



Toby Francis' clients have included Aerosmith, Ted Nugent, Eminem, Justin Bieber, Katy Perry, Slash, and Kanye West.

Making Digital Sound Like Analog

By: Sharon Stancavage

Audio engineer Toby Francis shares his technique

For many audio engineers, the holy grail of live mixing on a digital console is the creation of an analog sound. "There have been eras of music dominated by certain models of consoles and there's a sound you get that way and that some people are still getting today," says front-of-house audio engineer Toby Francis. He's a veteran

of over 40 years and has done live mixing for the likes of Aerosmith, Ted Nugent, Eminem, Justin Bieber, Katy Perry, Slash, and Kanye West. "Part of the sound of the analog console is the fact that there are transformers everywhere. Everything goes through a set of transformers and the sound is affected by that. Right now, everybody

is trying to mix stuff in the console, and if you're really good and use all the different plug-ins, you can simulate saturation and get an analog sound. The plug-ins are emulating not just compression but how the transformers made it sound by putting that in line.

"I mixed analog for the first 20 years or so of my career," he continues. "I tried digital consoles when they came out and I didn't really like them. The sound in analog is a different type—it's more present when you drive it the right way. I used an analog



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console for a long time, but they quit making them.” In fact, Francis even considered going back to analog at one point. He notes, “I looked at going back and using a straight-up analog console, and it was going to cost more money and add a lot of extra time and effort, and I didn’t think the end result would sound different from what I have now.”

Francis was working on the Kanye West *Yeezus Tour* when he began his foray into digital that sounds analog: “I started working with Kanye about six years ago. His music director and producer, Mike Dean, has his own sound that has had a huge impact on hip-hop. I did one tour with Kanye where we had a studio in the back of the bus. Mike Dean, his assistant (a very unique guy named Head), and I rode on the bus, and they made records in the back while we were parked at the local arena.”

Francis says that Dean’s sound “was a mixture of Pro Tools going into

a really good converter, going to a summing mixer, with the summed sound recorded in Pro Tools using a very high-quality converter. This included the master bus being saturated at a pretty good level as well as analog equipment. You’re getting that big console sound, and putting it back into the digital world, which is part of the sound that Mike gets. It was all centered around a Rupert Neve summing mixer.”

Fast-forward a few years: “I bought one of the summing mixers, and started experimenting on my next tour, with Ariana Grande. I started stemming out of a DiGiCo SD7.” That’s when he took what he learned and adapted it to his own situation. “As an experiment, I took the subgroups already there and stemmed them out into the summing mixer, creating a left-right mix. I took the stereo drums, sending them into a stereo input in the mixer, so it was still bussed to the stereo digital master, but it was also bussed out through a



Francis’ stage box with Rupert Neve desktop mixer on top.

converter into the summing mixer. Then I did the bass guitar, keyboards, guitar, and stereo vocals, which are the background vocals and special effects: I kept the lead vocal in mono.



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Other than with certain effects, it was almost the only true mono source, and I left it as a mono source. I returned that back into the console on the insert point of the master bus, so I could literally push one button and go between the digital mix and the analog mix.” The result, he says, was astonishing. “It wasn’t just slightly different. I had a line of people who heard it and were shocked by the difference it made just in the stereo imaging and the depth, including what it did to the bottom end.”

This can, of course, be done on any digital console. “I’ve done it on every sized DiGiCo; I’ve used SD9s, SD10s, and SD7s,” Francis says. Currently he is using a Yamaha RIVAGE PM10, “where I can manipulate the stems better than I could with the DiGiCo; they’re a little crisper sounding.”

The next part of the system is the digital-to-analog converter. “Different converters act different ways and the front of a digital console has to be driven a different way. I’ve had converters in the console and now I’m doing it with them outside it. I’ve used DiGiCo’s converters, then I used Lake LM 44 [audio system processors] that have AES inputs, and the sound was much better. When I switched to the Yamaha console, I tried it with the Lake, and it sounded different. I would not say one was better than the other, though.” He also likes AD/DA converters from Focusrite, Burl Audio, and Lynx.

