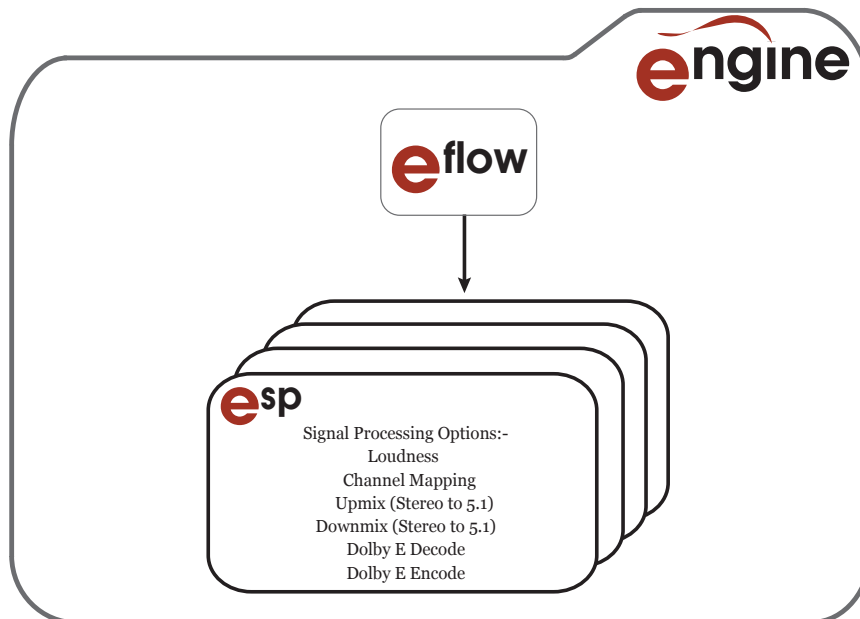


## Introduction

- Emotion Systems addresses signal processing requirements in File-based workflows:
  - High quality solutions based on our proprietary software platform
  - Fast, easy to use and automatable for operational efficiency
  - Scalable for processing large volumes of media
  - Cross platform - Windows, OSX, Linux
  - Enterprise class resilience
  - Supports Virtual Machines
  - File-based licensing
- Support for a wide range of professional Media Files:
  - MXF, LXF, GXF, QuickTime, WAV (BWAV, RF 64), AIFF
- Comprehensive reporting for assured compliance and client feedback



Engine is a software application providing audio processing solutions for Media Files. Used in Post Production and in automated broadcast environments, it is a modular product that features:

- Easy to orchestrate complex audio processing workflows
- Easy to use visual workflow creation
- Built in job management system
- Scalable processing
- Manual, Watch Folder & API operation
- High quality audio processing
- Audio processes include:- Loudness Compliance, Dolby® E Encode/Decode, Channel Mapping & Mute, Upmix and Downmix
- Detailed PDF and XML reports

# Engine Architecture

Engine is a software application providing audio processing solutions for Media Files.

