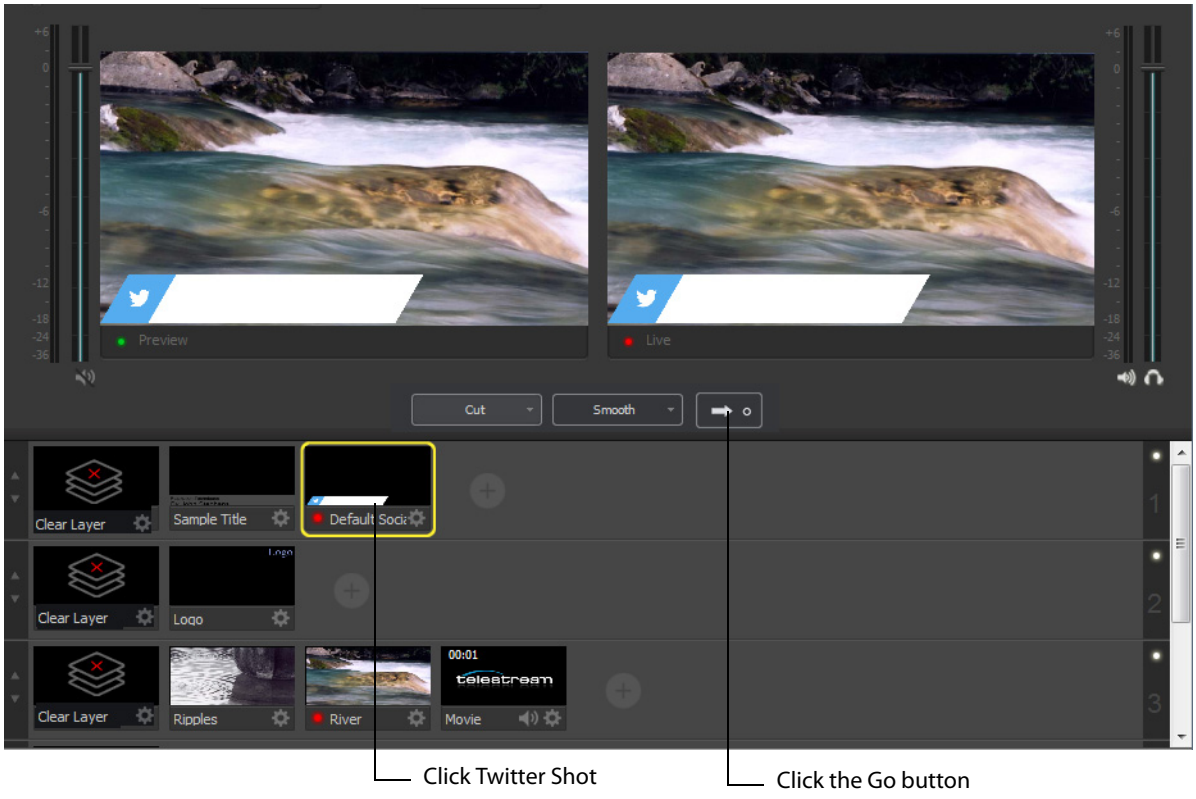
Feed Types:

- **Home Timeline**
- **User Timeline**
- **Favorites**
- **Search** Displays Twitter feeds that contain a search string.

The Search String field is only active when you select Search as the Feed Type. Enter any word or phrase to use in searching for Twitter feeds that contain your selected words

Create Shot

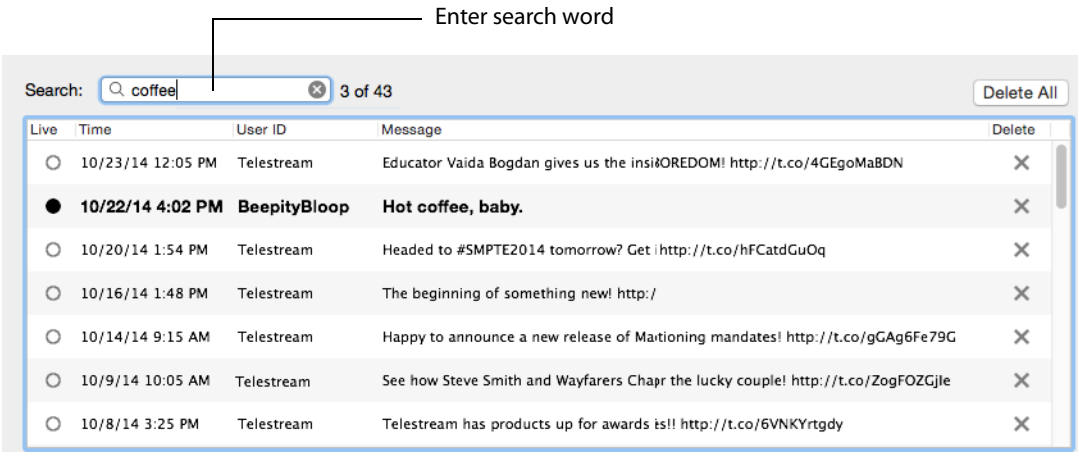
To create a new Twitter shot, select Twitter > Create Shot. When the new shot icon is displayed in the Sot List, click it to place it in the Preview window. You can click and drag the Twitter message box to any location in the shot. Click the Go button to take it live.



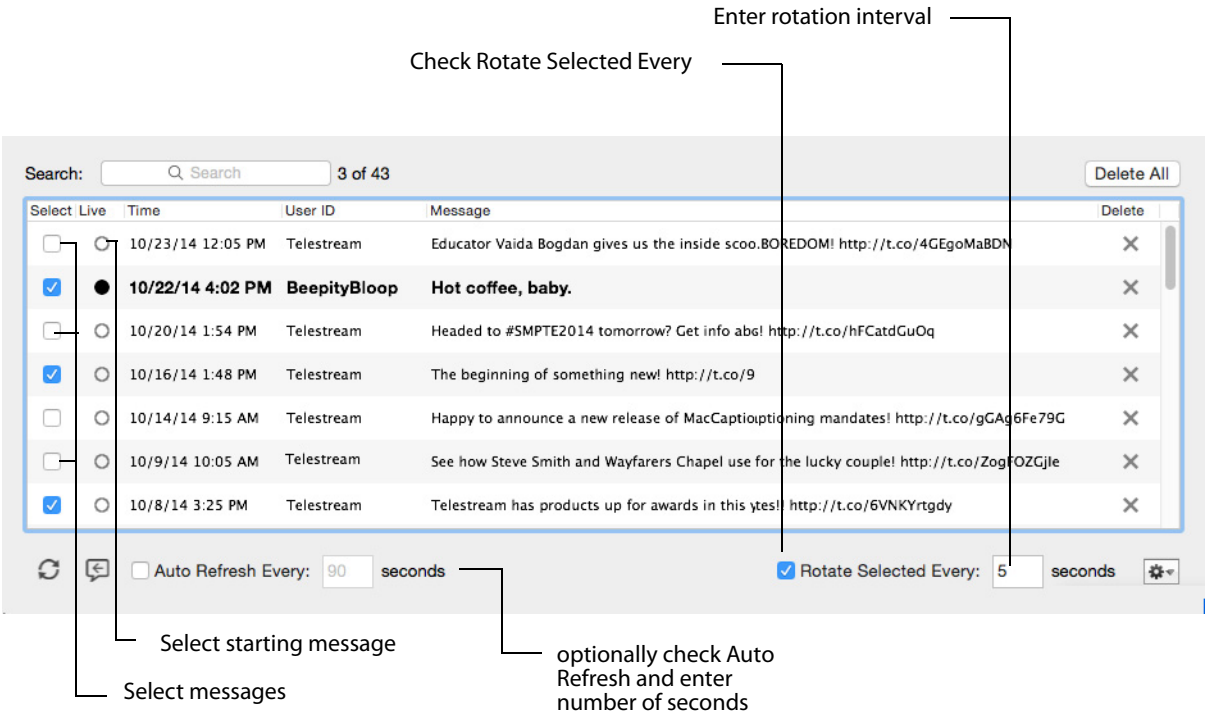
Note: when a message feed is selected (see the *Message Feed* section below), the message will be automatically filled in.

Message Feed

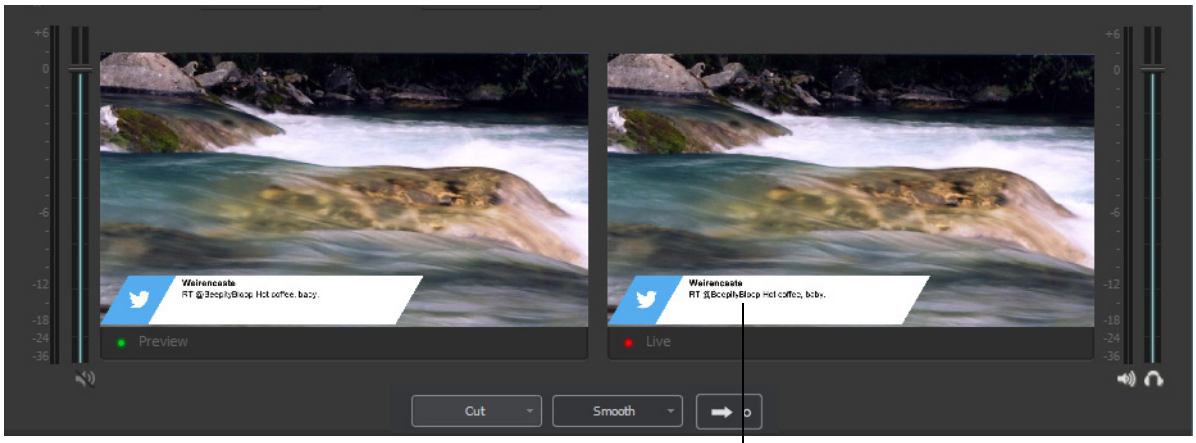
Click *Twitter* > *Message Feed* to add some Twitter messages to your broadcast. When the message window displays, search (optionally) for the messages you want to broadcast.



To select messages to be rotated in your broadcast, first check *Rotate Selected Every*, and enter the number of seconds of the rotation interval. Select the messages you want rotated by checking the box at the left of each message. Select a starting message.



You can also (optionally) check *Auto Refresh* and enter number of seconds. The gear icon allows you to select or unselect all messages. Once you have selected your messages, close the Message Feed window.



Replay + ISO

Introduction

PRO

Replay enables you to repeatedly play a clip, or even a portion of a clip, any number of times or endlessly. You can also replay playlists (see *Playlist*). This makes the combination of Playlist and Replay a very powerful production tool.

ISO (or Isolated Output) allows users to create recordings for system devices (cameras, capture cards, or mics) that are currently not being displayed in the *Live* canvas window. This enables you to be outputting one device while broadcasting with another. ISO's can also be setup as a replay source. This enables you to have all the *Replay* functionality (hotkeys, Mark-in, and Mark-out) in your ISO source but without it being displayed in the *Live* canvas window.

Replay and ISO share the same menu because ISO's have the ability to be setup to use replay functionality. This functionality is toggled in the ISO Settings window. If an ISO is set to use Replay then it will use all the replay settings that have been configured in the *Replay+ISO* window.

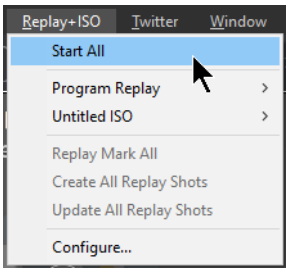
Note: Multiple Replay clips captured during the same replay session will not render correctly when played at the same time on different master layers or different shot layers.

Topics

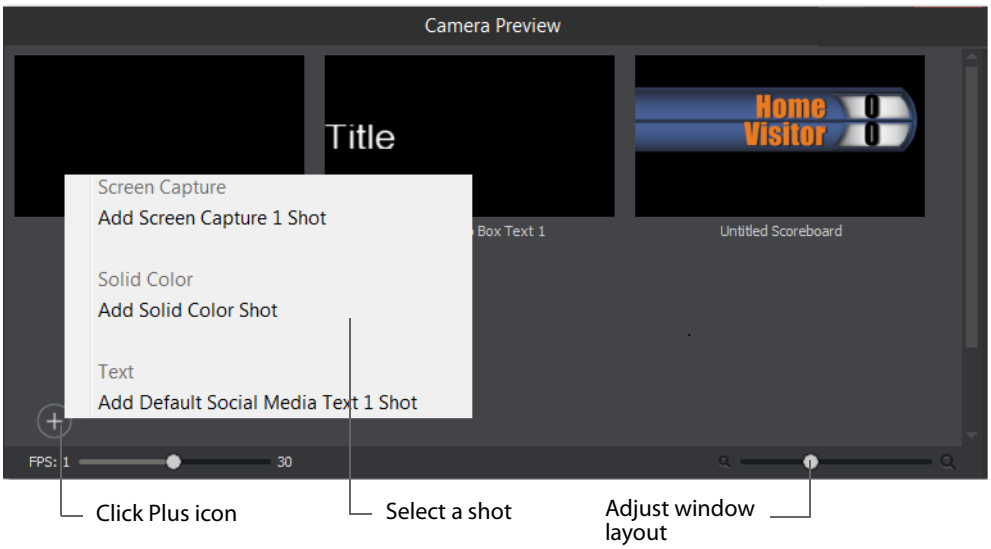
- *Replay + ISO Menu*
- *Configuring Replay*
- *Replay Activation*

Replay + ISO Menu

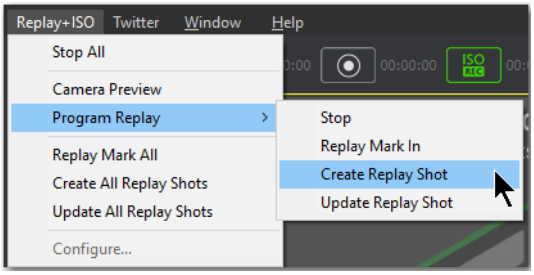
To use Replay and ISO functionality, select the Replay + ISO menu.



Start All Activates the Create Replay Shot system. When activated, the menu item becomes *Stop All*. Click *Stop All* to deactivate the Create Replay Shot system.



Program Replay Allows you to Stop, Mark In, Create, or Update a relay shot.



PRO

Replay Mark All Allows you to tighten up your Replay Shot capture. Select *Replay Mark In* to mark the beginning point of your Replay Shot capture.

PRO

Create All Replay Shots Select *Create* to create additional Replay shots.

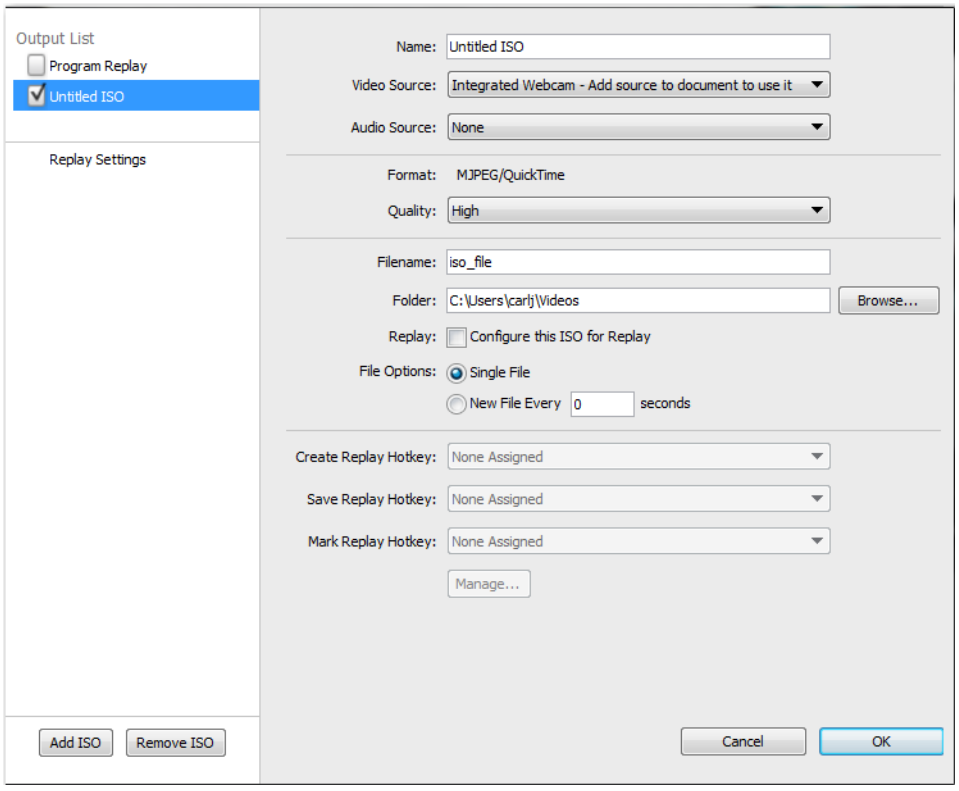
PRO

Update All Replay Shots If no replay shot exists, selecting *Update* creates a new Replay shot. There after, selecting *Update* updates the first Replay shot created.

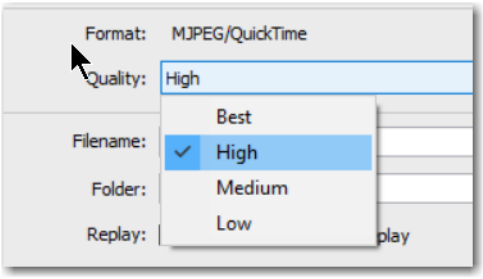
PRO

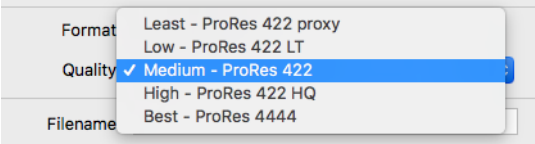
Configure Displays the Replay Shot settings window (as shown above in *Configure ISO Outputs*.

Configure Once ISO outputs are created, all ISO outputs are listed in this menu. To configure an ISO output, click *Configure*, then click the *Add ISO* button.



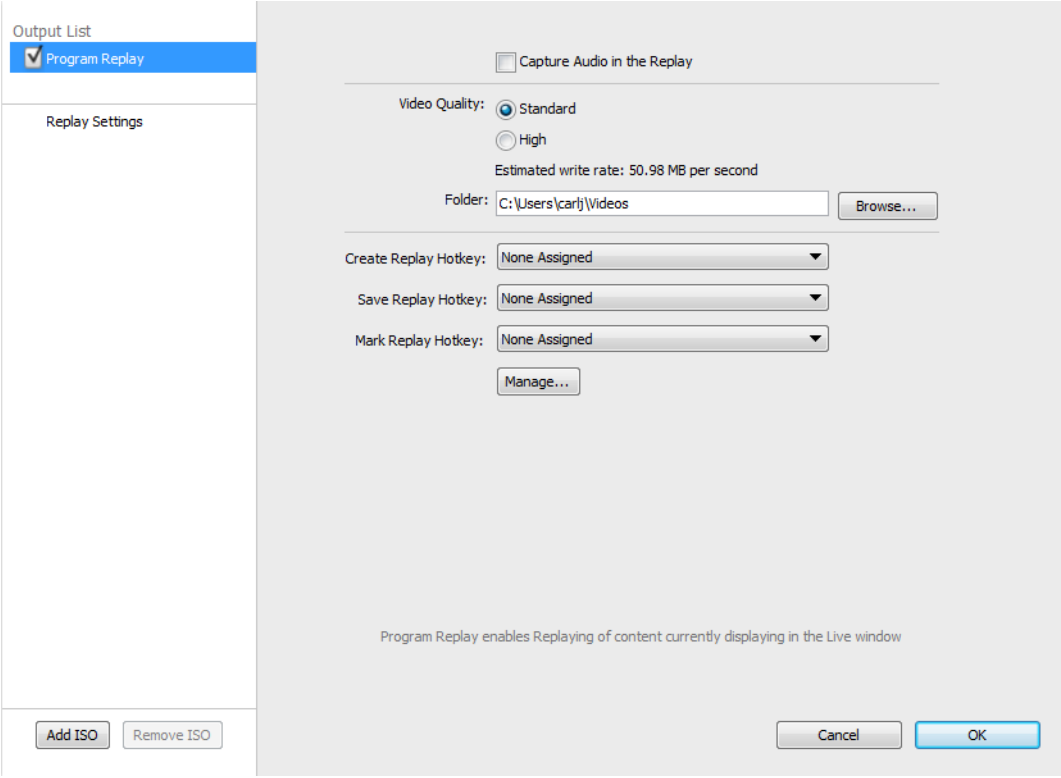
You can set the quality to: Best, High, MediumLow, or Lowest.





Configuring Replay

To use Replay you need to set it up the way you want it to perform. To do this select *Replay+ISO* > *Configure*. Check the Program Replay box, make your desired settings, and click OK when finished.



Capture Audio in the Replay Check the Audio box to capture audio in the Replay you are creating. If unchecked all audio is ignored.

Video Quality Set the video quality for Standard or High. Depending on what quality you choose, an estimate of the *write rate* will be displayed.

Folder Click Browse and navigate to the location where you want to store your Replay shots.

Create Replay Hotkey Select a hotkey from the drop-down menu that will activate the Create Replay function.

Update Replay Hotkey Select a hotkey from the drop-down menu that will activate the Update Replay function.

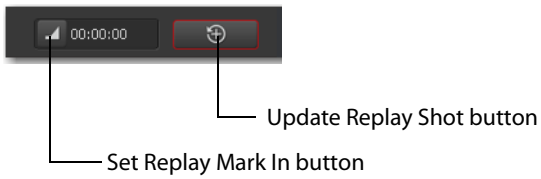
Mark Replay Hotkey Select a hotkey from the drop-down menu that will activate the Mark Replay function.

Manage Opens the *Preferences* > *Hotkeys* window so you can add, delete or change your hotkeys. The Global check box must be checked if you want that hotkey to be available in the drop-down menus above.

Replay Activation

Note: When Replay is activated, CPU usage increases.

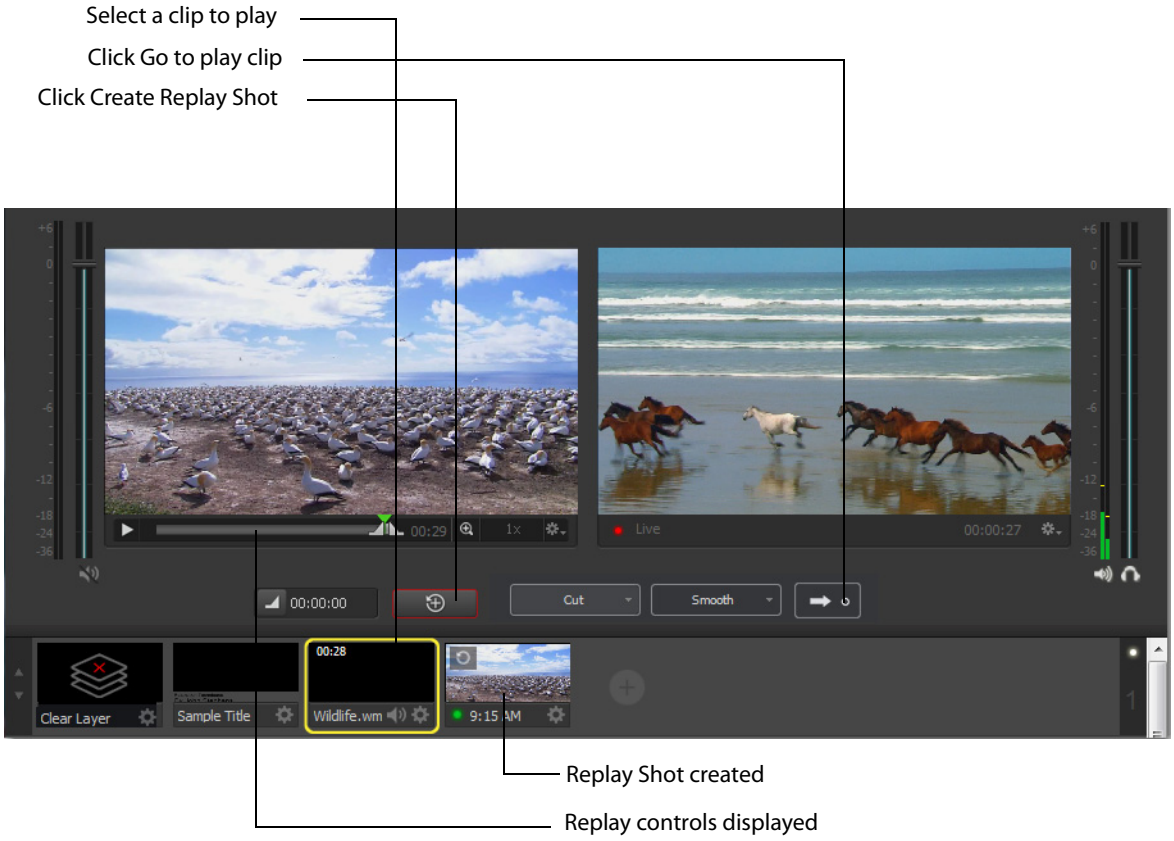
To activate Replay, select *Replay* > *Start All*. When you do this, the Start All menu item becomes *Stop All* and several buttons are added to the Wirecast main window: Set Replay Mark In and Update Replay Shot (same as selecting *Replay* > *Update Replay Shot*).



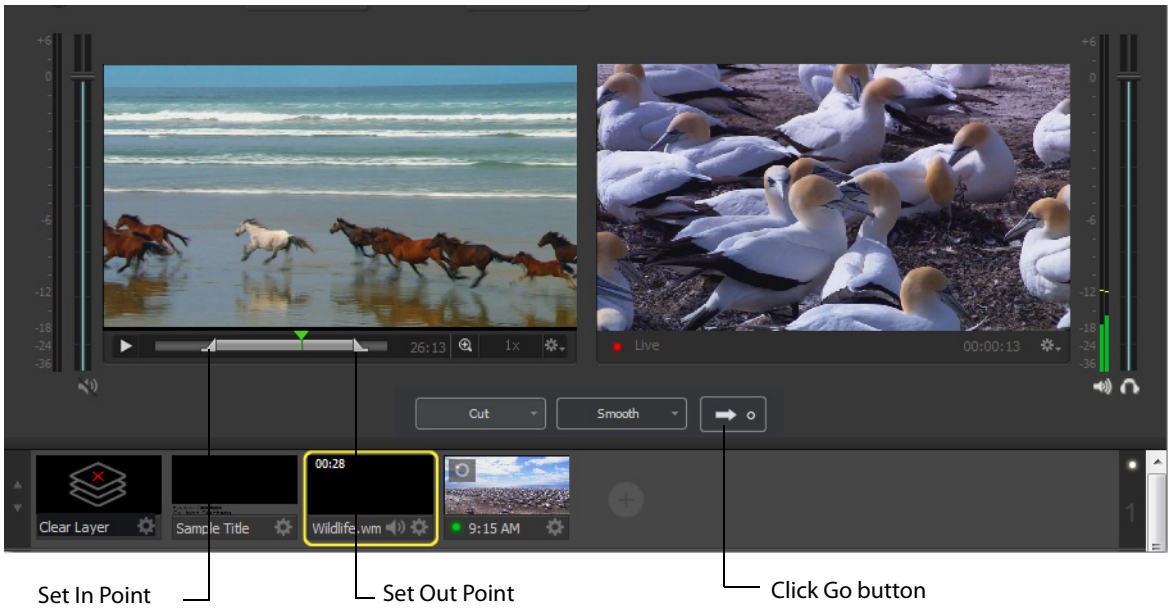
Once Replay has been activated it keeps all shot activity (playing of clips or capturing of live sources) in the Replay buffer on disk. The amount that is saved when the *Create Replay Shot* button is pressed depends on what value was entered into the *Default Replay duration* setting.

Start playing a clip (while Replay is activated), then click the *Create Replay Shot* button. Since the Default Replay Duration is set at 30 seconds, a Replay shot of 30 seconds (backward from when the Create Replays Shot button was pressed) is created. The new

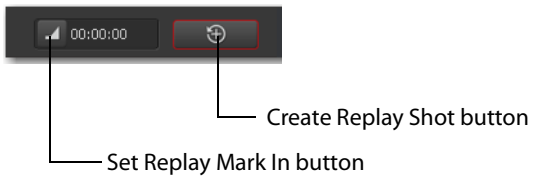
Replay Shot is placed in Layer 1 (as designated in the settings) as an icon and the Replay controls are displayed at the bottom of the Preview window.



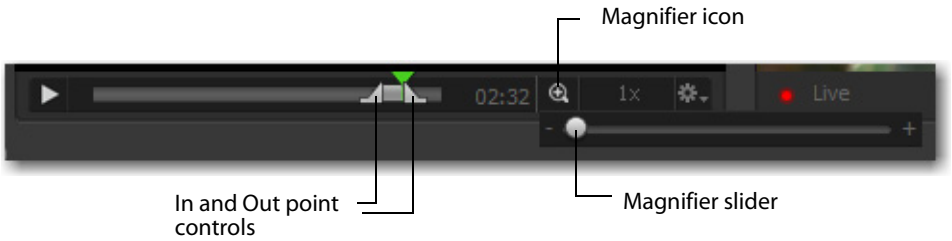
Now that you have a 30-second Replay Shot displayed in the Preview window, you can use the controls to set the Replay In and Out points and then take the Replay Shot live by clicking the Go button.



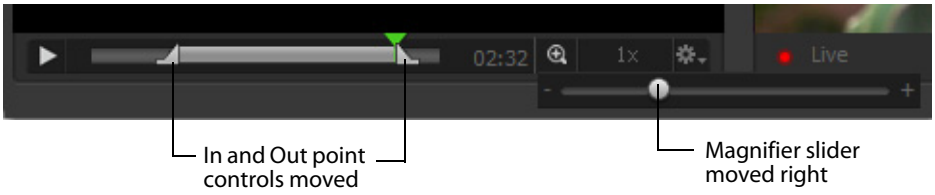
The Replay Mark In button allows you to tighten up your Replay capture. When Replay is active, it captures all past activity of your source (clip or live source) into the buffer. But you can shorten how much of the capture you actually get in a Replay shot by clicking the Mark In button first (to establish when to start your Replay Shot), and then click the *Create Replay Shot* button when you are finished with your Replay shot. Your Replay Shot now has just the content you wanted.



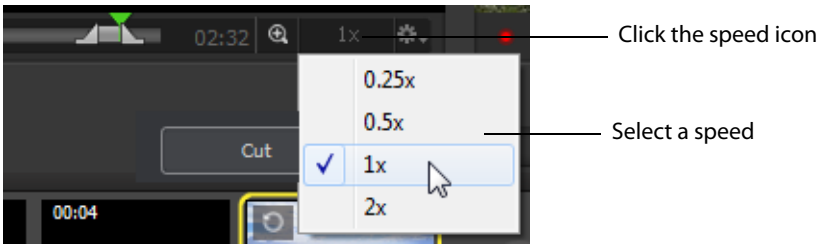
Another control available at the bottom of the Preview window is the Magnification control. Click the magnifier icon (spyglass) to display a magnification slider. Slide the slider to the left for lower magnification of the In and Out controls, and to the right for greater magnification.



For example, if you move the slider to the right, the In and Out controls move farther apart, increasing the magnification, so that you can more easily adjust the location of the In and Out controls. This is very helpful when you have long duration Replay shots. However, the slider will quit sliding when you have reached the maximum size of the Replay Shot.



One more control is available at the bottom of the Preview window. It is the Replay the speed control. You can set the speed of the Replay Shot by clicking the speed icon ("1x") and selecting a speed from the pull-down menu. Your choices are 1x (normal speed), 2x (double speed), .5x (half speed, and .25x (one-fourth speed). The audio is muted for any speed other than normal.



Preferences

Introduction

Wirecast is designed so that you can configure most of your options directly in your Wirecast document or the Shot Editor. The Preferences window enables you to set up Wirecast, set Desktop Presenter options, manage your licenses, update your software, and set advanced video options.

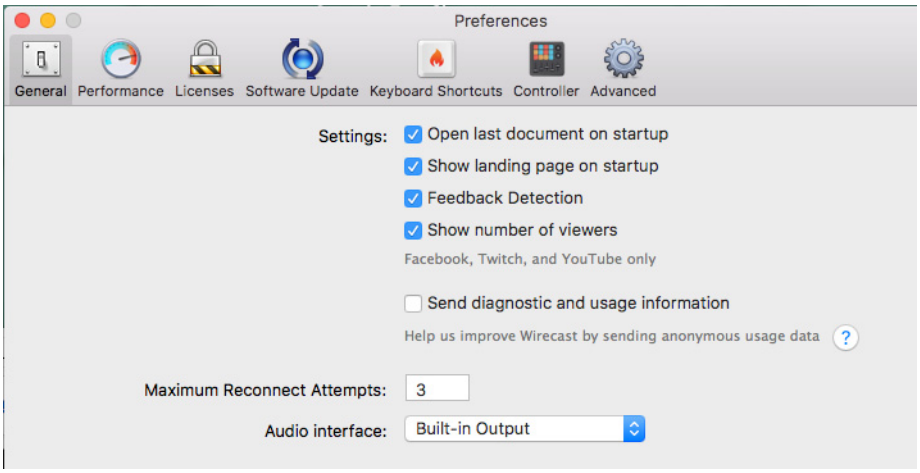
Topics

- *Accessing Preferences*
- *General*
- *Performance*
- *LicensesSoftware Update*
- *Hot Keys*
- *Controllers*
- *Advanced*

Accessing Preferences

To open the Preferences window, select Preferences from the Wirecast menu (or press the Command+ Comma (“,”) keys). Preferences are grouped under five topics: General,

Performance, Licenses, Software Update, and Advanced. Click one of these topics to view and change its preferences.



