

# CBC LIVESTREAMING VIA YOUTUBE & VMIX

This document provides introductory instructions for managing CBC service recordings and YouTube Live Streaming.

1/2/2019

*User Guide*

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## Introduction to CBC Live Streaming & Video Publishing

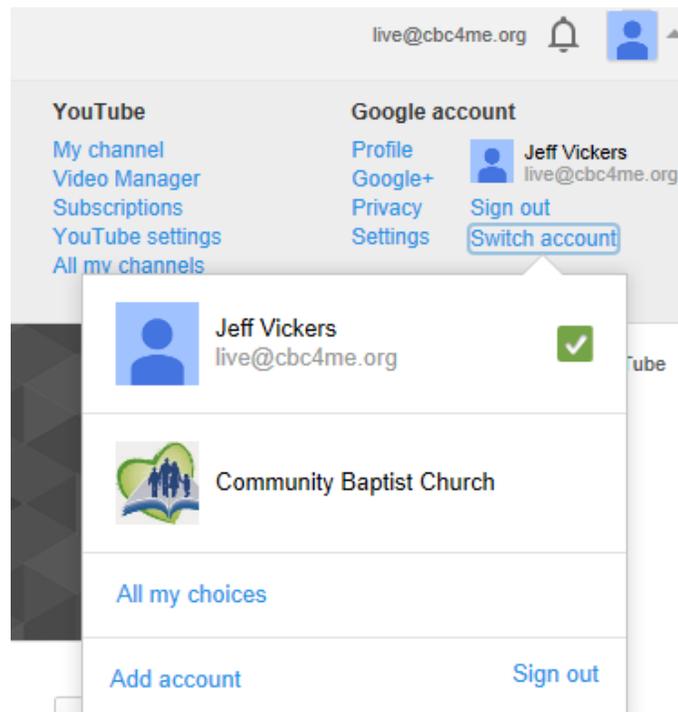
CBC is currently utilizing the free services and unlimited storage offered by Google YouTube for making various ministry video recordings available to either a public or restricted audience. Videos can be posted for on-demand viewing after the recording is complete and/or streamed live. This document provides an overview of CBC's use of this technology for the purpose of enabling the audio-video team to manage everything from video capture, video upload, user access, local data archival and website update. This document goes through the entire process in detail; however, a summary checklist is provided for routine operation.

- Live Stream Checklist – <S:\Media {Working}\avteam\+ Checklists\Live Stream Checklist.docx>

## CBC's YouTube Channel and YouTube Overview

CBC created a YouTube channel with the name "Community Baptist Church" and URL:

<http://www.youtube.com/cbc4meorg>. The [office@cbc4me.org](mailto:office@cbc4me.org) is the official account owner of this channel; however, Google allows other accounts to be designated to manage the channel. The avteam has a dedicated Google Apps account for this purpose, [live@cbc4me.org](mailto:live@cbc4me.org). You can log onto the Google account by navigating to the CBC YouTube page and clicking on the "Sign in" button at the top right corner. The user name is [live@cbc4me.org](mailto:live@cbc4me.org) and the password is the same as the avteam Windows log in. Once logged in, click the Blue account icon, then "switch account" and select "Community Baptist Church." Now you are logged into the CBC channel and ready to manage content.



As a quick overview to YouTube, you simply stream or upload video content to the YouTube channel, then configure various content controls and metadata as desired. The content is then readily available for viewing on YouTube.

## Content Controls

YouTube provides three options for managing access to videos: public, unlisted and private. These controls can be set at the time of upload and/or at a later time.

- **Public videos** include unrestricted public access, appears on the public YouTube page, and is discoverable via internet searches.

- We use this setting for all published/edit videos and the live stream. Only live stream sessions with this privacy setting are accessible view the website.
- **Unlisted videos** are not discoverable by internet searches and do not appear on the public YouTube page; however, anyone with the URL to the video can view the video the same as if it were public.
  - All completed live stream videos that are completed are set to this privacy level.
- **Private videos** are both unlisted and restricted to only specified individuals and/or Google Circles.
  - CBC does not use this privacy setting.
  - Private videos are very cumbersome. They are only viewable through Google accounts. Furthermore, those Google accounts must have Google+ and YouTube enabled. Given those preconditions, we would have to invite each user to join the “Members Only” circle and the user must then accept the invitation. It is recommended that the user also subscribe to the CBC YouTube channel. Additionally, there is no way to automatically notify users that a private video has been upload and there is no way for them to browse the list of private videos for which they have access. CBC must email them a link to each video.
- In addition to these three access controls, there are many other controls that can be specified for each video such as: ability for video to be embedded in webpages, ability for users to make comments, ability for users to see statistics on videos, etc. This document will only cover the specific options we utilize for our video uploads.

## CBC Content Policy

There are numerous considerations that have been taken into account to establish a CBC policy on this. Issues ranging from copyright for music, images of adults & children, political sensitivities/privacy concerns of service content, etc. This document is not intended to explain the “why’s” of the policy, rather it seeks to provide instructions based on this official policy.

