a guide to DVD Jacket Picture creation

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Just so there's no confusion; the term "Jacket Pictures" doesn't refer to the printed artwork associated with DVD packaging (*the correct term for those images is "key art"*). Instead, Jacket Pictures are three progressively smaller MPEG-2 still images that reside in a folder named **JACKET_P**, and are found on many theatrical releases. Interestingly, the creation of those images continues to be one of the least documented [or understood] features of DVD authoring outside Hollywood.

How are they used? When you hit the STOP button on DVD players that support this feature, the player immediately looks for the JACKET_P folder on the disc. If the folder exists, the player loads the largest image in the folder and displays it. The two smaller images are used by supporting DVD changers (*carousels*) as a method of on-screen multi-disc identification and selection.

Not all DVD players are *Jacket Picture aware,* but many are and their numbers are growing, making their addition a worthwhile effort for any disc you intend to distribute.

FILENAMES AND SIZES

The naming of the Jacket Pictures [and their pixel dimensions] vary depending upon whether the DVD is authored in NTSC or PAL format:

NTSC Naming Conventions	**Pixel Dimensions**
J00___5L.MP2	720x480
J00___5M.MP2	176x112
J00___5S.MP2	96x64
PAL Naming Conventions	
J00___6L.MP2	720x576
J00___6M.MP2	176x144
J00___6S.MP2	96x80

Correctly naming both the files and the folder is critical, and must be exactly as shown. Also, all letters used in the folder name and filenames must be in caps. The 00's used in the filenames are numeric "zeros", followed by 3 underscores.

The folder name — **JACKET_P** — uses a single underscore between the "T" and "P".

For the sake of player compatibility, all three files should be created and placed in your final JACKET_P folder even if you do not have a DVD changer.

PICTURE CREATION

Hollywood titles tend to use either the DVD key art or film title as the Jacket Picture, but any acceptable image will do, including a video frame or something created in Adobe Photoshop® or Adobe After Effects®, etc. Be aware that the same rules that apply to broadcast video apply to Jacket Pictures.

Black and white levels must fall within the range of 16 to 235, respectively, and colors for NTSC discs must be broadcast-safe. Also, text and graphics should be kept within the title-safe and action-safe areas (*inner 80-percent and inner 90-percent of the image area, respectively*). Final image sizes (i.e. *pixel dimensions*) are the same as the DVD standard; 720x480 for NTSC, and 720x576 for PAL.

The intermediate RGB file format you choose can be anything workable, but my personal preference is JPEG. It's easy to cross-convert, supports 24-bit color, and when set to its highest quality level (least compression) is essentially lossless.

4:3 OR 16:9 ANAMORPHIC WIDESCREEN ?

Just like their video counterparts, Jacket Pictures can be created in either 4:3 or 16:9 anamorphic widescreen formats. If your DVD is anamorphic widescreen then so should be your Jacket Pictures. *As the creation of still images in 4:3 for broadcast is otherwise well documented, I'll only cover anamorphic widescreen images in this example.*

Assuming the NTSC DVD standard and the use of Photoshop 7, start with an RGB image size of 864x480 (*these dimensions are the square-pixel anamorphic widescreen equivalents for working on a computer monitor*).

From within Photoshop begin by going to **File**, then **New**, then from the **Preset Sizes** drop-down menu select **864 x 480 Wide NTSC DV/DVD**, then from the **Mode** drop-down menu select **RGB Color**, and then click **OK**.

Once your graphic is complete, save it as a layered PSD file, then go to **Layer**, and select **Flatten Image**. Next, go to **Image**, then **Adjustments**, then **Levels**. Set the *Output Levels* to 16 and 235, respectively, and click **OK**. Next, go to **Filters**, then **Video**, and apply the **NTSC Colors** filter.

Now do a resize to 720x480 — this squeezes the image to the dimensions required for DVD authoring (*when played on set-top DVD players, the image will automatically be either expanded to fill 16:9 widescreen TVs, or letterboxed to fit 4:3 televisions*).

To do this, go to **Image**, then **Image Size**. *Un*check **Constrain Proportions**, *check* **Resample Image**, and select **Bicubic** from the drop-down menu. Change the **Width** to 720 (*keeping the Height at 480*), and click **OK**.

Finally, do a *save for web* in JPEG format. Go to **File**, then **Save for Web**. Under *Settings* from within the *Save for Web* workspace select **JPEG**, then set the *Quality* to **100**. *Un*check all other options and click **Save** (*I've chose the filename J00___5L.jpg for use in this article*).

ONE PICTURE, THREE USES

Regardless of the graphic you choose for your Jacket Pictures, you only need create the largest of the three (*you can of course, create a unique image for each size needed if you prefer*). As I'll explain later, this one image will be resized within the MPEG encoder to accommodate the two smaller images needed for DVD changers.

CREATING THE MP2 FILES

These next steps are the most complex and likely the reason why so little is understood about Jacket Pictures outside Hollywood authoring houses. Aside from prohibitively expensive tools like *Scenarist Professional*™, virtually *all* MPEG compression tools and DVD authoring software currently lack the features necessary for Jacket Picture creation. Though some applications support the adding of DVD-ROM folders (*i.e. JACKET_P*) during authoring, they have no provision for creating the MPEG-2 still pictures themselves.

The good news is a readily available solution exists that is both viable and *cheap*. Using the versatile [and downloadable] TMPGEnc Plus v2.5 MPEG encoder together with *much* trial-and-error (*thank you rewriteable DVD's!*), I was able to assemble something that actually *works,* and works reliably.