Wirecast automatically saves your preferences every time you make a change. The changes are immediately applied.

Resetting Preferences

To reset your preferences, quit Wirecast and then delete the files located at:

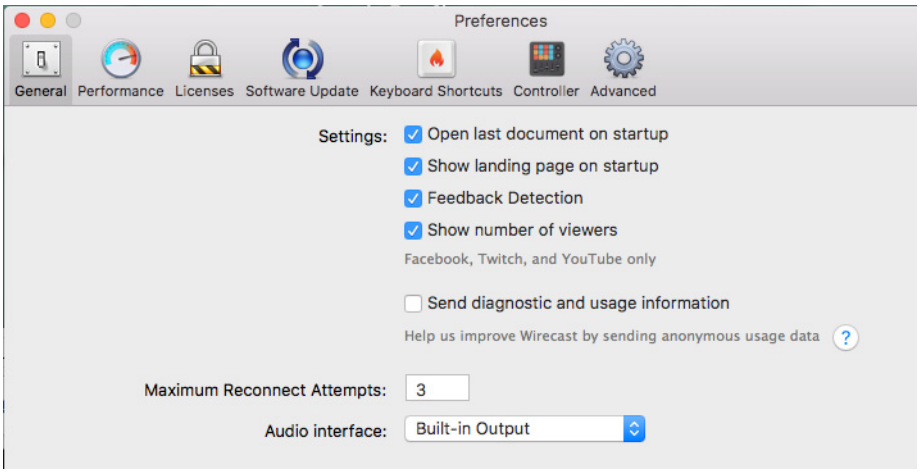
~/Library/Preferences/Vara Software/Wirecast Preferences.

Or, you can use Support Assistant to reset preferences (see *Send Support Information* under *Help Menu*).

Note: You should match the output to the canvas size as close as possible to preserve video resolution and quality. For example, a 800x600 source results in significant loss of quality if an aspect ratio of 640x480 is selected. Using 720x576, which is much closer in size, helps preserve video quality.

General

General preferences enable you to setup the Wirecast environment.

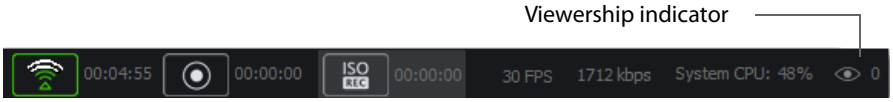


Open last document on startup When checked, the last document you used is opened when Wirecast starts up.

Show landing page on startup When checked, the Welcome screen is always displayed when Wirecast starts up. You can disable this automatic display by unchecking this option, or by unchecking the box in the corner of the Welcome display. But you can only turn this automatic display back on by checking this box in the *Preferences* > *Advanced* window.

Feedback Detection When checked, the computer audio is disabled (live feed is unaffected) whenever feedback is detected. Checked is the default. When feedback is detected, a warning is displayed with an option to turn off feedback detection.

Show Number of Viewers When checked, enables the viewership indicator while streaming.



Maximum Reconnect Attempts Enter the number of times you want Wirecast to try to reconnect to a host provider. The default is three.

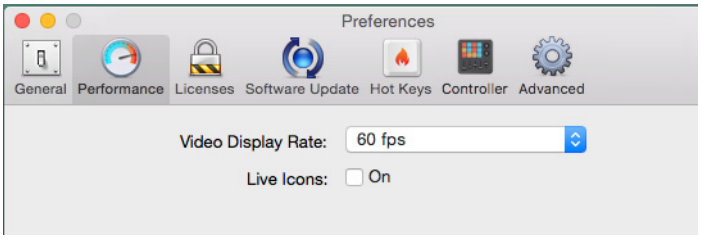
Audio Interface Select the audio playback driver used.

Performance

Performance preferences enable you to select the display rate used for all internal video rendering.

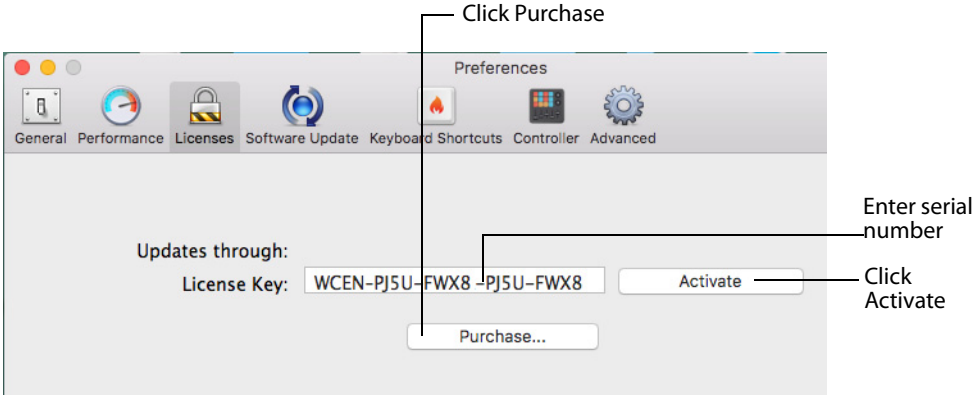
You can set the Video Display Rate to 24, 25, 30, 50 or 60 fps. If using PAL sources, choosing 25 may eliminate dropped or duplicate frames. It is recommended that you set this frame rate to match the frame rate of your output video encoder.

You can turn on the Live Icons feature, which makes all icons in the Shot Area display any live activity in the device it represents (cameras, streaming, etc.). You can also set the fps of the Live Icon display using the slide bar control.



Licenses

The licenses preferences enable you to register and license Wirecast. To purchase a license, click *Purchase*. To activate a license, enter your serial number and click *Activate*.



Serial Numbers

The Buy Upgrade Preference window displays the products and serial numbers that you have received for Wirecast.

Note: The serial number is always composed of numbers and upper case letters (excluding upper case letter O), but it never contains quotation marks. When you receive a serial number, it may be enclosed in quotation marks (e.g., "123-456-789").

If you wish to purchase a serial number from the web store, click *Buy*. When Wirecast displays the Enter Serial Number window, enter the serial number and click Activate. Wirecast validates the serial number and unlocks Wirecast. If you previously purchased a copy of Wirecast and want to use that serial number, enter that serial number to unlock Wirecast.

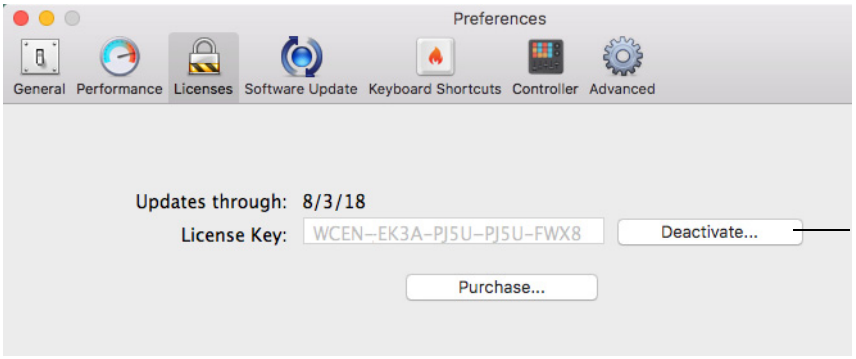
Note: If you do not want to purchase a serial number directly in Wirecast, you can also purchase a serial number at *www.telestream.net*.

Manual Activation

If your computer is not on the Internet, you can use another computer to activate your license and unlock Wirecast. To manually activate your license, download the Manual Activation Guide at: http://www.telestream.net/telestream-support/wire-cast/training.htm and follow the steps in the guide to unlock Wirecast.

Deactivate Serial Numbers

Deactivating a serial number allows you to re-activate it on another computer. You can always reactivate a serial number by re-entering it. To deactivate a serial number, click the *Deactivate* button on the Licenses tab in Preferences. Wirecast deactivates the serial number and adds water-marking to the video and audio whenever licensed features are used. When you deactivate a serial number, it is removed from the table.

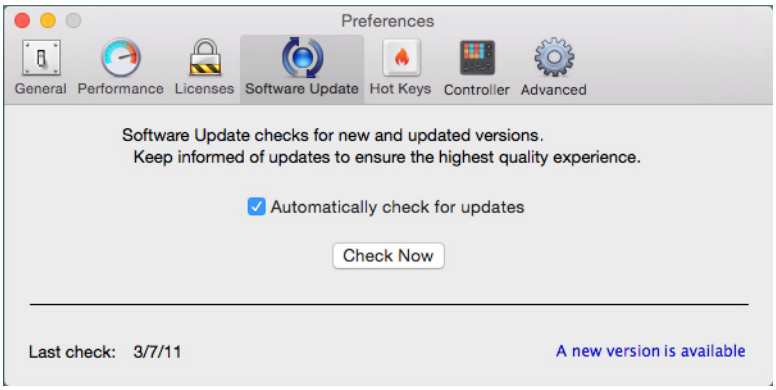


Demonstration Mode

When no serial number is entered or activated, Wirecast water-marks all output (both to disk and network). The video water-mark is a periodic overlay of the Wirecast logo. Audio water-mark is a periodic voice over. If you have a Wirecast serial number and are using a Wirecast Pro feature without a Pro license, that output is also water-marked.

Software Update

Software update preferences enable you to obtain Wirecast updates.



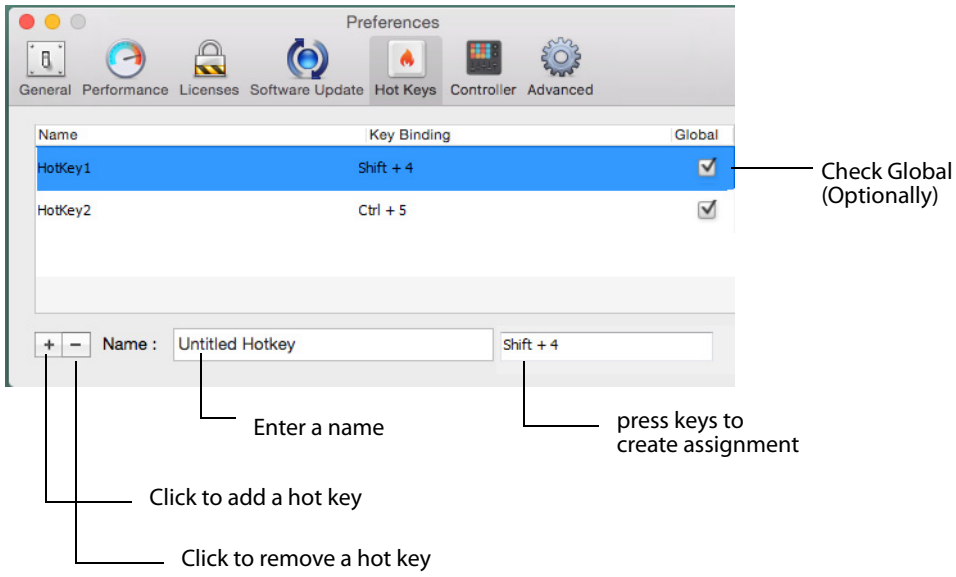
Automatically Check Updates Check the Automatically Check For Updates checkbox to cause Wirecast to check for updates on the Telestream Website each time Wirecast is launched. No personal information is transferred to Telestream during this action.

Check Now Click *Check Now* to immediately check for updates on the Telestream Website (www.telestream.net). No personal information is transferred to Telestream during this action.

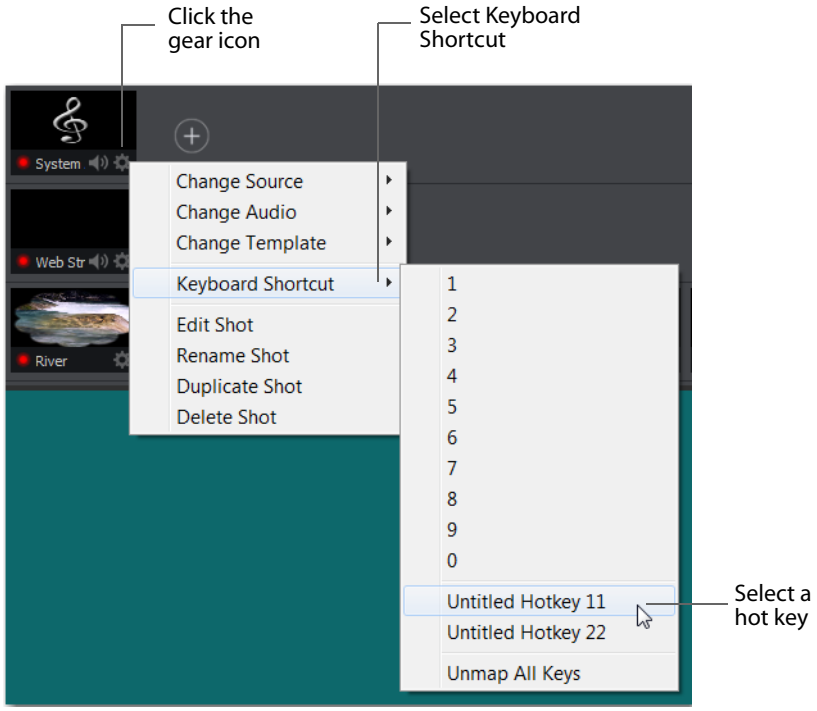
Hot Keys

Hot Key preferences enable you to create custom hot key assignments. To add a new hot key, click the add (+) button. Press the keys you want to define that hot key and enter a name for your hot key. To remove a hot key, select it in the hot key list and click the remove (-) button. Additionally, you check the Global check box to make your hotkey "global". This means that even if the Wirecast window is not the active window,

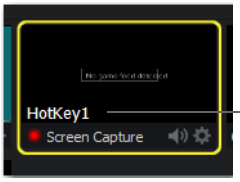
the hot key will still work. Otherwise (if Global is not checked) the window must be selected in order for the hotkey to work.



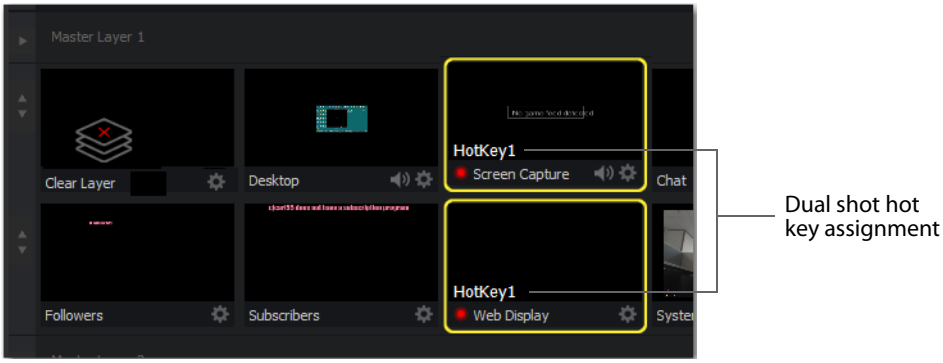
Hot keys are associated with a shot by selecting the Keyboard Shortcuts menu (by clicking the shot gear icon), then selecting a hotkey. This selection binds the hot key to the shot.



Once a hot key is assigned to a shot, the name of the hot key displays in the shot icon.

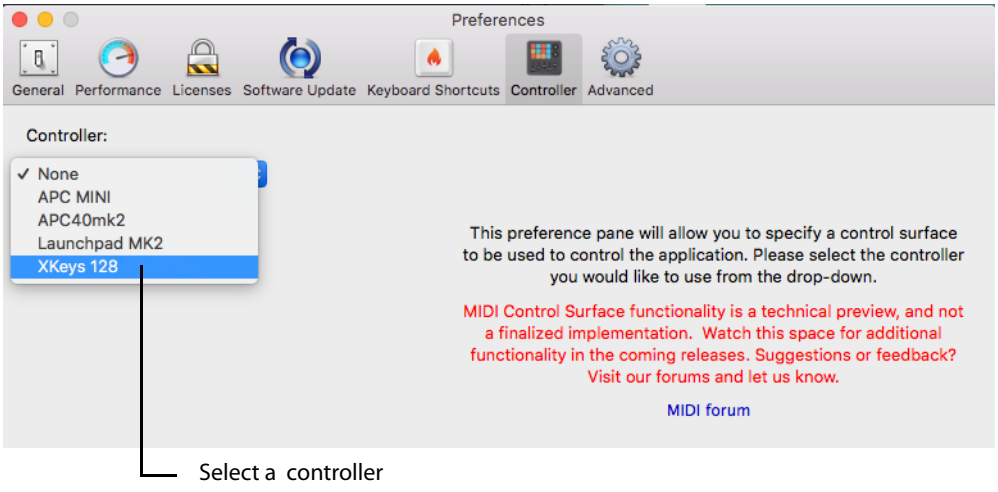


You can assign multiple shots to the same hot key. This is useful when you want different shots on different layers to be activated at the same time using one hot key. To do this, assign the hot key to the first shot (as described above), then assign the same hot key to a second shot on another layer. The shot name will display in both shot icons.

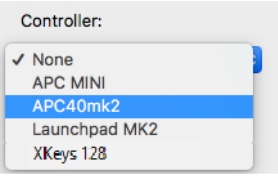


Controllers

Controllers preferences enable you to adjust MIDI and X-keys controller settings for Wirecast. Select the *Controllers* tab in the Preferences window, then select a controller from the drop-down menu.



Wirecast provides control of three MIDI controllers: APC MINI, APC40mk2, Launchpad MK2, and one X-keys controller: XKeys 128.

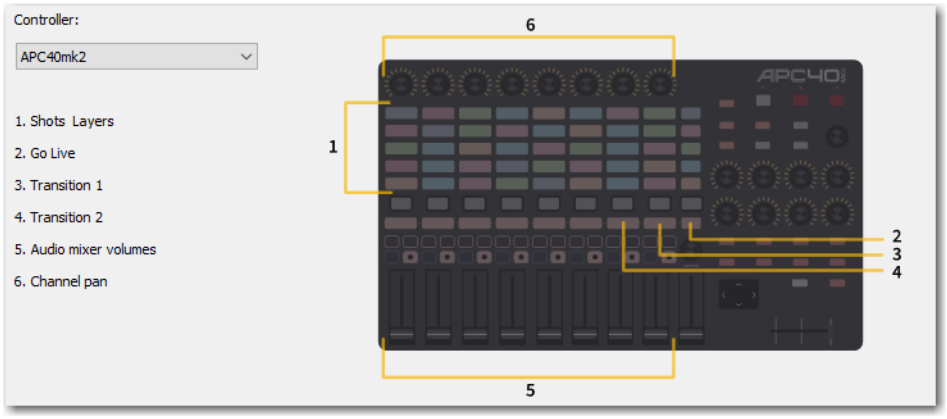


MIDI Control Assignments

Each MIDI controller has up to six controls assigned to it. The locations of each of these controls are shown below for the three midi controllers supported.

The locations of *APC MINI* controls are shown below:

The locations of *APC40mk2* controls are shown below:



The locations of *Launchpad MK2* controls are shown below:

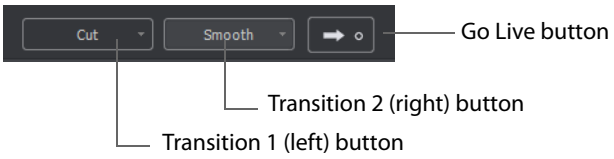
Each MIDI controller has up to six controls assigned to it. The locations of each of these controls are shown below for the three midi controllers supported.

MIDI Control Descriptions

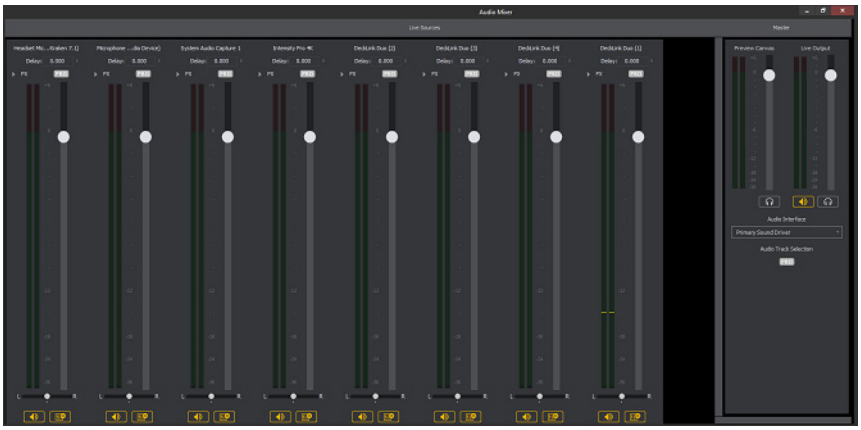
1. **Shot Layers** The matrix of buttons on the MIDI controller (five rows of eight buttons) automatically correspond to the five layers in the Wirecast shot list window. Up to eight shots in each layer are controlled by the MIDI controller buttons. Shots are automatically assigned to MIDI controller buttons as they are created. If less than eight shots exist on a layer, the corresponding buttons (to the right) are inactive.

2. **Go Live** Pressing this MIDI controller button is the same as clicking the *Go Live* button in the Wirecast Main window.
3. **Transition 1** Pressing this MIDI controller button is the same as clicking the *Left Transition* button in the Wirecast Main window.

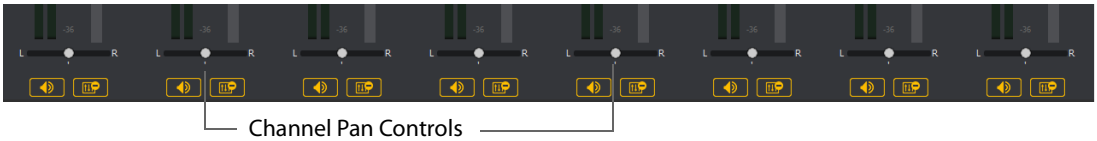
4. **Transition 2** Pressing this MIDI controller button is the same as clicking the *Left Transition* button in the Wirecast Main window.



5. **Audio Mixer Volumes** Sliding these MIDI controls adjusts up to eight volume controls in the Wirecast Audio Panel. Each MIDI slider corresponds (left to right) to a volume control in the Audio Panel. Volume controls are automatically assigned to MIDI controller sliders as they are created. If less than eight volume controls exist in the Audio Panel, the corresponding MIDI sliders (to the right) are inactive.

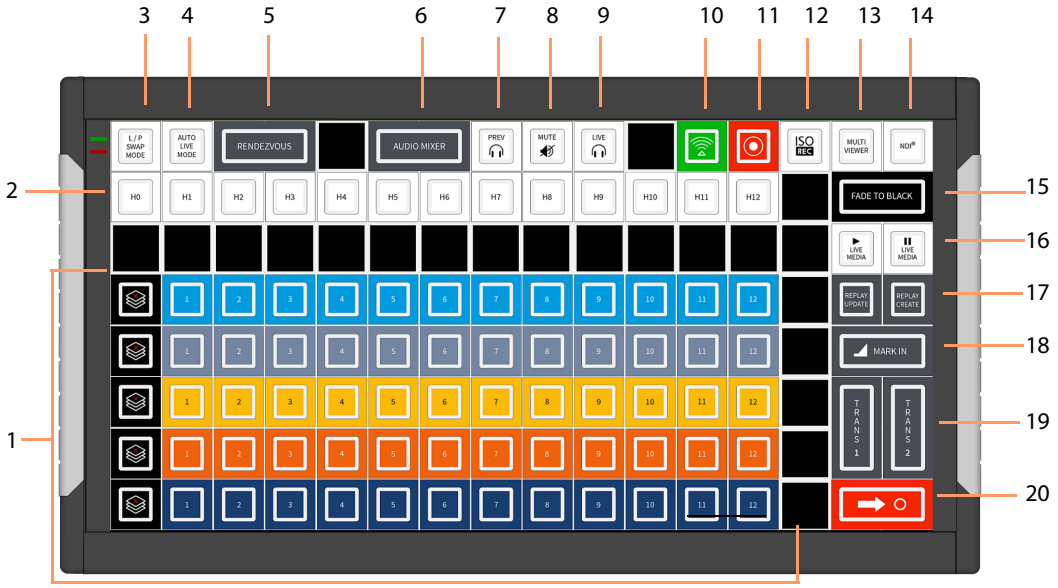


6. **Channel Pan** Adjusting these MIDI controls sets up to eight Channel Pan controls in the Wirecast Audio Panel (located just below the volume controls). Each MIDI control corresponds (left to right) to a Channel Pan control in the Audio Panel. Channel Pan controls are automatically assigned to MIDI controls as they are created. If less than eight Channel Pan controls exist in the Audio Panel, the corresponding MIDI controls (to the right) are inactive



X-keys Control Assignments

The X-keys controller has multiple controls assigned to it. All of the assigned controls are shown below.



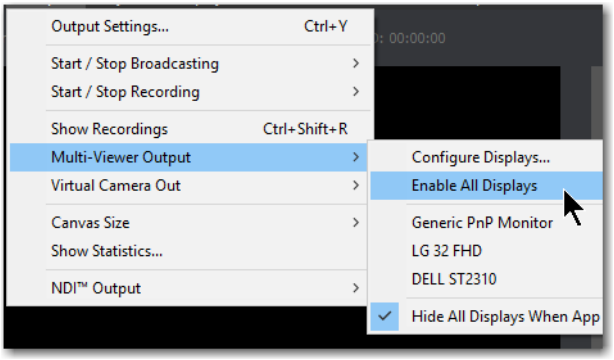
General Key Operations

- Key lamps turn red when a function is on, and turn blue when off (except for keys that do not have dual states, like the Hot Keys).
  - Function lamps turn red when a function is on, and turn blue when off (except for keys that do not have dual states, like the Hot Keys).
  - Shot switching key lamps turn Blue when shot is in Preview and Red when in Live. Otherwise they are off.
- The Wirecast software and the X-keys panel stay in sync when keys are pressed or changes are made in Wirecast.
- Some keys are interactive. In such a case, pressing one key affects the status of another (like the PREV and LIVE keys).

Key Descriptions

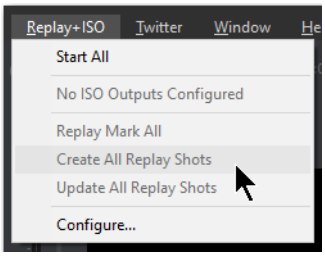
1. **Five Layers keys** Controls the first twelve shots (plus the Clear Layer shot) on each of the five layers.
2. **Hot Keys** The twelve keys represent the twelve Hot Keys that have been assigned in Wirecast. Pressing a key executes the matching numbered Hot Key (1 through 13). The key lamps momentarily turn red, then turn back to blue.
3. **Live/Preview Swap Mode** Toggles the Live/Preview Swap mode. When in this mode, the Live and Preview shots are swapped.

4. **Auto Live Mode** Toggles the Live Auto mode. When in this mode, selected shots are displayed in the Live Output window immediately.
5. **Rendezvous** Toggles (show/hide) the display of the Rendezvous window.
6. **Audio Mixer** Toggles (show/hide) the display of the Audio Mixer window.
7. **Preview Monitor Audio** Toggles the Preview monitor audio (what you hear locally) on and off. (It is mutually exclusive with Live Monitor audio).
8. **Mute Live Streaming audio** Toggles the Live Streaming audio (what your viewers hear) on and off.
9. **Live Monitor Audio** Toggles the Live monitor audio (what you hear locally) on and off. (It is mutually exclusive with Preview Monitor audio).
10. **Streaming** Toggles streaming on and off.
11. **Recording** Toggles recording on and off.
12. **ISO Recording** Toggles ISO recording on and off.
13. **Multi Viewer** Enables all displays. Pressing this key is the same as selecting *Output* > *Multi-Viewer Output* > *Enable All Displays*.

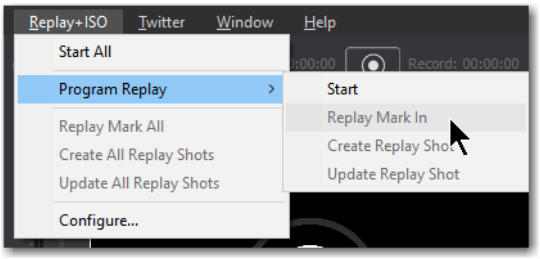


14. **NDI** Enables/Disable NDI output.
15. **Fade to Black** Pressing this key acts as a "master transition-to-black". The transition used is the one currently selected. It is very helpful when needed to make the Live Output black in an emergency. If Wirecast is in Live/Preview Swap mode, the live shot is moved to Preview and the pre-fade condition can be restored by pressing the Go key.
16. **Live Media Play and Pause** Press the Play button to play a selected media file, and press the Pause key to pause it. These keys are interactive. Pressing one changes the lamp status of the other.

17. **Replay Create and Update** These keys execute *Replay+ISO* > *Create All Replay Shots* and *Replay+ISO* > *Update All Replay Shots.*



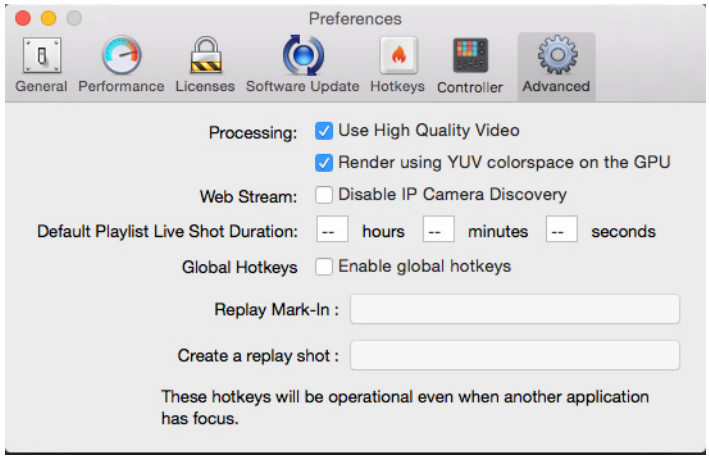
18. **Mark In** Pressing this key executes *Replay+ISO* > *Program Replay* > *Replay Mark In.*



19. **Transitions 1 and 2** These keys select Transition 1 or Transition 2 so that when the Go key is pressed, the selected transition will occur.
20. **Go** Press this key to execute a transition of the shot from the Preview window to the Live Output window. If Wirecast is in the Live/Preview mode, the Live output shot will be moved to the Preview window when the Go key is pressed

Advanced

Advanced preferences enable you adjust advanced settings for Wirecast.



Use High Quality Video

Check the Use High Quality Video checkbox to increase the quality of decoding performed on your source media files. If CPU usage is near 95%, or if the frames per second (fps) is consistently well below your target, uncheck *Use High Quality Video* to remedy this. Checked is the default.

Render using YUV Colorspace

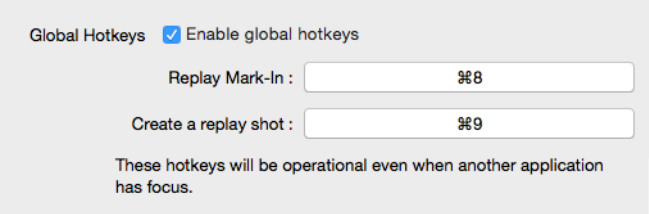
If *Render using YUV colorspace* is checked, video frames will be rendered on the GPU using YUV rather than RGB. This will typically provide a performance advantage and save on memory. Performance will improve when streaming to most destinations (including Virtual Camera Out). The best way to know if this option is advantageous to use on your system is by trial and error, and observe the results.

Disable IP Camera Discovery

Check *Disable IP Camera Discovery* to turn off automatic discovery of IP Cameras.

Global Hot Keys

Check *Enable global hotkeys* to define hotkeys for "Replay Mark-In" and "Create a Replay Shot" functionality. To assign a hot key, first select one of the functions by clicking in its edit box, then press a key stroke sequence to be used as the hot key (i.e. command + 8).



Note: These Global Hot Key settings are specifically for Replay. This is so you can activate Replay functions when the application window is not in focus while playing games, etc.

Audio Mixer

Introduction

The Audio Mixer enables you to monitor and control all of the audio sources from a single control panel. This section describes in detail how to use the Audio Mixer.

Topics

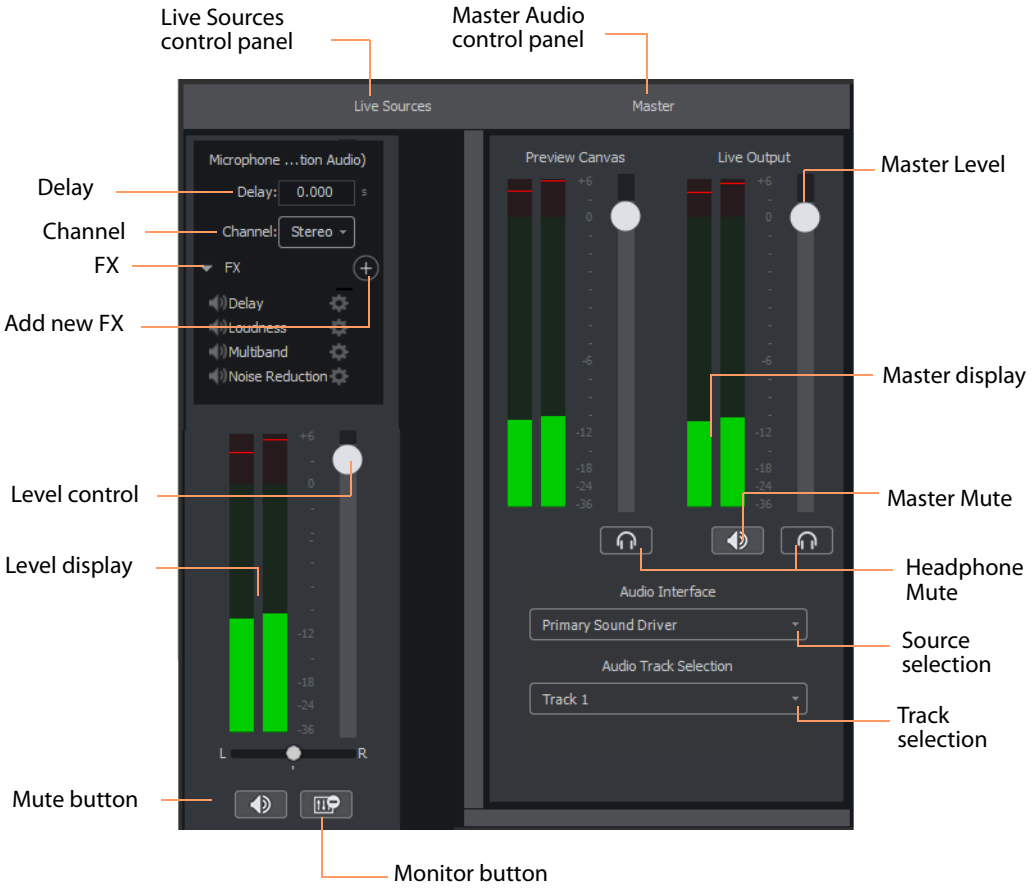
- *Overview*

Overview

To open the Audio Mixer panel, select *Audio Mixer* from the Window menu.

