Remote Performance Recording Setup

1. Connect Webcam & External Microphone to Your Computer

- The microphone may (or may not) need the adapter(s) provided.
- If using the microphone adapter <u>and</u> extension cable, **the adapter should connect directlyto the computer**, then to the extension cable, then to the microphone.

2. Download & Install:

- Latest version of Zoom (https://zoom.us/download)
- Open Broadcaster Software (OBS) (<u>https://obsproject.com/</u>)
 - Make sure to download version 26.0 or above

Open Broadcaster Software Setup

3. Open & Setup OBS

- When prompted at first open, start the Auto-Configuration Wizard
- Select "Optimize just for recording..."



• Set base video resolution to 1280x720 and FPS to 30

🕞 Auto-Configuration Wi	zard		×
Video Settings Specify the desired vid	leo settings you would like t	to use	
Base (Canvas) Resolution	1280x720		
FPS	30		

• Apply settings

4. Adjust OBS Settings

🚱 OBS																								
File Ed	it View	Profile	Scene	Collection	Tools	Help																		
Scene	Scene		G		Sources		6	Desktop	Audio			Aud	io Mixer				0.0	87 0 88 (: Transitior			Controls	6
				You do	't have	any source ton below,		40 4							15			- T	Fade	+ -	ି - 🗘		rt Streami rt Recordi	
				or right	click her	e to add or	ne.									-	() +		Duration	300 ms			tudio Mode	
				Ð		Fo		Mic/Aux								_		dB	Duration	- 300 ms	\sim		Settings	
					- 1			¢0 4	a da	- 48	40	-35	30	a a	fs		() 						Exit	
+	~ ~			+ - +	≯ ^	\sim																		
																LIVE: 0	0:00:0	0 0	REC: 00	00:00	CPU: 0.6	5%, 30.0	0 fps	

- General Tab
 - Check "Show confirmation dialog when stopping recording"
 - Check "Hide cursor over projectors"

Settings			×
General	General		
((•)) Stream		Theme Dark (Default)	0 0
		✓ Automatically check for updates on startup Open stats dialog on startup	
Output	Output	Show confirmation dialog when starting streams	
Video		Show confirmation dataget when stopping streams	
Hotkeys		Automatically record when streaming Keep recording when streaming Keep recording when stream stops	
X Advanced		Activity features and support Automatically start replay buffer when streaming Keep replay buffer active when stream stops	
	Source Alignment Snap		
		✓ Enable	
	Snap Si	nsitivity 10.0	Ŷ
		Snap Sources to edge of screen	
		✓ Snap Sources to other sources Snap Sources to horizontal and vertical center	
	Projectors		
		Hide cursor over projectors Make projectors always on top	
		Save projectors on exit	
		OK Cancel	Apply

- Output Tab
 - Change record settings to:
 - **Path** = your Desktop (or other easy to find location)
 - Check "Generate File Name without Space"
 - Quality = "High Quality, Medium File Size"
 - Format = "mkv"
 - Encoder = "Software (x264 low CPU usage preset, increases file size)"

Settings			×
General	Output Mode	Simple	
((•)) A Stream	Streaming		
A	Video Bitrate	2500 Kbps	÷
Output	Encoder	Hardware (NVENC)	
	Audio Bitrate		
Audio		Enable Advanced Encoder Settings	
<u> </u>			
Video	Recording		
Hotkeys	Recording Path	C:/Users/Chris/Desktop	Browse
		✓ Generate File Name without Space	
Advanced	Recording Quality	High Quality, Medium File Size	
· •	Recording Format	mkv	
	Encoder	Hardware (NVENC)	
	Custom Muxer Settings		
		Enable Replay Buffer	

- If you **do not** see the **Recording** options above:
 - Change Output Mode = "Advanced"
 - Click on the Recording tab
 - **Path** = your Desktop (or other easy to find location)
 - Check "Generate File Name without Space"
 - Format = "mkv"
 - Encoder = "Software (x264 low CPU usage preset, increases file size)"
 - Rate Control = "VBR"
 - Bitrate = 2500 Kbps
 - Max Bitrate = 5000 Kbps
 - Preset = "Quality"
 - Profile = "High"

🕞 Settings		×
General	Output Mode Advanced	
((•)) Stream	Streaming Recording Audio Replay Buffer	
Output	Recording Path D:\Videos	Browse
() Audio	Generate File Name without Space Recording Format mkv Audio Track 🗹 1 🗖 2 🗖 3 🗖 4 💭 5 🗖 6	
Video	Encoder NVIDIA NVENC H.264 (new)	
Hotkeys	Rescale Output 1920x1080 Custom Muxer Settings	
Hotkeys	Rate Control VBR Bitrate 2500 Kbps Max Bitrate 5000 Kbps Max Bitrate 5000 Kbps Keyframe Interval (seconds, 0=auto) 0 Preset Quality Profile high El Look-ahead ⑦ Psycho Visual Tuning ⑦ GPU 0 Max B-frames 2	
	OK Car	ncel Apply

