Using TriCaster with YouTube Live

YouTube Live is an increasingly popular web streaming provider. TriCaster works well with this service; in fact there are several different workflows available to TriCaster users for interfacing with YouTube Live for live stream broadcasting.

This paper is designed to provide users with information they need to decide which method will work best for them. YouTube Live, like many Content Delivery Networks (CDNs), has some specific requirements and recommended streaming configurations that a user should adhere to in order to achieve the highest quality streaming broadcast and take advantage of all of the capabilities that YouTube Live has to offer.

The following settings are recommended by YouTube Live for any encoder:

Video resolution

Based on your available outbound bandwidth, choose the *one* highest quality from below that you can reliably stream. YouTube will automatically create all of the lower qualities. Remember to account for your backup stream.

Example: If you have 10M dedicated bandwidth for your encoder, you could safely choose to stream 720p quality. 4M for primary encoder, 4M for backup encoder, with room for overhead.

Resolutions

240p: 426 x 240, 360p: 640 x 360, 480p: 854x480,
720p: 1280x720, 1080p: 1920x1080

Video Bitrates

Maximum: 700 Kbps 1000 Kbps 2000 Kbps 4000 Kbps 6000 Kbps
Recommended: 400 Kbps 750 Kbps 1000 Kbps 2500 Kbps 4500 Kbps
Minimum: 300 Kbps 400 Kbps 500 Kbps 1500 Kbps 3000 Kbps
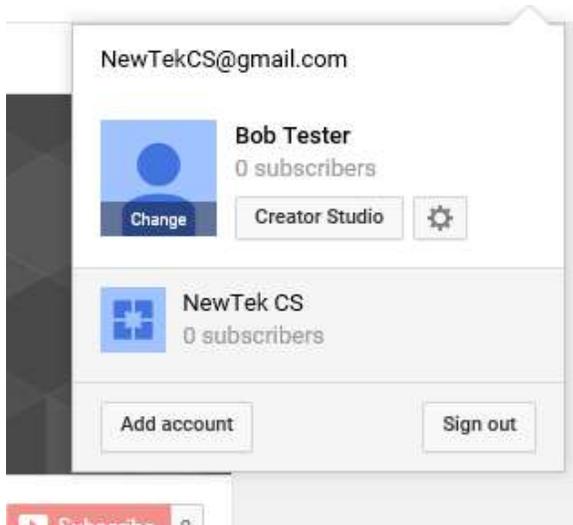
Encoder settings

Protocol: RTMP Flash Streaming
Video codec: H.264, Main 4.1
Frame rate: 30 fps
Keyframe frequency: 2 seconds
Audio codec: AAC-LC (Audio required)
Audio sample rate: 44.1 KHz
Audio bitrate: 128 Kbps stereo
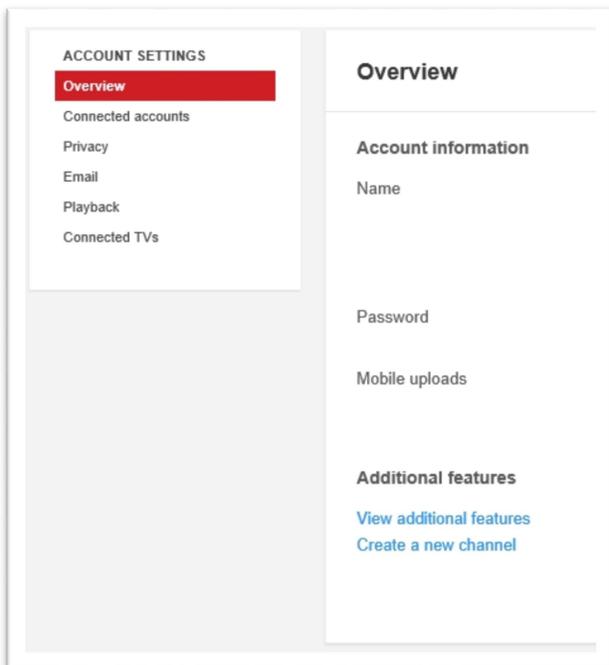
Recommended advanced settings

Pixel aspect ratio: Square
Frame types: Progressive Scan, 2 B-Frames, 1 Reference Frame
Entropy coding: CABAC

Setting up your live event at YouTube Live

An active YouTube account, in good standing, is required and once logged in; the status can be checked by selecting "YouTube settings" from account dropdown menu.

