EXPERT SLEEPERS SETUPS

The following are several ways to route control voltages to a modular synth from a PC, using Expert Sleepers hardware and software. The routing is done with Ableton Live Standard on Windows (7) and an RME Fireface UCX soundcard. I attempted these routings using Cubase but they are much easier with Ableton. The purpose of these notes is to put the documentation in one place, since it is normally spread across several manuals, tutorial web pages, videos and forum Q&A. ES is not immediately intuitive, so when you find a picture of a gate expander attached to "expansion header 1" and then the manual tells you to configure your MIDI for Output 4, you can be forgiven for spending a week using the wrong connections and wondering why they aren't as shown in the videos. Expert Sleepers' creator is quite patient and helpful on the forum, and I'm guessing he could suggest ways to clarify and correct the notes below.
--Tom Moody

A. ES-4 module (and Silent Way ES-4 Controller software)

1. In Ableton, put the ES-4 plugin on one MIDI track, with the module's default pitch-pitch-gate-gate-velocity assignments playing on outputs 1-5 via the track's **Ext Out**, SPDIF channels 9/10. In the ES-4 software, to assign the respective pitch/gate pairs to different parts of the keyboard (or the MIDI clip's piano roll), select "1" as the Channel for **MIDI/CV 1** and **MIDI/CV 2**, and assign notes 48-71 on **MIDI/CV 1** and notes 72-108 on **MIDI/CV 2** (or however you want to split it). If a gate expander is attached to the ES-4 on Output 5 (see below), **VEL**(ocity), normally set for Output 5 by default, should be turned off for both **MIDI/CV 1** and **MIDI/CV 2.**

OR

2. Use the Silent Way Voice Controller, running as a plugin on a MIDI track, in "ES-4 mode," with pitch-gate-envelope-envelope-envelope for outputs 1-5. On the H/W tab, change "Hardware – Mode" from "None" to "ES-4" and click "Create ES-4 Calibration." If an expander is connected to Output 5, this doesn't affect whether an envelope signal is coming out of Output 5 (the LEDs on the expander will flash from bottom to top in sync with the rising/falling envelope).

B. ES-4 module (and Silent Way ES-4 Controller software) with ESX-8GT Gate Expander attached

An ESX-8GT Gate Expander, outputting 8 gate signals, can be used on one of the ES-4's five outputs. The expander is attached to a header on the back of the ES-4 hardware. There are five such headers and potentially 40 gate signals can be generated with additional expanders. I use Output 5 for the expander (there is an Ableton Live 9-only bug with that output, I learned, but Ableton has offered a workaround).

To play the expander gates without any other synth voices on the ES-4, put the ES-4 Controller plugin on one midi track, where the track receives **MIDI From** an Ableton Drum Rack instrument on a separate MIDI track.

***NOTE:** Ableton's plugin list shows two versions of the ES-4 Controller, an "instrument" (with a little keyboard on the icon) and "effect" (no keyboard). Ostler writes: "In Ableton the instrument will only work on a MIDI track, and the effect will only work on an audio track, or inserted after an instrument. The plugin functionality is identical; it's just a matter of what the most convenient routing is."*

The incoming Midi channel (in the ES-4 Controller software) for **MIDI/CV 1** and **MIDI/CV 2** should be set to "0." For the ESX-8GT gate expander attached to Output 5, set Midi (on **Gates/5 Chan**) to channel 1 (rather than the default "Off"). The Drum Rack should be set to play notes 48-55 to trigger drum hits on Gates 1-8 of the Expander.

If you use the Drum Rack, this means there is no other way to get MIDI to the ES-4 because Ableton processes all plugins through MIDI channel 1, and makes it impossible to have multiple "MIDI ins" on a single track. You can send midi notes to the pitch-pitch-gate-gate outputs (1-2-3-4) -- via a MIDI clip running on the track -- but you can't hear or record the incoming audio from the synth voices while the Drum Rack is playing and the Monitor **IN** button is lit on the receiving MIDI track. This is because while the **IN** button is lit, the ES-4 Controller track is not sending an SPDIF signal to the ES-4 hardware. If you switch the **IN** button to **AUTO** you can send SPDIF and trigger (and hear) the synth voices but not the drum rack.

There are workarounds for this limitation, mostly involving “stacking” multiple instances of the ES-4 Controller plugin in a single track *(to be described in Item C below)*. A “down and dirty” solution involves using the ES-4 plugin (but not the Voice Controller). What you do is enter notes for your drum and synth voices on the single expanded MIDI piano roll on the clip for the ES-4 track, using a split such as the following:

Drum Rack: C-2 to G-2 (notes 48-55, on **Gates/5 Chan** as explained above)
"Bass" synth voice: G#2-B3 (notes 56-71) (or however you want to assign the split, on **MIDI/CV 1**)
"Lead" synth voice: C-4 to C-7 (notes 72-108, on **MIDI/CV 2**)

This allows you to use, hear and record all the ES-4 outputs, as well as the gate expander on Output 5, simultaneously, without stacking plugins or engaging in complicated routing. If you use this method you need to set “1” as the incoming Midi channel (in the ES-4 Controller software) for **MIDI/CV 1** and **MIDI/CV 2** to activate the above configuration and the ESX-8GT gate expander attached to Output 5 should also be set to receive over MIDI channel 1. **Vel**(ocity) on the **MIDI/CV 1** and **MIDI/CV 2** controls should be set to "Off" to prevent unwanted MIDI notes on Output 5.

