



DIOCESE OF
Jefferson City

BETTER
TOGETHER

LIVESTREAMING TECHNOLOGY GUIDE

*Technology and product guide provided by
Communications Office*

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OVERCOMING OBSTACLES IN LIVESTREAMING

As the pandemic continues, many Catholics find consolation in being able to participate in Masses remotely, even as they eagerly await the ability to return to celebrating and receiving Holy Communion together, in person. The elderly and others confined to their homes for various reasons have expressed hope that parishes will continue livestreaming liturgies after the pandemic is gone. In a decree dated 20 August 2020, Bishop W. Shawn McKnight states “Parishes are highly encouraged to livestream Masses for Sundays and holy days of obligation indefinitely.”

To assist parishes in this effort, this document provides details on a relatively low-cost means to livestream, using a smartphone, auxiliary equipment and a Facebook account. A second option, using a camera, HDMI encoder and mixer, provides higher quality images, but requires more resources and a well-trained team of volunteers.

The guide provides details of options for the four basic elements necessary for livestreaming:

1. capturing audio
2. capturing video
3. an Internet connection and
4. a platform or destination on the Internet where people can view and hear your production.

Pastors may want to consider finding parishioners with expertise or experience in livestreaming who could lead a ministry in this area – or just someone with an interest who is willing to experiment and learn!

A NOTE ON LITURGICAL MUSIC AND LICENSING

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As a reminder, if worship music is livestreamed or posted on the Internet for later viewing, all copyrights must be observed. The diocese has a group agreement for licensing of audio and video being streamed over the Internet with onlicense.net; parishes’ fees are determined by the parish’s number of households. Contact communication@diojeffcity.org for more information.

OPTION 1: USING A SMARTPHONE			
	Optimal	Acceptable	Considerations
Audio	<p>External microphone, preferably hard-wired to reduce interference with Bluetooth</p> <ul style="list-style-type: none"> • SOLID Lavalier Lapel Mic (Amazon) • If using an iPhone: Lightening to 3.5 mm Headphone Jack Adaptor (Apple) 	<p>Using your phone’s internal microphone is “acceptable” but know that the celebrant, lectors, and/or musicians may sound distant or garbled. You might consider setting up a central microphone by a speaker in the church or plug directly into your sound system using the lapel mic (left), if possible.</p>	<p>Livestreaming to a smartphone drains the phone battery quickly. If you do not already have an additional battery built-in, consider these two items:</p> <ul style="list-style-type: none"> • Lightening Splitter Adaptor (Walmart) • Portable power bank (various models, Amazon)
Visual	<p>Smartphone</p> <ul style="list-style-type: none"> • iPhone 6 or newer • Samsung Galaxy/Note • Google Pixel 4a 	<p>Older smartphone models may be compatible with social media apps; cameras seem to evolve with each new model release, so the newer the smartphone the higher quality picture you can capture.</p>	<p>Note, smartphones use a digital zoom, which will pixelate your image. Optimize camera settings ahead of time and test picture, but limit your use of zoom. See above note on battery usage.</p>
Network Connection	<p>Stable and SECURE Wi-Fi connection, as near the router as possible; use a password on this Wi-Fi channel to prevent additional attendees from joining the network and slowing down your connection.</p>	<p>Strong wireless connection (4G/LTE) – be prepared to pay additional fees for network usage.</p>	<p>Very few smartphone owners have truly “unlimited data” and will incur additional fees, or their data plans will slow once they reach a predefined quota each pay period.</p>

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<p>Streaming Destination</p>	<p>Facebook (Free)</p> <ul style="list-style-type: none"> Parish is required to have a Facebook Page with individual users as administrators Whoever is livestreaming will need administrator access to said Facebook Page Livestream will be accessible to ALL by link as long as the Parish's Facebook Page is set to "Public" (even if a viewer does not have a Facebook account) 	<p>YouTube (Free), Vimeo (Paid)</p> <ul style="list-style-type: none"> YouTube requires 1,000 subscribers in order to use a smartphone to livestream; this may prohibit parishes from using this option with a smartphone Vimeo requires a "Premium" account (\$75/month, billed annually) to "Go Live". Amid the pandemic, they may offer other customizable plans, please be sure to examine their pricing guides and contact their support with questions. 	<ul style="list-style-type: none"> Send parishioners the livestream link ahead of Mass Invite parishioners to "Like" your Facebook page to receive automatic notifications when you begin a livestream Before you go "live", please ensure the parish's Facebook Page is open; otherwise you may accidentally stream the liturgy to the account of the smartphone owner!
<p>Additional Equipment</p>	<p>In addition to the equipment linked above, using a phone-friendly tripod to livestreaming your event stabilizes the video and allows the operator to move as needed. Light-weight and adjustable height allows an operator to set up their shot ahead of livestreaming, and enables them to move around if needed.</p> <ul style="list-style-type: none"> \$25.00, 62" Aureday portable cell phone tripod 		

OPTION 2: CAMERA OR CAMCORDER WITH STREAMING DEVICE

	Tier 1	Tier 2	Considerations
<p>Camera</p>	<p>FIXED LENS CAMCORDERS</p> <ul style="list-style-type: none"> Option 1, \$250: Canon VIXIA HF R800 (Amazon) Option 2, \$1400: Sony HXR-MC2500 Shoulder Mount AVCHD Camcorder (B&H Photo) – This camera has a mounted "shoe" microphone and would not need an additional "boom" microphone 	<p>DETACHABLE LENS CAMERAS</p> <ul style="list-style-type: none"> Option 1, \$650: Sony a5100 Mirrorless Digital Camera 16-50 mm and 55-201 mm lenses + Accessories (B&H Photo) Option 2*, \$1295.00: Black Magic Pocket Cinema Camera 4K (B&H Photo) *ALSO NEEDED: \$319.00, Rokinon 12mm T2.2 Cine Lens (B&H Photo) 	<p>Two main types of cameras can be used for successfully livestreaming:</p> <p>Fixed lens camcorders</p> <ul style="list-style-type: none"> Smoother zoom Easier to set up <p>Detachable lens cameras</p> <ul style="list-style-type: none"> Diverse usage (stills, interviews, additional projects) Additional options may require more training to operate

