

August 14, 2024

**Extron Media Processors and Encoders  
Streaming to third parties using RTMP and RTMPS**



The following notes provide guidance on setting up Extron Streaming Media Processors and Encoders for publishing live streams to third party services such as Facebook Live via RTMPS. 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

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**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.

## TECH NOTE

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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 to Facebook Live.

**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 RTMPS Push streaming to a live streaming provider:

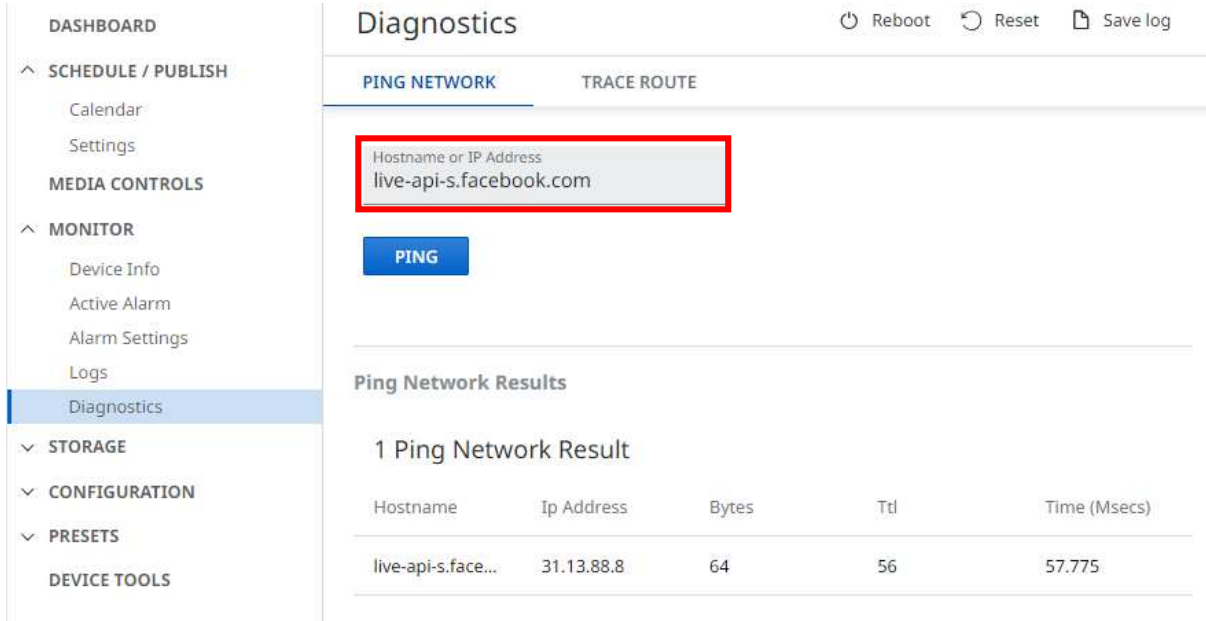
1. Ensure your SMP or SME unit is connected to the network and has access to the internet
  - a. Open the web browser of the Encoder, **Troubleshooting, Diagnostic Tools**
  - b. Ping your live service, such as [live-api-s.facebook.com]
    - i. If successful, a green checkmark is shown.



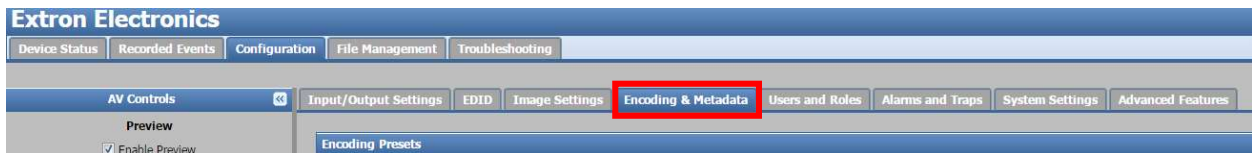
- ii. If results fail, verify network and DNS settings.

For **SMP 401**

- a. Open the web browser of the SMP 401, **Monitor, Diagnostics**
- b. Ping Network, Hostname or IP Address such as [live-api-s.facebook.com]
  - iii. If successful, results shown



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.

