August 14, 2024

Extron Media Processors and Encoders
Streaming to third parties using RTMP

The following notes provide guidance on setting up Extron Media Processors and Encoders for publishing live streams to third party services such as Twitch via RTMP. For more information, please call your Extron Applications Engineer.

Extron Products Affected:

SMP 111	60-1594-01
SME 211	60-1763-01
SMP 351	60-1324-01 / 60-1324-11
SMP 351 3G-SDI	60-1324-02 / 60-1324-12
SMP 352	60-1634-01 / 60-1634-11
SMP 352 3G-SDI	60-1634-12
SMP 401	60-1825-01
SMP 401 12G-SDI	60-1825-02

SPECIAL NOTES

Streaming to third party services requires a user to have an account with those services. Accounts with third party providers are the responsibility of those maintaining the stream and its content.

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TECH NOTE

Extron encoders support RTMP push streaming for publishing live video to third party services like YouTube, Wowza Video, Twitch, MS Stream, and others, as well as support for RTMPS for secure live video streaming.

> **Note:** The examples in this document show the interface of the **SMP 401, SMP 352, SMP 111** and **SME 211,** which may look different, but the same settings apply.
>
> Specific instructions apply only to the **SMP 401**.

To configure the Encoder for RTMP Push streaming to a live streaming provider:

1. Ensure your Encoder is connected to the network and has access to the internet.
    a. Open the web browser of the Encoder, **Troubleshooting, Diagnostic Tools.**
    b. Ping your live service, such as [twitch.tv].
        i. If successful, a green checkmark is shown.

        ii. If results fail, verify network and DNS settings.

For **SMP 401**

    a. Open the web browser of the SMP 401, **Monitor**, **Diagnostics**
    b. Ping Network, Hostname or IP Address such as [twitch.tv]
        iii. If successful, results shown

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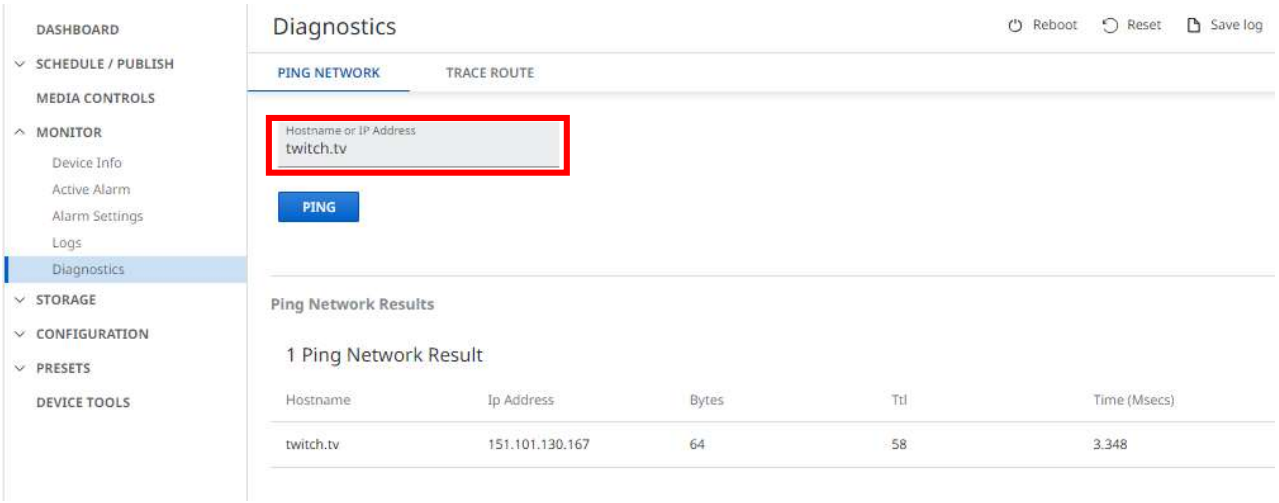
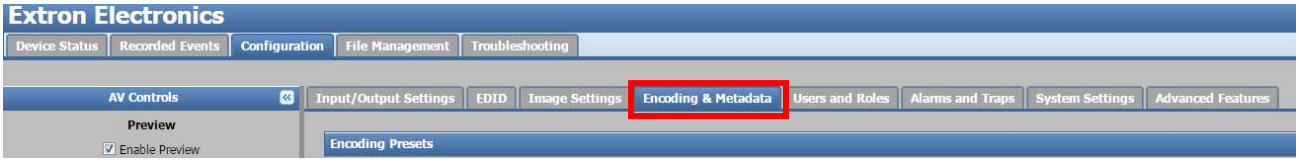


2. Open a web browser of the Encoder, **Configuration, Encoding, Encoding Presets:**



3. Confirm the Encoder is in Stop Mode. If needed, press stop on the front panel.
4. Select **PUSH** and **RTMP** from the streaming method and protocol options.

