

How to sound lo-fi



Instead of trying to make the most of your gear, why not make the least of it?

Sick and tired of spacious reverbs and 24-bit delays? Bored of subtle compression and glossy mixing? Then come with us on a journey into sound. Monophonic crap sound.

Increasing numbers of artists, from trip hop to big beat are using that dirty lo-tech feel we all know and love, and no doubt E-mu will eventually launch a Planet Dirty module, but in the mean time, how do you make those kind of sounds? Armed only with this article and Portishead's lo-fi tips you'll soon be able to shag your sonics in a variety of innovative ways with kit you'll already have, while next month we'll be concentrating on equipment tailor-made for the job.

Before we start, it's assumed you know how to use multi-effects and compressors already. If you don't, you should probably read your manuals carefully and try out any tutorials to get the hang of it all, otherwise you're going to pick up a lot of bad habits. Also, be warned: some of these techniques can result in howling feedback and bludgeoning noise, so monitor at a lower level than normal, unless you want to give your speakers or your ears a permanent lo-fi sound. If you have a spare compressor, stick it across the stereo mix to catch any sudden peaks.

Echo, echo, echo, echo, echo, echo, echo

That's the annoying thing about digital delays, they're too bloody good. You want something that mangles your sound with each repeat, not replays the same sample quieter. Something along the lines of "echo... eko... grecko... grackle... growing". To find the remedy we'll have to go back to the early 70s and the birth of dub. Starting as an offshoot of reggae, dub's sparse off-beat sound was one of the first musical styles rooted in the studio. The emptiness of the basic tracks left room for long evolving delays, feeding back into themselves. The trademark sound of dub delays can be heard on many records; for example the recent(ish) Portishead remix of Karmacoma, or almost any track on The Orb's classic UForb album. But how do you turn a mild-mannered delay into a feedback monster?

First, set up a delay as normal, sending to it on auxiliary 1, and bringing the returns back to two mixer channels. Set the delay to the required time, and turn the feedback to zero. Send a sound to the delay at this point and you can hear that it repeats just once and then stops. Now feed the echo back into itself by sending it down aux 1 on the return channels. Be careful, as too high a level will cause an ear-splitting feedback loop as the delay repeats itself louder and louder. By varying the amount of auxiliary 1 being sent from the returns you can set the number of repeats. You'll hear an example of this on the first section of track 19 of the CD which is set for numerous repeats and isn't that different from ordinary delay.

Adding EQ to the mix

The secret ingredient is EQ. Rolling off the top- and bottom-end of the return channel causes each successive delay to become a bit thinner. (This effect appears on the second slice of track 19 where the echoes soon become noticeably degraded.) The effect is similar to a vintage tape delay, such as the Watkins Copycat or Roland Space Echo. Next, if you have a sweeping EQ, apply a gentle 3 or 4dB boost to the frequency of your choice, and slowly sweep the frequency around as the delay repeats.

Fairly soon the echo is almost unrecognisable, as on the third section. Alternatively, cut instead of boost the swept frequency for the phasier sound which you'll hear on section four. Riding the send level by hand you should be able to keep the echoes going on indefinitely. Letting them start to fade and then bringing them back is a great way of speeding up the mutations, or you can even try and overload the delay, as we've recorded on section five. Try recording five minutes of evolving echoes to DAT, and then go through it for interesting samples.

This is a good practice to follow when wiring up unpredictable effects chains, as it can be hard to get the same sound twice. A lot of drum 'n' bass artists fill DAT after DAT with bizarre effects for sampling later, so if you want to be unique, do the same. When you're tired of delays, switch to a different effect: try phasing or reverb. Section six of track 19 uses a flanger and reverb, while slice seven features phaser, reverb and delay.

Downbeat and dirty

When it comes to beats, compression is everything. The whole Portishead vibe builds on the sound of drums drowning under the weight of the compressors, while the Chemicals' beats are block rockin' with the sound of hard-edged compression. The basic setting for a typical trip hop drum sound has very low threshold values. For big beat, ease up on the threshold (try -20dB) and reduce the ratio to 12:1. Increase the attack time slightly, until you hear the front end of each drum smack out hard, and set the release to between 40 and 80ms to allow a more dynamic sound. The first section of track 20 has the dry loop and on the second section you'll hear three variations. Compressors are normally used in insert points, but there are advantages to using them on a send. Set one up using the same wiring as the dub delay, merely replacing the delay with a compressor. For even better and more interesting sounds leave the delay exactly where it is and put the compressor before it.

Just take the cables out of the delay's input sockets and stick them in the compressor's. Then run leads from the compressor's outputs to the delay's inputs and set the delay time to 20ms or so, with no feedback. Now send your drum loop. You'll hear this effect on the third slice of track 20 which starts with just the compressor and then the delay is switched in. You can hear the metallic quality caused by the compressor feeding back into itself. With a compressor in the loop it's impossible to blow your speakers so welly up the gain on the returns until it's well into the red. Grab yourself an EQ and sweep it all over the place. It should sound something like the example on the section four of track 20.

Although it's no louder in terms of dBs, the subjective effect is of a huge volume increase. You can hear a feedback tone at the start and end of this track, caused by the compression when nothing is playing. Even a gate can yield creative results when used in this fashion.

Spring has sprung

A lot of lo-fi sound has old gear at its roots, like the 'fake' tape echo effect created earlier. Before the advent of digital effects many studios used plate reverbs (essentially a resonating chunk of iron in a wardrobe-sized box) or, if they were on a budget, a spring reverb. If you've ever kicked or dropped a guitar amp then you'll probably have heard the brain-shattering crash of a spring reverb.

