

# MPEG Streamclip 1.2 for Windows XP/Vista

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HIGH-QUALITY CONVERTER FOR MPEG-1/MPEG-2 FILES AND TRANSPORT STREAMS WITH PLAYER AND EDITING SUPPORT, SUITABLE FOR MPEG-2 CAMCORDERS, DVD AND DVHS RECORDERS, DVB SET-TOP BOXES; COMPATIBLE WITH MANY AUTHORING APPLICATIONS.

NOW CAN MAKE, EXPORT AND EDIT DIVX MOVIES; IMPROVED IPOD EXPORT FROM AVI, DIVX, MPEG; VIDEO FILE DOWNLOAD. COMPATIBLE WITH YOUTUBE MP4 VIDEOS.

*Requirements: Windows XP or Vista; KL QuickTime Alternative 1.81, or Apple QuickTime 7 and later. For MPEG-2, install QuickTime Alternative 1.81 (exactly this version) with the Extra QuickTime plugins.*

*To make/edit/export DivX movies you have to install the 3ivx codec ([www.3ivx.com](http://www.3ivx.com) or [www.free-codecs.com/3ivx\\_download.htm](http://www.free-codecs.com/3ivx_download.htm)). And make sure you have installed Windows Media Player 10 or higher.*

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### COPYRIGHT

This software has been written in Italy by Stefano Cinque, and it is distributed by his own company "Squared 5 srl". All the code used in this application is absolutely original, including the AC3 decoder, the AVI importer, and the tools for the DreamBox. No third party code has been used in this application, even when suitable open source code was freely available. And the design of this software is also original; no third party applications have been reverse engineered to make MPEG Streamclip work. This application works just because it's well written, and works well because it does not make use of recycled source code.

### NEW IN VERSION 1.2

#### CONVERSIONS

Added a simple watermarking feature, with a new text field in the Adjustments panel. The text will be superimposed in the lower-right corner of the exported movie or frame.

Added two presets for the iPhone, you'll find them with the "iTunes..." button in Export to MPEG-4, and also in Export to Other Formats for some formats.

Solved a compatibility issue with the Avid DV codec.

Minor fixes and improvements.

Added a cropping option to choose whether you want to crop the source frame, the destination frame, or crop and scale the destination.

Added an option to save a file as DV using the "Save As" command; it works only if the source file format is DV.

Batched "Save As" allows to choose the destination file format.

Added support for AIFF files created with some Windows applications.

Fixed an issue in which the data rate limit was not enabled for 3ivx 5.0.

Fixed a potential problem with very long NTSC movies and frame blending.

Improved export of progressive download movies.

Improved AVI 2.0 export.

More audio sample rates in the exporters

Added some presets for the Apple TV

Video exporters can export just the audio track if you choose "No Video", or the source has no video tracks

All "Convert to" commands except "Convert to TS REC" and "Convert to TS VID" can convert all audio tracks of the MPEG stream; all "Demux" commands are still limited to only one audio track per pass (but this may change in the future).

The preference option "Fix streams with data breaks" can repair more audio breaks

Fixed a problem which could cause the MPEG-4 export to fail near the end of encoding

"Save As" now saves all audio tracks even after editing, regardless of preference settings

"Save As" after "Fix Timecode Breaks" now saves the fixed timecode instead of the original timecode

Export of progressive download movies works as expected, even when the movie has not been fully loaded

The frame exporter remembers the name of the last exported picture, and adds a number when used multiple times

#### EXPORT TO OTHER FORMATS

A new "Export to Other Formats" command adds a completely new way of exporting files and movies with MPEG Streamclip. Most QuickTime-compatible exporters can be used with MPEG Streamclip now.

Note that only some exporters are recognized by MPEG Streamclip. Also note that there are still some bugs and issues with some exporters.

Finally, note that the preview window in "Export to Other Formats" shows the pictures BEFORE ENCODING, not after encoding like in other export commands. To check the actual video quality you have to open the destination file. You don't have to export the whole movie to check the quality since in most cases, if you stop an export operation you may still get a valid exported file.

#### OPEN URL

Added playback support for YouTube.

Fixed download support for YouTube, Google Video, Yahoo! Video.

Added playback and download support for Veoh videos: the movies will be opened in their original full-quality format (if that format is supported by MPEG Streamclip).

Fixed a problem when opening with Open URL some movies without sound.

Fixed a bug in the Open URL command.

Added download support for Yahoo! Video movies.

Added an option to convert movies while downloading them; currently does not work with WMV or FLV movies since playback and conversion of WMV and FLV is not yet supported.

Renamed the options "Open as streamed file" and "Open as remote file" respectively to "Progressive download" and "Random access".

The option "Random access" can open HTTP and now even FTP streams, without prior download. MPEG files larger than 4GB can be opened in their full length with "Random access"

#### PLAYBACK

The Home and End keys (close to the Page Up/Down keys) can be used to skip about 1 minute forward/backward; for some streams these keys may attempt to reach a keyframe for faster access.

With URL-based streams opened with random access, if you click the central Play button of the player, at least 5 seconds of the stream will be preloaded before playback starts; other buttons/keys will preload only 1 second.

#### BATCH LIST

Concurrent tasks: a new option lets you choose the number of simultaneous tasks to be performed, up to 4 tasks at the same time (note: this feature does not take advantage of multiple processors yet).

Another option automatically starts batch processing as soon as you add a task.

If you use "Add Files..." more than once, an option lets you reuse the previous folder and settings.

Added the "Open Anyway" option to the batch list

Batch download of all movies in a page (e.g. search results) from YouTube, Google Video, Yahoo! Video

Redirection of a single file allows you to change the destination folder as well as the destination filename

In some cases, when you add files to the batch files and some destination files already exist, you may opt for automatic renaming

Less memory used when batch downloading URL-based files

#### OPEN FILES

Fixed a problem with some AVI movies that failed to open properly or played just a little part.

#### COMPATIBILITY

Fixed a sound playback issue with some DivX files and QuickTime 7.5.

Fixed some compatibility issues with Windows Vista, and a problem with Windows XP.

Fixed an issue which prevented downloading videos from Google Video.

Fixed a compatibility issue with YouTube

Added compatibility with .TOD files (JVC)

## PREFERENCES

The preference option "Resample audio to 48 kHz" now works with Convert to MPEG with MP2 Audio if the source is MP2 audio with a sample rate less than 48 kHz. Re-encoding of MP2 is performed with the bitrate specified with MP2 Encoding Bitrate.

Setting to preserve MPEG-1/2 frames or GOPs at In/Out when converting, exporting, trimming, cutting

Setting to resample audio when converting MPEG-1/2 with audio format conversion

Setting to disable conversion of multiple audio tracks in "Convert to" and convert just one audio track, like in previous versions

Separate settings for audio level (volume) of MP2 conversion, one for encoding and the other for decoding. Default is "normal level".

## FILE MENU

New Open DVD command; if the batch list is open it can also batch convert a DVD

Can read and create AVI 2.0 files (they can be larger than 4 GB)

Can open all AIFF and MP3 files; can read and multiplex little-endian AIFF files

New Export Audio command with uncompressed, AAC, MP2 and even MP3 (if you have Windows Media Player 10 or later)

Some "Convert to" and all "Demux" commands have been moved to submenus

## EDIT MENU

Added the standard command "Select All" which works exactly as "Cancel Selection" in the player window.

Added the "Go to Time" command which allows to move to a specific time (if you enter a time and no "-" characters) or to change the selection (if you enter one or two times and one "-" character); colons are optional. With the same command you can also read or copy/paste the current time or the current selection (by choosing between "Time" or "Selection" if necessary).

Added a "Delete Audio Track" command to remove the current audio track from a stream; it does not change the source file and it can be undone with "Undo" or "Revert All".

## ENIGMA

Fixed a timeout problem when batch downloading or deleting more than 50 files at once from the DreamBox.

Fixed some compatibility issues with newer DreamBox firmware images.

## ADJUSTMENTS

Added automatic volume control setting for export: useful for camcorder movies but not recommended for music or high quality audio tracks.

## OVERVIEW OF MPEG STREAMCLIP

MPEG Streamclip is a converter, an exporter, a player, an editor, a downloader.

It can open many file formats: muxed files MPEG, MPG, VOB, PS, M2P, MOD, VRO, DAT, DCM, VDR, PVR; transport streams TS, M2T, MTS, MMV, REC, VID, AUD, AVR, TP, TP0, TRP, TOD; demuxed files M2V, M1V, MPV, AIFF, AIF, M1A, MP2, MPA, AC3; QuickTime-compatible files MOV, DV, AVI, MP4, DIVX; pictures TIFF, JPEG.

MPEG Streamclip supports MPEG-1 video, MPEG layer 1/2 audio, AC3/A52 audio and PCM audio. MPEG-2 video is supported if you have QuickTime Alternative 1.81 (\$0) and you chose to install the Extra QuickTime plugins.

If you have Apple QuickTime, and you do not want to replace it with QuickTime Alternative, you can buy the MPEG-2 Playback Component (\$19.99) from Apple.

