

# Waves 360° surround tools

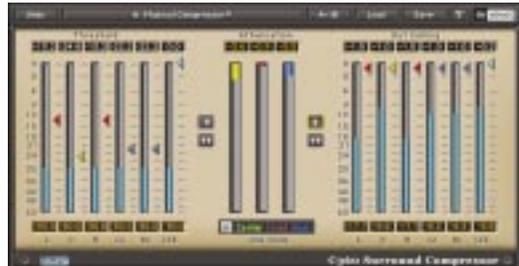
Although rumoured for some time, Waves' multichannel 'Software Audio Processors Toolkit' has only just become available. It promises much and **ROB JAMES** says that it does deliver.

**S**URROUND RECORDING AND MIXING is taking hold in areas outside the dark arts of sound for picture. While the conflict between SACD and DVD-A continues, the production hardware continues to arrive at ever more reasonable cost.

Initially, 360° surround tools is only available for Mac Digidesign Pro Tools TDM Mix and HD systems. While this is understandable, thanks to the prevalence of these systems and their mix architecture, I hope Waves will consider it worthwhile to make this available for PC-based Pro Tools and other systems in the near future. In fact I'd really like to see Waves processors running on a proprietary DSP card in a similar manner to the Mackie UAD-1 and TC Powercore.

In any conversation between people working in surround formats, especially for music, it swiftly becomes apparent that there are many disparate approaches producing interesting results. At present, the main common points of reference are 5.1 and the ITU-R BS.775 (1993) reproduction standard. Therefore, 360° Surround Tools are primarily intended for use in 5.1 and the ITU reference was used as a basis for such things as panning law.

Panning in surround is a contentious area. Most consoles and workstations offer X/Y panners. The user is presented with a square matrix with the outputs at the extremities of the box. On hardware consoles the 'joystick' panner typifies the approach. X/Y Panners are very useful if you simply want to place discrete sources in discrete speakers. However, directing a stereo source anywhere other than LR distorts the image. Also, attempting to position a source 'in between' speakers makes it more difficult to localise the phantom image. In effect, this is simple divergence, since all you are doing is sending an in-phase signal to several speakers.



Waves' approach is different. The S360° concentrates on precise positioning of sources in the 360° surround stage and spreading or stretching sources around the audience. The practical upshot of this approach is more 'natural' positioning. One thing you cannot do is 'fly' spaceships over your head. The Imager takes this further by adding Distance Panning. This is achieved by means of statistically modelled early reflections calculated according to the rotation of the direct signal.

All these processors perform as one would expect from Waves offerings. The user interface follows usual Waves practices. While good results can be obtained by simply noodling around with the supplied presets, it is more than worthwhile taking the time to dig deeper. The Panner/Imager and reverb, in particular, are likely to prove interesting in the context of

remixing stereo material for surround release. If you are serious about surround in Pro Tools you need to audition 360° Surround Tools. ■

## PROS

Serious surround tools; solid imaging; essential toolkit for remixing back catalogue.

## CONS

Pro Tools only; somewhat expensive.

## Contact

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## The processors

**S360 Panner and Imager** – The S360 panner takes a mono or stereo and enables the Rotation and Width to be manipulated in the surround mix. The S360 Imager is an enhanced version of the panner, capable of manipulating mono, stereo, 5, or 5.1-channel sources and adding Room Model Early Reflections and low frequency Shuffling. The early reflections enable 'distance' control and the Shuffling enhances low frequency width.

**R360 Reverb** – This reverb is a close relative of Waves Renaissance reverb. Therefore, expect clean tails and a rich reverb. The real strength of this processor is in combination with the S360 Imager. Room presets in the R360 have the same names as their counterparts in the Imager. To achieve the most natural result these need to be matched. If you are after other effects then mixing and matching can achieve some really weird environments.

**L360 Limiter and C360 Compressor** – The L360 Ultramaximizer is a close relative of the earlier mono and stereo L1 and L2 UltraMaximizers. This means a peak limiter with 64 samples of 'look-ahead' enabling absolute 'brick-wall' limiting with minimal artifacts and Waves Auto Release Control. Linking is crucial in surround dynamics if the image is to remain stable when gain changes occur. Parameter linking enables the same gain threshold and maximization values to be set for all channels but it is side-chain linking that maintains the imaging. For example, with linked thresholds all linked channels will get the same attenuation when any one of them exceeds the threshold. The L360 has up to three side chains. The linkages will depend on the mixing approach. In film, front L and R, Centre and Rear L and R will commonly carry different information and can be treated differently.

**M360 Manager and M360 Mixdown** – The Manager is intended to be inserted in the master surround monitor path to enable the monitoring system to be calibrated. It also allows sub/sat arrangements to be set



up. The tools provide for level and delay adjustments and bass redirection. The physical speaker angles of the studio can be set and these parameters passed to all instances of the S360 Panner or Imager. (To achieve an ITU compliant mix the angles must be reset to zero before printing a mix.)

Mixdown provides the means to produce mono, stereo, LCR and LCRS compatible mixes from the 5.1 mix. It uses the mixdown matrices suggested by the ITU and some common alternatives.

**LFE360 Low-Pass Filter** – A steep (around 60dB per octave) low pass filter intended to mimic filters in commonly used encoders. It is used in the LFE (boom) channel, not to be confused with the subwoofer output. Although the frequency can be set anywhere from 20Hz to 250Hz, 120Hz is the default and 80Hz the other common value.

**IDR360 Bit Requantizer** – IDR stands for Increased Digital Resolution. Uses dithering and noise shaping to optimise bit depth requantisation. Waves claims this makes a 16-bit signal brought down from a 24-bit source sound like a 19-bit signal.