



User manual

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1 Overview

1.1 What is MTCVideoSlave

MTCVideoSlave (**MIDI Time Code Video Slave**) is a video player which syncs the video playback to MIDI time code.

It uses the *FFmpeg*¹ library for decoding video files and therefore supports numerous file formats. But since not all of these formats are suited equally well for synchronized playback it is sometimes required to transcode the video file into a format suitable for playback with MTCVideoSlave.

By using *OpenGL* for displaying the video the CPU load is kept low and multiple video windows can be shown simultaneously - so you can have a small window on your DAW desktop and a big window on another screen at a remote location for example. You can also use MTCVideoSlave to offload the video playback onto another PC or keep multiple PCs in sync for video installations.

Usually it is best if the video file has the same frame rate as the MIDI time code but this is not a requirement. MTCVideoSlave supports videos with any frame rate and tries its best to accurately keep them in sync.

2 Using MTCVideoSlave



Main Window

First you have to tell MTCVideoSlave which MIDI device to use. You can do this in the Settings dialog (see 2.6 Settings).

If you don't have MIDI hardware you need additional software such as *LoopBe1* (<http://nerds.de/en/loopbe1.html>) or *MIDI Yoke* (<http://www.midiox.com/>) which will allow you to connect the output of your DAW to the input of MTCVideoSlave with a "virtual MIDI cable".

To open a video file press **Ctrl+O** or select **File->Open...** from the menu at the top of the window. If the file is opened for the first time a seek table has to be built. This may take a few minutes for big videos. Once the seek table has been built, MTCVideoSlave is ready for operation and will keep the video in sync with the time code received from the selected MIDI device.

Note: When an external timecode is being received and the **Sync** button is active the internal play and seek commands will be disabled.

1 FFmpeg is a trademark of Fabrice Bellard. See <http://www.ffmpeg.org/> for more information.

2.1 Controls







- **Video** Shows the current position in the video stream. The video FPS can be overridden by entering the wanted FPS into the *FPS* field. Clear the *FPS* field and press return to reset to the videos original FPS.
- **MTC** Shows the current MIDI time code.
- **Offset** Offset between video and MIDI time code. Positive values mean the video is ahead of the time code.
- **Sync Error** Shows the maximum sync error which happened during playback.
- **Set** Set Offset from current Video and MTC position.
- **Sync** Enable/Disable syncing of the video to the time code.
- **Video Buffer** Shows the status of the video buffer.
- **Duration** Shows the duration of the video.

Note: The *Video* and *Offset* values can be edited with the mouse wheel. Just click into the section you want to edit (hours, minutes, seconds or frames) and scroll the wheel. Double clicking will reset the value to *00:00:00:00*.

2.2 Sync/MTC status icons

If the *current time* overlay is enabled (see 2.6 Settings) then the sync status (on/off) and the MTC status (running/stopped) are indicated by one of four icons:

Sync off MTC stopped	Sync off MTC running	Sync on MTC stopped	Sync on MTC running
			
Empty square	Filled square	Empty triangle	Filled triangle

2.3 Seek tables

In order to quickly seek the video MTCVideoSlave has to build a seek table for every video file. This is automatically done when a file is opened the first time and can take some time (usually a few minutes). By default the program does a quick check of the seek table after a new seek table has been built. For correct operation of the program it is essential that the seek table is correct. This can be assured by choosing **Tools** → **Check seek table (full)** from the menu.

2.4 Transcoding videos

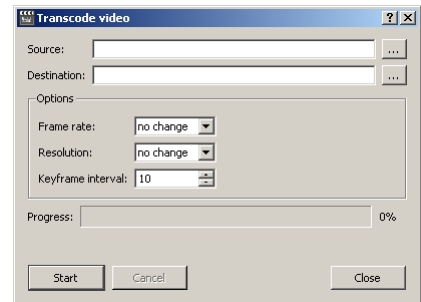
For normal usage the *H264* video codec is recommended because it is used a lot and implemented with good performance. For professional use *DNxHD* is recommended over *ProRes* because the performance is better.

If there are troubles with a certain video file (for example seek table cannot be built, seeking is too slow, playback doesn't work, ...) try to transcode the video into another format. Select **Tools** → **Transcode video stream...** from the main menu (this feature is not very well supported

however).

First select the source and destination files, then setup the options and click **Start**.