This will take you to the account status page.

Click on "View additional features" and the account status will be shown and the top of the next page.
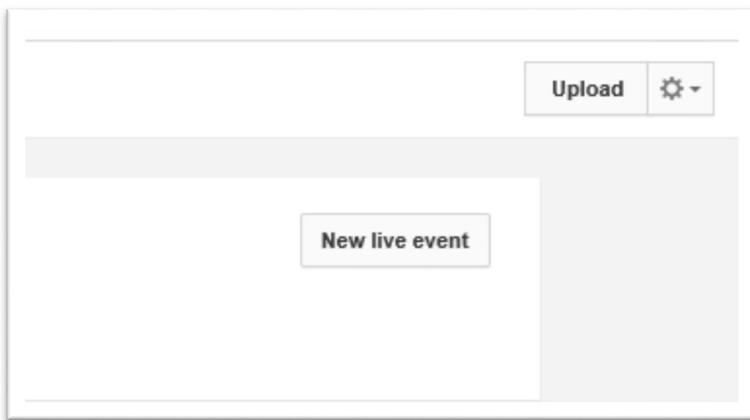

At the bottom of the same page make sure that "Live Streaming" is enabled.

Now selecting "Creator Studio" from the account drop down menu will take you to your YouTube channel page and "Live Streaming" will be available in the channel dashboard on the left.

Click on "Live Streaming" to bring up the stream now (Beta) and the Events options. Click on Events to bring up the Events Page. Click on the "New live event" button.

Now the basic and advanced settings need to be configured for this event. The "Type" will need to be set to "custom" in order to use Tricaster as the encoder. Private should be selected for testing the stream. The advanced settings can be left at the defaults or set as preferred.

Now click the "Create event" button.

1. Under Ingestion Setting -> Main Camera, You will need to choose the maximum bitrate for your encoder. Under Basic ingestion select 500 Kbps-2000 Kbps (480p).

Note: It's important that your chosen Streaming Settings resolution and bitrate are within range of the Ingestion Settings chosen when you created your live event otherwise the 'Live Control Room's' stream status will show degraded health

2. Select Your Encoder as Flash Media Live Encoder (FMLE)

Select your encoder
YouTube Live provides support for a variety of encoders. Select one of the encoder options below and follow the instructions.

Flash Media Live Encoder (FMLE) ▼

3. Export settings for the Primary Profile and move this file to the TriCaster.

Main Camera   Add a Camera

Thumbnail

Please upload as large an image as possible (suggested: 1280x720) since the image will also be used as the preview image when your event is embedded on other sites. You can upload a JPG, GIF, BMP, or PNG file. Maximum file size is 2MB.

Browse

Choose maximum sustained bitrate of your encoder *
Select a range that corresponds to the maximum sustained output your encoder provides.
◉ Basic ingestion

500 Kbps - 2000 Kbps (480p) ▼

☐ Enable 60fps ❓
○ Custom ingestion ❓

Select your encoder
YouTube Live provides support for a variety of encoders. Select one of the encoder options below and follow the instructions.
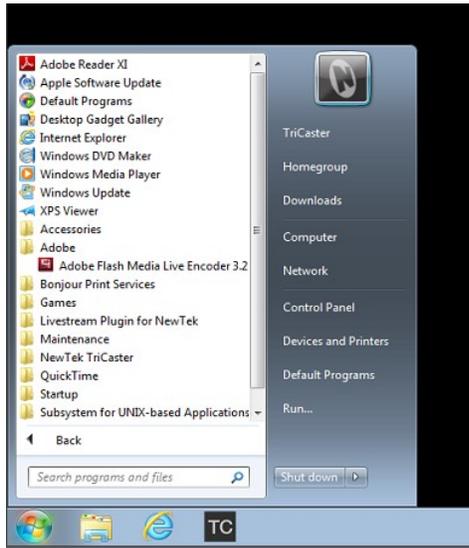
Flash Media Live Encoder (FMLE) ▼