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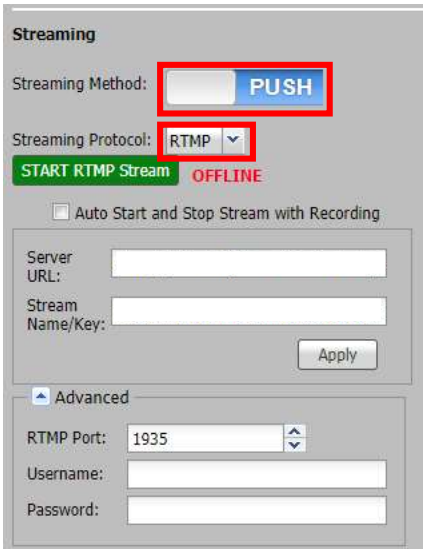
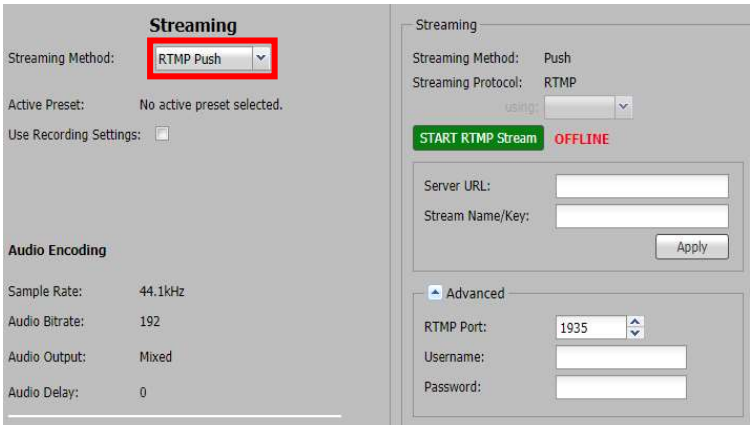
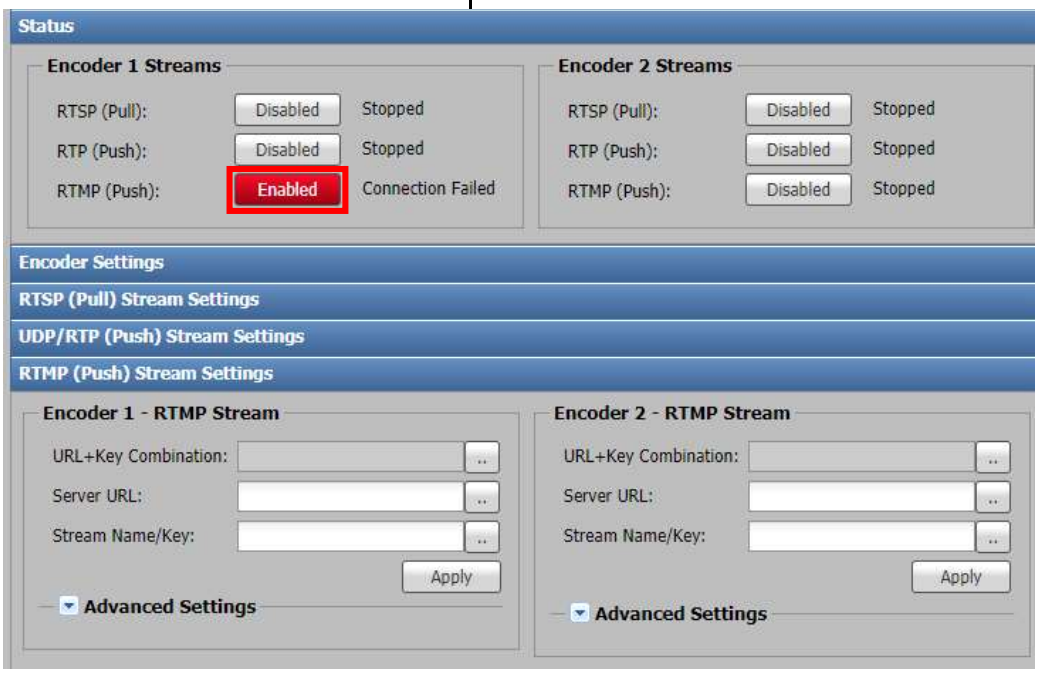


