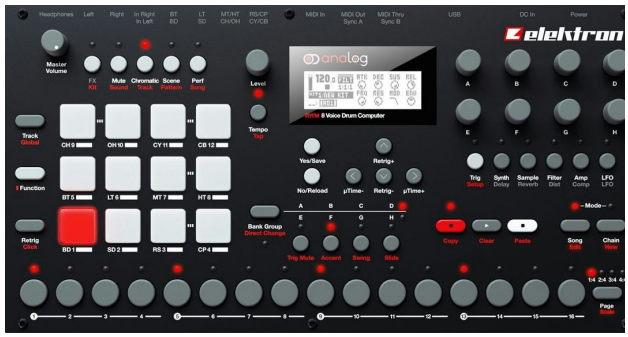
Elektron Music Production Tips

An introductory guide to using Elektron's music machines



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Preface

Learning how to produce music with the Elektron machines, the User's Manuals are essential reading. The purpose of this document is to complement the User Manuals by focussing on music production tips. The present text assembles a few tricks and tricks, stripped down to a core and it should be made clear that these can only serve as a starting point for further exploration. There are too many possibilities with the Elektron machines, to cover them here, or anywhere. Experimentation is essential and also great fun, which is why you should never seek strict guidance in any material but ideas to start from. One of the best things about the Elektron machines is that it offers so many options. In fact, you do not get a finished instrument, you get a system that allows you to custom build your own instrument to your purpose.

The text contains a few tips and tricks that cannot be found in the manual and a lot of these come from fellow Elektronauts. Most of my learning stems from a combination of the User's Manual, videos on the Internet and the Elektronaut forum. I try to give credit to the sources and inspiration where I can and in case someone is missing, please let me know so that I can correct this. I am grateful for the time and advice provided by others, who thereby add to the joy music can give.

The Elektron Octatrack is here referred to as the "OT" and similarly, the Analog Rytm as "AR" and the Analog Four as "A4". Note that for most purposes the operation of the Analog Keys (AK) is virtually identical to the A4, which is why only one acronym may be used here but the functionality would be the same on both machines.

I here summarize tips and tricks I have come across using the Elektron Machines Analog Rytm (AR), Analog Four (A4) and the Octatrack (OT). Please note that this text focuses on questions and problems a beginner may have and that it is far from being complete. In fact, I have written these notes while I was learning to make music with the Elektron machines myself. Although I had some training in music production, using a DAW, creating a hardware setup is a very different adventure.

What I like about the Elektron machines is the flexibility one has to make the results your own. The vast number of possibilities may, at first, seem daunting but this is just an expression of the opportunities one has to create the music your way with these machines. The tiny and apparently simple displays are no restriction in any way because everything is there, reduced to the essential. After a while, one realises that it is a reflection of the design that suits those people who enjoy the process of making music as much as the result. What I mean is, that other instruments may enable you to just focus on playing notes, as if this is what music making is all about, while Elektron allows you to shape their instrument into an instrument of your own, before you play it, the way you want to play it.

In the Elektronaut forum, users sometimes complain about a lack of convenience or apparent limitation of the Elektron machines. While this may be true is some cases, as with every other machine, in many cases one hits upon limitations because of the many possibilities these machines offer. In other words, with devices of some other manufacturers you may hit less limitations, only because the machines are more limited to start with! The Elektron machines make you think how to achieve things, they encourage you to think of what you want to do and then to figure out a way to get there. By trying to achieve, what you want to achieve, you will encounter obstacles but the fact that you got there is the result of the journey that other machines would not have provided. The Elektron machines encourage you to be creative. There are however also real limitations, that can still be looked upon as something positive. Take, for example, the memory of

the Octatrack. A sample chain with 15 kick samples can reach about 10MB. Per project, the sample memory is at 16bit, mono and 48kHz limited to 64 MB. 30 slices, each 16 bar long pad sounds, can easily generate a wav file of about 90MB, which will not work. This seems an unnecessary limitation but I bet for most people, this only means that they have to focus on what is important and one then often realises that less can be sufficient and sometimes even be more (because you make more and most of what you have).