To open or encode DivX files, you have to install 3ivx for Windows (\$0 if you choose version 3ivx D4 4.5.1, available here: [http://www.free-codecs.com/3ivx\\_download.htm](http://www.free-codecs.com/3ivx_download.htm)), and update Windows Media Player to version 10 or higher. Audio playback/conversion for DivX is supported.

WMV and FLV files are not supported yet.

Converter features:

– from MPEG, MPG, VOB, PS, M2P, MOD, VRO, DAT, DCM, VDR, PVR, TS, M2T, MTS, MMV, REC, VID, AUD, AVR, TP, TP0, TRP, TOD

to MPEG, TS, REC, VID, M2V, AIFF, MPA, AC3

– multiplexing of M2V, M1V, MPV files with AIFF, M1A, MP2, MPA, AC3 files

to MPEG, TS, REC, VID, M2V, AIFF, MPA, AC3

(just open the M2V or M1V file, and the audio file with the same name will be multiplexed on

the fly).

- very fast, no loss of video quality, perfect audio/video sync
- compatible with DVD authoring applications
- special Headed format to import unsupported frame sizes in DVD authoring applications
- special Unscaled demuxed files, for the QuickTime Pro media authoring application
- can automatically join multiple VOB or TS files
- manual command to scan the stream and fix timecode breaks
- batch conversion

Exporter features:

- from MOV, DV, AVI, DIVX, MP4, WMV, FLV, MPEG, MPG, VOB, PS, M2P, MOD, VRO, DAT, DCM, VDR, PVR, TS, M2T, MTS, MMV, REC, VID, AUD, AVR, TP, TP0, TRP, M2V to MOV, DV, AVI, DIVX, MP4
- supports any QuickTime-compatible video codec available for Windows, and many audio formats
- very high quality encoding, all in YUV color space, either unscaled or with 2D-FIR scaling (better than bicubic)
- motion-adaptive deinterlacing and chroma reinterlacing, with perfect audio/video sync
- internal high-quality audio resampler
- batch export
- concurrent tasks in batch

Player features:

- playback of QuickTime-compatible files
- playback of muxed/demuxed MPEG/VOB files and transport streams with MPEG, AC3, PCM/AIFF audio
- playback of MPEG files larger than 4GB, or segmented in many files
- support for multiple audio tracks in transport streams and MPEG/VOB files
- full screen playback, zoom with arrow keys

Editor features:

- cut/copy/paste of MPEG files and transport streams, at keyframe (GOP) level
- frame accurate cut/copy/paste of QuickTime files
- trimming function, with unique "revert trimming" feature
- access to keyframes with arrow keys
- edit list

Downloader features:

- playback and download of AVI, DIVX, MOV, MP4 files directly over the Internet
- in some cases, playback and download of video files by entering the address of the web page in which the file is embedded
- editing before saving the movie to disk
- batch download

And many more features are available!

#### **IF YOUR FILE DOESN'T GET CONVERTED...**

Please send a mail to Squared 5. The best way to help Squared 5 in improving MPEG Streamclip is, of course, making small samples of your files available (1 MB is usually enough). The preferred way is uploading samples to a web site. The MPEG file must not contain any personal information.

#### **SETTING PREFERENCES**

You can open the preferences window of MPEG Streamclip by choosing "Preferences..." from the Window menu. Preferences are stored on disk and you won't lose them when you quit MPEG Streamclip (presets are also stored on disk, but other settings are not). You can set the following options:

##### Fix streams with data breaks

When checked, this option enables a special stream processing, in order to repair audio and video and recover audio/video synchronization in streams that present data breaks. It works when you use Export, Convert, Demux. This option makes the conversion a little bit slower, however you would better enable it when you are converting transport streams from TV broadcastings or digital video tapes.

##### Fast decoding of data breaks

When a transport stream has many data breaks, exporting it may take forever. With this option you can speed up decoding of data breaks and make export faster. This option has effect only on transport streams, not with other MPEG files: if you have a muxed MPEG file with many data breaks and you want to export it quickly, you can convert it in a transport stream using "Convert to TS...", then open the TS file, enable this option and export it.

#### Preserve GOPs at In/Out

Editing of MPEG-1 or MPEG-2 files is not frame accurate: MPEG Streamclip cuts at GOP or keyframe level (see the section "Editing the stream"). With this option you can choose whether MPEG Streamclip should discard or preserve the GOPs (Group Of Pictures between two keyframes) when the In or Out points are not set to a keyframe and you make a cut, trim, or convert/export from In to Out.

By default, if the In and Out points are not keyframes, GOPs that are located at In and Out will be discarded: the Cut command cuts more than selection and the Trim command trims less than selection. When this option is enabled, these GOPs at In/Out are preserved, so the Cut command cuts less than selection and the Trim command trims more than selection.

#### Convert only one audio track

Since version 1.2, the "Convert to" commands can convert all the audio tracks. Enable this option if you want to convert only the audio track chosen with the "Audio PID" pop-up menu.

This option has no effect on other conversion commands. The "Demux to" and "Export" commands always process only one audio track, while the "Save As" command always saves all audio tracks regardless of this settings.

#### Resample audio at 48 kHz

When you enable this option and you use a "Convert to" or "Demux" command that performs an audio conversion (for instance from MP2 to AIFF), the sample rate will be changed to 48 kHz, if not already at 48 kHz.

This option has no effect if the conversion command does not perform any audio conversion (for instance from MP2 to MP2/MPA); but when enabled, as a special case, the command "Convert to MPEG with MP2 Audio..." changes the sample rate to 48 kHz even if the source audio format is MP2.

#### Don't open preview when exporting

Does not open the preview window when exporting to QuickTime, DV, AVI. This speeds up conversion by about 1%. Anyway, you can open and close the preview window at any time, while and after exporting, with "Show Exporter Preview" from the Window menu and "Close" from the File menu.

#### Preview all frames

When this option is enabled, and you click "Preview", the exporter preview shows all encoded frames; when disabled, only some sample frames (typically, keyframes) are shown in the preview window. But when you click "Make" to export a file, only sample frames are shown regardless of this setting.

#### MP2 Encoding Bitrate

Sets the bitrate used for MP2 (MPA) encoding, it affects the commands "Convert to MPEG with MP2 Audio", "Demux to M2V and MPA", "Demux to MPA", "Demux to Headed M2V and MPA". It has no effect on the audio bitrate setting of the export window.

#### MP2 Encoding Level

Sets the audio level for MP2 (MPA) encoding; it affects the commands "Convert to MPEG with MP2 Audio", "Demux to M2V and MPA", "Demux to MPA", "Demux to Headed M2V and MPA", but unlike the previous preference it also affects the "Export" commands when they encode MPEG Layer 2 audio. For more details see the section "Audio modes and MPEG audio".

#### MP2 Decoding Level

Sets the default audio level for MP2 (MPA) decoding in the "Audio Mode" pop-up menu. It also lets you set the MP2 decoding audio level for batch processing, when you add the files through "Add Files" and the "Audio Mode" selector is not available. For more details see the section "Audio modes and MPEG audio".

#### Play streams with "user data"

Some broadcasted transport streams (especially from CanalSatellite France) have junk "user data" that may prevent playback. The player shows a completely white picture (Intel) or becomes

"transparent" and the 5 blue dots appear behind it (PowerPC/Rosetta). But if you enable this option and reopen the stream, user data will be overwritten and you will be able to play and convert it without problems. This setting has effect only on transport streams; please enable it only if you have this problem.

#### Clear "composite display flag"

A very advanced setting, it makes a small change in the stream to fix a possible compatibility issue with some DVD players that use the Zoran chipset. Do not enable this option, unless you have one of these DVD players and you are experiencing small green squares during playback.

#### AVI Settings

These advanced settings change the way AVI files are saved and exported. "Slow rendering" will improve the rendering quality of cuts when saving an edited AVI file back to AVI using "Save As..." (every cut must be encoded again when saving as AVI); but it has no effect on "Export to AVI...".

On the other hand, "VBR Audio" affects both "Save As..." and "Export to AVI..."; using VBR (Variable Bit Rate) audio can improve A/V sync of some files but it may be incompatible with some players.

#### DreamBox Settings

These settings are reserved for the owners of DreamBox. Please do not change these settings unless you have this set-top boxes.

### **OPENING STREAM FILES**

Choose "Open Files" from the File menu, select one or more source files and click Open.

If you want to open audio files you have to choose "Audio" in the pop-up menu below.

You can select files with the following extensions: (Video

Files) .ts, .ps, .vob, .vro, .dat, .vdr, .pvr, .rec, .mpeg, .mpg, .m2p, .m2t, .mts, .m2v, .m1v, .mpv, .mmv, .mod, .vid, .avr, .dcm, .tp, .tp0, .trp, .tod, .mov, .dv, .avi, .mp4, .m4v, .divx, .jpeg, .jpg, .tiff, .tif; (Audio Files) .aiff, .aif, .m1a, .m2a, .mp2, .mpa, .ac3, .aud.

If your MPEG file comes with an unsupported extension, you can choose "All Files" in the pop-up menu and try to open it.