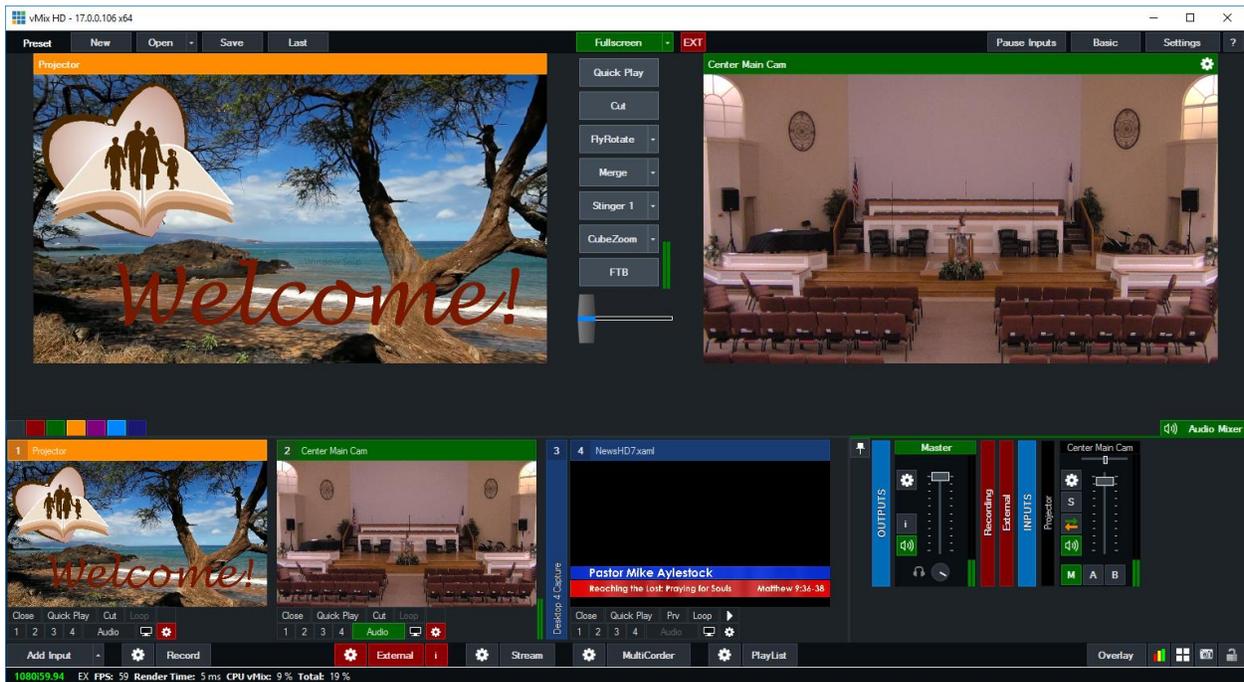
Currently, the policy is to only make real-time and featured content available publically to include entire services just as if the viewer were present at church. After the service is over and the live stream completed, the full length service video is made unlisted and the last several services made available to members only. Any video content made public for on-demand viewing is almost always trimmed down to a subset of the service and reviewed for sensitive content. This is typically only featured sermons that Pastor requests be made available or promotional video productions.

## Capture Software and Video Formats

CBC licenses a software package called vMix for recording/streaming videos in a YouTube compatible format . vMix captures are pushed to YouTube in single-stream 1080p 29.97 frames per second H.264 video format with 192kbps audio. YouTube transcodes all videos seamlessly to make them available in a variety of lower quality formats for streaming to lower bandwidth and mobile devices without any action on our part.

vMix is preconfigured to interface with our BlackMagic capture devices to record both video and audio from multiple sources to include the Media Video Switch Output (i.e. projector), main HDMI cameras, IP cameras, local screen capture, etc. vMix has a document that stores this configuration. You must open this file each time you open vMix. When closing vMix, do not save changes to the configuration file if prompted. A screen capture of vMix is and key file locations are shown below:

- vMix Configuration File: [C:\Live Stream\vMix Settings\\\*.vmix](C:\Live Stream\vMix Settings\*.vmix)
- vMix Record Location: [C:\Live Stream\Recordings\\\*.mp4](C:\Live Stream\Recordings\*.mp4)

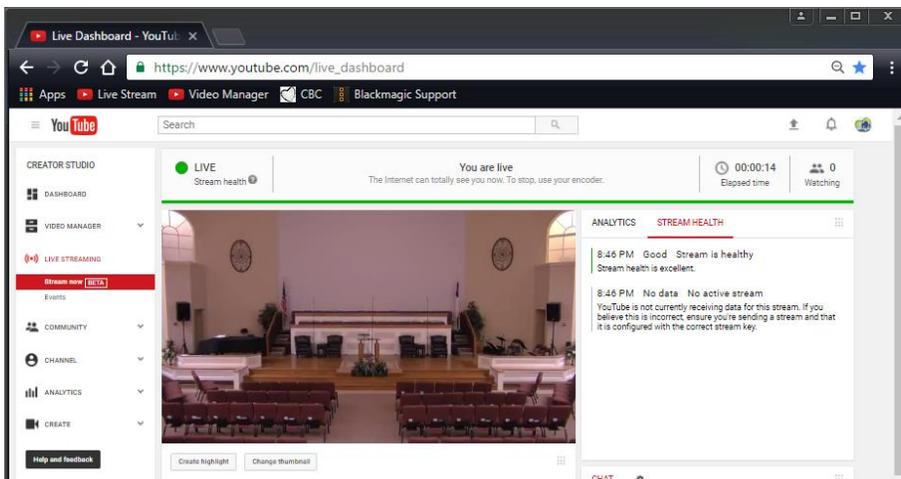


## Streaming & Recording Basics

To record and/or stream a video with vMix, click on the Intensity Shuttle\_1 in Wirecast's Media Layer 2 and ensure that both video and audio (see levels indicator on the right side of the screen) are coming in as expected. Then click the stream & record buttons to start and the stream & record buttons to stop. A summary of the key steps are shown below but a detailed checklist is provided and expected to be followed for each service.

- <S:\Media {Working}\avteam\+ Checklists\Live Stream Checklist.docx>
- Video & Sound Check
  - Verify the video sources appear as expected.
    - Note: the projector feed will appear blank until the Media PC operator is running ProPresenter.
  - Verify the audio (input from the sound board) is as expected by monitoring vMix levels meters for the Center Camera.
    - Note: audio and video are combined onto an SDI into the capture card. This is the only audio source we use as we mix the full audio on the sound board.
- Enable External Output to send video to CBC's video broadcast network.
- Start Streaming & Recording (typically ~3 minutes prior to service start to show the announcements loop)
  - The stream button will send the video content directly to CBC's public Live Stream Channel.
  - The record button will save the video to the local file location indicated above.
  - Configure CBC's video broadcast source to Live Stream (should be on Usher Matrix prior).
- Monitor the Stream from the [Live Dashboard](#) (status, stream health, analytics, privacy setting = Public)
- Stop Streaming & Recording
- Configure CBC's video broadcast source to Usher Matrix as the source.

Once the live event is completed, it will be available as an unlisted video in the [video manager](#) without further action (may take 2-10 minutes to finish processing). At this point, the event can be shared/enhanced/edited within Google as noted in the post-processing section.



## Video Mixing

vMix displays two large views and several smaller views. The right large view is the actual vMix output. The left large view is the preview. Transition controls are displayed in between these two large views. The smaller views are real-time views of the input sources. Selecting (via mouse click or touchscreen) a video input will transition it to the preview screen. Touching the preview screen or transition effect will cause the previewed item to transition to the output screen and the previous item in the output screen will switch to the preview screen.

Overlays will display a video input or vector graphic with transparency (i.e. alpha blending) on top of the current output. Examples include Picture-in-Picture (for video inputs) and title bars. vMix supports (4) overlay layers which appear as buttons under each input.