The Audio Mixer separates your audio by hardware and shot. Live Input is always the first section to the right of the Master control, and it contains all hardware audio sources that are live in your streaming event. This includes microphones, audio input

feeds, cameras, capture cards, Web streams, etc. The remaining audio controls are associated with specific shots.



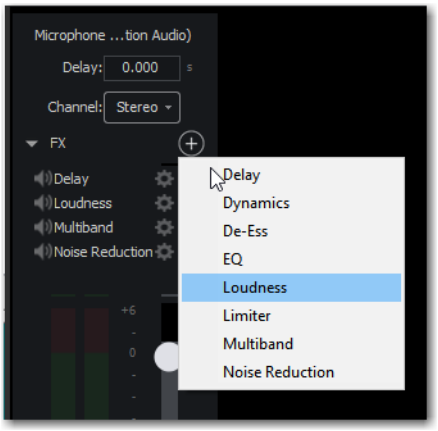
The Monitor button toggles the source audio when monitoring Preview or Live output. This does not remove the audio from the output stream or recording. Delay enables you to delay the audio as needed, in seconds and milliseconds. Channel enables you to select left source only, right source only, or stereo (left and right).

Delay Enter the amount of audio delay needed (in seconds and milliseconds).

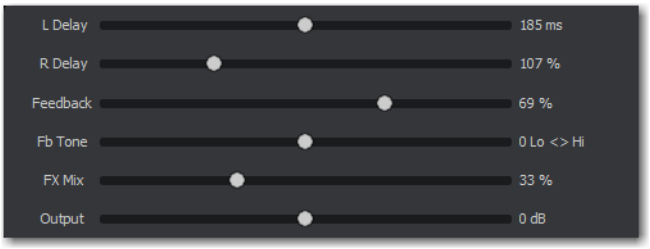
Channel Select the channel to use: Left, Right, or Stereo (both).

FX Click the down-arrow to display the audio effects panel.

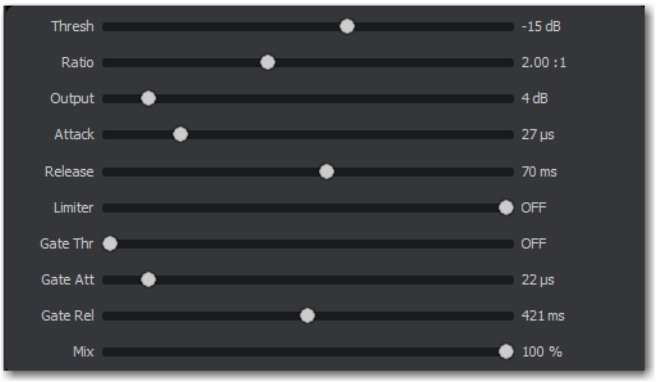
Add New FX (+) Click the plus (+) icon to select an audio effect from the drop-down menu.



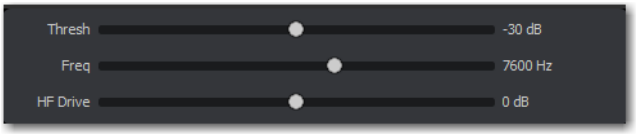
- **Delay** L and R Delay adjusts how much delay on each channel. Feedback is how much delay is used. Fb Tone is a frequency setting of highs and lows to be delayed. FX Mix is how much delay will be added to audio output. Output sets the delay output level.



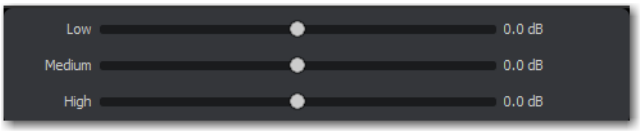
- **Dynamics** Thresh sets the threshold of engaging compression. Ratio sets the compression ratio. Output sets the compression level. Attack sets the manner in which compression is applied. Release sets how compression in released. Limiter sets a max output level on the audio. Gate controls (Thresh, Attack, and Release) sets the noise gate that cuts off noise at the set level. Mix adjusts how much compression is applied to the audio.



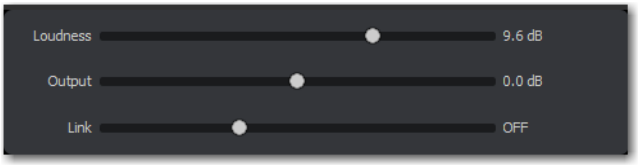
- **De-ess** Thresh sets the threshold of de-essing. Freq selects the frequency at which de-essing will be applied to the audio. HF Drive adjusts the high frequency aspect of de-essing.



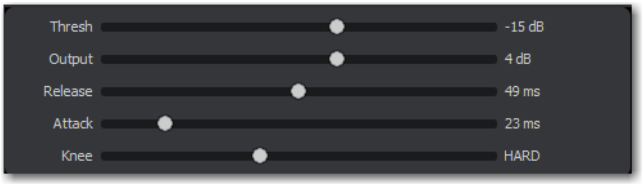
- **EQ** Low, medium, and high adjusts low, mid, and high frequency components in the audio.



- **Loudness** Loudness adjusts the amount of loudness (raising high and low frequencies) in the audio. Output adjusts how much loudness is applied to the audio..

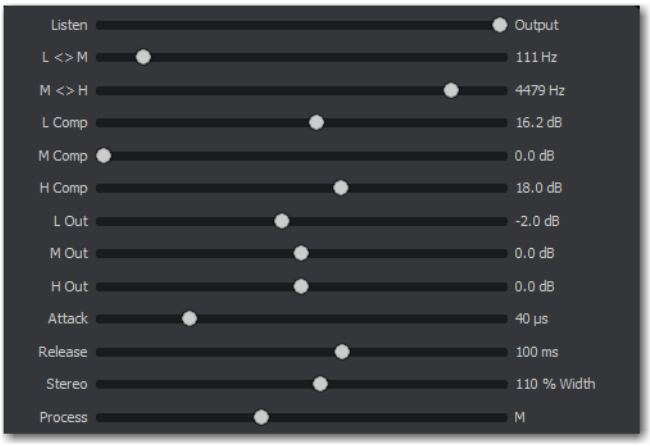


- **Limiter** Thresh sets the minimum threshold of limiting in the audio. Output sets the amount of limiting used in the audio. Release sets the manner in which limiting is released as the audio decreases. Attack sets the manner in which limiting is applied. Knee adjusts the frequency and shape of point where limiting begins.



- **Multiband** Listen selects which part of the frequency spectrum to hear: low, mid, high, or all (output). L<>M adjusts the cutoff frequency in the low to mid range (87 to 1020 Hz). M<>H adjusts the cutoff frequency in the mid to high range (111 to 19606 Hz). L, M, and H Comp adjusts the compression for low, mid, and high frequencies. L, M, and H Out adjusts the output for low, mid, and high frequencies. Attack sets the manner in which compression is applied. Release sets the manner in

which compression is released. Stereo adjusts how the left and right channels are separated (width) from 0 to 200%. Process selects stereo or mono mode.



- **Noise Reduction** Amount sets the amount that noise reduction is applied.

Level Control Adjusts the audio level of the live audio output.

Level Display Displays the levels (left and right) of the live audio outputs.

Mute Mutes the live audio output.

Monitor Toggles the monitor audio output in the headphones without effecting the live audio output.

Master Level Adjusts the audio level of the Master audio output.

Master Display Displays the levels (left and right) of the Master audio outputs.

Master Mute Mutes the Master audio output.

Headphone Mute Toggles the monitor audio output in the headphones without effecting the Master audio output.

Source Selection Click the down arrow to select an audio source from the drop-down menu.

Track Selection Click the down arrow to select an audio track from the drop-down menu.

Asset Manager

Introduction

The Asset Manager is used to change the sources of media in your document. It is accessed by selecting *Media* > *Show Asset Manager*.

Topics

- *Documents*
- *Reassigning Media*

Documents

Wirecast stores a path to your media in the Wirecast document. If you relocate your media, Wirecast no longer is able to find them. In this case, use the Asset Manager to reassign the new media locations. However, Wirecast does keep track of the relative path to your media. If you move both the document and media to a new position, Wirecast still finds the media.

Reassigning Media

To reassign media, follow these steps:

1. To open the Asset Manager, select *Show Asset Manager* from the Wirecast Media menu.
2. Select the media you want to assign to another source.
3. Some media assets (i.e. cameras) enable you to set the aspect ratio by displaying a Device Aspect Ratio menu. You can select an aspect ratio from this menu.
4. Select the new media from the *Assign To* menu, or click Browse and locate the replacement media on disk.

Note: When Desktop Presenter is selected as the source, you can enter the IP address for the Desktop Presenter. This enables you to build a Wirecast presentation with

place-holders and then reconfigure at a later date to accommodate a new presenter with a new Desktop Presenter as a source. Click Apply, then click the corresponding icon in the Shot Selection.

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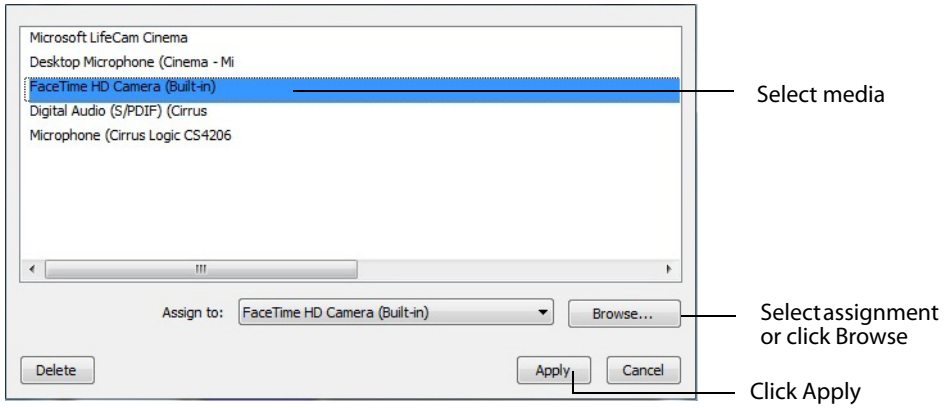
5. Click *Apply* to replace the existing media, then close the Reassign Media window.



Menus and Windows

Introduction

These topics describe the menus, menu items, and keyboard shortcuts in Wirecast.

Topics

- *Wirecast Menu*
- *File Menu*
- *Edit Menu*
- *Switch Menu*
- *Media Menu*
- *Output Menu*
- *Layout Menu*
- *Replay + ISO Menu*
- *Twitter Menu*
- *Window Menu*
- *Help Menu*

Wirecast Menu

About Wirecast Displays the version you are running.

Preferences Opens the Preferences window. If the Preferences window is already open, it becomes the active window.

Services Presents the Macintosh Services available.

Hide Wirecast Hides all of the windows.

Hide Others Hides all non-application windows.

Show All Shows all non-application windows.

Quit Wirecast Closes all documents and exits. If the broadcast is playing, you are asked to stop the broadcast first. If a document has not been saved, you are asked to save it.

File Menu

New Creates a new, empty Wirecast document.

Open Displays the Open dialog window for opening a Wirecast document.

Open Recent Displays up to fifteen of the most recently accessed documents. Every time a document is opened or saved it is entered into this list.

Open OBS Scene Displays the Open dialog window for opening an OBS (.json) document.

Import Media Enables you to import media into Wirecast. A new shot is automatically created using the new media.

Save Saves the document. If the document has not already been saved, the Save As... dialog window is displayed.

Note: Wirecast auto-saves your Stream/recording. All formats (WMV, MOV, MP4) will be recoverable in increments of 20 seconds. Any recording less than 20 seconds is corrupted. ISO also recovers. In the case of an unexpected shutdown, the recoverable video is available in increments of one minute.

Save As Displays the Save As... dialog window so that the document can be saved using a new file name.

Close Window Closes the currently active Wirecast window. If the window is a document, all of its Shot Editor windows are closed as well. If Wirecast is still broadcasting, you are asked to stop the broadcast. If the document has not been saved, you are asked to save the document before closing.

Edit Menu

Undo Reverses your last change in Wirecast. Undo is only available in some windows (such as the Preview window). Wirecast offers an unlimited number of undo actions (within computer memory limitations). Undo information is stored on a per-window basis. Also, if you close a window then reopen it, your undo information is lost.

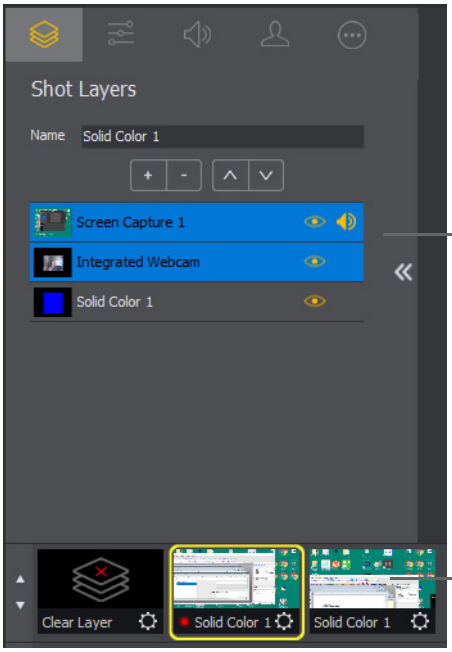
Redo Reverses your last undo action. Redo is only available in some windows (such as the Preview window). Wirecast offers an unlimited number of redo actions (within your computer's memory limitations). Redo information is stored on a per-window basis. Also, if you close a window then reopen it, your redo information is lost.

Cut Cuts selected text.

Copy Copies selected text to clipboard.

Paste Pastes selected text from clipboard to location of cursor.

Paste as new Consolidated Shot A *consolidated shot* is a shot created by selecting multiple sources in the Shot Layers tab of the Shot Editor and then creating a new shot using these selected sources. To do this. select multiple inputs, select *Edit* > *Copy*, then selecting *Edit* > *Paste as new Consolidated Shot* to create a new shot in the selected layer.



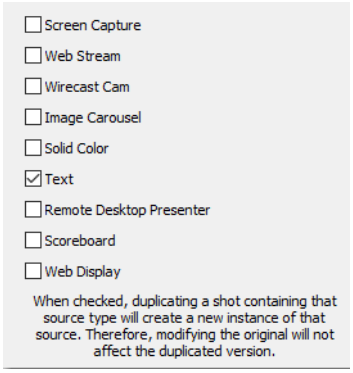
Select All Selects all text in the active window.

Edit Shot Opens the Shot Editor. (See *Shot Editor*). You can also double-click a shot, or right-click and select Edit Shot, to open the Shot Editor.

Rename Shot Enables you to rename a shot. You can also right-click a shot and select Rename Shot.

Duplicate Shot Duplicates the currently selected shot. You can also right-click a shot and select Duplicate Shot.

Duplicate Shot Options Check a source to create a new instance of it when duplicating the shot containing it. Multiple selection is allowed.



Add Shot Creates a new empty shot. You can also right-click a shot and select Add Shot.

Add Playlist Shot Creates a new Playlist shot. You can also select *New Playlist Shot* from the shot menu in the layer window.

Delete Shot Deletes the currently selected shot. You can also right-click a shot and select Delete Shot.

STUDIO

Move To Layer Moves a shot to the selected layer. When shots are created, they are assigned to a specific layer. They exist on that layer until they are moved or deleted. You can also click and drag a shot to another layer.

Switch Menu

Go Performs a transition (same action as clicking the Go button).

Transitions Wirecast has two transition buttons that can be assigned any transitions (cut, smooth, etc.) that Wirecast supports. The Switch menu lists the currently assigned transitions by name. These two transitions can also be selected by pressing the control key and either the 1 or 2 key. (See *Transition Controls* to modify which transitions appear in this menu.)

Transition Speed Enables you to select one of five transition speeds ranging from Slowest to Fastest.

AutoLive Toggles (turns on and off) the AutoLive feature. AutoLive is a fundamental feature of Wirecast which enables you to control how you make shots become part of the live broadcast. (See *AutoLive*.)

Live/Preview Swap Toggles (turns on and off) the Live/Preview Swap feature. When on, the Live Broadcast and Preview windows trade panes (swap) when the Go button is clicked.

Disable PTZ Preset Recall Enables/Disables PTZ preset recall. (See *PTZ Controller*).

Media Menu

Start Playing All Movies Starts playing any movies that are not currently playing.

Pause All Movies Pauses all movies that are currently playing.

Shuffle Playlist Randomly rearranges the order of media in the playlist.

Show Asset Manager Displays devices that can be configured. Some devices (cameras, etc.) may be configurable. For example, you can configure an iSight camera to manually change its focus, contrast, brightness, etc. Other devices have multiple inputs you can choose (AlchemyTV Card, etc.). (See *Asset Manager*.)

Note: The Configure Devices menu selection is present only if a device is connected to Wirecast. The configuration user interface is provided by the device maker. It is beyond the scope of this document to describe all of the features available for all devices. See the documentation provided with your device on how to configure it.

Output Menu

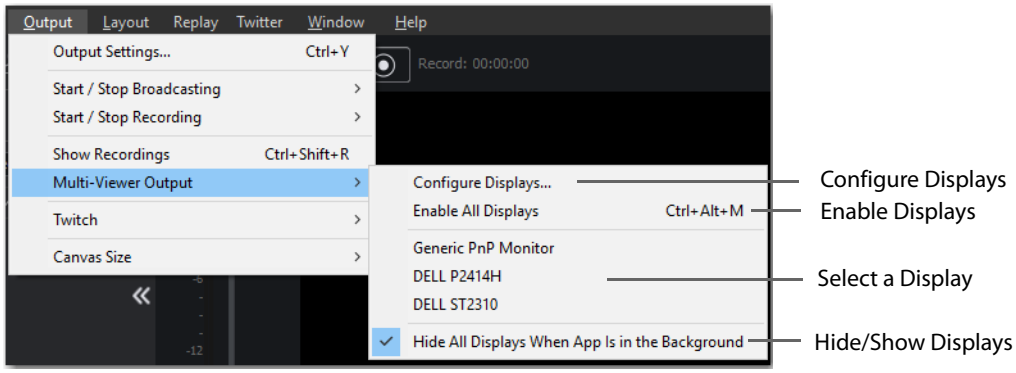
Output Settings Opens the Output Settings window.

Start/Stop Broadcasting Starts (or stops) broadcasting to the network. You can also click the Broadcast button on the Window Bar in the Main Window.

Start/Stop Recording Starts (or stops) recording to disk. If you have not yet configured the Output Settings for this document, you are prompted to do so. You can also click the Record button on the Window Bar in the Main Window.

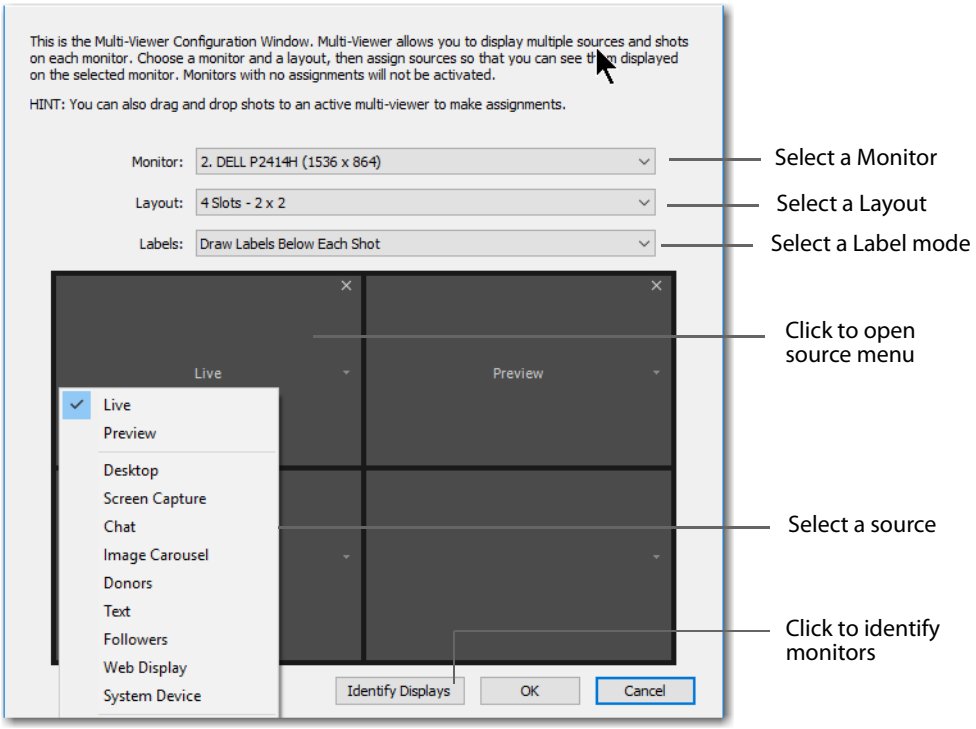
Show Recordings Opens all the folders of all the file directories in the Output Settings.

Multi-Viewer Output Enables you to setup and use a Multi-Viewer display on and or all monitors. You can configure your displays, enable all displays, select a display to be active, or show (or hide) all displays when the application is in the background.



Configure Displays

Select *Configure Displays* to open the configuration window.



Setup your Multi-Viewer by choosing a *Monitor* which determines where the Multi-Viewer will display.

Also select a *Layout* which determines how the Multi-Viewer will be displayed. The layout choices are: one, two, or four slots. In the *Pro* version ten or seventeen slots can also be selected. Each panel slot can then be mapped to any source: Preview, Live or any existing Shot in your document. Click inside a panel to select a source. Each Monitor is configured separately using the Configuration window. So, when you select a different monitor, the configuration panel (slots) also change. Additionally, all the monitors are automatically numbered. Clicking the *Identify Displays* button causes each of the monitors to display it number on it.

You can also control how each panel is labeled by making a selection from the *Labels* menu:

- **Draw Labels Below each Slot** Displays the label below each shot in each panel.
- **Superimpose Labels Over Each Shot** Displays the label over each shot in each panel.
- **Do Not Draw Labels** No labels are displayed.

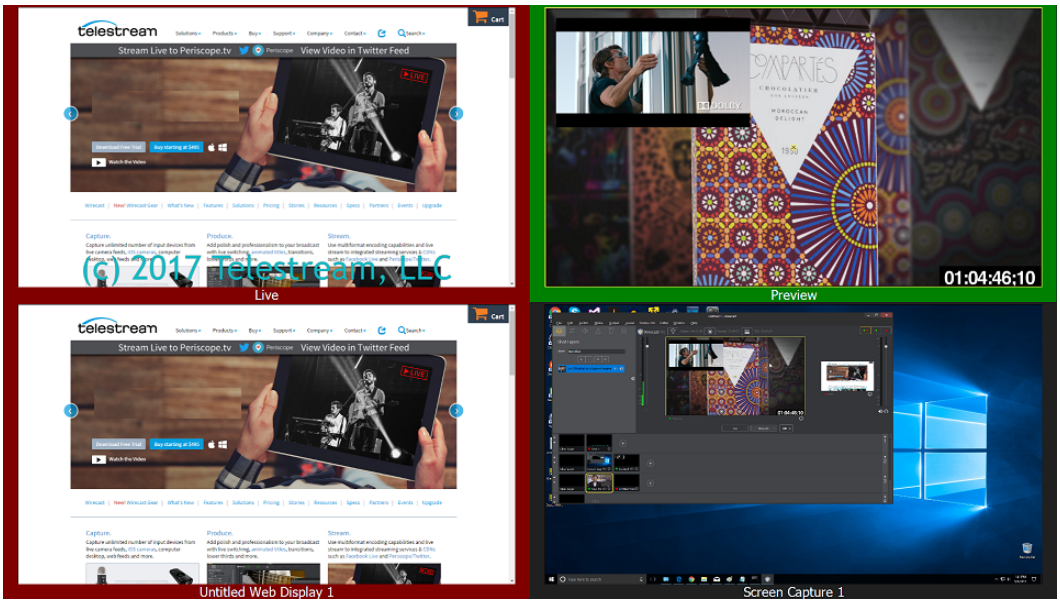
Click on any slot panel to open the source menus, then select a source from the list to display it in the slot. Click Identify Display to cause the display number on each display to be shown.

Enable/Disable All Displays

Select to hide or display all of your configured Multi-Viewed monitors.

Select a Display

Select one of your configured Multi-Viewed monitors to hide or display. Shown below is a typically configured monitor with four slots.



Hide All Displays When App is in the Background

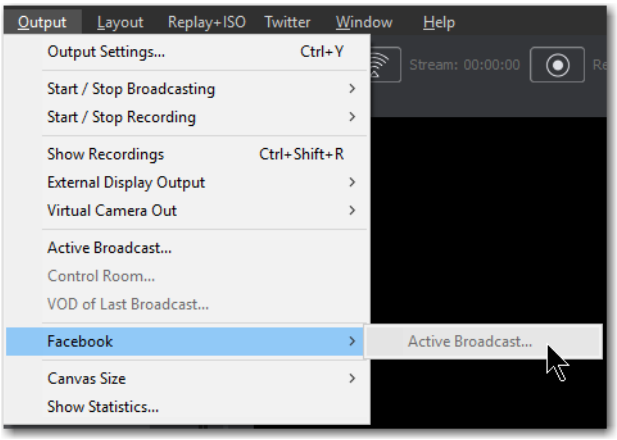
When selected, all Multi-Viewer Displays are hidden if Wirecast itself is put into the background or minimized. Turning this option off allows the Multi-Viewer outputs to stay on if Wirecast is put in the background or minimized.

Note: Multi-Viewer displays can also be disabled by clicking on the Multi-Viewer display itself (on its target monitor), and then pressing the Escape (*Esc)* key.

Virtual Camera Out Enables you to present the output of Wirecast as if it were a camera (a virtual camera), allowing it to be automatically detected by other applications when they are launched. Outputs only the Live Program feed.

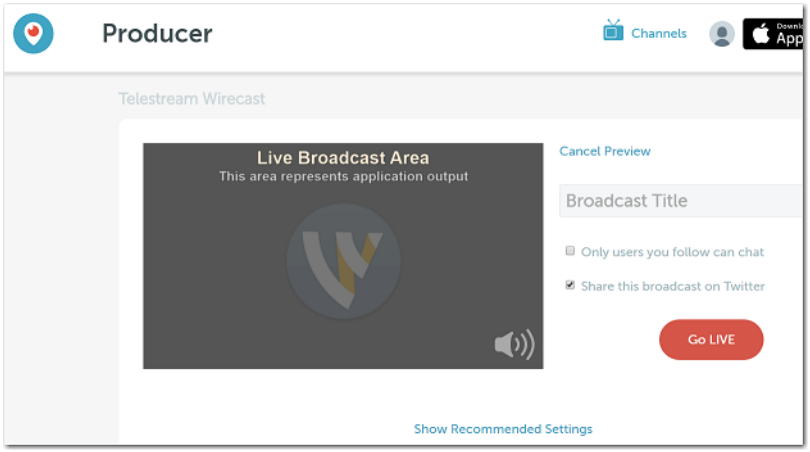
Note: *Active Broadcast* is enabled only for Periscope/Twitter and YouTube., *Control Room* and *VOD of Last Broadcast* are enabled only when you are logged into YouTube.

Facebook (Facebook Live Only) Select *Active Broadcast* to display your Facebook Live event.

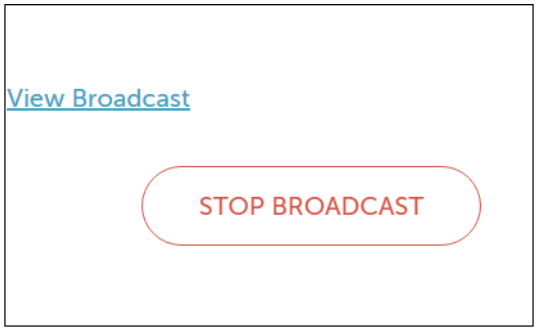


Periscope/Twitter Opens menu to monitor your Periscope/Twitter broadcast.

- **Active Broadcast** Once you have logged into your Periscope/Twitter account and you start streaming, you can select *Active Broadcast* to display the your broadcast window in a browser.
- **Producer Dashboard** Once you have logged into your Periscope/Twitter account, you can select *Producer Dashboard* to display the Periscope/Twitter dashboard window in a browser. In the dashboard you can start your broadcast by clicking the *Go Live* button.



To stop your broadcast click the *Stop Broadcast* button.

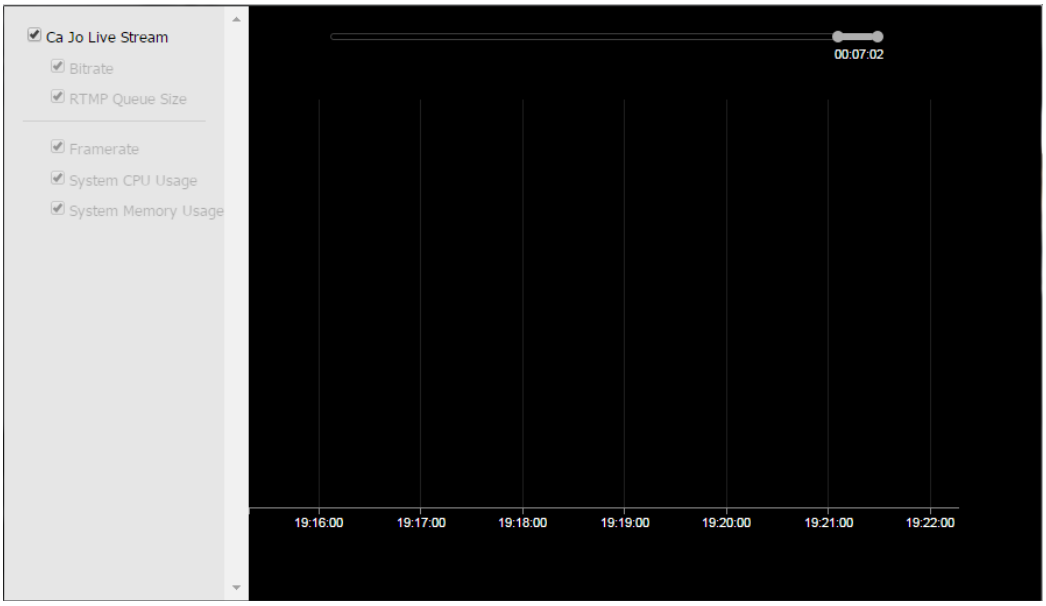


- **Toggle Broadcast** Click to toggle between *Go Live* and *Stop Broadcast* on the Producer Dashboard.

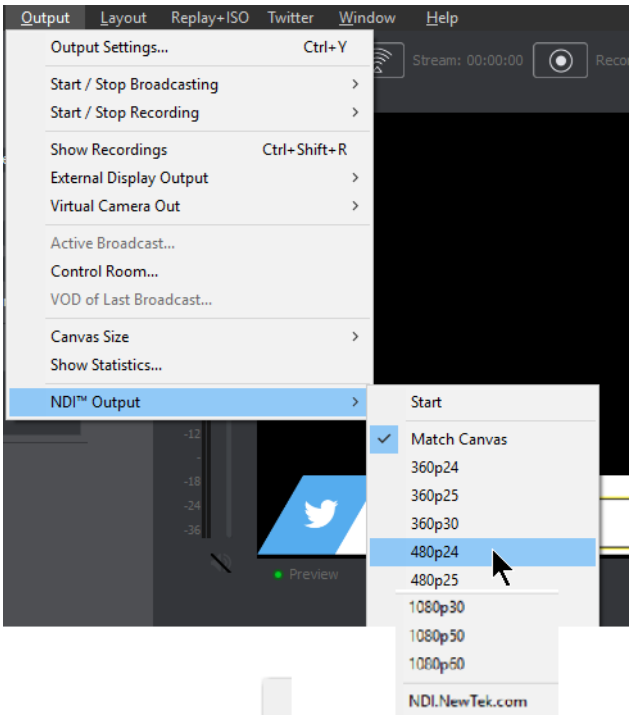
Canvas Size Sets the canvas size resolution used when broadcasting a Wirecast document.

Note: You should match the output to the canvas size as close as possible to preserve video resolution and quality. For example, a 800x600 source results in significant loss of quality if a resolution of 640x480 is selected. Using 720x576, which is much closer in size, helps preserve video quality.

Show Statistics Displays the statistics window for your broadcast. You can select (for display): Bitrate, RTMP Queue Size, Framerate, System CPU Usage, and System Memory Usage.