## Eflow

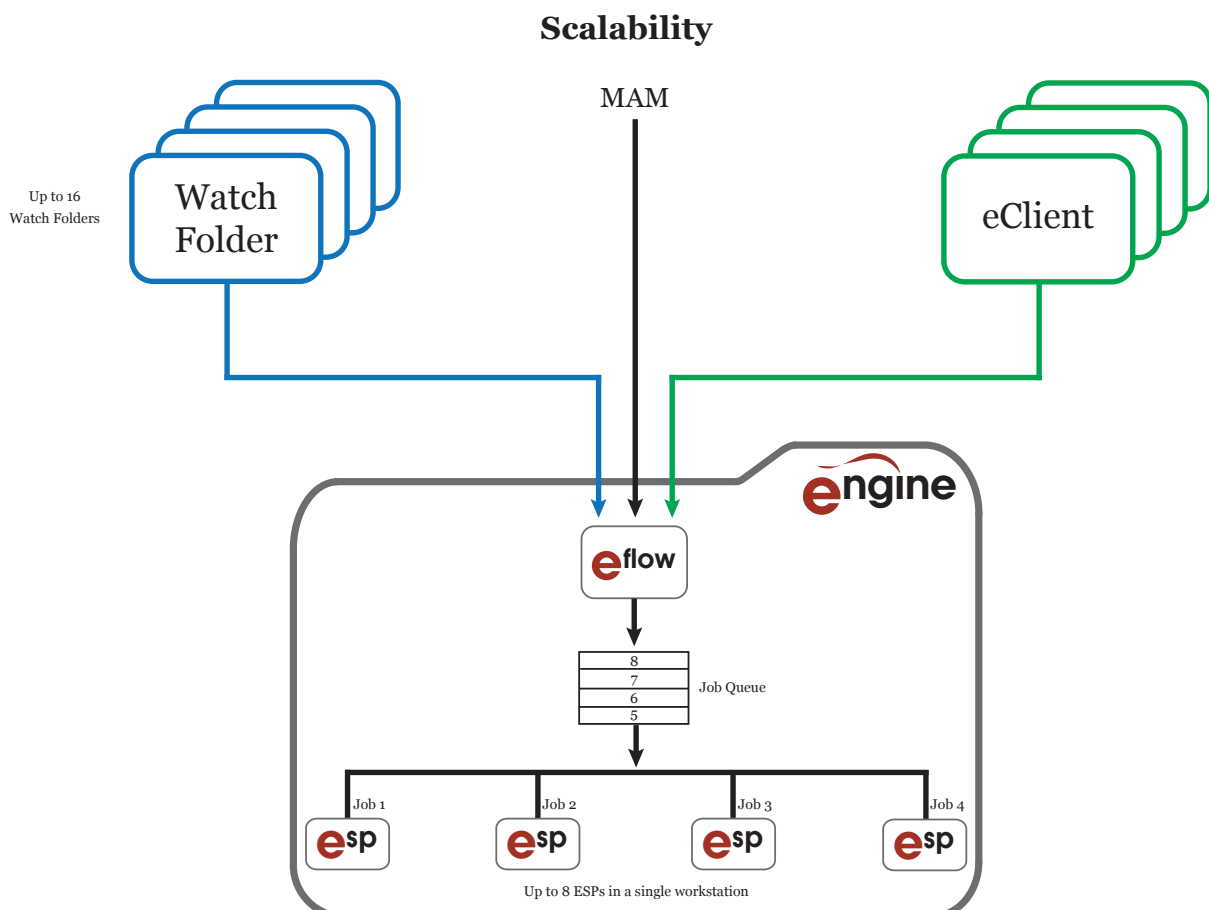
Eflow is the job management system of Engine. It registers posted jobs and adds them to a queue, assigning them to an ESP (Emotion Signal Processor) when one becomes available. Running as a service (on Windows) and a Daemon (on Mac and Linux) it is able to restart the Engine, restoring all job and workflow information and restarting the queue in the case of an application or server failure.

## ESP

ESP is the Emotion Signal Processor application. It is the file processing system that executes a workflow, unwrapping audio from Media Files, applying a sequence of audio processes quickly and efficiently, then rewrapping into a Media File preserving the video and metadata content. Up to eight ESPs can be allocated to a single Eflow allowing up to eight files to be processed simultaneously. ESP operates at a high speed and is a simple, scalable model that provides the ability to increase total throughput.

## Scalability

Engine has been designed to provide scalability in terms of control, breadth of signal processing and speed. (See diagram below).

