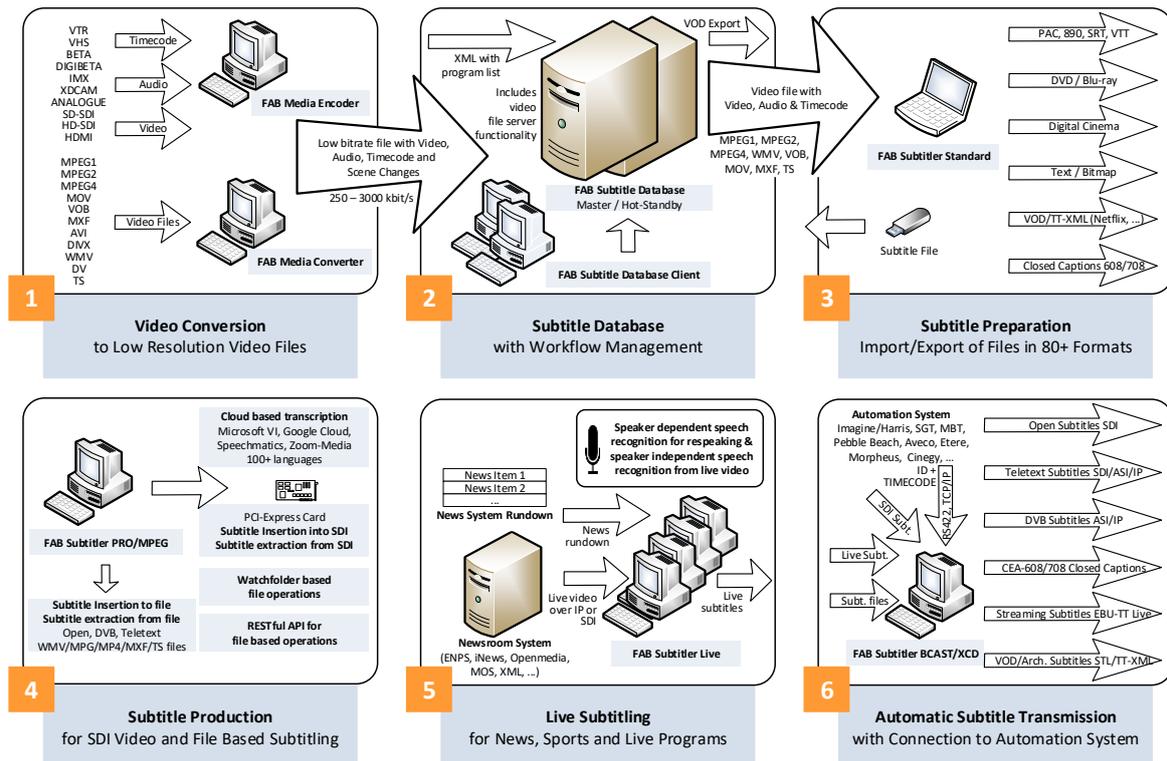




FAB SUBTITLING SYSTEM OVERVIEW

FAB Subtitling System

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The FAB Subtitling System consists of the following components:

- FAB Media Encoder (1) for encoding of video, audio and timecode into a low resolution video file with video, audio and timecode
- FAB Media Converter (1) for conversion of any video file format to a low resolution video file with video, audio and timecode
- FAB Subtitle Database (2) for storing subtitle files in a database and organization of subtitle workflow
- FAB Subtitler Standard (3) for preparation of subtitle files by using video files
- FAB Subtitler Pro/MPEG (4) for recording of subtitles to tape or insertion of subtitles into video files, cloud based transcription for 100+ languages
- FAB Subtitler Live (5) for preparation and transmission of live subtitles
- FAB Subtitle BCAST/XCD for automatic Subtitle Transmission (6) controlled by automation system (i.e. Imagine, Pebble Beach, SGT, Encoda, IBIS, On-Air, ...) or by VPS/PDC signal