Francis also has a longtime work relationship with Clair Global, so, he notes, “I have access to all the different gear. I started comparing how different consoles sounded, both the front end and the summing. Mike Dean, a couple of studio guys, and I listened to summing mixers from API, Rupert Neve, and Dangerous [Music], and we all agreed that the Neve desktop mixer, in particular, has a really awesome sound and the satellite mixer has a different, but also really awesome, sound.”

As for the mechanics of his procedure, “When I start a new tour, I set it up inside the console first for the proper gain structure. I get that right, and get it summed so that the stereo mix sounds the way it should sound; next, I assign all of these groups to the summing mixer and I start that at unity,” he says. By unity, Francis means putting the input at zero. “There is the drum mix that takes multiple inputs from a digital console, summing it down to kick/snare/stereo toms/stereo overheads/stereo pads; that goes into its own buss and I can drive it harder so I’m clipping the buss, which actually makes it sound better. This gets returned into another layer of summing, which is part of the band mix and that’s on another buss. I add the band mix to the vocals; it’s done on the Neve summing mixer, which is of a slightly higher quality. I create the final mix there. It’s like how you would create a record. You’re creating stems, mastering those stems and creating a band mix that’s mastered, and adding vocals both stereo and mono to it.”

The summing mixer is also the hub for Francis’ analog gear. “I create that summed drum mix and run it through an Alan Smart C2 compressor. It’s compressed across the mix with the drums in crush mode, which is a quicker attack or a fast attack/fast release that makes everything really punchy. In that mode, you can barely hit it; if you hit it very hard at all, you take the life out. In this mode, if you’re barely hitting it the right way, the drums, cymbals, and the presence of

everything is astounding. Most of the guitars I deal with now are either Fractals, Kempers, or some type of emulated guitar amp. I generally run them through grouped together; Rupert Neve makes this 500 [Series] card that is a tape saturation device, but it’s done analog; I use that, and it fattens them and makes it sound much better. Then I lightly compress it with a Tube-Tech SMC 2B [stereo multiband compressor], which makes it go through different changes and keeps everything tight, thicker-sounding, and present.”

Francis’ analog gear also includes “a couple Tube-Tech SMC 2Bs. On the keyboard is an IGS Audio multi-band compressor; it’s a Polish company that makes a thing called a multicore, a three-way multi-band compressor that’s VCA-based. It is an amazing sounding compressor for the money, which is about \$3,500.”

He adds, “I put an API 2500 [stereo compressor] across the master band mix; it has always been my favorite buss compressor for the music mix. It’s barely compressing, but it adds so much crunch and clarity.”

An additional key piece of gear is a Rupert Neve Master Buss Processor [MBP]. “Of everything there, it makes the most difference, and it’s one unit you will see commonly now,” he comments.

“It’s a buss processor that can be a compressor,” he continues. “It has features, like all compressors, but it has the Silk feature as well: Red Silk, which is presence, and Blue Silk, which is thickness—not width, but thickness.” He also makes use of the SFE feature on the MBP to make the vocals more present in the mix. “The bottom knob in the SFE section is your stereo knob; all the way left is mono. If you go to 12 o’clock, your mix is just stereo; if you go beyond 12 o’clock, the stereo goes wider than you typically hear it. I have my lead vocal in mono and in most live situations, I’m in an ambient room; I have to take the lead vocal and make it 1.5dB to 2dB louder than you normally would, to make it be present with all the ambiance coming with it. If you do it this way, where the vocal is mono and the band mix is very stereo, if you take the MBP and go a little wider in stereo—I typically go to around 2pm—you’ll find a place where the lead vocals now have that extra clarity.”

Francis stresses that this is only his preferred way of working. “There is more than one way to do things; guys with plug-ins get amazing results, and there are guys doing all analog who are also getting absolutely amazing results. And there’s the hybrid. The whole point is that you shouldn’t settle on one option, or you’re shortchanging yourself.”

Francis has one final point to make in terms of mixing today versus the past: “A big chunk of an artist’s money comes from their live shows, and it needs to sound as perfect as possible; within a week, several million have seen shows presented on social media in some manner. With the iPhone 6 and beyond, the recording sounds great. If your mix sounds good in person, it’s going to sound good online and your artist is going to be happy when she stumbles across it.”

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