- **Overlay 1** = full screen overlay primarily used for alpha blending (i.e. banners)
  - Example on right shows the projector input as *Overlay 1*
- **Overlay 2** = tbd
- **Overlay 3** = tbd
- **Overlay 4** = Picture-in-Picture in the lower left-hand corner (lyrics, etc)



## Audio Mixing

CBC's digital sound board is configured with several dedicated mix buses for the Live Stream Operator to control. This is necessary as the sound for the house speakers is not ideally balanced for a live stream output. The vMix audio controls are already configured and normally not require adjustment except for an occasional tweak to the vMix Master Volume.

The Audio Operator does the heavy lifting for mixing and sends the mixed audio to the corresponding Live Stream MixBuses. The Live Stream Operator is basically just balancing the levels of each of these MixBuses which is very manageable. There are only a few key points in the service where this is really needed such as choir/music specials. These MixBuses can be controlled over the local area network via the M32-Edit PC application or the Mixing Station mobile app and can be pre-configured to only display the Live Stream MixBuses.

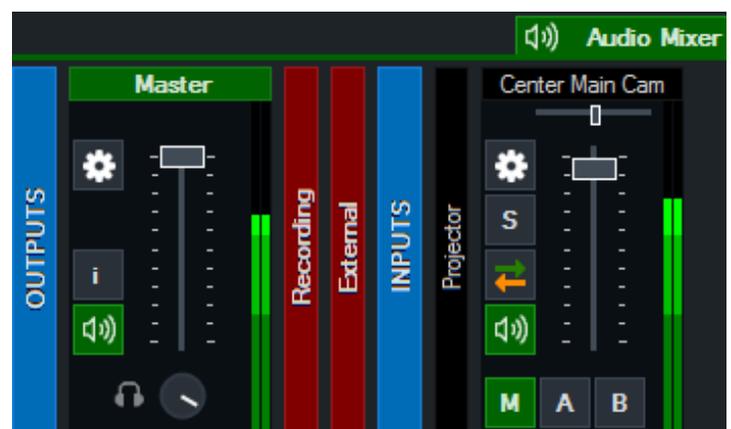
### Sound Board Audio – audio source sent to vMix

- **M32-Edit** → **Utility** → **User 1**
- *Only use Buses designated for Live Stream*
- **MixBus, Video Trax:** Any non-vocal media (i.e. Audio PC, Media PC/Video Switch, Music Devices)
- **MixBus, Video Vocals:** all vocals except choir mics
- **MixBus, Video Choir:** choir vocals
- **MixBus, Instruments:** Piano, Organ, Orchestra
- **MixBus, Audience:** Ambient Audience Microphones



### vMix Audio Controls

- **Master:** Master vMix audio mix
  - Gain = 0, Eq = Off
  - Compressor = Enabled, 3:1, -18 dB
  - Noise Gate = Enabled, -80 dB
- **Center Main Cam:** audio source from sound board
  - Gain = 16 dB, Delay = 33 ms, Eq = Off
  - Compressor = Disabled
  - Noise Gate = Enabled, -85 dB



## Using Banners and Data Sources

CBC uses graphical, themed banners to overlay speaker, title, bible references, sermon points and other pertinent information on the bottom of screen. See the three basic banner templates we use below. These banners are treated as inputs in vMix and are configured as a full screen Overlay on the output when selected.

- Banner graphics and configuration files are store here: <C:\Live Stream\Banners>

### Primary Double-Line Banner



### Double-Line Banner



### Single-Line Banner



The banners contain text fields that are loaded from sources that vMix calls "Data Sources." We use an Excel spreadsheet to host our banner data. The Live Stream Operator populates this prior to the service with appropriate data from the sermon worksheet and/or Order of Service.

- Banner Data – <C:\Live Stream\Data Sources\Sermon Titles.xlsx>
- Sermon Worksheets – <S:\Media {Working}\+ Sermon Worksheets>

	A	B	C
1	<b>Speaker</b>	<b>Title</b>	<b>Reference</b>
2	Pastor Mike Aylestock	Christmas Gift Giving	2 Corinthians 9:15
3	Christmas Gift Giving	1. The Gift of God	2 Corinthians 9:15
4	1. The Gift of God	a) Not Fully Describable	2 Corinthians 9:15
5	1. The Gift of God	b) Required God's Loss	2 Corinthians 8:9
6	1. The Gift of God	c) Enriched Man	2 Corinthians 8:9
7	Christmas Gift Giving	2. The Gifts You Give	2 Corinthians 8:19
8	2. The Gifts You Give	a) A Grace from God	2 Corinthians 8:19
9	2. The Gifts You Give	b) A Glory to God	2 Corinthians 8:19
10	2. The Gifts You Give	c) A Declaration of Your Heart	2 Corinthians 8:19
11	Christmas Gift Giving	Jesus - an undescrivable gift!	

Once the Sermon Titles spreadsheet is populated, vMix uses the Data Sources Manager to select which row of the spreadsheet will be used in the banners. Once a row is selected, all the text in the banner inputs update immediately. This enables you to easily click through sermon points as the service progresses without hassle. If you have changes you'd like to make during the service, simply update the spreadsheet and save. Saving will push the updates to the vMix data source manager. For this purpose, you should keep both the spreadsheet and data sources manager open during the service.

To access the data sources manager, click the red & white Data Sources button in the bottom right of vMix.



### vMix Data Sources Manager

The screenshot shows the vMix Data Sources Manager window. At the top, there is a '+ Excel/CSV' button. Below it, there are tabs for 'Table', 'Sermon', and 'Settings'. The 'Table' tab is active, displaying a table with the following data:

Speaker	Title	Reference
Pastor Mike Aylestock	Christmas Gift Giving	2 Corinthians 9:15
Christmas Gift Giving	1. The Gift of God	2 Corinthians 9:15
1. The Gift of God	a) Not Fully Describable	2 Corinthians 9:15
1. The Gift of God	b) Required God's Loss	2 Corinthians 8:9
1. The Gift of God	c) Enriched Man	2 Corinthians 8:9
Christmas Gift Giving	2. The Gifts You Give	2 Corinthians 8:19
2. The Gifts You Give	a) A Grace from God	2 Corinthians 8:19
2. The Gifts You Give	b) A Glory to God	2 Corinthians 8:19
2. The Gifts You Give	c) A Declaration of Your Heart	2 Corinthians 8:19
Christmas Gift Giving	Jesus - an undescrivable gift!	

At the bottom of the window, there are navigation buttons (back, forward) and a control for 'Auto N Update data every 250 Milliseconds'.

## Creating Banners

The previous section discussed using banners that are already created and configured in vMix. This section shows you how to create new banners. This is typically done for different seasons, special events or themes.

