Preparing media for delivery in iTunes format is a complex process. Demands for the highest possible quality and consistency for customers means the requirements are rigorous, and may include processes such as Loudness compliance, channel mapping and channel labelling. Whilst parts of the process have to be done manually, Engine is capable of handling much of the audio requirements for you, and in a fully automated fashion.

Let us consider a typical ProRes delivery for a movie. Where the published movie contains surround sound, this must be included in the iTunes version and in the following layout.

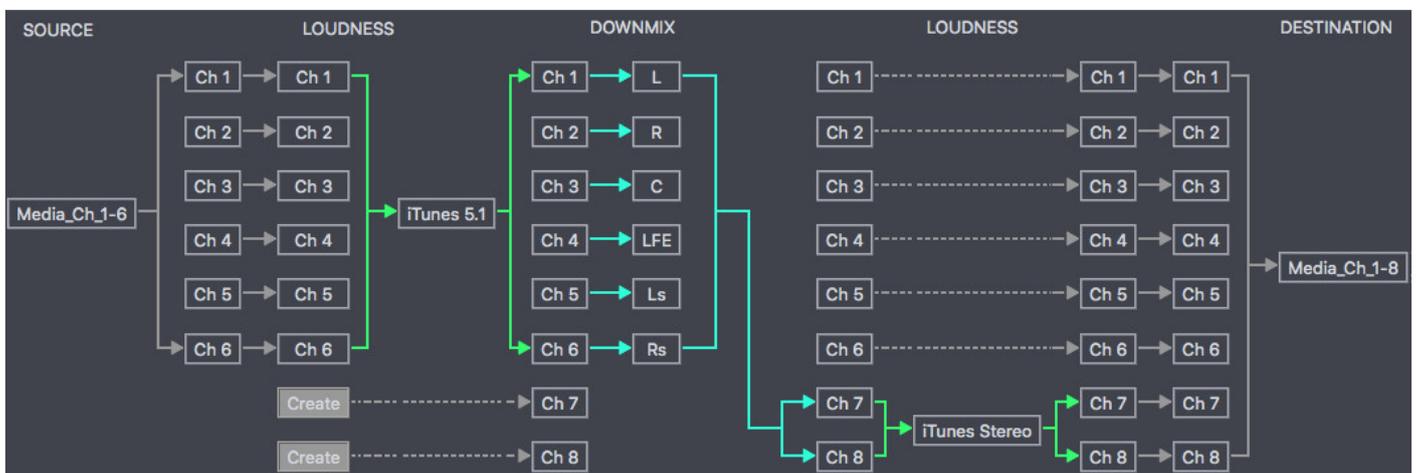| Channel	Description	Label
1	MnE	L
2	MnE	R
3	Dialogue	C
4	Effects	LFE
5	Music	Ls
6	Music	Rs
7	Stereo mix of 5.1	Lt
8	Stereo mix of 5.1	Rt

Loudness Compliance and Channel Manipulation

Engine is capable of ensuring Loudness Compliance in both the 5.1 and the stereo, to the iTunes specifications of -24 LKFS with maximum peaks of -6 dB, as well as to all other worldwide standards including ATSC A85/CALM, EBU R128, BS1770. Correction is applied based upon analysis of the entire duration and maintains the highest possible quality.

Engine's channel mapping feature lets you manipulate the order of audio channels as required. Engine can also create a downmix from the 5.1 if this isn't already available, or insert a separate WAV containing the stereo.
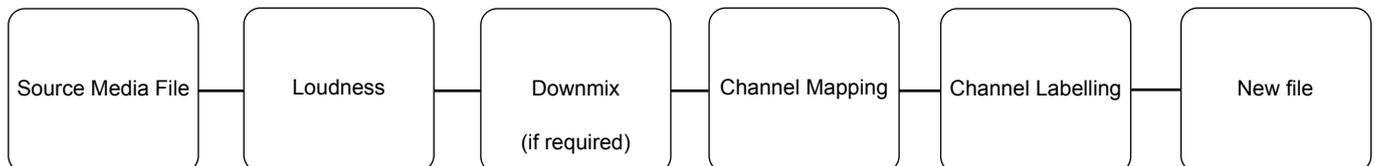

The basic block diagram shown above could be turned in to the following Engine workflow. Workflows are created using Engine's easy to use graphical editor, and a workflow like this one takes less than two minutes to build. Once built, it is a matter of seconds to edit, for example if you needed to change the loudness settings.

