

## INTERIOR DESIGN

# GETTING THE MIX RIGHT... OR HOW I LEARNED TO STOP WORRY & LOVE DELAYS & REVERBS

by Cookie Marengo

You heard the sound of a vocalist with a long reverb and the rest of the band sounding like it was playing in a bathroom? Or the sound of a snare drum giving off a high, splashy reverb and the kit's lifeless? How about the guitar panned hard left with a short delay panned hard right? Okay, guilty as charged? Well, help is on the way.

I design environments where records live in people's minds for a lifetime; that is, I put records in a mood for the entire project. I call it *setting up the environment a recording lives in*. This style of mixing combines various reverbs, delays, and other effects to achieve a mix that sounds as if the musicians played in one room, live, and at the same time. It can make an acoustic instrument that sounds dead jump to life, enhance a concert performance that suffered from close miking, or mask a band recording made with multiple overdubs, at different studios, over many months, sound cohesive again.

### WHERE TO START

As the engineer, I work closely with artists to determine who the intended audience might be, where the music might get airplay and what references are the artists listening to that they will compare their final mixes with. After the issues of panning and EQ have been addressed, it's time to start building the environment. I'm going to focus on the delicate mixture of delays and reverbs for this article, leaving compression for another time.

At your own facility, you probably have your arsenal of effects in place and are familiar with what they are capable of. The first tune you mix is going to dictate how the entire album will sound with the *environment* technique. Chances are the first tune will be remixed as you refine the environment, so choose the tune



that might require the most extensive use of effects and uses all the instruments you might encounter. Pulling out instruments is easier than finding more effects in a pinch. Limitations are good.

Or, if you choose, use the medium up-tempo piece you like the most because you're going to be hearing it *a lot* right now while creating and setting up all the effects.

As the engineer, this is where you have the most fun with upsetting your client. As their mouths drop in horror, you calmly listen and take time as they count the dollars flash by.

Not to worry. Once you've setup your environment, you can re-patch and mix song after song with a few slight alterations and probably finish the entire album mix in less time.

From tune to tune, you will move incredibly fast. Granted, it helps if the same person recorded all the instruments and the tracks are cleaned up prior to the mix, the relative recorded levels are pretty similar, and the musicians are the same. With this in mind, it's best to mix similar kinds of song, like the upbeat songs with the same musicians one after the next, and the ballads with other ballads. It will also cost you less in mastering if songs are mixed in a similar manner.

I like to have, at minimum, two delays and two reverbs available at all times, even for rough mixes. Take the opportunity during rough mixes to test where you are going to place the instruments and how they interact. This will have a drastic effect on what kind of reverb or delay you might be using. Rough mixes are the time you test whether a wetter sound (use of more or longer reverb) or dryer sound has the desired effect to the listener. It's also a great time to make mistakes and say, "Hey, it was just a rough mix, don't worry. . . ." Many a rough mix has saved me from the horror of too much or little of *something*.

### USE OF DELAYS & REVERBS TO MAXIMIZE THE SOUND

After you've assessed the situation, decide which instrument is the most important (usually the featured artist — I'll refer to the vocalist as an instrumentalist as well) and work on their sound first. If you start with the person who complains the most, you'll end up remixing for the featured artist, so just kick that person out of the room for awhile. Actually, kick them ALL out for a couple of hours. They'll learn to love you for it.

Have your two reverbs and two delays patched so that each effect can be accessed via an auxiliary send. You'll need four sends, minimum. I've made my life easy these days by assigning the reverbs and delays in groups (reverb long, reverb medium, delay long, delay medium). All the effects need to have their own returns on the board with access to additional EQ and the aux sends.

I start with a simple, great reverb and about 120ms of pre-delay. Since I have a preference for vintage gear and real outboard effects over plug-ins, I'll start with a Lexicon PCM 42 delay (I'll call it "delay medium") and a Lexicon PCM 60 reverb (set medium). You can get away with incredibly simple gear with EQ and a unit delaying the reverb.

The PCM 60 reverb has very few options but sounds great, (four room sizes, four lengths, plate/room, treble/bass cut). With the PCM

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42 in front of it acting as a predelay, the PCM 60 has incredible flexibility to adjust the length of the reverb. If the instrument has a lot of natural highs, like snaps of the guitar strings or sibilance on the vocals, you might want to cut the treble. Cutting the highs can allow for surprisingly long reverb trails that are pleasing.

Run your featured instrument through this effect, listen to how it decays and decide how you want to time the effects decay. Depending on the tempo of the song, adjust the room size, then fine tune with the delay.