**Streaming**

Streaming Method:

Streaming Protocol:

Auto Start and Stop Stream with Recording

Server URL:

Stream Name/Key:

**Advanced**

RTMP Port:

Username:

Password:

SMP 352 example

**Streaming**

Streaming Method:

Active Preset: No active preset selected.

Use Recording Settings:

Server URL:

Stream Name/Key:

**Advanced**

RTMP Port:

Username:

Password:

SMP 111 example

**Status**

Encoder 1 Streams		Encoder 2 Streams	
RTSP (Pull):	<input type="button" value="Disabled"/> Stopped	RTSP (Pull):	<input type="button" value="Disabled"/> Stopped
RTP (Push):	<input type="button" value="Disabled"/> Stopped	RTP (Push):	<input type="button" value="Disabled"/> Stopped
RTMP (Push):	<input type="button" value="Enabled"/> Connection Failed	RTMP (Push):	<input type="button" value="Disabled"/> Stopped

**Encoder Settings**

**RTSP (Pull) Stream Settings**

**UDP/RTP (Push) Stream Settings**

**RTMP (Push) Stream Settings**

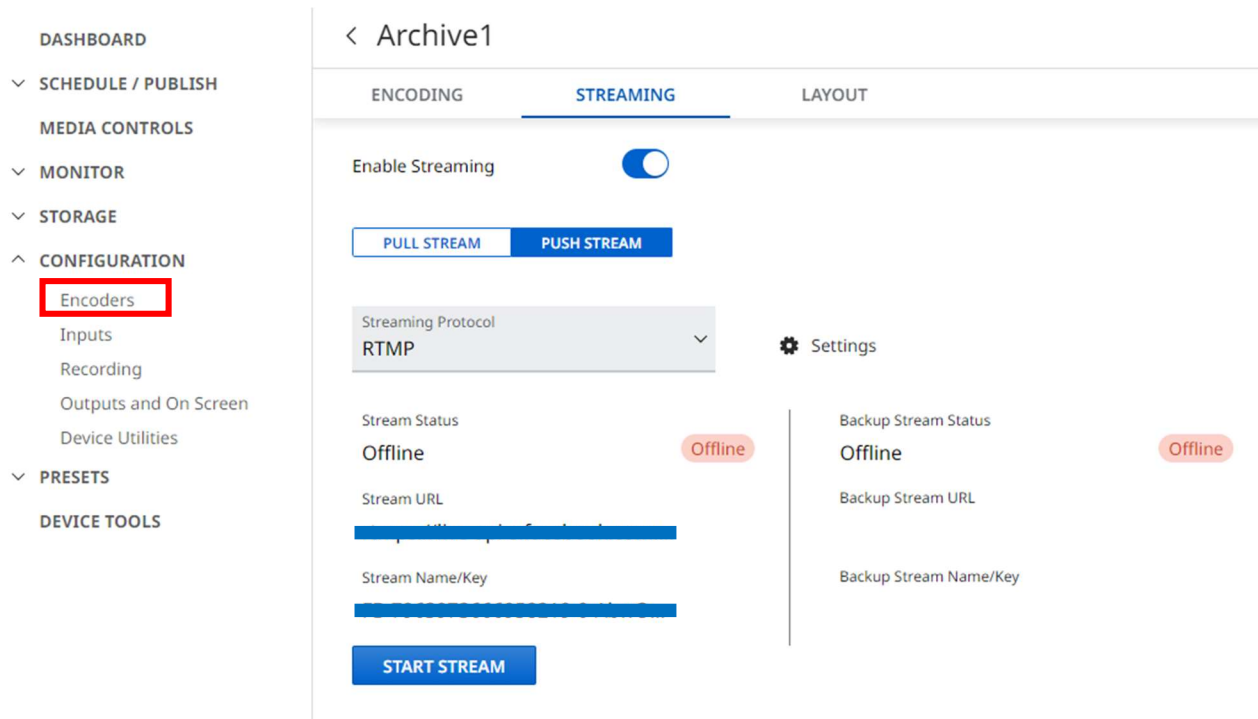
Encoder 1 - RTMP Stream	Encoder 2 - RTMP Stream
URL+Key Combination: <input type="text"/>	URL+Key Combination: <input type="text"/>
Server URL: <input type="text"/>	Server URL: <input type="text"/>
Stream Name/Key: <input type="text"/>	Stream Name/Key: <input type="text"/>
<input type="button" value="Apply"/>	<input type="button" value="Apply"/>
<input type="checkbox"/> <b>Advanced Settings</b>	<input type="checkbox"/> <b>Advanced Settings</b>

