

ToolBox

File conversion and tools software

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Cavena Image Products AB
ToolBox 3.0

1 Introduction

ToolBox is a collection of tools for handling of subtitle files.

- View of header information and all subtitles
- Handling of different file formats when reading and writing
- TV system conversions
- Positioning and timecode conversions
- File operations such as merge etc
- Quality Control functions, same as exist in SAM

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3 Installation

3.1 System Requirements

ToolBox runs on the PC platform and requires Microsoft Windows Vista/7/8/10.

3.2 Installing the software

Run the file "Toolbox Installer.EXE". Follow the instructions on screen. If it requires you to reboot the computer after installation (always after first install), do so.

3.3 Activating your license

To activate your license, you need the License ID and Password from Cavena. Please contact us at license@cavena.com if you haven't received them.

When you start the software you are presented with a dialog. Press the Activate Renewal option.

If you have internet access, press the Activate Toolbox Online option and then enter your License ID and Password, then press Continue and the license should activate.

If you do not have internet access, select the Activate Manually option instead. Enter your License ID and Password. You are then presented with two codes, Code 1 and Code 2. Send these two codes to license@cavena.com or call us. Cavena will return the two codes needed to activate the software.

If your license is time limited, the software will display this dialog again at start up when there is less than 14 days remaining until renewal is required. You can renew the license at any time before or after the current license expires.

3.4 User Language map

You can define user language codes for use across all Cavena products. Under the User Language map section, add the codes:

[User Language map]

```
<hex code>=<original language code>,<name>,<ST import>,<ST export>,<ISO code>[,<ISO code>...]
```

<original language code> is the actual language, contact Cavena for information about values for all languages.

Hex codes 0x65, 0x69 and 0x90 to 0x97 are Unicode based.

Hex codes 0x5a, 0x6c, 0x7e, 0x80 to 0x89 and 0x8d to 0x8f are RTL based.

4 Overview

4.1 Function

ToolBox is used by loading a subtitle file which can then be seen in the main window. Operations can be performed on the file as it is loaded. When done, the file can be saved into any format using any settings.

The screenshot shows the ToolBox application window with the following fields and data:

Information	
Translated Title	Robin Hood
Original Title	
Translator	
Comment	
Version	
Language	Swedish
Tape Number	
Primary Font	SFN804
Program Length	
Secondary Font	SFNTMS
Start Time Code	00:00:00:00
SW Version	MTL542

#00001	01:03:19.00	01:03:24.24	00:00:05.24	#F LL00000D1	#C
En gång vandrade Robin Hood och Lille John omkring i skogen.					
#00002	01:03:27.04	01:03:32.24	00:00:05.20	#F LL00000D2	#C
Förresten är jag Allan i Dalen, ett slags vissångare.					
#00003	01:03:33.01	01:03:37.24	00:00:04.23	#F LL00000D3	#C
Jag berättar historier om hur det verkligen gick till.					
#00004	01:03:42.16	01:03:48.05	00:00:05.13	#F LL00000D4	#C
Robin och Lille John går i skogen, pratar, skrattar och har kul					
#00005	01:03:50.24	01:03:57.06	00:00:06.06	#F LL00000D5	#C
de berättar roliga minnen					

