



# Big finish

Bring your instruments to life. Having created a mixer map to control parameters, **Steven Helstrip** shows you how to complete the assignment of controllers to the front-end of your synth.

In last month's column we set out to create a mixer map to control the AWE synth parameters. Like any other synthesiser, whether it's an inexpensive sound card or a £2,000 workstation, the AWE preset instruments fail to do the card justice. It's only when you start to program for yourself that the instruments come to life. So let's complete the front end by assigning the remaining controllers.

So far we have created two objects: a switch to "turn on" the NRPN MSB and a fader to control frequency cut-off, (effectively a low-pass filter). With the fader set to 127, the filter is fully open and there is no change in timbre. As you lower this value, the sound becomes more muffled as the higher frequencies are filtered out. There are nine more controllers to complete the filter section, including resonance, a six-part envelope, envelope depth and LFO depth.

## Resonance

Resonance is the second most important parameter in any filter section. Essentially it allows you to route the filtered signal back into the filter circuitry, which in turn creates a

feedback loop. The result is greater emphasis around the frequency range of the filter cut-off.

High settings can produce squelchy 303-like blips, although some care must be taken not to overload the feedback loop at low frequencies as this can damage your speakers at high volumes.

## Fade to filter

Rather than create a new object for resonance, copy the filter cut-off fader by dragging the object with the Alt key. This automatically opens the object definition dialog, letting you enter the new controller values. The input line should read B0,62,16,B0,26,XX

[Fig 1]. The decimal translation is:

Hex	Meaning (Decimal)
B0	CC Status Byte
62	CC 98: NRPN LSB
16	Parameter 22: Resonance
B0	CC Status Byte
26	CC 38 Data Entry LSB
XX	Variable

The filter envelope allows you to shape the filter over time and provides delay, attack, hold, decay and sustain parameters. A master control to set the overall envelope depth is also supported, along with depth for the first LFO (low-frequency oscillator).

The AWE has two LFOs which can be set independently, with parameters for rate and delay. When applied to the filter envelope, you can create anything from subtle tremolo and Leslie effects to warped, Prodigy-like synth patches.

Fig 2 shows the remaining parameter values to complete the filter section.

As with the resonance controller, copy an existing

[FIG 2]

## Filter envelope parameters

Parameter	Input Line
Delay	B0,62,04,B0,26,XX
Attack	B0,62,05,B0,26,XX
Hold	B0,62,06,B0,26,XX
Decay	B0,62,07,B0,26,XX
Sustain	B0,62,08,B0,26,XX
Release	B0,62,09,B0,26,XX
Env. Depth	B0,62,18,B0,26,XX
LFO1 Depth	B0,62,17,B0,26,XX

### Amplitude Envelope

Delay	B0,62,0A,B0,26,XX
Attack	B0,62,0B,B0,26,XX
Hold	B0,62,0C,B0,26,XX
Decay	B0,62,0D,B0,26,XX
Sustain	B0,62,0E,B0,26,XX
Release	B0,62,0F,B0,26,XX
LFO1 Depth	B0,62,14,B0,26,XX
Pan	B0,0A,XX

### Effects

Reverb Send	B0,62,1A,B0,26,XX
Chorus Send	B0,62,19,B0,26,XX

### LFO1

Rate	B0,62,01,B0,26,XX
Delay	B0,62,00,B0,26,XX

### LFO2

Rate	B0,62,03,B0,26,XX
Delay	B0,62,02,B0,26,XX

### Pitch

LFO1 Depth	B0,62,11,B0,26,XX
LFO2 Depth	B0,62,12,B0,26,XX

MIDI Reset	B0,79,XX
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FIG 1 HERE'S THE OBJECT DEFINITION FOR RESONANCE



fader to create the new objects, changing the input line and names accordingly. Note that the minimum and maximum values for envelope depth should be set to 64 and 127 respectively.

To make the panel layout more authentic, I have copied the design of the Roland JP-8000 synth and assigned dials



### Questions & answers

**Q** I have the musical acumen of a cricket stump, so your series of articles has stimulated me to dabble in computer-generated sound and composition. I have a SoundBlaster 16 and use Evolution Audio for sequencing. The FM synthesis of the first 16 GM instruments is very good. After that, however, all instruments are just variations on an organ. How

do I get more realistic instrument sounds, or is this a case of getting what you pay for? I don't have a separate MIDI Mapper Applet in the Control Panel: should I have one?