I must admit that the effort in trying to figure out how one can use the machines, is already a pleasure for me. My musicality may be limited, but my love for music isn't and so these machines allow me to be creative not just in playing music but also in shaping the instrument that I use.

For this reason, enjoy the music *and* the process by which you make music!

Olaf Wolkenhauer, Rostock (Germany)

General Advice

The first and most important piece of advice I wish to share is to print out the latest version of the User's Manuals and ring bind them. These manuals are excellent and very useful, they contain everything that is essential and the present notes are just a complement to them. Because you will find yourself browsing them a lot, I recommend to bind them in a way that it is easy to browse and skip through pages. The money for this is well spend ;-)

The Elektronauts forum is a place to find help, tips and inspiration. If you have a problem or question, I recommend to search the Elektronauts forum and the best way to do this, is not to use the search options in the forum. Instead, use Google and add the term "Elektronauts" or add "site:Elektronauts.com" at the end to restrict the search to the forum.

Updating the OS

Some Elektronauts have reported corrupted projects after an OS update. The problems referred to problems with the active project and for this reason, do create and load a dummy project before updating the OS and the load your actual project afterwards. Thanks to Adam Jay for this tip. Backups should, of course, also be considered prior to an OS update.The update of an OS is also shown in Cuckoo's Analog Rytm Megatutorial .

Organising Banks

How one organizes pattern and banks will largely depend on the context in which you are making music and, of course, a lot will be personal preference. An Elektronaut's fascination from pictures that show setups is not only our addiction to knobs, buttons, keys and faders but is also related to our curiosity to see how others have managed to combine things. We carefully study these images to see what can be done and what works, even though or because there are an infinite number of options. The same applies to the decisions of how to organize pattern, banks, songs, arrangements etc. The only piece of advice I want to give here is to the absolute beginner, someone who got his new machines and wants to start learning them. I recommend to create a copy of the preset project of the Elektron machines. I furthermore downloaded various sound packs for the machines and loaded the pattern and sound banks. This will then fill up several banks of material to learn from. In my case this filled up banks A to C on my machines and I decided to start my first own project on bank D. Starting with pattern D1, I copied an example from the other banks to D1 and played around. This way it is easy to go back, learn from others and build upon this material my own ideas. Once you get a pattern, kit or sound you like and want to preserve, the most important habit is to regularly save kits, sounds and projects. Almost everyone can tell a story in which he lost work because we forget to save things often enough.

Avoiding a loss of your work

The "How to…" sections below provide most commands that one frequently uses. During the process of creating sounds, tracks, pattern however, here here is a list of important shortcuts that help saving your work with the AR:

YES/SAVE+SCENE/PATTERN	Save Pattern	A pattern contains sequencer data, including drum trigs, trig mutes, and parameter locks for the drum and FX tracks, as well as default settings of the Trig page.
YES/SAVE+MUTE/SOUND	Save Sound	… of the active track. This includes parameters in the Synth, Sample, Filter, Amp and LFO pages.
YES/SAVE+CHROMATIC/TRACK	Save Track	This includes the choice of a machine for the voice of the synth, parameters in the Synth, Sample, Filter, Amp and LFO pages.
YES/SAVE+FX/KIT	Save Kit	Save changes to sound parameter settings, FX track parameter settings, Level settings for the drum and FX tracks, Retrig settings, General Sound Settings, Performance and Scene mode macros and parameter settings.

Something that regularly leads to frustration is the fact that only the “active kit” is saved when the machines are powered off. Within an active project, all changes made are automatically remembered, even if you switch pattern. However, only the active/current kit, the one that was active when you switched off the machine, will be remembered after the power off. A good habit is thus to frequently use the shortcut YES/SAVE+FX/KIT.

Each drum track contains one Sound, defined by the Parameter page settings for that track. A sound can be loaded to a track from the +Drive or the Sound Pool and then becomes part of the active kit. Any changes made to a track Sound via the parameter page, will then not affect the stored sound, unless you save it as an individual sound.