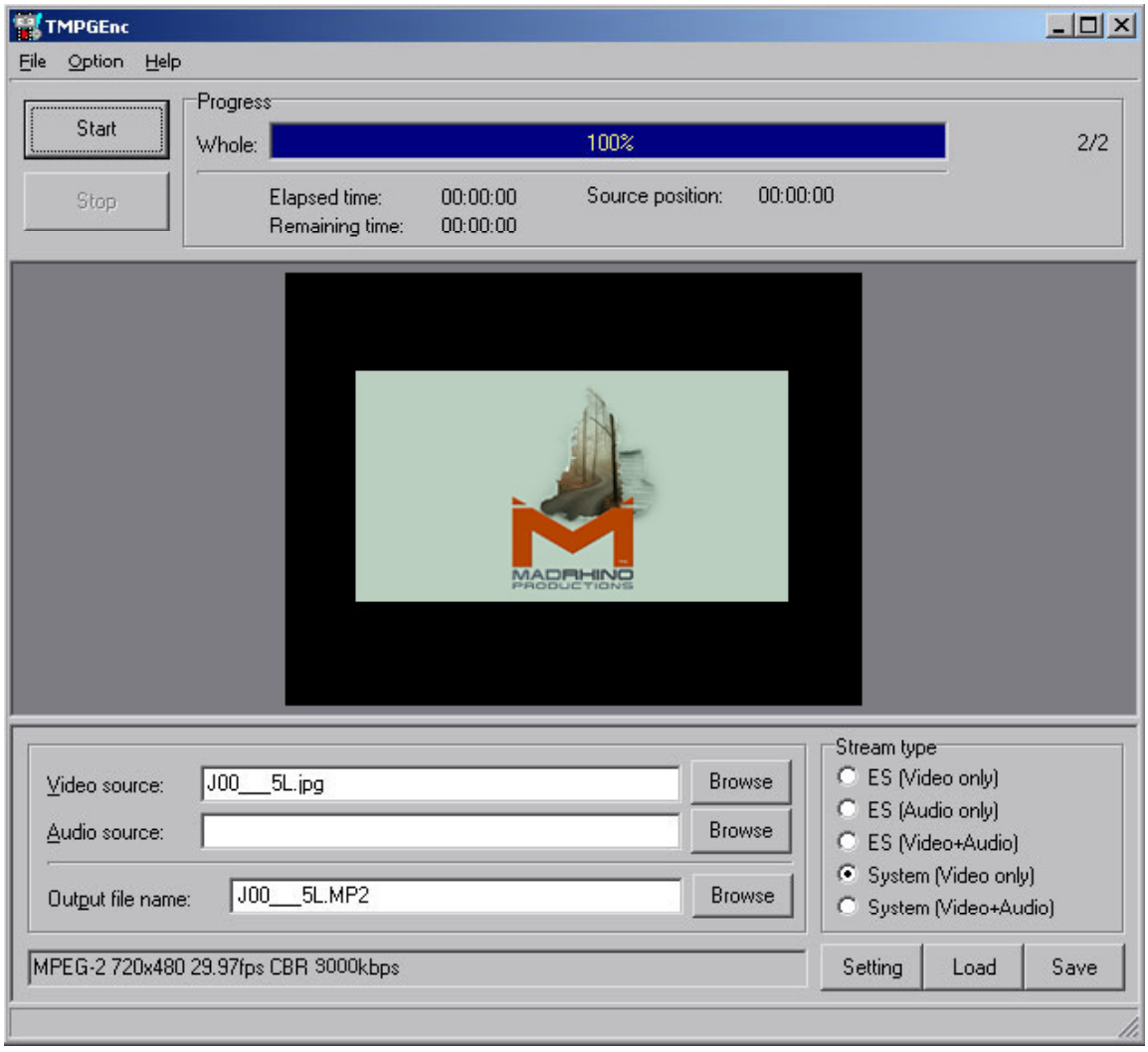
That said, I do not claim to offer *the* standard for Jacket Picture creation here, only methods that [for myself] have proven reliable and repeatable.

MPEG-2 STILL IMAGE CONVERSION

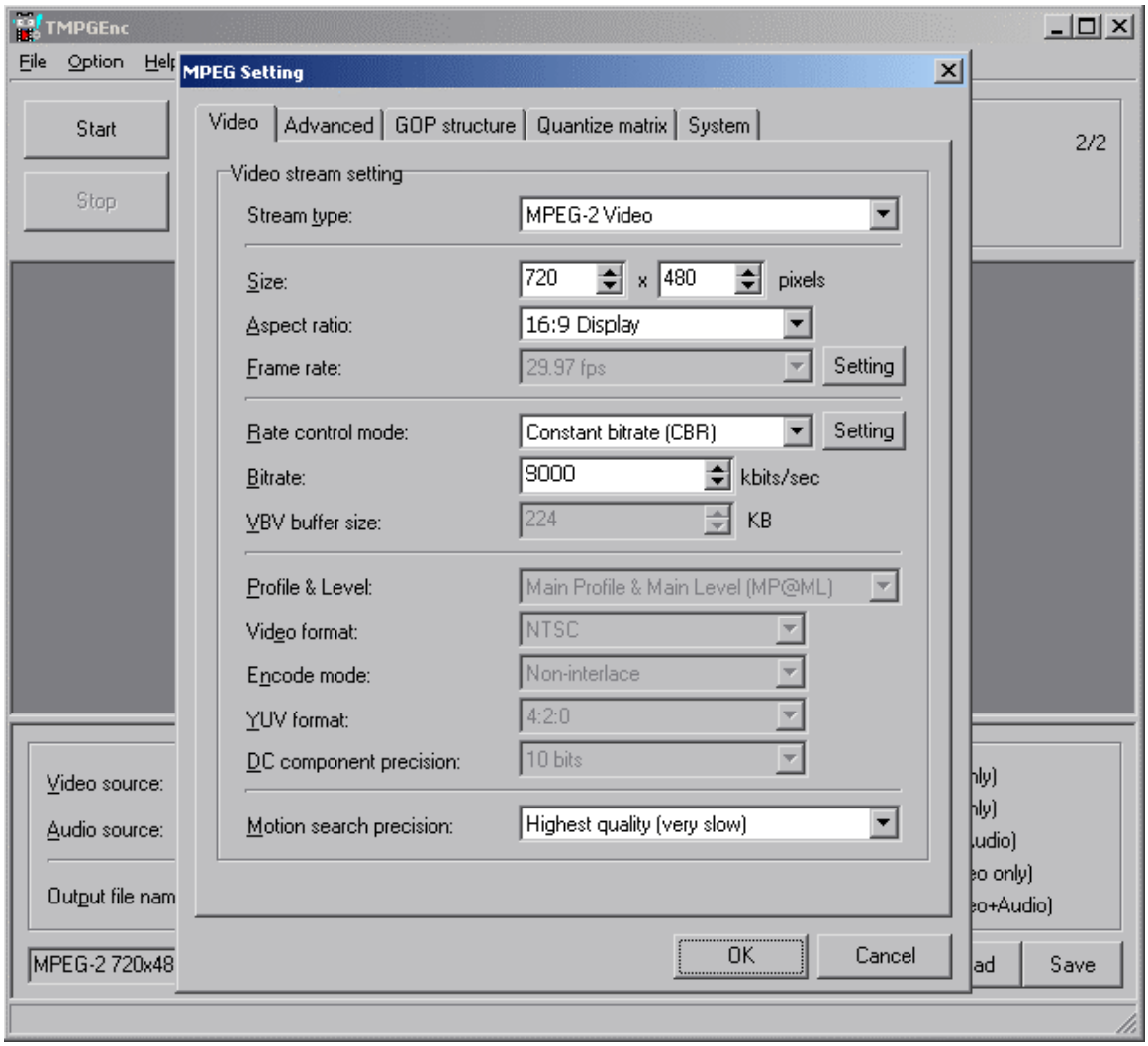
While myriad MPEG-2 encoders exist, TMPGEnc Plus offers the broadest range of encoding options in its class, including some critical to successful Jacket Picture creation that other, more expensive products lack.