G:\STfiles\890\RobinH\ROBINHSW.890 loaded

4.1.1 Subtitle Header information

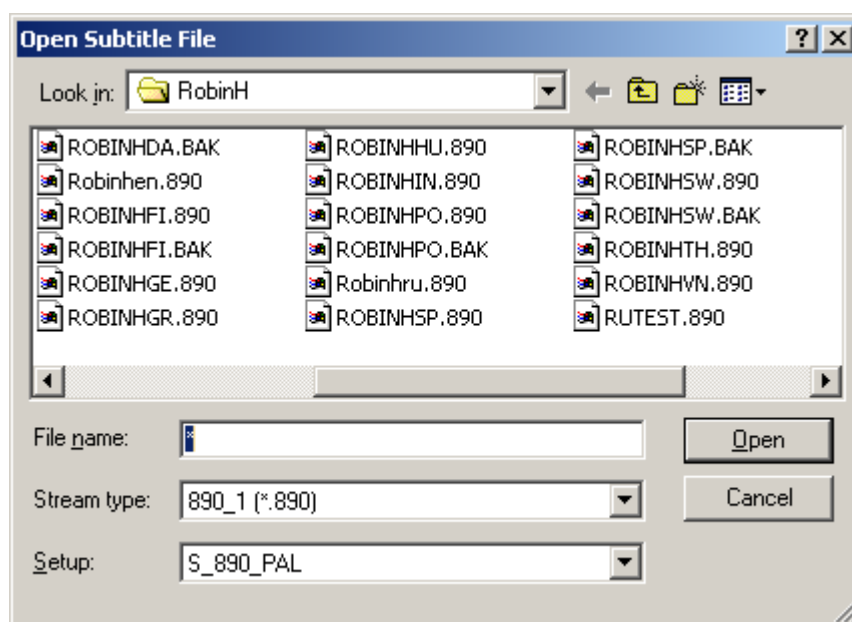
The time code line includes subtitle number, in-time, out-time and duration, as well as a number of flags. These will not be displayed if they are set to their default values. The #F indicates the flags field containing the justification, vertical position, row spacing, background + open/closed and transparency parameters (see table below).

The sign #C indicates the cueword, if present.

Flag	Position	Values
Justification	XX_____	LL = Left (Default) RR = Right CC = Centre LC = Left Centre
Vertical position	__XXX__	000 = Default = set by transmission (Default) ### = Value
Row space	____XX__	00 = Default = set by transmission (Default) ## = Value
Background Open / Closed	_____X_	D = Default = set by transmission (Default) A = Auto height box F = Full box X = Fixed box O = Outline (Border) S = Drop shadow H = Heavy outline (Wide border) Open / closed is displayed in the Background letter: Upper case letter = Open subtitle (Default) Lower case letter = Closed subtitle
Transparency	_____X	For background types A, F and X this is a value 0-8. 0 is Default and 1-8 are transparency levels 0-7.

4.2 Loading a file

To load a file, select File – Load... from the menu or click the toolbar Open button. You will see the Open dialog. Here you select the file stream type and the setup to use when loading the file. Select the file you want to open and click Open. (See Section 5 Stream Types on page 17)

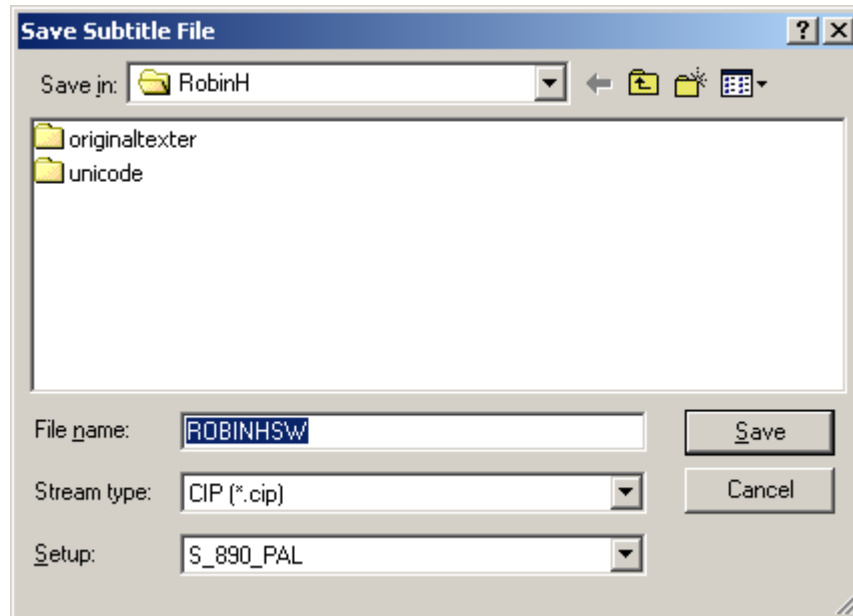


By default the first time, you see all types of files. When selecting a file the stream type will change to the correct file ending, picking the first available compatible stream type and setup. You can select a different compatible stream type yourself. The second

time you load a file it will default to the stream type you used the last time you opened a file of that type.