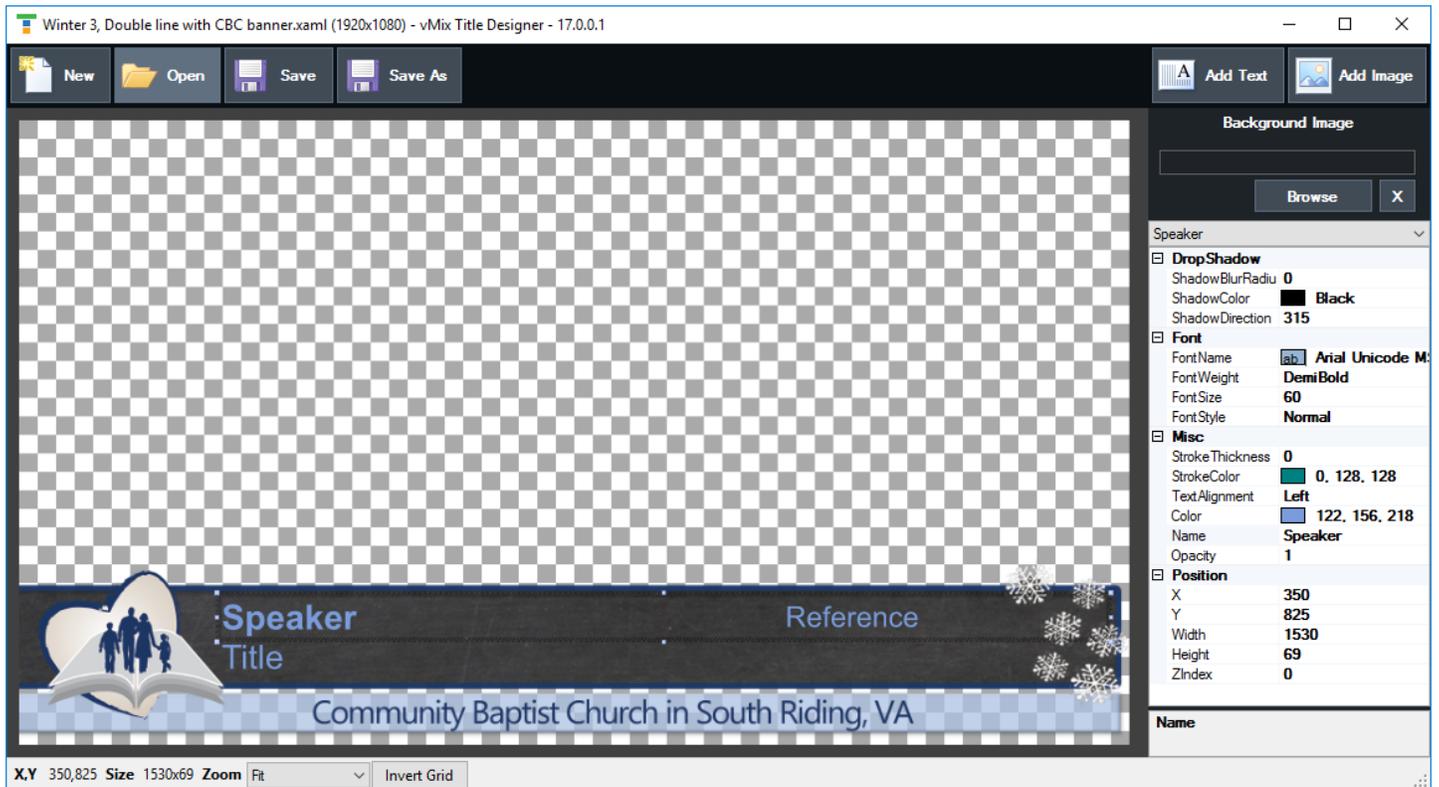
Creating the Banners in vMix involves the following steps:

1. Create the banner graphic (1920 pixels wide) in PNG format
2. Use the vMix Title Designer to create a Banner and save the XAML file.
3. Create a new vMix Input: Add Input → Title / AXML and open the XAML file created in step 2.
4. Configure the Data Sources via Right-Click, Title Editor
5. Set the Title Settings to On Mouse Click = Overlay 1



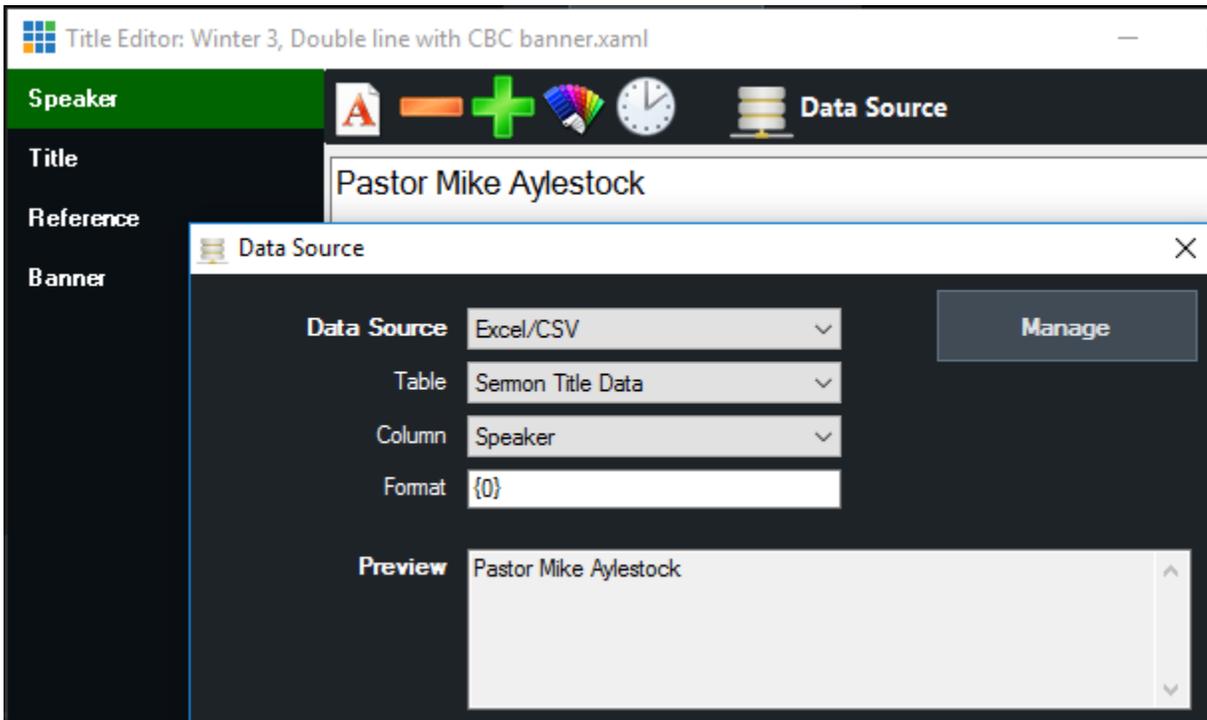
The **vMix Title Design** imports the banner graphics and allows you to add text fields. Click **Add Image** to import the banner PNG and position the banner image in the frame. Next **Add Text**, name the text field, set the font size & color attributes and position them on the banner. Note: the name of the text field is what will show up in the Input Title Field in the next step. Once finished creating the new banner, save the XAML file in the Banner folder: <C:\Live Stream\Banners>.