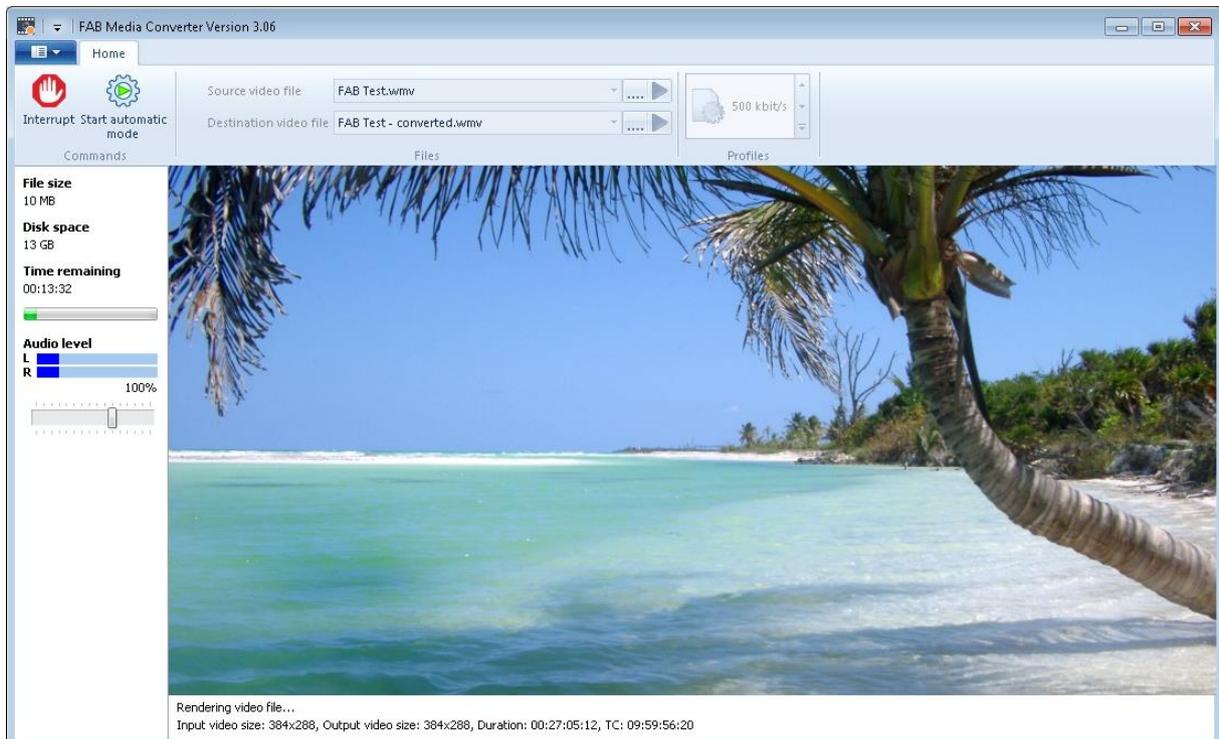
FAB MEDIA CONVERTER

FAB Media Converter is a software package for a PC with Windows which is used for conversion of any type of HiRes or LowRes video file to a LowRes video file which is in an optimal format for preparation of subtitles.

The resulting video file:

- Uses WMV or MP4 format with very short GOP for extremely fast navigation
- Includes detected scene changes as metadata
- Includes timecode as metadata if it was present in the source (i.e. MXF) video file
- Includes burnt-in visible timecode if this functionality is activated in settings
- Has a very low video/audio bitrate but still a very good picture and audio quality

FAB Media Converter can be used in manual mode or in automatic watchfolder mode.