Determine whether you want the decay to fall into the next beat, word or rhythm. The EQ of the delay will also have an effect on how long or apparent the reverb will sound. Most of the time, I remove the highs in the delay so that you don't hear it in the reverb. You can also adjust the amount of feedback, multitap or repeats the delay has to give for the desired mood.

### DON'T TELL THE DRUMMER

Before you've gone too far, test this "medium" verb out with the snare drum channel. With a live kit, you're going to get some of the rest of the drum kit in the snare (please don't gate and over compress the drums . . . get a better drummer next time). It might be enough to give you the sound of great live stage. Back reduce the send and see what happened. You don't want to overdo the reverb.

Try this effect on the toms and maybe the overheads. Lastly check out the reverb on the kick drum and other parts of the kits. Rarely does the hi-hat need any 'verb because it bleeds everywhere. Don't tell the drummers, but I like to bring up the 120ms predelay from the PCM 42 to hear the delay dry with the whole kit ever so slightly coming through the mix. With the highs rolled off, it can sound like a wonderful outdoor amphitheatre.

Unless you want to ruin your mix, don't tell the musicians what you're doing. Just say, "I'm putting some *stuff* on it. Do you like the sound?" If you haven't altered the instruments greatly, it'll sound like their equipment, only in a more live situation.

### BIGGER OR SMALLER

At this point, decide whether you're going to go "bigger" or "smaller" on the environment. Use a reverb with predelay built in. I use the Lexicon 244xl, because I prefer it for its 4-channel return and smooth decay of the reverb. I mult out the send so that the stereo inputs of the 244xl are input with the same signal, and get



the benefits of four returns. The multiple decays from the reverbs and delays start to simulate a more real room tone.

If the artist wants to hear more reverb, then I might increase the high frequencies of the reverb, which gives more splash to the sound and more confused, muddy quality. Personally, I'm not a fan of this reverb character soooooo popular in the '80s.

So, for a smaller environment, you might want to use as much as a 300ms or more predelay with most of the highs rolled off and the length on the low frequencies increased with a very low crossover point in the bass. A small amount of this can sound like you've recorded in a huge room not oversaturated with reverb. Remember, back it down so it's not noticeable.

For a larger environment, set it up a third 'verb or reduce the long predelay to 60ms or less. This will give you a more immediate sound of a reverb. Use all three 'verbs if you have them and set them up to decay one after the other. You'll hear the various instruments trigger them at different times depending on the amounts you send.

Set up another delay, or if you have a stereo delay with one send, set the right side of the delay to 250–400ms and the left to 350–600ms. I pan these delays hard left and right, often swapping sides depending on the spatial image.

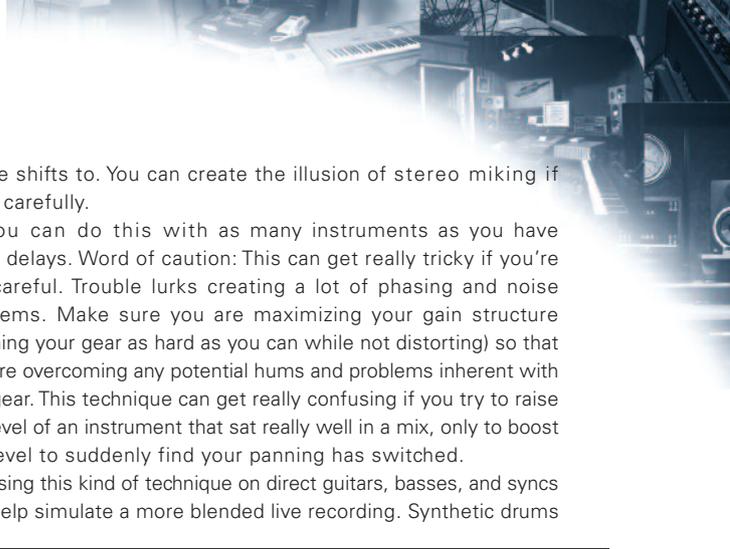
The returns of this delay should have the highs rolled off. Get ready to trigger all your various reverbs. I realize there are many mix engineers who time their delays to the tempo of the song. I like to time the desired feel of the song either behind the beat to lay back a feel, or on top to give it urgency, or in the pocket for a groove.

Typically, this delay is used on syncs, guitars, lead and background vocals, orchestral instruments, and is especially effective on electric and acoustic basses, French horns, and other instruments that are difficult to get a room sound on because they are thick and low sounding. Again, avoid telling the bass player you're putting delay on the bass. You're going to use VERY little and just enough to get an expansive sound, not enough to actually hear it being around and get muddy. And when in doubt, take it out.