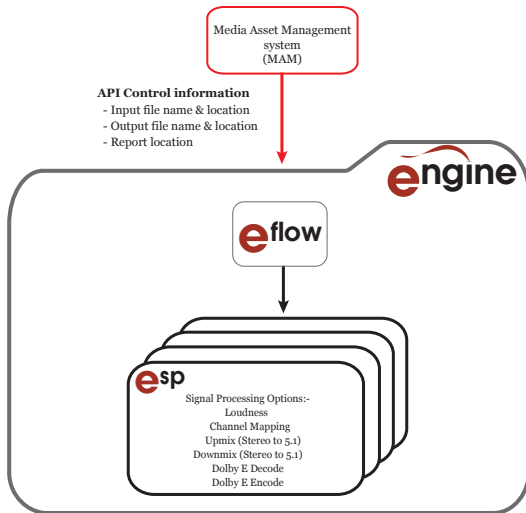


# Engine Operation

Engine has four modes of operation:- API, Manual, Watch Folder, Eclient

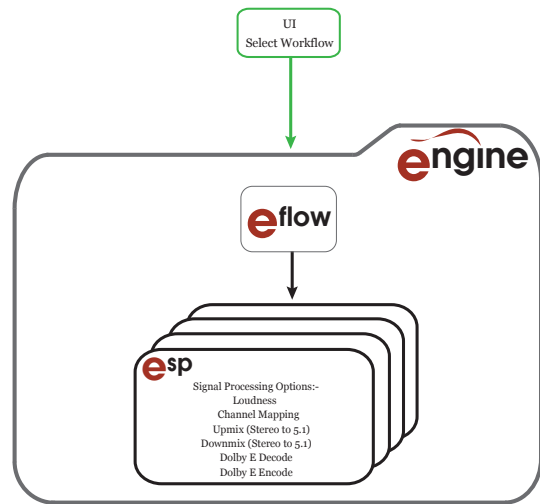
## API

Simple ReSTful XML-based interface.  
Commands to post jobs, view workflows  
and monitor status.



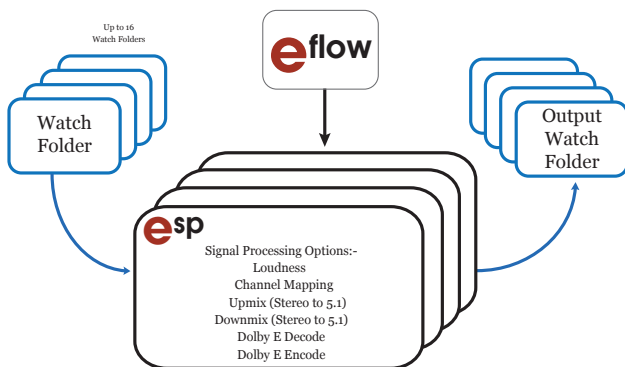
## Manual

Single file can be processed and a report generated.



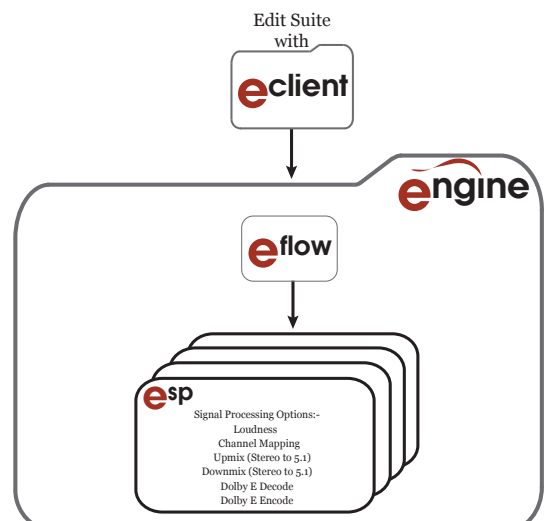
## Watch Folder

Simple Watch Folder mechanism whereby files can be dropped in folders and jobs will automatically be posted to Engine.  
Up to 16 folders can be configured, each carrying out a unique workflow.



## Eclient

Client based desktop application that provides simple UI interface to the Engine API.  
Multiple Eclients can be used over a network to communicate with Engine, allowing job posting monitoring and ability to view reports.



# Engine Workflows

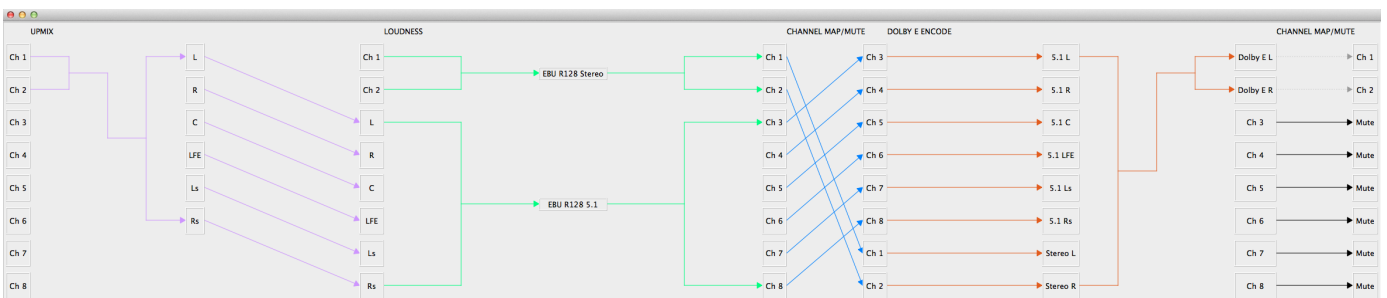
A frequent requirement for File-based workflows is to process audio to make it suitable for a wide range of delivery requirements. A series of audio processing operations are required and Engine allows creation of user defined workflows that define a sequence of operations (For example, Loudness Correction followed by Dolby® E Encoding and Channel Muting).