4.3 Saving a file

The save dialog looks the same as the open dialog. It will suggest the filename based on what file you loaded. It will also default to the stream type and setup you saved the last file as.



You can change the stream type and setup that you want to save the file as, in the same way as when loading a file (see above).

4.4 Command line

ToolBox can be run from a command line. There are also command lines switches to use for saving files, quitting and modifying fields of the loaded subtitle file.

An example Convert.BAT file is available in the Toolbox/util/ directory.

4.4.1 Arguments

ToolBox.exe <filename> {other optional switches}

<filename> must not contain any spaces.

Switch	Function
/o	Output filename, saves the file to this filename. If it includes a file ending, the file will be saved in this file format.
/fast	ToolBox will not display the subtitles in the RTF box to speed up loading of large files
/si	Subtitle setup to use when loading the file
/so	Subtitle setup to use when saving the file
/sfi	Stream Format to use when loading the file
/sfo	Stream Format to use when saving the file
/q	ToolBox will quit after performing all operations
/qc	Toolbox performs a Quality Control using the QC configuration used as argument. The result of the QC is written in a log file: log\qc\<config

	name>_<date>.log
/vf	Sets the video file field of the file
/vfs	Sets the video file start timecode field of the file
/vfe	Sets the video file end timecode field of the file
/tor	Sets the original title field of the file
/ttr	Sets the translated title field of the file
/tra	Sets the translator field of the file
/com	Sets the comment field of the file
/tnr	Sets the tape number field of the file
/som	Sets the S.O.M. field of the file
/otu	Offsets all timecodes in the file up by the amount given (HH:MM:SS:FF or HHMMFFSS)
/otd	Offsets all timecodes in the file down by the amount given (HH:MM:SS:FF or HHMMFFSS)
/ots	Offset all timecodes down based on file SOM if present, then sets SOM to optional argument given (* to clear SOM). If no SOM is set in file, no offset is done.
/asj	Set the Justification attribute in all subtitles to the value given (CENTRE, LEFT, RIGHT, DEFAULT or C, L, R, D)
/rtp	Remove all textrows in the file using the primary font of the file
/rtn	Remove all textrows in the file not using the primary font of the file
/rso	Remove all subtitles marked as open
/rsc	Remove all subtitles marked as closed
/rav	Remove all fixed vertical positions
/otc	Overlay file, replace timecode
/otx	Overlay file, replace text
/oma	Overlay file, merge text rows above
/omb	Overlay file, merge text rows below
/cut	Cuts away all subtitles between first and second timecode given (HHMMSSFF-HHMMSSFF) and offsets remaining part down by the time cut away. Multiple cuts can be done by separating them using comma, for example HHMMSSFF-HHMMSSFF,HHMMSSFF-HHMMSSFF
/edl	Loads an EDL and applies video cuts to subtitle file
/spl	Splits a subtitle file and writes one new file for each parameter given. Each parameter has a timecode for the split and a filename (without file ending) for the new file of the first part. For example HHMMSSFF-<filename1>,HHMMSSFF-<filename2>, for the remaining part of the original file, use /o to save
/spo	Same as /spl above, but each consecutive file part will also be offset down to the original SOM
/t2s	Convert a traditional chinese file to simplified chinese. Requires a three letter ISO character code for the new language code

If the /si and/or /so switches are not used, ToolBox will use the last subtitle setup used for that operation and format. If no file has been loaded/saved before using this format, the setup is not defined, the setup used is undefined and can cause wrong setup to be used. If you don't want to use the /si and/or /so switches, make sure you manually load and save a file first.