The following are screenshots from TMPGEnc Plus showing which options should be selected and how each option should look. Noteworthy too are the values shown in the grayed-out items. Many of these can be *unlocked* by the user and their values modified to match those shown here.

The first picture you'll want to create is J00___5L.MP2. After launching TMPGEnc Plus, open your JPEG still image as the **Video source**, and set the **Output file name** as J00___5L.MP2



Check the radio button for **System (Video only)** and click the **Setting** button to launch the *MPEG Setting* window.



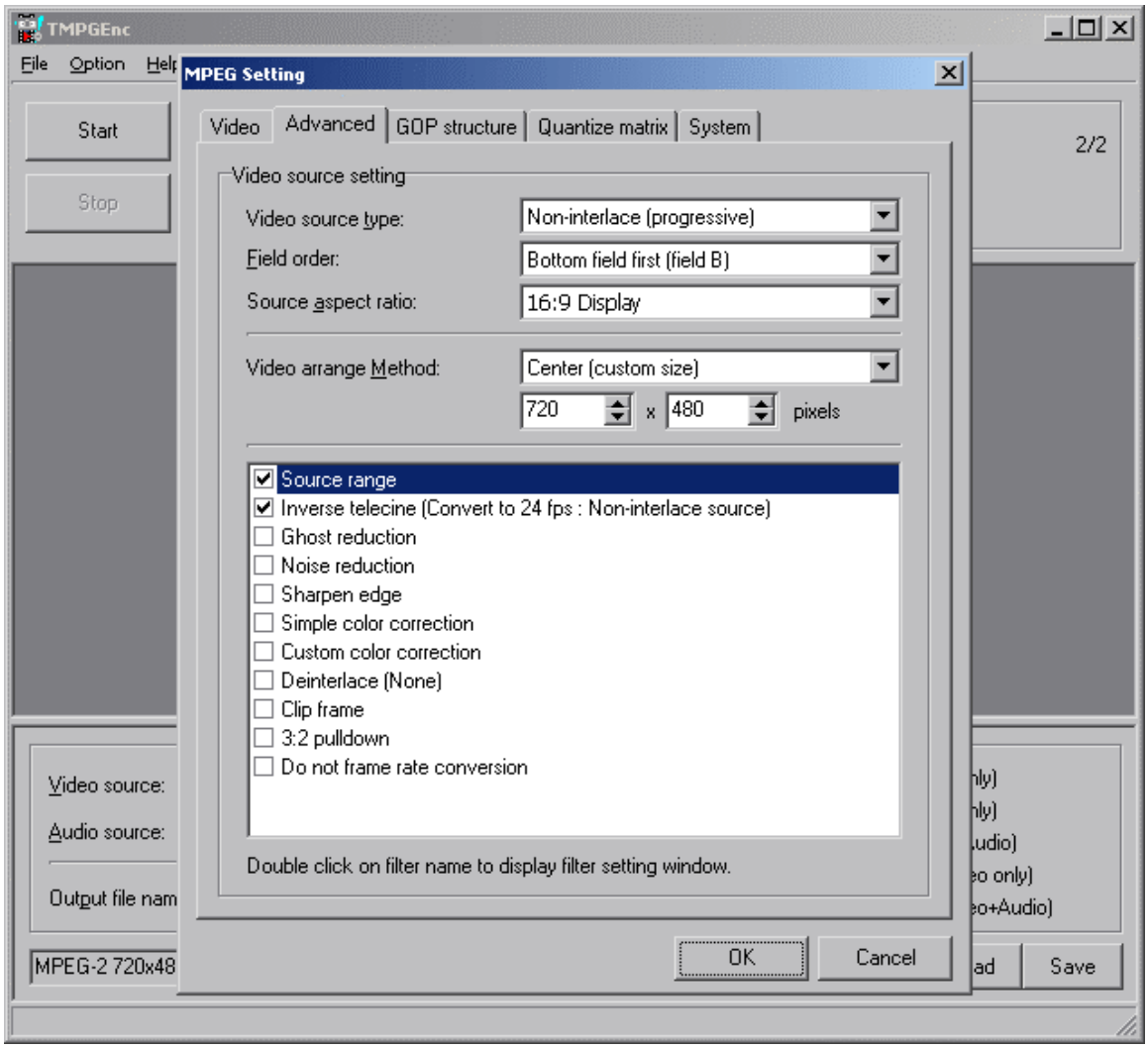
If you're working in *anamorphic widescreen* set the **Aspect ratio** as shown, otherwise, select **4:3 Display** from the drop-down menu.

The values you enter in **Size** must match the pixel dimensions associated with each Jacket Picture file you create (*see FILENAMES AND SIZES at the beginning of this article*).

If required, grayed-out items can be changed by first unlocking them. To unlock or lock an item, click on its title (*i.e. Aspect ratio or DC component precision, etc.*).

