TechTalk122

- Using vMix software with Digital-ATV

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The vMix software is a good companion software application program that allows the user to switch and mix between different cameras/video-files and also do special video-effects, including "green screen". It works well with ham radio Digital-ATV (DATV) activities. Perhaps the best part is that the entry-level software package, called **vMix Basic**, is free to download for SDTV format video (Standard Definition) from vMix.com.

This TechTalk article is NOT a tutorial on how to use vMix (there are tons of tutorial-videos on YouTube to walk you through the steps)…but rather is an overview of the many concepts that vMix brings to the user. This article is written from my experience with the DATV-Express DATV transmitter product, but is also applicable to other ham radio DATV product lines that are compatible with vMix.

Which vMix Product to Get?

vMix Basic is a free video-mixer-editor software package for SDTV format video (Standard Definition) that is available from vMix.com. There are more-professional HDTV products that are available for sale, including the vMix Basic HD for US$60. See **Figure01** for array of vMix products. The download you want is currently called vMix 17

The free video-editing software allows you to:
1) support one or two USB-cameras
2) use a JPEG file as a "Test Pattern" video source
3) switching between the two video sources (see Figure02)
4) adding a better-looking call-letters-overlay
5) try "green-screen" video tricks.

Figue01 – The array of vMix products – including free vMix BASIC

The vMix Main Screen

The screen-capture below in **Figure02** shows the normal screen to operate vMix. The large window in the upper left is called the Preview Window. The large window in the upper right is called the Live Video Window.
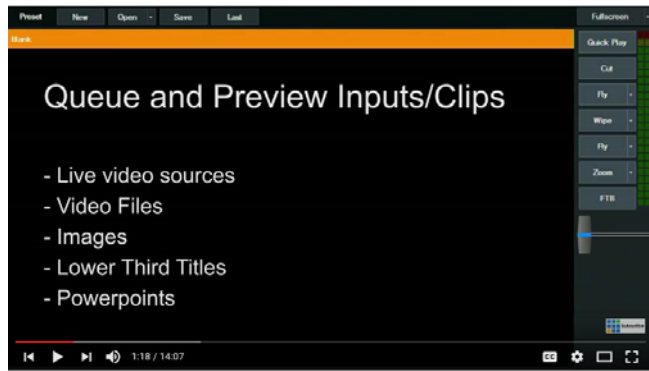

Figure02 – An example of vMix Basic video Main Screen with one camera (in Preview) and a "Test Pattern" JPEG (in Live Window)

The two smaller screens in the lower left are where you bring in new cameras and video to look at…and then select for Preview. The free **vMix Basic** only allows three video sources to be viewed in the lower-left. More-professional products available for sale can allow more video sources to be viewed here.

vMix Preview Window

The Preview Window allows you to queue up a number of video sources and have next selected video ready to become "Live" at the push of a button. What can be selected for display here can be cameras, video files, JPEGs, and PowerPoint slides for a slideshow video stream.

Figure03 – Main capabilities of the Preview Window

You will be able to switch from "Preview" to "Live" by clicking a single button.

vMix Live Program Video Window

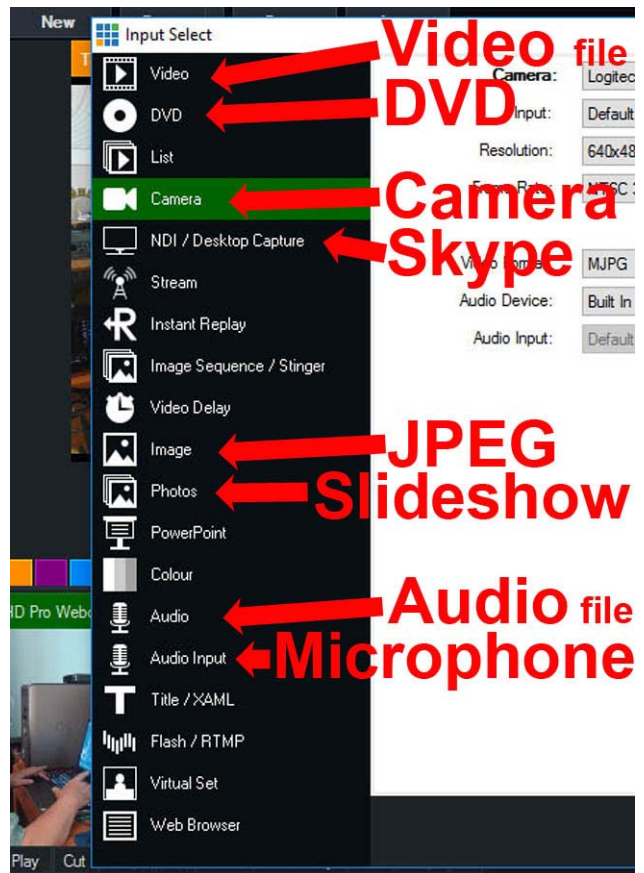The Live Video Window displays the actual video that you have chosen to transmit or stream out.