### PULLING IT ALL TOGETHER

Now that you've got your resources out, you need to start tightening up the sound. You're going to notice that not all reverbs and delays trigger the same way when sent from certain channels. In general, low instruments will respond to longer, lower delays and reverbs. Higher instruments will trigger just about anything, but will be heard by reverbs with more highs. A vocal might sound too dry when using a reverb that triggers in the lower frequencies. Increase the length of the





high decay aspect of the reverb and the 'verb will become more apparent.

Reverb and delays will also change the respective sensation of how you hear an instrument in the mix, either louder or softer. You'll need to make adjustments to your dry signal levels, as well as testing each delay and reverb send for your desired effect.

You'll start to get the feel of the environment and how each instrument reacts and interacts. Pull out a reference CD and listen to see if you're in the ball park. Turn down the level of the speakers and listen to the smallest nearfield speakers in the room. Stop for 15 minutes and walk away.

When you return, see if you have reached your desired environment and continue adjustments. Take off each effect to see what happens until all effects are off. Then return to all effects on.

**Determine whether you want the decay to fall into the next beat, word or rhythm. The EQ of the delay will also have an effect on how long or apparent the reverb will sound. Most of the time, I remove the highs in the delay so that you don't hear it in the reverb.**

#### **THE NEXT STEP . . . IF YOU HAVE THE TIME & EFFECTS BUDGET**

The use of chorusing and harmonizers in an environment can create incredible dimension and sophistication from a lackluster and dead recording. Used cautiously, adding a slightly detuned harmonizer or light chorusing to a synth, snare drum, toms, or guitar can give you the sensation of depth and three dimensions.

Use your headphones and add 20ms delay panned to the opposite side of a guitar or synth. Boost the level of the short delay and feel how the image shifts in the headphones. You can alter the placement of the instrument and its depth with this effect. Shorten the delay time and repeat the exercise. Move the delay and/or instrument closer to the center and change the level. Now add a reverb and change the EQ to the short delay and feel where the

image shifts to. You can create the illusion of stereo miking if used carefully.

You can do this with as many instruments as you have short delays. Word of caution: This can get really tricky if you're not careful. Trouble lurks creating a lot of phasing and noise problems. Make sure you are maximizing your gain structure (pushing your gear as hard as you can while not distorting) so that you are overcoming any potential hums and problems inherent with this gear. This technique can get really confusing if you try to raise the level of an instrument that sat really well in a mix, only to boost the level to suddenly find your panning has switched.

Using this kind of technique on direct guitars, basses, and syncs can help simulate a more blended live recording. Synthetic drums

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can be made to sound real with the right combination of delays, 'verbs, and chorusing or harmonizers. As well, in a live recording situation, the addition of a small or large environment can diminish problematic issues of playing too close to a mic, or overdubbing a miscellaneous part.

### READY TO MIX IT DOWN & START THE NEXT ONE

Assuming you've got your environment created, moving to the next song should be relatively easy. What took eight hours to create and setup might only take two on the next one. If the tempo is slower, you can try lengthening and increasing the delays. At times, a faster tempo might require more delays and 'verbs than you think because the instruments cover up the environment.

Keep your pans and EQs if the recording is the same. Keeping this basic environment doesn't mean you can't get a little creative with some wacky effects. You can still keep the mood. With the basics in place, you learn to free up or get access to the new effect you want and incorporate it into the mix.

I have an old Eventide Harmonizer 969 that is busted. I'm not sure I can ever recreate the sound it makes on any other 969, let alone a plug-in. I'll throw it into an environment just to give the recording project a special feel that no other record has. Another trick is to have the delays feed back on themselves by turning up the send on the channel it's returning on. Yikes! You can really

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amuse the artist with this trick. Try it on a harmonizer set to thirds or fifths and have it feedback on itself . . . but USE CAUTION. You might blow up your speakers so get ready to SHUT IT OFF FAST!