NDI Output Sends the output of the Live Program feed. Select the output resolution for your NDI output. You can also select a link that will take you to *NDI.NewTek.com* for additional information.

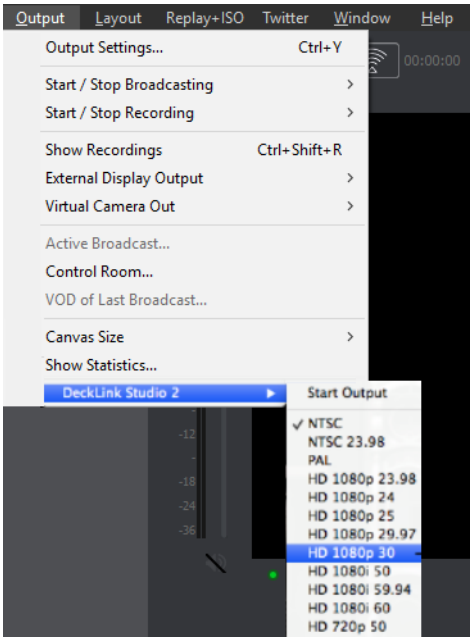


Blackmagic Cards

You can use Blackmgic cards to send live feeds directly into editing, effects and broadcast design systems. In order to use this feature, install a Blackmagic card with associated drivers, then restart Wirecast. The Blackmagic card with then be listed in the Output menu.

Under the Output menu, select a Blackmagic card, and then select an HD setting for its output. If your card has multiple outputs, you can select more than one and all will output simultaneously at independent resolutions and Frame rates.

To begin outputting, select *Start Output* and chose a setting.



You can stop the Blackmagic card output by selecting *Stop Output*. If you have multiple outputs selected, they will all stop outputting.

Note: A Blackmagic card can be used for either input or output, but not both. You will need a separate card for input and output.

Layout Menu

Master Audio Shows (or hides) the Master Audio controls.

Show Live and Preview Displays the Live and Preview windows.

Show Preview Only Displays the Preview window only.

Show Live Only Displays the Live window only.

Note: The above three controls are the same as the Live/Preview Control buttons at the top of the main window.

Go to Layer Displays the selected layer. You can also press command + Shift keys with the T, F, N, B, or A keys to select a layer. Each of these letter keys represents a layer name: Title, Foreground, Normal, Background, and Audio.

Activate layer Activate (checked) or deactivate (unchecked) a layer. You can also click the LED on the right side of each layer window.

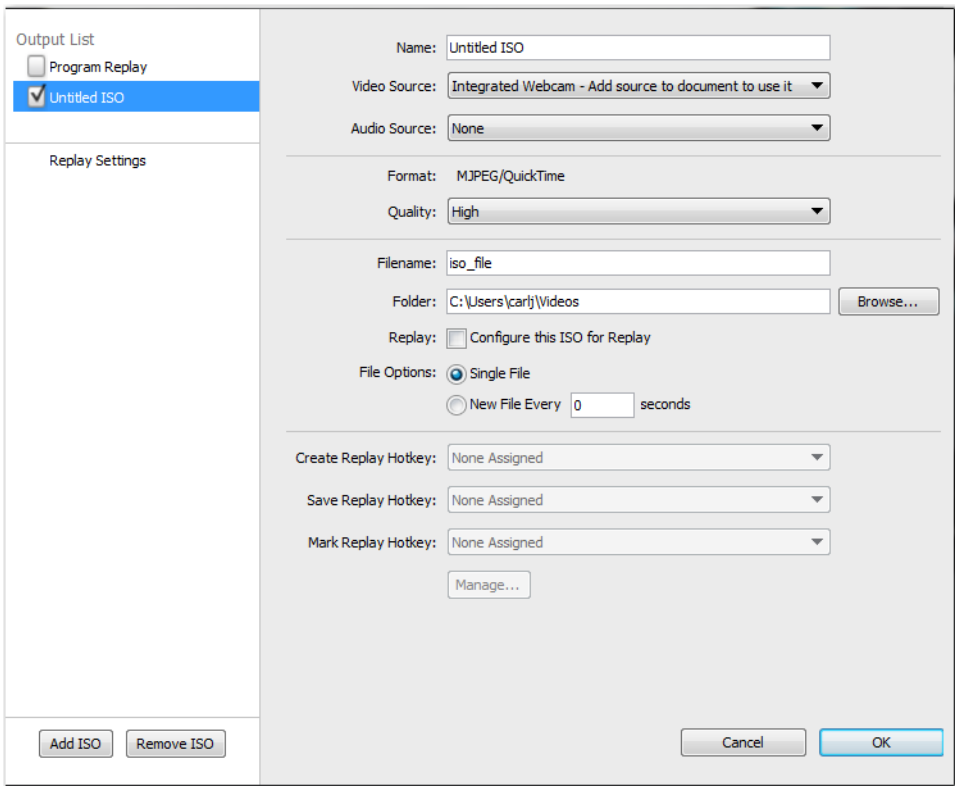
Game Overlay Shows or hides an overlay that displays streaming statistics.

Replay + ISO Menu

PRO

Start All Activates the Create Replay Shot system. When activated, the menu item becomes *Deactivate*. Click *Deactivate* to deactivate the Create Replay Shot system.

Configure ISO Outputs Once ISO outputs are created, all ISO outputs are listed in this menu. To configure an ISO output, click *Configure*, then click the *Add ISO* button.



PRO

Replay Mark All Allows you to tighten up your Replay Shot capture. Select *Replay Mark In* to mark the beginning point of your Replay Shot capture.

PRO

Create All Replay Shots Select *Create* to create additional Replay shots.

PRO

Update All Replay Shots If no replay shot exists, selecting *Update* creates a new Replay shot. There after, selecting *Update* updates the first Replay shot created.

PRO

Configure Displays the Replay Shot settings window (as shown above in *Configure ISO Outputs*.

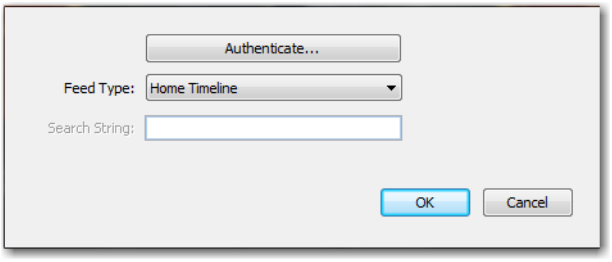
For more information about Replay Shots see *Replay*.

Twitter Menu

Message Feed Brings up your Twitter feed.

Create Shot Creates a shot with a social media title in Master Layer 1.

Settings Brings up the Social Media Settings dialog.



- **Authenticate** Click to authenticate your account with Twitter. Enter your pin when the PIN field displays.
- **Feed Type** Select a Feed Type: Home Timeline, User Timeline, Favorites, Search. If you select Search, the Search String field becomes active.
- **Search String** Enter a search string. (Active only when Search is selected in Feed Type above.)

Window Menu

Minimize Minimizes the front-most window.

Zoom Maximizes the front-most window (zooms to the full size of the screen).

Welcome to Wirecast Displays the Welcome screen.

STUDIO

Encoder Presets Opens the Encoder Presets window.

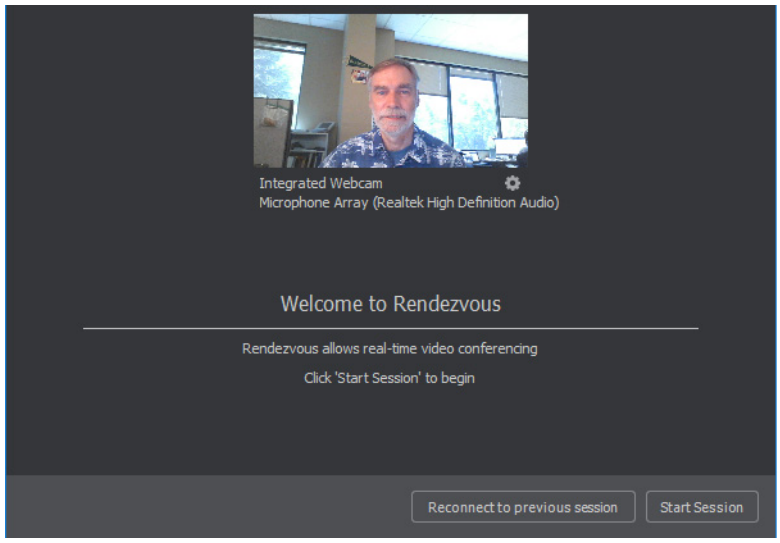
PRO

Audio Mixer Opens the Audio Mixer window.

PTZ Controller Opens the PTZ control panel. (See *PTZ Controller*).

Show USB Devices Opens a list of all USB devices.

Open Rendezvous Dashboard Opens a Rendezvous Dashboard. Click *Start Session* to use.. (See *Rendezvous Properties*).



STUDIO

New Layer Window Opens a new Master Layer window for the layer selected.

Document Windows All open document windows are listed at the bottom of this menu.

Help Menu

Wirecast Help Opens the online help version of the User Guide.

Open Wirecast PDF User Guide Opens the PDF version of the User Guide.

Open Tutorial HTML Opens the Wirecast Tutorial in your browser. To follow the tutorial, you'll need to Create a Document for the Tutorial as well.

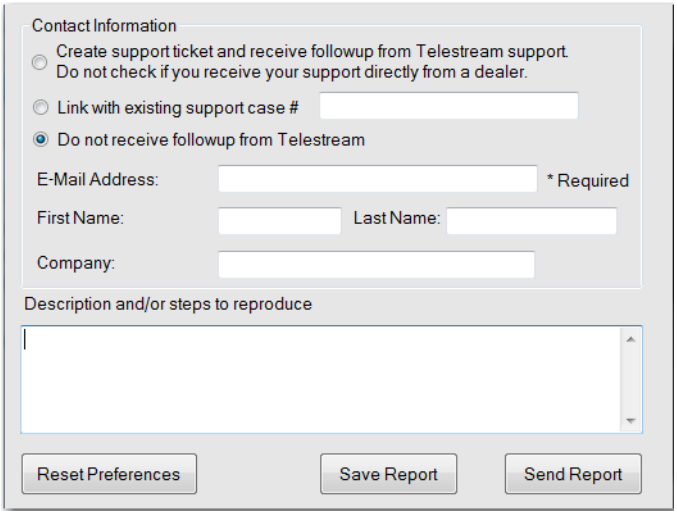
Create Document for Tutorial Creates a new Wirecast Document which contains the media necessary for following the Tutorial.

Buy/Upgrade Opens *Buy Upgrade* in the Preferences window. This window allows you to purchase licenses and to activate or deactivate them.

Provide Feedback Opens the Telestream Website feedback page where you can enter any feedback you may have about our product or company.

Send Support Information Opens a Support Assistant dialog window. To create a new support ticket, select *Create a support ticket*. The information is sent to the Telestream support team for evaluation. If you have been previously issued a case number, select *Link with existing support case #* and enter your case number. You can also select *Do not receive follow-up from Telestream*. This enables you to send support information to Telestream without receiving a response. Click *Save Report* to save the information to a file on your computer. Click *Send Report* to send the information to Telestream.

Note: You must click *Send Report* to create a ticket. If you click *Save Report*, a ticket will not be created.



Visit Telestream Website Opens the Telestream Website home page.

Visit Wirecast / Desktop Presenter Download Page Opens the Telestream Website download page for Desktop Presenter.

Acknowledgments Opens an on-line help to Acknowledgments.

Broadcasting

Introduction

Note: Wirecast will not prevent your computer from entering sleep mode. Therefore, to ensure uninterrupted streaming, you should disable sleep mode on your computer while using Wirecast.

Note: To avoid a decrease in video quality, Wirecast should not be used at CPU usage above 80%. See the Telestream Website for suggested configurations.

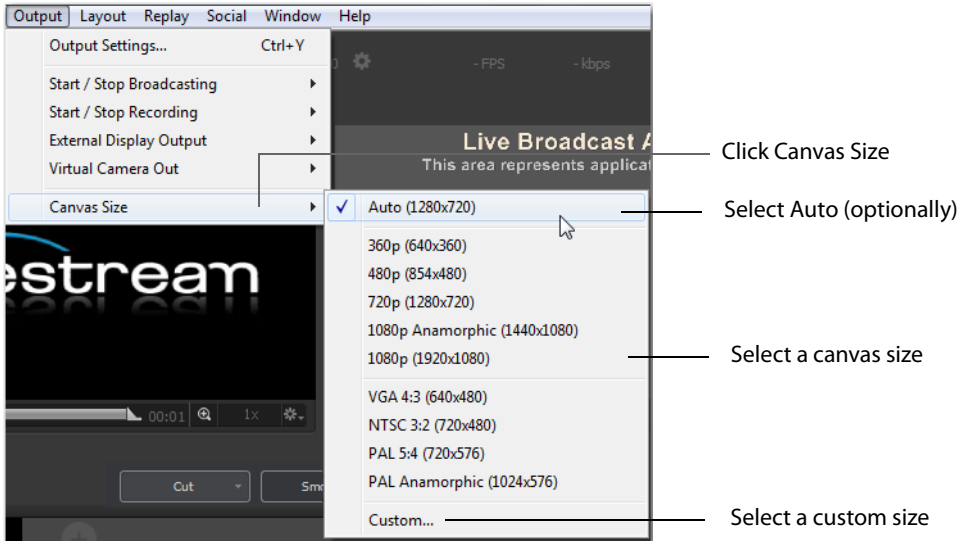
Topics

- *Canvas Size*
- *Virtual Camera*
- *Output Settings*
- *Encoder Presets*
- *RTMP Server*
- *Telestream Cloud Settings*
- *Bambuser, Churchstreaming.tv, Dailymotion, DaCast Streaming Services, ESE Networks, Lightcast, Livestream, Meridix Live Sports Platform, Onstream media, Pitchtime, SermonAudio, StreamingChurch.tv, StreamShark.io, StreamSpot, Streaming Media Hosting, StreamVu, Stretch Internet, Sunday Streams, Titled Globe, Tulix Streaming, Ustream, WebCast-TV, WorshipStream,*
- *Azure Media Services, Sermon.net, Verizon Digital Media Services.*
- *Brightcove, Limelight*
- *Akamai*
- *Twitter/Periscope*
- *Twitch*
- *Vimeo*
- *Wowza Streaming Engine.*
- *Zixi*

- *Facebook Live*
- *Facebook Live - With User Code*
- *Microsoft Stream*
- *YouTube*
- *Streaming*
- *Record To Disk*

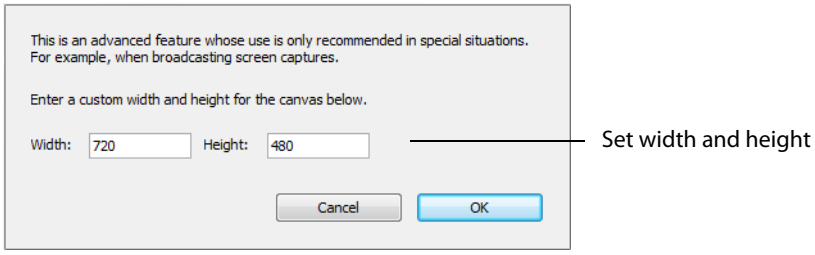
Canvas Size

When *Output* > *Canvas Size* is selected, a drop-down menu with various canvas sizes is displayed allowing you to select the canvas size you want. You can also select *Auto*. This automatically sets the canvas size to the highest resolution that was selected when the encoder was chosen.



Note: Canvas size selection *1080p Anamorphic (1440x1080)* is a narrower (1440) display stretched to display as 1080.

There is also a *Custom* option that enables you to set the canvas width and height.

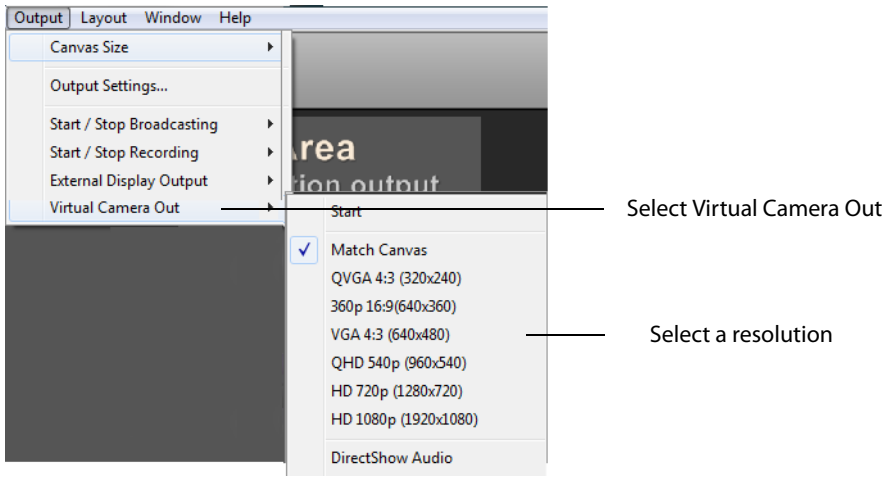


Wirecast can manage a wide variety of input sources, enabling you to have several live camera sources. However, really high-quality video sources can cause more harm than good. For example, an HD camera feed into a Wirecast canvas that is set to HD resolution and then broadcast out in HD, requires a lot of work for the graphics processor. If the frame rate starts to drop but the CPU usage stays steady, it creates a bottleneck. The solution is to reduce the frame size going through Wirecast. Therefore, there is no need to bring input video in at HD resolution if Wirecast is streaming out a lower resolution.

Keep in mind that resizing down is good but resizing up reduces quality. As a rule, you should try to keep your resolution as constant as possible from source to output. There is no benefit from using an HD camera if you're only broadcasting a low resolution stream. This only increases the work your computer must do without any increase in output quality.

Virtual Camera

Wirecast enables you to present the output of Wirecast as if it were a camera (a virtual camera), allowing it to be automatically detected by other applications when they are launched. To setup Wirecast as a virtual camera, select *Output* > *Virtual Camera Out,* then select the output resolution to use. You can also select *Match Canvas* to cause the resolution to be the same as the current canvas size.



Once you have selected an output resolution, select *Start* to make Wirecast output available to other applications on your computer.

Some of the applications Wirecast can work with using virtual camera are:

- Google+ Hangouts
- Skype
- GoToMeeting

Note: Virtual Camera only works with one application at a time.

The Virtual Camera menu also provides two additional options: *DirectShow Audio* and *Virtual Microphone*.

DirectShow Audio When selected, outputs DirectShow audio.

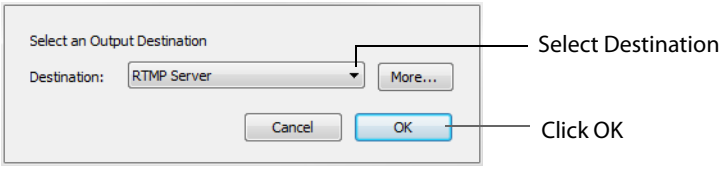
Virtual Microphone When selected, enables you to present the audio output of Wirecast as if it were a microphone (a virtual microphone), allowing it to be automatically detected by other applications when they are launched.

Note: Virtual Microphone can only be installed during Wirecast installation.

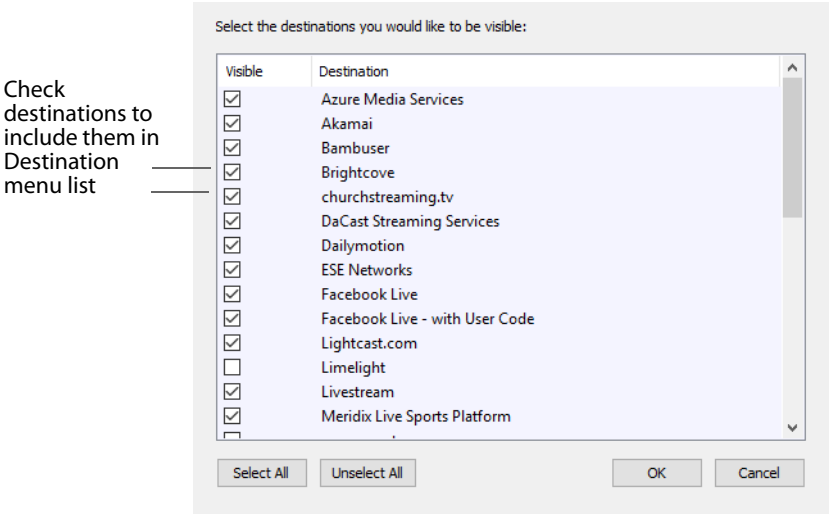
Output Settings

To configure output settings select *Output* > *Output Settings* to open the Output Settings window.

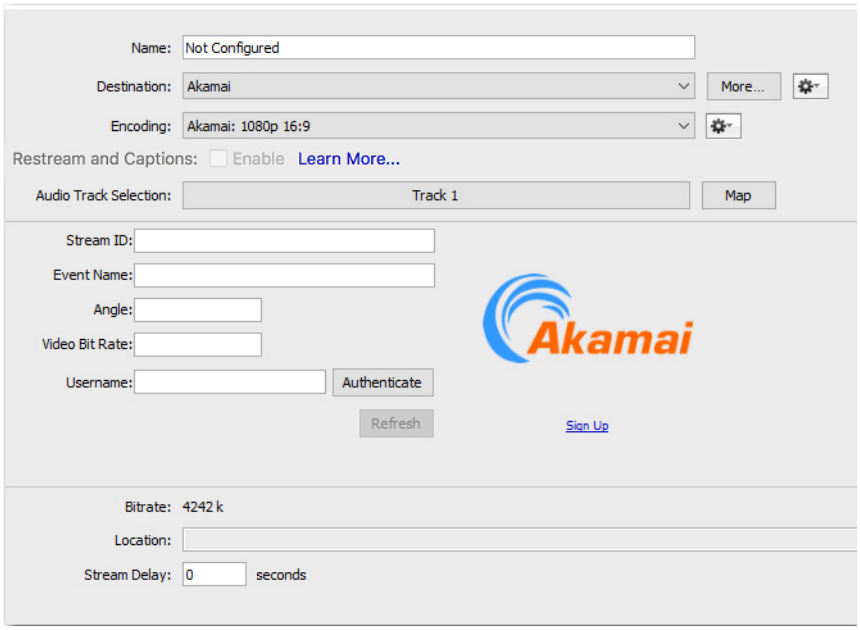
When the dialog box displays, select a destination, then click OK.



You can also click *More* to display a list of all available destinations. Check the checkbox for each destination you want to include in the destination menu list.



The Output Settings window displays the destination you selected. Each destination window has a unique set of controls including a way to authenticate your connection.



Multiple Output Settings

Wirecast enables you to specify many output settings for your presentation. This means you may configure Wirecast to broadcast multiple data rates simultaneously, or even broadcast and record with different encoders at the same time. You can also broadcast to multiple RTMP Server destinations while recording to disk.

At the top of the Output Settings window is a list of the current settings. Uncheck the checkbox of any setting you want removed from your broadcast. You can add as many output settings as you need, but keep in mind that each additional destination will require more system resources.

Click the Gear icon to access actions that enable you to create reference movies you can distribute to your viewers. Each destination type provides a unique set of actions.

Configuration

There are two items to configure before broadcasting: Destination and Encoding.

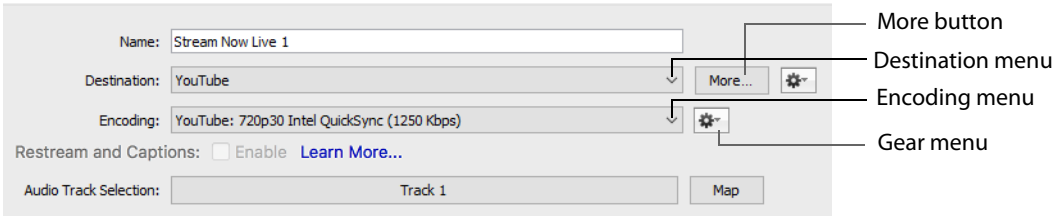
When you broadcast with Wirecast, you must pre-configure at least one destination. A destination can be a broadcast server, content distribution network or local disk recording.

Each encoding preset uses a different broadcast technology (RTMP, Windows Media, etc.). The destinations described below depend on the Encoder Presets you have chosen.

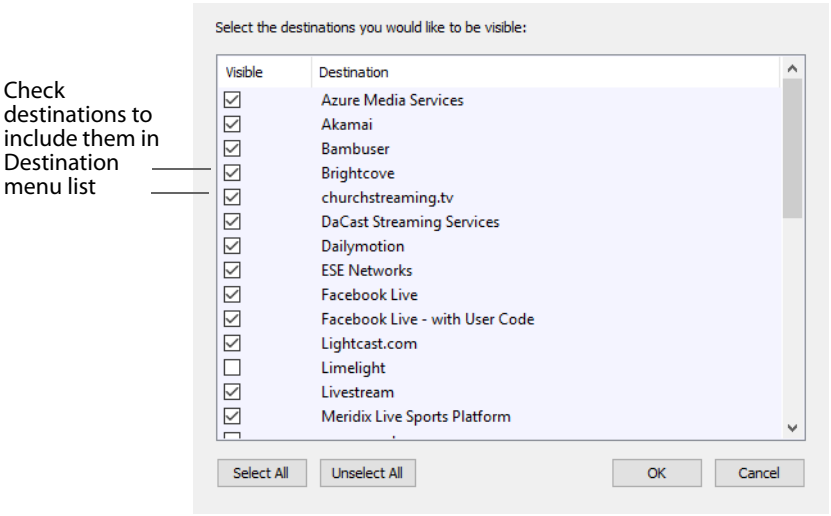
The *Encoder* determines how your presentation is encoded (or compressed). There are many options available. Wirecast simplifies this process by providing several simple presets to choose from. (See also *The Encoder Presets Window*).

Encoder Presets

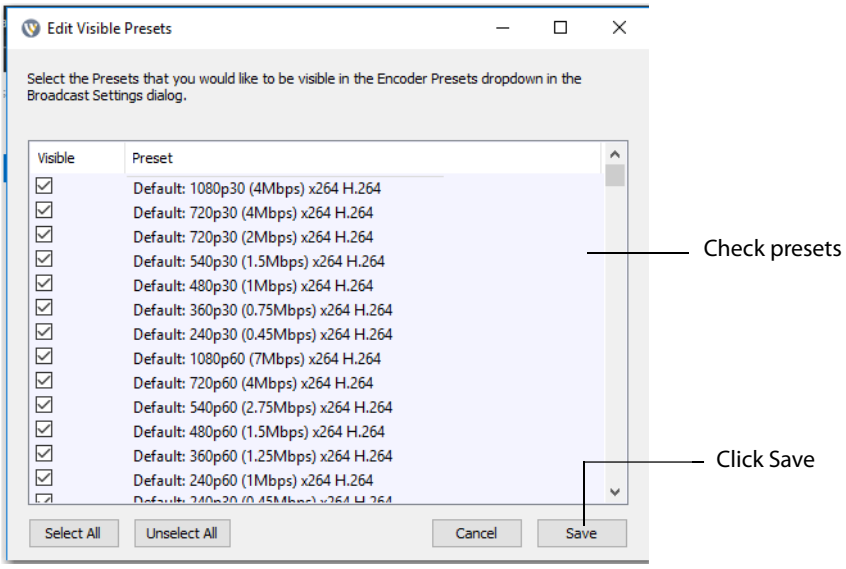
The Encoder menu is located near the top of the Output Settings window. The Destination menu is located above the Encoder menu. The More button and Gear menu provide optional settings.



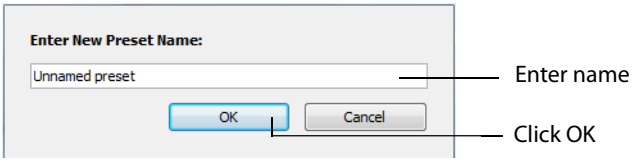
More Click *More* to display a list of all available destinations. Check the checkbox for each destination you want to include in the destination menu list.



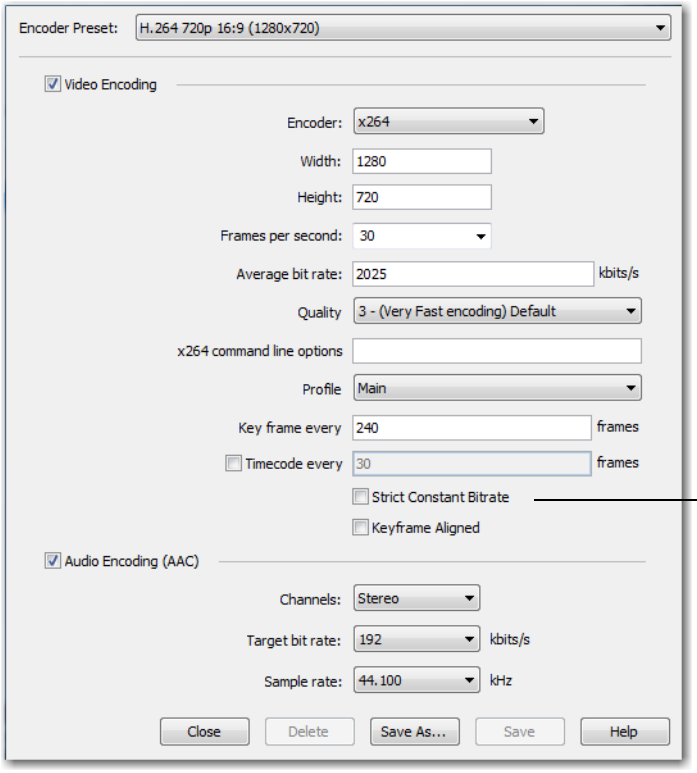
Filter Select *Filter* from the Gear menu to display a check list of encoder presets. Check the presets you want to display in the Encoder presets menu. Click *Save* when finished.



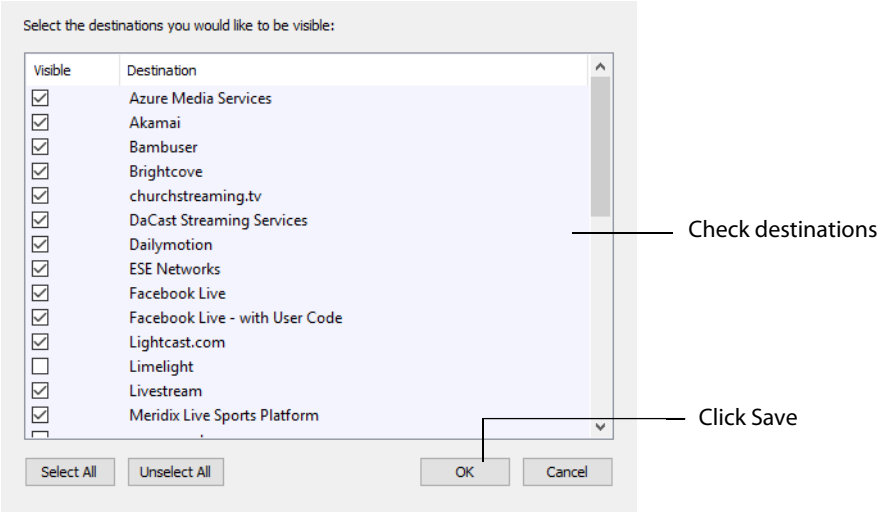
New Preset Select *New Preset* from the Gear menu to create a new encoder preset. Enter a name for your new preset and click OK. (See *Creating New Presets*).



View Details Select *View Details* from the Gear menu to modify an encoder preset. (See *Creating New Presets*). One important option is Strict Constant Bitrate. When checked, the bitrate is strictly held at the bitrate entered in *Average bit rate*.

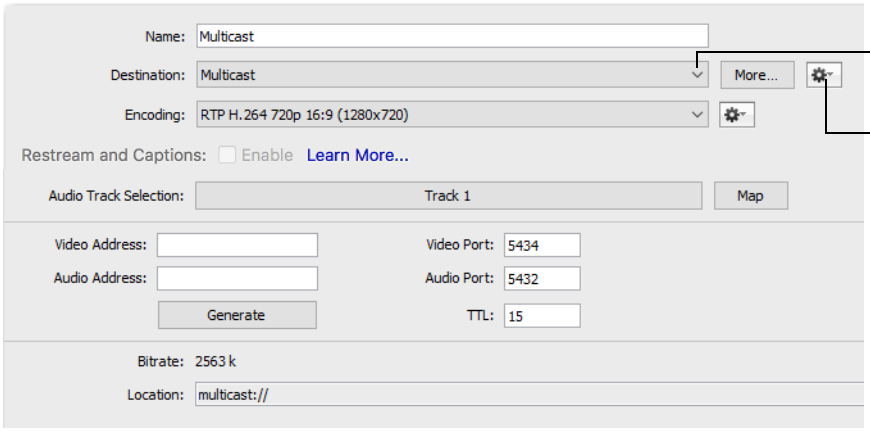


More Click the *More* button to display a check list of destinations. Check the destinations you want to display in the Destination menu. Click *Save* when finished.



Multicast and Unicast

You can select Multicast or unicast from the Destination menu. Multicast lets you broadcast to multiple computers simultaneously. Unicast lets you broadcast to a specific computer.



You need to create an SDP File, and you must do so every time you change any option on this page (including the encoder preset). To create an SDP file click the gear icon and select *Save SDP File*, navigate to the desired location, and click *Save* in the Save File dialog window. The SDP file must be given to the user to place on the computer that receives your broadcast.

During multicast, your broadcasting computer sends data across your local network, identifying it as a broadcast that it has no specific destination. Since many applications could be doing the same thing, the broadcasting computer must have a unique way of defining the data that is being multicast. This enables clients to choose between the available multicast streams.