1. Download and Install
   Download and install the latest version of FMLE directly from Adobe.
   Download FMLE from Adobe

2. Export Settings
   To save you some time, we've packaged the proper settings into two downloadable profiles that can be easily imported into FMLE.
   Download Profile (primary)   Download Profile (backup)

3. Import Profiles
   In the FMLE application, go to File>Open Profile and load the file you downloaded. If you have a backup encoder, you will need to repeat this process. NOTE: You may encounter a "Profile Validation" warning when importing these profiles into FMLE. This is normal and will not affect your stream or harm your system.

4. Start your encoder
   In your encoder, start sending us your video stream.

5. Go to the Live Control Room.
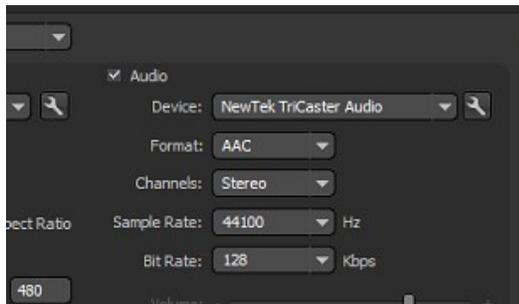   You can preview and start your event from the Live Control Room.

Closed captions
☐ Enable captions (requires supported vendor/software)

4. Open Adobe Flash Media Live Encoder from the Start>Programs>Adobe Menu.

5. Use the Menu Bar at the top to Open the Profile you have downloaded from You tube.
6. Once you have the You Tube profile open in Adobe Flash Encoder change the Audio Device to NewTek TriCaster Audio.

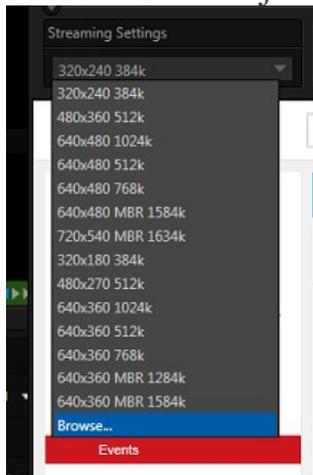**7**. Use the Menu Bar at the top to save the profile over the original file.

8. Go to TriCaster Live Production. Set up your show and open the streaming configuration panel.

9. Type http://www.youtube.com in the URL bar and hit enter.

10. Select Create Connection from Current URL in the box and choose Adobe Flash as the Connection Type

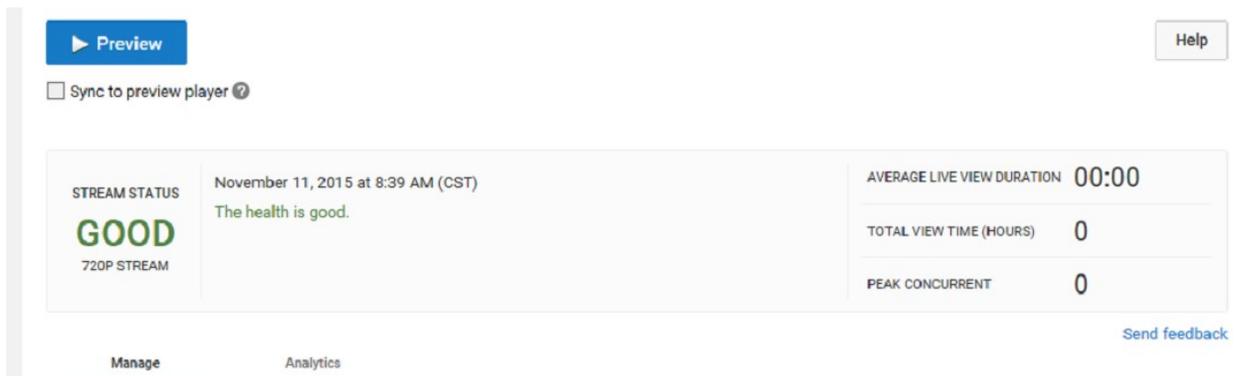**11.** Rename the Unnamed Connection 'YouTube Live'

12. Under Streaming Settings select Browse and select the new You Tube Profile that was just saved out of Adobe Flash Encoder.