For .m2v, .m1v, .mpv video files, if a valid audio file with the same name and the .aiff, .aif, .m1a, .mp2, .mpa, .ac3 extension exists, it will be opened together with the video file. If more than one audio file with a valid extension exists, the first will be opened using the above search order (that is, .aiff first, .ac3 last). Opening a demuxed video or audio file may take time; a progress indicator appears and you can stop the process with Esc.

*AIFF audio files must be 16-bit uncompressed and have a supported sample rate.*

Alternatively, drag & drop any supported file over the application icon. This is valid for single video files only; if you drag multiple files, only one of them will be opened. To open multiple files together, always use the File menu.

*If you select more than one file, please make sure that all selected files are part of a single MPEG stream (perhaps larger than 1GB), and that they are in alphabetical order. If not, please rename the files so that they are in alphabetical order. Note that the display order or the selection order is not relevant; only alphabetical order will matter.*

If you select just one file and it is clear that the file is part of a longer MPEG stream, this application gives you the option to open all the files of the stream together. Examples are: VTS\_01\_1.VOB + VTS\_01\_2.VOB (DVD);

Recording.ts + Recording.ts.001 (DreamBox);

Movie\_0501220105~0.vid + Movie\_0501220105~1.vid (Humax).

*Please contact Squared 5 if your device splits MPEG files using a different pattern.*

### **OPENING A DVD**

With the "Open DVD" command of the File menu, you can open a DVD by choosing the whole disk, or its VIDEO\_TS folder; you can also select any VIDEO\_TS folder located anywhere.

If the DVD contains multiple movies (titles) MPEG Streamclip will ask you to choose which movie you'd like to open.

To batch convert a DVD, open the batch list before using the Open DVD command: if the batch list is open, MPEG Streamclip will ask if you want to batch convert the DVD or just open it in the player.

## **OPENING A STREAM OVER THE INTERNET**

Choose "Open URL" from the File menu, enter the URL address of the stream, click "Open" and, if recognized, the stream will be opened in the player.

In some cases, you can also enter the URL address of a web page, and MPEG Streamclip will try to open the video stream that's embedded in that page. At the time of this writing, this feature works with videos from YouTube and Veoh, but there is no guarantee it will work in the future.

There are some options in the "Open URL" window. The first three, "Open", "Convert", "Download", are useful for movie download and will be explained in the next section. The next two, "Progressive download", and "Random access" determine the way in which the stream will be opened. You can use "Progressive download" (the default) or read the following information to find out which mode to use. Note that if you select the wrong mode and it fails, MPEG Streamclip may automatically try the other mode before giving up.

The "Progressive download" mode opens the stream as a sequential file with the progressive download method. The connection is controlled by QuickTime; data are cached on disk. It works with several streaming and downloading protocols, not only HTTP or FTP, but it does not allow you to seek beyond the current downloading point. Moreover, MPEG files opened with "Progressive download" will be converted without sound.

The "Random access" mode opens the stream as a remote random-access file. The connection is controlled by MPEG Streamclip; data are cached in RAM. It works only for HTTP or FTP streams (beginning with "http:" or "ftp:") and it allows you to seek without waiting. Good for AVI and MPEG-2 files; however in this mode the player may hang for several seconds when you play the stream and your connection is too slow.

Some files have to be partially downloaded before they appear in the player. This may take time; a progress indicator appears and you can stop the process with Esc (if you press it once, then the player will show the first part of the stream).

WMV and FLV streams are not supported yet in MPEG Streamclip for Windows, so you cannot use "Open URL" to play these files. However, since version 1.2, YouTube files are always opened or downloaded in MP4 (MPEG-4) format, so they can be used in MPEG Streamclip.

## **DOWNLOADING A STREAM**

Choose "Open URL" from the File menu, enter the URL address of the stream, select "Download" and the button to the right will change from "Open..." to "Download...". Click "Download..." and, if recognized, the stream will be downloaded to disk. If the batch list is open, the task will be added to the batch list, and you can start downloading the stream later.

In some cases, you can also enter the URL address of a web page, and MPEG Streamclip will try to download the video stream that's embedded in that page. At the time of this writing, this feature works with videos from YouTube, Google Video, Yahoo! Video, Veoh, Dailymotion, but there is no guarantee it will work in the future.

Moreover, you cannot use MPEG Streamclip to play Google, Yahoo! and Dailymotion videos because they are in FLV format, and this format is not yet supported. Instead, YouTube videos are downloaded in MP4 format.

You can convert the movie while downloading it if you choose the option "Convert" and then click the button "Convert..." and choose the conversion. This option lets you save disk space and time, although some movies may need to be completely downloaded before the conversion can start.

The "Progressive download" and "Random access" options also apply to download. Please choose the proper option, or use the default "Progressive download". If you are downloading without conversion, MPEG Streamclip may use "Random access" to save disk space, regardless of your choice.

## **READING STREAM INFO**

You can open an info window for the current stream using "Show Stream Info" from the File menu. All relevant data are reported in this window.

The "Video PID" pop-up menu lists, for MPEG files, the available video tracks and the "Audio PID" lists the available audio tracks; only the selected video and audio track will be converted.

The two times under "Trimming" indicate the portion of the movie shown in the player: they change when you trim the movie. The "In" and "Out" times indicate the portion of the stream to be saved,

exported or converted: they represent the current selection.

*Scrambled or encrypted streams are not supported. If you open these files, you may get unpredictable results. However, if a stream is just partially scrambled, this application attempts to find a portion of the stream which is not scrambled; if it succeeds, the Readable Size will be shown in the info window.*

### **CHOOSING AUDIO AND VIDEO PIDS**

A single MPEG stream can deliver more than one video and one audio track (e.g. more than one language). A single video or audio track (also called elementary stream) is identified by a number called PID (Packet Identifier) which is unique to that track.

Before playing a stream or doing a conversion, you should select the proper audio and video PIDs, using the two pop-up menus, to specify the audio and video track to play or include in the destination file; otherwise, two default PIDs will be chosen for you.

*Muxed MPEG files, unlike transport streams, have no PIDs but may still have more audio and video tracks, each identified by a different "start code". For muxed files, the PID menus will show the start code of each available video and audio track.*

For some file formats, the Video PID menu shows three options to select the aspect ratio of the video track: 0:0 (default aspect), 4:3, 16:9.

### **AUDIO MODES AND MULTICHANNEL AC3**

AC3 audio tracks support up to 6 different channels (L, R, Center, LS, RS, LFE) but MPEG Streamclip can only play/convert two channels at a time. Using the "Audio Mode" pop-up menu you can choose the two channels to be used. If you have no special needs, you can use the default audio mode (Stereo Mix); otherwise, keep on reading for more detailed info.

#### *Stereo Mix*

Makes a mix of L, R, Center (the 3 front channels) plus LS and RS (the 2 surround channels), it takes the mixing coefficients from the AC3 stream and produces a stereo sound in conformance to the A52 standard. The LFE channel is not included.

Note that for AC3 2/0 (see below) this and the 3 following modes just pass the L and R channels unchanged.

#### *Front Mix*

It is the same as Stereo Mix, but it excludes LS and RS (the two surround channels) from the mix. Use it when the surround channels have bad sound.

If the surround channels are not present, or were already excluded from the Stereo Mix (due to a zero mixing coefficient from the AC3 stream) then Front Mix produces the same sound as Stereo Mix.

#### *Surround*

Makes a Dolby Surround-compatible stereo sound. Using this special stereo sound, a Dolby Pro Logic amplifier with 6 speakers (5+1 subwoofer) may be able to reconstruct and play all the 6 channels of AC3.

Use this mode only if your audio equipment has a Pro Logic decoder and can handle Dolby Surround.

#### *L/R Ch.*

Lets you play and extract the L and R channels as a stereo pair. All other channels are excluded. If both L and R channels are missing, the Center channel is used instead.

#### *Center Ch.*

Lets you play and extract the Center channel. All other channels are excluded. If the Center channel is missing, a mono mix of L and R is used instead.

#### *LS/RS Ch.*

Lets you play and extract the LS and RS (surround) channels as a stereo pair. All other channels are excluded. If LS and RS are missing but exists a S (center surround) channel, this channel is used instead. If LS, RS and S are all missing, the sound will mute.

#### *LFE Ch.*

Lets you play and extract the LFE (low frequency effects) channel, used to drive a subwoofer. This channel is optional even in AC3 3/2; if it's missing, the sound will mute.

*You can use the last 4 modes to make 4 AIFF files holding all the content of the AC3 track.*

The number of channels that are present in an AC3 stream can be deduced from the AC3 coding mode (shown using two digits separated by a slash or a plus sign). This is a list of all AC3 coding modes with their channels:

- AC3 1/0: Center (mono)
- AC3 1+1: L, R (dual mono)
- AC3 2/0: L, R (stereo)
- AC3 3/0: L, R, Center (3 front channels)
- AC3 2/1: L, R, S (stereo + 1 surround)
- AC3 3/1: L, R, Center, S (3 front + 1 surround)
- AC3 2/2: L, R, LS, RS (stereo + 2 surround)
- AC3 3/2: L, R, Center, LS, RS (3 front + 2 surround)

Note that the LFE channel may be optionally present in all of these AC3 modes.