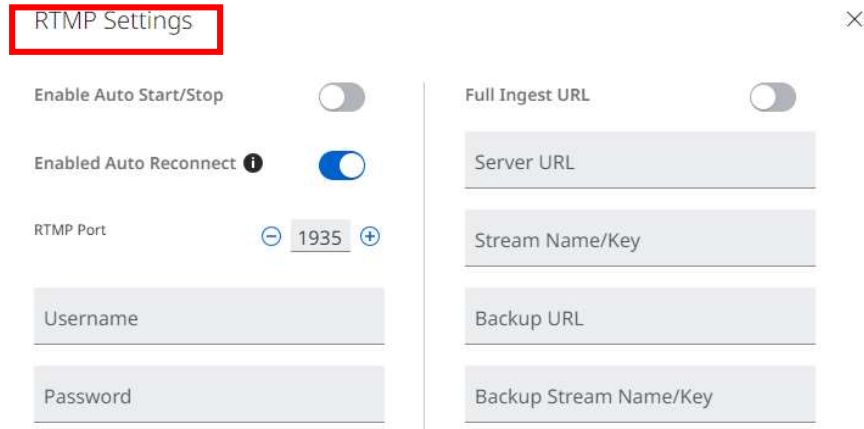
SME211 example

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





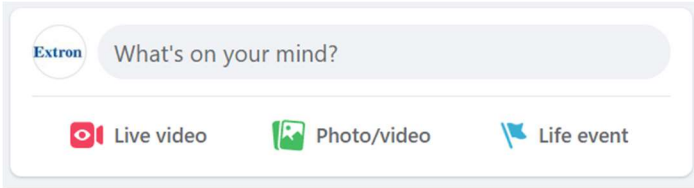
5. The **Server URL**, **Stream Name/Key** and optionally the **Username**, and **Password** information is needed:
  - a. Follow the links in the next section to obtain the fields from these services. Services other than those listed in this document will also require similar information.
6. For configuring SMP or SME **encoder settings**, reference the **Recommended Settings** section at the end of this guide.

## Streaming to Facebook

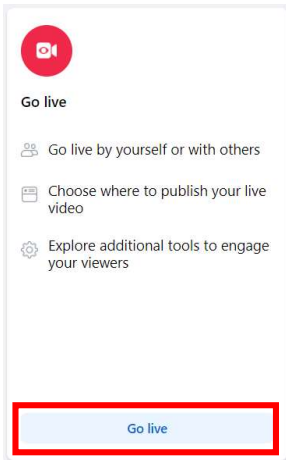
How to go live on Facebook with streaming software:

<https://www.facebook.com/business/help/165076674943644?id=1123223941353904>

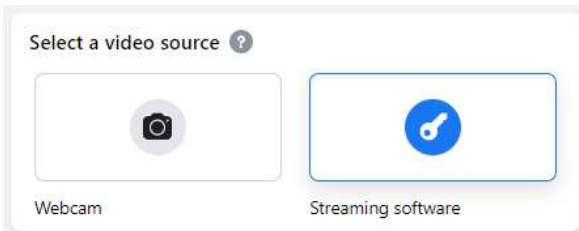
1. From your feed, Page, or profile, click **Live video**, or click **What's on your mind?**, then click **...** and choose **Live video**. You'll be taken to Live Producer.



