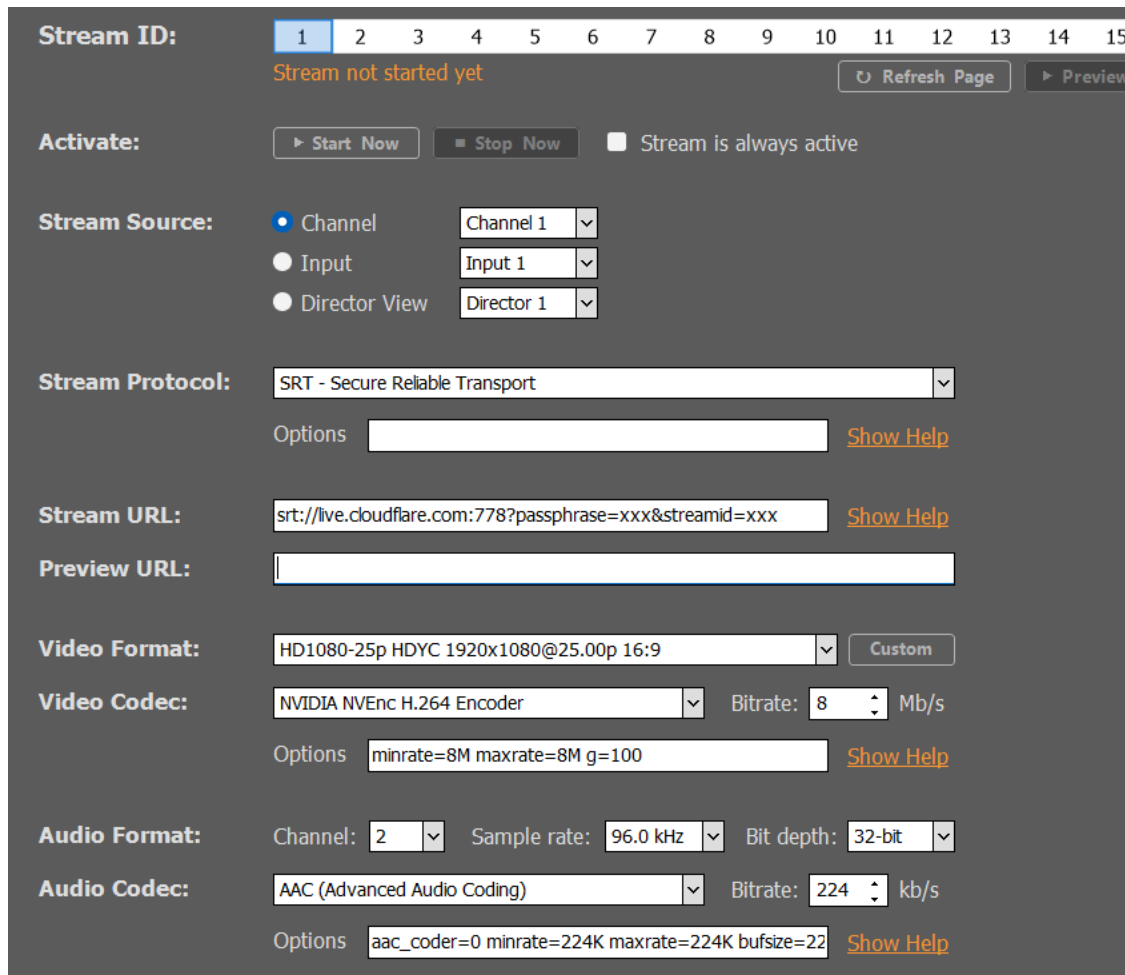


High-end SRT Streams to Cloudflare CDN

This article will give pointers on how to improve your Streams even more. In this example we use Cloudflare, but this can be any provider.