The multicast protocol uses unique addresses, one for video and one for audio. Although these unique addresses look like TCP/IP addresses, they are not. Instead, they provide a way to define uniqueness among all multicast data flowing over the network. Once the broadcasting computer is streaming this data through the local network, any computer on the network can receive it.

The SDP file becomes the glue between your broadcast computer and the viewer computers. The SDP file contains multicast addresses, encoding format, and other important information.

RTMP Server

Wirecast can stream to an RTMP/ H.264-compatible streaming server (RTMP Server Media Server, Wowza Media Server, etc.).

To configure RTMP Server Streaming, follow these steps:

1. Select *Destination* > *RTMP Server*.

2. Select an encoder.
3. Enter the Address to the RTMP server. The default RTMP port is 1935, but you may need to configure your firewall to allow connections on this port.
4. Wirecast can import a RTMP Server Encoder configuration file (XML file). Click Open FMLE XML File, and navigate to the configuration file and select either version 2.5 or version 3.0. Wirecast reads the Address and Stream information from that file. Many online streaming services offer FMLE configuration files which Wirecast can use.

Note: Only the Address and Stream information from the XML configuration file is used. No Encoding information is imported.

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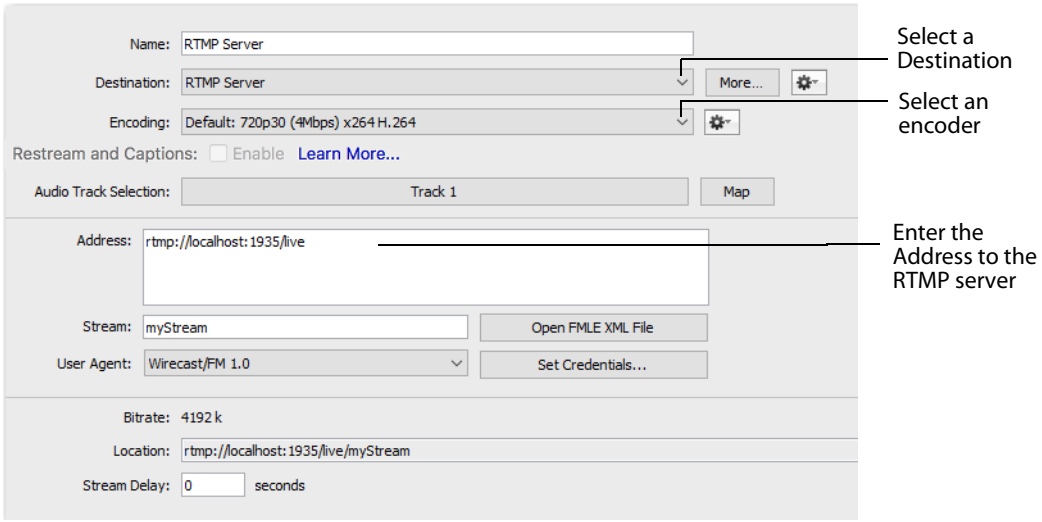
5. Click OK to save your settings:



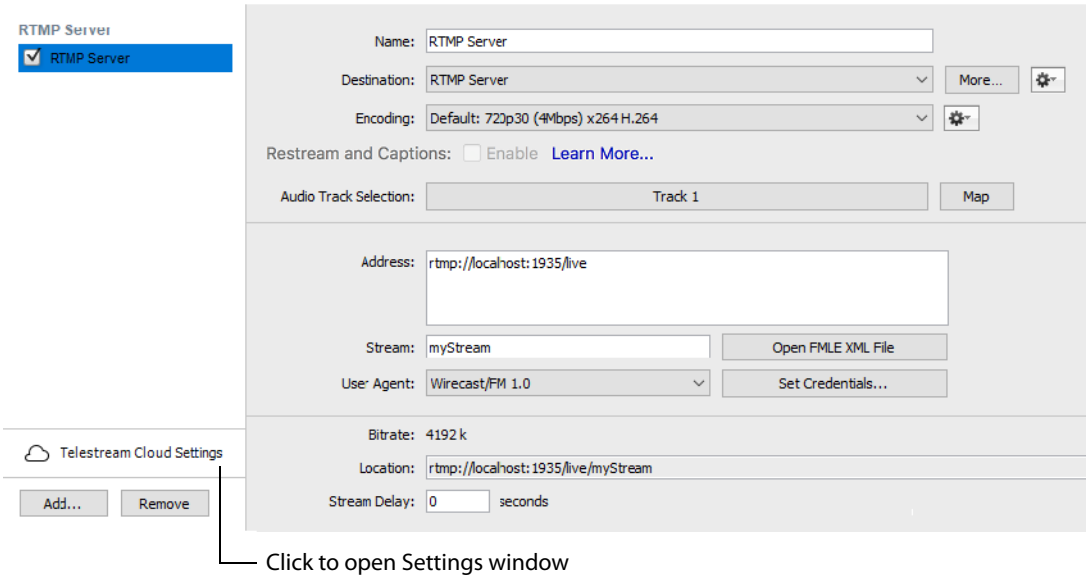
Telestream Cloud Settings

The Telestream Cloud enables you to add automated live captioning to your broadcast. But it also allows you to do “re-streaming” (multi-distribution of your broadcast through the Cloud).

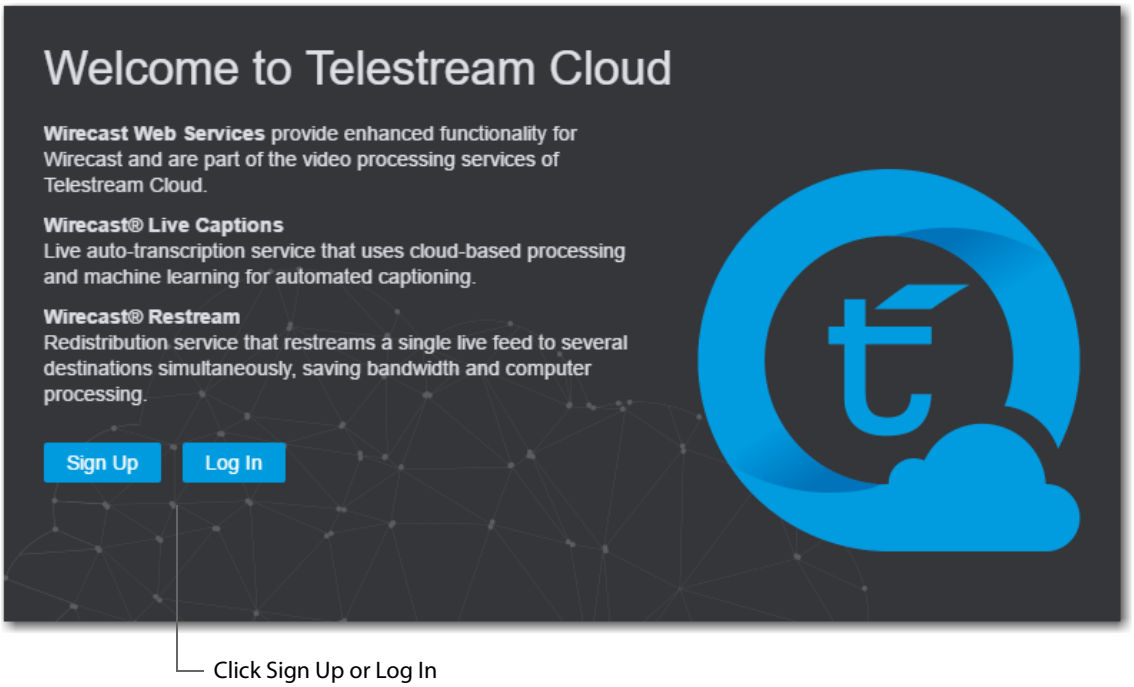
When you request automated captioning, the Cloud server will send out the audio portion of your broadcast for translation into text. When the text is received, it is embedded as 608/708 captions in the outgoing stream.

When you request stream redistribution, the Cloud takes your single stream source received from Wirecast and distributes it to multiple endpoints in a high bandwidth environment.

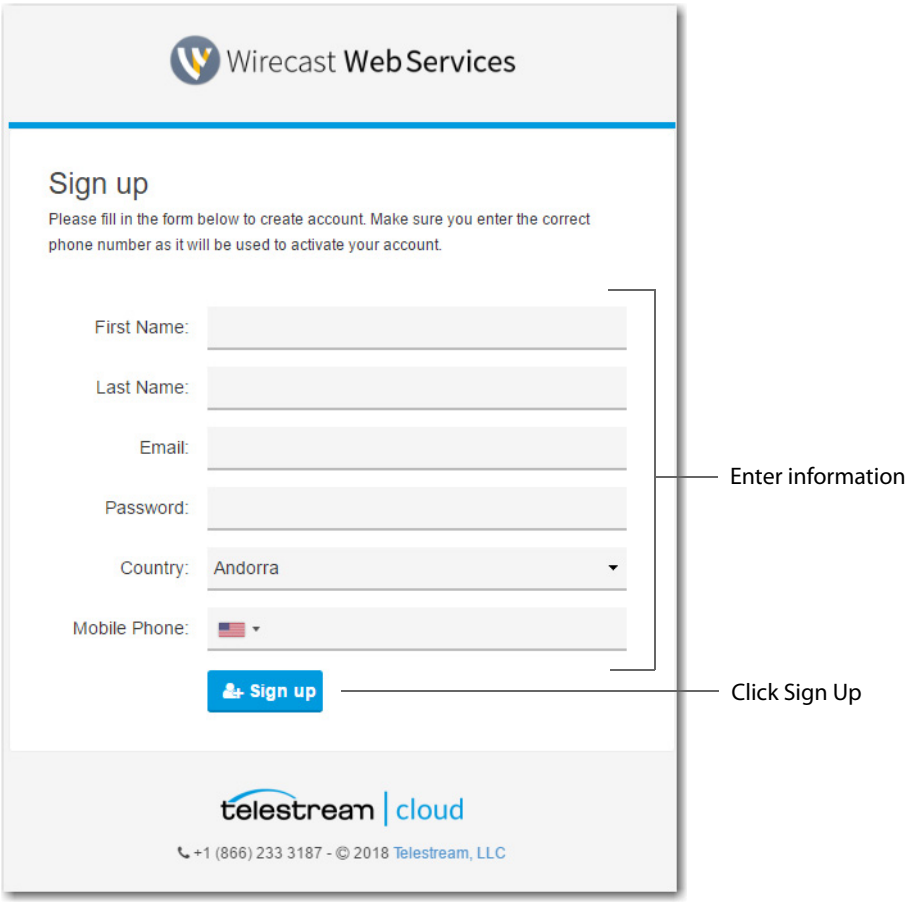
Cloud settings are accessed on the Output Settings window (*Output* > *Output Settings*). Click *Telestream Cloud Settings* to open the Cloud Settings window.



If you are not already Logged In to the Cloud, a Welcome window will display. Log in by clicking *Log In*. If you are not Signed Up with Telestream Cloud, you can do so by clicking *Sign up*.

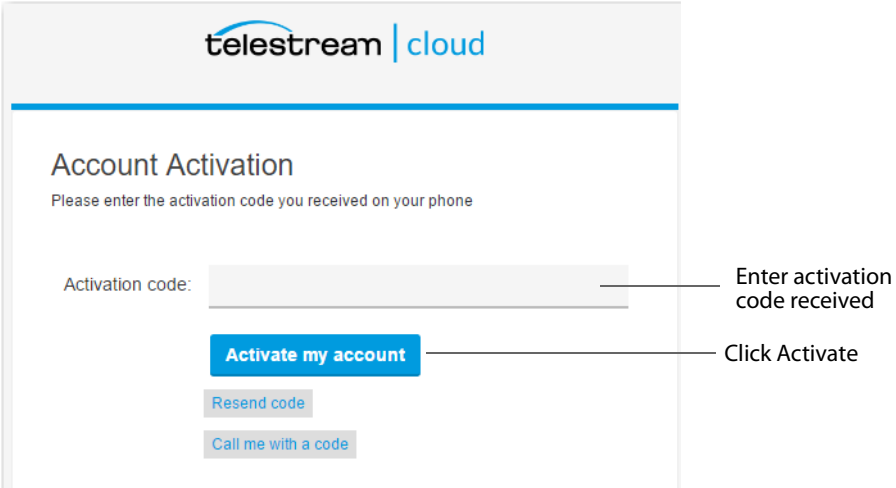


If you click Sign Up, a sign up window will display. Enter all requested information and click Sign Up.



When the Activate Account window displays, wait until you receive your Activation Code via phone call or text. Enter the activation code and click *Activate my account*. If

you do not receive an activation code, or if the code does not work, request a new one by clicking *Resend Code*.

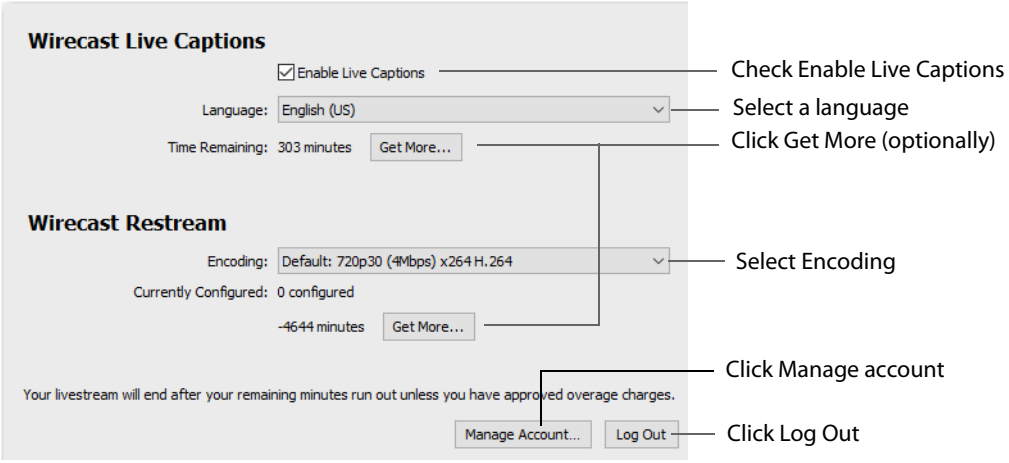


Once you are logged in, clicking the *Telestream Cloud Settings* button will open the Cloud Settings window.

For captioning, select a language. You can, optionally, enable live captioning.

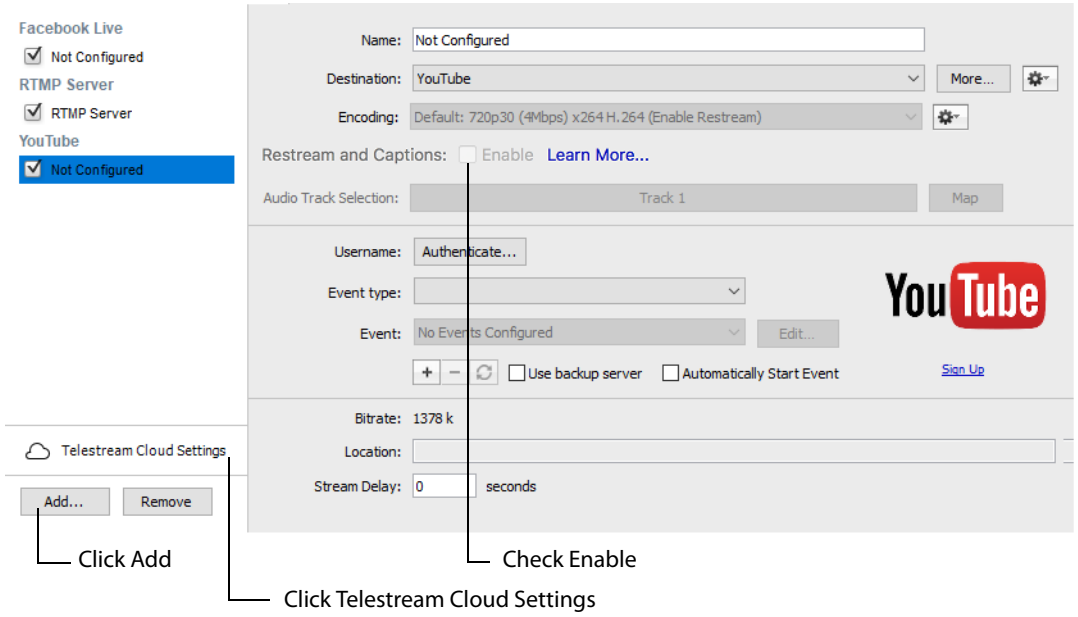
Note: When you check this option, *all* of your streaming destinations via the Cloud will include automatic live captions.

For re-streaming, select Encoding for all destinations that are re-streamed via the Cloud. Click the *Get More* or the *Manage Account* button to navigate to the Telestream Cloud Dashboard.



When you are ready to select multiple streaming destinations to be used by the Cloud, open the Output Settings window (*Output* > *Output Settings*) and select multiple streaming destinations by clicking the *Add* button. Check *Enable* for all destinations to

be included in the Cloud streaming distribution. Click *Telestream Cloud Settings* to open the Cloud Settings window.



Note: When *Enable* is checked, Encoding is grayed-out. This is because encoding for all distributed streams is set on the Cloud Settings page.

CDN Partners

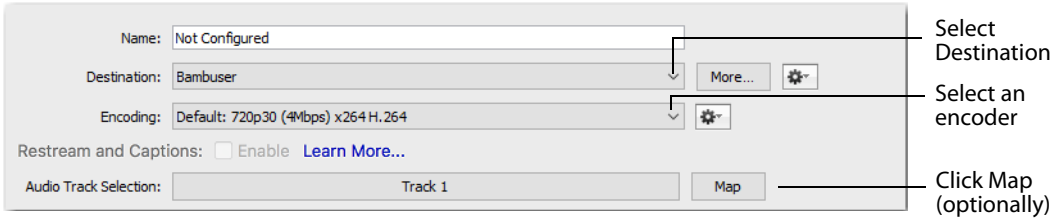
Listed below are the Content Distribution Network (CDN) partner destinations available in Wirecast. Most destinations share a common user interface and only require a user name and password. Destinations that do not conform to this paradigm, or require additional parameters, are presented separately.

Note: The list of CDN partners in Wirecast is subject to change at any time.

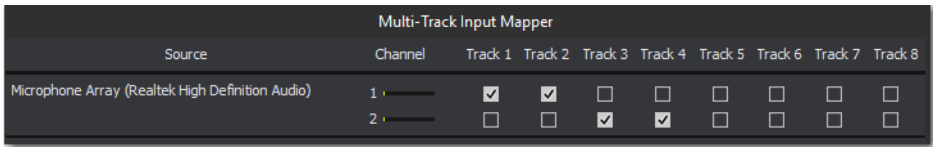
Bambuser, Churchstreaming.tv, Dailymotion, DaCast Streaming Services, ESE Networks, Lightcast, Livestream, Meridix Live Sports Platform, Onstream media, Pitchtime, SermonAudio, StreamingChurch.tv, StreamShark.io, StreamSpot, Streaming Media Hosting, StreamVu, Stretch Internet, Sunday Streams, Titled Globe, Tulix Streaming, Ustream, WebCast-TV, WorshipStream,

To stream to one of these CDN partners, follow these steps:

1. Optionally, enter a Name for your destination.
2. Select a CDN partner from the Destination menu.



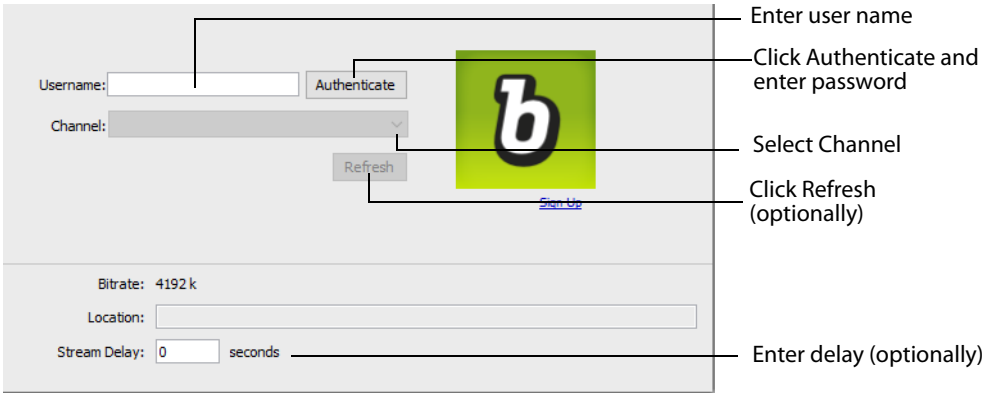
3. You can (optionally) click the Map button to open the Muti-Track Input Mapper. For each Channel, select (by checking the box) one or more inputs.



4. Enter your username or email.
5. Click *Authenticate* to enter your password and generate the RTMP URL. You only need to do this one time because Wirecast stores the channel information for future streams. The default RTMP port is 1935. You may need to configure your firewall to enable connections on this port.

Note: If you do not have a username and password, you can sign up with a CDN partner by clicking *Sign Up*.

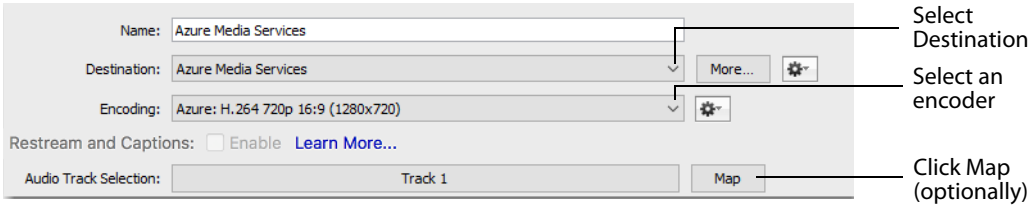
6. Select your channel.
7. Optionally, you can refresh your connection by clicking *Refresh*.
8. Optionally, enter a Stream Delay value. This provides a time buffer between your live stream from Wirecast and the actual broadcast itself. You can set the delay from 0 to 999 seconds. However, greater delays require greater memory use. The amount of memory used is displayed when you enter the amount of delay.
9. Click OK when finished.



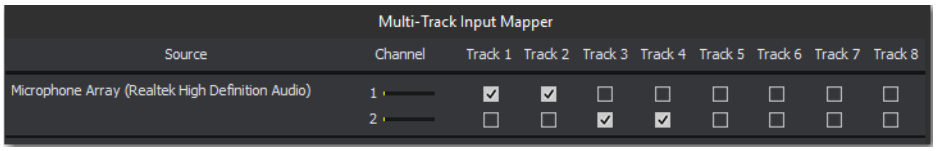
Azure Media Services, Sermon.net, Verizon Digital Media Services.

To stream to one of these CDN partners, follow these steps:

1. Optionally, enter a Name for your destination.
2. Select a CDN partner from the Destination menu.
3. Select an encoder.



4. You can (optionally) click the Map button to open the Muti-Track Input Mapper. For each Channel, select (by checking the box) one or more inputs.

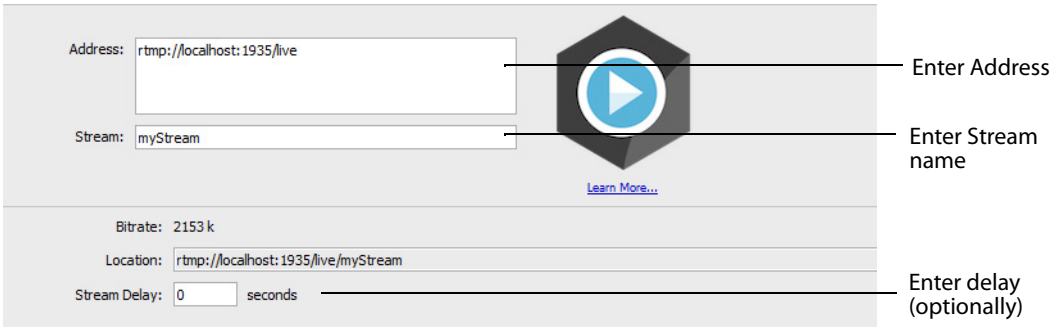


5. Enter the domain name or IP address (this is provided by the CDN partner).
6. Enter the stream name of your broadcast (this is provided by the CDN partner).

Note: If you do not have a stream name and password, you can sign up with the CDN partner by clicking *Learn More*.

---

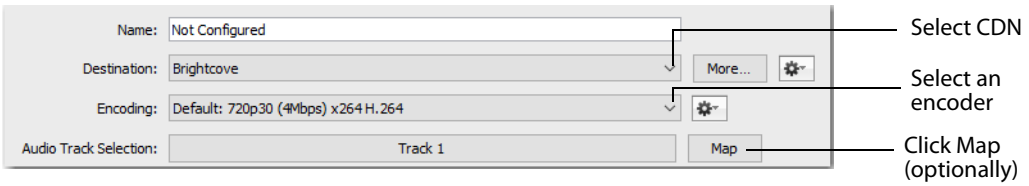
7. Optionally, enter a Stream Delay value. This provides a time buffer between your live stream from Wirecast and the actual broadcast itself. You can set the delay from 0 to 999 seconds. However, greater delays require greater memory use. The amount of memory used is displayed when you enter the amount of delay.
8. Click *OK* when finished.



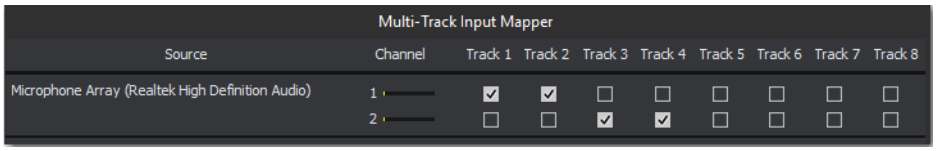
Brightcove, Limelight

To stream to one of these CDN partners, follow these steps:

1. Optionally, enter a Name for your destination.
2. Select a CDN partner from the Destination menu.
3. Select an encoder.



4. You can (optionally) click the Map button to open the Muti-Track Input Mapper. For each Channel, select (by checking the box) one or more inputs.

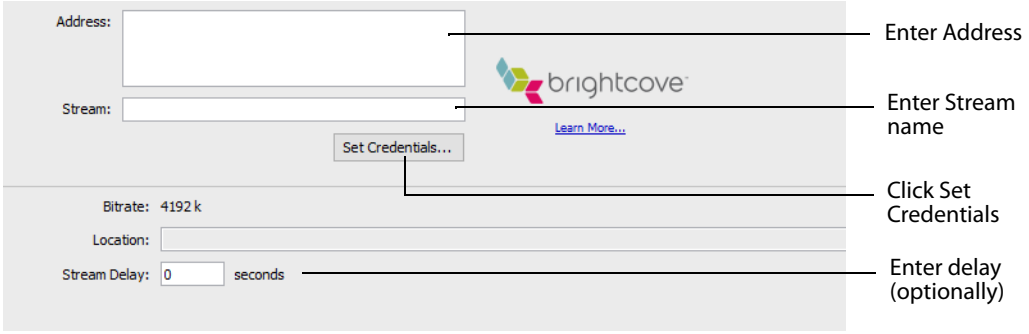


5. Enter the domain name or IP address (this is provided by the CDN partner).
6. Enter the stream name of your broadcast (this is provided by the CDN partner).
7. Click *Set Credentials* to enter your Username and Password.

Note: If you do not have a stream name and password, you can sign up with the CDN partner by clicking *Learn More*.

---

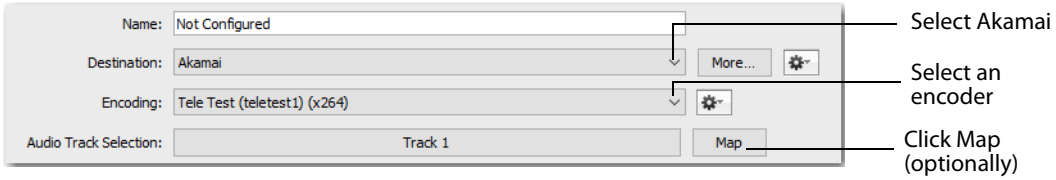
8. Optionally, enter a Stream Delay value. This provides a time buffer between your live stream from Wirecast and the actual broadcast itself. You can set the delay from 0 to 999 seconds. However, greater delays require greater memory use. The amount of memory used is displayed when you enter the amount of delay.
9. Click *OK* when finished.



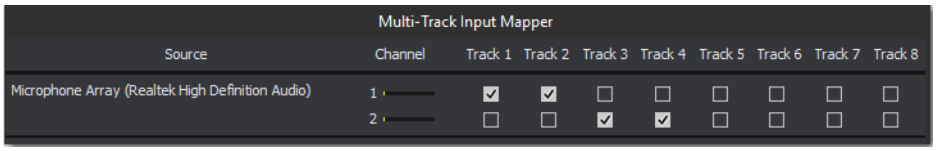
Akamai

To stream to Akamai, follow these steps:

1. Optionally, enter a Name for your destination.
2. Select *Akamai* from the Destination menu.
3. Select an encoder.



4. You can (optionally) click the Map button to open the Muti-Track Input Mapper. For each Channel, select (by checking the box) one or more inputs.



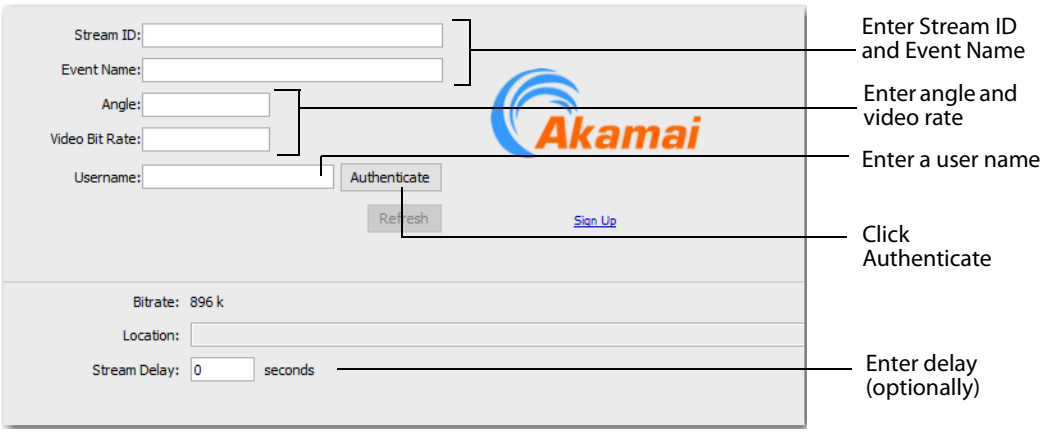
5. Enter your Akamai Stream ID and Event Name.
6. Enter your Akamai Angle and Video Rate.
7. Enter your user name and click *Authenticate* to enter your log in information.

Note: If you do not have a username and password, you can sign up with Akamai by clicking the Akamai icon, or by clicking *Sign Up*.

---

8. Optionally, enter a Stream Delay value. This provides a time buffer between your live stream from Wirecast and the actual broadcast itself. You can set the delay from 0 to 999 seconds. However, greater delays require greater memory use. The amount of memory used is displayed when you enter the amount of delay.

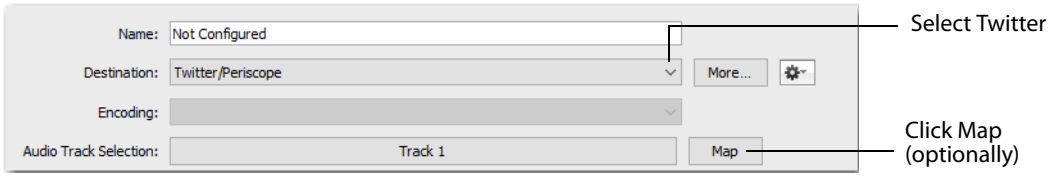
9. Click OK.


Stream ID:
Event Name:
Angle:
Video Bit Rate:
Username:
Authenticate
Refresh
Sign Up
Akamai
Bitrate: 896 k
Location:
Stream Delay: 0 seconds
Enter Stream ID and Event Name
Enter angle and video rate
Enter a user name
Click Authenticate
Enter delay (optionally)

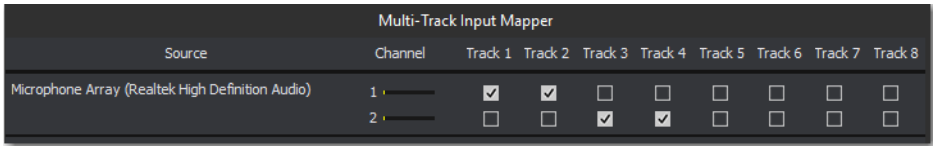
Twitter/Periscope

To stream to Twitter/Periscope follow these steps:

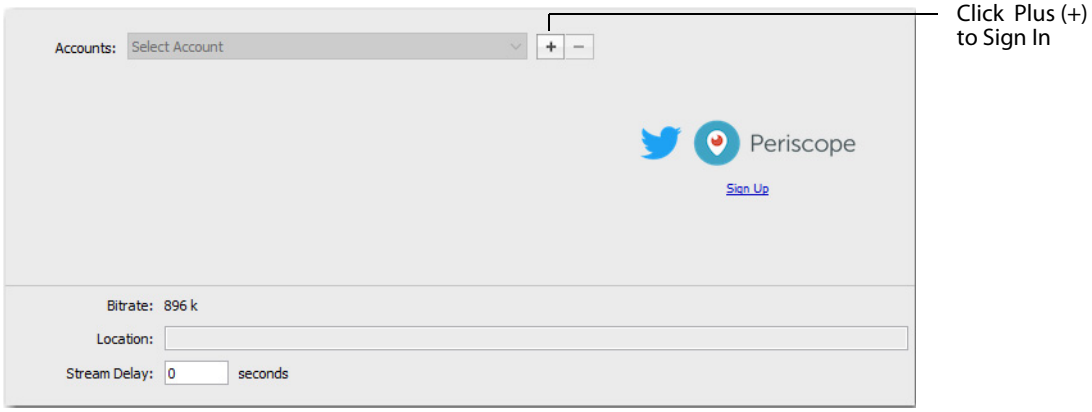
1. Optionally, enter a Name for your destination.
2. Select *Twitter/Periscope* from the Destination menu.