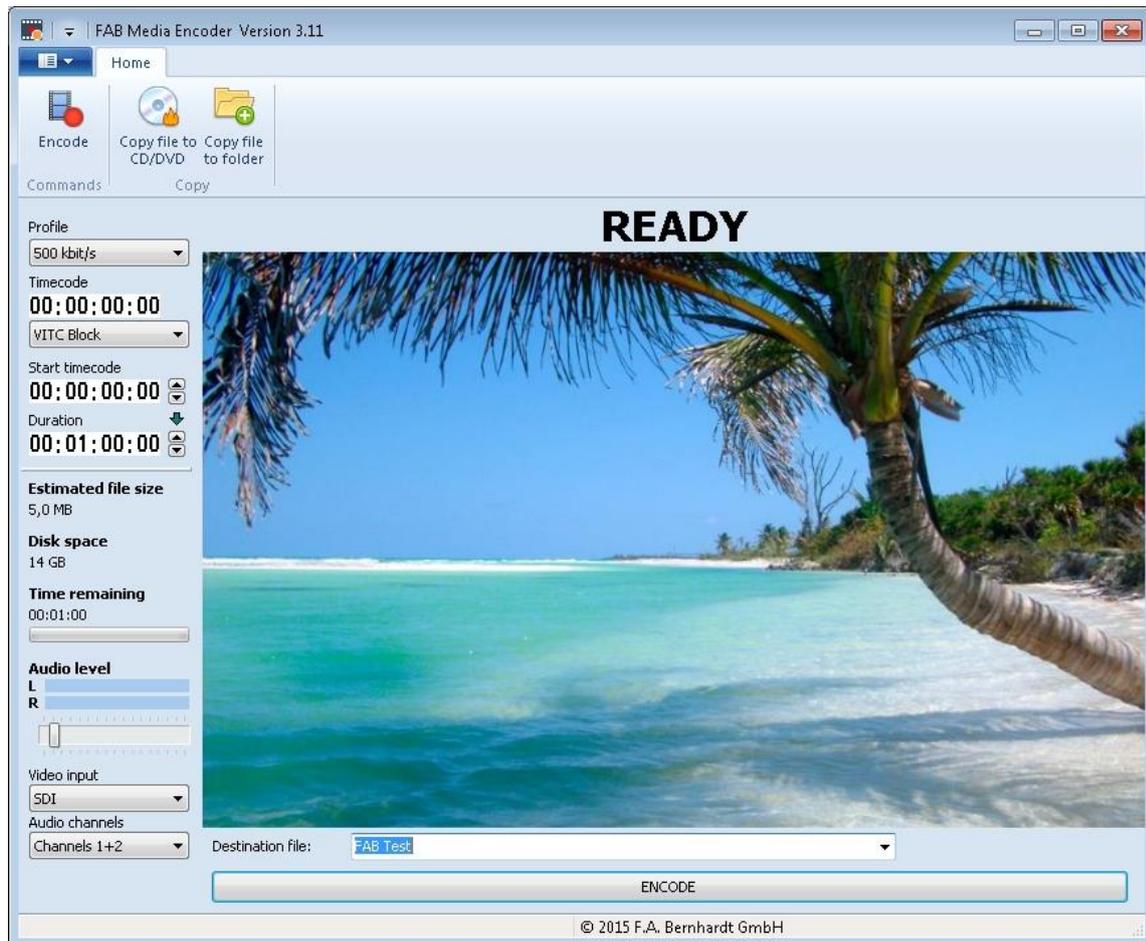
FAB MEDIA ENCODER

FAB Media Encoder is a software package for a PC with Windows which is used for encoding of SDI video to LowRes video files. FAB Media Encoder supports the Decklink Extreme card as SDI video source and creates a LowRes video file which is in an optimal format for preparation of subtitles.

The resulting video file:

- Includes detected scene changes as metadata
- Includes timecode as metadata if it was present on the input
- Includes burnt-in visible timecode if this functionality is activated in settings
- Has a very low video/audio bitrate but still a very good picture and audio quality

FAB Media Encoder can be used in manual mode or in automatic mode controlled by an automation system using the VDCP protocol.





FAB SUBTITLER STANDARD

FAB Subtitler Standard (STD) is a software package for a PC with Windows which is used for preparation of subtitles and for import and export of over 70 different subtitle file formats.

FAB Subtitler STD can open video files in many different formats, however frame accurate navigation will always work correctly for MPEG1, WMV, MXF and MOV/MP4 video files, other types of video files may also work. An audio graph is displayed which is very helpful for visual presentation of IN and OUT timecodes over the audio.

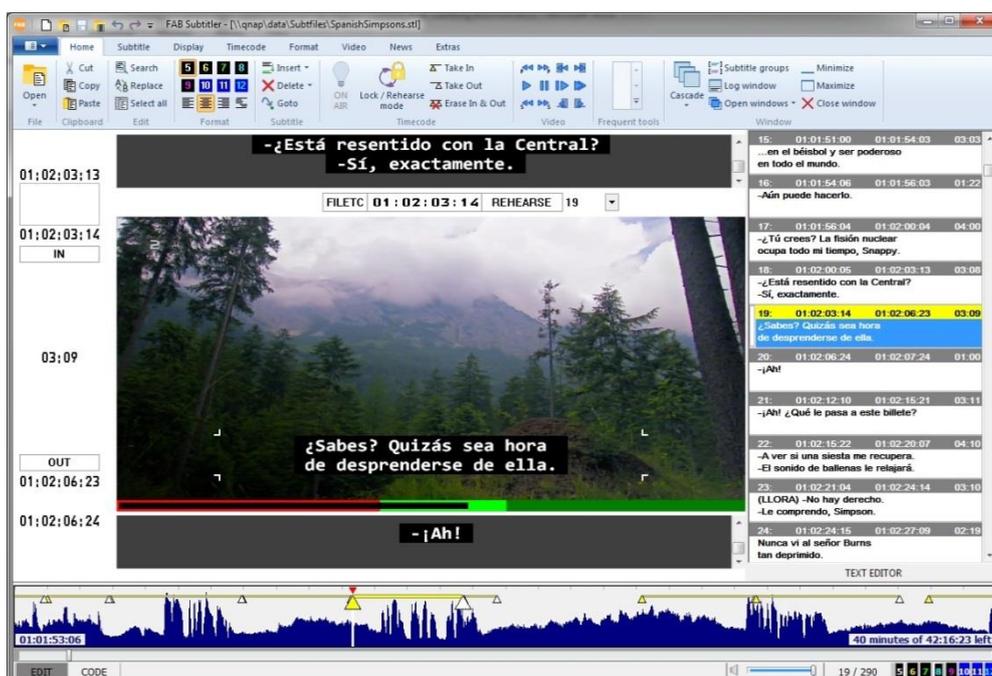
The following import/export formats are supported by FAB Subtitler STD:

- Text files, DOC files, DOCX files, STL, PAC, RAC, 890, TIT, HVH
- DVD text and DVD bitmap files, Blu-ray bitmap files
- Digital cinema files (DCIM, XML, PNG, SMPTE)
- Bitmap files (BMP, PNG)
- XML files (DFXP, EBU-TT-D, Netflix)
- Many other formats, over 70 file formats are supported in total

FAB Subtitler supports configuration profiles. A configuration set can be stored in a file and loaded at any time. Multiple configuration sets can be used for production of subtitles following different guidelines, like number of frames between subtitles, maximum duration of a subtitle.

A fully functional demo version limited to 20 subtitles is available for download on our website:

www.fab-online.com



Visit www.fab-online.com for more info

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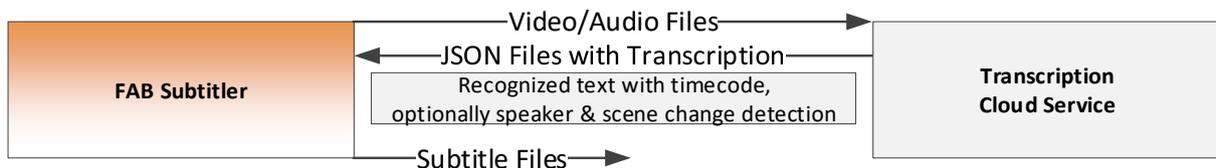
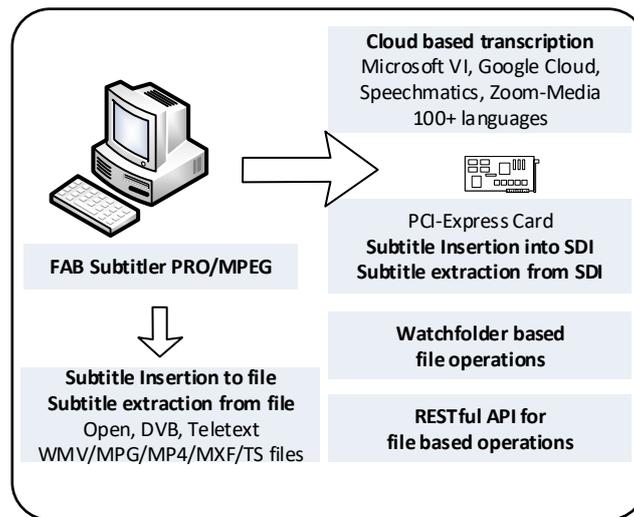


FAB SUBTITLER PRO/MPEG

FAB Subtitler PRO/MPEG is a software package for a PC with Windows which is used for special subtitling tasks like insertion of subtitles into SDI for recording to tape or for insertion of subtitles into video files. FAB Subtitler PRO includes all functionality from FAB Subtitler STD.

The following main functionality is available:

- Insertion of open and teletext subtitles into SDI synchronized to timecode
- Decoding of teletext subtitles from SDI and conversion to a subtitle file
- Watchfolder based conversion of subtitles to a different file format and checking of compliance of subtitle files
- Insertion of open, teletext and DVB subtitles into WMV/MXF/TS/MP4/MOV files
- Extraction of teletext subtitles from MXF/TS files into subtitle files with timecode
- Cloud based transcription of video files with timecode directly from the GUI in FAB Subtitler