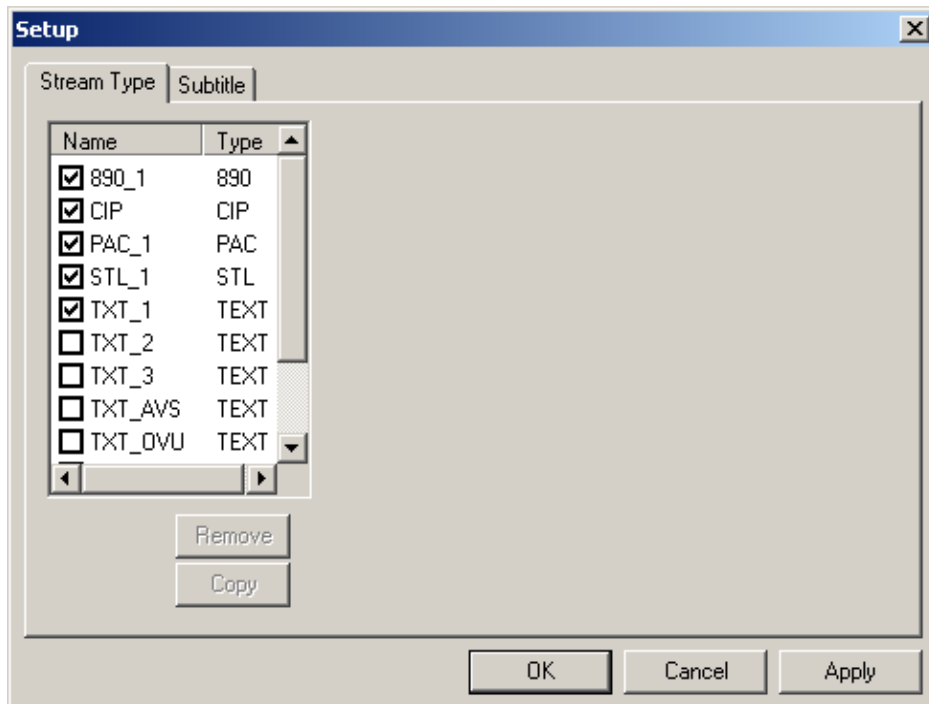
4.4.2 Return value

If successful, Toolbox returns 0. Other return codes indicate an error:

Value	Error
1	Invalid in filename
2	Invalid out filename
3	Invalid in setup
4	Invalid out setup
5	Invalid in stream format
6	Invalid out stream format
7	Cannot open file
8	File open failed
9	Cannot save file
10	File save failed
11	Unknown file extension
12	No license in
13	No license out
14	EDL file open failed
15	Cannot find any valid cuts in EDL file
16	EDL file contains invalid cuts

4.5 Setup

Select File – Setup... or click the toolbar setup button to open the setup dialog.



4.5.1 Stream Type

Stream types are configurations for different file formats. Some settings must be known to the software to correctly load certain variants of some subtitle files. Each stream format configured is one specific setting for a specific file format. There are a

number of configurations supplied at installation and the user can add more by copying existing ones and reconfigure them.

