

September 19, 2019

Extron H.264 Media Processors and Encoders Streaming to third parties using RTMPS



The following notes provide guidance on setting up the Extron 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 Application 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 – 400 GB SSD	60-1634-11
SMP 352 3G-SDI – 400 GB SSD	60-1634-12

SPECIAL NOTES

Streaming to 3rd 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

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

Note: The examples in this document show the interface of the **SMP 351**. The interfaces of the **SME 211** and **SMP 111 series** may look different, but the same settings apply.

To configure the Encoder for RTMPS Push streaming to Facebook Live:

- 1. Ensure you SMP 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.

Network Ping Results	×
Host: live-api-s.facebook.com	
Address: 157.240.18.4	
Bytes: 64	
TTL: 55	
Time: 11.478 (ms) 🏑	
Ping Close	

- ii. If results fail, verify network and DNS settings.
- 2. Open a web browser of the Encoder, Configuration, Encoding Presets:

Extron Electronics		
Device Status Recorded Events	Configurat	on File Management Troubleshooting
AV Controls	<u>«</u>	Input/Output Settings EDID Image Settings Encoding & Metadata Users and Roles Alarms and Traps System Settings Advanced Features
Preview		
Enable Preview		Encoding Presets

- **3.** Confirm the Encoder is in **Stop Mode**. If needed, press stop on the front panel (SMP series only).
- 4. Select **PUSH** from the Streaming Method slider and select RTMP for the Streaming Protocol.

Technical Application Note

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Streaming
Streaming Method PUSH
Streaming Protoco : RTMP 🖌
START RTMP Stream OFFLINE
Auto Start and Stop Stream with Recording
Server URL:
Stream Name/Key:
Apply
Advanced
RTMP Port: 1935
Username:
Password:

	Streaming	Stre
Streaming Method:	RTMP Push 💌	Stre
		Stre
Active Preset:	No active preset selected.	
Use Recording Setting	js: 🔲	ST
		Se
		St
Audio Encoding		
Sample Rate:	44.1kHz	
Audio Bitrate:	192	RT
Audio Output:	Mixed	Us
Audio Delay:	0	Pa

Streaming	
Streaming Method:	Push
Streaming Protocol:	RTMP
	× •
START RTMP Stream	OFFLINE
Server URL:	
Stream Name/Key:	
	Apply
Advanced —	
RTMP Port:	1935 🗘
Username:	
Deserver	

SMP 351 example

Status				
Encoder 1 Stream	s	Encoder	2 Streams	
RTSP (Pull):	Disabled Stopped	RTSP (Pu	ull): Disa	bled Stopped
RTP (Push):	Disabled Stopped	RTP (Pus	sh): Disa	bled Stopped
RTMP (Push):	Enabled Connection Fa	iled RTMP (P	ush): Disa	bled Stopped
Encoder Settings RTSP (Pull) Stream Set	ttings			
UDP/RTP (Push) Strea	m Settings			
RTMP (Push) Stream S	ettings			
Encoder 1 - RTMP	Stream	Encoder	2 - RTMP Stream -	
URL+Key Combinatio	n:	URL+Key	Combination:	
Server URL:		Server UR	λL:	
Stream Name/Key:		Stream N	ame/Key:	
Advanced Set	Appl	/ Adva	anced Settings	Apply

SMP 111 example



- 5. The Server URL, Stream Name/Key and optionally the Username, and Password information is needed:
 - a. Follow the directions below to obtain the fields from this service provider.

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Streaming to Facebook Live

Facebook allows live streaming from a Facebook Page, not a Facebook Profile. Using Profiles for business is against their policy.

- 1. Go to www.facebook.com and login to your account for the Facebook Page.
- 2. If you don't have a Facebook Page, select from the top right, [Create Page].

https://www.facebook.com/help/175644189234902/

a. Alternatively, you can convert a Facebook Profile to a Facebook Page:

Stream Smp		Q	<u> Stream</u>	Home	Find Friends	X 🖪 🚱	
Ø						Your Pages:	
						Create Page Manage Pages	
	Stream Smp		Update In	fo V	iew Activity Lo	Create Group Find Groups	

- 3. Select Type of page; Company, Organization or Institution. Follow the instructions to setup the Facebook Page.
- 4. Once you are on the Facebook Page, select [Publishing Tools].

Page	Messages	Notifications	Insights	Publishing Tools	Settings Help •
Posts		Published F	osts		+ Create
Publishe	ed Posts				
Schedul	ed Posts				
Drafts					
Expiring	Posts				
				You haven't published any posts yet. Learn more	
Videos					
Video Li	brary				



5. Select Video Library on the left side bar.

Posts			
Published Posts			
Scheduled Posts	Video Library	View Insights + Premiere + Watch Party + Live + Upload	
Drafts	Search Q Actions -	Filters 🕶 🔳 🕨	
Expiring Posts	Video	Status Views Date Added	•
Videos		You don't have any videoc	
Video Library			
Videos You Can Crosspost			