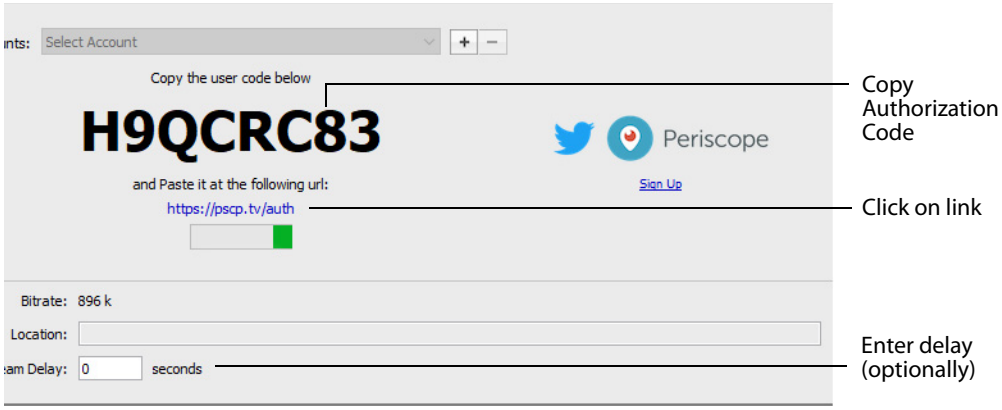
3. You can (optionally) click the Map button to open the Muti-Track Input Mapper. For each Channel, select (by checking the box) one or more inputs.



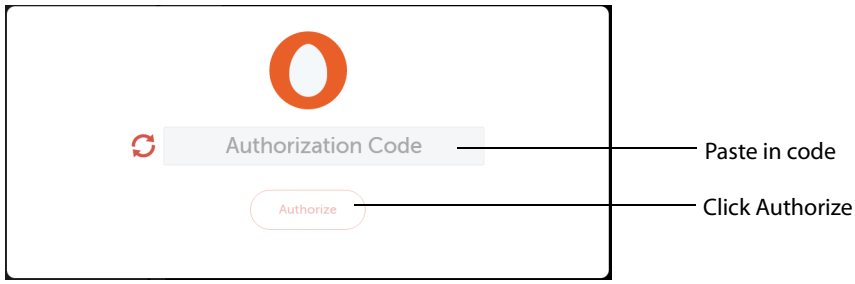
4. Click *Plus (+)* to enter your username and password.



5. Copy the Authorization Code and click on the link below it.



6. When the Authorization Code window displays, paste in the code and click *Authorize*.



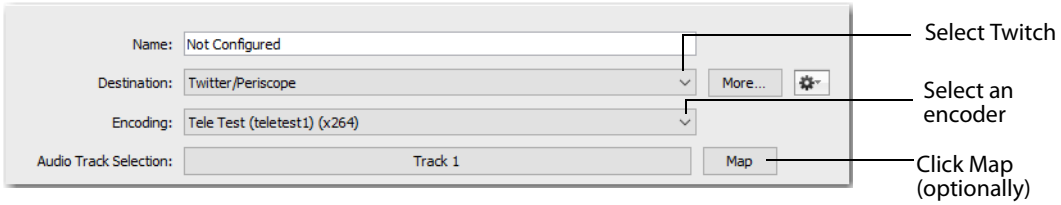
Note: If the Authorization Code window does not display, or if an error window displays, try clearing your browser history or try using a different browser, and then sign in again.

7. Optionally, enter a Stream Delay value. This provides a time buffer between your live stream from Wirecast and the actual broadcast itself. You can set the delay from 0 to 999 seconds. However, greater delays require greater memory use. The amount of memory used is displayed when you enter the amount of delay.
8. Click OK.

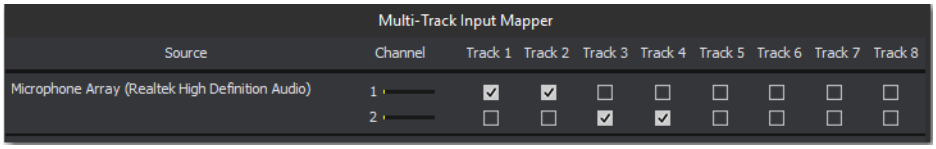
Twitch

To stream to Twitch, follow these steps:

1. Optionally, enter a Name for your destination.
2. Select *Twitch* from the Destination menu.
3. Select an encoder.

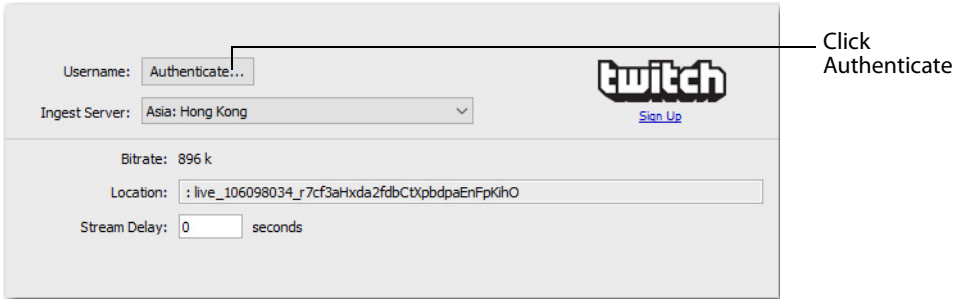


4. You can (optionally) click the Map button to open the Muti-Track Input Mapper. For each Channel, select (by checking the box) one or more inputs.

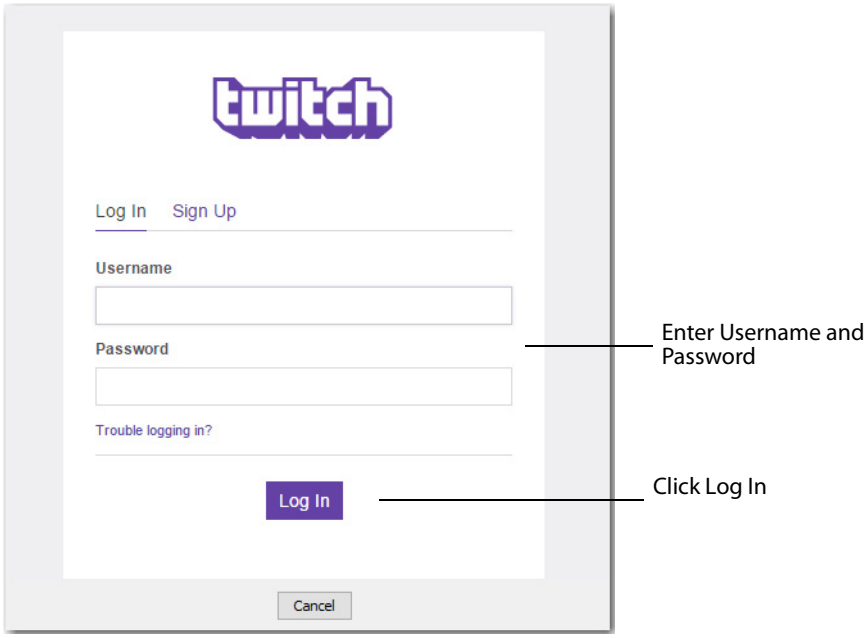


5. Enter your Twitch username.
6. Click *Authenticate* to open the Twitch Log In window.

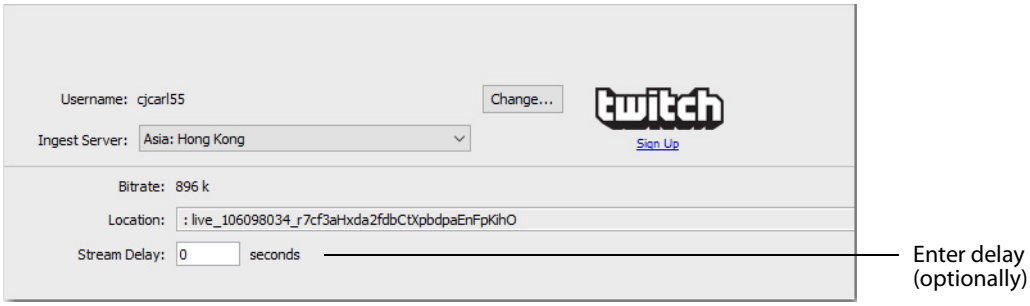
Note: If you do not have a username and password, you can sign up with Twitch by clicking the Twitch icon or by clicking *Sign Up*.



7. When the Twitch Login window displays, enter your username and password and click *Log In*.



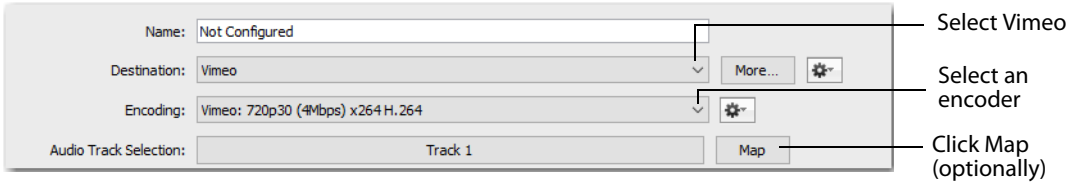
8. Optionally, enter a Stream Delay value. This provides a time buffer between your live stream from Wirecast and the actual broadcast itself. You can set the delay from 0 to 999 seconds. However, greater delays require greater memory use. The amount of memory used is displayed when you enter the amount of delay.
9. Click *OK* when finished



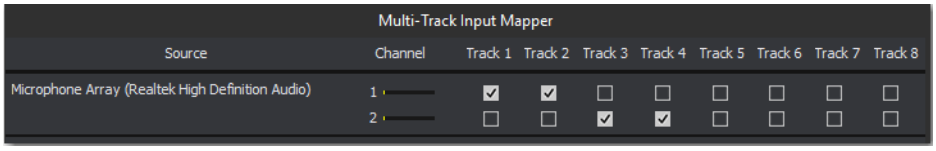
Vimeo

To stream to Vimeo, follow these steps:

1. Optionally, enter a Name for your destination.
2. Select *Vimeo* from the Destination menu.
3. Select an encoder.



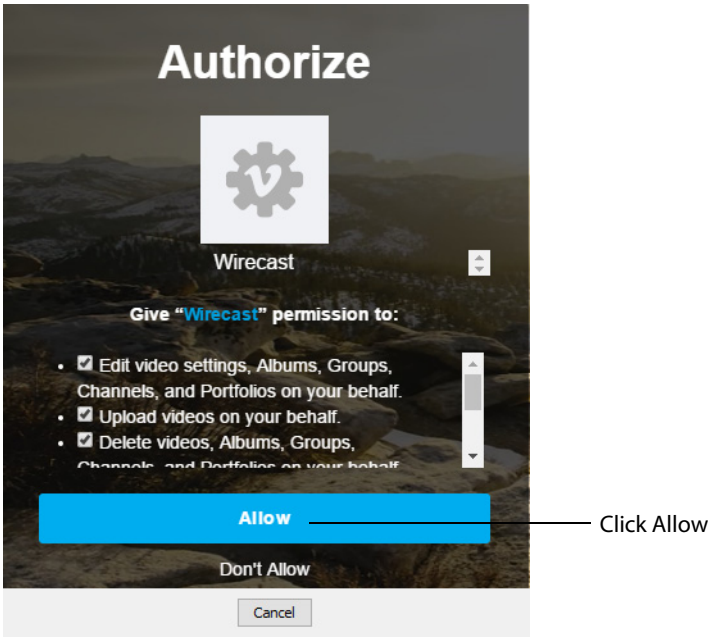
4. You can (optionally) click the Map button to open the Muti-Track Input Mapper. For each Channel, select (by checking the box) one or more inputs.



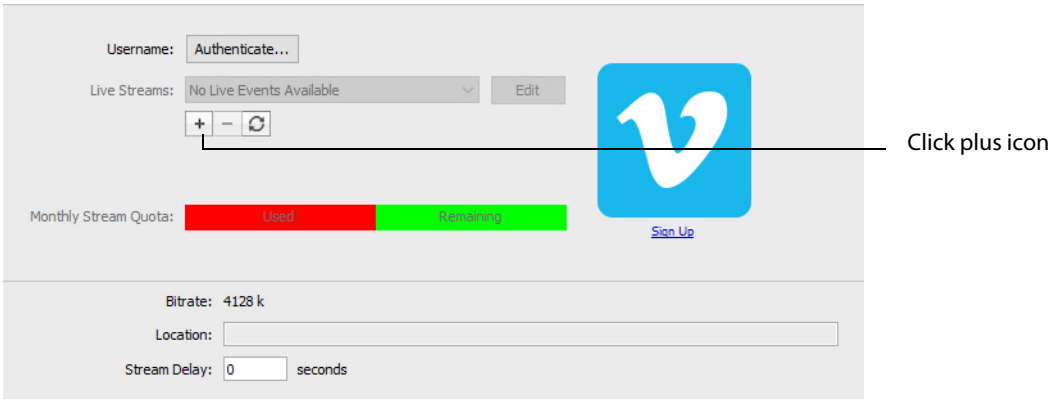
5. Click *Authenticate* to enter your username and password.

Note: If you do not have a username and password, you can sign up with Vimeo by clicking *Sign Up*.

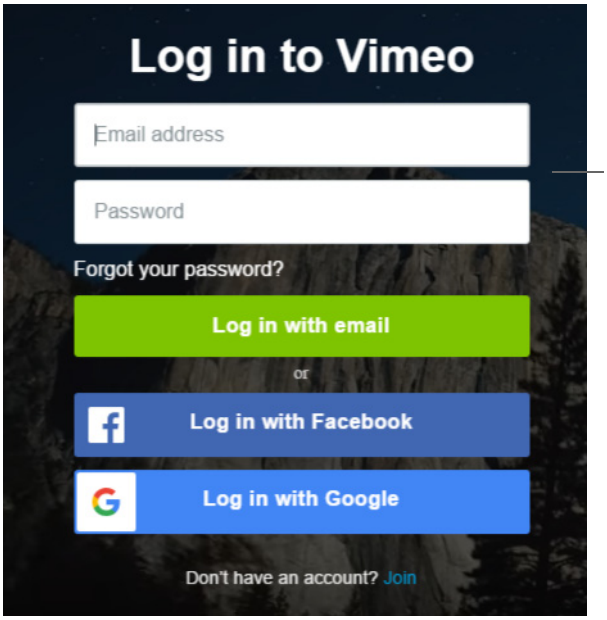
6. When the Authorization window displays, click *Allow*.



7. Click the plus (+) icon to add a new event.

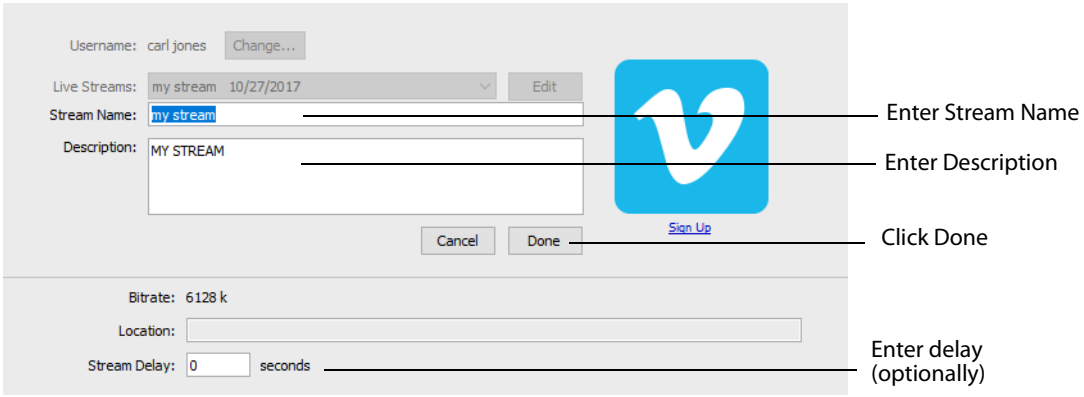


8. Enter your email and password, then press *Enter*.



9. Optionally, enter a Stream Delay value. This provides a time buffer between your live stream from Wirecast and the actual broadcast itself. You can set the delay from 0 to 999 seconds. However, greater delays require greater memory use. The amount of memory used is displayed when you enter the amount of delay.

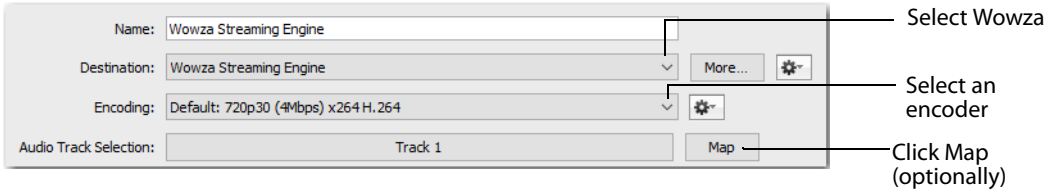
10. Click *OK* when finished



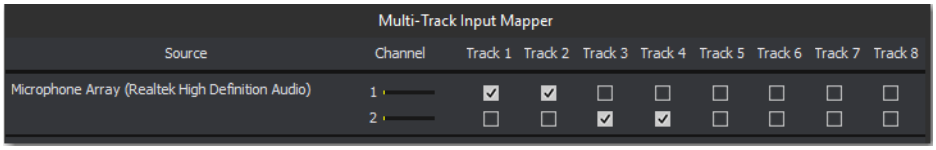
Wowza Streaming Engine.

To stream to Wowza Streaming Engine, follow these steps:

1. Optionally, enter a Name for your destination.
2. Select *Wowza* from the Destination menu.
3. Select an encoder.



4. You can (optionally) click the Map button to open the Muti-Track Input Mapper. For each Channel, select (by checking the box) one or more inputs.

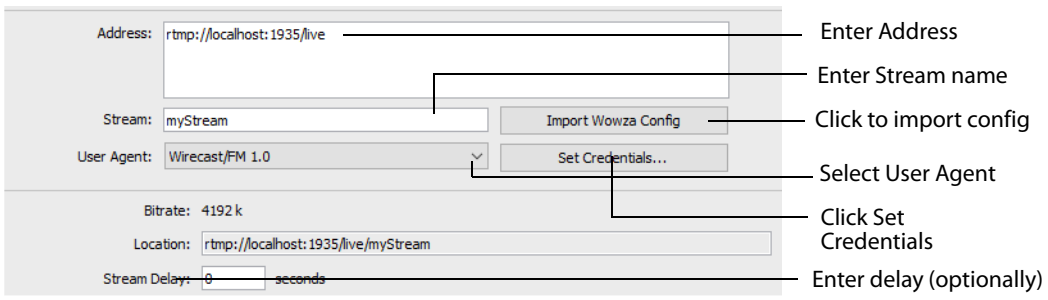


5. Enter the domain name or IP address (this is provided by the CDN partner).
6. Enter the stream name of your broadcast (this may be provided by the CDN partner).
7. Click Import Wowza Config to import a Wowza configuration to use.
8. Select User Agent. Default is Wirecast/FM1.0.
9. Click *Set Credentials* to enter your Username and Password.

Note: If you do not have a stream name and password, you can sign up Wowza.

---

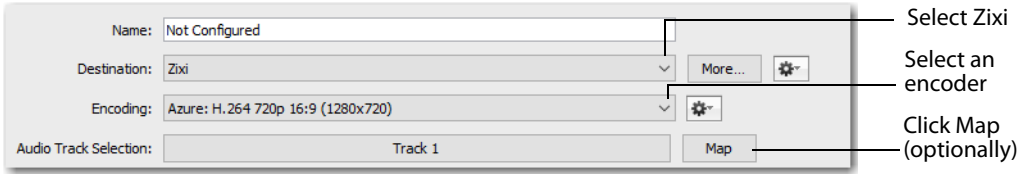
10. Optionally, enter a Stream Delay value. This provides a time buffer between your live stream from Wirecast and the actual broadcast itself. You can set the delay from 0 to 999 seconds. However, greater delays require greater memory use. The amount of memory used is displayed when you enter the amount of delay.
11. Click *OK* when finished.



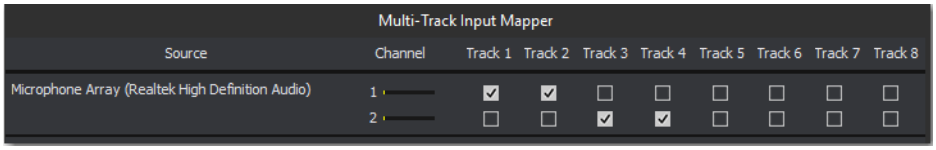
Zixi

To stream to Zixi, follow these steps:

1. Optionally, enter a Name for your destination.
2. Select *Zixi* from the Destination menu.
3. Select an encoder.



4. You can (optionally) click the Map button to open the Muti-Track Input Mapper. For each Channel, select (by checking the box) one or more inputs.



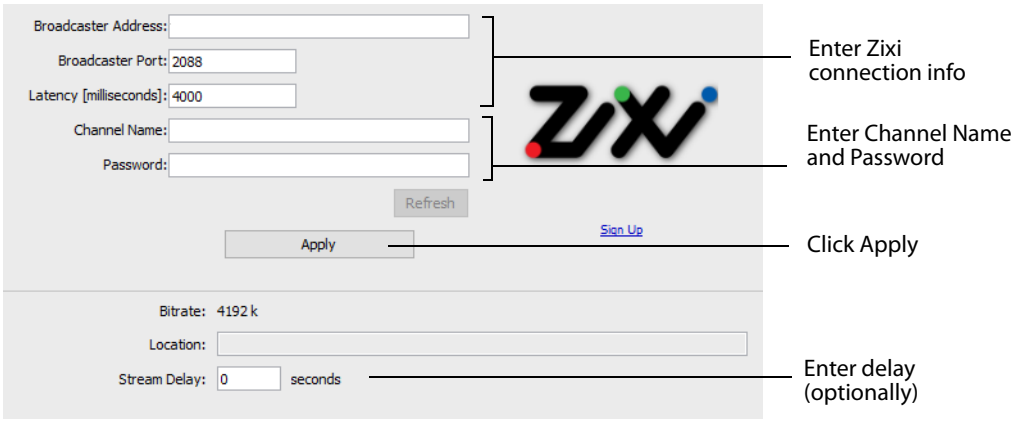
5. Enter Zixi connection information.
6. Enter your Zixi channel name and password.
7. Click *Apply* to generate the RTMP URL. You only need to do this one time because Wirecast stores the channel information for future streams. The default RTMP port is 1935. You may need to configure your firewall to enable connections on this port.

Note: If you do not have a username and password, you can sign up with Zixi by clicking the Zixi icon, or by clicking *Sign Up*.

---

8. Optionally, enter a Stream Delay value. This provides a time buffer between your live stream from Wirecast and the actual broadcast itself. You can set the delay from 0 to 999 seconds. However, greater delays require greater memory use. The amount of memory used is displayed when you enter the amount of delay.

9. Click *OK*.

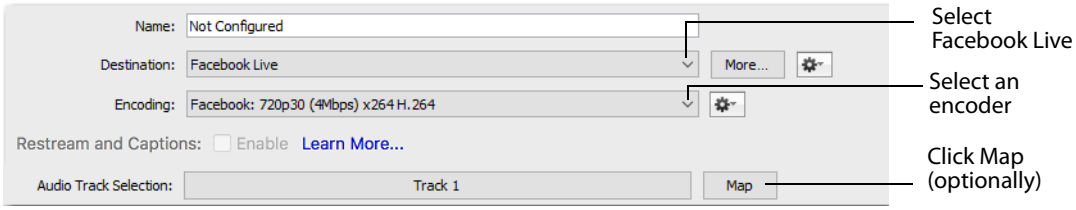

Broadcaster Address:
Broadcaster Port: 2088
Latency [milliseconds]: 4000
Channel Name:
Password:
Refresh
Sign Up
Apply
Bitrate: 4192 k
Location:
Stream Delay: 0 seconds
Enter Zixi connection info
Enter Channel Name and Password
Click Apply
Enter delay (optionally)

Facebook Live

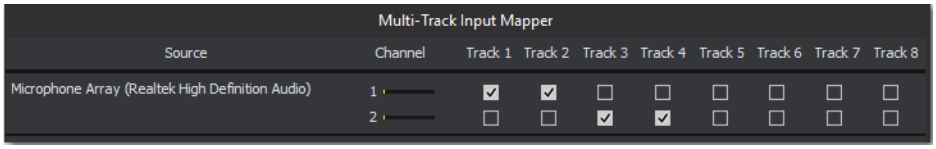
Note: You cannot stream to any other destination when Facebook is active.

To stream to Facebook, follow these steps:

1. Optionally, enter a Name for your destination.
2. Select *Facebook Live* from the Destination menu (if not already selected).
3. Select an encoder from the *Encoding* menu.
4. Choose the audio track to be used by selecting it from the *Audio Track Selection* menu.

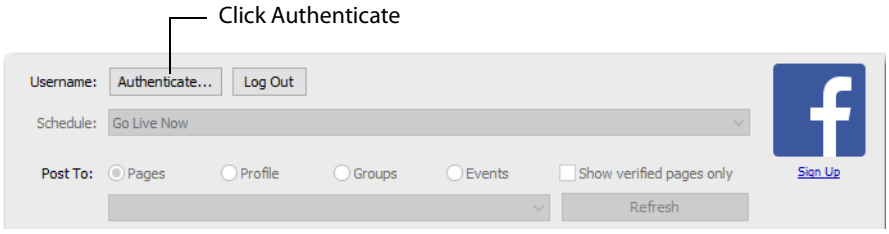


5. You can (optionally) click the Map button to open the Muti-Track Input Mapper. For each Channel, select (by checking the box) one or more inputs.



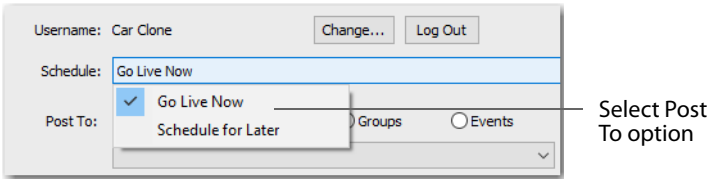
Note: If you change the encoding settings while streaming to Facebook, an error will occur. The encoder settings are set by Facebook.

6. Click *Authenticate* and Login to Facebook. If you are already logged into Facebook, you can click the *Change* button to login to a different Facebook account.

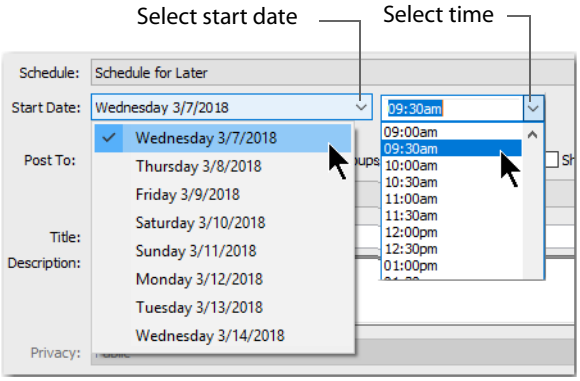


Note: If you do not have a username and password, you can sign up with Facebook by clicking the Facebook icon, or by clicking *Sign Up*.

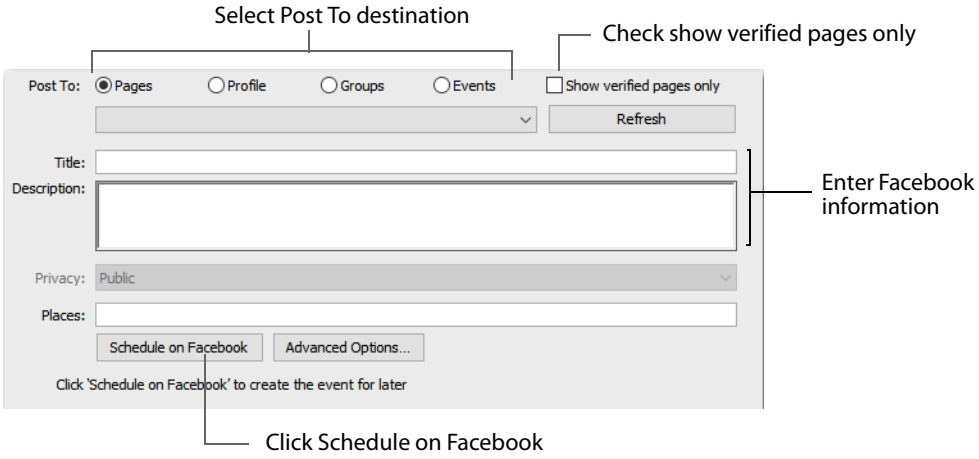
7. Select *Go Live Now* or *Schedule for Later* from the Post To menu.



8. If you selected *Schedule for Later,* select also a start date and a time.

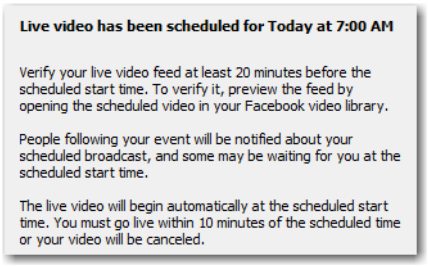


9. Select *Pages, Profile, Groups,* or *Events* from the Post To destination menu. Click *Refresh* to refresh the page list. If planning to use co-branded content, check the *Show verified pages only* checkbox to filter out all non-verified pages. Enter a Title and a Description. Click *Schedule of Facebook* to refresh after changing any settings.

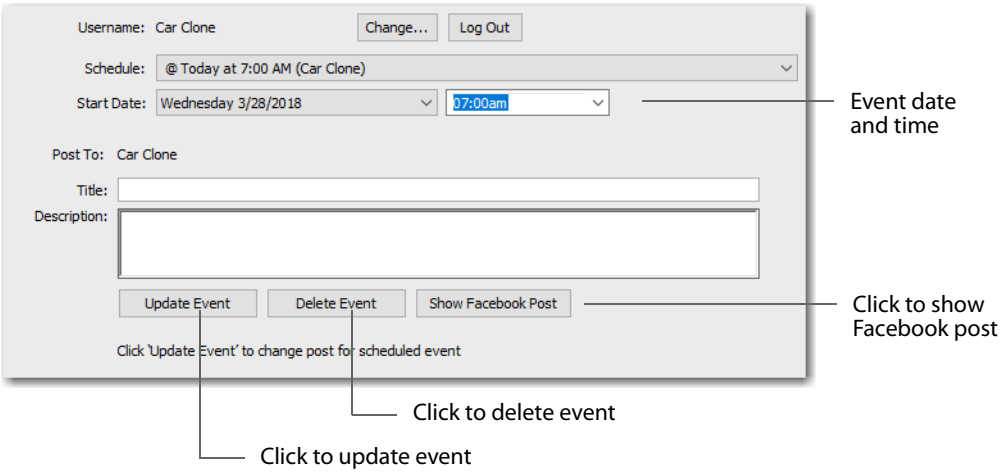


Note: When Scheduling events on Facebook you must start the broadcast within ten minutes after the designated start time. Otherwise, the event will be ended by Facebook.

10. After you request Facebook to schedule your event, Wirecast will display a notice verifying the day and time of the event.

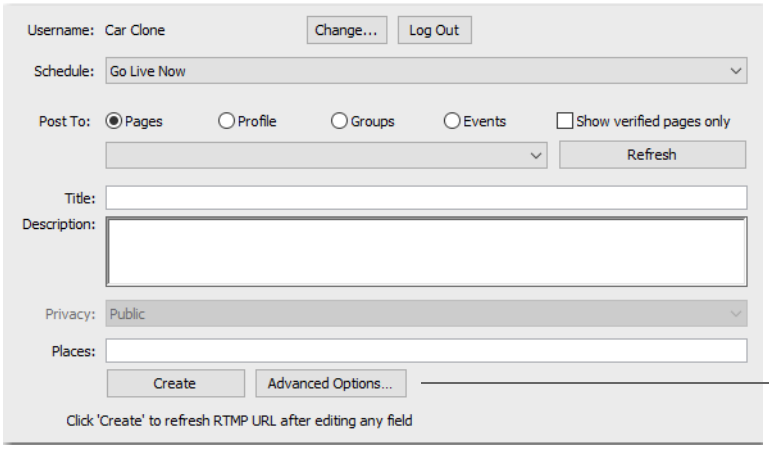


11. Once your event is scheduled, the event date and time are displayed and you can update or delete the event. You can also click *Show Facebook Post* to display your event in a browser.

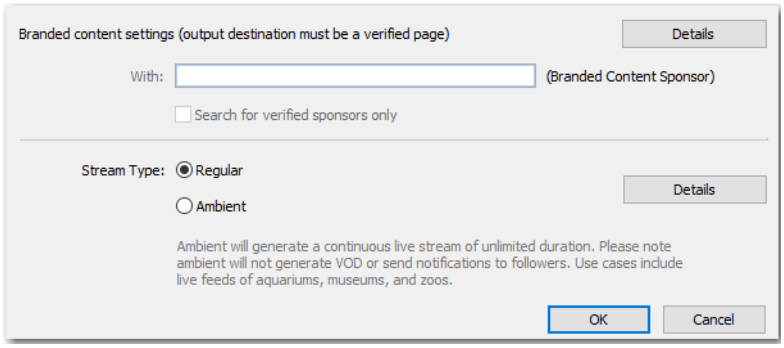


- **Update Event** If you selected a previously scheduled event from the Schedule menu, you change the Date, Time, Title, and Description and click *Update Event*.
- **Delete Event** If you wish to delete a previously scheduled event, select that event from the Schedule menu and click *Delete Event*.