SMP 352 example



SMP 111 example



SME 211 example

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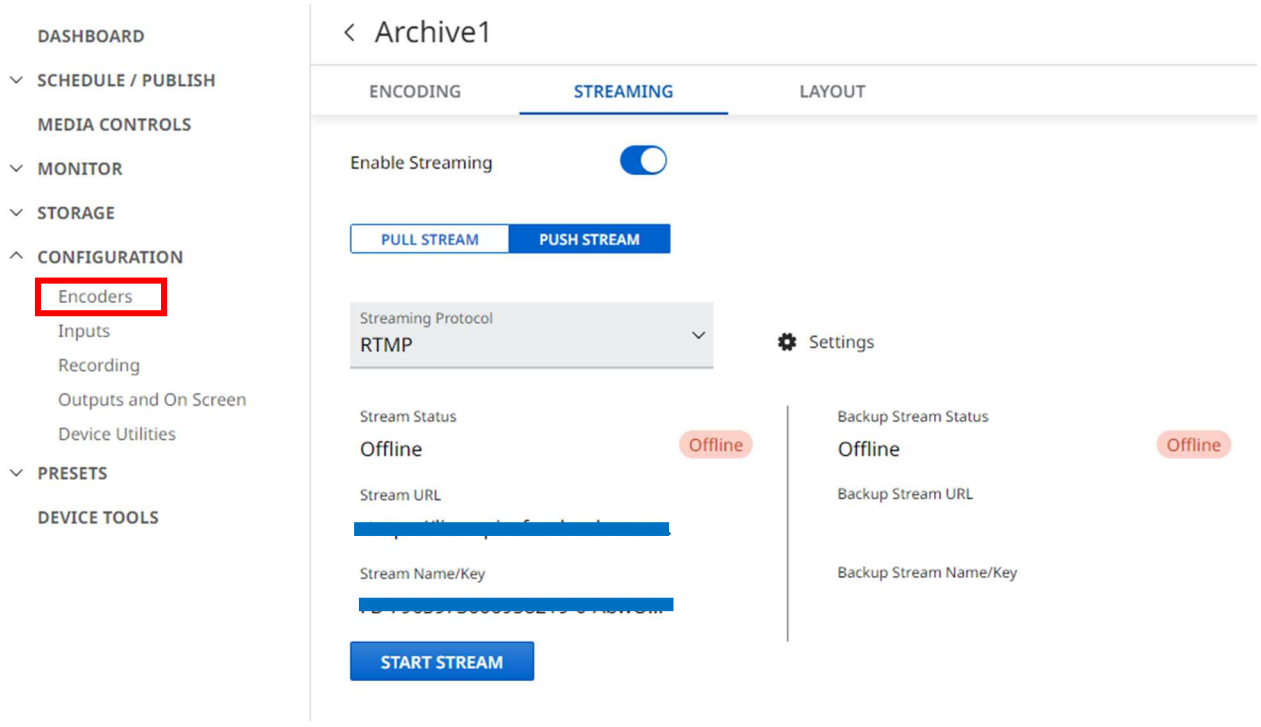
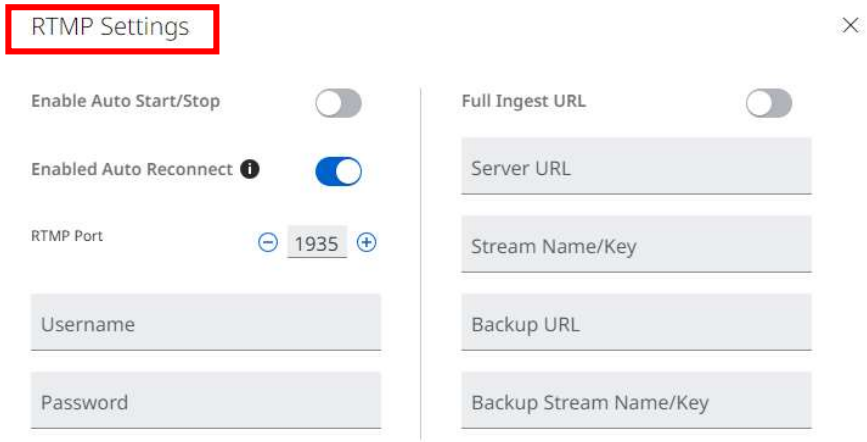
For **SMP 401**

Open the web browser of the SMP, **Configuration**, **Encoders**

- Select any of the 4 available encoders or 2 virtual inputs and open Streaming tab
- Select **PUSH STREAM** and select **RTMP** for the Streaming Protocol
- Open **settings** to input streaming information obtained in the next steps





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5. The **Server URL**, **Stream Name/Key** and optionally the **Username**, and **Password** information is needed:

    a. Follow the links in the next section to obtain the fields from these services. Services other than those listed in this document will also require similar information.

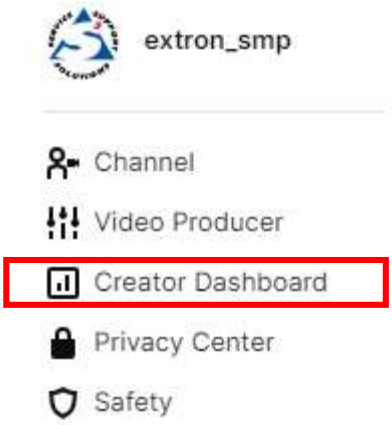
6. For configuring SMP or SME **encoder settings**, reference the **Recommended Settings** section at the end of this guide.

Streaming to Twitch

Twitch Stream Key FAQ:

https://help.twitch.tv/s/article/twitch-stream-key-faq?language=en_US

1. Go to www.twitch.tv and if not logged in to your account, do so at this time.
2. Select **Creator Dashboard**" from the user menu in the upper right corner.