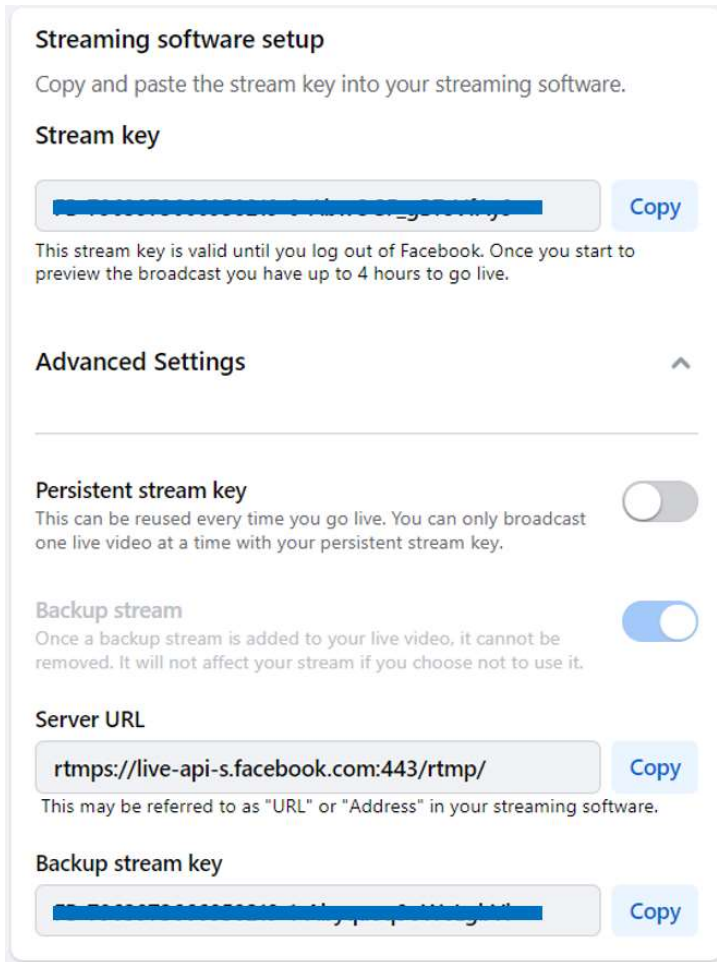
2. Click **Go live** button.