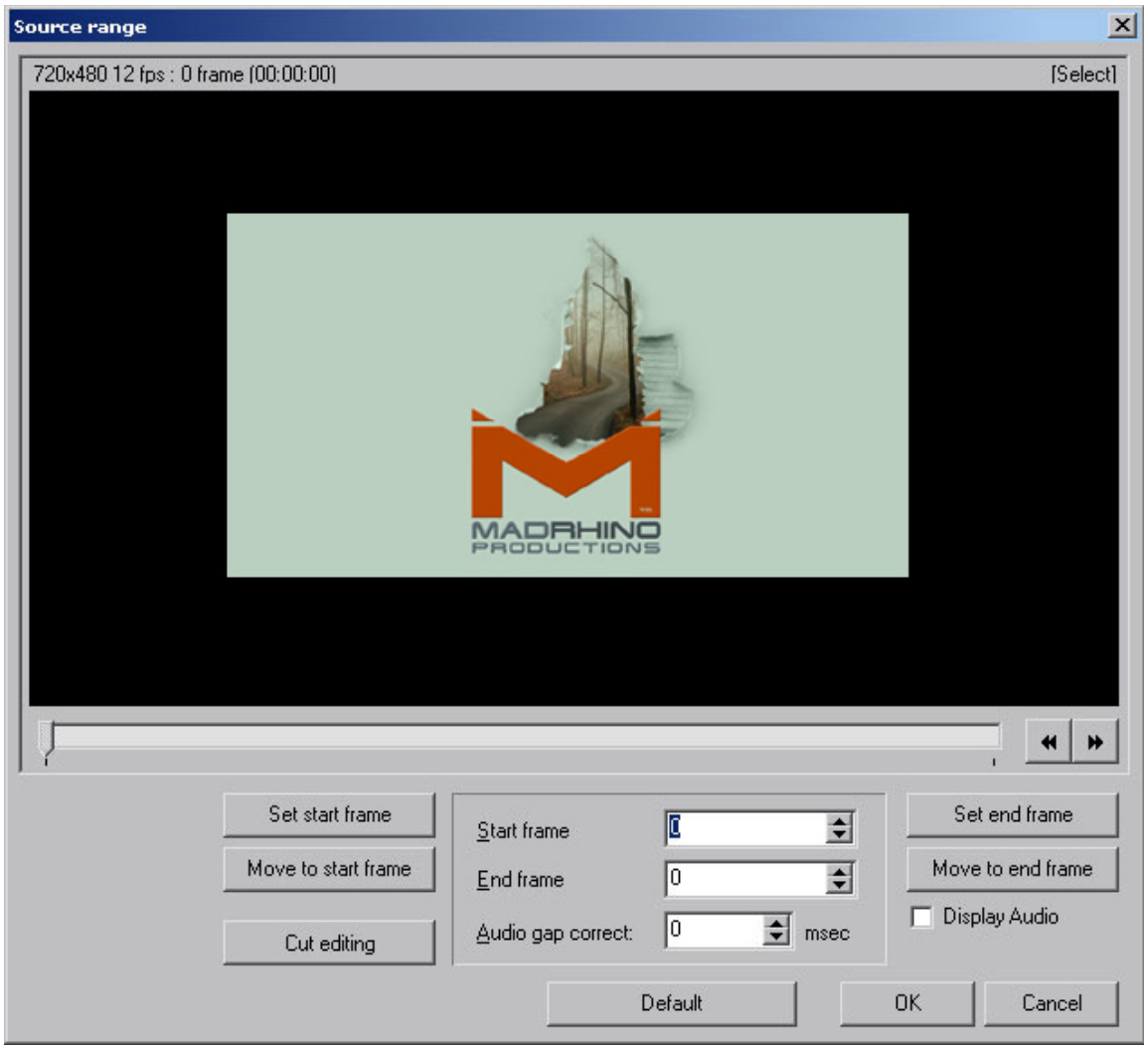
The setup shown yields very high quality Jacket Pictures while staying within the DVD player specification. Any increase in bitrate beyond 9Mbps will not noticeably improve quality and may exceed the capability of some DVD players.

Once your settings match those shown, click the **Advanced** tab.



Again, match your settings to those shown. If you are not working in anamorphic widescreen then select *4:3 Display*. Also note the pixel dimensions entered here must match those entered under the **Video** tab.

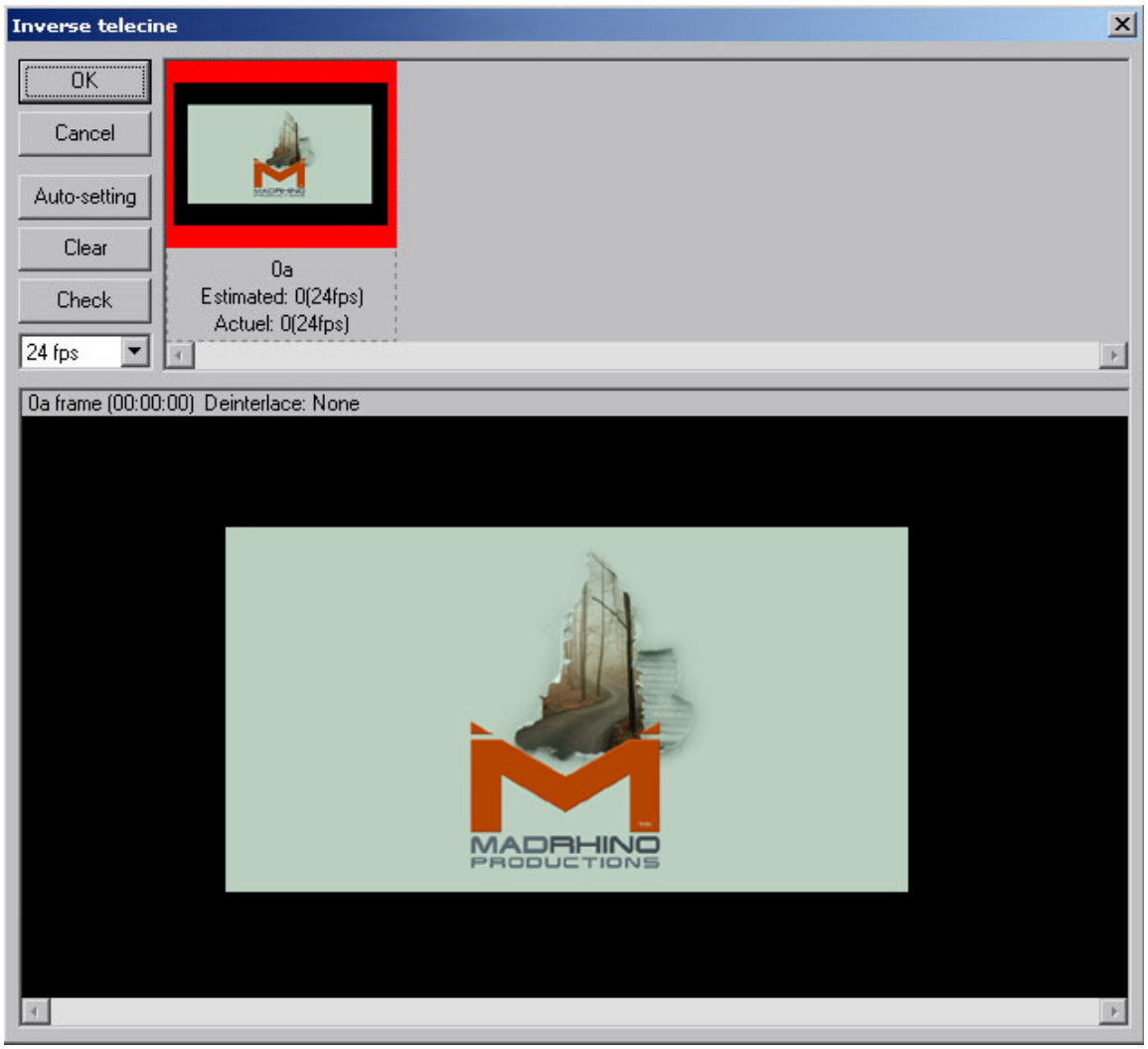
When your settings match these, click **Source range** (*do not uncheck its box, just click the words Source range*) to launch the Source range window.