- Audio Tab
- Set Sample Rate = 48 kHz
- Set Mic/Auxillary Audio = Line In / External Microphone

Settings			×
General	General		
	Sample Rate	48 kHz	
((•)) Stream	Channels	Stereo	
Output	Devices		
The second s	Desktop Audio	Default	
(1) Audio	Desktop Audio 2	Disabled	
_	Mic/Auxiliary Audio	Line In (3- Realtek High Definition Audio)	
Video	Mic/Auxiliary Audio 2	Disabled	
Hotkeys	Mic/Auxiliary Audio 3	Disabled	
Hotkeys	Mic/Auxiliary Audio 4	Disabled	
<u>م</u> د			

• Video Tab

20

- Confirm settings match image below – especially **Output = 1280x720**. Adjust as needed.

Settings				×
General	Base (Canvas) Resolution	1280x720	Aspect Ratio 1	
((•)) A Stream	Output (Scaled) Resolution Downscale Filter	1280x720 Bicubic (Sharpened scaling, 16 samples)	Aspect Ratio 1	
Output	Common FPS Values 🗘			
Audio				
Video				

- Advanced Tab
 - Do not change renderer
 - Change these settings:
 - Color Format = "RGB"
 - Color Space = "709"
 - Color Range = "Full"

Settings				×
General	General			
((•)) A Stream	Process Priority	Normal		
A	Video			
Output	Renderer	Direct3D 11		
	Color Format	RGB		
() Audio	Color Space	709	Color Range Full	
Video				
	Recording			
Hotkeys	Filename Formatting	%CCYY-%MM-%DD %hh-%mm-%ss		
3/		Overwrite if file exists		
Advanced		Automatically remux to mp4		
	Replay Buffer Filename Prefix	Replay	Suffix	

5. Create a New Scene

• In the Scene box, click the plus icon to add a new scene. Name it "Webcam Record"

	Add Scene		×			
	Please enter the name of Webcam Record					
		OK Cancel				
Scenes 🔒	Sources 🖷	Audio Mixer	ъ	Scene Transitions 🛛 🔒	Controls	ч
Scene	You don't have any sources. Click the + button below, or right click here to add one.	Desktop Audio 0.0.0 dl de de d	D	Fade ○ + - ✿ uration 300 ms ♀	Start Streaming Start Recording Studio Mode Settings Exit	
+- ^ ~	+-\$^\	(@) LIVE: 00:00:00		EC: 00:00:00 CPU: 0	1.4%, 30.00 fps	

6. Add Video Source to the "Webcam Record" Scene

- With "Webcam Record" selected in the Scene's box, click the plus icon in the Sources box
 - Select "Video Capture Device"

Scenes	Ę.	Sources	Ŀ.	Audio Mixer	5	Scene	Transitions	Ę,	Controls	9
Scene		You don't have any sources.			0.0 dB	Fade			Start Streaming	
Webcam Record		Click the + button below,			~		+ -	\$	Start Recording	
		or right click here to add one.				Duration	300 ms	\$	Studio Mode	
				Mic/Aux	0.0 dB				Settings	
				en es en e						
$+ - \land \lor$		+-& ^~			- T					
		📃 🖞 Audio Input Capture		((*)) LIVE: 00:00	0:00	REC: 00:	00:00	CPU: 0.6	%, 30.00 fps	
		 Audio Output Capture 						1999 (1999 (1999 (1999 (1999 (1999 (1999 (1999 (1999 (1999 (1999 (1999 (1999 (1999 (1999 (1999 (1999 (1999 (199		_
		Blackmagic Device								
		Browser								
		Scolor Source								
		Display Capture								
		Game Capture								
		Image								
		Image Slide Show								
		 Media Source Scene 								
		T Text (GDI+) ► VLC Video Source								
		VLC Video Source								
		Window Capture								

- In the Create/Select Source box that appears
 - Choose "Create"
 - Name the source "Webcam"

S Create/Select Source	×
O Create new	
Webcam	
Add Existing	
🗹 Make source visible	
	OK Cancel