### **AUDIO MODES AND MPEG AUDIO**

For MPEG audio tracks (MP1, MP2) two different audio levels are available for playback and conversion to MOV, DV, AVI, MP4 and AIFF: "High Level" and "Low Level". You can choose one of these two levels using the "Audio Mode" pop-up menu. Use "Low Level" if, and only if, the converted movie or AIFF file shows an excess of volume.

The default level that appears in "Audio Mode" when you open a new stream is "High Level", but you can change this default with the preference "MP2 Decoding Level" in MPEG Streamclip preferences. And this preference lets you set the audio level when you add files to the batch list without opening them in the player.

Likewise, whenever MPEG Streamclip encodes MP2 audio (or MPEG Layer 2 audio) from another sound format, another audio level is applied. With the preference "MP2 Encoding Level" in MPEG Streamclip preferences you can choose between two audio levels: "Normal Level" (default) and "High Level". If the converted movie has a very low sound volume, then you can use "High Level".

Please note the difference between the preferences "MP2 Decoding Level" and "MP2 Encoding Level". The first preference sets the playback volume and the conversion (decoding) volume from MP2 to other formats, while the second preference sets the conversion (encoding) volume from other formats to MP2.

### **MAKING A SELECTION**

The selection is the part of the movie included between the In and Out points.

You can set the In and Out points, and therefore make a selection, in one of these alternative ways:

- drag the playhead (from In to Out or from Out to In) while holding down the Shift key;
- move the playhead to the In (or Out) point, then hold down the Shift key and move the playhead to the Out (or In) point;
- move the playhead to the In point and hit the I key, then move the playhead to the Out point and hit the O key.

The selection will be highlighted in the player.

To cancel a selection, you can use the X key, or choose "Cancel Selection" in the Edit menu. You can also cancel the selection with "Select All" in the Edit menu, or Ctrl+A.

Please note that, while the In point is included in the selection, the Out point is not included.

*You can also move the playhead to the desired In and Out points using JKL navigation (an explanation of JKL navigation can be found later in the section "Playing the stream"), and use the left and right arrow keys to step the playhead through single frames, or the up and down arrow keys to step through keyframes. If you hold down the Alt key, you can use the left and right arrow keys to jump directly to the In and Out times.*

With the "Go to Time..." command of the Edit menu you can go to a specific point of the stream by entering its timecode (with or without colons). If the timecode is followed or preceded by "-" respectively the In point or Out point will be changed; if you enter two timecodes separated by "-" both the In and Out points will be changed and a new selection will be set. With the same command you can read, copy and paste the current timecode and the current selection.

With the "Go to In" and "Go to Out" commands of the Edit menu you can go to the In and Out points of the current selection, or to the beginning and end of the stream if no In/Out points were set.

## TRIMMING THE STREAM

Once you have made a selection, you may choose to trim the selected portion, temporarily cutting away anything before the In point and after the Out point. Use "Trim" from the Edit menu, and the movie will be trimmed to the selected portion (or something less, according to keyframe positions); you can then perform further (and finer) selections. "Trim" does not affect source files in any way. If you want to undo the last trimming operation, you can use "Undo" from the Edit menu. If you want to undo all trimming operations you've done, you can use "Revert Trimming" from the Edit menu.

Trimming is not part of movie editing; it's just a way to temporarily restrict the part of the stream shown in the player and available for conversion and editing. You can use trimming without worries since you can revert it at any time without losing any editing you may have done to the stream. Also if you edit a part of the stream and then trim that part away, editing is not lost but just hidden; you can get it back at any time if you use "Revert Trimming".

So you can take advantage of trimming to make fine editing on smaller parts of the stream. E.g. with a long stream, you can select and trim the first 20 minutes, cut commercials, then revert trimming, select and trim the next 20 minutes, cut commercials, revert trimming and so on.

## EDITING THE STREAM

Using "Cut" from the Edit menu, you can remove the selected portion of the stream (from In to Out; or something more, according to keyframe positions). This is useful if you want to remove commercials from the stream. You can make any number of cuts you want, and even cut a part that already contains one or more cuts.

You can locate each cut using the edit list (read "Using the edit list" below for more details).

With "Copy" and "Paste" you can copy a part of the stream and paste it in the same stream or in another compatible stream. You can also use "Cut" and "Paste" to move a portion of the stream. The part of the stream copied with "Copy" is, like for "Cut", the selection from In to Out (or something more); if there is no selection, "Copy" does a copy of the whole stream (if you trimmed the stream, only the trimmed part will be copied).

The part of stream copied with "Copy" or "Cut" is preserved when you close the stream, so you can use "Copy", close the stream, open another stream and use "Paste". This is the preferred method to join two or more streams; however all the streams must have the same PIDs, the same start codes, and the same audio/video properties (that is, they must come from the same source or channel).

For MPEG files, editing is performed at MPEG level; video is reassembled and audio is resynchronized. Audio/video sync is ensured even when a large number of cuts is present in the same stream.

Editing does not alter the source files; you must use Save As to save the edited movie into another file.

You can undo the last "Cut", "Copy", "Paste" or "Trim" using "Undo" from the Edit menu ("Undo" works only once, multiple undo is not supported). You can undo all your editing and trimming using "Revert All Changes" from the Edit menu.

For QuickTime files, editing and trimming operations are frame-accurate. But for MPEG files, these operations are not frame-accurate since MPEG packs pictures into GOPs (Group Of Pictures) usually with a duration of half a second. MPEG Streamclip does not split GOPs, so the accuracy of editing is about 1/2 second; but the accuracy of audio/video sync after editing is much higher, and usually less than 1/2 frame, regardless of the number of cuts.

Please note that for MPEG files, by default, Trim leaves "at most" the selection, while Cut removes "at least" the selection and Copy copies "at least" the selection. But if you enable the preference "Preserve GOPs at In/Out" this behavior changes: Trim leaves "at least" the selection, Cut removes "at most" the selection, while Copy still copies "at least" the selection. Editing and trimming can be accurate only if In and Out are both on keyframes; you can go to keyframes using the up and down arrow keys or the "Go to Keyframe" command in the Edit menu.

*NOTE: sometimes, with some MPEG files, the Cut command may slightly corrupt one of the pictures that precedes the cut. This issue does not happen with most MPEG files.*

MPEG Streamclip, by default, converts and saves all the audio tracks of MPEG files when you use "Convert to" or "Save As". With the command "Delete Audio Track" from the Edit menu you can remove the audio tracks you don't want to convert or save: just select the Audio PID of each track you want to delete and use "Delete Audio Track".

## **FIXING TIMECODE BREAKS**

Some MPEG streams may have discontinuous time code (this is particularly true for VOB files). You can use "Fix Timecode Breaks" from the Edit menu to make MPEG Streamclip handle these streams correctly.

All timecode breaks found will be listed in the log window, and also in the edit list.

The option "Do not skip any frame" lets you control whether dropping some frames to fix a timecode break is acceptable or not. By default, this option is enabled for VOB/VRO streams and disabled for other streams. When enabled, "Fix Timecode Breaks" tries to preserve every frame, even if this results in bad video artifacts.

In some cases, you can use this command to join two or more MPEG files into a single stream; but again, the files being joined must have the same PIDs, the same start codes, and the same audio/video properties. Using "Convert to MPEG" before joining the files can be helpful, because it changes PIDs and start codes to a default value. And you should not enable the option "Do not skip any frame" when joining files.

If the video transition between two files looks bad, you can use the Cut command to improve it.

## **USING THE EDIT LIST**

The edit list contains a list of all the cuts you have made to the stream, and also all timecode breaks found by the "Fix Timecode Breaks" breaks command. To open it, please choose "Edit List" from the List menu.

Precisely, the edit list shows all segments of the stream included between two cut points (or two timecode breaks). For each segment, the Start Time and the Duration are listed.

If you double-click a segment, or click the "Select" button, the segment will be selected in the player. That is, the In and Out points will be changed to show the segment, and the playhead will be moved to the beginning of that segment.

## **THE LOG WINDOW**

You can open the log window using "Log Window" from the Window menu. The log window records the start and stop time of each conversion, and all error messages. The window also shows the position of all data breaks found during a conversion, and all timecode breaks found by "Fix Timecode Breaks"; when the option "Fix streams with data breaks" is enabled, the window may also show messages like "fixing video" or "fixing audio" that indicate where the stream has been fixed.

If you click "Check Stream" you can start a stream check; like a conversion, this will find and list in the log any data break found. With the "Clear Log" button you can clear the log.

## **SAVING THE STREAM**

Use "Save As..." in the File menu to save a copy of the stream. If you set the In and Out points or trimmed the stream, only the part of the stream between the In and Out points will be saved; otherwise, the whole stream will be copied.

If you have edited the stream, it will not be copied but it will be saved with editing instead.

Multiple source files will be joined into a single destination file, which may be larger than 2GB, if needed.

All the video and audio tracks will be saved, regardless of the selected video and audio PIDs.

Unless you have edited the stream: in this case, only the selected video/audio tracks will be saved.

For QuickTime, DV, AVI, and MPEG-4 files you can choose the destination format among MOV, MP4, and AVI. Every movie can be saved as MOV, but only some movies can be saved as MP4 or AVI.