Engine has an easy to use UI that allows the creation and storage of workflows. These workflows can be used by MAM systems, Watch Folders and Eclient to allow a chosen file to be processed in accordance with the chosen workflow to create a new file. Particular attention has been paid to the design of the UI to quickly and easily allow creation, editing and naming of the workflows.

The UI allows the user to select audio channels (e.g. Stereo or 5.1), apply a process (e.g. Loudness), create or choose a preprogrammed profile for the process and repeat this for every unique Audio Program (so 4 Stereos could have 4 unique profiles). This operation is repeated for every required process to allow a sequence of operations (Loudness, Dolby® E Encode, Dolby® E Decode, Channel Mapping & Mute, Upmix, Downmix) that make up a workflow.

The workflow can be named and saved. The workflow can be previewed and edited at any stage of creation. Figure below shows an example workflow.

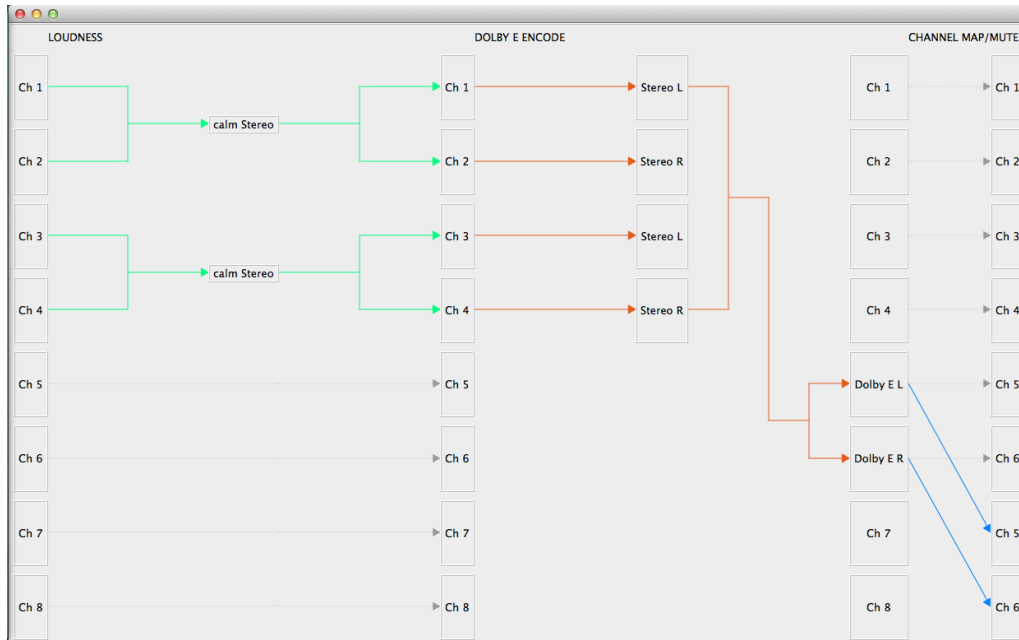
Any number of workflows can be created. These workflows can now be utilised by any of the Engine Operation modes: API, Watch Folder, Eclient and Manual Operation.