Here, set all three values to zero and click **OK**.

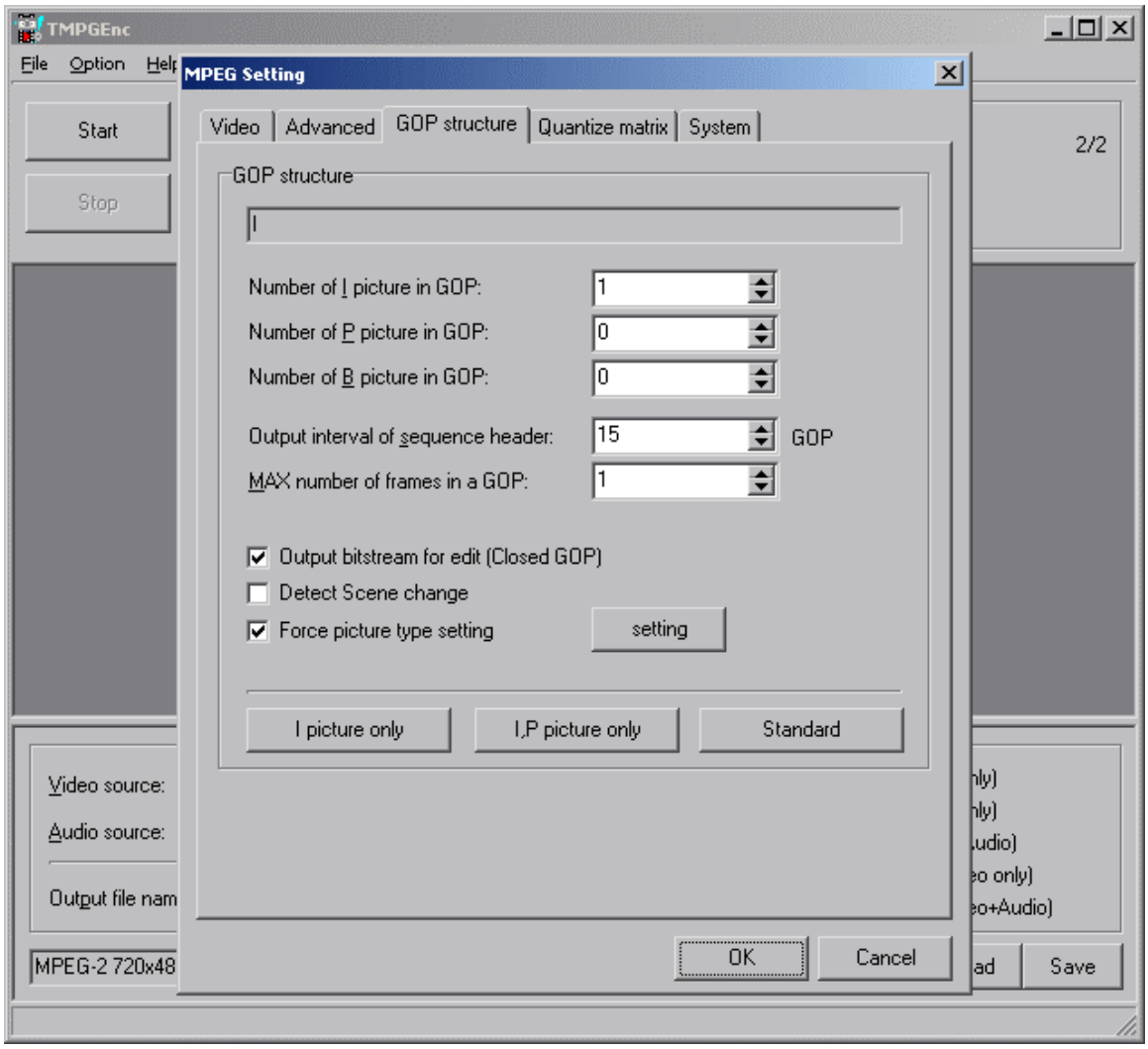
Inverse telecine: Even if your DVD contains 24 fps footage, the addition of this next step may or may not be required, however, a cursory examination of the Jacket Pictures from a popular Hollywood release revealed the following was encoded into each of the files.

From the Advanced tab of the MPEG Setting window, check the box for **Inverse telecine** then click **Inverse telecine** to launch the Inverse telecine window (*as with Source range, do not uncheck its box, just click the words Inverse telecine*).



