



How To Produce A Digital File to Air on CTV

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As most of you are probably aware, we are now living in the digital age. The quality of digital equipment and the convenience of non-linear digital editing have revolutionized the video industry. As new technology takes over, old technology becomes obsolete. You are all aware that the advent of DVD has replaced VHS. What you may not be aware of, however, is that equipment to play VHS tapes is becoming very scarce now that VHS is obsolete. So what exactly does this mean for CTV and its producers? Well, it means that in order for our station to continue running efficiently, we have to adapt to newer technology.

If you watch our channel and see something that is a production of CTV (government meeting replays, non-profit shows, etc.), those are actually digital MPEG-2 files playing on a computer. No tape in a machine, no disc spinning; just a computer file broadcasting from our satellite. Our production staff has already converted to a 100% digital format, so now it's time to show all of you, our community producers, how to do it as well. This online guide will walk you

through how to produce a digital MPEG-2 file to air on our station. The process for doing this is as follows:

1. Capture your footage
2. Edit your project
3. Render and convert your finished video to an MPEG-2 digital file (.mpg)
4. Burn .mpg file to a DVD-R Data Disc
5. Label the disc properly
6. Turn disc into CTV for broadcast

Here are answers to some common questions regarding MPEG-2 file conversion...

What is an MPEG-2 and how does it work?

A good definition of what MPEG-2 is and how it works can be found on *Wikipedia* (<http://en.wikipedia.org/wiki/MPEG-2>). The short answer is that an MPEG-2 is a digital file that contains video and audio. It is the same thing as a tape or DVD, except that it's a computer file that you can just double-click to view on your computer. The CTV cablecast system plays these MPEG-2 digital files from a computer and then broadcasts them over the air and into your home.

How do I make an MPEG-2 file?

First of all, you will need access to a computer, knowledge of digital editing software, and patience. PC's are highly preferred because Mac's cannot handle MPEG-2 files very well (more on that later). You will also need an editing program that is capable of rendering *multiplexed*, or *muxed*, MPEG-2 files. We use *Sony Vegas* (<http://www.sonycreativesoftware.com>) for all of our in-house production, and we highly recommend it to everyone regardless of your digital editing experience.

What is the best editing program to use to make MPEG-2 files on a PC?

For PC Users, you have a couple of options. Here are the most popular "all-in-one" editors that will allow you to capture, edit and export to MPEG-2 that offer

free trials of their software. Please refer to your editing software's manual for information on how to create MPEG-2 files with video and audio.

- Sony Vegas (<http://www.sonycreativesoftware.com/products/vegasfamily.asp>)
- Adobe Premiere (<http://www.adobe.com/products/premiere/index.html>)
- Ulead VideoStudio (<http://www.ulead.com/vs/>)

Here are some great options if you are on a tight budget...

- Womble MPEG Video Wizard (<http://womble.com/products/mvw.html>) (free 30-day trial, \$99.99) - Excellent program for editing MPEG files and converting DVD's to MPEG-2
- QuickTime (<http://www.apple.com/quicktime/download>) with MPEG-2 Playback Component (<http://www.apple.com/quicktime/mpeg2>) (\$19.99) - Must be used in conjunction with *MPEG Streamclip* if you choose not to install QuickTime Alternative (see below)

If you don't have the money for a professional solution, try these **free** solutions:

- Windows Movie Maker allows you to capture and edit your footage and is free with every copy of Windows. Only the Vista version has MPEG-2 support.
- MPEG Streamclip (<http://www.squared5.com/svideo/mpeg-streamclip-win.html>) with *QuickTime Alternative version 1.81* with "Extra QuickTime Plugins installed" (http://www.filehippo.com/download_quicktime_alternative/?2615) - Follow the link and be sure to read the "requirements" section carefully regarding QuickTime and QuickTime Alternative. If you have already downloaded QuickTime and purchased the MPEG-2 Playback Component from Apple, you will not need to download QuickTime Alternative.

What is the best editing program to use to make MPEG-2 files on a Mac?

Most of Apple's editing programs will render an MPEG-2 video stream with no problem; however, NONE of Apple's editing programs will render an MPEG-2 with both the video and audio interleaved in one file. Here's the best process for exporting to MPEG-2 on a Mac:

1. Capture & Edit your footage with *Final Cut Pro*, *iMovie*, or *QuickTime Pro*
2. Render your edited project as a .MOV file (highest quality)

3. Use *MMT-EZ 1.0* (<http://www.macupdate.com/info.php/id/13954>) to convert your .MOV to a multiplexed MPEG-2
4. Copy the MPEG-2 file to a blank DVD-R and bring it to us!