Most modern effects units do a fairly convincing plate reverb but not many offer a spring algorithm. You can make your own with a stereo delay, by setting one delay to about 45ms and the other to about 25ms. Set the feedback very high and set any damping parameters to maximum, giving a very dull echo. Send the effect back into itself, as with the tape echo earlier, and you have something approaching the classic spring reverb.

Listen to the first slice of track 21 for an idea of what you're aiming for. An easy way of accessing grungy effects is to get your hands on some guitar pedals. They're mainly designed for live use, so they provide crude larger-than-life sounds, and they're cheap, as little as £20 or £30 second-hand. And there's not much that can compete with a really crap guitar compressor when it comes to big beat madness. Similarly phasers and flangers tend to be less subtle than their digital counterparts, while analogue delays degenerate into a soupy noise within seven or eight repeats. Highly recommended.

Red light district

Don't shy away from clipping. People have overdriven everything from valve EQs to analogue tape machines to create a bigger more crunchy sound, so don't panic at the first sight of an overload light. Experiment a little, try overloading your sampler's input, or driving your effects boxes too hard.

The classic Josh Wink track Higher State Of Consciousness 303 sound relies on distorting the mixing desk, and the sound of tape saturation can be heard on most 70s rock drums. In the land of lo-fi use your ears and not your lab coat to decide what sounds good.

Found sounds

Whether it's trip hop or big beat that you're making a lot of lo-fi styles are loop-based so you're gonna need some interesting loops. Using the methods already covered we've got some pretty gritty beats going, but what about atmospheric stuff? You can start by putting the radio on and switching to long wave (for possibly the first time in your life). Now find a station and then detune slightly away. The further you move from the original signal the more the sound degenerates into a clangorous sort of ring modulation. Keep twiddling until you get the sound you like (the less recognisable the better) then record a section to DAT.

This isn't always as straightforward as it sounds as it can take a while to strike lucky with a phrase or piece of warped music. I had to sit through George Michael to get the sound on the second section of track 21, so you've been warned. Having got your ideal bit of noise you'll probably need to EQ out any whining tones, then sample it back off the DAT and use it. It's occasionally worth a quick foray into medium wave, but FM rarely produces anything worth hearing (the radio signal that is, not the mag!). Another source of unique sounds is digital feedback. This sound was most famously used by Garbage on Stupid Girl underneath the vocals running up to the

chorus.

And while not everybody has access to an 02R, the same effect can be attempted with a sampler or an audio sequencer. Route the outputs to a desk (so you can monitor your results) and then feed them down an auxiliary back to the inputs. Then fiddle with the input gain and/or EQ. The sounds on track 21, slice three were created by looping an 02R out through one of its internal reverbs and back into two inputs or, in layman's terms, stuffing its head up its own arse.

Bitty and gritty

Many dance acts have an old sampler hanging about, purely for the gritty sounds they produce. The Casio FZ series is particularly renowned for hardening up drum loops with its low sample rate. Fortunately for you, you don't have to buy a second-hand sampler to achieve this effect, as most current machines allow you to reduce the frequency bandwidth and/or bit-rate. In these days of big memories and cheap RAM, most people's samplers are left set to the highest sampling quality at all times, so get in there and set it to the lowest.

Sampling uses a process known as anti-alias filtering to try and mask the effects of lower bandwidths. Unfortunately, this is an automatic process on many samplers but if you're one of the lucky few who can switch it off then the grungy effect will be stronger. As mentioned previously this sound is particularly suited to drum loops, giving them an antique flavour similar to crackly old vinyl. It's a sound you can hear a lot in hip hop, frequently used to make a sample stick out from the rest of the beats.

Of course you can try it on anything - vocals, crusty old strings, even sections of the whole mix.

Lo-coder

Vocoders have led a chequered career, swinging from cool (Daft Punk, Underworld) to very sad (The Cylons, Sparky's Magic Piano). Either way they were still largely used to process vocals until they were leapt upon by the more experimental members of the dance fraternity. Despite their name, vocoders are no more suited to voices than to any other sound source, being basically a bank of filters that analyse the EQ content of one sound and impose it on another.

As most vocoders only operate on frequencies below 3 or 4kHz they impart a pleasant woolliness to the sounds that they process. Whenever you use a vocoder, always allow yourself five minutes of mumbling "I will exterminate" and "We meet again, Obi Wan" just to get it out of your system, and then route two effects sends into it.

Now experiment with sending different sounds from your track to work against each other. A modern classic is the sound of drums being imposed on a slow pad, giving a gating hard-edged movement to the pad sound. Hear it on track 22, section one. This is also an ideal time to use some of your found sounds to impart a little oddness onto more conventional parts of the mix. By varying the depth of the vocoding you can create anything from a synth garble to a gentle organic movement. Track 22, section two starts at maximum effect, reducing to a slight colouration. Of course, you may not own a vocoder and think you can't afford one. Well, you're wrong. Vocoders are popping up cheaply all over the place, in multi-effects units and as software plug-ins so don't worry... you'll be getting them free with cornflakes by the summer.

Burn the magic boxes

If you're on a real caveman tip you might still be finding all this a bit too modern and hi-tech, so here's a few real medieval tips. Instead of using effects boxes, why not use real acoustics instead? Place a guitar amp at the end of one of your auxiliaries and put a microphone at the other end of the room (preferably in the kitchen or the toilet) and hey presto! Really grotty reverb. If you can't afford a guitar amp use the useless (until now) pair of tiny speakers that came with your Walkman, or buy some; they're pretty cheap. Point a mic at them and try shaking them around, or putting them in different acoustic spaces.

Another great technique can be achieved by putting both speakers in an empty fishbowl and moving the mic over the top of the bowl. That's all for now, see you in part two. And I leave you with the endearing image of a man recording a fishbowl at one in the morning. Now that's what I call lo-fi.

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