

MPEG CC Insert

A Simple DVD SP Helper

MPEG CC Insert is a simple drop-on application that will take one or more MPEG-2 files and an .scc text file containing encoded Closed Caption information, insert the closed caption data into the MPEG video according to the timecode you select in the Save As dialog and the timecode in the .scc file with the same base name as the source.

Closed Caption data is only supported for NTSC DVDS. PAL DVDs and DVD players do not support this mechanism.

DVD players most often use the Subtitle mechanism to convey audio information in a visual form, but there are certain cases where traditional closed captions with their simple block characters and black background are preferred, especially when the information may need to be processed by special equipment such as a Braille reader for descriptive captioning.

Closed Captions should not be used in place of DVD Subtitles, but in conjunction with them. DVD Subtitles are much less obtrusive than the primitive all-upper-case, black-background caption display and are preferred by most DVD users.

Closed Captions are a very low data rate mechanism for transferring textual and other information, encoding only two bytes per field in an NTSC video signal. There are two separate streams, one in field 1 (the top field) and one in field 2 (the bottom field), so a total of 4 bytes are transferred per frame, but only two in each of the streams.

Each of the two field streams can contain two channels of caption data and two channels of text data, space permitting. This field data is multiplexed together using the methods described in the standard EIA-608.

MPEG CC Insert allows you to insert closed caption information you have prepared in another program or files prepared by a profes-

For a detailed description of the options and general behavior of this and other applications based on MPEG Append, see the MPEG Append documentation.

Quick Start:

Choose the first file to convert, for example "MudPie.m2v"

If you want to append additional files, rename each of those additional files the same as the first with a numeric suffix, like "MudPie.m2v.1" and put them in a folder with the first. Place the caption data text file in the same folder with the name "MudPie.scc".

So a Finder list will contain:

MudPie.m2v, MudPie.m2v.1, MudPie.m2v.2, MudPie.m2v.3 etc.

Drag MudPie.m2v onto the MPEG CC Insert application.

Specify a file name and location. Click Save.

When it is done, you will have one large file with caption data embedded and continuous timecode. If the original file(s) contained any closed caption information, it will be overwritten by the content from the .scc text file.

sional captioning service. The inserted data comes from a text file in the .scc format popularized by the Scenarist DVD authoring system.

NOTE: MPEG CC Insert will attempt to insert data for the second field (CC3, CC4 and T3, T4) for files with the suffix .sc2 instead of the .scc suffix used for insertion of field 1 information. Unfortunately, this field 2 insertion has not been seen to work properly either because of some implementation error or because the available DVD-player decoder combination does not support it. Since no existing 2 field encoded DVDs have been found, this issue remains under investigation.

Closed caption information is inserted into the intersection of the timecode in the output MPEG file and the timecode in the source .scc

file. CC data that would be displayed before the beginning of the timecode in the MPEG file or after its end are ignored.

Thus, you can apply CC data from a longer file to a shorter segment so long as you correctly specify the starting timecode of the MPEG video in the Save As dialog. Since the timecode in the .scc file is always presumed to be drop frame format, your arithmetic will be greatly simplified if you use drop frame time code for the video as well.

The .scc file begins with a line containing the text “Scenarist_SCC V1.0” and subsequent lines contain a time code value hh:mm:ss:ff in drop frame format, followed by a series of 16-bit hexadecimal values, each representing two bytes, or one field’s worth of closed caption data. Each 16-bit hexadecimal value is separated by a space or tab character.

These .scc files are compatible with those produced by the Macintosh program CCaption™ and the PC program Caption Maker™ as well as many others.

You can encode these captions using these programs or, since it is easy to do badly and very time-consuming for the novice, you can use professionally encoded files from any number of captioning service bureaus.

If you use a service bureau, tell them you want closed caption .scc files in the Scenarist format. The same bureau should be able to supply the text in a form suitable or easily edited for the Subtitle Editor.

Any existing captioning information in the source MPEG video files will be replaced by the captions inserted by MPEG CC Insert. If no .scc file with an appropriate file name is found in the same directory as the first source file, an empty caption block will be inserted, and the original caption information will be lost.

This DVD SP Helper is useful for inserting or replacing closed caption information in an MPEG video file.

Once the captions are inserted, the MPEG video can be used as you would any other video asset in DVD Studio Pro. When played back on a compatible DVD Player-Decoder combination, closed captions can be seen just as they would when coming from an analog source like broadcast television or a VCR.

The DVD specification requires that closed captioning extend from one end of a track to the other, if it is used at all. If only one segment of a track is captioned, you can use the companion application MPEG CC Strip to remove it, then MPEG CC Insert to reinsert the captions with the required empty caption info in the adjoining segments.

Similarly, you can correct offset problems using the combination of MPEG CC Strip and MPEG CC Insert.

If the captions are late or early by a fixed amount, you can extract the .scc file with one timecode, then reinsert it with another.

If your captions were appearing throughout the segment 2 seconds late, you could extract the caption data with MPEG CC Strip with a starting timecode of 00:59:58:00 then reinsert the .scc file with MPEG CC Insert with a starting timecode of 01:00:00:00. At the end of this operation, the captions will appear two seconds earlier throughout the track.

If one or more captions appear early or late, you can extract them with MPEG CC Strip, change the timecode on the troublesome captions and reinsert them with MPEG CC Insert using the same starting timecode.

Once the closed captions are inserted into the MPEG video file, the timecode no longer matters. Any change to the timecode in the file made at a later time will not affect the synchronization of the captions to the displayed video.

MPEG CC Insert, like other MPEG Append tools, transfers markers originating in Final Cut Pro and encoded with compatible encoders then adds new markers at the junction of files. These markers will appear, pre-placed, when you use the asset in DVD Studio Pro.

You can choose to have the output file use Non-drop Frame timecode, or whatever timecode the first file uses using the pop-up at the bottom of the ‘Save As’ dialog.

For MPEG CC Insert, specifying drop frame is recommended to avoid synchronization errors with the caption timecode in the .scc file. Drop frame and Non-drop frame time code are only the same at time 00:00:

00:00. Matching the drop frame timecode in the .scc file to a non-drop frame starting time can be challenging.

For almost all cases, the default Drop Frame timecode is preferred because it avoids a persistent bug in DVD Studio Pro which causes audio synchronization problems during preview.

However, if you are using subtitles with markers in your authoring you may encounter another DVD Studio Pro bug which causes it to generate errors indicating that the subtitles cross a marker point when Drop Frame timecode is used. You can avoid this problem by using Non-drop Frame timecode (but your audio may seem to be out of sync).

MPEG CC Insert is based on MPEG Append, another DVD SP Helper. For detailed information refer to the MPEG Append documentation.

Cautions

MPEG CC Insert makes the bold assumption that you have some idea what you are doing (boy, does that simplify the programming).

If you give it a collection of files that are named appropriately, it will process them.

If you supply a combination of spreadsheet files, application files and your laundry list, you will not get anything useful on the output. But MPEG CC Insert will happily do it for you.

MPEG CC Insert for Mac OS 9 is free. MPEG CC Insert for Mac OS X is a paid product and part of the MPEG Append Suite for Mac OS X.