To save DivX files as AVI, you have to install the 3ivx codec. Some DivX files, when edited and saved as AVI, may not play well.

*NOTE: Squared 5 assumes that you have the legal rights to make a copy of the stream!*

## **EXPORTING TO QUICKTIME, AVI, MPEG-4**

Select "Export to QuickTime..." or "Export to AVI..." or "Export to MPEG-4..." from the File menu and the Movie Exporter or the AVI/DivX Exporter or the MPEG-4 Exporter window will appear. It will let you export the part of the stream between the In and Out points (or the whole stream if In and Out points have not been set). If you have edited the stream, it will be exported as it appears after editing.

These are the available settings:

### Compression

Using the Compression pop-up menu, you can choose the video compressor to use. The menu shows a list of all QuickTime video compressors installed in your computer; you can choose any compressor from this list (for MPEG-4 you can only choose between MPEG-4 and H.264). The default compressor is different for each exporter (Motion JPEG A for MOV, Photo-JPEG or 3ivx for AVI, MPEG-4 or H.264 for MP4).

### Quality

You can use the Quality slider to set the quality of compression, from 0% (lowest) to 100% (highest or lossless). Some compressors may ignore this setting.

### Options

If the video compressor has custom options, you can use the Options button to set them.

### iTunes

This button takes the place of the Options button in the MPEG-4 exporter. It lets you quickly set the parameters to make MP4 files that are compatible with iTunes/iPod/iPhone/Apple TV, by choosing among several presets. The last preset can be used with most mobile phones as well as the iPhone.

### 2-Pass/Multipass

If the video compressor is 3ivx or H.264, by enabling this option you can make MPEG Streamclip automatically perform two-pass encoding. For H.264, more than two passes will be performed because the compressor performs a detailed analysis of the source movie to achieve excellent encoding results at the expense of very long encoding time; it also takes some space on your boot disk.

### B-Frames

This option enables B-Frames (Bidirectional Frames) when encoding with H.264 and HDV. Using B-Frames yields better quality for the same data rate, or lower data rate for the same quality. Note that Apple iPod does not support B-Frames.

### Limit Data Rate

You can enter a data rate limit for any codec that supports this feature. Select a proper unit (Kbps, Mbps, KB/sec, MB/sec) and enter a positive number. Decimal numbers are allowed.

When you enter a data rate limit, an estimate of the destination movie size appears.

For most codecs, the data rate limit overrides the Quality setting.

### Sound

With the pop-up menus you can set the sound format, choose between mono or stereo, set the sample rate and, if supported, the bit rate. Supported sound formats are Uncompressed, IMA 4:1, MPEG-4 AAC (MP4), AMR Narrow (AMR-NB), MPEG Layer 2 (MP2). If you choose "Pass Thru" the original audio track of the stream (MP2, PCM or AC3) will be copied without changes in the MOV or AVI file. If you choose "No Sound", the exported file will have no sound.

### Frame Size

A default frame size for the exported movie, based on the chosen video compressor and the aspect ratio of the source stream, will be proposed to you. If you don't like it, you can click and select a different frame size, and even enter any custom size between a small 32 x 32 and a huge 2048 x 2048.

Scaling is performed in the YUV color space, using a powerful 2D-FIR scaler. This scaler outperforms the built-in bicubic scaler of most video editing applications, bringing quite sharper pictures in less time. So, if scaling is required, it is recommended that you use MPEG Streamclip to make a scaled movie, rather than import the unscaled movie into the video editing application and scale it there.

*FIR scaling has excellent quality but it slows down the conversion. When scaling is not enabled, the conversion is fast; it is slow when either horizontal or vertical scaling is enabled; when both horizontal and vertical scaling is enabled, it's even slower.*

*You can disable FIR scaling by choosing the "unscaled" frame size; however, DV codecs may still need to scale the picture using their own faster, low-quality scaling algorithms, resulting in a very bad video quality.*

*Scaling also includes some advanced TV standard processing. For instance, when MPEG Streamclip scales a 320 x 240 stream up to 720 x 480, it adds two 8-pixels wide black bars at each side of the picture, to conform to NTSC and PAL standards.*

*In the AVI exporter, if you choose the 3ivx codec, the frame size "720 x 576 (DV-PAL)" with rectangular pixels becomes "720 x 576 (DivX PAL)" with square pixels and cropped sides, to conform to DivX Home Theater profile.*

#### Frame Rate

In this field, you can set the frame rate of the exported movie. If you leave this field empty, the frame rate will be the same as the original movie's frame rate (shown in the "Stream Info" window).

#### Frame Blending

If you set a frame rate for the exported movie which is different from the original movie's frame rate, you can enable this option to improve motion. Each frame in the exported movie will be a mix of two successive frames of the original movie.

*If you left the Frame Rate field empty, this option has no effect unless the original movie has a variable frame rate (that is, when in the "Stream Info" window the symbol "~" appears before the frame rate, e.g. ~20 fps, or when two video tracks are listed with different frame rate).*

#### Field Dominance

This setting lets you choose the field dominance for the destination movie; it is automatically set to "Lower Field First" for DV and to "Upper Field First" for other codecs. Field dominance conversion is performed when the dominance of the destination movie is different from the dominance of the original file (visible in the Stream Info window).

The field dominance is the order in which the two fields that form NTSC and PAL pictures, are displayed in a TV set. You may need to change the default setting, if the converted file has bad motion when played on TV.

*Field dominance is not changed for progressive files, and for files whose height is up to 288 pixels (like most MPEG-1 files) because these files can't have a field dominance.*

#### Rotation

You can choose to rotate the picture by 90°, 180° and/or flip (mirror) it.

For 90° rotation, aspect ratio and scale factor will be preserved, resulting in a cropped and letterboxed picture. With 4:3 pictures you can then apply a 133.3% zoom to remove letterboxing, or a 75% zoom to get the full frame without cropping.

Interlacing will be preserved if "Interlaced Scaling" is enabled.

#### Zoom

In the field "%" you can optionally set a magnifying factor for the picture. With the field "X/Y" you can change the aspect ratio of the picture: the value 1.333 is good for 16:9 to 4:3 conversion, while the value 0.75 is good for the opposite conversion, from 4:3 to 16:9. A letterbox will be added, but you can remove it by entering in the field "%" a magnifying factor of 133.3 %. Finally, with the two fields "Center" you can move the picture center horizontally and vertically.

#### Cropping

With this feature, you can crop any edge of the frame: you just have to enable it and enter the amount of pixels you want to crop from each edge. Even numbers are preferred. Negative numbers are allowed: in most cases, they will add a black border to the picture.

You can choose between three different cropping modes: "Destination", "Source", "Scale".

With "Destination" (the default mode), cropping is relative to pixels in the *destination* movie, and the frame size of the resulting movie will be changed.

With "Source", cropping is relative to pixels in the *source* movie; the frame size of the resulting movie will not be changed, and the picture is stretched to fit the destination frame size.

With "Scale", cropping is relative to pixels in the *destination* movie; the frame size of the resulting movie will not be changed, and the picture is stretched to fit the destination frame size.

Note however that If you choose the "Destination" cropping mode with a DV frame size, MPEG Streamclip will use "Scale" instead.

#### Interlaced Scaling

If you are scaling an interlaced file to a different height, you can tell MPEG Streamclip to preserve

interlacement and scale each video field separately by checking "Interlaced Scaling". If you don't, interlacement will be lost in the scaled movie, and, worse, you will get many visual artifacts. This setting is now enabled by default; remember to disable it with progressive files.

*Interlacement requires a frame height of more than 288 pixels. If the frame height of the source file is up to 288, interlaced scaling will not be enabled. If the frame height you have chosen for the exported movie is up to 288 and you check "Interlaced Scaling", MPEG Streamclip discards the lower field before scaling the picture (i.e. it performs a fast deinterlacing by dropping one field).*

#### Better Downscaling

If you are scaling the file to a smaller frame size, by checking "Better Downscaling" you can tell MPEG Streamclip to use a wider 2D-FIR scaler, providing even better picture quality. However this wide 2D-FIR scaler is quite slow and the resulting picture (although perfect) may have less sharpness. This option is disabled by default: enable it only if you need a perfectly scaled movie.

*If you are scaling the file to a larger size, this option has no effect; the standard 2D-FIR scaler already provides the best scaling quality.*

#### Reinterlace Chroma

If you are converting an interlaced MPEG-1/MPEG-2 file, you may wish to "reinterlace" chroma. By checking "Reinterlace Chroma" you can enable a special remapping of 4:2:0 chroma lines so they will be split correctly between the two video fields. This is a very advanced option: only professional users may see the difference in the output movie. This option is enabled by default; disable it when you are sure your file is not interlaced.

*This option has no effect if the source stream is not an MPEG-1/MPEG-2 stream.*

#### Deinterlace Video

If you have an interlaced file, you may also want to deinterlace it, usually to convert into a progressive format, get a "film" effect and have a better playback on the computer's display. When you check the option "Deinterlace Video", MPEG Streamclip enables a special motion-adaptive deinterlacer, and it deinterlaces the lower field in the parts that contain motion, and preserves video quality of all parts that do not contain motion; the upper field is left unchanged. This option slows down the conversion.

