Samplers make it possible to update and add to your sounds without having to buy a new drum brain, drum machine, or drumset. Flexibility — sampling is thy name. Text by Chun G. Ling.

STEP RIGHT UP, folks. Get your brand new drum machine right here for less than two dollars! No, I’m not talking about some guy in a parking lot offering a “less than cold” selection of drum machines from the trunk of his car. You can get a new drum machine any time you want by sampling a different set of drum and/or percussion sounds and saving them to disk. (The disk is the two dollar part — I’m assuming you already own a drum machine and a sampler.)

What’s In a Machine? A DRUM MACHINE is really a sample playback device, with a simple built-in sequencer that can program to trigger the onboard sampled sounds. (Note that though drum machines do have sequencers, they are too limited in scope to be used to program all the music tracks for a song — with some exceptions, like Akai’s MPC60 and the new debutant Linn 9000 and Sequential Studio 440, which have dedicated multitrack sequencers. However, you can use any multi-track sequencer — hardware or software types — to sequence drum tracks. — Ed.)

If you already own a drum machine, you really don’t need another drum sequencer; you need more drum sounds. Or maybe you don’t own a drum machine but you do own one of the keyboard synths, drum brains, samplers, or even pad to MIDI converters that has a built-in sequencer. There, again, you don’t need another sequencer, you just need more sounds. And don’t forget about computers. If you own any brand of personal computer, you can get some very sophisticated software sequencers for under a hundred bucks. All you really need are the samples.

Mix and Map
NOW THAT YOU’VE sampled the sounds, what are you going to do with them? How about replacing the sounds on your own drum machine with the new ones? Great idea. Once the new sounds are in your sampler, it’s a simple matter to ‘map’ them — that is, assign certain drum sounds to particular notes. Since you’re going to be playing these sounds with MIDI messages, it’s very important to match this sounds you want to hear to the proper MIDI note numbers. Usually, this can be accomplished in a pretty intuitive way — trial and error! First, make the proper
MIDI connections tie, drum machine's MIDI OUT to sampler's MIDI IN. Then, while strikingle the pads on the drum machine, play the maps on the sampler until you hear the correct sample sounds. Simple, huh? Of course, if you'd rather, think of all as note numbers (there's always one in every bit - 0-127), then if your drum machine sends note number 36 for the bass drum voice, place the new bass drum sample under that note number on the sampler.

Continue to map the newly sampled sounds to MIDI note numbers, until you can control all the sounds with your drum machine. When complete, you should be able to hear the sounds from both devices at the same time (one set of sounds from the sampler and one from the drum machine). Since you may not want doubled drums all the time, here are a few options. If you only want to hear the drum sounds that are fired by the sampler, turn the master volume of the drum machine down. But wait, there's even more flexibility at your disposal. Remember your drum machine's function that controls the audio output (mix) of each individual voice? By adjusting the individual volumes of the voices in the drum machine, you have the option of hearing only the sampled sounds, the sampler and the drum machine at the same time, or only the drum machine (by not assigning any sound to a note number on the sampler).

If you like the idea of mixing sounds from both machines, keep in mind that mixing already sampled drum sounds can bring on new, exciting sounds. You can map the drum machine's hi-hat button so that it fires a shaker from the sampler, or even make the drum machine's crash symbol fire a rim shot. The combinations of sounds are wide open. Mixing a kicks sound with a snare makes the snare sound deeper, a rim shot makes the snare sound brighter. This is another reason to have a kick make it boomy. Experiment.

Using a sampler as the sound source for your drum machine is a neat way to have a great deal of flexibility of the unit. In fact, your sampled version may actually be better than the factory original.

The drum machine that I'm using has eight eight individual audio outputs and a mixed output. There are no stereo outs. Since I can't afford to dedicate eight channels on my audio inser just for the drum machine, I'm forced to use the mono output. When I mono, there is no way that I can send the hi-hats to the left channel and the crash symbol to the right side. (Boo, hoo.) But when I fire sounds from the sampler with my drum machine, I can use the sampler's stereo outputs. It's an easy task to tell the sampler to send each individual sample to any position in the stereo field. I've even sampled my own drum machine so that I can take advantage of this very feature. My drum machine doesn't have dynamic voice allocation, but my sampler does. Think about it - cymbal crashes don't have to cut each other off. In addition, all of the sampler's other features (LFO, detuning, chorus, looping, filters, etc.) can be applied to my old drum machine sounds. Neato!

Bring In The Sounds
WHERE ELSE CAN YOU get new drum sounds? Everywhere! And think about all the sounds that you hear everyday. Some are what I like to call "natural" drum sounds. Tin cans, table tops, structural walls, the bottom of a plastic cup, or even two broccoli stems together fall under this classification. Others are "latent" drum sounds. You know, sounds that really want to be drums, but for now they're going through an identity crisis and think they're something else.

For example, try using only the first few milliseconds of the sound from a jet engine as a really dyn-o-mite bass drum (or a few seconds as a crash cymbal). Sample a can of spray paint, drop it down on an accordion, reverse it, and truncate its length to about a half second. The result? A very mean gated snare.