6. Click on [+Live] button to open the Server URL and Stream Key information.

Connect Your Live Stream to the Live API Use live streaming software or a hardware encoder. Learn more 1. Choose where you want to post your broadcast on the right. 2. Preview your broadcast with a stream key or paired encoder. • Stream Key • Paired Encoder Enter the information below into your software's settings. • Use a secure connection (SSL) • • Use a backup stream (*) Server URL • rtmps://live-api-s.facebook.com:443/rtmp/ Copy Backup Stream Key •	Camera		-Connect		
Connect Your Live Stream to the Live API Use live streaming software or a hardware encoder. Learn more 1. Choose where you want to post your broadcast on the right. 2. Preview your broadcast with a stream key or paired encoder. • Stream Key • Paired Encoder Enter the information below into your software's settings. • Use a secure connection (SSL) • • Use a backup stream (*) Server URL • rtmps://live-api-s.facebook.com:443/rtmp/ Copy Backup Stream Key •					
Connect Your Live Stream to the Live API Use live streaming software or a hardware encoder. Learn more 1. Choose where you want to post your broadcast on the right. 2. Preview your broadcast with a stream key or paired encoder. • Stream Key • Paired Encoder Enter the information below into your software's settings. • Use a secure connection (SSL) • • Use a persistent stream key • • Use a backup stream • • Stream Key • Imps://live-api-s.facebook.com:443/rtmp/ Copy Backup Stream Key •					
 1. Choose where you want to post your broadcast on the right. 2. Preview your broadcast with a stream key or paired encoder. Stream Key Paired Encoder Enter the information below into your software's settings. Use a secure connection (SSL) Use a persistent stream key Use a backup stream Server URL Imps://live-api-s.facebook.com:443/rtmp/ Copy Backup Stream Key Copy 	Connect Your Liv Use live streaming softwa	re Stream	to the Li encoder. Lear	ve A	PI
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 Stream Key Paired Encoder Enter the information below into your software's settings. Use a secure connection (SSL) Use a persistent stream key Use a backup stream (*) Server URL (*) Imgest URLs Stream Key (*) Copy Backup Stream Key (*) 	2. Preview your broadcast with a	stream key o	r paired en	coder.	
Enter the information below into your software's settings. Use a secure connection (SSL) Use a persistent stream key Use a backup stream Server URL Trmps://live-api-s.facebook.com:443/rtmp/ Copy Ingest URLs Stream Key Copy Backup Stream Key Copy Copy	O Stream Kev ● Paired Encod	er			
 ✓ Use a secure connection (SSL) ● ✓ Use a persistent stream key ● ✓ Use a backup stream ● Server URL ● rtmps://live-api-s.facebook.com:443/rtmp/ Copy Ingest URLs Stream Key ● Copy 	Enter the information below into yo	ur software's s	ettings.	/	
Use a persistent stream key () Use a backup stream () Server URL () rtmps://live-api-s.facebook.com:443/rtmp/ Stream Key () Backup Stream Key () Copy Backup Stream Key () Copy	✓ Use a secure connection (SSL) 1				
✓ Use a backup stream ① Server URL ① rtmps://live-api-s.facebook.com:443/rtmp/ Copy Ingest URLs Stream Key ① Backup Stream Key ② Dy Copy	Use a persistent stream key 👔				
Server URL Ttmps://live-api-s.facebook.com:443/rtmp/ Copy Ingest URLs Stream Key Backup Stream Key Copy Copy	Use a backup stream ()				
Stream Key 👔 Copy	server URL 0 rtmps://live-api-s.facebook.com:443/rtmp/			Сору	Ingest URLs
Backup Stream Key Copy Copy	Stream Key @				
Backup Stream Key 👔					Copy
	Backun Stream Key				
CODA			ny		Copy
	3. Select Go Live in the bottom r	ight corner.			

7. Copy and paste the **Server URL** and **Stream Name/key** to the Encoder's Streaming data fields, then Click **[Apply]**.

Extron

IMPORTANT NOTE:

- Use a secure connection (SSL) is supported by Extron encoders using RTMPS streaming.
- 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.
- 8. On the Encoder's Streaming page, click "Start RTMP stream" button to activate the stream.



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



10. Back on the Facebook Page, a live preview should be shown. Enter information about the stream on the Facebook window to the right.

Post Settings Interactive	
Choose where to post your live broadcast:	
Share on a Page You Manage 💌	
🔮 Extron Demo 💌	
Say something about this live video	
0	
Title	
Add a title for your live broadcast (optional)	
Tags 🚯	
Add tags (ex: comedy, animals, make-up etc.)	
Event Logs (4)	
Schedule OI Go Live	

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- 11. Enter Video Title information and Video Tags information.
- 12. To go Live, there are 2 options, Go Live, and Schedule.
 - a. To start immediately, select [Go Live].
 - b. To Schedule an Event, select [**Schedule**], enter date, time, and thumbnail.

LIVE 6.06	Extron Demo is live now. 5 minutes ago Demo SMP111	o
Image: Sector		
Event Logs (2)		End Live Video

- 13. Stopping the Stream:
 - a. If scheduled with a duration, the Schedule live stream from Facebook will automatically stop at the appropriate time.
 - b. If scheduled open ended, on the Facebook page, press

Note: Once a streaming event is stopped in Facebook, it cannot be restarted unless the "use a persistent stream key" checkbox is selected. Facebook limits live streaming to a period of 8 hours

c. After Facebook is stopped, then stop the Encoder.



Stop Streaming

If you stop the Encoder before the Facebook Stream, the public will see an error.

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example: Schedule has Ended 1

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 Encoder Settings:

Video

- Resolution: 1280 x 720 (720P)
- Frame Rate: Max 30fps
- GOP : I frame every 2 seconds or less***
- Bitrate: Up to 4Mbps (4000 kbps)
- Rate Control: CBR
- H.264 Profile: High
- Profile Level: 4.0 or 4.1

Audio

- Bitrate: 96 or 128kbps
- Sample Rate: 48 kHz or 44.1 kHz (recommend 48 kHz)

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.

WORLDWIDE HEADQUARTERS



GOP

SMP series products 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 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.

For the SME series, 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, 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.

WORLDWIDE HEADQUARTERS

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