# Engine Applications

## Playout

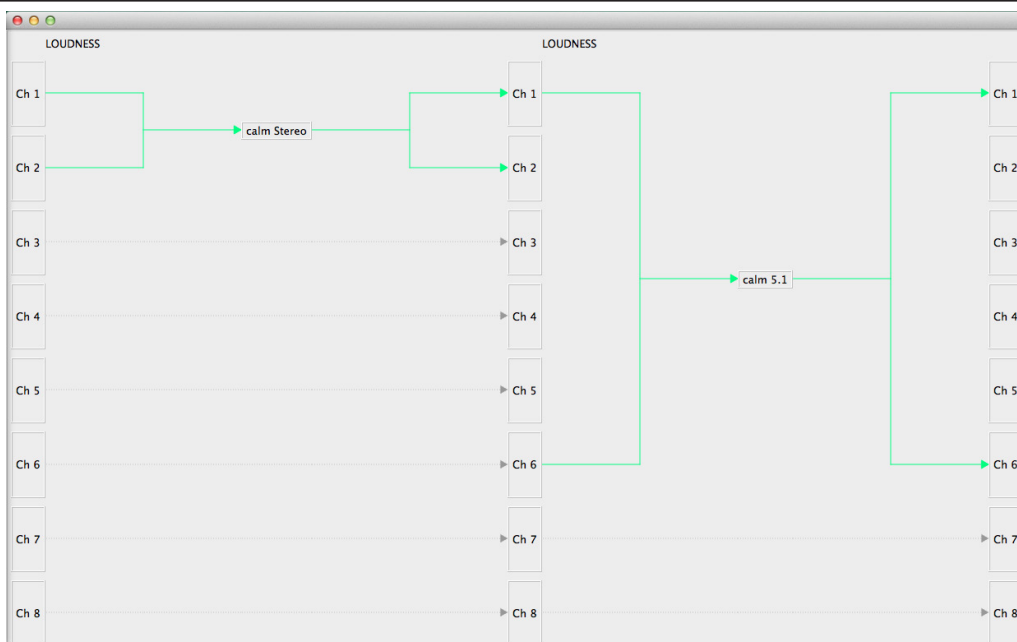
Engine has a selection of processing options that easily allow a wide range of workflows to be used to normalise files for Playout.



The example above takes a file with 2 Stereos and Loudness corrects them, Dolby® Encodes them, replicates the Dolby® E into Channels 7&8 to create a Stereo, Stereo, Dolby® E, Dolby® E layout.

## Loudness Compliance

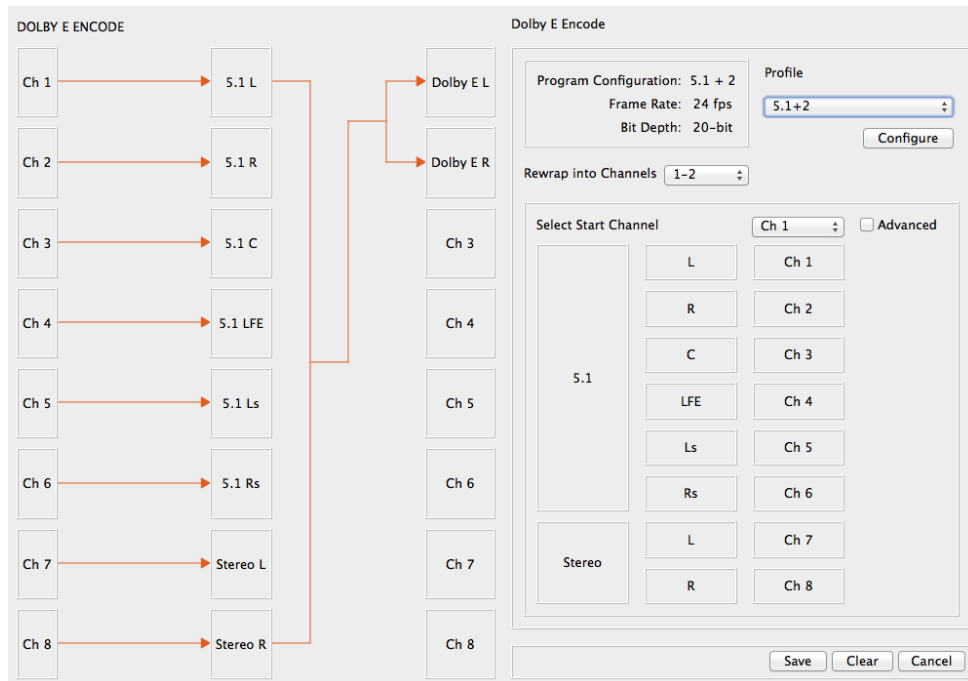
There is a global movement to adapt Program Loudness and TruePeak correction. Engine allows the creation of workflows that deal with all the worldwide standards and can also Measure and Correct a wide range of Channel layouts (4 Stereos, Stereo + 5.1, etc...) Engine supports up to 64 channels of audio.