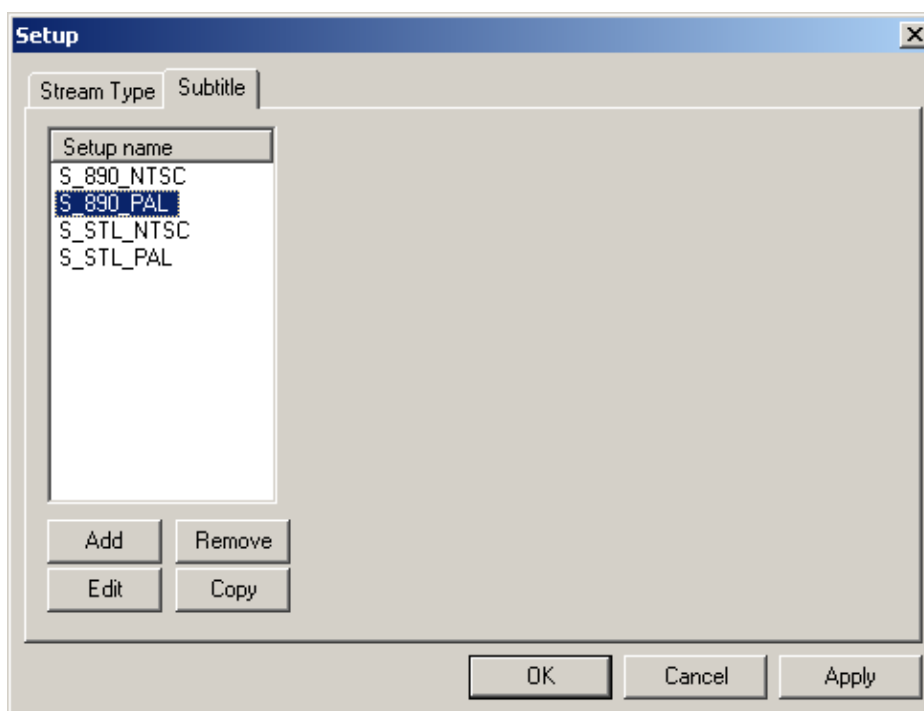
To edit each individual stream type, select the stream type you wish to edit by clicking on the name.

To create new stream types, select an existing of the same type and press the Copy button, then give it a new appropriate name.

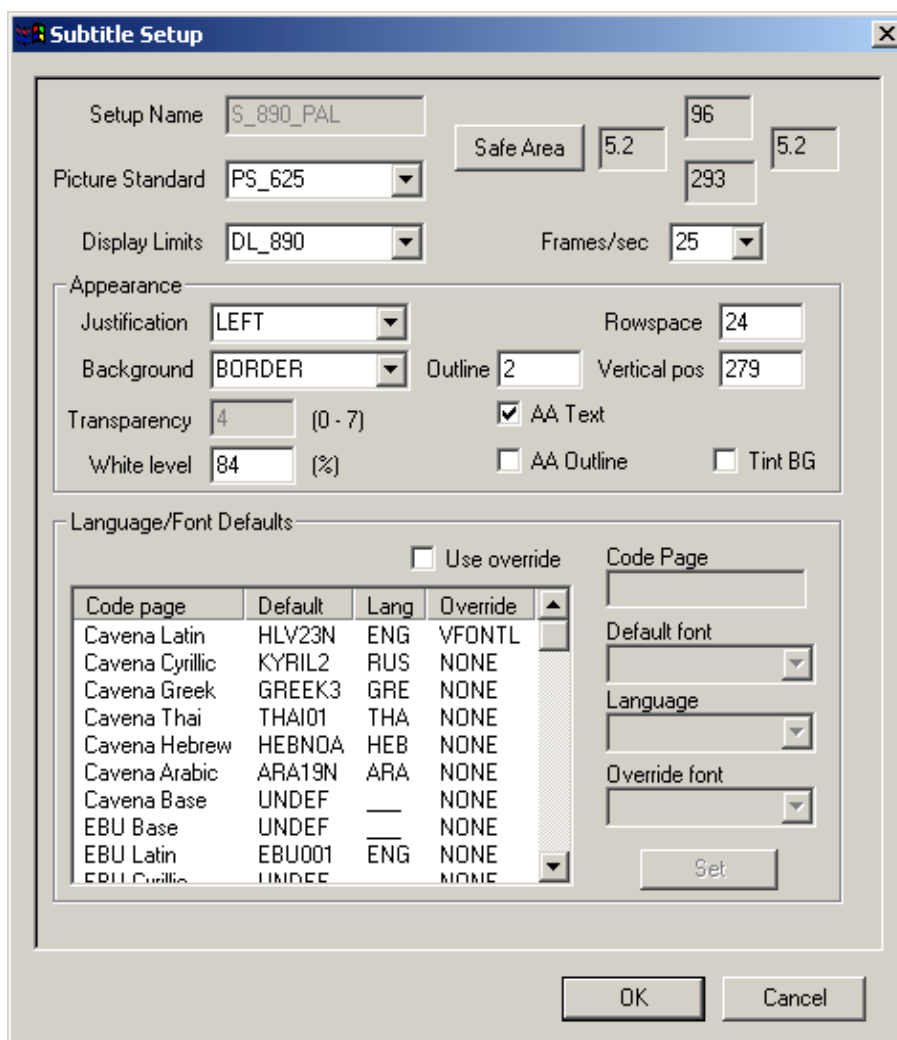
For instructions on the individual settings for each stream type, see chapter 5 Stream Types on page 17.