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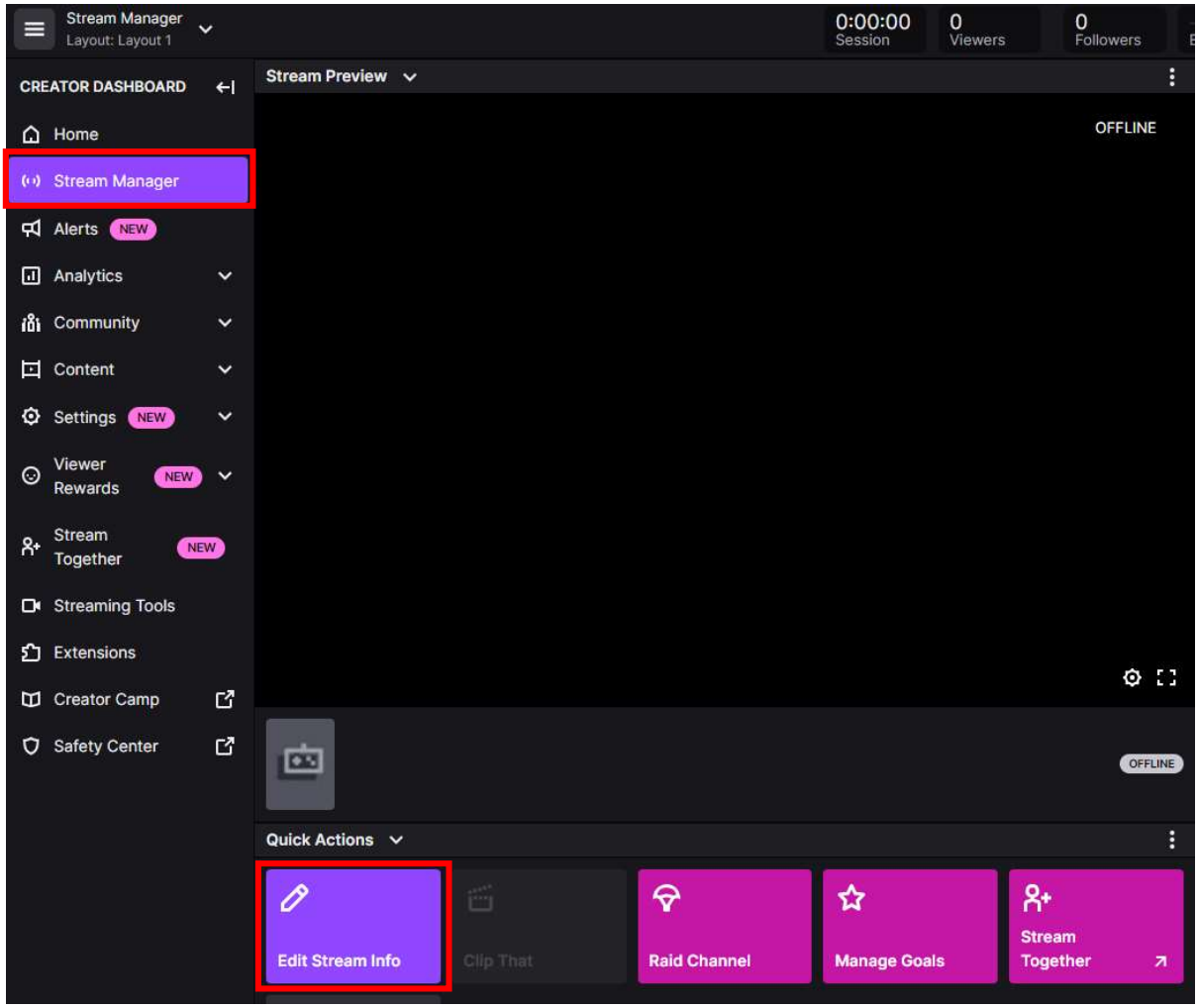
3. Under **Stream Manager** select **Edit Stream Info**



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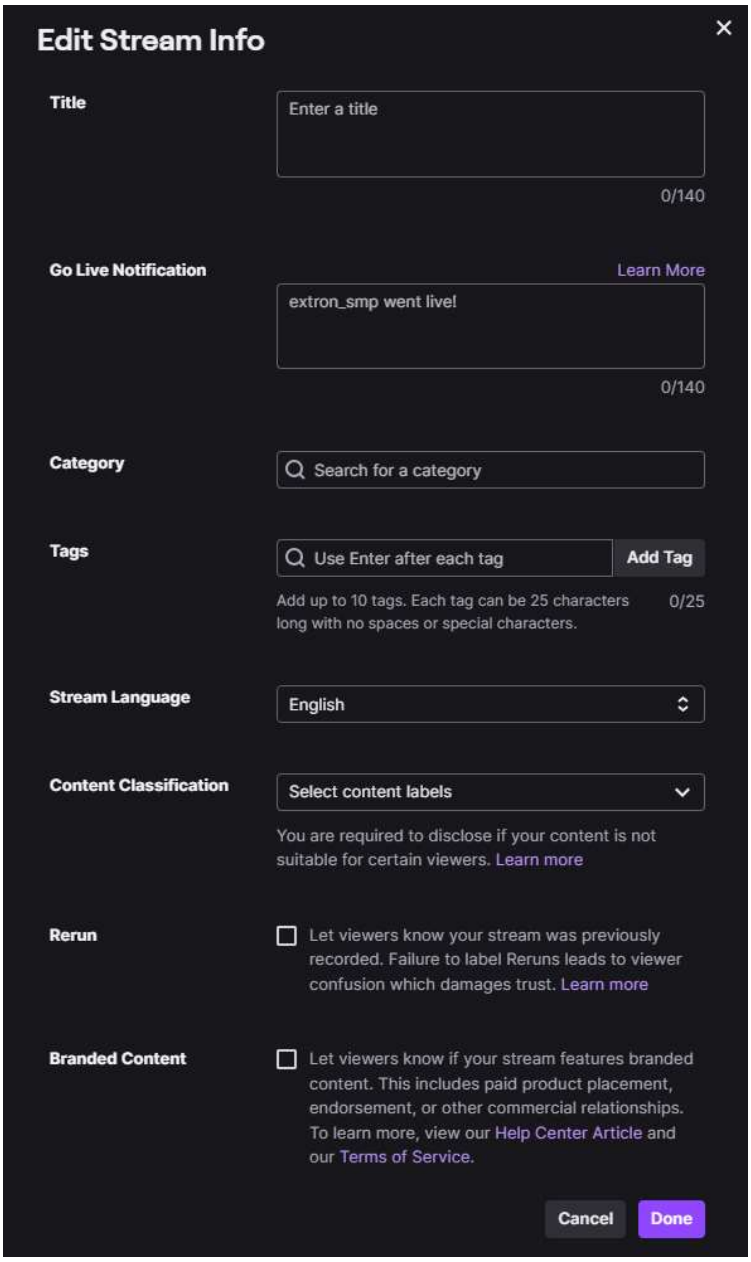
4. enter details about your stream such as title, notification, category, tags, etc.