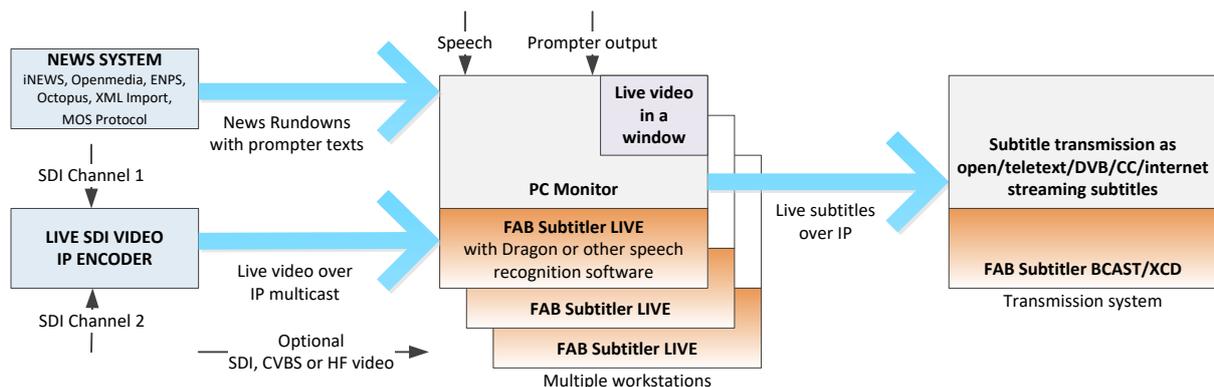




FAB SUBTITLER LIVE

FAB Subtitler LIVE is a software package for a PC with Windows which is used for live subtitling. Live subtitling is mostly done by one or more persons in the following way:

- Before the TV program begins, prompter texts are downloaded from the news system and converted to subtitles manually
- During the TV program subtitles that were prepared in advance are transmitted manually
- Subtitles which cannot be prepared in advance are spoken by a “respeaker person”, recognized by speech recognition software and are transmitted automatically or after manual correction
- For languages that do not have a speech recognition engine subtitles can also be typed and transmitted in real time



The following functionality is included in FAB Subtitler LIVE:

- Download of news rundowns with prompter texts from news systems
- Conversion of prompter texts to subtitles
- Display of live video on the PC screen with dual monitor support
- Interface to any speech recognition software that can dictate directly into the application
- Multiple workstations with FAB Subtitler LIVE can work on the same rundown
- Simultaneous transmission of speech recognized and already prepared subtitles
- Creation of subtitle files with all transmitted subtitles with timing information for archiving and retransmission purposes

The following news systems are supported: iNEWS, ENPS, Openmedia, Octopus, XML import, MOS Protocol.

The following live video signals are supported: TS over IP, HD/SD-SDI, CVBS.

The following speech recognition software is supported: Dragon Naturallyspeaking, Newton and any other speech recognition software that can dictate directly into the application.



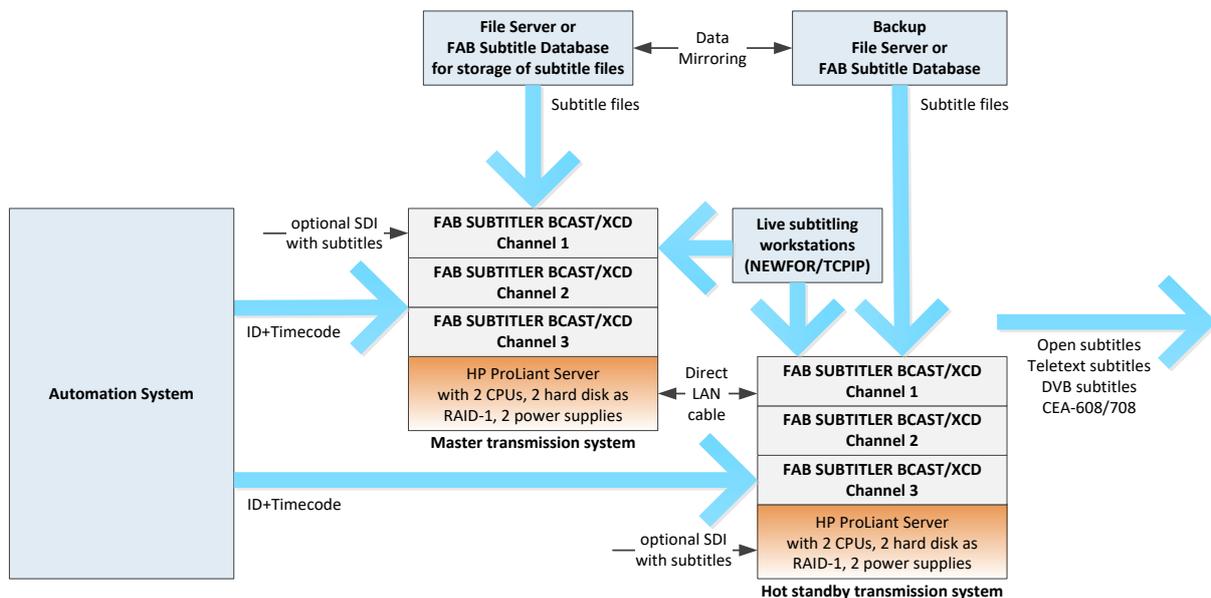
FAB SUBTITLER BCAST/XCD

FAB Subtitler BCAST/XCD is a software package for a PC with Windows which is used for automatic transmission of subtitles in multiple languages. Subtitles can be transmitted from different sources:

- Subtitles from subtitle files where transmission is triggered by an ID and starting timecode received from the automation system
- Subtitles received over network from live subtitling workstations
- Subtitles received over SDI video

FAB Subtitler BCAST/XCD can transmit subtitles in many different formats:

- Open subtitles keyed into the visible part of SDI video
- DVB subtitles transmitted over ASI or IP
- Teletext subtitles keyed into the VBI/VANC of SDI video
- Closed captions CEA-608/708 keyed into VBI/VANC of SDI video
- Internet streaming subtitles



The following functionality is included in FAB Subtitler BCAST/XCD:

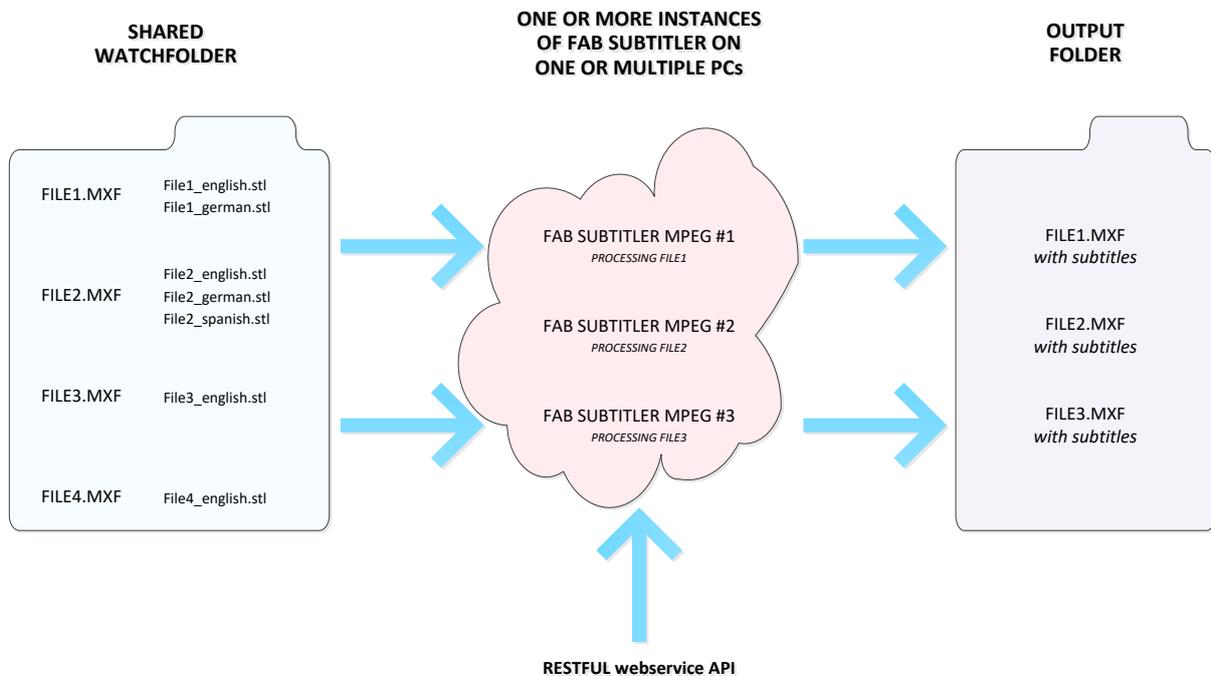
- Download of subtitle files from a file server or from FAB Subtitle Database
- Connection with many different automation systems incl. Imagine, Pebble Beach, ...
- Reception of subtitles embedded in SDI and retransmission in a different format
- Reception of subtitles over network from live subtitling workstations
- Master/Hot-Standby operation with automatic switchover in case of failure



FAB SUBTITLER MPEG

FAB Subtitler MPEG is a software package for a PC with Windows which is used for insertion of subtitles into video files. FAB Subtitler MPEG can insert in-vision (open), DVB bitmap and teletext subtitles directly into video (MXF) or transport stream (TS) or MP4 files.