Channel labelling is another fully automatic feature in Engine. A profile is configured containing the required labels.
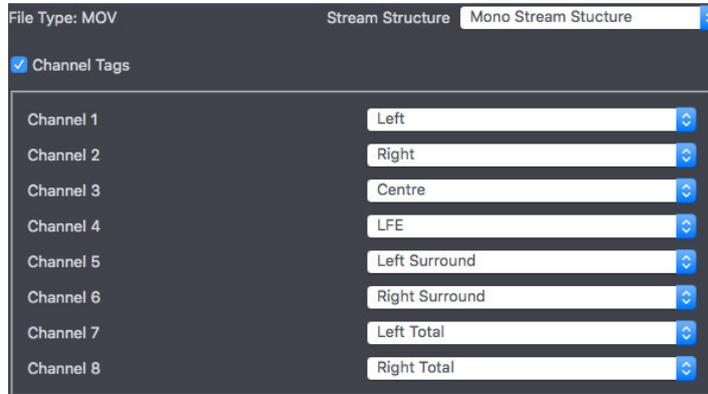
Once the profile has been created, the labels are applied as part of processing.

Channel Insertion or Replacement - Rather than downmixing from 5.1 to stereo, you might need to merge a WAV containing the stereo in to an existing ProRes file. Engine can do this too. If necessary, Engine will increase the number of channels in the ProRes to fit the extra audio. Other Engine features such as Loudness Compliance can then be applied.
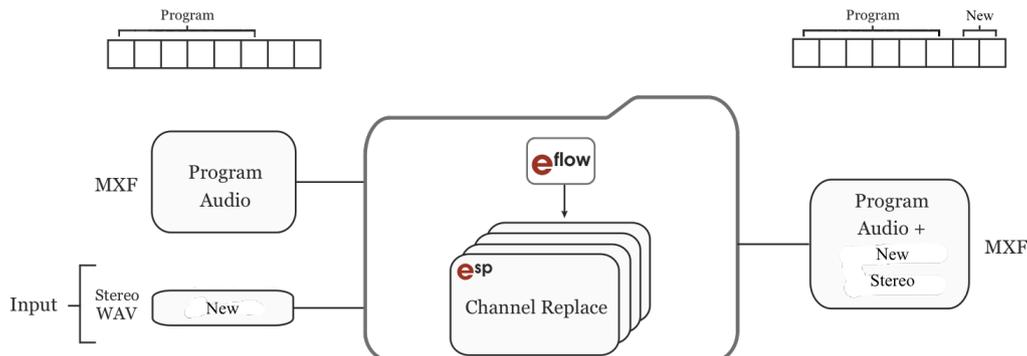
Automation

All Engine functions can be automated. We have a flexible REST API that provides integration to popular workflow tools like Telestream Vantage and Aspera Orchestrator, as well as letting Engine work under MAM control. We have a built in watch folder system that associates selected folders with Engine workflow profiles so that each watchfolder can do a separate operation. We have a network client utility that lets you submit files for processing on the centrally installed Engine, as well as providing remote monitoring of every aspect of Engines performance.

Scalability

Engine is designed to grow with your requirements. Start with a basic system capable of around 600 hours of content per month, or scale up to around 10000 hours per month. You can increase the throughput at any time.

Reliable and Robust

Engine is an Enterprise class product, capable of reliable and robust operation, 24 hours per day, and without needing any operator involvement.

Engine offers huge efficiency savings for iTunes authoring. Contact us today.