13. Under Flash Server – Click the '**Import Settings**' button and select the xml file that was downloaded in step 3.

14. You should now be able to test the connection to YouTube by hitting Stream in the Main Interface on TriCaster.

15. On the YouTube Live Control Room page, you should get a preview button and status of the stream.

16. Click Preview to start the You Tube encoder and in the Preview window click play to view the preview stream.

17. Once you are ready to stream hit the Start Streaming button at the top of the page in the Creator Studio.
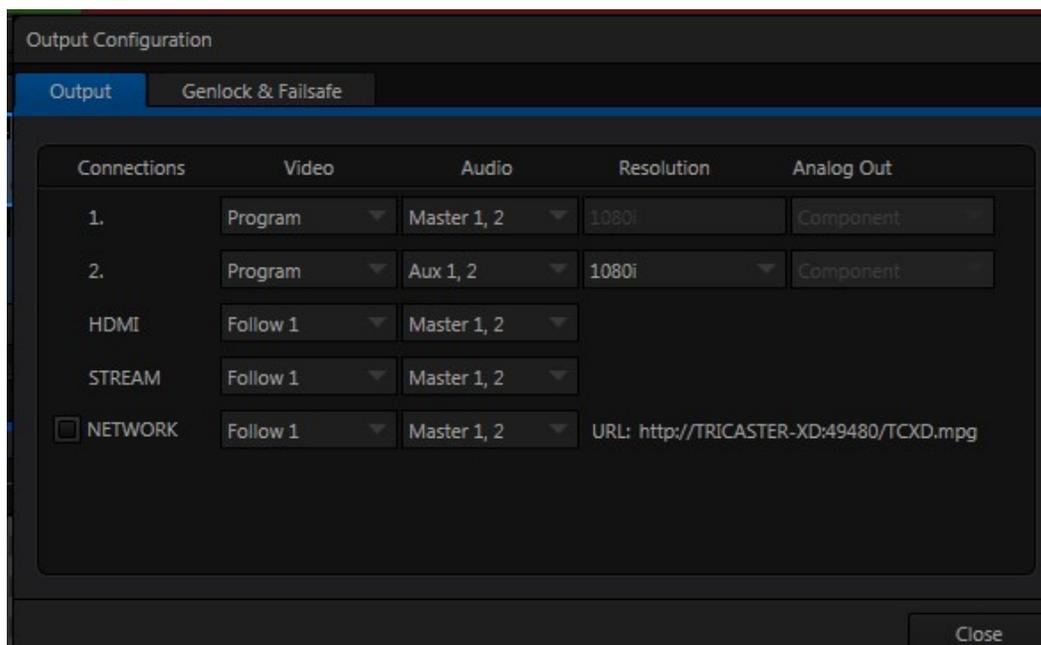
Using an intermediate encoder

Since TriCaster can stream directly to YouTube Live, why use an intermediate encoder? As you can see from the YouTube Live settings above, resolutions up to 1080p are supported by YouTube Live. Currently the TriCaster encoder profiles only support up to 720p. YouTube Live also expects to receive both a primary and a backup stream. The TriCaster currently supports one stream while performing all of its other powerful live production features. So the use of an intermediate encoder allows for these additional capabilities and, with the ability to provide a network (IP) stream output from the TriCaster, using other encoders is now much easier as no additional video/audio capture hardware is required. So what stream encoding products are out there to provide this functionality?