Video files and subtitle files have to be stored in a shared watchfolder on a file server. FAB Subtitler MPEG will create a copy of the video file with inserted subtitles. That way the broadcast video server can play video files with subtitles without a need for an additional subtitle transmission system. Multiple FAB Subtitle MPEG instances can work on the same watchfolder simultaneously and therefore multiple video files can be processed at the same time.



The following functionality is included in FAB Subtitler MPEG:

- Insertion of open subtitles into MXF/MP4/MOV/MPG/TS/WMV files
- Insertion of teletext subtitles into SD and HD MXF files
- Insertion of DVB bitmap subtitles into TS files
- Insertion of teletext subtitles into TS files
- Automatic operation through a watchfolder
- Automatic operation through a RESTful API
- Multiple instances of FAB Subtitle MPEG can work on the same watchfolder
- Multiple languages are supported



FAB SUBTITLE DATABASE

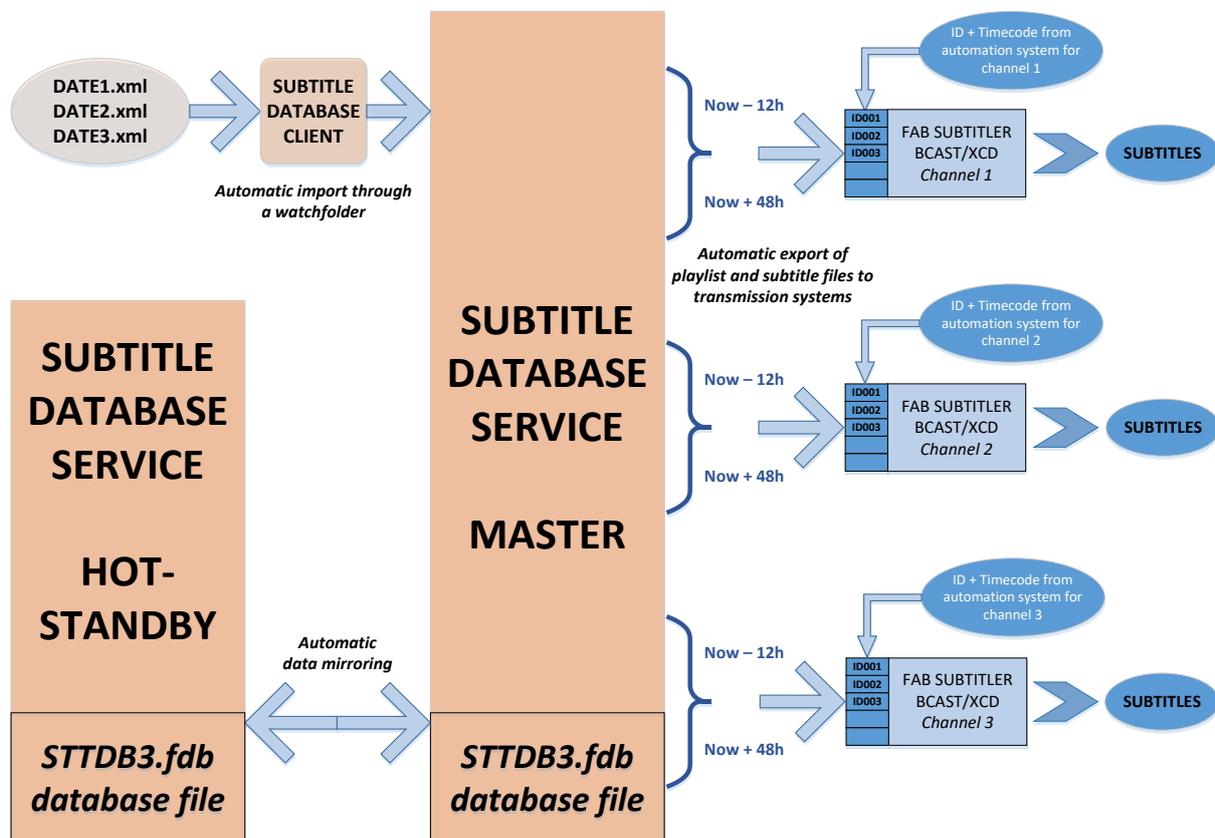
FAB Subtitle Database is a software package for a PC with Windows which is used for organized storage of subtitle files and workflow management for preparation of subtitles. A Master/Hot-Standby operation of two parallel systems is supported for failsafe operation.

The big advantage of using a subtitle database is that searching for any subtitle file that already exists is very easy. The fact that also playlists for automatic transmission of subtitles are stored in the subtitle database allows statistic queries to find out how many hours of program were subtitled per month/year and allows control over which subtitle files have been transmitted and when.