4.5.2 Subtitle Setup

Subtitle setup is information regarding default values for subtitle characteristics. For example parameters like vertical position, background, default fonts, picture standard, timecode standard and more.



Select the subtitle setup you want to edit and click the Edit button, or simply double click the name.



4.5.2.1 Picture Standard

This relates to the positioning. PS_625 for PAL, PS_525 for NTSC.

This setting is not set for the subtitle setup, it is instead stored in the Display Limits settings. If two different subtitle setups use the same display limits they will also have the same picture standard. If required, one can create more display limits by editing the sys\environment.ini file, please contact Cavena for help.

4.5.2.2 Display Limits

This setting defines the actual resolutions of different systems. For example the Cavena 890 format has a different positioning resolution compared to DVD and DVB.

4.5.2.3 Safe Area

The margins the software will work within are defined under this setting. A dialog pops up displaying Picture Standard in black, Display Limits in red (maximum and minimum values) and the actual safe area used in blue.

This setting is irrelevant in ToolBox since no subtitle output is generated or rendered.

4.5.2.4 Frames/sec

The timecode system used. 25 for PAL, 30DF for NTSC. Also provided is the 30 setting which drifts compared to real time and also a 24 setting for film. Cavena can add other standards upon request.

4.5.2.5 Appearance

These settings control the default appearance of subtitles. Since no subtitle output is used in ToolBox, these aren't relevant except for how the file is displayed in the main window.

4.5.2.6 Language/Font defaults

Here you define the default fonts for different code pages. Each code page you use when loading or saving files must have a default font set, an error message will appear if not so. Each specific file format has a number of possible code pages for the text in the files. Some file formats do not define font names, others do. For formats that require fonts (890 for example), the font names should match those available in the systems using 890 files.

The default settings should be enough and no change should be required.

For font-less file formats like most text formats, imaginary font names are used like TXT850 etc. This is because each font identifies also the code page to use for the text.

5 Stream Types

Stream Types contain settings for parameters defined outside specific file formats.

The different stream types have different types of support for subtitling. 890, CIP and STL formats are made with subtitling information in mind. Text formats often only include text and timecode and often in various orders.

ToolBox therefore supports adjusting to various formats by defining different stream type definitions that can be kept and reused. This is especially useful for the text formats.

ToolBox automatically detects parameters when reading files, if possible. When saving, though, the stream type definitions often decide which variant of file formats are used. Therefore parameters are sometimes separated into reading settings and writing settings in a stream type.

5.1 890

The 890 subtitle file format is Cavena's widely used subtitle file format. All information in a file explains its use, although timecode information needs to be set correctly in software using the file. In ToolBox the important thing is to remember to pick the right timecode setting when loading or saving a file, mainly S_890_PAL or S_890_NTSC.

5.1.1 Writing

The Subtitling Type setting is not used in the current version.