- **Source:** The source filename.
- **Destination:** Destination filename.
- **Frame rate:** Select the frame rate for the destination file. Possible values are 24, 25, 29.97 and 30.
- **Resolution:** If the video has a high resolution only few frames will fit into the video buffer. With this option you can downsample the video to a lower resolution.
- **Keyframe interval:** Lower values produce bigger files which increases seeking performance but also increases file size. A value of 1 would be ideal for seeking but will produce big files. The default value of 10 should be suitable for most scenarios.



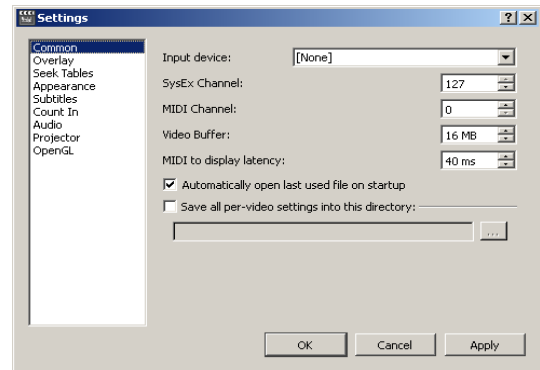
2.5 Keyboard shortcuts

Ctrl+Q	Quit
Ctrl+O	Open video file
Alt+Return	Toggle fullscreen display (can also be done by double clicking into the window)
Ctrl+N	Open new video window
F1	Toggle sync on/off
F2	Show/hide controls
F3	Toggle timecode overlay on/off
F4	Toggle filename overlay on/off
F5	Toggle subtitle overlay on/off
F6	Toggle count in on/off
Escape	Leave fullscreen display
Return	Toggle menubar and statusbar visibility in fullscreen mode
Space	Play/Stop
Page Down, Page Up	Seek 1 frame backward/forward
Left, Right	Seek 1 second backward/forward
Down, Up	Seek 10 seconds backward/forward
Home, End	Seek to begin/end
Plus, Minus	Audio track volume up/down
Ctrl+Plus, Ctrl+Minus	Count in beep volume up/down

2.6 Settings

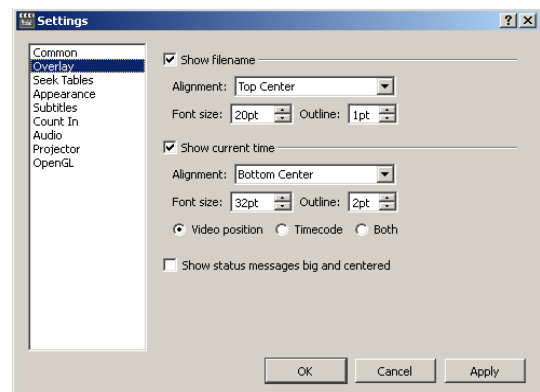
2.6.1 Common

- **Input device:** Select the MIDI Device which should be used.
- **SysEx Channel:** MIDI SysEx channel to use. 127 is the default channel for global messages.
- **MIDI Channel:** The MIDI channel to use. Messages which trigger the count in must come on this channel.
- **Video Buffer:** How much graphics memory to use for buffering the video. If this value is too small only few frames of the video will fit into the buffer, if it is too big the performance might suffer from excessive graphics memory usage.
- **MIDI to display latency:** Use this setting to compensate MIDI to display latency.
- **Automatically open last used file on startup**
- **Save all per-video settings into this directory:** If you don't want the per video settings (offset, aspect ratio, ...) to be saved in the same directory as the video file (with the extension *.mtc* appended) select this option to save them all into one directory.



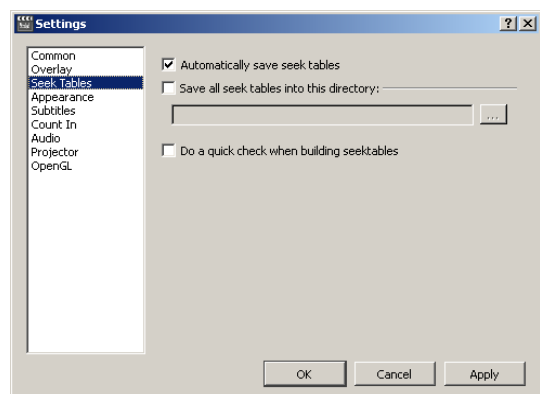
2.6.2 Overlay

- **Show filename:** Show the filename on top of the video.
- **Show current time:** Whether to display the current time on top of the video.
- **Alignment:** Where to align the overlay on the video.
- **Font size:** Font size of the overlay.
- **Outline:** Width of the outline.
- **Show status messages big and centered:** Status messages, such as *Sync: on/off* are shown bigger. By default they are shown with the style of the *current time* overlay.



