

Analog Tape As Real-Time Processor

By Tal Herzberg

Although not as convenient to work with as DAW's, there are still some very distinct qualities associated with the sound and other characteristics of analog tape and tape machines. Even if a project was entirely produced on a DAW, it is still possible to affect some or all of a session's tracks with an analog tape during mix-down. It does NOT involve transferring the audio to analog tape reels to mix from, but rather in a way that uses tape machines as real-time multi-channel effects processor.

Here is the basic setup: Place a reel of analog tape on any analog tape machine (2, 4, 8, 16, 24 tracks, anything goes), choose the tape speed (7.5, 15, 30 IPS, or VSO version of any of those speeds), arm all tracks and start recording air. While recording, switch the machine to REPRO mode, which places both the record and playback heads on the tape at the same time.

It is now possible to insert tape tracks on some or all of a DAW tracks via the console channels insert points (the tape machine is running free in repro-record the whole time, and is NOT in sync with the DAW); sounds are then being sent from the console's channels and recorded onto the tape, and shortly after (milliseconds) are played back from the tape by the repro (playback) head, and inserted back into the corresponding console channels. The reason for the short time delay is related to the physical distance between the record and playback heads on the analog machine (the record head is located before the playback head).

Once you have precisely figured out this delay time (easily done by sending a short percussive sound from the DAW into the tape

machine and back into the DAW in real time), shift each track you are sending to the analog tape to start earlier by as many milliseconds of delay time this process is causing, making them playback in time with other tracks that are not affected by the analog tape process (playing back straight out of the DAW into the mixing console).

Since the tape is only functioning as a real-time sound processor, you can stop and start the DAW playback whenever you want, loop sections, and keep editing as you go. You will know when the tape runs out by noticing sounds disappearing, and then don't rewind it, just flip it over and start rolling again!

A few tricks:

- 1 - Use Dolby processing modules on some or all of the tracks;
- 2 - Bias and EQ individual tape tracks to accommodate specific sounds (bass, vocals, etc).
- 3 - Experiment with different level of tape saturation;
- 4 - Use 14" reels for maximum tape running time;
- 5 - Run multiple tape machines in different speeds (but don't forget to figure out the different delay times each speed is causing);

This method works beautifully, and is an elegant way of incorporating some real analog qualities into digital audio, without losing any of the benefits offered by a DAW. It reutilizes existing gear that can be found in almost every studio, but turns it to a different tool. The sonic benefits are very noticeable, because after all, there are no better EQ's and compressors than analog tape. The whole concept is essentially a multi-channel EchoPlex with a single repeat.



Even if a project was entirely produced on a DAW, it is still possible to affect some or all of a session's tracks with an analog tape during mix-down.