Using Wirecast from Telestream as an intermediate encoder

Telestream produces a software based streaming encoder called Wirecast. On their website they describe the procedure for using their software with the TriCaster.
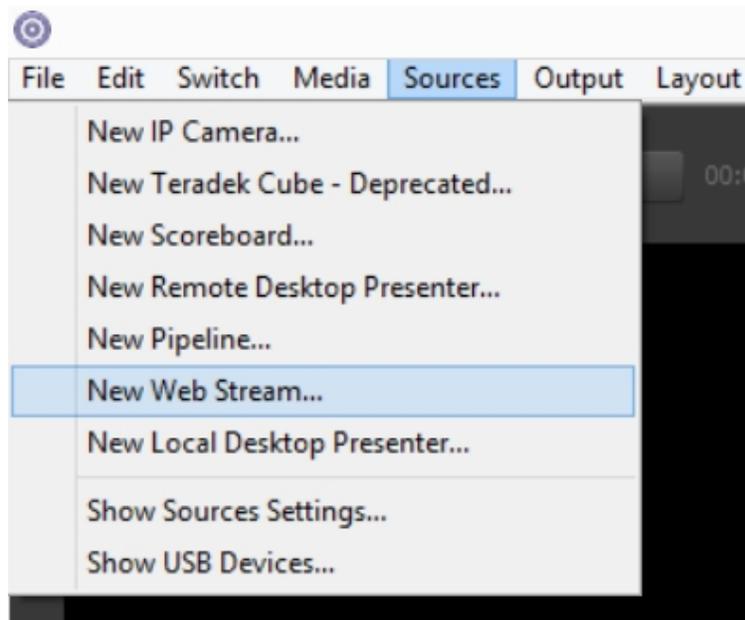
To set up Telestream's Wirecast software to recognize TriCaster's Network output as a source, follow these steps:

1. Double-click the main Program monitor to open TriCaster's Output Configuration panel.
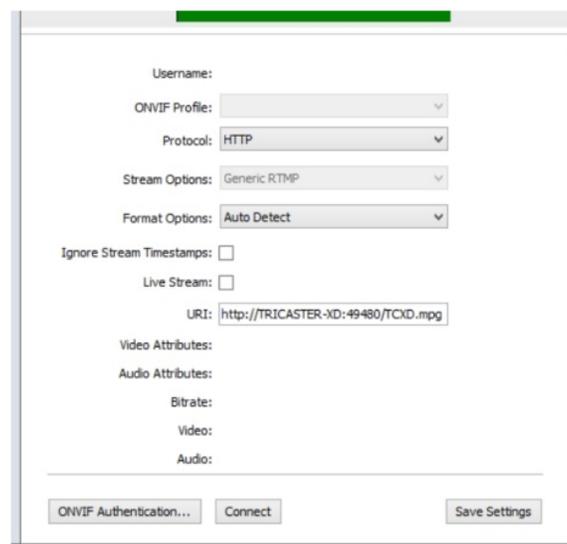

2. Select the desired audio and video sources for Network output, and enable it.

3. At the time of writing, Wirecast does not fully support interlaced video, so you must also checkmark De-Interlace at the bottom of the Network video source

menu.
4. Next, open the Sources menu in the Wirecast interface, and select the "New Web Stream" option. The Source Settings dialog will open.
5. Set Protocol to "HTTP".
6. Type the Network URL from TriCaster's Output Configuration pane into the Wirecast URL field.
7. Click the "Connect" button at the bottom of the "Source Settings" dialog.
8. TriCaster's Network video output should now appear in Wirecast, ready to be added to a shot like any other valid source.

Final note

More general information about using YouTube Live can be found on Google's support site at…

https://support.google.com/youtube/answer/2474026?hl=en&ref_topic=2853712&rd=1

One of Tricaster's most tremendous advantages is the ease with which a production can be streamed live over the internet, allowing producers to broadcast to a world-wide audience. With YouTube's wide appeal and tremendous viewership, the partnership between Tricaster and YouTube live is a powerful way to reach that audience.