*Please note that if you are changing the height of an interlaced stream (that is, you are telling MPEG Streamclip to perform vertical scaling) then you must enable either "Interlaced Scaling" or "Deinterlace Video" (at your own choice), otherwise you will see bad video artifacts in the converted movie.*

#### Adjustments

The Adjustments panel lets you adjust brightness, contrast, saturation and volume, and also enable automatic volume control. The "Watermark" text field can be used to superimpose a text to the final movie: the text will appear in the lower-right corner. Adjustments take effect only if you click OK.

#### Presets

The Preset Manager lets you save on disk all the settings in the export window (including Options and Adjustments), and reuse them later. You can make a new preset with the button "New...", load the settings of a preset with "Load", store the current settings in an existing preset with "Save", and also rename and delete a preset, or move it up and down in the list with the Up and Down buttons.

#### Reset All

This button will reset all the parameters of the current exporter to default, including custom options for all video compressors. Parameters that are shared with other exporters will be reset as well.

#### Fast Start

This option appears in the QuickTime exporter and lets you make a fast-start MOV file (a movie that starts before being downloaded completely). This option is not available in the AVI exporter (never fast-start) and in the MP4 exporter (always fast-start).

Note that making a fast-start MOV or MP4 file requires a free disk space of at least twice the final movie size.

#### Make Movie - Make AVI - Make MP4

When all your settings are OK, you can finally click the "Make Movie" or "Make AVI" or "Make MP4"

button, choose the name and location of the MOV or AVI or MP4 file, and MPEG Streamclip writes the movie to the specified location. While writing the movie, MPEG Streamclip takes sample pictures from it and decompresses them immediately. This lets you check the compression quality while encoding goes on: so you can stop the encoding and change some settings if the quality is lower than expected. You can disable the preview window in preferences, if you want.

*To be clear: the pictures you'll see during the movie encoding are taken from the exported movie, not from the source MPEG file: so you can really check the video quality of the QuickTime or AVI or MPEG-4 movie you're making.*

### Preview

If you just want to check the video encoding quality without actually writing the movie, you can click the "Preview" button instead of "Make Movie". MPEG Streamclip simulates the encoding process and takes sample pictures from the "virtual" destination movie. With this feature, you can fully adjust your compression settings before writing anything to disk.

### **AUDIO AND VIDEO FORMATS SUPPORTED IN AVI FILES**

MPEG Streamclip can read and write both AVI 1.0 and AVI 2.0 movies; that is, AVI files larger than 4 GB are supported. When exporting AVI movies, it switches from AVI 1.0 to 2.0 when the destination movie becomes larger than 4 GB.

Many video and audio codecs are not supported in AVI files.

- Supported video codecs are DV, Cinepak, BMP, JPEG, 3ivx.
- You can download 3ivx (version 5.0.2 at the time of this writing) from <http://www.3ivx.com/>. This codec can play and encode DivX and MPEG-4 video. The latest version of the 3ivx codec is not free, but the earlier version 3ivx D4 4.5.1 was free and it is still available for download here: [http://www.free-codecs.com/3ivx\\_download.htm](http://www.free-codecs.com/3ivx_download.htm)
- Some PAL devices cannot play 768 x 576 DivX files; in this case, use the special frame size "720 x 576 (DivX PAL)". This frame size preserves the square pixel aspect ratio by cropping both sides of the picture, and unlike 720 x 540 it preserves interlacement.
  
- Supported audio codecs are Uncompressed, MPEG Layer 2 (MP2), MPEG Layer 3 (MP3), AC3.
- The MPEG Layer 3 codec appears only if you have Windows Media Player 10 or higher.
- You can put AC3 sound in AVI file with the "Pass Thru" option, only if the sound of the source MPEG file is in AC3 format.
- The codec Apple IMA 4:1 is not supported in AVI files: if you select it, the  $\mu$ law 2:1 codec will be used instead (at least in this version of MPEG Streamclip). And the codecs MPEG-4 AAC and AMR Narrow are not supported in AVI, too.
- The AVI files will be created with a CBR (constant bit rate) audio header. If audio doesn't have a constant bitrate, or if the sample rate is 44.1 kHz and the codec is MPEG Layer 2, a little audio/video sync problem may happen in very long movies. In this case you can write a VBR (variable bit rate) audio header by enabling the option "VBR Audio" in preferences. Not all players can play AVI files with VBR header.

### **EXPORTING TO DV STREAM**

Select "Export to DV..." from the File menu and the DV Exporter window will appear. This will let you export the part of the stream between the In and Out points (or the whole stream if In and Out points have not been set) as a DV stream. Again, if you have edited the movie, it will be exported with all your editing.

The Compression pop-up menu lets you select the video compressor to be used. You have two options: DV (DV25), and DVCPRO25. For most uses, choose DV (DV25).

The Standard pop-up menu lets you select the standard to be used for the stream: PAL or NTSC. It is automatically set to PAL for 24, 25, 50 fps, and to NTSC for other frame rates, but you can change this default if you need to match the standard used in your DVD authoring application. The frame size is set to 720 x 576 for PAL and 720 x 480 for NTSC; the 2D-FIR scaler will be used if necessary.

The Aspect Ratio pop-up menu lets you choose whether the DV stream should be considered as a 4:3 or a 16:9 movie. This setting does almost nothing, except that it changes a bit in the DV stream, making it easier to import in some applications.

Field dominance for DV streams is always lower field first, so there isn't a setting for this. Dominance conversion is performed when the original MPEG file is upper field dominant.

The "Frame Blending", "Interlaced Scaling", "Better Downscaling", "Reinterlace Chroma" and "Deinterlace Video" options have been already described in the previous paragraph. The setting "Resample Audio to 48 kHz" changes the sample rate of the audio track to the highest rate available for DV; it does nothing when the sample rate of the source stream is already 48 kHz. The option "Split DV Stream in Segments" splits large DV streams in 1.9GB files; a 3-digit suffix is automatically added to the name of DV files following the first one.

The settings "Rotation", "Zoom", "Cropping" and the buttons "Presets" and "Adjustments" have been described in the previous paragraph. For "Cropping", the option "Scale" is not available because it does not apply to DV.

With the Preset Manager you can save the settings of the DV exporter. DV presets are listed together with MOV/AVI presets but you cannot load a DV preset in the MOV/AVI exporter and vice versa. Some settings are shared by all exporter windows (for instance, "Zoom", but not "Cropping"): if you load a preset in one exporter, these shared settings will be changed in all exporters.

The "Preview" and "Make DV Stream" buttons work in the same way as the "Preview" and "Make Movie" buttons of the Movie Exporter window; of course "Make DV Stream" writes a DV file and not a MOV file.

You can preview the video compression quality for a DV stream, too, and, if needed, change your settings before writing the DV stream.

### **EXPORTING AUDIO**

Select "Export Audio..." from the File menu and the Audio Exporter window will appear. This will let you export the audio track of the stream between the In and Out points (or the whole audio track if In and Out points have not been set) plus any editing. For MPEG streams you can choose the audio track to export with the Audio PID setting.

You can choose the format of the exported audio file: AIFF, MP4/AAC, MP3, MP2; however the MP3 format is available only if you have updated Windows Media Player to version 10 or higher. You can set the sample rate, the bitrate and the number of channels of the exported file. With "Adjustments..." you can change the volume or enable automatic volume control.

For MPEG streams, you can make an AIFF file with both Export Audio and Demux to AIFF. However these commands are different: with Export Audio you have more settings and you can control the sample rate and channels, while Demux to AIFF is a little faster.

Multichannel surround sound is not yet supported by Export Audio: however this may change in the future.

### **EXPORTING TO OTHER FORMATS**

Select "Export to Other Formats..." from the File menu and the Other Formats exporter window will appear. This will let you export the part of the stream between the In and Out points (or the whole stream if In and Out points have not been set) to other movie or sound formats. If you have edited the movie, it will be exported with all your editing.

This command is similar to Export to QuickTime, but instead of the list of video compressors you will see a list of QuickTime-compatible video and audio exporters installed in your PC, from which you can choose with the "Format" selector. The format of the exported file depends on the exporter chosen with "Format"; for instance the 3G exporter will make a .3gp file, the Wave exporter will make a .wav file, and so on.

The "Options..." button in the exporter window lets you set additional exporter options (e.g. quality, frame rate, bit rate, advanced settings) if the chosen exporter supports them. If you choose an MPEG-4 exporter that has no options, the "Options..." button becomes "iTunes..." allowing you to choose an iTunes preset.

So this command lets you use most QuickTime-compatible exporters with MPEG Streamclip, much like you were using QuickTime Pro, but with the higher quality and performances of MPEG Streamclip. But note that only some exporters are recognized by MPEG Streamclip, and their behavior may be significantly different than that shown in QuickTime Pro. Some supported exporters are 3G, AIFF, iPod, iPhone, Apple TV, QuickTime, AU, AVI, Wave, DV, MPEG-4. Also note that there may be compatibility issues with some exporters.