Another thing that can cause an unintentional loss is the fact that a pattern is always linked to a kit but several pattern can link to the same kit. This means that changes made to a kit, will have consequences for all pattern linked to that kit. In some cases it may therefore be an idea to save and name a kit linked to a pattern.

For the A4/AK important shortcuts to save your work are:

YES/SAVE+KEYBOARD C1	Save active kit	A kit contains sounds settings for the four tracks, settings for the FX and CV tracks. A kit also includes level settings for the synth and FX tracks, performance macro and polyphony settings.
YES/SAVE+KEYBOARD D1	Save sound	A sound consists of synth parameter settings.
YES/SAVE+KEYBOARD F1	Save changes made to the active pattern	A pattern consists of sequencer data, including trigs, parameter locks, time signature and individual track length for the synth tracks and the FX and CV tracks, as well as ARP and NOTE page settings.
YES/SAVE+KEYBOARD E1	Save changes made to the active track.	

Live Performance Tips

The Elektron devices, in particular the combination of them, can be used to create tracks as you would do in DAW. The arranger on the OT, parts, pattern chains, song mode all help structuring tracks. One can however also use the Elektron machines to perform live, to jam with different degrees of preparation beforehand. One may have patterns and sample chains ready but there would still be many things that can one do on the fly. In many cases these things will be a way to create variations, to transition between elements of the performance, or just to vary a loop playing ever so slightly to make it more interesting. What follows are some tips that have come to my mind when thinking of performing live.

Practical Issues

Number one: Get your cables in order :-) I use a pen with white ink, which I use to mark on the USB cables and power plugs to where they belong, or where they should plug into. Especially if you have several machines from the same company (eg Elektron), the power supplies may look very similar and interchangeable but the technical specs may differ, which can lead to serious problems. Forum users have reported that they have had problems by mixing up power supplies and hence the tip to mark them.

Use a common power source. Using different wall plugs to supply your devices with power can, in some cases, introduce noise. I use a power extension cable that allows me to supply twelve device from one wall plug.

Have some LED light ready in case the light isn't sufficient where you perform and, strangely, there is always some use for tape ...

For button combinations that one uses rarely, take a cheat sheet with you. You may have a device that can be setup with the device itself, or an app but if, for whatever reason, the tablet won't work, be sure you know how to adjust the input level on your effect pedal, or how to change the MIDI channel on your menu free controller device. This book emerged out of a set of notes that I created purely as a reminder. I have the PDF file on my smartphone and tablet, just in case I need to look something up about my setup and individual settings.

Undo of On-the-Fly Changes

If one encourages people to experiment, it is important to know how to return to a safe place if experimentation brought us into a cul de sac. Here is a list of the important shortcuts that help you to undo changes made on the fly (**AR**):

NO/RELOAD+MUTE/SOUND	Reload Sound	… of the active track. This includes the Synth, Sample, Filter, Amp and LFO pages.
NO/RELOAD+SCENE/PATTERN	Reload Pattern	A pattern contains sequencer data, including drum trigs, trig mutes, and parameter locks for the drum and FX tracks, as well as default settings of the Trig page.
NO/RELOAD+CHROMATIC/TRACK	Reload Track	This includes the choice of a machine for the voice of the synth, parameters in the Synth, Sample, Filter, Amp and LFO pages.
NO/RELOAD+KIT	Reload Kit	Undo any changes to sound parameter

		settings, FX track parameter settings, Level settings for the drum and FX tracks, Retrig settings, General Sound Settings, Performance and Scene mode macros and parameter settings.
NO/RELOAD+PERFORMANCE/SONG	Reload Song	

Similarly, for the **A4/AK** we have:

NO/RELOAD+KEYBOARD C1	Reload active kit	A kit contains sounds settings for the four tracks, settings for the FX and CV tracks. A kit also includes level settings for the synth and FX tracks, performance macro and polyphony settings.
NO/RELOAD+KEYBOARD D1	Reload sound	A sound consists of synth parameter settings.
NO/RELOAD+KEYBOARD F1	Reload active pattern	A pattern consists of sequencer data, including trigs, parameter locks, time signature and individual track length for the synth tracks and the FX and CV tracks, as well as ARP and NOTE page settings.
NO/RELOAD+KEYBOARD E1	Reload active track	This includes Notes setup, Arp setup.