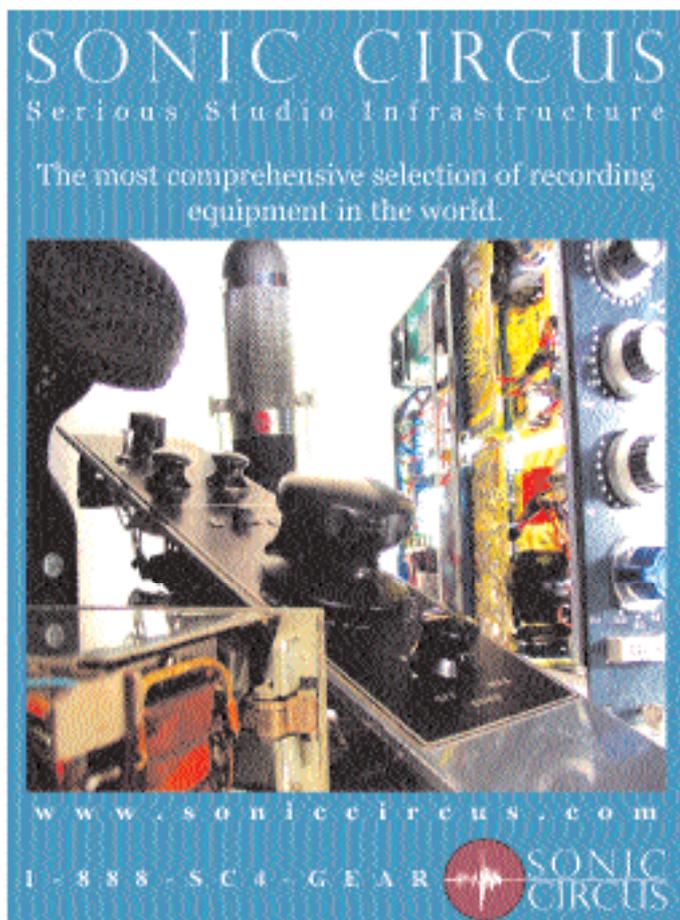
Another favorite effect you can try is setting your harmonizer to trigger an octave higher. Set a pre-delay in front of the harmonizer that is a second or more in length. Then trigger the harmonizer to hit a LONG

reverb. Play one note and see what happens. If you have a stereo delay triggering the harmonizer, and float the delays (don't monitor in the mix bus) you can make a whole album by hitting one note.

In any case, making an environment isn't as easy as it sounds. It requires detailed listening and concentration that leads to the difference between an amateur and professional mix. The world you create for this project will last a lifetime. Do it right.

### END NOTE: WORKING OUTSIDE YOUR OWN STUDIO . . .

When you work in a variety of studios, it's best to call ahead and find out what kind of and how many delays, reverbs, and compressors are available. It's a little like trying to cook an elaborate meal for 12 at someone else's house. Make sure they have salt BEFORE you get there and that all the burners are working. Sometimes you find a new sound that you never would have encountered had you not gone outside your own arsenal.

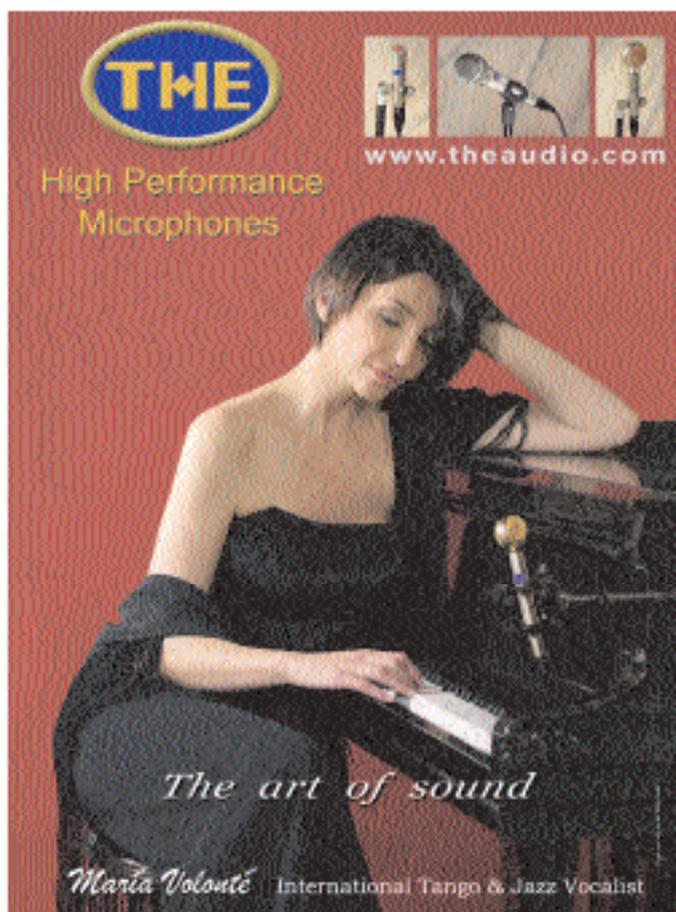


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