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**a** You don't have to replace your sound card if it's just higher-quality instruments you're after. The SB16 provides a feature connector that allows you to connect a WaveTable daughterboard. By far the best upgrade is Yamaha's DB50XC, which you

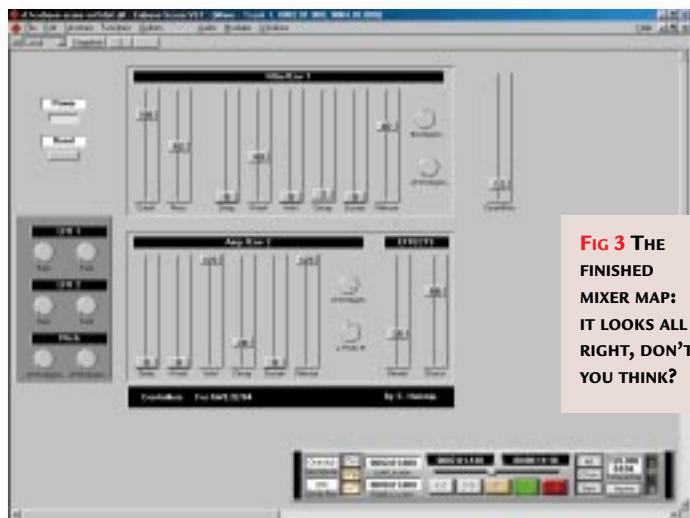


can get hold of for around £89, or it may be worth checking out a software synthesiser. Again, Yamaha is leading the way with its S-YXG50. This offers a better spec than the DB50XC (up to 128 voices) although there is some latency when playing the synth directly. So, the bad news is that you will

▲ YAMAHA'S VIRTUAL SYNTH. WATCH OUT! IT HAS A HUGE APPETITE FOR RESOURCES

still have to make do with more FM organs while recording parts. For a 90-day free demo, go to

[www.yamaha.co.uk](http://www.yamaha.co.uk). The MIDI Mapper applet was a feature of Windows 3.1. Windows 95 has a similar utility, although this is found in the Multimedia Control Panel.



**FIG 3 THE FINISHED MIXER MAP: IT LOOKS ALL RIGHT, DON'T YOU THINK?**

to envelope and LFO1 depth. For the title bar, simply create a text object and choose a background colour to suit.

### Envelope settings

Next come the envelope settings for amplitude, or level. This is a six-part envelope with identical parameters to the filter envelope. Using the Alt key, select the envelope objects from the filter section and drag them to a clear area on the screen. Fig 3 shows the corresponding parameter values for this envelope, along with the remaining controllers.

A standard CC:10 is used for setting the pan position. To centre the pan pot by default, check the Centred option in the object definition dialog. Continue to

the LFOs and pitch controllers are best grouped together.

To complete the mixer, all you need is a switch to reset the instrument patch in case anything should go wrong while you are tweaking away. This is a standard CC:121. However, don't forget to reinstate the NRPN MSB, or power switch, following a reset.

To create a 3D, or embossed, effect for the banks of controls, create an empty text box and select the embossed style from within the object definition dialog. When the box is correctly sized and positioned, choose Send Behind from the Mixer Local menu.

By setting up groups, it is possible to control two or more faders from just one object. This is particularly effective when the faders in question are frequency cut-

create new objects for each of the remaining controllers and group them under the headings: Effects, LFO1, LFO2 and Pitch. The effects parameters can be positioned beside the amplitude envelope, while

off and resonance, moving in contrary motion. To set this up, create a new object (a fader, say):

1. Within the Master section, set the mode to Prop and select Group 1.
2. Open the cut-off and resonance objects in turn and set both to group 1.
3. To achieve contrary motion, select the Reverse option from one of the objects.
4. To try it out, set both frequency cut-off and resonance to 64 and "play" the new controller.

And there we go: a virtual front-end for the often untouched AWE synth. The final mixer is on this month's cover disc.

### Storing with SnapShot

The intended purpose for mixer maps is to control various parameters in real time and record your movements to a special mixer track. However, using the SnapShot feature, you can store your instrument settings, or patches, and play them back at the start of an arrangement.

Once you have the desired settings in place, select all the objects (Ctrl-A) and click on SnapShot. Up to 22 settings can be stored. To "play" them back, simply click on the newly-created icon.

### PCW CONTACTS

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