Very useful for live performances with the A4 is the Performance Mute and Mixer menu, which is made visible by going into the performance mode (press Perf) and then pressing again Perf. Trig keys 1-6 mute the tracks, indicated by a minus sign and a quarter-bright trig LED. An outlined square and full bright trig LED means that the track is audible. While holding FUNCTION and pressing the six first Trig keys, the mute changes will be held until FUNCTION is released. In the performance mixer menu the levels of the tracks can be easily and simultaneously changed with data entry knobs A to E.

“Undo”s for the **OT** are:

Reload part	FUNCTION+MIDI/PART then FUNCTION+BANK/EDIT and choose the Reload menu item. Shortcut: FUNCTION+CUE/RELOAD	Machine assignments, associated samples, track parameter settings, FX assignment, scenes. Works for parts that were previously saved and then changed.
Reload bank	Open Project Menu with FUNCTION+MIXER and scroll down.	16 pattern per bank and 4 parts.
Reload pattern	:-(… see Reload part ;-)	Sequencer data like trigs, parameter locks, track lengths and time signatures.

In case you use the Oktakontrol with the OT, note that reloading a part, the track will be silenced, which means that the faders have to be pulled down and up again after reloading a part.

Creative use of Track Routing with the AR

Fellow Elektronaut Adam Jay has provided the following tip for creative use of track routing (http://www.elektronauts.com/topics/view/15079): With respect to the Track Routing page in the global menu, Adam writes: “On real FX heavy tracks, I like going to the "SEND TO FX" line, all the pads light up yellow, and I can mute the FX output of tracks. Playing around with this I can do some interesting FX muting live, without the need to program Scenes or Perfs to get quick use of the pads for FX purposes. Or, in the "ROUTE TO MAIN" line, it works as a Mute mode, but in this instance the wet FX of the tracks you are muting are still heard. This is great for going into breakdowns via mutes but retaining a lot of space by leaving the delay and reverb going. It also makes for good live intros when combined with the actual Mute mode. You can keep that menu open and go in and out of it, along with actual Mute mode (and Scene mode, Performance mode) easily. This works with A4 too. Trig buttons 1-4 light up for "route to main", and 9-12 light up for "route to fx” And, they also blink half lit in accordance to the trigs in the track”.

Live Performance Tips for the OT

Almost everything about the OT is about live performance and changes “on the fly”. It is impossible to give generic tips because this depends on the use of the (sample player, recorder, mixer etc). I shall therefore only mention a few things that may give an idea of what to remember.

Echo freeze delay: Using the OT, or a particular track, as a sample player, the echo freeze delay trick can come handy. The setup and use is described below in the “Tips” chapter. Pressing FUNCTION+DOWN ARROW and scrolling down to the Delay Ctrl option, will open the Delay Control Menu. The green lit LES above trig keys 9-16 indicate on which tracks the echo freeze delay effect is set up. Select one of those and keep it pressed to execute the effect.

Sample FX triggering: Creating a sample chain with up to 120 fx sound sample slices, one can trigger these from conveniently by choosing the slices trig mode (FUNCTION+DOWN ARROW). I have organised this as follows: The first eight slices in the chain are risers, followed by matching impacts. Pressing trig key one in the slices trigger mode, will execute a four bar riser and trig key 9 a suitable impact. On page two (slices 17-32) I have 4 bar loops with risers and impacts, merged together. Launching such a slice, I know the drop will occur after two bars, giving me time and hands free to prepare for this. On page three I have sweeps and on page four atmospheric and noise loops that can be used for layering. (Press twice the Playback menu key and ensure the SLIC parameter is set on).