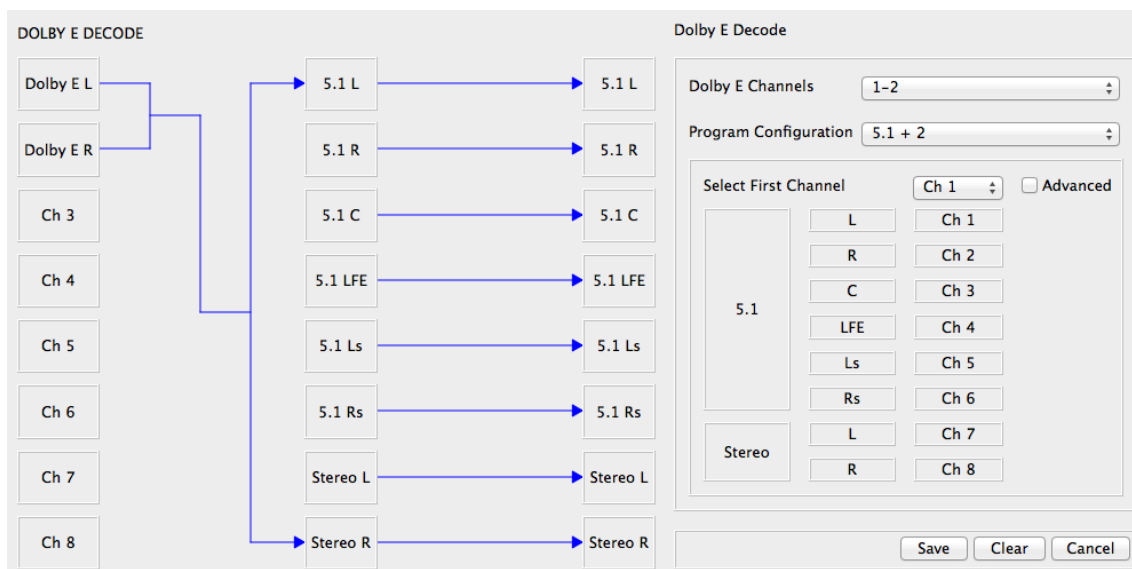
# Engine Applications (cont.)

## Dolby® E Encoding and Decoding

Dolby® E is in regular use by many broadcast organisations. However, it does come with a level of complexity and operational difficulty as well as being time consuming. Engine, with Dolby® E Encoding and Dolby® E Decoding (Channel Mapping and other features also available), ensures that any Dolby® E requirement is dealt with simply and efficiently.