5.2 CIP

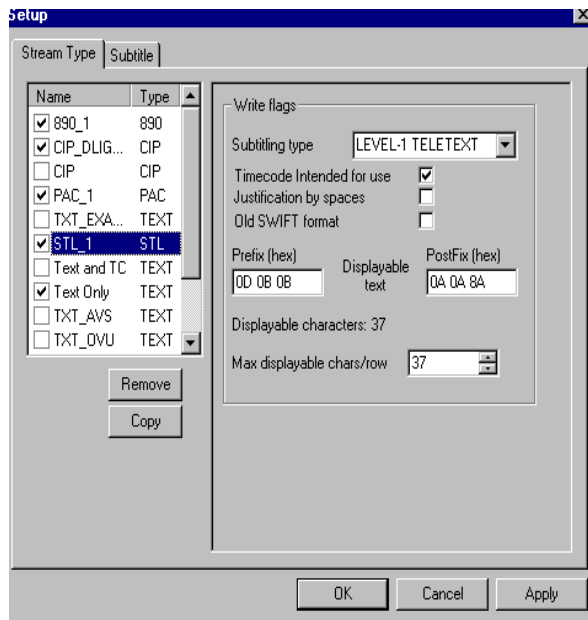
CIP files are used by Cavena's digital workstation, Dlight.

There are no settings configurable in this format. All settings, including timecode system used, is stored in the file. Therefore it doesn't matter what subtitle setup is used when loading CIP files.

5.3 STL

STL is the EBU subtitle file exchange format. Many vendors include support for this format, although it's a very open format and sometimes vendors include special variants incompatible with other vendors. ToolBox can detect all these variants when reading STL files, but when writing the stream type used defines which variants are written.

5.3.1 Writing



Subtitling type defined if the file is set for teletext use or in vision/open use.

Timecode intended for use should be marked, unless the timecodes are not used.

Justification by spaces will make ToolBox insert spaces to justify text (centre or right justification). This is only used for some teletext systems.

Old Swift format should be active when writing files for use in older Swift systems.

Prefix and Postfix are bytes added before and after the text in each line, usually teletext codes such as double height and box on.

For single height leave Prefix and Post fix blank (empty), for double height set Prefix to **"0D 0B 0B"** and Postfix to **"0A 0A 8A"**. Each setting may be saved as different stream types and selected when saving the file for example STL_single or STL_double.

Max displayable characters will cut off lines at specified length, normally set this to the recommended displayable characters.

5.4 Text

There are many different text formats available today. Also there are .RTF, .DOC files and other text variants, ToolBox only supports simple text file formats. If you have a .DOC or other similar file, load it in a word processor and save the file as text only first.

ToolBox has an advanced configuration for text formats that allows it to adjust to almost any text format. Most text formats can be configured by describing the structure of the file and of each subtitle.

5.4.1 Settings

File extension is most commonly TXT, but can be set to anything else. ToolBox will filter out the correct file ending in the open and save dialogs.

Default language is the language code a file gets, unless it is available in the file itself by using the <LANGUAGE> tag.

Comments string is the character(s) appearing at the beginning of a line that is a comment line. ToolBox will ignore any lines that are comment lines if a string (at least one character) is given in this field.

Timecode format gives the syntax for the timecode, notice the difference in using a colon ':' and a period '.'.

Text encoding configures which type of code page the text file is using. ToolBox can auto-detect within a group of code pages, like Windows or MS-DOS. Additionally, a few other double byte code pages can also be configured.

Newline encoding sets the Newline byte sequence to use for compatibility across platforms (Windows or Mac).

The two special flags 'Use ; escape' and 'Use // newline' are used if the text format requires this. 'Use ; escape' is used in the STM text format. It handles italics, underline, color and more. 'Use // Newline' is used for many Asian language text formats where a line break is represented in the middle of line with two slashes '//'.

5.4.2 Script format

This describes the text file syntax. To be readable by ToolBox a text file structure has to match the following:

- File header (optional)
- Subtitle
 - Header (optional)
 - Text
 - Single text row
 - Footer (optional)

5.4.2.1 Tags

The format is described by configuring tags in each block. The tags will be used by ToolBox to scan and interpret the correct information from the file when reading and to write the correct information when a file is saved in text format. The tags are surrounded by < and > characters.