Figure04 – Main capabilities of the Live Program Video Window

vMix Input Selection List

When setting up a Preview Window for the correct camera and microphone, the user just presses the **ADD INPUT** button in the lower left corner of the Main Screen. A long list of choices for video sources and audio sources will appear as shown in **Figure05**.

Figure05 – List of input sources available to be selected by DATV users.

Here is a partial list of inputs to vMix that can be selected:

- Video files
- DVD
- Cameras
- NDI allows Skype as input
- JPEG file (as Test Pattern, etc)
- A slideshow of JPEG files
- Audio files
- Microphones
- Adding Title overlays
- Your web browser

One important concept about configuring your camera in vMix is selecting the correct frame rate. The selected framerate for vMix is

ALWAYS set to equal the framerate being output from the camera…NOT what you want to transmit via DATV. The vMix tutorials on YouTube spend a lot of effort to explain that:

- PAL = 25p (progressive output fps)
- PAL = 50i (interlaced output fps)
- NTSC = 29.9p (progressive output fps)
- NTSC = 59.9i (interlaced output fps)

vMix Titles

vMix has the ability to allow you add a "title overlay" to your video. I personally do NOT like this feature very much, because it takes up too much room on the screen and is too fancy for my style.

Figure06 – Using the vMix Titles feature to overlay your transmitted video stream

Green Screen Effects

A neat feature of vMix is to create "green screen" tricks to combine a live camera shot (perhaps a talking presenter in the studio) with a video clip of a faraway place. As shown in **Figure07**. There are three parts:
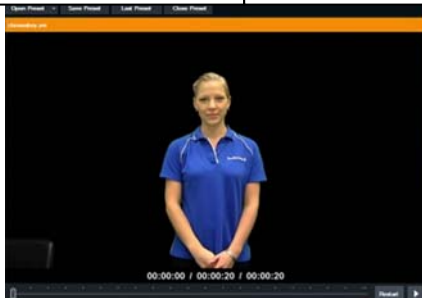
- The studio camera video presenter in front of a actual green sheet (Fig07a)
- Using vMix to make the green sheet become transparent, leaving only the studio presenter remaining (Fig07b)
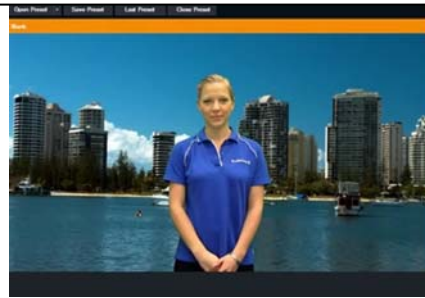- Combining the transparent studio video with a video file.(Fig07c).

Conclusion

The vMix function makes a good companion software package for Digital-ATV. The cost of the entry level **vMix Basic** product (SDTV) is free. The cost of the **vMix Basic HD** product (HDTV) is reasonable at US$60. vMix is very useful if you have more than one video camera being used for DATV transmissions. Or if you use one camera and want to switch to a Test Pattern sometimes or switch to a slideshow sometimes. vMix is a much better product than an old EMPREX model BMP-001 media box for producing DATV slideshows/test-patterns from JPEGs.

Fig07a – live camera video of presenter in front of green sheet

Fig07b – live camera video with green color made transparent

Fig07c – live camera video with transparency over-laid on a separate video stream

Useful URLS

- vMix Product descriptions, prices and downloads – see **www.vMix.com**
- vMix tutorials (including YouTube) on how to use features
  - see **https://www.youtube.com/watch?v=ESWTcbtWq7U&list=PLrm0RX9U0Mzxg-uJeE5Em3DAsgBHHaY8P**
  - see **http://www.vmix.com/support/training-videos.aspx**
- British ATV Club - Digital Forum – see www.**BATC.org.UK/forum/**
- CQ-DATV online (free monthly) e-magazine – see **www.CQ-DATV.mobi**
- Orange County ARC entire series of newsletter DATV articles and DATV presentations
  - see **www.W6ZE.org/DATV/**