3. Select **Streaming software** as your video source.

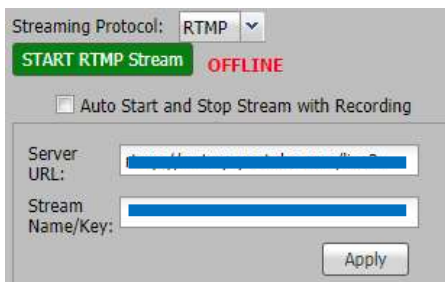


4. Find your unique **Stream key** in the **Streaming software setup** module.

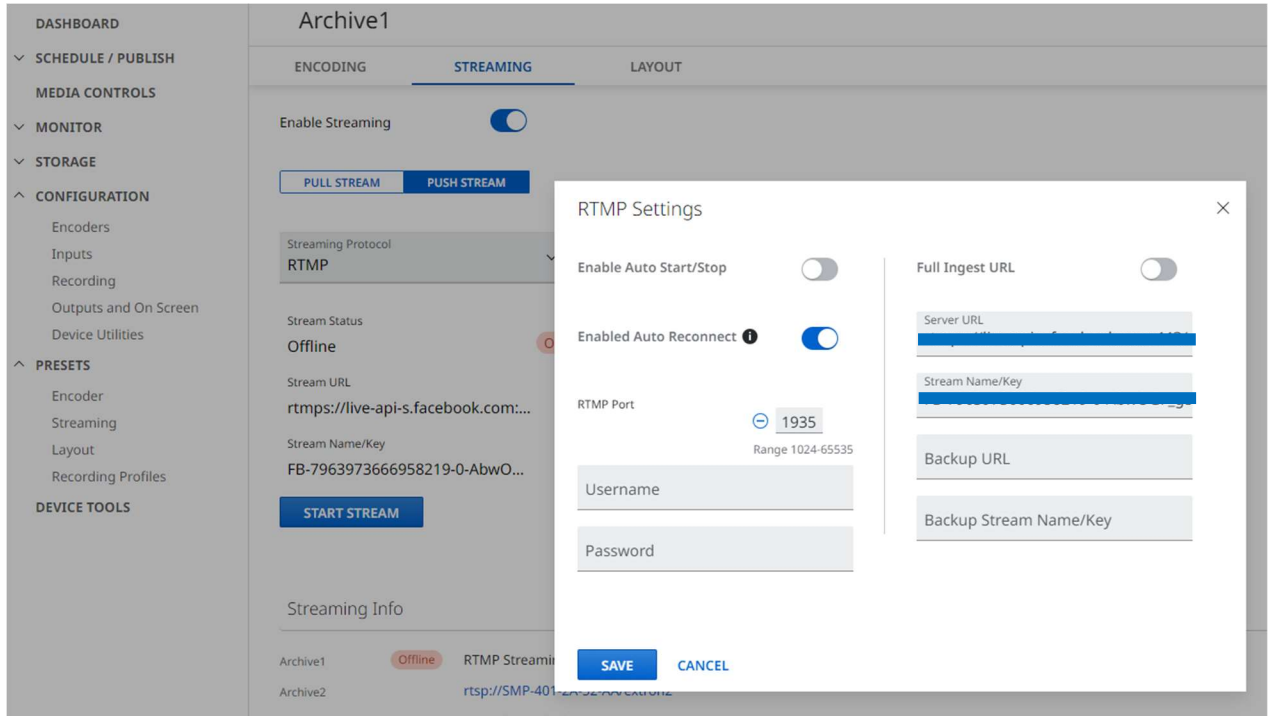


5. Copy the **stream key** and **stream URL** one at a time and paste them into the SMP or SME encoder data fields. Click **Apply** or **Save** to save the stream URL and Key.

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



For the **SMP 401**



**Note:** Your stream key is only valid for your current stream. Once you start your stream from the encoder, you'll have up to 4 hours to go live on Facebook.

- 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. YouTube also has the option to “Enable Auto-start” for scheduled streaming operation.

For the **SMP 401**

Use slider “Enable Auto Start/Stop”.

RTMP Settings

Enable Auto Start/Stop

Enabled Auto Reconnect

- After a few seconds, the button will change to red or white and indicate the stream is now live.



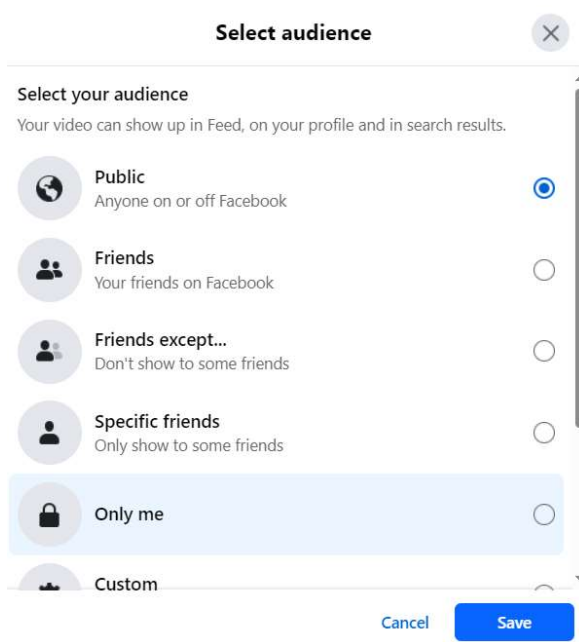
- When you've successfully connected to Facebook Live, you'll see a preview of your stream.

**Note:** Until a valid stream from your streaming software is detected, you won't be able to start your live stream.



9. To select the audience for your Live stream, click the audience selector below your name and choose who can see your stream. For example: **Friends**, **Public** or **Only me**.

**Note:** Live streams from a Page are Public and cannot be changed. If you plan to host your Live stream as a Page, you can change the **Audience settings** to set a minimum age and allow or restrict locations.



10. Write a **Title** and **Description** for your live stream.

Add post details

**Share to story**   
 Your live video will also be added to your story.

Title (optional)  
 SMP 401 Stream

Demo SMP 401 Stream Facebook Live

11. To go Live, there are 2 options, **Now**, and **Later**.
  - a. To start immediately, select [**Now**].
  - b. To Schedule an Event, select [**Later**], enter date and time.