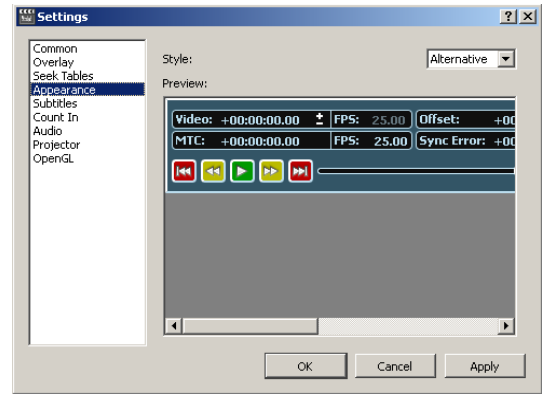
2.6.3 Seek Tables

- **Automatically save seek tables:** Tells the program to automatically save seek tables so they don't have to be built every time a file is opened.
- **Save all seek tables into this directory:** If you don't want the seek tables to be saved in the same directory as the video file (with the extension *.skt* appended) select this option to save them all into one directory.
- **Do a quick check when building seek tables:** This option is recommended since it is essential for the proper operation of the program that the seek tables are correct.



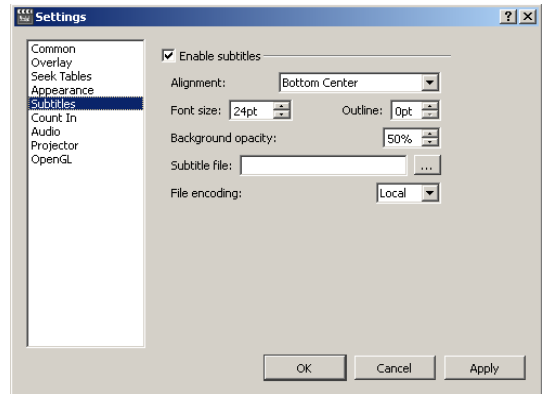
2.6.4 Appearance

- **Style:** Choose the style of the controls. You can choose between native look and some other styles.



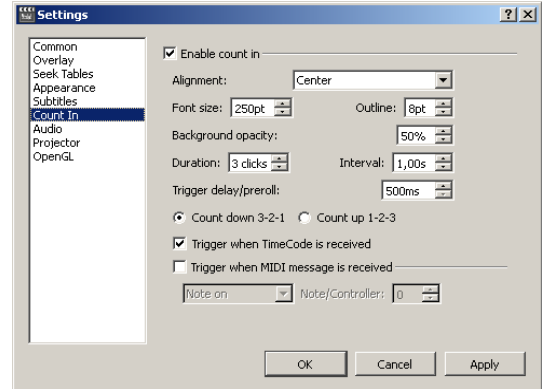
2.6.5 Subtitles

- **Alignment:** Where to align the overlay on the video.
- **Font size:** Font size of the overlay.
- **Outline:** Width of the outline.
- **Background opacity:** Intensity of the text background.
- **Subtitle file:** The text for the subtitle overlay is read from this file. When the content of the file changes the subtitles will automatically be updated. The intended use of this is to have another application update the subtitle file with the text for your speakers while dubbing.
- **File encoding:** Character encoding of the subtitle file.