12. If you selected *Go Live Now,* select also *Pages, Profile, Groups,* or *Events* and ebter a Title and Description (as described in step 9 above). Optionally, click Advanced Options.

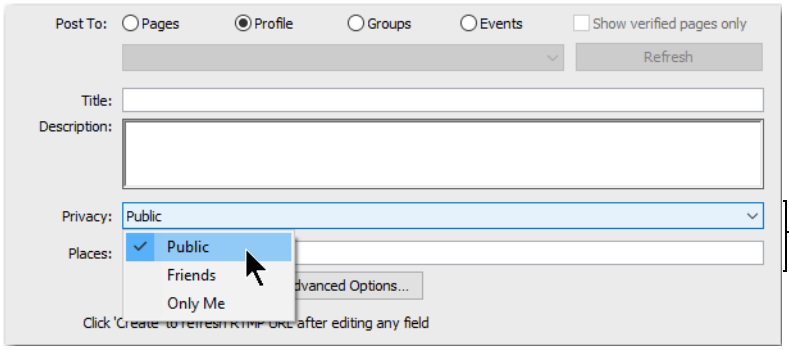


13. When the Advanced Settings window displays, setup co-branding details and Stream Type.

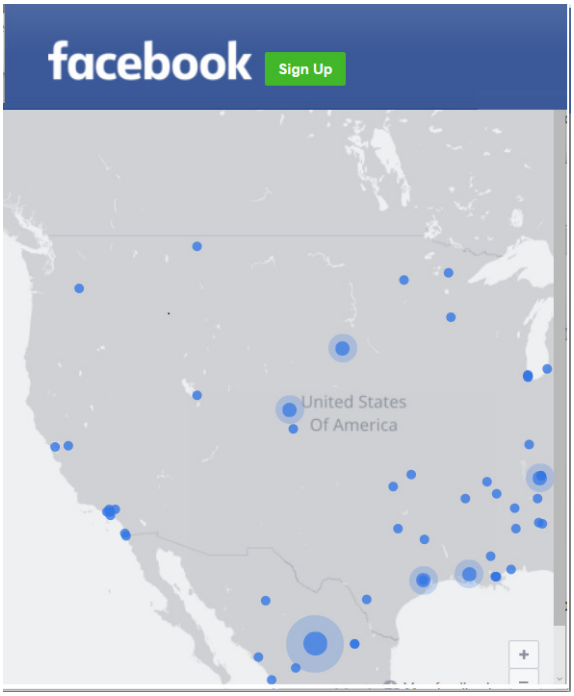


- **With** Facebook permits users with a verified page (blue check mark) to select a sponsor for branded content within their posts. When the user selects a verified page, they will see a blue check mark badge next to the page selection menu and gain access to the With field. Typing in the With field brings up the same results as you might see when following a normal browser based workflow. Branded content is only supported for *Pages* and is disabled for Groups and Events. Additional information about Branded content restrictions can be found at: https://developers.facebook.com/docs/graph-api/advanced/branded-content.
- **Stream Type** Select a stream type: *Regular* or *Ambient*. Ambient generates a continuous live stream of unlimited duration.

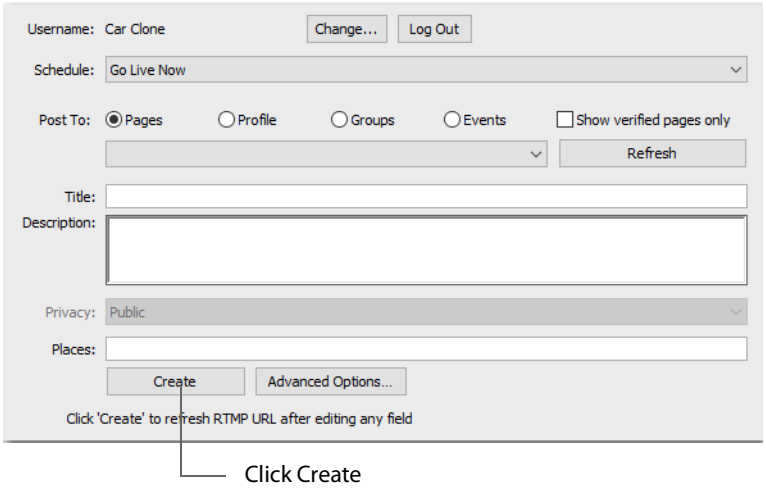
14. If you selected to post to a *Profile*, select also a level of Privacy: *Public, Friends*, or *Only Me.* Enter also any *Places* information to put the live stream on the *Facebook Live Map* and enable everyone to see where people are streaming from.



15. The places map looks like this:



16. Click *Create* to start an event on Facebook.



17. Click *OK* when finished.

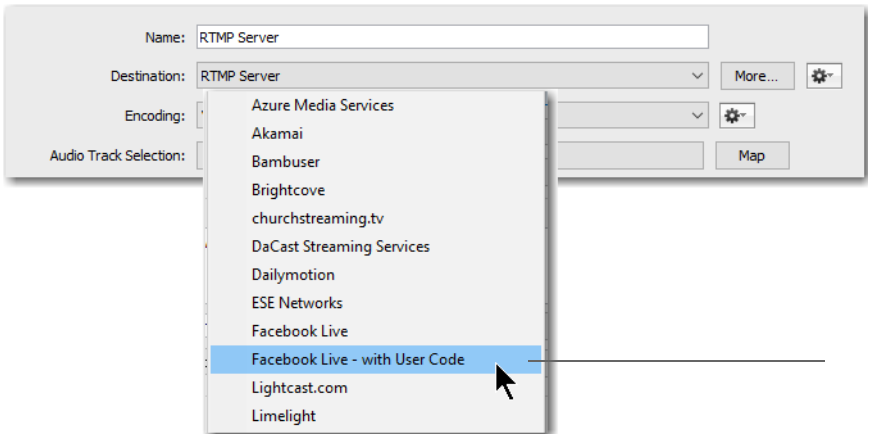
Facebook Live - With User Code

F*acebook Live - With User Code* enables you to stream to Facebook without needing to know the account password to log in to Facebook. The only interaction (after output settings is set up) is to begin the streaming in Wirecast, at which point Facebook detects the Wirecast stream and enters the preview mode.

This is a "set and forget" process. Once you have setup and established connection with a Facebook Encoder, the output settings never need to be re-entered. Each time a stream is initiated, the authentication from the account is retrieved and saved in the Wirecast settings, and a new broadcast is searched sought.

To stream to *Facebook with User Code*, follow these steps:

1. Sign In to the Facebook account you want to access.
2. In Wirecast, select *Output* > *Output Settings*. Then select *Facebook Live - with User Code*.



3. Optionally, enter a Name for your destination.
4. Select *Facebook Live - with User Code* from the Destination menu (if not already selected).
5. Select Automatic in the *Encoding* menu.

Note: Selecting *Automatic* sets the target bitrate and encoding size based on your canvas. Wirecast sends your canvas size to Facebook which responds with the preferred width, height and bandwidth to use for that size canvas.

Also, in restricted bandwidth situations it is recommended that you choose a preset with the desired bitrate for your actual bandwidth.

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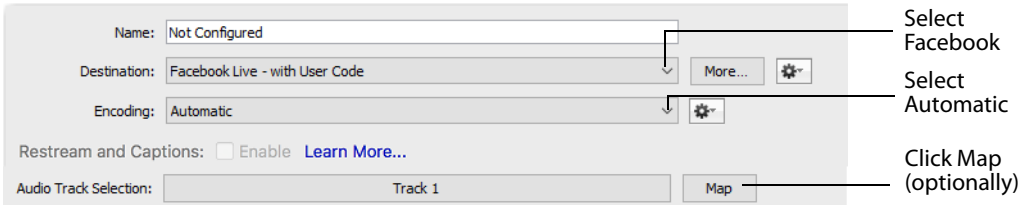
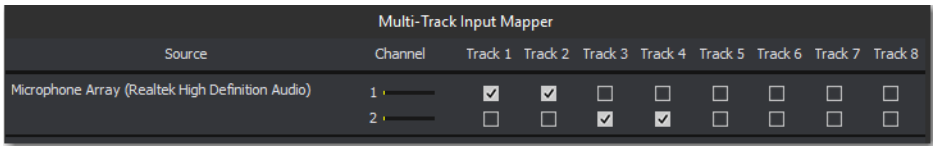
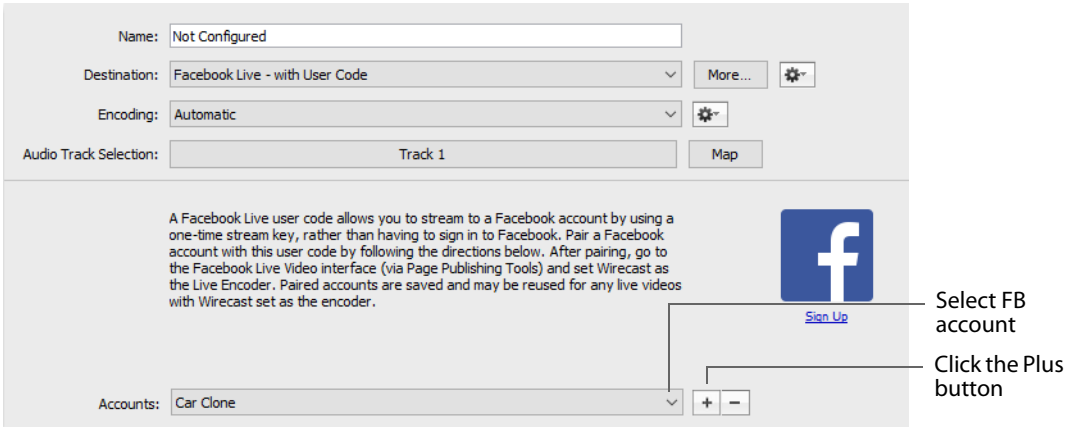
6. Choose the audio track to be used by selecting it from the *Audio Track Selection* menu.



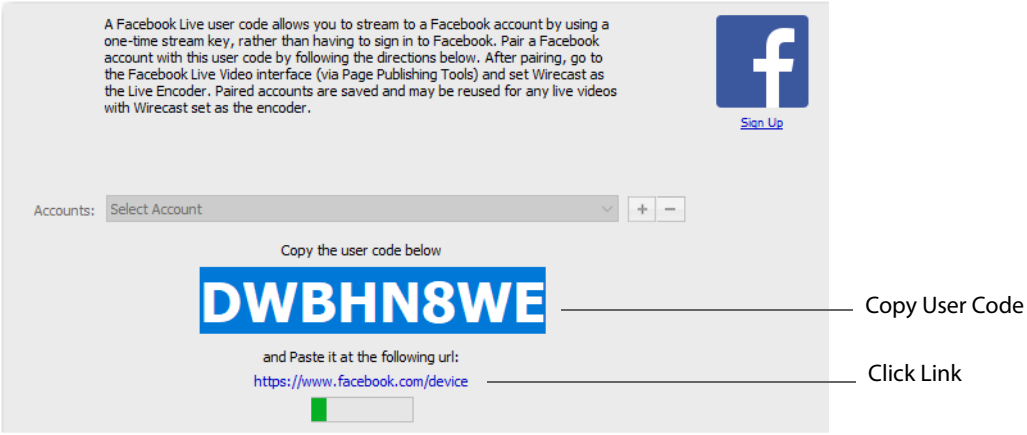
7. You can (optionally) click the Map button to open the Muti-Track Input Mapper. For each Channel, select (by checking the box) one or more inputs.



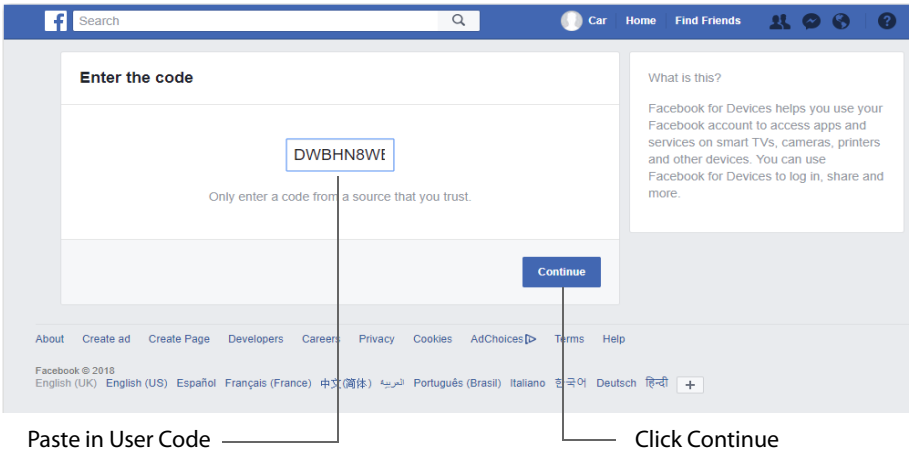
8. Select your Facebook account from the drop-down menu, then click the Plus button (+) to start the pairing process with a Facebook user.



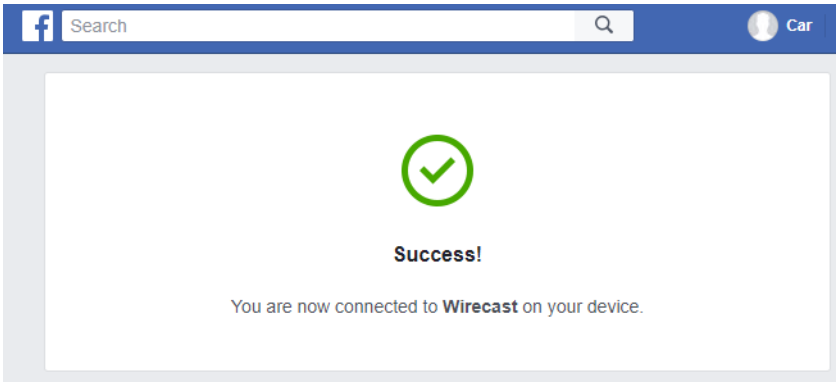
9. Copy the user code obtained from Facebook, and click on the link provided.



10. When the Facebook window displays, paste in the User Code and click *Continue*.

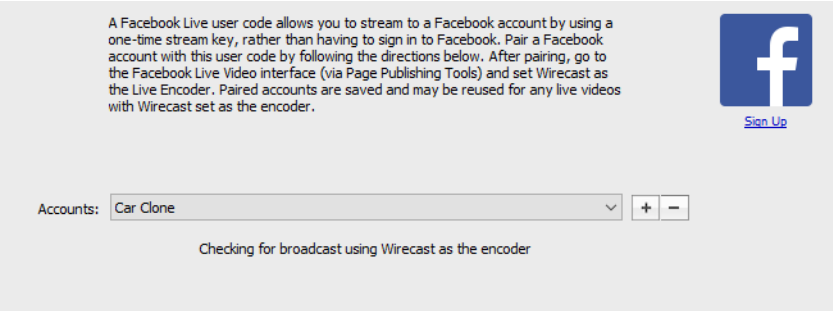


11. Facebook will display a Success window when the code is accepted.

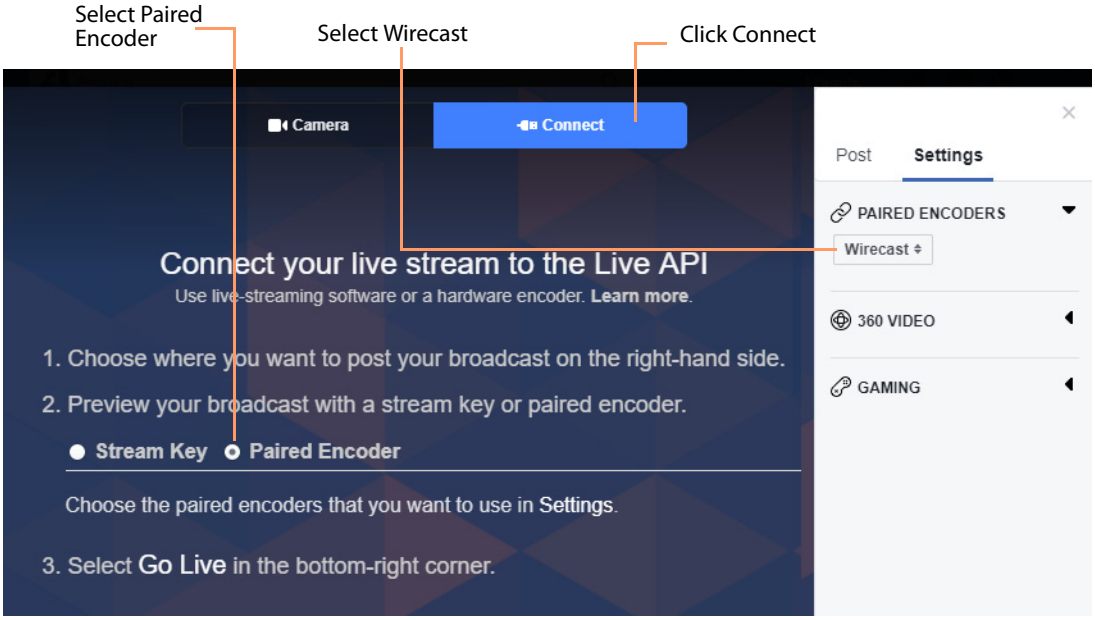


12. Wirecast displays a "Loading" paired encoders message while it searches to see if it is registered as an encoder with Facebook. Once Wirecast is properly registered as

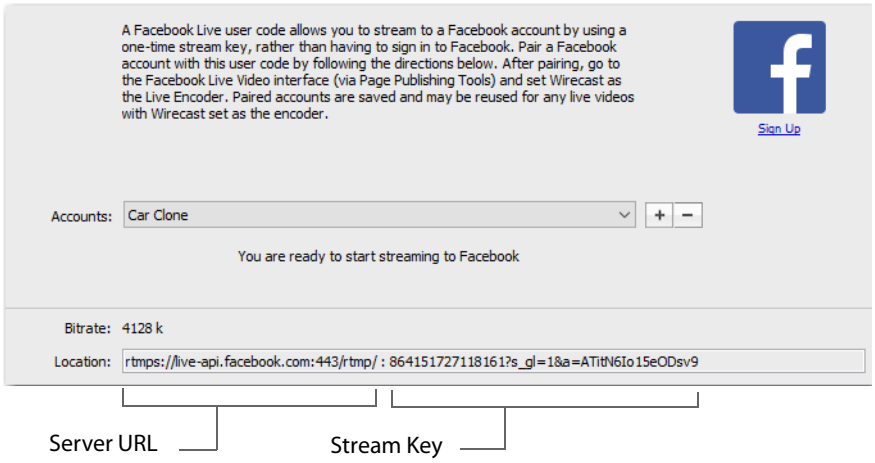
an encoder for the account, it starts “Checking” to find the broadcast (live video) where it is set as the encoder.



13. On Facebook, select *Paired Encoder*, set the Live Encoder to *Wirecast,* and then click *Connect*.



14. If Encoding is set to *Automatic*, Wirecast searches for the live video broadcast from Facebook. When found, Wirecast displays the server URL along with the stream key of the paired account. Click *OK* to close the Output Settings window.



Note: In low bandwidth situations, you may choose an Encoding Preset other than *Automatic*. The stream URL will still be automatically determined, but the specified encoder preset is used instead of Automatic.

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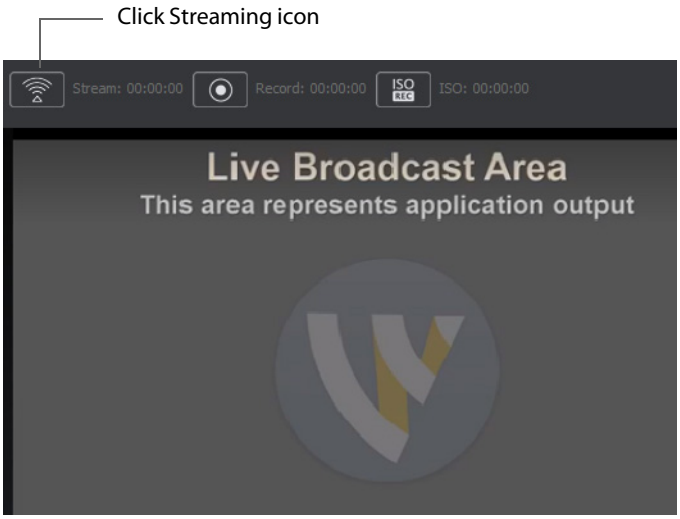
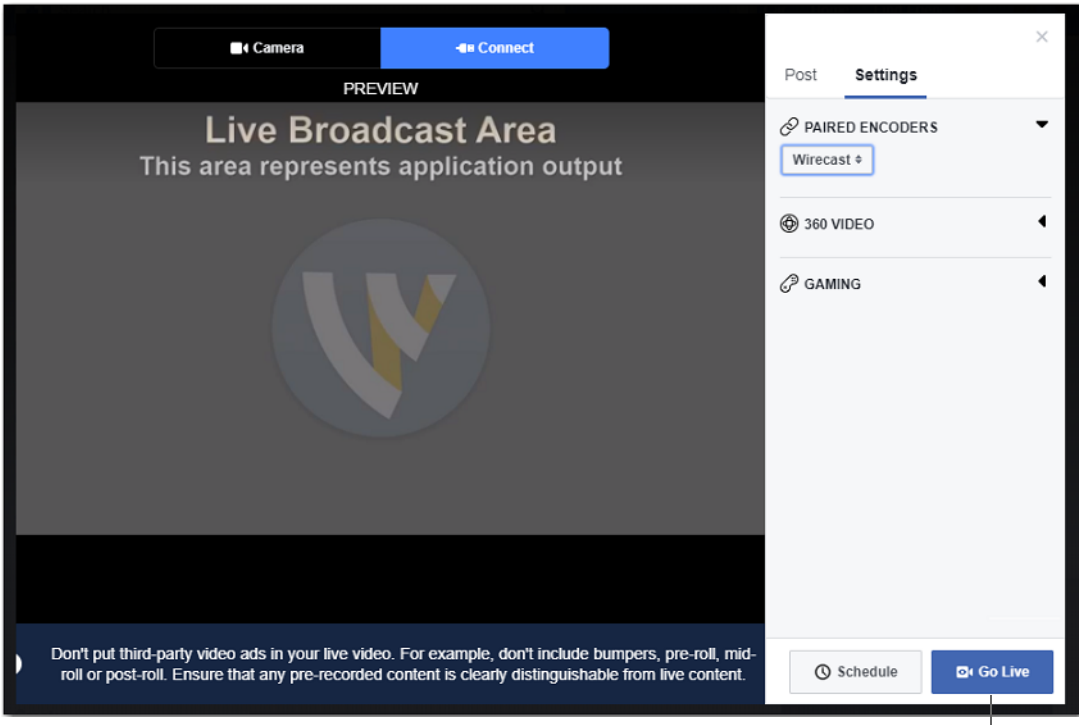
15. In Wirecast, begin streaming to Facebook by clicking the *Streaming icon*.

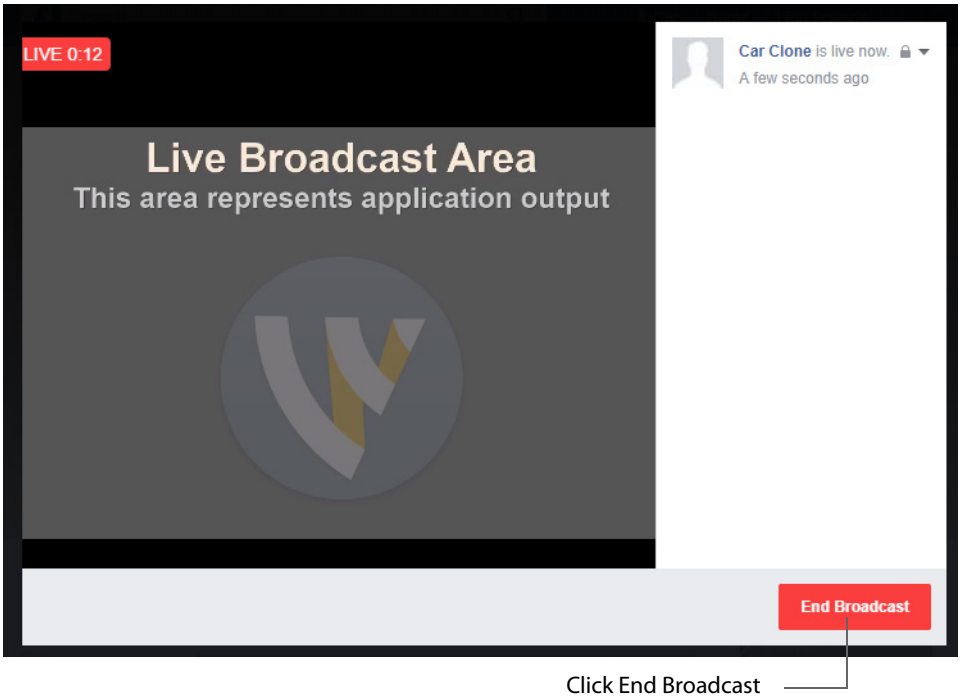


16. When Facebook displays the Preview screen, click *Go Live.*

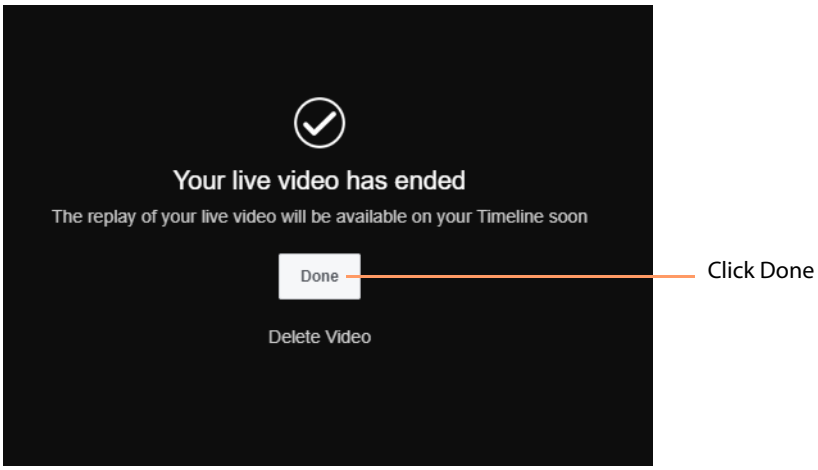


Note: Expect a 5-20 second lag between Wirecast output and what is seen on Facebook.

17. When *Go Live* is clicked, Wirecast detects this and automatically sends an *OnGoLive* message back to Facebook. This is what actually publishes the live video over Facebook. Facebook then displays the live broadcast with the elapsed time. Click *End Broadcast* to end the Facebook broadcast.



18. When Facebook displays the "video has ended" window, click *Done*. Wirecast will detect this automatically and will stop streaming.



If you stop streaming from Wirecast by re-clicking the *Streaming icon*, the Facebook broadcast remains live and keeps looking for the feed from Wirecast. If you re-start streaming from Wire cast (by re-clicking the *Streaming icon* again), Facebook will restart

its streaming. However, if you do not re-start streaming from Wirecast, Facebook will eventual time out and end its broadcast.

Microsoft Stream

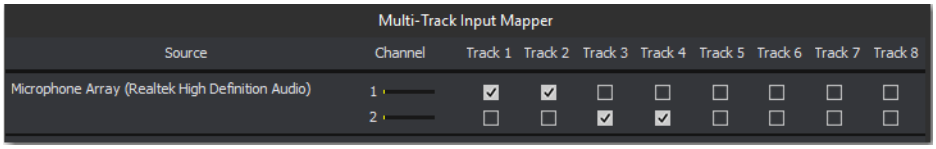
In order to broadcast using Microsoft Stream, you must first configure your streaming using Office 365. For a detailed procedure on how to do this visit the Telestream website at:

https://support.telestream.net/s/article/Wirecast-10-Publish-to-Microsoft-Stream

When the Output Settings window displays, select *Microsoft Stream* as your Destination and click *OK*.

When the Output window displays, select an Encoder and Audio Track for you stream. Paste in the address copied from Office 365 where streaming was initiated. Optionally, enter a Stream Delay if needed. Click *Ok* when finished.

You can also click the Map button to open the Muti-Track Input Mapper. For each Channel, select (by checking the box) one or more inputs.



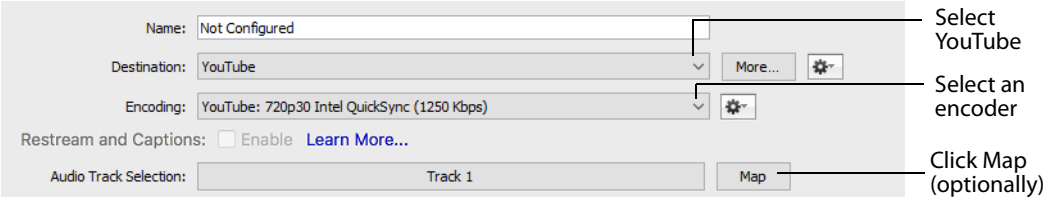
Click *OK* when finished.

YouTube

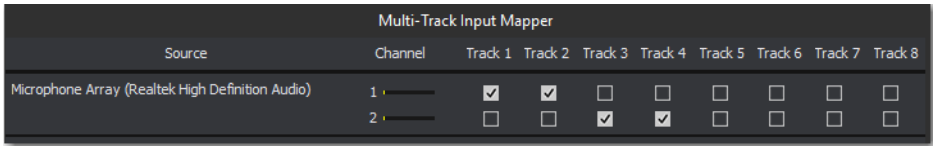
Note: Custom encoders cannot be used to stream to YouTube. They may only be used to encode a recording to disk.

To stream to YouTube, follow these steps:

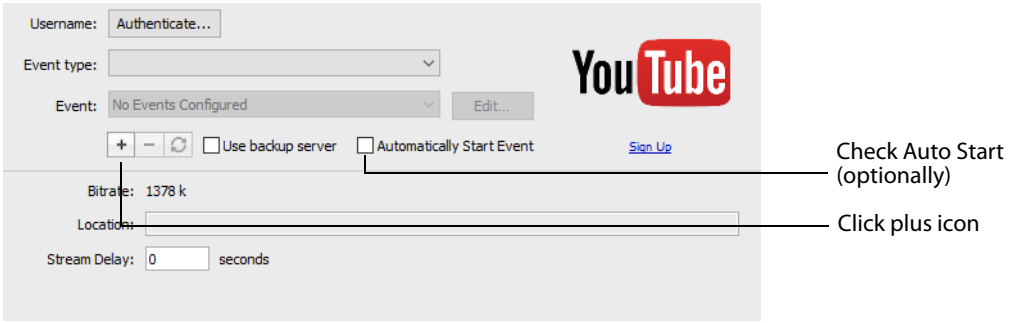
1. Log into your YouTube account using your browser.
2. Optionally, enter a Name for your destination.
3. Select *YouTube* from the Destination menu.
4. Select an encoder.



5. You can (optionally) click the Map button to open the Muti-Track Input Mapper. For each Channel, select (by checking the box) one or more inputs.

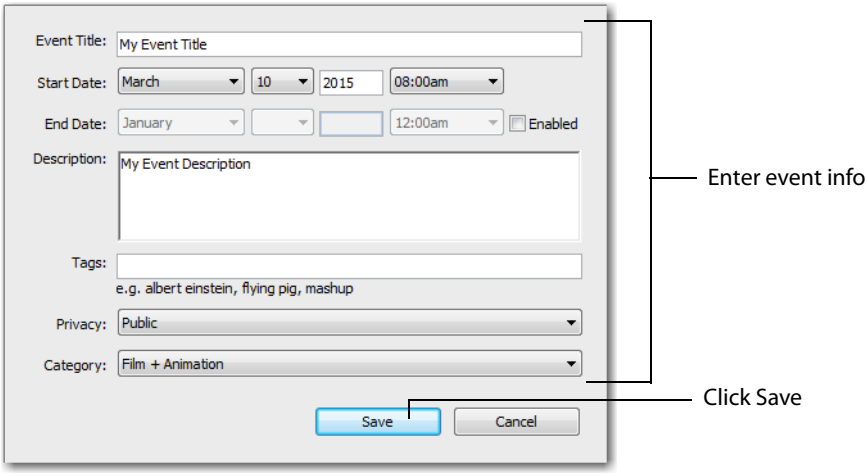


6. Check (optionally) *Automatically Start Event* to automatically start your event on YouTube when you start streaming. Click the plus (+) icon to add a new event.

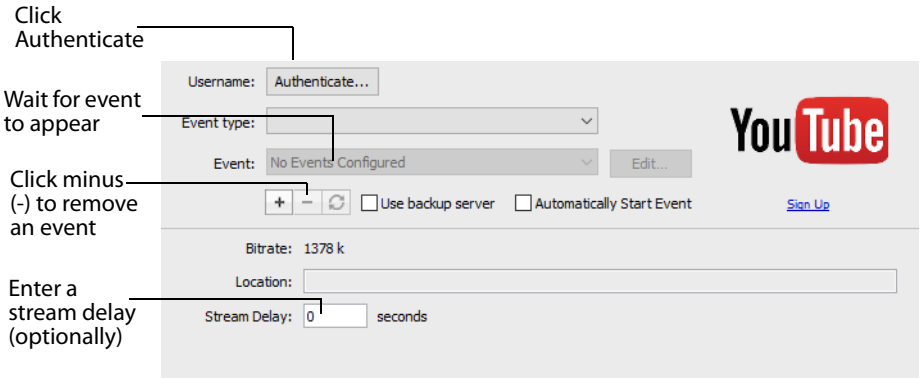


Note: If you do not have a YouTube account, click *Sign Up* (or go to www.youtube.com).