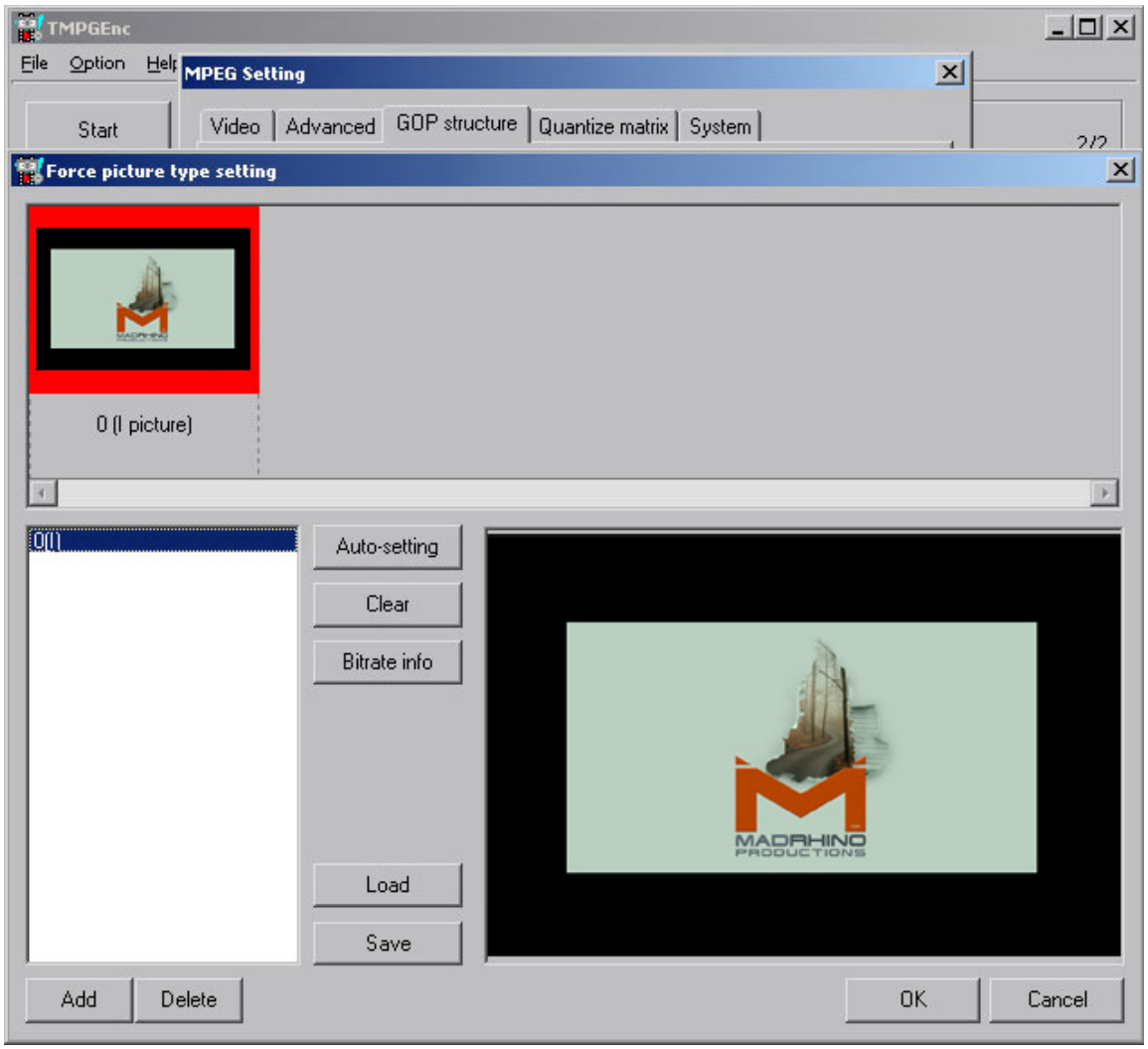
Click the thumbnail image at upper left so that it becomes highlighted as shown — then, from the drop-down menu, select **24 fps**. When your values match these click **OK.**

Next, click the **GOP structure** tab in the MPEG Setting window to launch the *GOP structure* window.



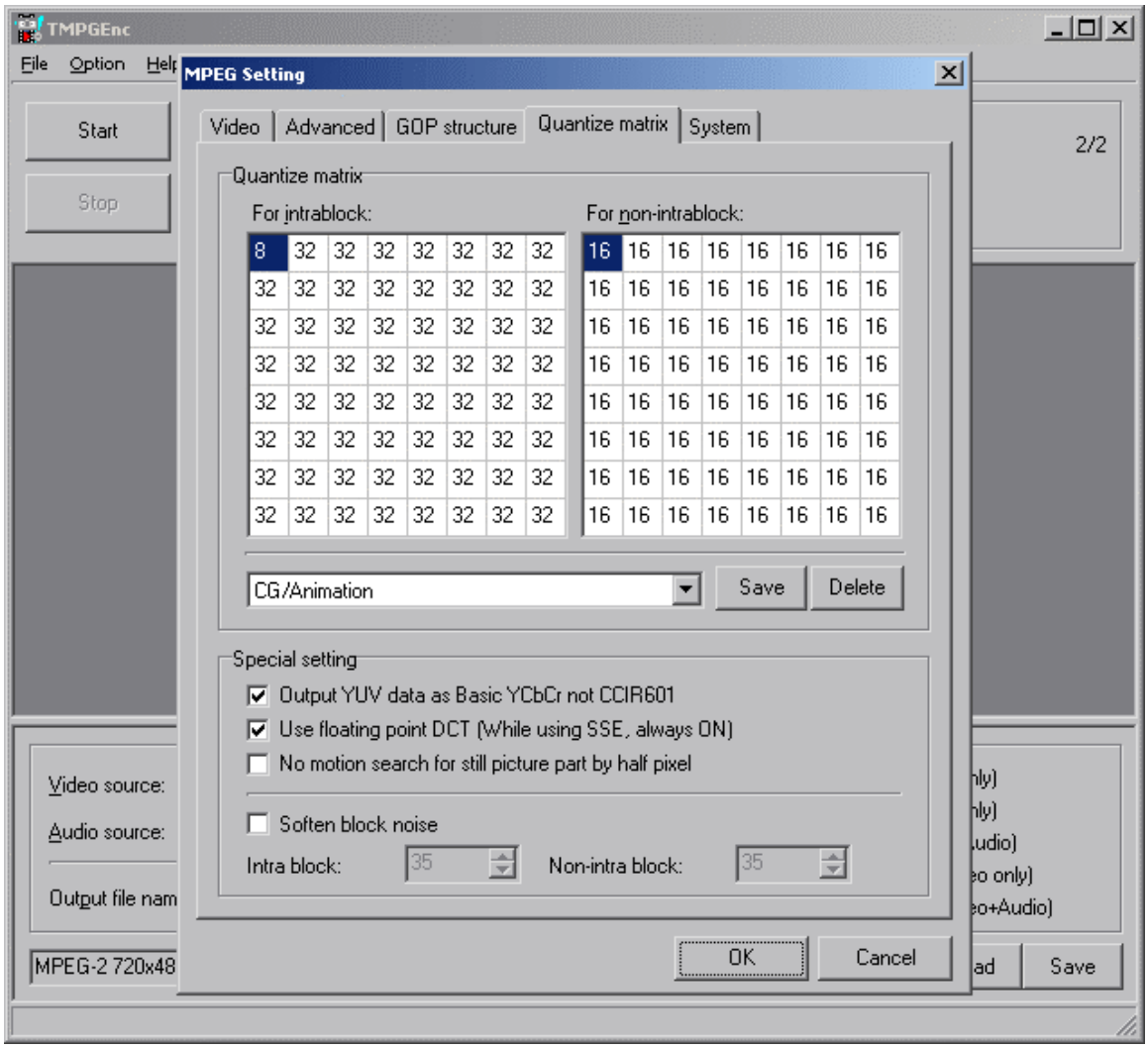
Click the button for **I picture only**, then check the two boxes indicated, and manually enter all other values as shown.