- Ignore any webcam warnings that may pop up
- By "Device", select the external webcam (ex. "PC-LM1E Camera")
 - Do not select built-in laptop webcam
- Change settings:
 - Resolution/FPS Type = "Custom"
 - Resolution = "1280x720"
 - FPS = "30"
 - Format = "MJPEG"
 - Color Space = "709"
 - Color Range = "Full"

Device	USB Live camera	
	Deactivate	
	Configure Video	
	Configure Crossbar	
	Deactivate when not showing	
Resolution/FPS Type	Custom	
Resolution	1280x720	
FPS	30	
Video Format	MJPEG	
Color Space	709	
Color Range	Full	
Bufferina 🕐	Disable	
Defaults	ок	Cancel

• PC-LM1E Camera specific settings, if different from above:

Device	PC-LM1E Camera
	Use Preset
Resolution	1280x720
Frame rate	Simple FP Values 0 30
Input format	Auto (autoselect: MJPEG - JPEG OpenDML)
Color space	Rec. 709
Video range	Auto (autoselect: Partial)
	Use Buffering

- Set Audio Levels With the "Webcam" source selected, adjust audio levels:
 - **Desktop Audio** = Move the slider down to about half or roughly -17dB.
 - **Mic/Aux** = While speaking into the external microphone at a normal to moderately loud volume, adjust the volume slider for so the bouncing bars barely touch the yellow range.
 - Audio should <u>never</u> touch the red range (-10+)
 - **Other Audio** = Any other available audio sources should be **disabled**. Do so by clicking the speaker icon on the right side of each source. When disabled, the speaker will turn red with an "x"

Audio Mixer	6
Desktop Audio	-17.7 dB
Mic/Aux	-3.0 dB
	- 🔹 🗋
Webcam	0.0 dB

7. Close and Re-Open OBS

8. Record Video

- Windows Users click "Start Virtual Camera"
- Select "Webcam Record" Scene
- Click "Start Recording"

No source select	ed	Propert	ies 🔇	Filters					
Scenes	Ъ	Sources	8	Audio Mixer	6	Scene Transitions	5	Controls	8
Capture		🛚 Webcam	⊙ 🔒	Desktop Audio -1	17.7 dB	Fade	0	Start Streaming	
		🖵 Display Cap	⊙		ه ک	Duration 300 ms	\Rightarrow	Start Recording	
				Mic/Aux -	-3.0 dB			🗕 Start Virtual Camera	
				• • • • • • • • • • • • • •	ً€) ً			Studio Mode	
				Webcam	0.0 dB			Settings	
+ - ^ ~		+-\$ ^~						Exit	
					(IIVE) (IIVE	: 00:00:00 • REC: 00:00:	00 CP	U: 4.5%, 30.00 fps	

- When finished, click "Stop Recording" and then "Yes" to confirm you want to stop.
- The file will be saved to the **Desktop** or other location previously chosen in **Settings**.

Zoom Setup

- 1. Open Zoom and Change Zoom Video Settings
 - Camera
 - Windows Users: "OBS-Camera"
 - Mac Users: External Webcam (ex. "PC-LM1E Camera")
 - Check "16:9 (Widescreen)"
 - Check "Enable HD"

🗬 Sett	ings		×
Θ	General		
	Video		
0	Audio		
•	Share Screen	40	
0	Chat		
	Virtual Background		
0	Recording		
8	Profile	Channe AN B	
0	Statistics	Camera: OBS-Camera v	
	Keyboard Shortcuts	Original Ratio	
Ĵ	Accessibility	My Video: Vinter Institution Video	

2. Change Zoom Audio Settings

- Speaker
 - Move slide down so that you can still hear audio from your speakers, but keep it from being too loud.
- Microphone
 - Change microphone to Line In / External / etc.
 - Should be the same external microphone from OBS setup
 - "Automatically adjust volume" is fine

Settings	×
General	
🖸 Video	Speaker Test Speaker Speakers (3- Realtek High Definiti 👻
∩ Audio	Output Level:
Share Screen	Volume: 🛋 👥 💿
Chat	
Virtual Background	Microphone Test Mic Line In (3- Realtek High Definition Y
O Recording	Input Level:
Profile	Volume: 🛋 🔷 🔷 📢
Statistics	Automatically adjust volume
Keyboard Shortcuts	Use separate audio device to play ringtone simultaneously
Accessibility	Automatically join audio by computer when joining a meeting
	Mute my microphone when joining a meeting
	Press and hold SPACE key to temporarily unmute yourself
	Sync buttons on headset

• At the bottom of the Audio Settings page, click "Advanced" and on the page that opens, match the settings below.



• Close out of Zoom settings

Need Help?

Reach out: Chris Salters | 682.365.4424 | chris@chrissalters.com