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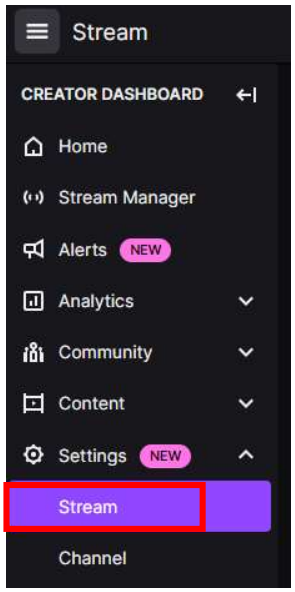
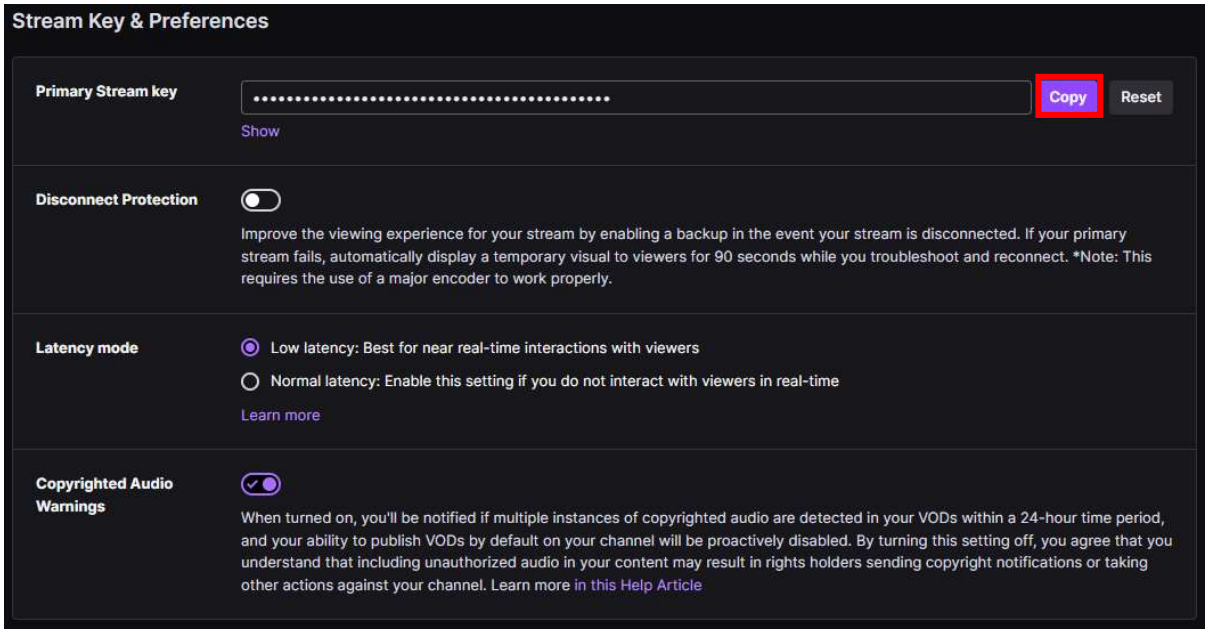
5. Next, go to Settings – Stream.



6. Under the Primary Stream Key, select “Copy”.



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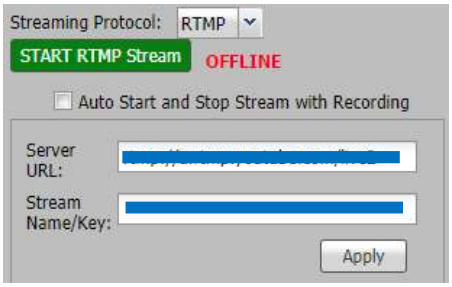
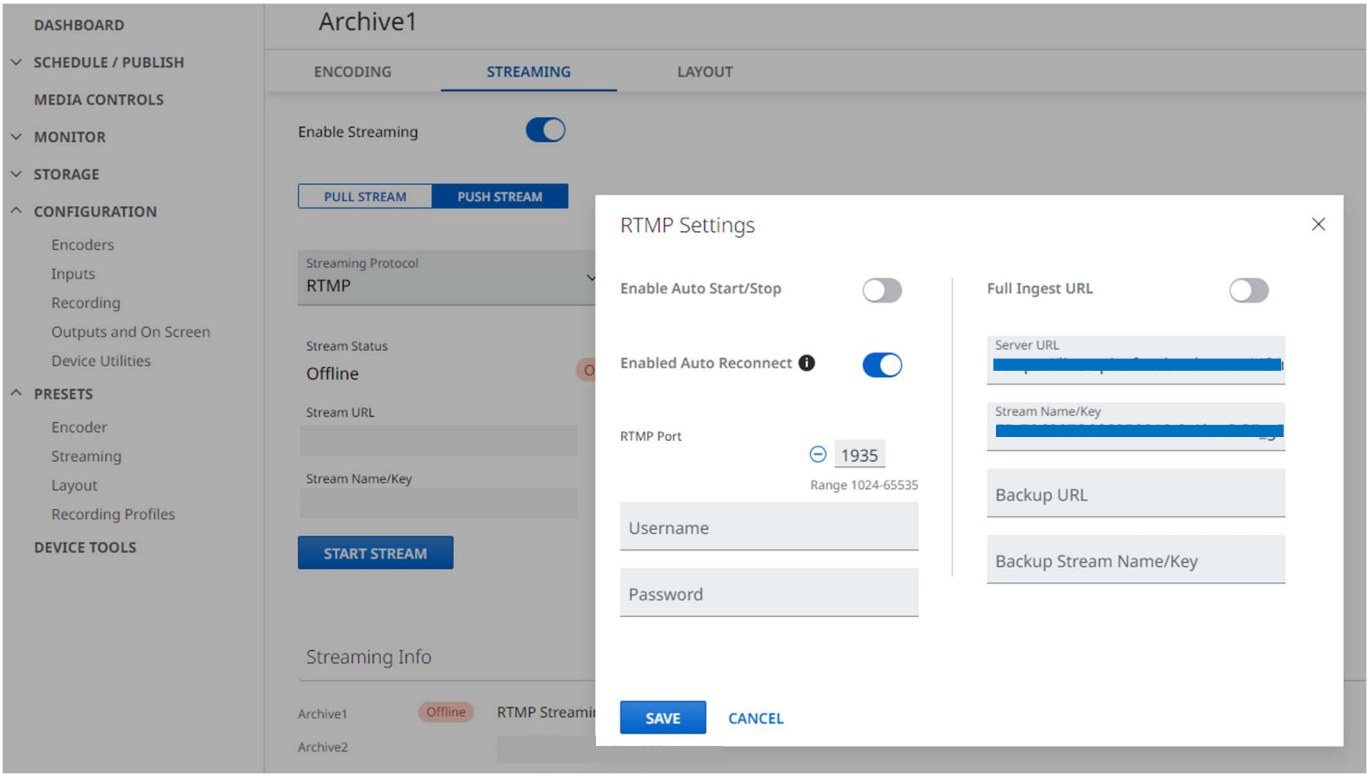
7. **Copy** the stream key and paste into the SMP or SME encoder data field.