Note: you can set custom colors using the RGB number settings. Likewise, you can set various object characteristics such as X, Y position, width, height, etc. This is really helpful for maintaining consistency between other banner files.

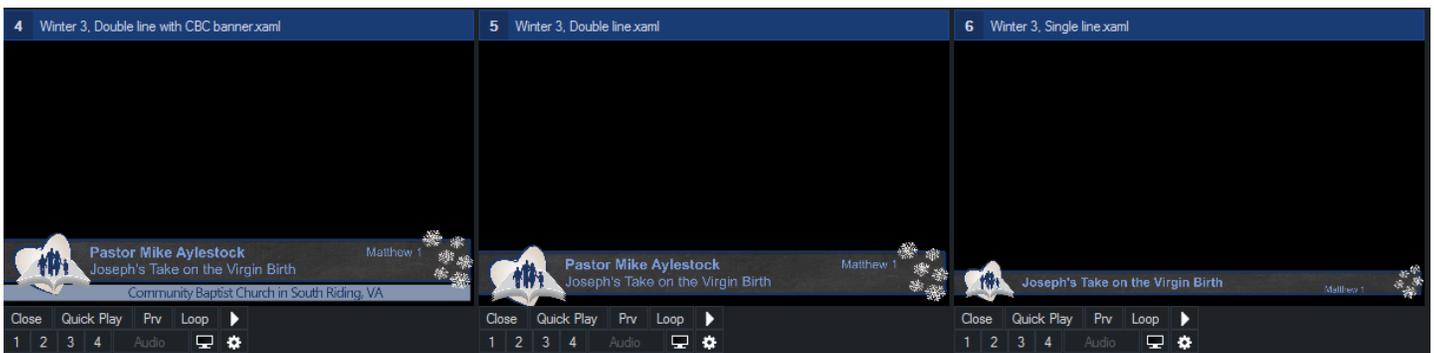




Open the desired CBC vMix settings file and click **Add Input** → **Title / XAML** in the bottom left corner of the main vMix screen. Browse and select the XAML file created in the vMix Title Designer in the prior step. A new window will pop-up showing all the text fields configured in the XAML file on the left. Select on and then click the **Data Source** button and configure the Data Source to point to the appropriate Excel field as shown in the Speaker example below. Repeat for each text field and then close the window.



From the main vMix screen, click the settings icon (  ) just underneath the input preview and change the **Mouse Click Action** from Preview to **Overlay 1**. This will make the banner overlay directly on the output pane rather than the project as a full screen input in the preview pane. Lastly, repeat for all banners as needed as shown below.



## Post-Processing, Data Management & Publishing

### Video Editing

Refer to the dedicated video editing guide for specifics on how to edit and publish finished videos.

- <S:\Media {Working}\avteam\CBC Service Video Editing Work Flow.docx>

### Data Management

The initial recording is stored in C:\Live Stream\Recordings. It is important to only use this location temporarily as the files are quite large (between 1.5 and 3 GB per service at 1080p). Doing so will quickly fill up the SSD and have huge consequences to PC performance and eventually preclude additional recordings.

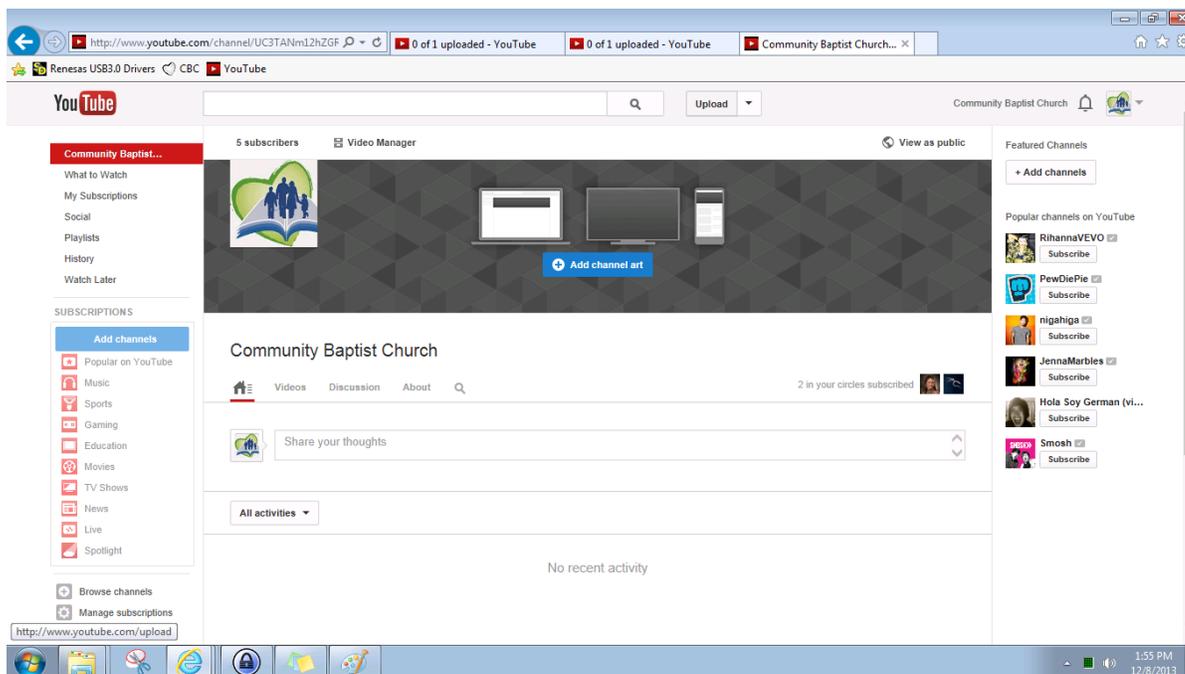
For this reason, recordings should be renamed (see naming convention below) as soon as the recording completes and subsequently moved to S:\Media {Working}\Recordings from Service to be Archived\YYYY Video Recordings (unedited). This is important for both data retention/safety purposes but it is likely the location that anyone conducting post-processing on the video file would access it. This file should not be directly modified, rather post-processing modifications should create a copy and append “edited” at the end of the file. At this point, the final video file is ready to be published.