7. Enter all of your event information and click *Save*.



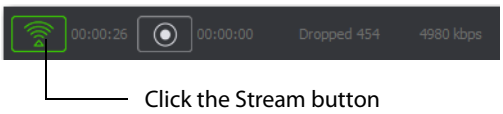
8. Click *Authenticate*, enter your login information, and wait for your event to appear in the Event menu box. Click the minus icon (-) to remove a selected event. Optionally, enter a Stream Delay value. This provides a time buffer between your live stream from Wirecast and the actual broadcast itself. You can set the delay from 0 to 999 seconds. Click *OK* when finished.



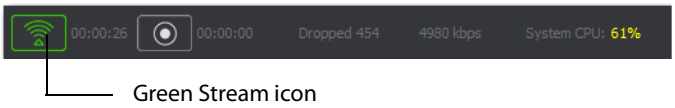
Note: If you are not already signed in, an OAuth window is launched enabling you to sign into your YouTube account. Enter your account information and click *Sign In*.

Streaming

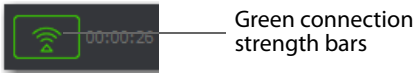
Click the *Stream* button to start streaming.



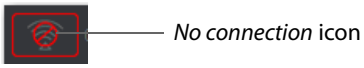
The Stream icon will blink until a connection is made. Once you are connected the Stream icon turns green. If you cannot connect an error message will display.



Connection strength is indicated by how many bars are displayed in the Stream icon. Fewer bars indicates a weaker (slower) connection.

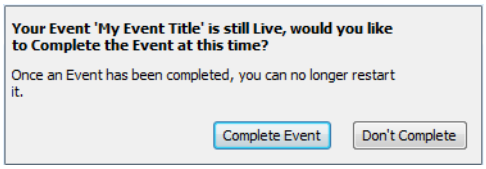


If the connection is ever broken, a *no connection* icon is displayed in place of the bars.

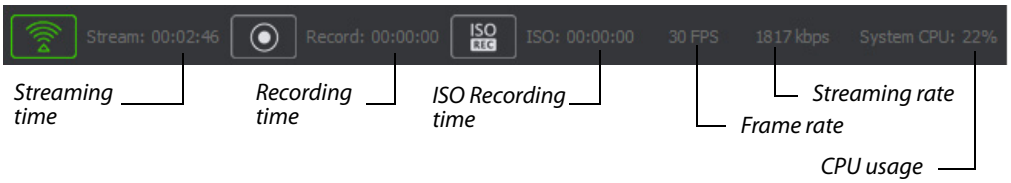


When the connection recovered, the *no connection* icon is replaced with the green bars.

Click *Stream* again to stop streaming. You can also record your broadcast by clicking *Record*. When you stop streaming, if you.

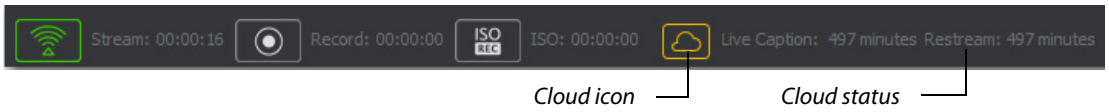


While streaming, status is displayed.

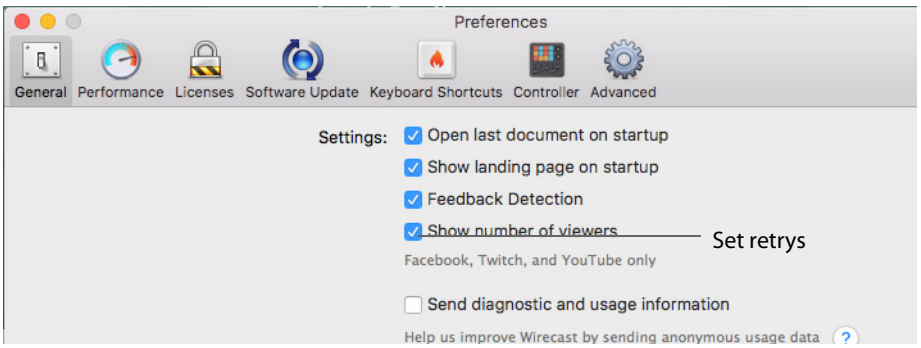


If you are streaming to Facebook, additional status is displayed on the right side of the status bar.

If you are streaming via the Cloud, additional status is displayed on the right side of the status bar.



Wirecast attempts to reconnect. Each time reconnection is attempted, the stream icon will blink. The number of reconnection trys is set in the General Preferences (Select *File>Preferences*, then click the *General* tab).



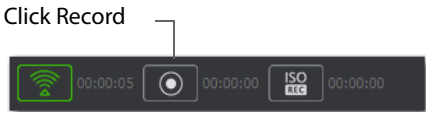
Record To Disk

If you want to archive your stream, you can use the Record To Disk destination.

Note: Wirecast auto-saves your Stream/recording. All formats (WMV, MOV, MP4) will be recoverable in increments of 20 seconds. Any recording less than 20 seconds is corrupted. ISO also recovers. In the case of an unexpected shutdown, the recoverable video is available in increments of one minute.

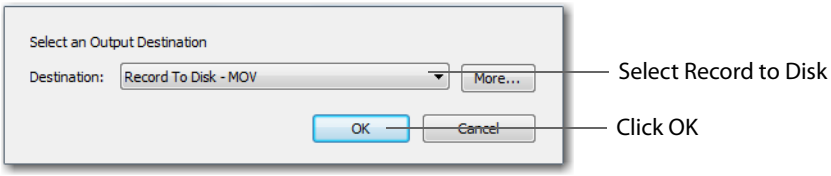
To record to disk, follow these steps:

1. Click the Record button at the top of the Wirecast Main window.

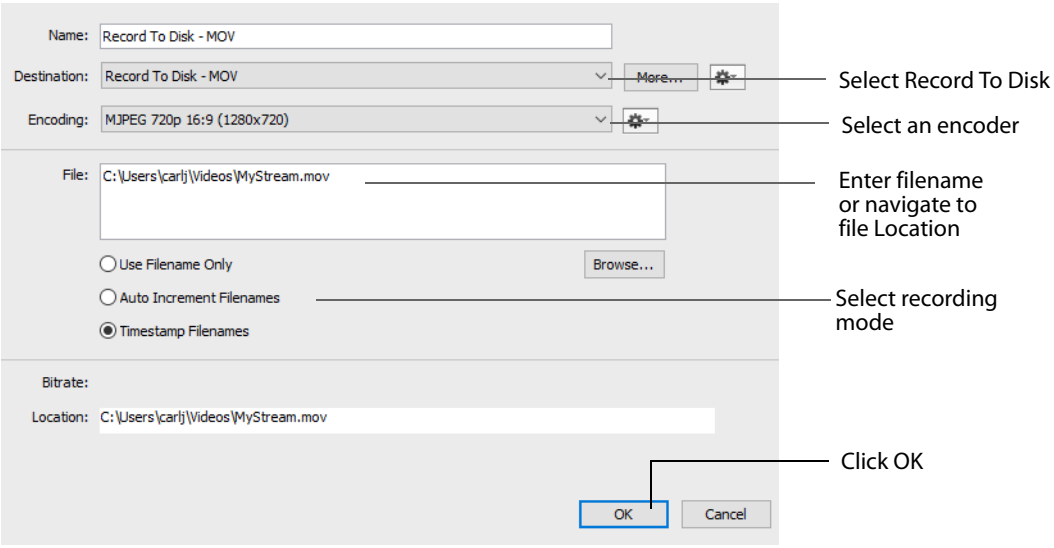


2. When the Output window opens, click the *Add* button at the bottom of the window to add a recording destination

3. When the dialog box displays, select *Record to Disk* and click *OK*.



4. In the Output Settings window select *Record To Disk* (for MP4 or Windows Media, MOV)
5. Select an encoder.
6. Click Browse or enter the path to where you want your recording located.
7. Select the recording mode: Use Filename Only, Auto Increment Filenames, or Timestamp Filenames. If you select Auto Increment Filenames, your filename will have an incremental number appended to the end of it. This causes a new file to be created every time you start recording to disk, otherwise your previous file is overwritten (if you have selected Use Filename Only).
8. Click OK.



Note: When recording to disk on FAT32 formatted drives, single files cannot be larger than 4GB in size. So, recording to disk on a FAT32 formatted drive may result in files that do not close properly if they exceed 4GB in size. It is recommended that you record to disk on a Mac OS X Extended formatted partition whenever possible.

Encoder Presets

Introduction

Wirecast supports a wide variety of encoders (also known as codecs).

An encoder is a program that compresses the audio and/or video output of Wirecast for broadcast. Without an encoder, the uncompressed data is too large to successfully broadcast across a network. This is why encoders are so important.

The settings for encoders range from simple to very complex. Because of this, Wirecast offers presets of the most common settings for encoders. This provides a starting point, reduces complexity, and enables you to experiment and adjust settings as you test your broadcast.

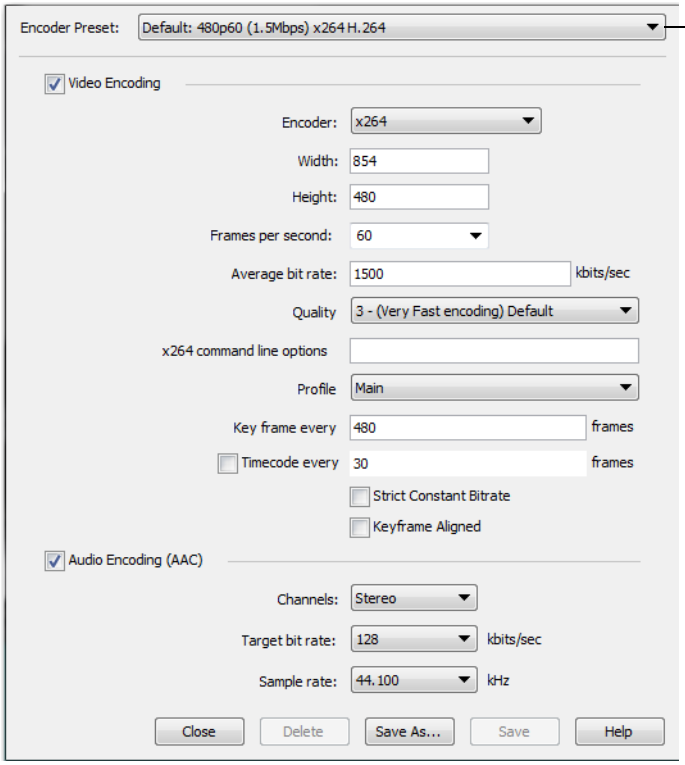
Note: Encoder Presets can also be edited from the Output Settings window. To do this select *Output* > *Output Settings*, click the gear icon, then choose *View Details* from the drop-down menu.

Topics

- *The Encoder Presets Window*
- *MainConcept H.264*
- *x264*

The Encoder Presets Window

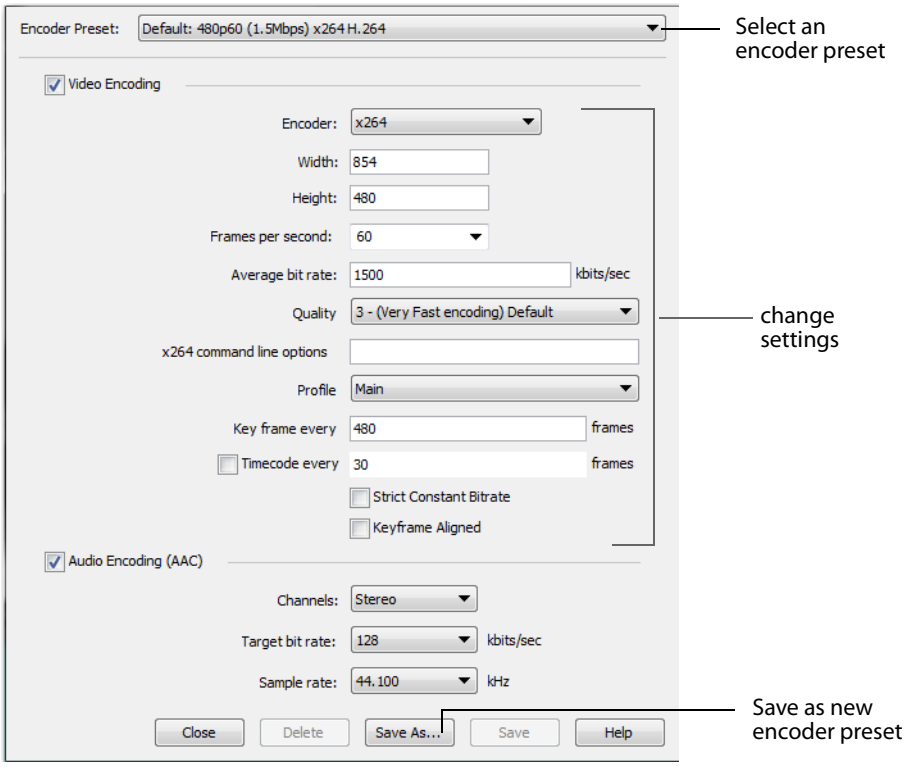
To open the Encoder Presets window, select Window > *Encoder Presets*. The Encoder Preset menu at the top of the window provides a list of encoder presets. Select a preset to edit.



Creating New Presets

The default encoder presets cannot be changed. However, you can make a copy of any preset, modify it as needed, and save it under a new name. You can refer back to the default presets at any time since they are never modified.

To create a new preset, you must make a copy of an existing preset. To do this, select an existing preset from the Encoder Presets menu that is close to what you need, change settings as needed, then click *Save As* to save the preset with a new name.



Profile Options

Many encoder presets enable you to select one of three profiles: Baseline, Main, or High.

Baseline Profile (BP) Baseline profile is primarily for low-cost applications that require additional data loss robustness. This profile is used in some video conferencing and mobile applications. It includes all features supported in the Constrained Baseline Profile, plus three additional features used for loss robustness (or for other purposes such as low-delay multi-point video stream compositing). The importance of this profile has faded somewhat since the definition of the Constrained Baseline Profile in 2009. All Constrained Baseline Profile bitstreams are also considered to be Baseline Profile bitstreams, since these two profiles share the same profile identifier code value.

Main Profile (MP) The Main profile is used for standard-definition digital TV broadcasts that use the MPEG-4 format as defined in the DVB standard. It is not, however, used for

high-definition television broadcasts, since the importance of this profile faded when the High Profile was developed in 2004 for that application.

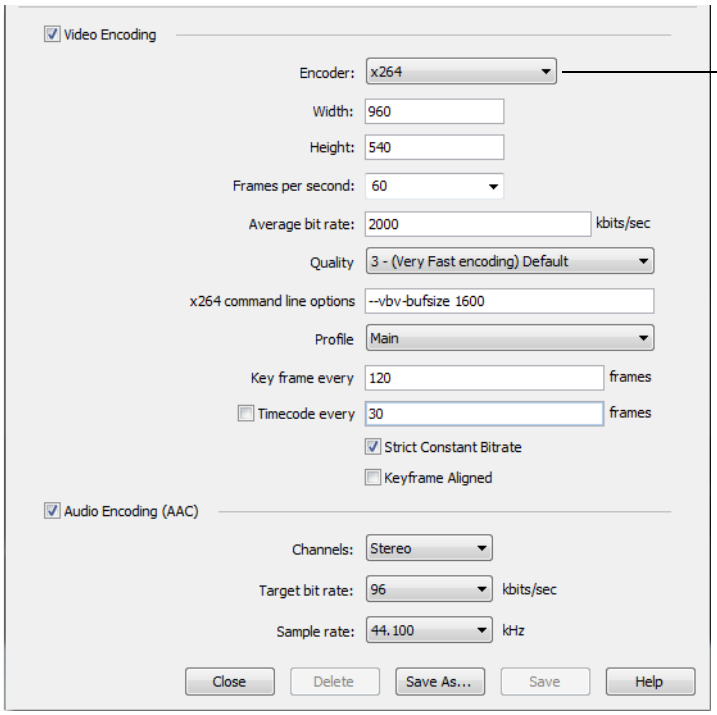
High Profile (HiP) The High profile is the primary profile used for broadcast and disc storage applications, particularly for high-definition television applications. For example, this profile is used by the Blu-ray Disc storage format and the DVB HDTV broadcast service.

1.

MainConcept H.264

To modify a MainConcept H.264 preset, follow these steps:

1. Open the Encoder Presets window.
2. Select the MainConcept H.264 encoder preset from the Encoder menu.



Note: To use a newly created preset (See *Creating New Presets*).

3. Check the Video Encoding checkbox. When checked, the video for your broadcast is encoded. When unchecked, a blank video screen is provided. This is the preferred method of producing audio-only broadcasts.
4. Enter the Width of your broadcast video.
5. Enter the Height of your broadcast video.
6. Select the desired frames per second (fps) of your broadcast. This value is a target value for the encoder and the exact value is not guaranteed.

7. Enter the average bit rate in Kbits (1000 bits) per second. This is the target bit rate of your video. Higher numbers provide better quality. The connection speed of your audience is a significant factor in determining your target bit rate. The encoder compresses the video to approximate this target. However, at different times during your broadcast the bit rate may be higher or lower than the target rate.
8. Select an encoder profile from the Profile menu. Three profiles are provided: Baseline, Main, and High. The Baseline profile is commonly used in mobile applications. It is also used in other applications which operate with limited processing power, storage capacity, and/or bandwidth. The Main profile is appropriate for general-purpose applications of broadcast media, such as high-bandwidth Internet broadcasting. The High profile provides the highest broadcast quality encoding.
9. Key Frame (optionally) allows you to enter the number of frames. A movie is a sequence of images and each image is called a frame. To compress video data, most encoders take a frame and make it a reference (also known as a key). This keyframe is sent as part of the broadcast, and all of the data after that keyframe is relative to it. The benefit of this is that the compressor only needs to send what has changed since the last keyframe. The main drawback of this is that over time it becomes harder for the encoder to distinguish the frame-difference information, especially if there is a lot of motion in the video. Another drawback is if your viewer's computer misses a keyframe, the video is distorted until the next keyframe is sent. However, you can control how often the encoder makes a new keyframe by setting the number of frames. The more keyframes you broadcast, the more bandwidth required and less compression, but results in better quality video.
10. Check (optionally) the Timecode Every checkbox and enter the number of frames between timecodes. Wirecast can generate timecodes embedded in the flash stream. If a frames value of zero is entered, the timecode is never sent. Wirecast sends metadata along with the frames. This data looks like an ONFi call. Various timecodes and timestamps are also sent with the stream.
11. Check (optionally) Strict Constant Bitrate. When checked, it forces the Average bit rate (see item 8 above) to maintain the exact bit rate entered. CBR pads the data (when necessary) to meet exact bitrate specified. Disabling CBR can result in slightly improved quality and decrease file size, but at the cost of greater bitrate fluctuations which could prove troublesome for certain streaming destinations. Selecting this option for recording is not recommended because it can result in decreased quality and larger files, with no real benefit.
12. Check (optionally) Keyframe aligned. When checked, it facilitates adaptive bitrate streaming by ensuring that keyframes from multiple streams are in sync, along with the keyframes timestamp, DTS and PTS values. But this is true only if those other streams also have the option turned on and have the same keyframe interval. To accomplish this, Wirecast disables scene detection and manually inserts the keyframe at the exact keyframe interval specified. Therefore, to ensure quality and smooth switching in the player, the keyframe interval should be in the 1 to 4 second range. When Keyframe Aligned is enabled, absolute timestamp is also enabled.

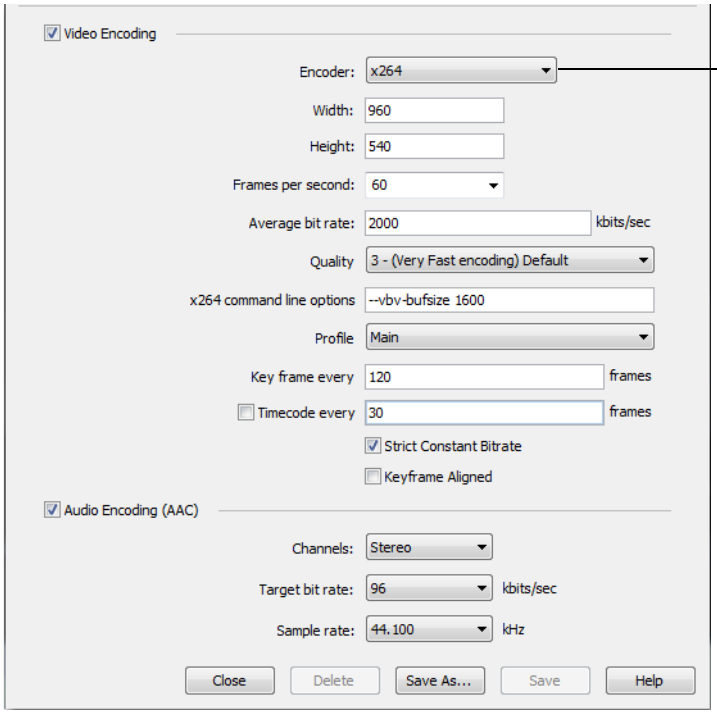
13. Check (optionally) the Audio Encoding (AAC) checkbox. When checked, the audio for your broadcast is included. When unchecked, audio is absent. This is the preferred method of producing video-only broadcasts because the presence of silent audio uses bandwidth.
14. Select the number of channels: Mono or Stereo. Mono uses less bandwidth than stereo, but stereo is more pleasing to the listener.
15. Select the audio bit rate, in Kbits (1000 bits) per second, from the Target Bit Rate menu. This is the target bit rate of your audio. Higher numbers provide better quality. The connection speed of your audience is a significant factor in determining your target bit rate. The encoder compresses the audio to approximate this target. However, at different times during your broadcast the bit rate may be higher lower than the target rate. The total broadcast bit rate is a function of video bit rate plus audio bit rate.
16. Select the audio sample rate, in kHz (1000 Hz) per second, from the Sample Rate menu. This value specifies how many thousands of times per second to sample the audio in the broadcast. Higher values provide better quality sound, but at greater bandwidth.
17. Click Save to save your settings.

x264

Note: The x264 implementation of the H.264 standard results in better quality and lower CPU usage for any given bitrate, but at the cost of higher memory usage. The default implementation is based on the MainConcept codec and uses less memory.

To modify an x264 preset, follow these steps:

1. Open the Encoder Presets window.
2. Select an x264 from the Encoder menu.



Note: To use a newly created preset (See *Creating New Presets*).

3. Check the Video Encoding checkbox. When checked, the video for your broadcast is encoded. When unchecked, a blank video screen is provided. This is the preferred method of producing audio-only broadcasts.
4. Enter the Width of your broadcast video.
5. Enter the Height of your broadcast video.
6. Select the desired frames per second (fps) of your broadcast. This value is a target value for the encoder and the exact value is not guaranteed.
7. Enter the average bit rate in Kbits (1000 bits) per second. This is the target bit rate of your video. Higher numbers provide better quality. The connection speed of your audience is a significant factor in determining your target bit rate. The encoder

compresses the video to approximate this target. However, at different times during your broadcast the bit rate may be higher or lower than the target rate.

8. Select encoding quality (*Ultra fast* to *Very slow* encoding). Slower encoding results in better quality.
9. In the *x264 command line options* edit box, enter any command line options you want included.
10. Select an encoder profile from the Profile menu. Three profiles are provided: Baseline, Main, and High. The Baseline profile is commonly used in mobile applications. It is also used in other applications which operate with limited processing power, storage capacity, and/or bandwidth. The Main profile is appropriate for general-purpose applications of broadcast media, such as high-bandwidth Internet broadcasting. The High profile provides the highest broadcast quality encoding.
11. Key Frame (optionally) allows you to enter the number of frames. A movie is a sequence of images and each image is called a frame. To compress video data, most encoders take a frame and make it a reference (also known as a key). This keyframe is sent as part of the broadcast, and all of the data after that keyframe is relative to it. The benefit of this is that the compressor only needs to send what has changed since the last keyframe. The main drawback of this is that over time it becomes harder for the encoder to distinguish the frame-difference information, especially if there is a lot of motion in the video. Another drawback is if your viewer's computer misses a keyframe, the video is distorted until the next keyframe is sent. However, you can control how often the encoder makes a new keyframe by setting the number of frames. The more keyframes you broadcast, the more bandwidth required. The result is less compression but better quality video.
12. Check (optionally) Strict Constant Bitrate. When checked, it forces the Average bit rate (see above) to maintain the exact bit rate entered. CBR pads the data (when necessary) to meet exact bitrate specified. Disabling CBR can result in slightly improved quality and decrease file size, but at the cost of greater bitrate fluctuations which could prove troublesome for certain streaming destinations. Selecting this option for recording is not recommended because it can result in decreased quality and larger files, with no real benefit.
13. Check (optionally) Keyframe aligned. When checked, it facilitates adaptive bitrate streaming by ensuring that keyframes from multiple streams are in sync, along with the keyframes timestamp, DTS and PTS values. But this is true only if those other streams also have the option turned on and have the same keyframe interval. To accomplish this, Wirecast disables scene detection and manually inserts the keyframe at the exact keyframe interval specified. Therefore, to ensure quality and smooth switching in the player, the keyframe interval should be in the 1 to 4 second range. When Keyframe Aligned is enabled, absolute timestamp is also enabled.
14. Check (optionally) the Timecode Every checkbox and enter the number of frames between timecodes. Wirecast can generate timecodes embedded in the flash stream. If a frames value of zero is entered, the timecode is never sent. Wirecast sends metadata along with the frames. This data looks like an ONFi call. Various timecodes and timestamps are also sent with the stream.

15. Check (optionally) the Audio Encoding (AAC) checkbox. When checked, the audio for your broadcast is included. When unchecked, audio is absent. This is the preferred method of producing video-only broadcasts because the presence of silent audio uses bandwidth.
16. Select the number of channels: Mono or Stereo. Mono uses less bandwidth than stereo, but stereo is more pleasing to the listener.
17. Select the audio bit rate, in Kbits (1000 bits) per second, from the Target Bit Rate menu. This is the target bit rate of your audio. Higher numbers provide better quality. The connection speed of your audience is a significant factor in determining your target bit rate. The encoder compresses the audio to approximate this target. However, at different times during your broadcast the bit rate may be higher or lower than the target rate. The total broadcast bit rate is a function of video bit rate plus audio bit rate.
18. Select the audio sample rate, in kHz (1000 Hz) per second, from the Sample Rate menu. This value specifies how many thousands of times per second to sample the audio in the broadcast. Higher values provide better quality sound, but at greater bandwidth.
19. Click Save to save your settings.

Making Great Broadcasts

Introduction

These topics provide helpful information about how to prepare for creating great presentations.

Topics

- *Overview*
- *High Quality Audio*
- *Good Lighting*
- *Broadcast Settings*

Overview

There are many ways to make a good live event even better. But this appendix focuses on two main things to remember about video streaming:

- **High Quality Audio Input** Great looking video with poor audio input appears unprofessional.
- **Good Lighting** Poor lighting can ruin an otherwise excellent live event. If you are doing chroma keying, this may become the most important part of your setup.

When video is saved to disk or sent over the network, it needs to be compressed. The compression process is done by encoders (codecs) which are optimized to work with clean input data. This means that if the audio or video is muddy to start with, it remains muddy after compression. Some codecs may even highlight poor input because the algorithm is built to look for differences.

Your goal should be to give the best possible quality audio and video to the compression process as possible. This means making sure what you see in the Live area is the best possible quality because Wirecast takes exactly what you see and sends it to the codecs.

High Quality Audio

Audio has an artistic aspect to it. You can make a great live event even better by remembering to focus on a few details. Here are some suggestions on producing clean audio.

- **Use a Good Microphone** Though this may sound obvious, a good microphone can make a huge difference. Most DV cameras have an audio input for an external microphone. Use this, whenever possible, instead of the built-in microphone that comes with the camera. Built-in microphones are usually not good quality and tend to pick up hum from the electronics inside the camera. Even when it is not a great microphone, an external microphone almost always sound better.
- **Use a Microphone Splitter** If you are doing an interview with one camera, you can use two microphones with a splitter (less than $5). This often gives better results than one omni-directional microphone at a distance. You can also use a dual lapel microphone with a splitter.
- **Position the Microphone Properly** Place any microphone as close to the sound source as possible, even when using omni-directional microphones, because sound volume decreases greatly the farther away the microphone is placed. Stronger signals coming into the microphone results in better quality.
- **Use Lapel Microphones** Even inexpensive (less than $20) lapel microphones can make a huge difference because it places the microphone much closer to the person speaking.
- **Control Environmental Noise** If a chair squeaks, use a different one. If you have a wood floor and you can hear people shuffling their feet as they talk, put down a rug. Do whatever it takes to keep noise at a minimum. Microphones pick up everything.

Good Lighting

Do not underestimate the power of lighting. When an event is shot outdoors, a great deal of attention goes into lighting. For professionals, lighting is viewed as an artistic task. Many people make their living controlling lighting, so there is a lot to it. Here are a few suggestions to help you obtain reasonably good lighting:

- If you are using only one lighting source, do not shine it directly on your subject. You should diffuse the light by bouncing it off of a wall or by shining it through opaque material.
- Avoid deep shadows. Make sure you fill all areas of your subject with light. Sometimes this requires adjusting the light to bounce off a different wall or use two lights. Placing a light low and another one high is often a good way to light evenly.
- Do not light too evenly. If you evenly light a set, you may actually be worse off than not lighting the set at all. Take a sample shot and see if it looks natural. Good lighting usually has a little more light coming from above than any other direction. You should very rarely light just from below a subject.

- Beware of having too much light on your subject. If your subjects are people and you must use a lot of light, use make-up to compensate for the overly bright lighting. This is not necessarily a bad thing, but you must choose how much effort you want to go through to make a good live event. If your lighting balance is excellent, you can avoid using make-up on your subjects. The key in adjusting the lighting is to look at your subject and make sure they do not look washed out.
- Watch professional events and learn from them. As you watch, notice the lighting instead of watching the program. Notice how they employ the suggestions listed above.

These guidelines might seem to suggest subtle improvements, but good lighting can make an amateur video look professional and a professional video look fabulous. The important thing to remember is that one or two properly placed lights makes a huge difference in the quality of your live event.

Triangular Lighting

One advanced and very effective approach to good lighting is known as *triangular lighting* (or *three light setup*). Although this may sound complicated, it is actually quite simple. It involves setting up three lights (sometimes using natural light as one of the light sources), in a configuration that achieves a good balance. Here are the main elements of Triangular Lighting:

- **Main Light (Key Light)** This is the strongest of your lights and does most of the work. This light normally comes from one side of the camera (the left, for example) and is slightly raised. However, using just the main light results in shadowing.
- **Fill Light** This is a soft light placed directly in front of the subject. It removes shadows and fills in the image. It is usually direct and usually comes from the same direction as the camera (or just to the side and behind it). It could be, for example, placed on the same level as the head of a person you are lighting. If you use only a fill light, your subject might appear too dark. The only purpose of a fill light is to add to the main light by filling in shadows. If your key light comes from the left of your camera, your fill light should come from the right, and vice versa.
- **Back Light (Rim Light)** This light is directed from behind the subject and above it. This is the hardest light to explain, but the best way is to describe it as an accent of your subject. If you look at a typical high school yearbook picture, you will notice that the top-left (or top-right) part of each head shot has a highlight of light in it. This light is the *back light*. It is also called a *rim light* because it makes a slight rim around the edge of the head of your subject. This light normally comes from behind and above the subject, and it is focused. Make sure it is not directed at the camera.

Most serious lighting starts with these three basic lights. There are also some great Websites that describe these techniques in great detail.

Broadcast Settings

Once you have good video and audio coming into Wirecast, the final item of importance is make sure the Broadcast Settings are configured correctly for your presentation. Though there are many broadcast parameters to modify, there are three that are the most important: bandwidth, motion, and encoder settings.

Bandwidth

The first item of importance is knowing how much bandwidth is available. Bandwidth is how much data you can broadcast from your computer. This depends on the speed of your network connection and the type of connection your viewers are using. More specifically, it is the minimum speed between you and all of your viewers.

Thus, you must know who your viewers are and what kind of connection they have. This may be difficult to know because you must determine if their connection is cable modem or DSL and whether or not they reside on your local network.

In some situations, you are broadcasting for just your local network (in an office building, for example). In this case you should discuss your plans with your network administrator and verify that you will not disrupt the network with your broadcasts. Ask them what your upper limit bandwidth should be. Your available bandwidth is the minimum of what you can upload, combined with what your viewers can download.

Motion

Once you know your bandwidth, you need to decide whether or not your video contains a lot of motion. Motion is how much things move around in your video presentations. An interview is considered low motion. A sports event, however, would probably be high motion. Wirecast comes configured with defaults to help ease your configuration task. Choose a default configuration that meets your motion (and bandwidth) constraints.

Encoder Settings

The parameters of the encoders are quite technical and can be overwhelming. It is beyond the scope of this document to describe the delicate balance required in setting them. There are professionals who fine-tune encoders to do exactly what is required. The Wirecast default settings are generally optimal for the various network environments. (See *Encoder Presets* for information on changing the encoder settings.)

Acknowledgements

Acknowledgements

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c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

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