*While "Export to Other Formats" can make QuickTime (MOV), AVI, DV, MPEG-4 (MP4) movies it is highly recommended that you make these movies with "Export to QuickTime", "Export to AVI", "Export to DV", "Export to MPEG-4" since these commands are faster than "Export to Other Formats", have better quality, use multiprocessing, and give a preview of the destination movie.*

The preview window in "Export to Other Formats" shows the pictures BEFORE ENCODING, not after encoding like in other export commands. To check the actual video quality you have to open the destination file. You don't have to export the whole movie to check the quality since in most cases, if you stop an export operation you may still get a valid exported file.

### **EXPORTING A FRAME**

You can export the frame shown in the player in a JPEG, TIFF, PNG file using "Export Frame..." in the File menu. You can change the frame size (or choose the original size with "Unscaled") and you can set the options "Interlaced Scaling" and "Deinterlace Video" for interlaced streams. You can also adjust the picture or add a watermark with the Adjustments, and choose the gamma between 2.2 and 1.8. As usual, the picture will be resized with the 2D-FIR scaler.

The two options in "Pixel Aspect" make a little (nearly unnoticeable) correction to the picture aspect. Choose "Computer Graphics" if you want to use the picture in a computer graphics or photo application. Choose "Industry Standard" if you want to use the picture in a video application. These options have effect only if the frame size is 4:3 or 16:9.

If you want to export (or batch export) a sequence of multiple frames from the same stream, you can use "Export to Other Formats..." in the File menu and choose Format: Image Sequence. Remember to click "Options..." and enter the frame rate and the picture format, otherwise this command won't work.

### **CONVERTING THE STREAM**

The following commands are available only if the source stream is in MPEG-1 or MPEG-2 format. Choose one of the "Convert to" or "Demux" commands from the File menu to perform the desired conversion or demuxing. Again, only the part of the stream between the In and Out points will be converted or demuxed; also, editing will always be included in the converted files.

These conversions run as fast as possible and they are just limited by the hard disk speed and the audio conversion speed. When no audio conversion is required, they usually perform at the same speed of a file copy; with audio conversion they will run slower, depending on the processing speed of your PC.

Destination files may exceed 2GB, and will not be split. However you can change the In and Out points to make smaller destination files, if you need.

All the files written by these commands (when In and Out points are the same) have the same duration, the same start and end time, and they are kept synchronized by a special time-detection technology. So you can perform multiple conversions and use the resulting files together.

All "Convert to" commands will convert all the audio tracks, unless you enable the preference "Convert only one audio track".

This is a brief description of the available commands:

#### *Convert to MPEG...*

converts the stream into a muxed MPEG (program stream) file; if the frame size is suitable, you can import this file in a DVD authoring application and burn it directly, with no encoding time and no loss of quality. Audio is left in its original format (MPEG, AC3 or PCM).

Suitable frame sizes for DVD are 720x480, 720x576, 704x480, 704x576, 352x480, 352x576. If the frame size is not suitable, please try the "Convert to Headed MPEG" command instead.

If the authoring application stops with an error before burning the file, please enable the option "Fix streams with data breaks" in preferences and try again.

#### *Convert to MPEG with MP2 Audio...*

same as "Convert to MPEG", but converts AC3 and PCM audio into MP2 (MPEG) audio so you can play the converted MPEG file using QuickTime Player (to play MPEG-2 in QuickTime Player you must have the MPEG-2 Playback Component).

#### *Convert to Headed MPEG...*

same as "Convert to MPEG" but adds a special header to the MPEG file that lets you import unsupported frame sizes into a DVD authoring application and skip recompression. However, DVDs made from "headed" MPEG files are not guaranteed to work with all players. Please DO

NOT TRY to open "headed" MPEG files in QuickTime Player (it will crash).

*NOTE: Headed formats have been tested with the following DVD authoring applications: Pegasys TMPGEnc DVD Author; Ulead DVD MovieFactory; Ahead Nero Vision.*

*For Nero Vision, the Headed conversion is required even for supported frame sizes (if you use a normal conversion, Nero may encode the file again); it doesn't work with unsupported frame sizes because Nero checks the whole content of the MPEG file (not just the header).*

*Convert to TS...*

converts the stream into a transport stream file; the TS file can be uploaded and played in most PVR devices.

*Convert to TS with MP2 Audio...*

converts the stream into a transport stream file and turns AC3 and PCM audio into MP2 (MPEG); so the TS file can be played in PVR devices (like the DreamBox) that do not support AC3/PCM playback.

*Convert to TS with REC Header...*

converts the stream into a transport stream file for Topfield PVR, with the REC header and extension, and MP2 sound. The REC file can be played with the Topfield 5000 devices.

*Convert to TS with VID Header...*

converts the stream into a transport stream file for Humax PVR, with the VID header and extension, and MP2 sound. The VID file can be played with the Humax 8000 devices.

*Demux to M2V and AIFF...*

demuxes the stream and creates an M2V video file and an AIFF audio file; if the frame size is suitable, you can import these two files in a DVD authoring application, and burn them directly, with no encoding time and no loss of quality. The video and audio files have the same exact duration, the same start and end time, and are perfectly synchronized.

If you use the same name for the two files, you can double-click the M2V file and open both files in QuickTime Player (again, to open MPEG-2 files in QuickTime you need the MPEG-2 Playback Component).

If the frame size is not suitable, please try "Demux to Headed M2V and AIFF".

*Demux to M2V and MPA...*

demuxes the stream and creates an M2V video file and an MPA audio file (which holds MP1/MP2 audio); if the frame size is suitable, you can import these two files in a DVD authoring application, and burn them directly with no encoding time and no loss of quality. For muxed files that have MPEG audio, this command runs faster than "Demux to M2V and AIFF", because no audio conversion is performed; also, the resulting files take less space in the DVD.

If the frame size is not suitable, please try "Demux to Headed M2V and MPA".

*Demux to M2V and AC3...*

demuxes the stream and creates an M2V video file and an AC3 audio file; if the frame size is suitable, you can import these two files in a DVD authoring application, and burn them directly with no encoding time and no loss of quality. For muxed files that have AC3 audio, this command runs faster than Demux to M2V and AIFF, because no audio conversion is performed; and again, the resulting files take less space in the DVD.

You can't use this command if the audio track is not in AC3 format.

If the frame size is not suitable, please try "Demux to Headed M2V and AC3".

*Demux to M2V...*

demuxes the stream and creates an M2V video file. Use this command if you want to extract just the video track.

*Demux to AIFF...*

demuxes the stream and creates an AIFF audio file. Use this command if you want to extract just the audio track.

Use this command 4 times (changing the Audio Mode to "L/R Ch", "Center Ch", "LS/RS Ch", "LFE Ch") if you want to extract all the channels of AC3 audio.

*Demux to MPA...*

demuxes the stream and creates an MPA audio file. Use this command if you want to extract the audio track of a file with MPEG audio, and use it in a DVD authoring application.

#### *Demux to AC3...*

demuxes the stream and creates an AC3 audio file. Use this command if you want to extract the audio track of a file with AC3 audio, and use it in a DVD authoring application. You can't use this command if the audio track is not in AC3 format.

#### *Demux to Unscaled M2V and AIFF...*

demuxes the stream and creates an "unscaled" M2V video file and an AIFF audio file; you can import these two files in QuickTime Pro and convert them (with audio) to another format using QuickTime's exporters.

The "unscaled" M2V file is a demuxed file which tells QuickTime to not prescale it, e.g. to 720 x 540; it preserves its original size e.g. 720 x 576 or 720 x 480 so you won't lose quality when you encode it. This is a special feature of MPEG Streamclip.

#### *Demux to Headed M2V and AIFF...*

same as "Demux to M2V and AIFF" but adds a special header to the M2V file that lets you import unsupported frame sizes into a DVD authoring application and skip recompression. Again, DVDs made from "headed" M2V files are not guaranteed to work with all players. Please DO NOT TRY to open "headed" M2V files in QuickTime Player (it will crash).

#### *Demux to Headed M2V and MPA...*

same as "Demux to M2V and MPA" but with the "headed" M2V file that lets you import unsupported frame sizes in a DVD authoring application.

#### *Demux to Headed M2V and AC3...*

same as "Demux to M2V and AC3" but with the "headed" M2V file that lets you import unsupported frame sizes in a DVD authoring application. You can't use this command if the audio track is not in AC3 format.

#### *Demux to Headed M2V...*

same as "Demux to M2V" but with the "headed" M2V file that lets you import unsupported frame sizes in a DVD authoring application.

*A warning message will tell you if there are data breaks in the stream. A data break means that the stream is corrupted.*

*If the file being converted has data breaks, audio/video sync may be lost. In this case, please enable "Fix streams with data breaks" in preferences before doing the conversion, and MPEG Streamclip will try to recover A/V sync.*

### **PLAYING THE STREAM**

You can use this application to play (even at full screen) QuickTime, DV, AVI, MPEG-4 files; but above all, you can play MPEG-1 and MPEG-2 (if you have QuickTime Alternative, or Apple QuickTime with the MPEG-2 Playback Component) muxed files with MPEG, AC3, PCM audio, demuxed M2V files with AIFF audio, and transport streams with MPEG or AC3 audio. Playback of MPEG-2 files requires a PC with a fast processor (especially when playing files with AC3 or PCM audio); please do not expect to get full frame rate playback on a 500MHz computer. Open a stream, and then start playing it in the usual ways: double-click the picture, or hit the space bar on keyboard, or click the play button |>.