I'll have to agree with you that it may not be easy to drag your sampler to the nearest military installation to get a good jet sample. But there is an easier way. Several manufacturers are currently producing pre-recorded (wav) files of sounds that can be sampled. These sampling CD's contain everything from orchestral instruments and electronic synthesizers to sound effects (including a wide variety of guns and cars of spray paint). With your sampler and a CD player, you can sample jet planes, spray cans, whistles, or a thunderstorm in the comfort of your own home.

If your musical tastes run more in the modern electronic direction, the percussion instrument inventory. Once sampled, a single snare drum can be pitch shifted to create four to ten different instruments. You may want to sample the same snare when it is tuned differently. Sample with the heads cranked way up or down pretty loose, then add a little muffling or a tone ring to the bottom head. Just think of all the different sounds that a single instrument can produce. In addition to the traditional snare, drum machine, sample your instrument inventory. If you've got a friend who works at a music store, you're in even better shape. You may even find friends with samplers who will trade sounds with you. With the advent of the MIDI Sample Dump (Standard, you can grab sounds from any sampler, even if it is made by a different manufacturer. A word of caution about this: you try to pass digital data from two different machines (Ensoniq to E-mu, for example) you'll need a computer and a sampling edit program to act as the interpreter. If you can't get your hands on a computer, just take the audio output from one sampler to the sample input of the other sampler. While this technique might add a little noise to the sample, it's better than nothing.

Sample Live
SO FAR I'VE been talking about using samplers as a replacement sound source for a drum machine or some other sequencer. Let's take a creative look into how samples can be integrated into a live performance situation.

It really doesn't matter if you're playing an electronic set or acoustic drums, you'll still be firing the sounds from your sampler with MIDI messages. Generally, samplers don't have a lot of function for reading voltage spikes from pads or trigger sensors. This means that you will need a trigger to MIDI interface between what you trigger and the sampler. (There's an exception to every rule, Alex makes an add-on board for his SP01 sampler which enables it to accept trigger inputs directly.)

Suppose you're using an acoustic set with piezo-type transducers as triggers (see the article elsewhere in this issue on getting trigger from acoustic drums). — Ed. The right way to go is to fire a trigger-to-MIDI converter and the converter's MIDI Out port is connected to the sampler's MIDI In port. Now that everything is set up properly, it's time for the fun.

Even the least expensive, bars-bones converter will kit you program which MIDI channels and the MIDI note number that will be sent when the trigger is activated. If you want your bar to sample to fire the sound of a thunderclap, simply assign the sampled thunder sound to the same MIDI note number that will be sent when the trigger is activated.

In other words, if your bass drum is programmed to send notes number 40, then assign the thunder sample to note 40.

Even though your converter may be basic, your sampler doesn't have to be. Assume that your sampler has the ability to perform velocity switching - thus, if it is a lower velocity (dynamically) will trigger one sound while a higher velocity will trigger a different sound. A velocity switch could be programmed so that MIDI note number 1 is assigned to the 60, fire a closed hi-hat at a velocity of 64 or below, and another sound (perhaps an open hi- hat) at any velocity above. This works with a sampler programmed for a velocity switch, your bass drum stroke can fire two different sounds. Some samplers allow you to place as many as eight different sounds on...
When you call up a new program (or patch) on your converter, it can send new note numbers on new MIDI channels. The result — a new set of sounds under your hands.

Creative Sampling
HERE ARE A couple of games to play with your sampler, presented here as two types of creative exercise. If you’ve tried to do these little tricks before, see if you can expand upon them. If you haven’t, then by all means, get started and see if they spark any new ideas.

Most often, people who do sampling take one or two simple notes from single instruments. Why not sample an entire patch, maybe add or subtract from your sampler’s memory and you can even sample an entire verse of a song (although you might not even have enough memory left over for anything else). How about sampling four or five bars off your favorite drum set? Then assign the sampled fills to four notes on your sampler, then program your converter to send one of those four MIDI note numbers when you hit one of your pads or triggers. Listen to these new sounds and you’ll find new instrument patterns that you’ve programmed into the sampler. Pretty cool, huh? Are some additional ideas popping into your head?

To make things a little more interesting, try sampling your amplifier to a drum machine’s internal clock and then program a little drum machine pattern. When you play, follow the drum machine’s tempo and the amplifier will do the same. Believe me, it’s amazing what you can come up with when you really put your mind to it.

The Bottom Line — Again
SO NOW YOU’RE convinced. You’re going to go out tomorrow and buy a sampler. Which brand and model should you buy? I’m sorry, but I can’t make your life that easy. The number one factor you should consider is your bank balance. Thes samplers are not cheap.

Perhaps, the best advice I can give is to set your budget. Vote the stores, listen to the instruments, and then ask the salesperson to let you see the owner’s manual. Take your time and read through several sections of the manual. If you read last month’s article, you should have a good idea of what features you want in a machine to support.

Take a look at the MIDI implementation chart and notice which messages the machine can receive and transmit. Releasing MIDI messages is the name of the game if you’re planning to use the sampler as a sound source. The ‘Spok’ approach would be to take notes while you’re at the store (how each instrument sounds and various footages) so that you can go back home and compare the pros and cons of each sampler. Whenever you sample you choose, you’ll be adding a new, creative reservoir of sounds to your current setup.

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