Using parts to switch between effect combinations: Each bank on the OT has available four Parts. The Part menu is opened by pressing FUNCTION+MIDI/PART. A pattern is linked to a part, so changing parts the active pattern will control the new part. Apart allows changes to machines and samples but apart from such more drastic changes, one can also just switch between different combinations of track parameter settings and FX assignments. Scenes are also linked to a part, and these are obviously an important tool for making changes in a live setting. While scenes can then be used to manipulate sounds using the parameter pages and effects, one could switch parts to change the scenes at hand (keeping machines, sample assignments unchanged). More on scenes and parts can be found below in the “Tips” chapter.

Live Performance Tips for the AR

Soloing and muting: The mute mode is self explanatory - enter mute mode by pressing the MUTE key and then press and unlit the pads of the tracks that you want to mute. To solo a track in

mute mode, press RETRIG+PAD. To mute or unmute several tracks in one go, press and hold the FUNCTION key and then pre-select the relevant pads. Preselected pads are indicated with sky blue color. Soloing also works for multiple tracks by holding RETRIG pressed. In this case a turquoise color indicates this.

"Sticky" Performance Pads: Performance macros are an important technique for live performances. Cuckoo introduced the notion of "sticky performance pads", which allows you to make a performance macro stick, allowing you to release the pad. Being in performance mode, you press a pad with an associated performance macro, to the desired level and then either switch to another mode, or just leave the performance mode and the performance macro will continue until being released. Once a performance macros is made to stick, it is possible to switch into mute mode and mute/unmute that track, the performance macro remaining active. If you do not wish to leave the performance mode, another way to achieve the same result is to press the performance pad/macro, then RETRIG (or TRACK) and release the performance pad. In the chapter "Tips for the AR" there is another tip for using sticky pads to keep reverb tails.

Introducing sounds with trig mutes: For some sounds it is just necessary to unmute them to enter the stage. For other sounds, one would gradually increase the volume to let them enter the performance. Another option is to set trig mutes on pattern, so that to begin with only a few bits are played and one then introduces new trigs by un-muting them. This idea applies equally to the A4, which also has trig mutes. Trig mutes can be saved with the project but are not saved as part of the kit, that is, reloading the kit will not restore the original trig mutes. To restore the trig mutes, reload the pattern (NO/RELOAD+KEYBOARD F1).

Creating Variations

Changing pattern, using parts on the OT, pattern chains and song mode is one way to transition, or vary elements of your performance. The user manuals explain these things in detail, not much more to say. An external effect unit can help in transitioning as well, into breaks, out of breaks, adding and removing a few elements. A filter sweep on some noise, or using reverb is an option. An effect unit, like the Pioneer RMX or the Korg Kaoss Pad combine various effects to support this. One can also dedicate a sample chain on the OT to effect samples, with risers, impacts, sweeps. Going into slice mode (FUNCTION+DOWN ARROW), one can then trigger these easily. Rather than having risers and impacts in separate slices, requiring pressing two buttons, one can use a DAW and combine a riser and an impact so that you know when you press the trig button, after two bars the drop/transition/variation should occur. This gives you two bars time to get your hands ready on other knobs and buttons.

Rather than changing pre-programmed pattern to provide variations, I shall here focus on variations that can be added to one chosen pattern. Mute trigs, ghost notes with reduced levels, using accent trigs and then modulating the level with an LFO; or on pad sounds, one can temporarily increase the tempo, or alter the sounds with effects. Below external effect units are discussed, which are obviously designed to create variations. The AR offers samples to be played on top of the synth engine or as an alternative. This suggest also ideas to vary the sound by switching either the synth or sample part on/off. Filter cutoffs, reverbs and overdrive are a few examples of single parameters that lend themselves to on the fly modulation. There is also no reason why all twelve tracks should be played together. One can therefore have different pattern in one pattern by playing different tracks together in combination. Scenes can be of interest here.