2.6.6 Count In

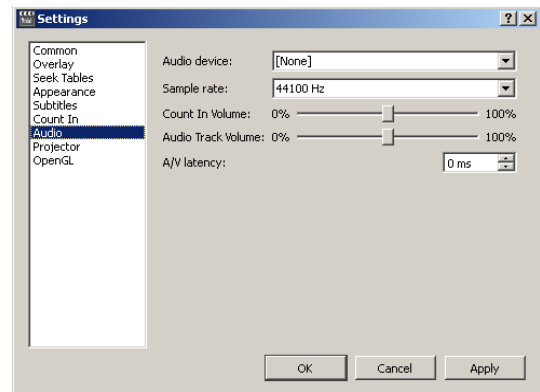
- **Alignment:** Where to align the overlay on the video.
- **Font size:** Font size of the overlay.
- **Outline:** Width of the outline.
- **Background opacity:** Intensity of the text background.
- **Duration:** The duration of the Count In.
- **Interval:** Time between clicks.
- **Trigger delay:** Delay between trigger event and Count In (minimum 1000ms).
- **Trigger when TimeCode is received:** Count In will start when incoming TimeCode starts.
- **Trigger when MIDI message is received:** Choose between triggering on *Note on* or *Control change* messages. You must also enter a value for the Note/Control to trigger on. The following table shows the numbers of the MIDI notes:



Octave	C	C#	D	D#	E	F	F#	G	G#	A	A#	B
-2	0	1	2	3	4	5	6	7	8	9	10	11
-1	12	13	14	15	16	17	18	19	20	21	22	23
0	24	25	26	27	28	29	30	31	32	33	34	35
1	36	37	38	39	40	41	42	43	44	45	46	47
2	48	49	50	51	52	53	54	55	56	57	58	59
3	60	61	62	63	64	65	66	67	68	69	70	71
4	72	73	74	75	76	77	78	79	80	81	82	83
5	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107
7	108	109	110	111	112	113	114	115	116	117	118	119
8	120	121	122	123	124	125	126	127				

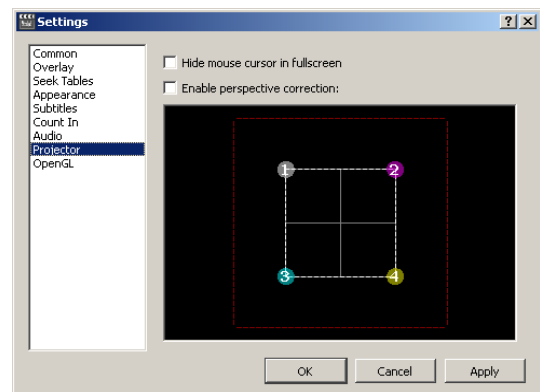
2.6.7 Audio

- **Audio device:** Choose the audio device to use.
- **Sample rate:** Sample rate to use.
- **Count In Volume:** Volume of the count in beep.
- **Audio Track Volume:** Volume of the audio track from the video file.
- **A/V Latency:** Use this setting to compensate Audio/Video latency.



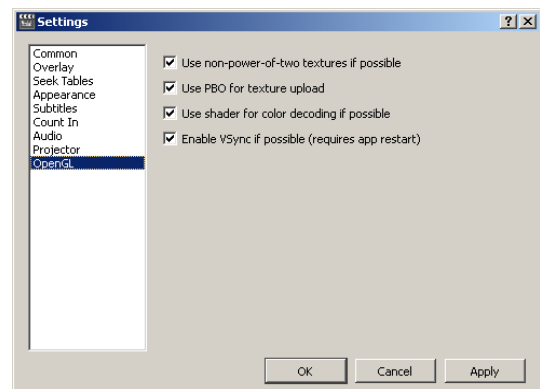
2.6.8 Projector

- **Hide mouse cursor in fullscreen**
- **Enable perspective correction:** Drag the four points for perspective correction. Double-clicking a point will reset it to the default position. The red lines can be dragged to crop the picture.



2.6.9 OpenGL

- **Use non-power-of-two textures:** Saves memory.
- **Use PBO for texture upload:** Better performance.
- **Use shader for color decoding:** Better performance and saves memory. At the moment videos which are encoded in YUV420P, YUV422P and YUV422P10LE format are supported.
- **Enable VSync if possible:** If you have problems with tearing of the video try to enable VSync. Please note that enabling VSync can have a negative effect on timing and latency compensation.



2.7 Remote control application

MTCVideoSlave comes with a remote control application which can be found in MTCVS' installation directory and is called *remote.exe*.

The following commands are supported:

-help	Show help/supported commands
-close	Close file
-offset [timecode]	Set offset
-open [filename]	Open file
-play	Play
-pos [timecode]	Set video position
-quit	Quit MTCVideoSlave
-stop	Stop
-subtitle [text]	Set subtitle
-wait	Wait for command completion (i.e. wait for seektable build when file is opened)