C. ES-40 module with ESX-8CV, ESX-8GT, and ESX-8MD modules *(work in progress – please note that the discussion above of the tandem use of ES-4 and ESX-8GT also applies to ES-40 and ESX-8GT).*

D. ES-40 module with ESX-8MD expansion modules

The ESX-8MD is an expansion module that attaches to the back of the ES-40 (I am using Output 5). The module converts audio via SPDIF to MIDI, which is accessed from 8 DIN-style connectors on the face of the module. It is possible using this device to run 8 MIDI channels with full pitch, gate and cc capability, from Ableton to external hardware devices, and have them running in near-perfect, “sample-accurate” sync (better and less jittery than USB MIDI, we are told).

Since Ableton insists on having all its plugins routed on MIDI channel 1, how is it possible to run other MIDI channels in simultaneous operation? The answer is to “stack” instances of the ES-4 plugin on a single audio track with **Audio To** for the entire track sent to the SPDIF output. Be sure to use the “audio” version of the plugin and not the instrument version (with the little keyboard icon). The number of ES-4 instances will correspond to the number of MIDI tracks in Ableton sending out data.

On the MIDI tracks, the **MIDI To** on each strip will be routed to one of the ES-4 instances on the ES-4 audio track. If there are three instances of the plugin, in the dropdown menus for **MIDI To** you will amazingly find listed, in the topmost of the two menus, the name “es-40” and in the bottom one, all of the following: “1-SW ES-4 Controller,” “1-SW ES-4 Controller,” and “1-SW ES-4 Controller.” Choose a different one of these for each of the three tracks' **MIDI To** outputs.

Back on those three ES-4 Controller instances: choose, for each one, a MIDI port to route the signal to, using the ES-4 software plugin interface. In the bottom left of the interface, look for **MIDI Out,** and for the **Channel** choose Omni; for the **Output,** choose 5/1, 5/2, and 5/3, where “5” is the number of the port on the back of the ES-40 where you attached the expander, and 1, 2, and 3 are the DIN ports on the 8MD module.

In Ableton you can use the MIDI editor in the relevant clip to generate MIDI signals, or you can use incoming notes from an external keyboard. Make sure the MIDI track **Monitors** are set to “Auto” for the former and “In” for the latter. The MIDI track meters (yellow dots) will jump when notes are played, and you'll notice increased “green” audio signals in the meter on the ES-4 track.

E. ES-3 module (pitch must be calibrated – see online tutorials – there is no Silent Way controller software particular to this module)

The ES-3 optical lightpipe module, controlled by a Voice Controller on one MIDI track, outputs pitch-gate directly to ES-3's Outputs 1-2, via ADAT channels 1-2 (in RME card's TotalMix settings).

NOTE: Although the RME's ADAT channels are being used, Ableton assigns its own numbering to the channels. Thus, under Ext. Out in an audio channel's Audio To menu, Channel 1-2 appears as 11-12, Channel 3-4 appears as 13-14, etc.

Other audio tracks, routed to ADAT channels 3-4/13-14 (for the ES-3 Outputs 3-4), 5-6/15-16 (Outputs 5-6), or 7-8/17-18 (Outputs 7-8), can be used for additional pitch/gate pairs, envelopes, or LFOs. Each respective audio track takes **Audio from** the MIDI track with the Voice Controller plugin on it, accessed by selecting, on the audio track dropdown, for example, **2-SW Voice Controller** (“2” being the Ableton track the controller is on), then submenu item **3/4-SW Voice Controller** (for the Voice Controller pair you want to send to an output). The audio track then routes the Voice Controller audio to the respective ADAT channels. The channels must be activated on an Ableton “configuration” page).

Below are possible uses of ES-3 Outputs 3 through 8. These can be configured with any group of stereo output pairs.

1. In the example above, audio from **3/4-SW Voice Controller** carries envelopes 1-2 of the Voice Controller's three envelopes. Note that ADAT channels 3-4 should be carrying that audio only, if you want to hear the “pure” envelope signals on those channels. Plugins such as the SW LFO need to be on other channels, otherwise they will be contributing additional signals to the envelopes.

2. Audio from **5/6-SW Voice Controller** carries envelope 3 of the Voice Controller's three envelopes, and one additional channel to an ES-3 output pair. By default Output 6 on the Voice Controller carries a 5 volt trigger signal, which can be quieted by setting Output 6 to **0.00** on the Voice Controller's **Outputs** tab.

3. Audio track with **SW LFO** or **SW Step LFO** loaded as a plugin (only one of these at a time). The

right and left LFOs use the two respective channels of the ES-3 output pairs, e.g., Outputs 7-8 on ADAT Channels 7-8/17-18.

F. ES-3 module with ES-5 expansion module *(work in progress)*

1. Drum rack using ES-5 output ports for gate signals. This is configured similarly to the example above where an Ableton Drum Rack instrument sends MIDI notes 48-55 to the ESX-8GT expander attached to an ES-4 or ES-40 module. To make this work you load the ES-5 Controller software (part of the Silent Way suite) as a MIDI track instrument in Ableton, and route the MIDI from the drum rack MIDI channel to the ES-5 incoming MIDI Channel. Then route the ES-5 Channel's **Audio To** to Ext. Out/17-18 (ADAT Channels 7-8).

Although the main purpose of the ES-5 is to act as a middleman to route signals to expanders attached to itself, it can also act as the expander to the ES-3. Used thus, the ES-5 treats itself as Channel 1-2 of its own hardware (even though the signal is coming to the ES-3's Outputs 7-8 – very confusing!). To activate the gates (causing red LEDs to flash in relation to incoming MIDI notes 48-55), open the ES-5 Controller software and assign the incoming MIDI to Channel 1/Base 48. (If nothing happens, try messing with the hidden “Triggers” settings – this may be necessary to prime the pump and then you can return the Trigger settings to “0”.) Outputs 7-8 of the ES-3 will flash as the gates play, because the ES-5 is “taking away” its signal from those Outputs.