- Files should be renamed to “CBC Service YYYY-MM-DD ZZ.mp4” where YYYY=4-digit year, MM=2-digit month, DD=2-digit day, and ZZ=AM or PM.

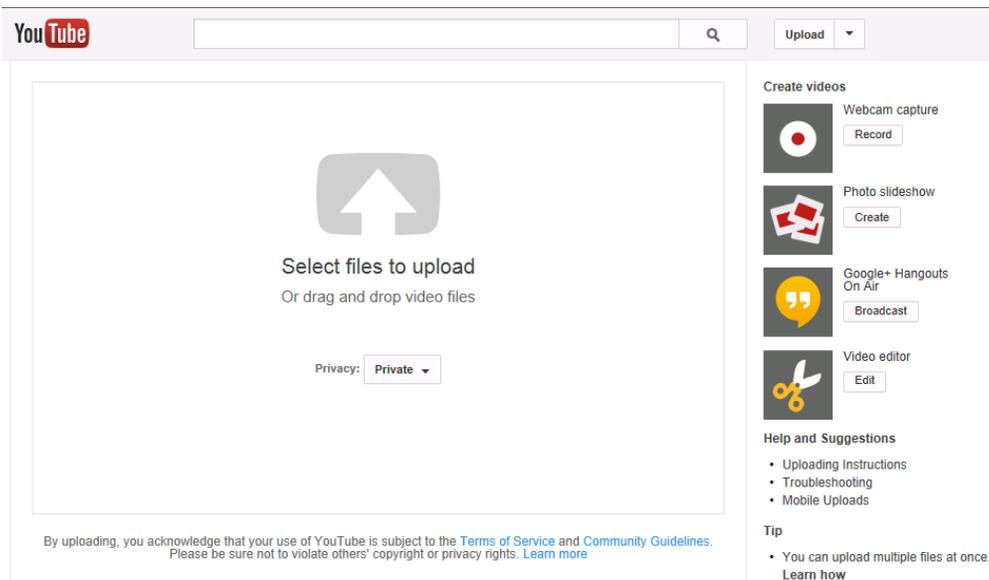
Long term, the final video file after all edits, should be archived for permanent storage at S:\Archive\Services (audio, video, worksheets, programs, etc). Who archives these files and how often is still to be determined. It is recommended that this is completed no less than annually.

### Publishing/Content Upload

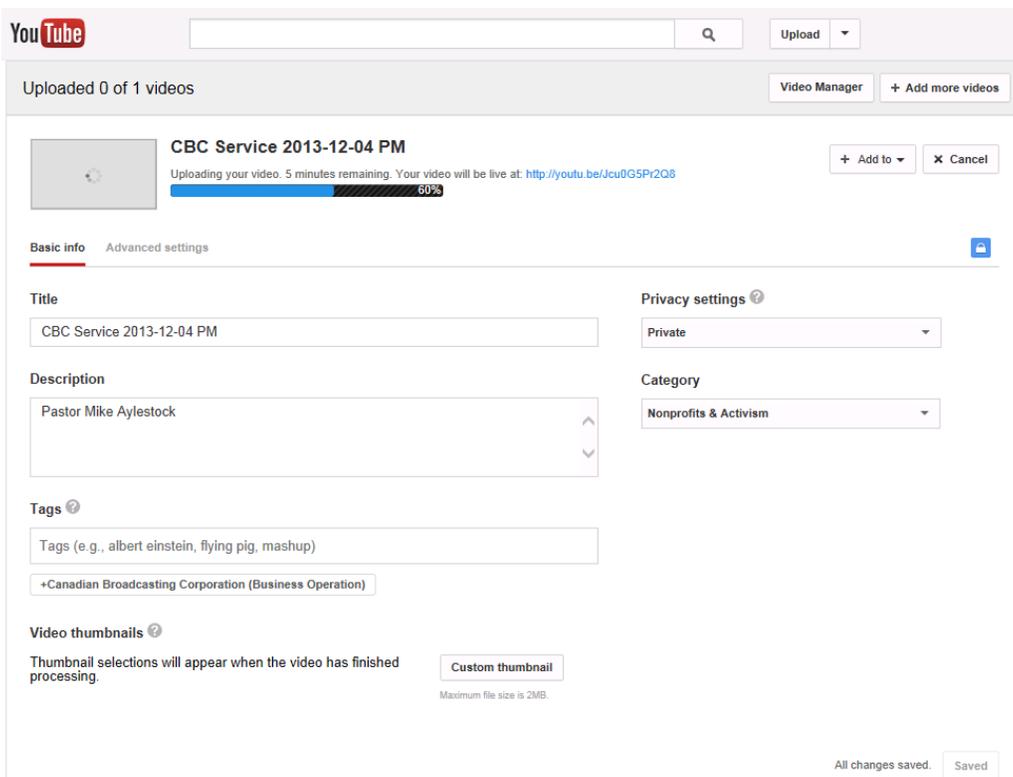
Since we stream in real-time, we only really upload video files when we are adding edited videos or training materials. To accomplish this, navigate to the CBC YouTube page (<http://www.youtube.com/cbc4meorg>) and logging in as [live@cbc4me.org](mailto:live@cbc4me.org). Switch to the Community Baptist Church YouTube account and you will then see the following webpage.