When are you going live?  
Later ▼

Date  
Jul 3, 2024

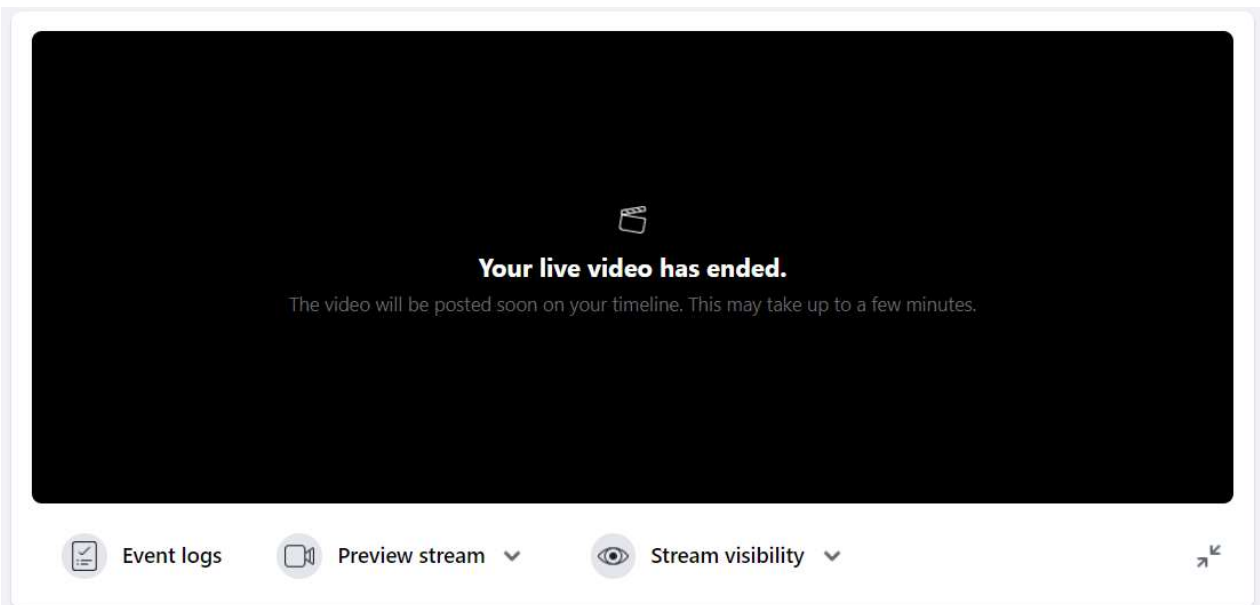
Time  
2:29 PM

12. When you're ready, click **Go live**.

**NOTE:**

- Use a persistent stream key – (optional) if you use the same setup repetitively.
- Use a backup stream – (optional) will require copy and paste of server URL and Backup Stream key into the Extron encoder.

If you stop the Encoder before the Facebook Stream, the public will see a message that the live stream has ended.



13. To stop your live stream, click **End Live video**. You'll be asked to confirm that you want to end your stream.



End live video

14. Troubleshooting:

- Ensure the Encoder is configured for RTMP Streaming format.
- Ensure that the Encoder Stream is started, and that the firewall is open to port 1935.
- Verify Server URL and Stream Name are entered correctly.
- Note: The Stream Name / Key changes with every "Go Live" unless "Use Persistent Stream Key" is checked.

## Recommended Settings:

<https://www.facebook.com/business/help/162540111070395?id=1123223941353904>

Audio Bitrate: 128 kbps. Max 256 kbps

Audio Sample Rate: 44.1 kHz or 48 kHz

Resolution: Maximum 1080p @60fps

FPS: Max 60

GOP: Max 60 (ensure IDR interval  $\leq$  2 seconds) max 4

Video Bitrate: Set for 80% of available bandwidth using speed test depending upon resolution.

4K/60: 10000 -35000 kbps

1080p/60: 6400 – 12000 bps

1080p/30: 3200 – 6000 Kbps

720p/30: 1600 – 4000 Kbps

480p: 500 – 2000 Kbps

Rate Control: CBR

H.264 Profile: Main/High

Notes:

The maximum recommended bitrate is 15 Mbps

Protocol: RTMPS Streaming

H.264, Level 4.1 for up to 1080p @ 30 FPS

H.264, Level 4.2 for 1080p @ 60 FPS

**Note:** The SME 211 has Encoder Presets, including one for Facebook Live. Extron does not currently support RTMPS backup streams for Facebook Live on the SME 211.

### **GOP Information (Group of Pictures)**

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

#### **Formula: $\text{GOP}/\text{FrameRate} = \text{Interval}$**

Frame rate = 30, and GOP = 30 then  $30/30 = 1$  second, or an I frame every 1 second.

Frame rate = 30, and GOP = 60 then  $60/30 = 2$  seconds, or an I frame every 2 seconds.

Frame rate = 15, and GOP = 60 then  $60/15 = 4$  seconds, or 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: $(\text{GOP}/\text{FrameRate}) * \text{IDR} = \text{Interval}$**

##### **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.