For the **SMP 111** and **SMP 300 Series**



For the **SMP 401**



8. Next, go to “Twitch Recommended Ingest Endpoints For You” and select the closest server to your location.
   https://help.twitch.tv/s/twitch-ingest-recommendation?language=en_US

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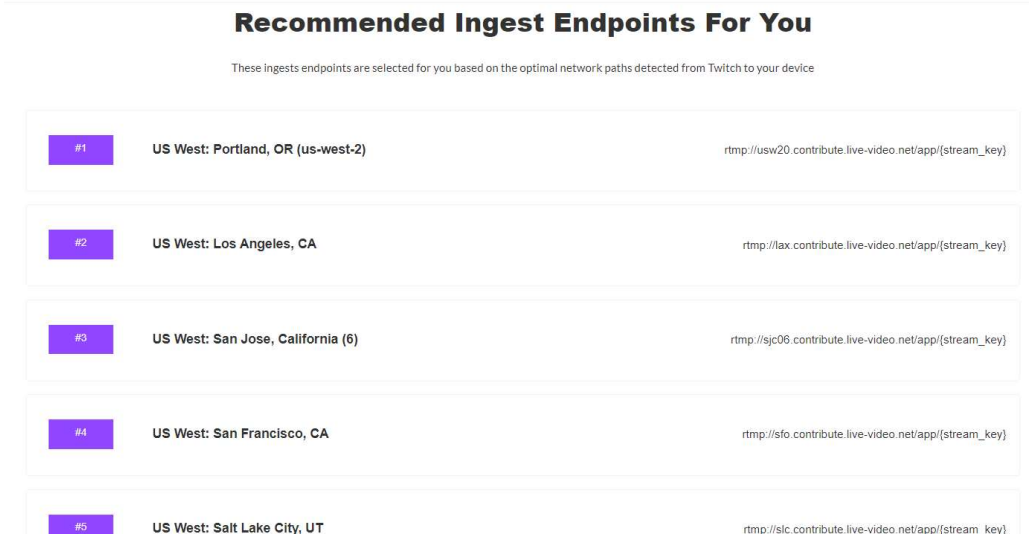

9. **Copy** the stream URL **not including** the {**stream_key**} part.

    A. For example: rtmp://lax.contribute.live-video.net/app/

10. Go back to the SMP or SME embedded web page and **paste** the ingest point URL into the Server URL field. Click **Apply** or **Save** to save the stream URL and Key.

11. On the SMP or SME Encoder, click “Start RTMP stream” button to activate the stream.

Notes:

- You can also select Auto Start which will start the stream automatically when recording starts.

For the **SMP 401**

Use slider “Enable Auto Start/Stop”.