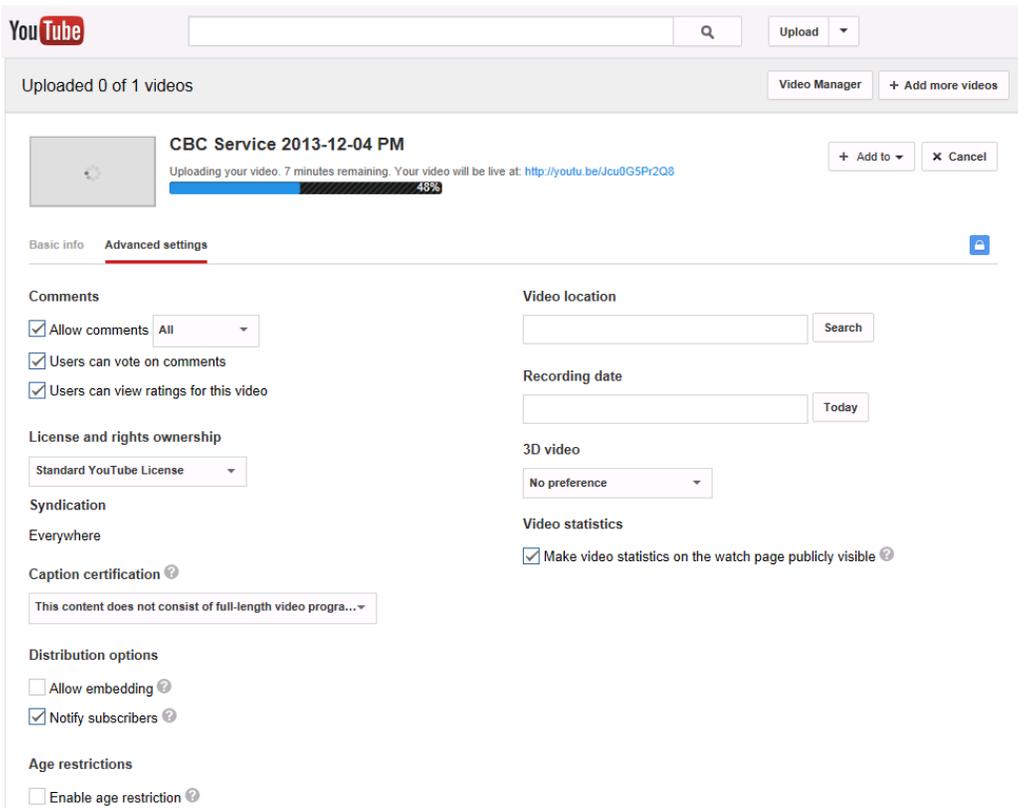
Click the **Upload** Button in the top middle of the page and you will see the following webpage:



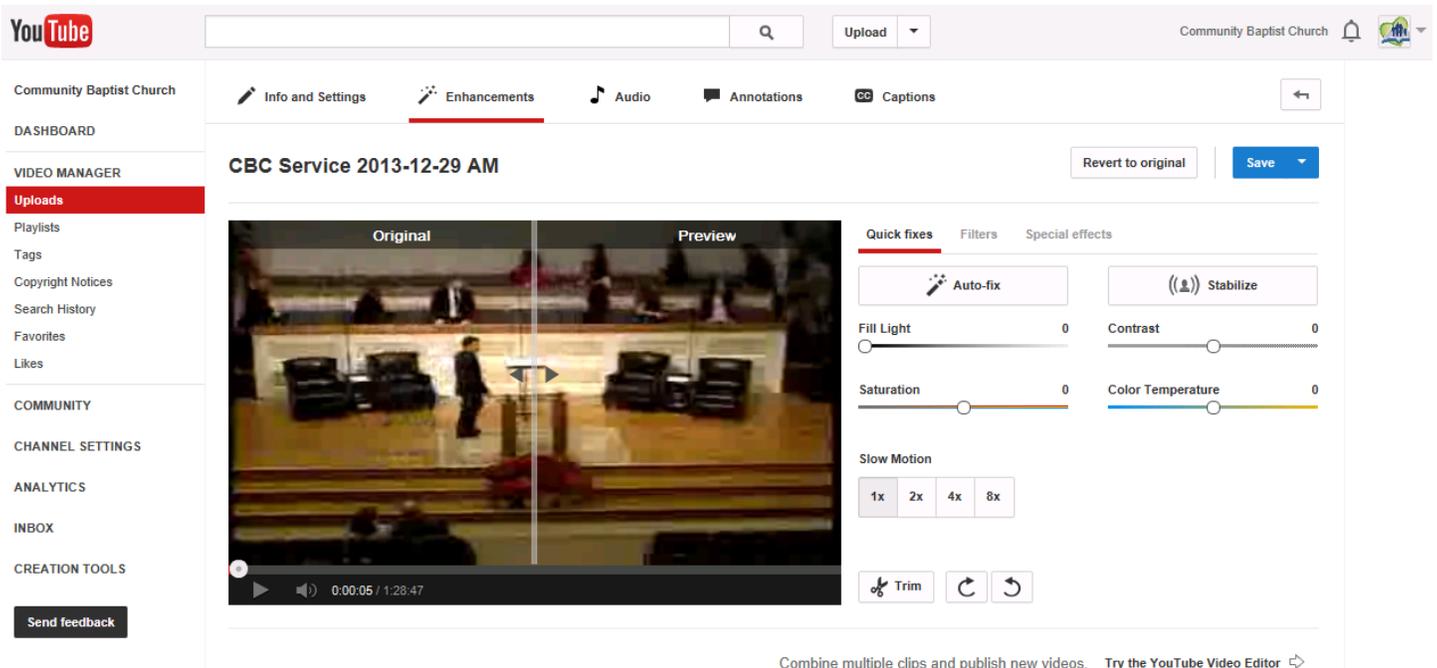
Drag-and-Drop the file to be uploaded or click the “Select files to upload” button to navigate to the file. The video will start uploading and you will then see a webpage similar to the one below.



Basic video information can be modified from the upload webpage as it is in progress. Additionally, you can also click the “Advanced settings” tab and edit this items while the video is uploading as well as shown below.



Do not navigate away from this page until the upload has completed. Once the upload and video process is complete. Complete any additional cropping/enhancing within YouTube by clicking the Edit button. You will then see a video editing webpage as shown below.



Once all changes are complete, make one final review and playback test. If the video is unlisted or private, email the URL to the access group that is your intended audience such as the “Members Only” circle. Lastly, add the video to any desired playlist (i.e. on-demand, or featured sermons).