Next, click the **setting** button to launch the *Force picture type setting* window.

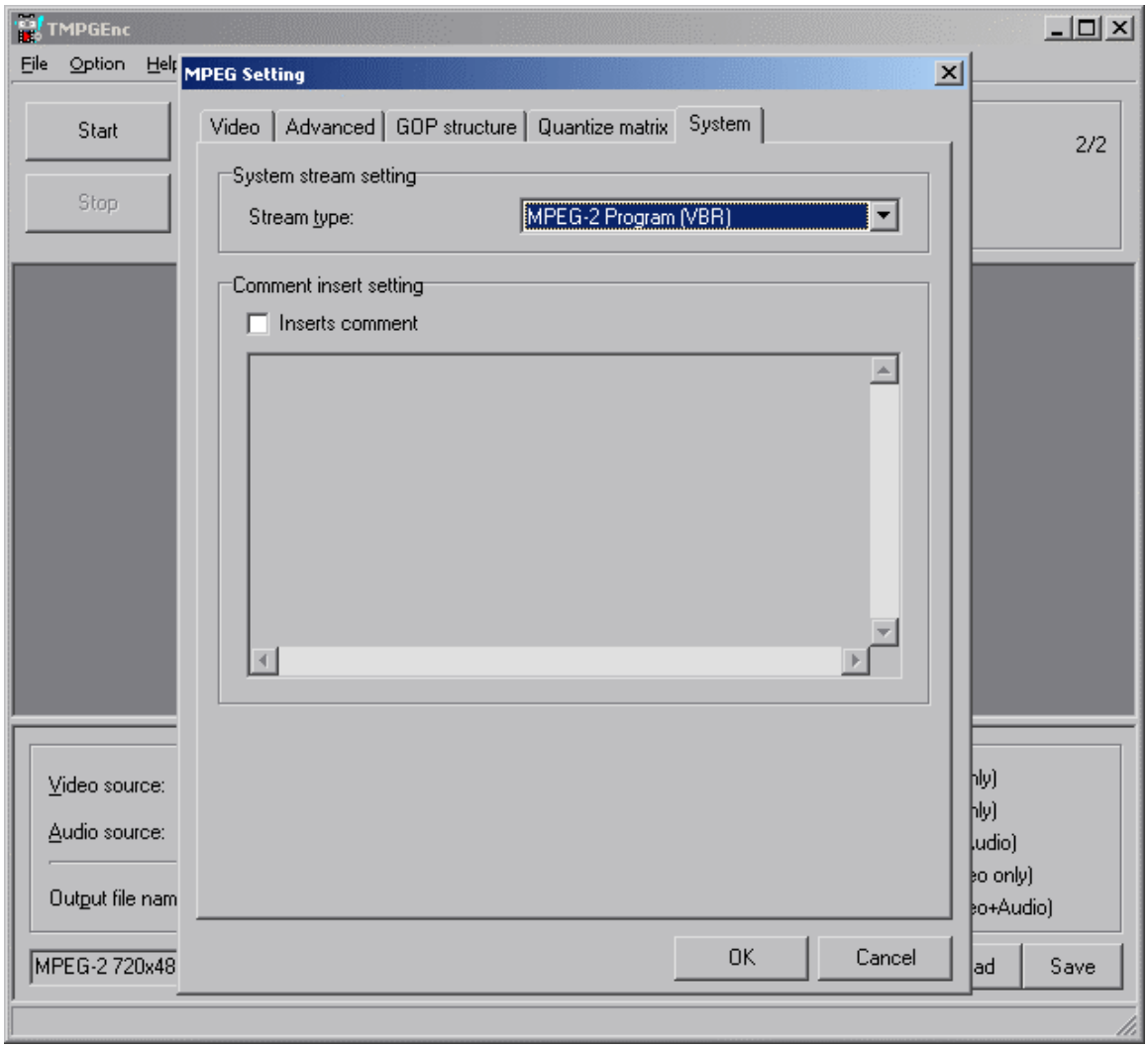


Click the thumbnail image at upper left so that it becomes highlighted — the values below the thumbnail image should then appear as shown: 0(1)