These are the optimized Settings as overview. We will explain them in detail:



The screenshot displays a configuration interface for SRT streams. At the top, there's a 'Stream ID' section with a row of 15 tabs numbered 1 to 15. Tab 1 is selected, and below it, the text 'Stream not started yet' is visible. To the right of the tabs are two buttons: 'Refresh Page' and 'Preview'. Below the tabs is an 'Activate' section with three options: 'Start Now' (selected), 'Stop Now', and 'Stream is always active'. The 'Stream Source' section has three radio buttons: 'Channel' (selected), 'Input', and 'Director View'. Each radio button is followed by a dropdown menu showing 'Channel 1', 'Input 1', and 'Director 1' respectively. The 'Stream Protocol' is set to 'SRT - Secure Reliable Transport' with a dropdown arrow. Below it is an 'Options' field and a 'Show Help' link. The 'Stream URL' is set to 'srt://live.cloudflare.com:778?passphrase=xxx&streamid=xxx' with a 'Show Help' link. The 'Preview URL' is an empty text field. The 'Video Format' is set to 'HD1080-25p HDYC 1920x1080@25.00p 16:9' with a 'Custom' button. The 'Video Codec' is set to 'NVIDIA NVEnc H.264 Encoder' with a 'Show Help' link. The 'Bitrate' is set to '8 Mb/s' with a 'Show Help' link. The 'Options' field contains 'minrate=8M maxrate=8M g=100'. The 'Audio Format' section has three dropdowns: 'Channel' (set to 2), 'Sample rate' (set to 96.0 kHz), and 'Bit depth' (set to 32-bit). The 'Audio Codec' is set to 'AAC (Advanced Audio Coding)' with a 'Show Help' link. The 'Bitrate' is set to '224 kb/s'. The 'Options' field contains 'aac_coder=0 minrate=224K maxrate=224K bufsize=22'.

Video Format

It is recommended to select a specific Video Format instead of using AUTO, just to avoid any problems with automatic detection.

Video Codec

We know that Cloudflare support H.264 Encoding, so we can use our GPU. If you dont have NVIDIA or your GPU is maxed with other Tasks already, select "Intel QuickSync SW H.264 Encoder", which will try to use your Onboard Intel-GPU and falls back to CPU otherwise.

We then pick 8 Mb/s as Bitrate, which is a Cloudflare CDN requirement.

With the Options "minrate=8M maxrate=8M" we basically force CBR (Constant Bit Rate) to our Stream. Click this Link on more Info about CBR with H.264.

We also add the Option “g=100”, which sets the Key Frame Interval, also known as “GOP (Group of Picture) length” or “IDR period”. The rule-of-thumb here is to set the GOP twice as high as your framerate, which would be 50 in this case. We use 100 here to compress even more, resulting in less used bandwidth, which in turn makes your Stream more stable. A higher value also reduces buffering, but not all providers can process high values. Reduce your GOP, if your Content has a lot of Action and you need more key frames. The default GOP is 15, which is a failsafe to ensure, that there are no artifacts in the picture.

Audio Format

We use 96 kHz Sample-rate and 32-bit as Bit-depth, which will make absolutely sure, that all possible audio sources are processed at high quality. Since the Audio Stream has a very low impact on the overall bandwidth, it would be unwise to go low.

Audio Codec

There is not much choice here for the Encoder, as AAC delivers high quality low compression audio. Since we picked a higher Sample-rate and Bit-depth, we need to provide a bit more Bitrate here, so we set this to 224 kb/s.

As Options, first we set our AAC Encoder to the “TLS” mode by entering “aac_coder=0”. The Options here are:

- 0 – Two loop searching (TLS) method
- 1 – Average noise to mask ratio (ANMR)
- 2 – Fast constant quantizer method

TLS will have the highest quality with most audio contents. The default here is “2 (fast)”, which is also good, but can lead to crushing sounds at lower bitrates.

Next we also force CBR for our Audio Stream by setting “aac_coder=0 minrate=224K maxrate=224K bufsize=224K”. [Click this Link](#) for more info on CBR for AAC.