

## Care and Feeding of MPEG video files

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MPEG (Motion Picture Expert Group) format video files use *lossy* compression. Once an MPEG is created, quality is permanently lost, cannot be recovered. Similar to working with jpeg graphics.

Each time you re-render (i.e. edit) an mpeg, further quality loss. Very evident.

Because of this, in the past, MPEGs were considered a *delivery* format. Video was captured and edited, usually in DV\_AVI format. Once editing was complete, the AVI file was converted to MPEG, primarily for DVD authoring. If further editing was required, the AVI file would be re-edited, and the MPEG re-created.

Because MPEG files are much smaller, and because current technology allows for real time hardware MPEG encoding, more and more capture devices are creating MPEG files instead of DV\_AVI files.

Capture and turner cards record mpeg video on your hard drive. (I.e. Hauppauge.)

Some new camcorders (SONY!) record direct to DVD. (Essentially MPEG files)

Stand alone DVD recorders create MPEGs on DVDs

What, then is the best way to deal with these files?

Two types of MPEG files:

<b>MPEG1 (Motion Pictures Expert Group)</b>
Lossy compression, 325 x 240, 29 frames per sec. Used primarily for Video CDs (VCD) Quality similar to a fuzzy VHS tape

<b>MPEG2 (Motion Pictures Expert Group)</b>
Lossy compression, 480x480 (S-VCD) or 720 x 480 (DVD), 29 frames per sec. Used for S-VCDs and DVDs. Excellent quality.

Quality of mpegs is determined by resolution and bit-rate, or data rate. Lower the data rate smaller the file, lower the quality. Higher rate: Larger file, better quality.

When creating MPEG files, an irrevocable decision about bit rate, quality and file size must be made. If the final goal is to put the file on a video DVD this can be very difficult to estimate! 4.3 GB max can fit on single layer DVD (Not 4.7 GB!), 700 MB on a CD-R. You must set the bit rate so that the final, edited MPEG will meet these limitations.

This is one of the major disadvantages of working with MPEG files vs DV\_AVI files.

Note that data rates for MPEG1 files cannot be adjusted. For MPEG2 files, ideal data rate is between 6,000 to 7,500 Kbps (Kilo bits per second.)

Two types of compression, Variable Bit Rate and Constant Bit Rate. VBR can yield smaller files, CBR file size easier to calculate.

Some math: To convert Kbps to GB/hr multiply by .0004287.  
For example  $6400 \text{ Kbps} \times .0004287 = 2.74 \text{ GB per hour}$ . This is approximate!  
Experiment with your equipment.

How to edit without loss of quality? "Smart" MPEG editors only re-encode the edited areas of an MPEG file. This technology reduces the rendering time as well as the quality loss. Only the edit points in a file must be re-encoded.

it is not always easy to tell if a given product includes the "smart MPEG" technology. Most editors that will edit MPEG files will re-encode the entire file when rendering.

Two good companies:

Womble. ( <http://www.womble.com> ) They sell two products, *MPEG-VCR* and *MPEG Video Wizard*. *MPEG\_VCR* is \$70 and *Video Wizard* is \$120. Trial versions are available for each program.

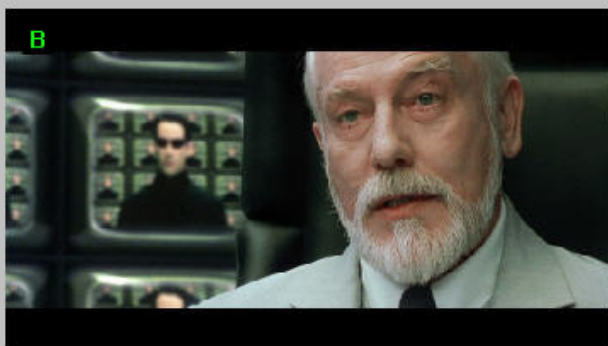


Video Re DO: <http://www.videoredo.com> (\$50) Trial version is available

VideoReDo - D:\MATRIX\_RELOADED\_DISC\_1\VIDEO\_TSWTS\_01\_6.VOB\*



File Edit Joiner Tools View Ad-Detective Help



Cut List

00:01:35.17 - 00:03:56.16  
00:08:01.23 - 00:09:28.00  
00:14:32.19 - 00:16:54.15

Remove Selected Cuts

Invert All Cuts

Time

Program: 00:21:45.20

Selection: 00:21:45.20

Output: 00:15:36.19

Joiner:

Switch



Timeline controls including a green progress bar with red markers, a central playhead at 00:11:22.03, and buttons for 'Mark In' and 'Mark Out'. The total duration is 00:21:45.20. Below the bar are several navigation buttons: left arrows, a yellow play button, and right arrows.

Bottom control bar with a volume knob, a yellow play button, and buttons for 'Cut Selection', 'Trim Unselect', a red double arrow button, and 'Save As...'