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Microphones	<p>Internal camcorder microphones could be used; however, sound may be distant or fuzzy. In addition, wireless microphones that run on radio frequencies or blue-tooth may run into interferences with other equipment.</p>	<p>“Boom” microphone recommendation and considerations</p> <ul style="list-style-type: none"> • Boom microphone: \$175, Sony ECM-VG1 Short Shotgun Microphone (with XLR cable) (B&H Photo) • Do the research required to ensure any external boom microphone is compatible with your camera model, and be sure that you have the necessary cable to connect the two. • Consider your parish’s sound system to see if there is an XLR output, if not you may mount a boom microphone under or near a speaker at the parish and rely on the sound mixers there. • You may need to purchase one or more additional XLR cables, though most choirs and parishes that use microphones have access to XLR cables. 	
HDMI Encoder	<p>\$350, AJA U-Tap HDMI USB 3.0 Capture (Amazon)</p> <p>Tested & approved by diocesan staff</p>	<p>\$169.99, Pengo Technology 4K HDMI to USB 3.0 Video Grabber (B&H Photo)</p> <p>Untested by diocesan staff</p>	<p>If using a laptop as a “switcher” (typical) this device will encode the audio & video from your camera to the laptop using two cables:</p> <ul style="list-style-type: none"> • \$10, HDMI Cable from camera to capture device (Amazon) • \$7, USB 3.0 cable (typically blue inside) from capture device to laptop (Amazon) <p>Please note, due to HDMI signal loss beyond 50 ft, your camera placement will need to be within 50 feet of your laptop/streaming device. If further, you will need multiple HDMI cables with adaptors to connect them.</p>
	Tier 1 (Continued)	Tier 2 (Continued)	Considerations (continued)

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<p>Streaming Device (Laptop or Swticher)</p>	<p>Professional Streaming Device or Swticher</p> <p>\$3,500, Epiphan Pearl Mini All-in-one Video Production System (Adorama)</p> <ul style="list-style-type: none"> • HDMI input allows direct connection (no need for an encoder) • Built-in switching device (no need for Open Broadcaster Software, etc.) • Still needs laptop to monitor stream 	<p>Any laptop model that has:</p> <ul style="list-style-type: none"> • USB 3.0 Port • Ethernet input • Up-to-date operating system • Internet browser that supports livestreaming (Google Chrome, Safari, etc.) • Switching software <ul style="list-style-type: none"> ○ Free: Open Broadcaster Software ○ Built-in software via YouTube or Facebook 	<p>If your laptop does not have a USB 3.0 port, or an ethernet connection, you may consider this adaptor:</p> <ul style="list-style-type: none"> • \$35, j5 Multi-port connector (B&H Photo)
<p>Network Connection</p>	<p>Hardwired ethernet access necessary (cannot rely on Wi-Fi for this set-up); ethernet cables are only reliable up to 350 ft, and if stepped on or closed in a door will easily lose signal. For this reason, you may want to run your ethernet cable overhead or be sure to have some sort of protective casing if laid across the floor. You can connect multiple ethernet cables, but without fiber optics you cannot guarantee a good connection beyond 350 ft.</p>		
<p>Streaming Destination</p>	<p>YouTube, Vimeo</p> <ul style="list-style-type: none"> • YouTube (Free) the requirement for 1,000 subscribers in waived when using a camera/laptop set up and will be suitable for this option • Vimeo (Paid) requires a “Premium” account (\$75/month, billed annually) to “Go Live”. Amid the pandemic, they may offer other customizable plans, please be sure to examine their pricing guides and contact their support with questions. 	<p>Facebook (Free)</p> <ul style="list-style-type: none"> • Parish is required to have a Facebook Page with individual users as administrators • Whomever is livestreaming will need administrator access to said Facebook Page • Livestream will be accessible to ALL by link as long as the Parish’s Facebook Page is set to “Public” (even if a viewer does not have a Facebook account) 	<ul style="list-style-type: none"> • Send parishioners the livestream link ahead of Mass or ask them to find your channel on their Smart TV; this equipment will broadcast in HD/4K and should remain high quality on a large TV. • Invite parishioners to “Like” or “Follow” your social media channels to receive automatic notifications when you begin a livestream • Before you go “live”, please ensure the parish’s Facebook Page is open; otherwise you may accidentally stream the liturgy to the account of the smartphone owner!
<p>Additional Equipment</p>	<ul style="list-style-type: none"> • Camera Tripod (find one that is compatible with your camera type) • SD Card (use this as a back-up to record live events in the case that your livestream malfunctions) 		

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<p>Helpful Video Resources</p>	<ul style="list-style-type: none">• How to Stream Mass and More! Free video series from Relatu (Catholic A/V company, relatu.org)• Reviews of equipment mentioned here: "Live Stream Set up for Churches 2020"<ul style="list-style-type: none">○ Please know that this video refers to churches (mostly protestant) who already have technology in place• One last note: TEST, TEST, TEST! At the diocese, our staff had 8 unsuccessful tests before our first successful test. With so many variants, it can be hard to track down exactly what is/is not working – but with many tests it may become easier for you to pinpoint exactly what you need.
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