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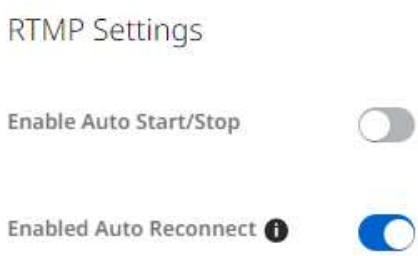
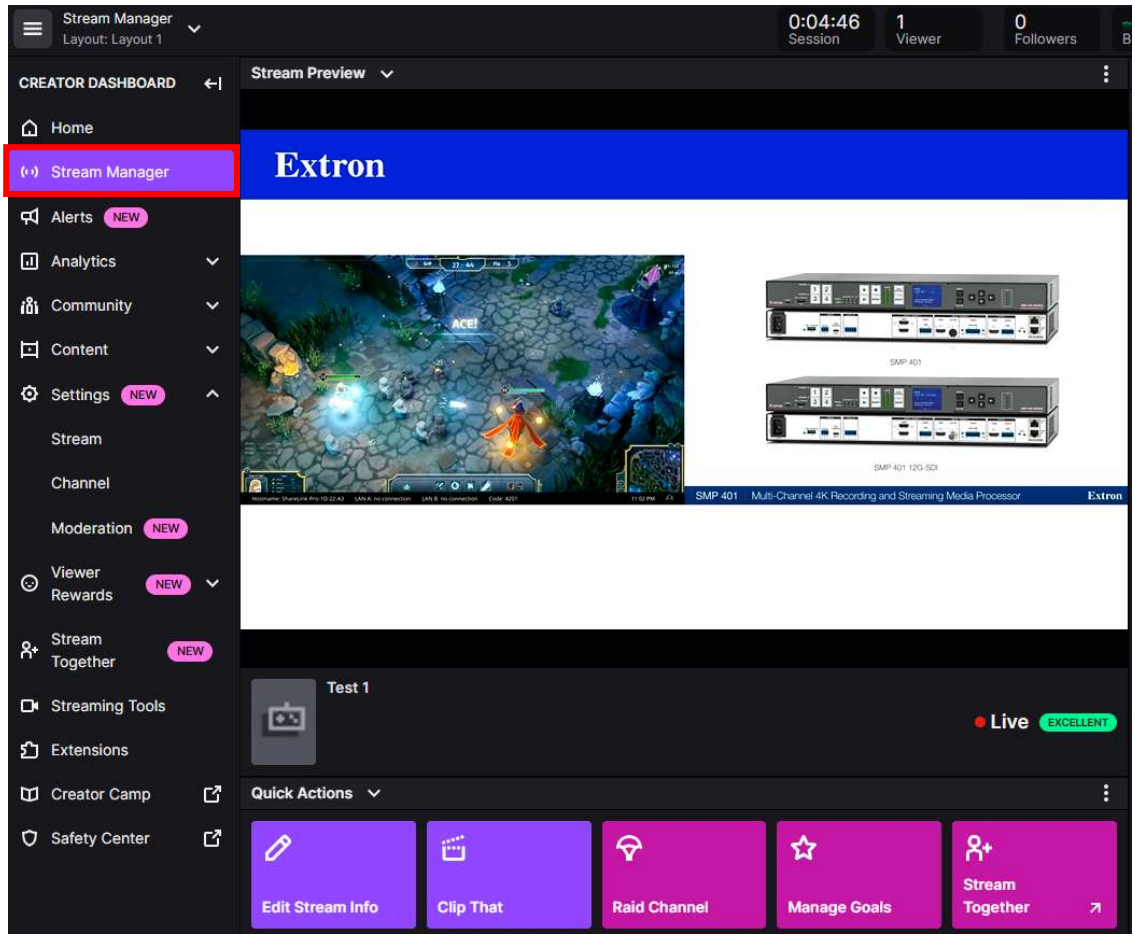


12. After a few seconds, the button will change to red and indicate the RTMP stream is now live.

13. Go back to the Twitch Stream Manager web page and your stream will now show as streaming live.



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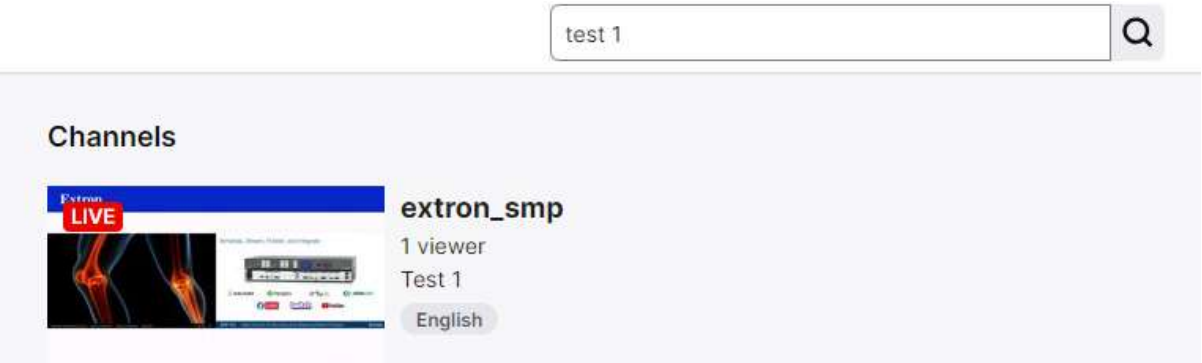
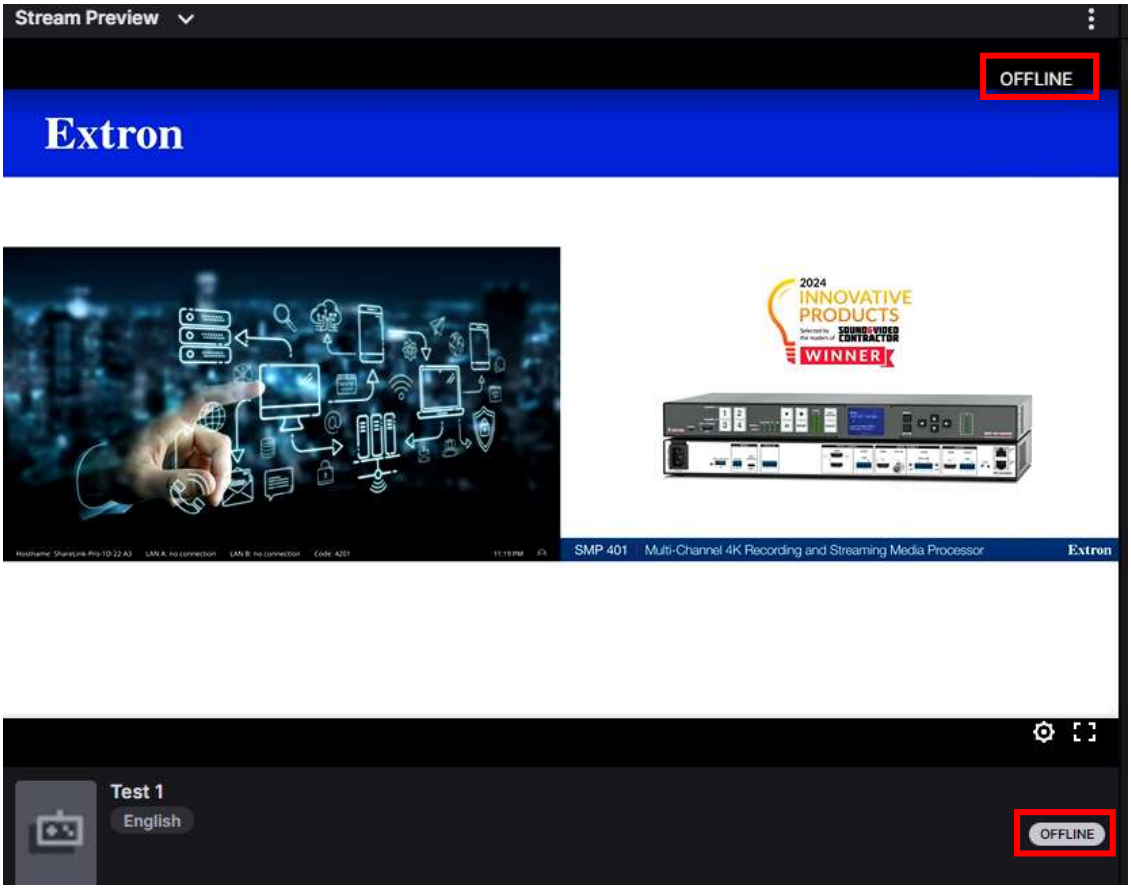
14. Verify your image and quality. The stream URL to share is your title, which is searchable from Twitch.tv.