To enter tags into the configuration text fields, right click with the mouse to get a popup menu containing the relevant tags for each block.

When you enter the tag <TEXTROWS> in the subtitle field, click on another field to make the text row field activate. The same goes when adding the field <FOOTER> to the subtitle field, click on another field to activate the footer definition field.

Basic tags are <NEWLINE> which must be present at the end of each line in the text file, <TAB> for a tab in the text and ' ' (space) which will read one or more spaces and tabs, while it will only write a single space.

For example, if a subtitle text file has a simple file header containing the line:

Title: Robin Hood

The file header field in that text stream type format should be configured to:

Title: <TITLE><NEWLINE>

5.4.2.2 Header tags

The tags represent information about the file like title, language, translator etc. An important field if available is the <LANGUAGE> tag since this will decide the language code for the subtitle file, if available.

5.4.2.3 Subtitle tags

The subtitle format is valid for each single subtitle in the file. It is configured under the Subtitle field.

A subtitle's most important tags are <SUBTITLENUMBER>, <INTIME>, <OUTTIME>, <TEXTROWS> and <FOOTER>.

A subtitle has to have either timecodes or text rows available, or it will not be readable.

The <TEXTROWS> represents all text rows and how a text row is interpreted is configured under the <INTIME> and <OUTTIME> are the timecode values for a subtitle. Example of a typical text subtitle format:

```
01:00:11.10 01:00:15.12
Mr. Smith goes
to Washington
```

This corresponds to a subtitle definition of:

```
<INTIME> <OUTTIME><NEWLINE>
<TEXTROWS>
```

Please note the space ' ' between the <INTIME> and <OUTTIME> tags.

5.4.2.4 Text row

The text row field describes the format for each single text row in the <TEXTROWS> field position in a subtitle. Usually a text row consists of <TEXT> and a <NEWLINE>, which is also the case for the format in the example above:

```
<TEXT><NEWLINE>
```

5.4.2.5 Footer

The footer is used to describe what separates two subtitles from each other. It is optional, as sometimes a format has a natural separation between subtitles. Example where a footer is not needed:

```
01:00:11.10 01:00:15.12 Mr. Smith goes to Washington.
01:00:16.01 01:00:19.17 When is he coming back?
```

This is described by the definitions for subtitle

```
<INTIME> <OUTTIME> <TEXTROWS><NEWLINE>
```

and for text row

```
<TEXT>
```

However, a format like the following requires a footer definition:

```
01:00:11.10 01:00:15.12
```

```
Mr. Smith goes  
to Washington.
```

```
01:00:16.01 01:00:19.17
```

```
When is he  
coming back?
```

This has text rows, which can be any number of rows. We can see that an empty line separates the two subtitles; therefore our footer definition must contain a `<NEWLINE>` tag and the rest look like this.

Subtitle

```
<INTIME> <OUTTIME><NEWLINE>  
<TEXTROWS>  
<FOOTER>
```

Text row

```
<TEXT><NEWLINE>
```

Footer

```
<NEWLINE>
```

If you still need help understanding this, please contact Cavena. Cavena can also make definitions for you, just send the text files to Cavena and we will return the corresponding INI file for a new stream type definition that will be able to read your text format. As mentioned earlier, some text formats are more advanced than what can be configured with the ToolBox and in such a case Cavena's analysis will determine how to go about reading those files.

5.5 PAC

ToolBox only support loading of PAC files and currently only Latin based languages, Arabic and Hebrew. PAC requires a language code, currently set in the stream type.

5.6 XML

ToolBox supports a number of XML based formats. Configurations are included for TTML, EBU-TT and SMPTE-TT.

5.6.1 XML format

This defines the actual specification to use when reading or writing this format.

5.6.2 Character encoding

UTF-8 and UTF-16 are supported when saving the file.

5.6.3 BOM

This will activate the use of BOM when saving the file.

5.6.4 Use Region element

This will activate the use of Region Elements when saving the file.

6 Cavena Image Products AB

You may contact Cavena Image Products AB at:

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