Dolby® E Encoding



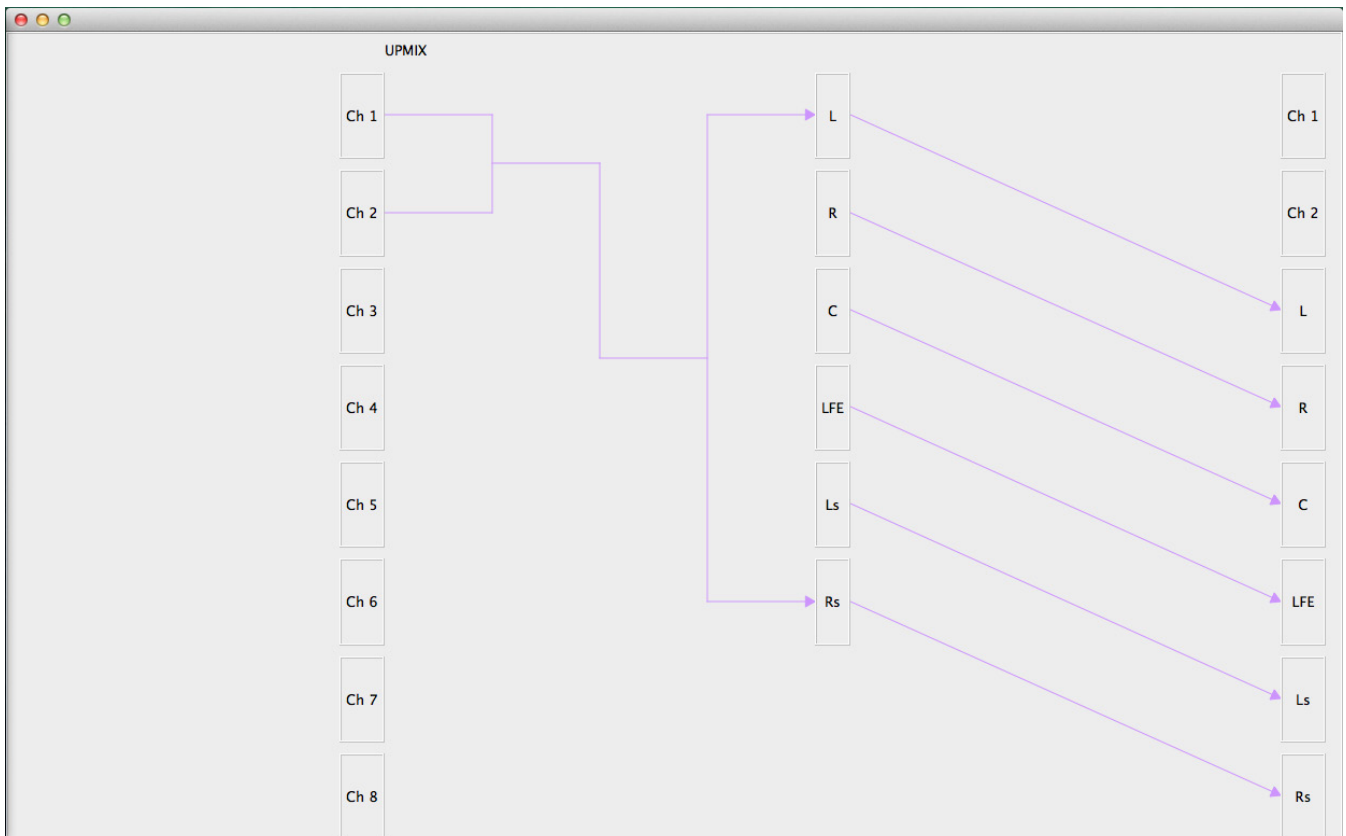
Dolby® E Decoding

The Emotion Dolby® E Decoders have been designed to detect and process Dolby® E in files with 'Precharge' (where the first few frames have no Dolby® E identifiers) and out of spec guardband. The Dolby® E Encoder also allows User Defined guardband placement.

# Engine Applications (cont.)

## Upmix

Broadcasters who multicast (SD and HD) or have archive material with a stereo mix have a frequent requirement to provide a high quality Upmix from stereo sources and vice versa. Emotion have teamed up with Soundfield to provide a high quality Upmix solution. Hardware solutions from Soundfield are already used globally by leading Broadcasters. The Upmix is downward compatible in proven solutions.



# Engine Order Options

Engine comes as standard with Eflow and 4 Watch Folders – which is a costed item.

1. Decide which ESP options are required for the workflow
2. Decide how many instances you want to have running simultaneously
3. Multiply the ESP options by the number of instances to calculate the cost of ESPs
4. Support is chargeable at 15% of the total value of the order

<b>ESP Options:-</b>	
	Please tick
Loudness	<input type="checkbox"/>
Channel Mapping & Mute	<input type="checkbox"/>
Dolby® E Encode	<input type="checkbox"/>
Dolby® E Decode	<input type="checkbox"/>
Upmix	<input type="checkbox"/>
Downmix	<input type="checkbox"/>
	Quantity
<b>Number of Instances</b>	<input type="checkbox"/>
	Please tick
<b>Eflow + 4 Watch Folders (as standard)</b>	<input checked="" type="checkbox"/>
<b>12 additional Watch Folders</b>	<input type="checkbox"/>

## Contact Information

Address:- Red Shute Mill Business Centre, Hermitage, Berkshire, RG18 9UL, UK

Email:- sales@emotion-systems.com

Telephone:- +44 1635 203000