15. To stop the stream, press the Stop RTMP Stream button on the Encoder.

Note: If you stop the Encoder before the YouTube Stream, the public will see your stream as offline.



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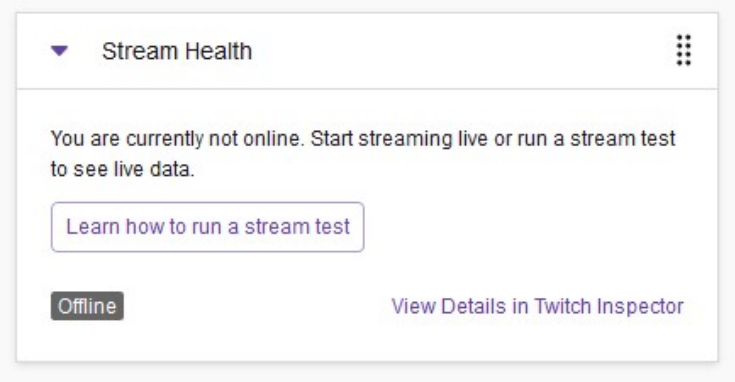
Troubleshooting:



1. Ensure the Encoder is configured for RTMP Streaming format.
2. Ensure that the Encoder's Stream is started, and that the firewall is open to port 1935.
3. Verify Server URL and Stream Name are entered correctly.
    - Note: The Stream Name / Key will change if using "Basic Ingestion" profiles.

Recommended Settings:

https://help.twitch.tv/s/article/broadcasting-guidelines?language=en_US

Maximum Audio Bitrate: 160 kbps
Audio Sample Rate: any
Resolution: Maximum 1080p @60fps
Framerate: Max 60 fps
GOP: Max 60 (ensure IDR interval ≤ 2 seconds)
Video Bitrate: Set for 80% of available bandwidth using speed test depending upon resolution.

1080p/60: 4600-6000 Kbps
1080p/30: 3500 – 5000 Kbps
720p/30: 2500 – 4000 Kbps

Rate Control: CBR
H.264 Profile: Main

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GOP Information (Group of Pictures)

Use a GOP setting to set how often a full I frame is sent.

Formula: GOP/FrameRate = Interval

Frame rate = 30, and GOP = 30 then 30/30 = 1 seconds: an I frame every 1 second.
Frame rate = 30, and GOP = 60 then 60/30 = 2 seconds: an I frame every 2 seconds.
Frame rate = 15, and GOP = 60 then 60/15 = 4 seconds: an I frame every 4 seconds.

An additional setting is available for IDR frames (Instantaneous Decoder Refresh). This setting along with GOP determines how often an Interstitial frame is sent. IDR Frames are helpful for editing and seek playback.

Formula: (GOP/FrameRate) * IDR = Interval

Frame Rate =30, GOP =30, and IDR ratio =2:
I frames alternate with IDR frames, with an IDR frame being sent every 2 seconds, in the order IDR, I, IDR, I.

Frame Rate =30, GOP = 60, and IDR ratio = 1:
Every I frame is also an IDR frame and they are sent every 2 seconds, in the order IDR, IDR, IDR, IDR.

Frame Rate =30, GOP = 60, and IDR ratio =2:
I frames alternate with IDR frames, with an IDR frame being sent every 4 seconds, in the order IDR, I, IDR, I.

Frame Rate = 30, GOP = 20, and IDR ratio = 3:
Every third I frame is an IDR frame with an IDR frame being sent every 2 seconds, in the order IDR, I, I, IDR, I, I.

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