*You can also start playback using the L key, since the player supports JKL navigation. This is a quick explanation of JKL navigation: the L key starts forward play at 1x, 2x, 4x, 8x... doubling forward speed (or halving backward speed) each time you hit L; the J key starts backward play at -1x, -2x, -4x, -8x... doubling backward speed (or halving forward speed) each time you hit J; the K key stops playback.*

With the "Full Screen" command in the Window menu, or with Ctrl+0 (zero) you can start full screen playback. You can zoom the picture in and out with the up and down arrow keys; you can go back to normal playback by clicking the mouse or pressing Esc or 0 (zero) or Ctrl+0 or even Ctrl+W. Most navigation keys can be used in full screen mode.

You can use the up and down arrow keys to reach the previous or next keyframe (for MPEG files, the first I-frame of the GOP); also, you can use the command "Go to Keyframe" in the Edit menu to get to the nearest keyframe. The other two arrow keys, as usual, move the playhead by one frame.

You can also use the up and down arrow keys to set the sound volume. Ctrl + Up/Down increases/

decreases the volume; Shift + Up raises volume above its maximum; Ctrl + Alt + Up/Down turns sound on/off.

The Home and End keys can be used to jump about 1 minute forward/backward; for some streams these keys may attempt to reach a keyframe for faster access.

With the "Go to Time..." command of the Edit menu you can go to a specific point of the stream by entering its timecode (with or without colons).

There are 5 navigation buttons under the player; this is how they work:

|> : starts/stops forward play at normal speed;

> : starts forward play; doubles forward speed at each click (same as L key);

< : starts backward play; doubles backward speed at each click (same as J key);

>> : jumps 10 seconds forward (same as Page Down);

<< : jumps 10 seconds backward (same as Page Up);

Alt + |> : starts repeated playback of the current selection, from In to Out (same as Alt-K);

Alt + > : starts slow motion; halves slow motion speed at each click (same as Alt-L);

Alt + < : starts backward slow motion; halves slow motion speed at each click (same as Alt-J);

Alt + >> : jumps 1 minute forward (same as Alt-Page Down);

Alt + << : jumps 1 minute backward (same as Alt-Page Up).

If you hold down the Shift key, you can extend the selection with the four arrow keys, Page Up/Down, the >> and << buttons.

You can play a file or stream even while you are exporting, converting or saving it: however, in this case, both the playback and the conversion will slow down.

Please select the correct audio and video PIDs before playing a stream with multiple audio or video tracks; if you don't, a default audio and video track will be played.

### **USING BATCH PROCESSING**

If you want to use batch processing, please open the batch list using the List menu. The batch list shows a queue of tasks that will be executed when you click the Go button.

If you have many files you want to convert, you can click the "Add Files" button. You will be asked to choose a task and a destination directory. You have the option to fix timecode breaks and join selected files. For export, you will also need to enter the export settings, unless you enable the option "Use previous folder and settings": this option is available only if you previously used "Add Files" at least once.

PIDs for the conversion will be chosen automatically for each file.

Loading all files in the batch list may take time: you can stop the process with Esc, if necessary.

But there is another way to fill the batch list. In fact, while the batch list is open (even when hidden by other windows) every conversion you choose in the File menu will be added to the batch list instead of being performed immediately (so remember to close it when you want to do an immediate conversion). This includes Save As, Export to, Convert to, Demux to; and even Download and Upload from/to supported PVR devices. The source stream used is of course, the one shown in the player.

If you add tasks this way, all editing, trimming, In/Out points, and chosen PIDs, will be saved in the batch list; thus a batched conversion gives the same results as an immediate conversion. If you then make further changes to the source stream in the player, these changes do not affect editing, trimming, In/Out points, and PIDs stored in the batch list. And you can even close the stream and open another stream in the player if you want; all conversion data will remain in the batch list until you delete the task or quit the application.

You can start batch processing with the "Go" button. The button's name will change to "Stop", if you click it again, processing of further tasks will be stopped but the currently running task will continue till completion. To stop the running task and all subsequent tasks, you can use the "Stop" button in the progress window.

If you enable "Automatic start", batch processing will automatically start as soon as you add a new task to the batch list.

If you set the number of "Simultaneous tasks" to more than 1, several tasks will be performed at the same time. The progress window shows the status of only one task: click on a particular task in the batch list to watch its progress. But if you click "Stop" in the progress window, all running tasks will be stopped at once. Not all tasks can be performed simultaneously; multiple processors will not be used in this version of MPEG Streamclip.

The initial status of a task is "Waiting". If you click the "Hold" button you can change the status to "Held" and then back to "Waiting". When a task is "Held" it will be skipped during batch processing, but it remains in the batch list.

Once executed, the status of a task changes to "Completed"; if unsuccessful, the status reports the error message. To execute the task again, you need to change the status back to "Waiting" by using the "Repeat" button.

You can change the processing order of tasks by selecting one task and using the "Up" and "Down" buttons. You can remove a task from the list using the "Delete" button, or all tasks using the "Clear" button.

You can change the destination folder of one or more tasks with the "Redirect" button.

### **USING MPEG STREAMCLIP WITH THE DREAMBOX**

The DreamBox (<http://www.dream-multimedia-tv.com>) is a DVB set-top box. It comes in several versions (for satellite and digital terrestrial TV), with or without the hard disk. All these versions are supported.

The Enigma menu allows MPEG Streamclip to connect directly to the DreamBox, through the Ethernet interface. To enable this menu, please enter the IP address of your DreamBox in MPEG Streamclip preferences. You have to enter the password only if different from "dreambox".

If you select "Files...", the "Enigma Files" window will open, showing the files that are in the "movie" folder of the DreamBox hard disk. You can update the file list at any time with the "Refresh" button. If you click the "Open" button (or double-click a file), you can open and immediately play a file in the player, you don't need to download it before. With the "Upload" and "Download" buttons you can upload/download one or more .ts files to/from the DreamBox. Using "Upload" you can also upload to the DreamBox, the stream that is currently in the player, from In to Out. The stream will be automatically converted to .ts while uploading. And, since you can open any DreamBox file in the player, this means that you can even upload a DreamBox file to the DreamBox, after any editing or trimming, without passing through your PC's hard disk.

If the batch list is open, or if you select more than one file, Upload and Download tasks will be added to the batch list so you can execute them in batch.

Once the .ts file has been uploaded, you need to update the movie list that is in the "recordings.epi" file. This procedure can be done by clicking the "Rebuild" button and forces the DreamBox to reboot.

For this reason, uploading a file in the "movie" folder is not recommended: you would better use the "lost+found" folder for uploaded files, and leave the "movie" folder for TV recordings. In the Enigma Files window, you can go to the "lost+found" folder with the "lost+found" button and, with the "movie" button, you can go back to the "movie" folder; in the DreamBox, you can go to the "lost+found" folder in File mode, by choosing "Root" (red key on remote), then "harddisk" and "lost+found".

With the "Delete" button you can delete a file from the DreamBox. You will be asked 3 times for confirmation. One of these three messages will contain a mini-player that will let you see the .ts file for the last time, and realize what you are going to delete. You can disable the player by holding down the Alt key while you click the Delete button; this can be useful if, for some reason, MPEG Streamclip hangs before the player appears. Still with the Alt key, you can select and delete many files at once.

If you select "Recorder", the "Enigma Recorder" window will open, and, if the DreamBox is on, the name and the screenshot of the current TV channel will appear.

With the "Start Box Recording" button you can remotely start/stop recording on the DreamBox hard disk. A red word near the button will tell you whether a recording is in progress.

With the "Start PC Recording" button you can start recording on your PC's hard disk. You will be asked to choose a folder and a name for the .ts file to be recorder; however, to make this procedure faster, MPEG Streamclip goes to the last folder used for recording and proposes a unique file name, using the channel name and the current date and time. This feature is just what you need to use MPEG Streamclip with a DreamBox that has no internal hard disk.

In both cases, the TV channel shown in the window is the same shown by the DreamBox, and not necessarily the one being recorded; you must avoid changing channel while recording on PC, because the data flow may stop.

You can't start recording on PC and on DreamBox at the same time.

Enigma Recorder, used with the DM-7000, requires at least the 1.08 firmware.

### **SUPPORT**

There is no support for this free application, however you can write and ask your questions to

Squared 5 (squared5@mpeg-streamclip.com). I will answer only if I have time.  
Please don't forget to mention the operating system (Windows) in your e-mail.  
Even if you have no questions to ask, please give your feedback because this will be helpful for me in order to improve this application.

**BUGS?**

Please report any bug you find in this application to Squared 5 (squared5@mpeg-streamclip.com).  
Even if you get no answer, the bug will be investigated and possibly fixed in the next version.  
Again, indicate the operating system version in which the bug appeared, and the version of MPEG Streamclip too.

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