## Live Streaming on cbc4me.org

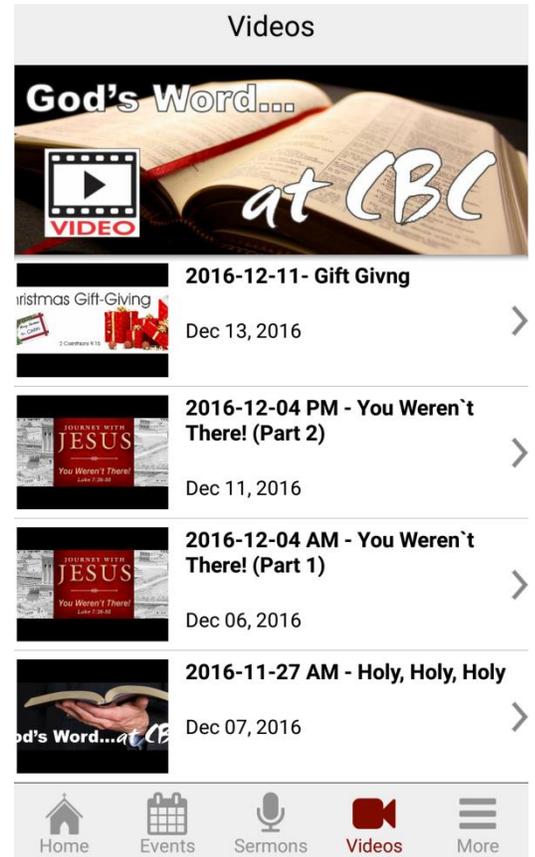
We directly embedded YouTube players within the CBC website and within our Church App to make streaming and on-demand content readily available. There are four primary Live streaming content:

1. CBC's website link to our Live Stream Channel (Click the Live Stream Banner Link) – real-time stream
2. The Sermon Archive on CBC's Website (Click the Sermons Banner Link) – edited recordings for public access
3. CBC's Church Link App in the Video Section – Sermon Archive video playlist within the App
4. CBC's Member Only Page – Archive of all Unedited Services



### Live Streaming

- Sunday Services are streamed live starting at 10:00 AM & 6:00 PM.
- Starting in Sept 2016, abbreviated service videos can be found on the [Audio/Video Sermon page](#).
- An uncut, unedited archive of prior services is available on the [members only page](#).
- Click [sermon notes](#) and [bulletin](#) for the latest sermon handout, announcements and events.



## Managing Website Video Content

The entries in the embedded video player list (see list icon in the top left corner of the embedded player) are [YouTube playlists](#) created within CBC's YouTube account. Previously published videos on the CBC channel can be added/removed to these playlists at any time and the website will automatically be updated accordingly.

The sermon repository on the CBC website and CBC Church Link App utilize the videos edited for public viewing within the "CBC Services" playlist. The CBC's members only webpage contains an archive of unedited services "CBC Services On-Demand" playlist.

CREATOR STUDIO

DASHBOARD

VIDEO MANAGER

Videos

**Playlists**

Copyright Notices

LIVE STREAMING

Playlists 3

+ New playlist

Search playlists

CBC Services 27 videos

Abbreviated CBC Services.

CBC Services On-Demand 213 videos

Click on a playlist to manage the videos in the playlist and the playlist settings. You can add/remove videos here and drag and drop the videos in the desired order. The order of videos is sorted newest to oldest unless manually reordered.

**Note:** refer to the policy section for details on what to post where/when.

Community Baptist Church

Videos

**Playlists**

Channels

About

CBC Services

Community Baptist Church • 27 videos • 83 views • Updated today

Abbreviated CBC Services.

Play all

Share

Playlist settings

Add videos

1		2016-12-04 PM - You Weren't There! (Part 2) by Community Baptist Church	49:57
2		2016-12-04 AM - You Weren't There! (Part 1) by Community Baptist Church	50:24
3		2016-11-27 AM - Holy, Holy, Holy by Community Baptist Church	42:26

## Handling Completed Live Stream Sessions

Now that we know how to utilize and manage playlists, it is important to know how to handle newly completed videos from the live stream channel. Each contiguous live stream session (one start-stop) will be saved as a new unlisted video named by default, "Community Baptist Church Live Stream." There are several things we need to change on each of these videos before they are ready to be added to any playlists. These settings should be updated each week even if not being added to a playlist. From the [Video Manager](#), edit the videos as such:

### Basic Settings

- Change the title to the following naming Convention: CBC Service YYYY-MM-DD xM
- Update any detailed text for the video (i.e. Speaker, Sermon Title, etc).
- Ensure the video type is "Unlisted"
- Add to playlist [as appropriate]

The screenshot shows the 'Basic info' tab of a video manager interface. At the top, there are two tabs: 'Basic info' (selected) and 'Advanced settings'. Below the tabs, there are three main input areas. The first is a text box containing 'CBC Service 2015-07-12 PM' with an 'Unlisted' button to its right. The second is a larger text box containing 'Pastor Mike Aylestock' and 'Live Streaming CCLI License: CSPL048639' with a '+ Add to playlist' button to its right. The third is a text box containing 'Tags (e.g., albert einstein, flying pig, mashup)'. The interface is clean and uses a light gray color scheme.

### Advanced Settings

- Disable "allow comments"
- Uncheck "users can view ratings for this video"
- [Optional] add CBC's video location: 38.9137687683 -77.5114822388
- Set the "recording date"
- Check Allow Embedding
- Uncheck "Notify Subscribers"

The screenshot shows the 'Advanced settings' tab of the video manager interface. At the top, there are two tabs: 'Basic info' and 'Advanced settings' (selected). The settings are organized into several sections. 'Comments' includes checkboxes for 'Allow comments' and 'Users can view ratings for this video', along with 'Show' and 'Sort by' dropdowns. 'License and rights ownership' has a dropdown for 'Standard YouTube License'. 'Syndication' has radio buttons for 'Everywhere' and 'Monetized platforms'. 'Caption certification' has a dropdown for 'This content does not consist of full-length video program...'. 'Distribution options' has checkboxes for 'Allow embedding' (checked) and 'Notify subscribers'. 'Category' has a dropdown for 'Nonprofits & Activism'. 'Video location' has a text box with '38.9137687683 -77.5114822388' and a 'Search' button. 'Video language' has a dropdown for 'Select language'. 'Recording date' has a text box with 'July 12, 2015' and a 'Today' button. 'Video statistics' has a checkbox for 'Make video statistics on the watch page publicly visible'. '3D video' has a checkbox for 'This video is 3D' and a dropdown for 'Side by side: Left video on the left side'. 'Content declaration' has a checkbox for 'This video contains a paid product placement or endorsement'. The interface is clean and uses a light gray color scheme.

## Support

You can contact [itsupport@cbc4me.org](mailto:itsupport@cbc4me.org) and/or [avteam@cbc4me.org](mailto:avteam@cbc4me.org) with any questions, issues, recommendations regarding the mechanics of this process.

## References

### CBC's YouTube Channel Links

[Channel Homepage](#)

[Video Manager](#)

[Stream Now Live Dashboard](#)

[Scheduled Events](#)

[Playlists](#)

### Knowledge References

[YouTube Getting Started Guides](#)

[YouTube Live Streaming Event Tutorial](#)

[Google's YouTube Help](#)

[Supported YouTube Upload Formats](#)

[YouTube Copyright ID and associated Claims](#)

[CCLI Streaming License Information](#)