To add/delete subtitle files into the subtitle database a client software is required which can be installed on any Windows PC. The software also allows searching for subtitle files, creation of playlists for automatic transmission of subtitles and more.

The subtitle database is multi-user enabled which means that multiple users can work on the database at the same time from more than one workstation PC.

Automatic import of XML files from watchfolders is supported as well as export of the database as XML and subtitle files.





FAB DVB INTERFACE

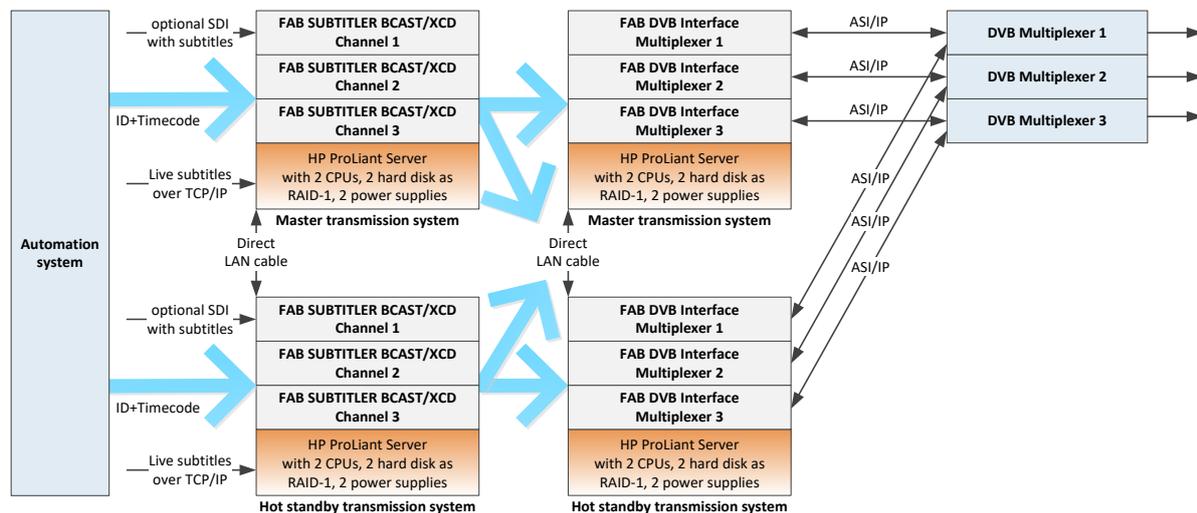
FAB DVB Interface is a software package for a PC with Windows which is used for transmission of DVB subtitles over ASI or IP to a DVB Multiplexer.

FAB DVB Interface receives DVB Subtitles over TCP/IP from FAB Subtitler BCAST/XCD and converts and synchronizes them to a PCR present on ASI/IP input and transmits them on the ASI/IP output to a DVB multiplexer.

Instead of using ASI cards one or more additional network cards can be used in the PC to use ASI over IP without any special hardware. One FT-DVB software license is required for every DVB Multiplexer present on the ASI/IP input. Multiple ASI cards and network cards are supported per PC.

The following functionality is included in FAB DVB Interface:

- DVB Subtitling Transmission
- Teletext transmission as ASI, TS/IP or insertion into SDI
- PTS Restamping
- SDI Teletext to ASI/IP Conversion
- Transmission of hbbtv signalization and stream events





FAB PCI-EXPRESS SDI CARD

The FAB PCI-Express SDI card FT-HT 12 is used for insertion of data and subtitles into SDI and for reading of data (timecode, teletext, VPS/PDC) from the SDI signal.

The FAB Card can be used for insertion of open subtitles into SD/HD-SDI video. The card has a bypass relay which switches to bypass in case of software or power failure. At the same time VITC timecode is read from the SD/HD-SDI input. The card has been tested with HPE Proliant DL360 and DL380 Gen 9 servers but will probably work in other servers as well. Windows Server and Windows 10 are supported.

Main functions of the FAB PCI-Express card:

- 2 SD/HD/3G-a SDI Inputs (Main&Aux), one SD/HD/3G-a SDI Output
- Insertion of open subtitles, teletext subtitles and CEA-608/708 into SD/HD-SDI video path
- Reads timecode and teletext from Main or Aux SD/HD-SDI video input
- The card can be delivered with 19" 1U HPE ProLiant DL360 Server with RAID-1 mirrored disk and redundant power supply
- Broadcast quality inserter for SD/HD-SDI video, BNC in/out with bypass relay in case of power, hardware or software failure