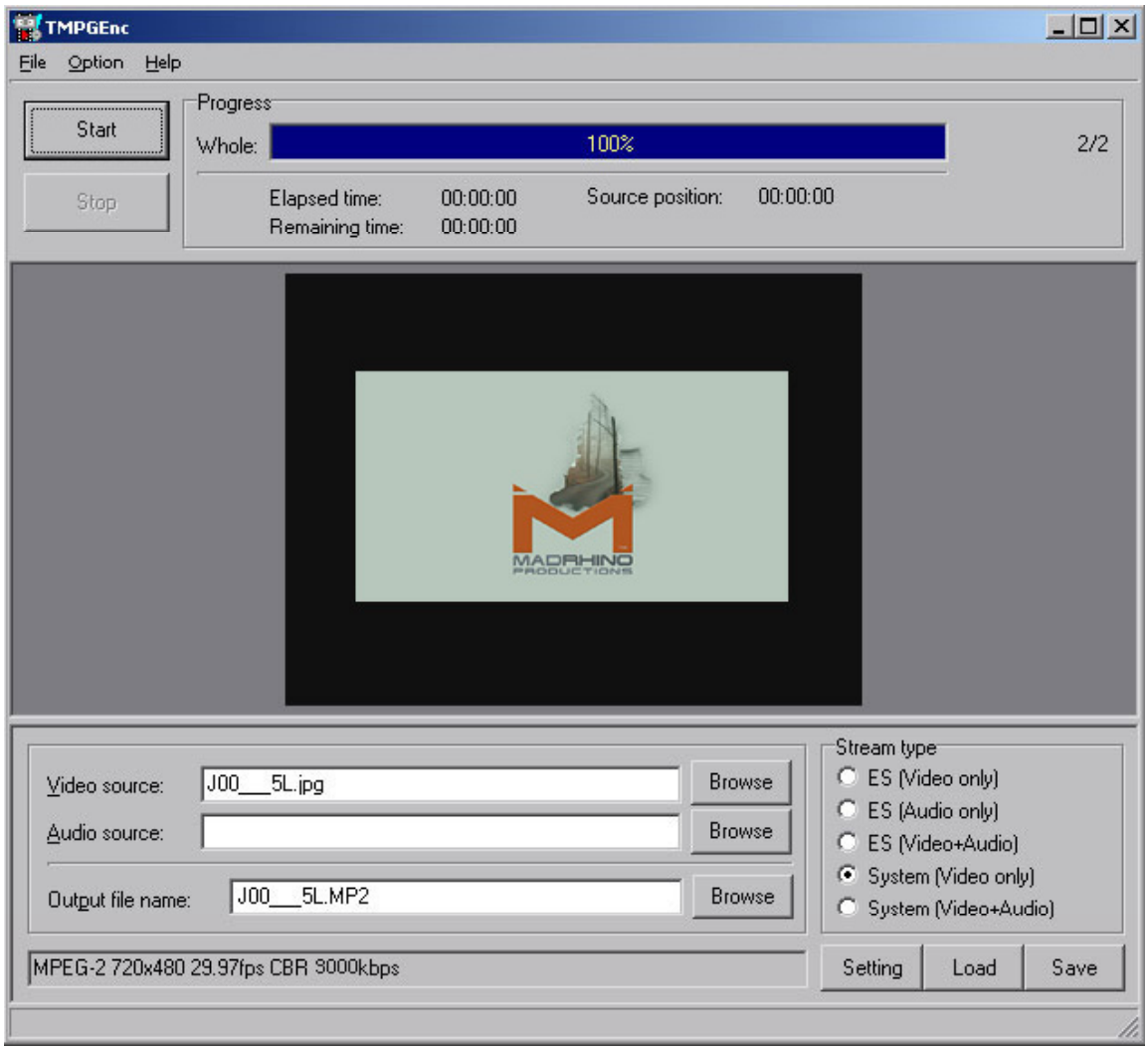
When your values match these click **OK.** Next, select the **Quantize matrix** tab to launch the Quantize matrix window.



To maintain the best looking Jacket Picture select **CG/Animation** from the drop-down menu (*this option provides the highest possible image quality*), check the two boxes as shown, then click **OK**.



Finally, click the **System** tab to verify the Stream type is set to *MPEG-2* as shown. That done, you can click **OK** and close the *MPEG Setting* window.



Ready? All your settings match the ones I've shown here? Great! Click **Start** and your first Jacket Picture is done.

CREATING IMAGES TWO AND THREE

To create the two subsequent Jacket Pictures, simply edit the *Output file name*, and change *both* instances of the image pixel dimensions (*see the descriptions under FILENAMES AND SIZES at the beginning of this article*). Your original full-sized Video source image can be reused for each of the two smaller images (*TMPGEnc automatically resizes the output image to match the pixel dimensions you enter*).

The pixel dimensions are accessed by clicking **Setting** from this window, then the **Video** tab (*first instance*), and the **Advanced** tab (*second instance*). All other settings remain unchanged.

*Tip: To save your settings as a template for future use, click **Save** and name your template something recognizable like **JacketPictures(16x9NTSC).mcf** (when you click Save, TMPGEnc Plus automatically opens its Template folder for you).*

ADDING THE JACKET_P FOLDER TO YOUR DVD

The final step is placing the JACKET_P folder and its three Jacket Picture files on your DVD (*always check the filenames names within the folder for correct spellings, case, and file extensions prior to burning the DVD*).

The JACKET_P folder resides in the root directory of your DVD — the same location as the VIDEO_TS and AUDIO_TS folders (*Tip: To maximize DVD player compatibility, always add the AUDIO_TS folder even if it is empty*).

If your DVD authoring software supports the adding of ROM folders you're home free. If not, you'll need to use something like *PrimoDVD*™, *Easy CD & DVD Creator*™, or similar DVD file manager to burn the AUDIO_TS, JACKET_P, and VIDEO_TS folders manually. *Check with the software mfg. first to see if burning these folders to your DVD media is supported*.

One final note, I don't know if this a quirk in rewriteable DVD media in general, but it has been my experience that the ability of the DVD player to read and display Jacket Pictures can be a hit-or-miss proposition with DVD-RW discs. However, once burned to both Maxell® 4.7GB *DVD-R for General* media, and Pioneer® 3.95GB *DVD-R for Authoring* media, I encountered no problems whatsoever.

GETTING THE MPEG-2 ENCODER

TMPGEnc™ Plus v2.5 MPEG encoder

Available from: http://www.pegasys-inc.com/en/index.html

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