What if I don't have the equipment or computer savvy to make MPEG-2 files?

CTV provides computers and digital editing workshops to teach you how to create an MPEG-2 file to air on our station. Just make an appointment to come down to the station and we'll show you what to do.

Can I give you a regular DVD with my show on it?

Yes, but this is not the preferred method of accepting programs. We can extract the data from your DVD, or "rip" the MPEG file from your disc. Please be aware that there is a possibility that this method can cause a change in the audio or video quality of the program you submit to us.

Can you explain the difference between regular DVD's and MPEG-2's and why CTV needs MPEG-2 files?

Our equipment does not play "regular" or "consumer" DVD's (the ones you just pop in your DVD player and watch). DVD's and MPEG-2 files are NOT the same thing, even though they have many things in common. If you do burn your disc as a "playable" DVD, you can play them back in your DVD player like you would any other DVD. But if you take that disc and look at its properties on your computer, you will see two folders marked VIDEO_TS and AUDIO_TS. The VIDEO_TS folder contains files that end in .VOB – these are the files that contain your program. The VOB files will need to be converted to MPEG-2 files before they can air on our channel.

What we need is a *muxed* MPEG-2 file, or a video file with the .mpg extension that contains both video and audio, burned to a DVD-R data disc. Programs like *MPEG Streamclip* and *Womble MPEG Video Wizard* will convert your playable DVD (and many other types of files) to an MPEG-2 file.

How do I “rip” an MPEG-2 from my DVD?

There are a variety of ways to do this, and a quick Google search will yield hundreds of results telling you how. An easy method is copy the VOB files from your computer and then convert the VOB file(s) to an MPEG-2 using one of the programs we mentioned above.

Using *Streamclip*, simply insert your DVD into your DVD drive, select "File" and then "Open Files" and use the program to navigate into your DVD's "VIDEO_TS" folder. Inside that folder you will see a series of .VOB files (VTS_01_0.VOB, VTS_01_1.VOB, etc.) These files contain your video. Import them all into the program, and then select "Convert to MPEG with MP2 audio."

The process is similar in *Womble MPEG Video Wizard*. Click the “File” tab, right-click and select “Import Items,” browse to your DVD drive and select the appropriate .VOB files. Click the red button in the lower right corner to bring up the “Save As” box. Under “Template,” select “Custom” and then create a new template with an “MPEG-2 Program” Video Stream and “Layer 2” audio. Refer to Womble’s documentation for more details.

What program do I use to burn the .mpg file to a DVD-R?

Any program that will burn **Data DVD** discs should work, but we highly recommend using *Nero* (<http://www.nero.com/enu/downloads.html>) (free trial available) or *CDBurnerXP* (<http://cdburnerxp.se>) which is freeware. Remember to burn the disc as a *Data* disc, NOT as a DVD-Video disc.

Can I use DVD+R or DVD-RW discs? Can I put more than one show on a DVD?

CTV only accepts one show per disc, and we keep the disc on our shelves until the show airs for backup purposes. This is why we recommend using DVD-R discs. "Minus R" discs tend to be cheaper and more compatible than the other types of writable DVD media. Since we keep the discs you bring in for up to one

month, there would not be much sense in using rewritable media since you won't have the disc until you get it back from us. Plus, your disc will already be labeled with that particular program's information.

How do I label my DVD-R disc?

Using a black "Sharpie" pen, write the name of your show at the top of the disc. Underneath that, write the name of the program you are giving us (ex. "Show #4"). On the right side, put the date the show was produced. At the bottom of the disc, write the name of the file that is contained on the disc (should read *filename.mpg*). Underneath the file name, put the length of the program on the disc. This is very



important! Do not estimate this time. Write the **exact** length in HH:MM:SS format. The easiest way to find this out is to double-click the .mpg file, open it in windows media player, and note the length that is displayed in the right-hand column. Make sure your writing is clear and legible so there are no errors in getting your show on the air.

Should there be any black space or color bars at the front or end of my show?

We typically recommend about two seconds of black at the front and end of your program as a buffer area. Other than that that, your file should start at the very beginning of your program, where it will begin broadcasting. There is no need for black or color bars. CTV will broadcast your file from the very beginning of the MPEG-2 file to the very end. Do not include any unnecessary footage in your MPEG-2 file (color bars, headers, title cards, etc.) Your program will air EXACTLY the way you give it to us. Always start at 0:00:00 and end at or before your program's allotted time.