Drum Rolls with the AR

The AR and A4/AK have scenes and performance macros that are essential tools for variations. The Retrig menu is probably less frequently used but is worth a consideration. Outside the mute mode, pressing the RETRIG button show the retrig menu. For example, taking a typical four to the floor kick drum, set RETRIG=1/16 and LENGTH=16, VEL CUR=-128 to fade out the retrig over 16 steps (Press RETRIG+PAD during performance) and the track will then be muted. A value VEL CUR=-64 fades out to half of the velocity during the set length and 0 corresponds to a flat velocity curve with no fade. For positive values you have fade ins. Alternatively, retrigs can be customized on any sequencer step. Press a trig key and then press RETRIG (or the up/down arrow) to show the retrig menu. The settings are then done with the knobs indicated. Pressing the trig key and RETRIG key will toggle the setting on/off. When it is on, every time the trig is executed, the retrig function will kick in but this time the pattern will just continue afterwards. The retrig settings are saved as part of a kit.

Creating variations with Conditional Locks

With OS 1.22 the AR and A4/AK got trig conditions (“conditional locks”) that prove extremely useful to create variations and to 4 bar limit that may have given some loops a static feel. The FILL option allows trigs being executed when fill mode is active. Activate fill mode for one pattern cycle by pressing YES+SCALE, or press the SCALE key outside grid recording mode to activate it any time. Using the first option, gives you time and keeps your hand free for the fill to be executed. The A:B option can be used to create the impression of loops longer than four bars. Carl Mikael produced an excellent video explaining this for the AR: https://youtu.be/2XVckY1KsP0 . The probability options are helping to add variety, which is important as our hearing is very sensitive to changes, even if they are ever so slight.

Using Trig Mutes

Of course one can remove and add trigs on the fly but with conditional locks we can prepare different pattern and change between them easily. If you wish to mute trigs to vary a pattern, scenes are an option but if you want to mute three trigs on every page, this reduces the total number of 48 available parameter changes in a scene by nine. Fills with conditional locks work only temporarily, pressing a button, or for one pattern cycle. This suggests “trig mutes”, which can be quickly added to note trigs or trigless locks, by pressing those keys and then BANK A/E. Placing a trig on top of any trig “below” it, will mute that trig. (This can even be done across all tracks). One can check whether a trig has a trig mute by pressing the trig key and check whether the BANK A/E LED is on. More effective in the removal of trig mutes is however the trig mute menu, which is activated by pre pressing FUNCTION+BANK A/E. Now only trig mutes are shown (while the trig mute menu is active).

One example for using trig mutes is the following. You have a kick drum on steps 1, 5, 9 and 13 of every page. You add prior to playing a pattern, you place mute trigs on the 5th, 9th and 13th step. This could work well with other percussive elements, or some top loop playing on the OT. To introduce the main part of a track, you then quickly remove the mute trigs to return to the original pattern. With OS 1.22 this has become much easier to realize. Just press the trigs on the 5th, 9th and 13th step and choose for the TRC parameter in the Trig menu the trig condition WITH THE BAR above the word Fill. The condition is thus true when FILL is not and then pressing the Page button outside grid recording mode, you have only the first beats (or whatever pattern you like) in the sequence being triggered, for as long as you hold the Page button. This can be used as part of an intro.

Swing and Accent

Like the trig mute menu, the swing and accent menus can be used in live performances to quickly add and remove elements, or emphasis. For example, focussing on the hi hat tracks, press FUNCTION+BANK C/D and use the level knob (not the arrows) to temporarily increase the pattern swing. This must not always sound nice, even a dissonant sound can be used to temporarily create tension and expectation, which can be used to then introduce a new element (e.g. another track). This is similar to having risers, sweeps, swooshes etc that are often employed when new elements are introduced in performance.

Key Concepts of the Octatrack

The goal for this section is to touch upon key concepts but not to repeat the manual. The focus is on a graphical summary, rather than a text-based description. To this end, a few extracts of the overall picture are discussed, leaving the rest of the figure to speak for itself.

The Octatrack (OT) provides a great deal of flexibility in how it is going to be used. It can be used as a looper device, recording sound from external sources, possibly combined with samples played on internal tracks, allowing for instant playback and subsequent manipulations of recordings.

Even if the conventional use of loopers is not your thing, the ability to record, with instant playback can be useful in a complex setup. At any point in time, record a loop by moving the crossfader (xfader) over to a new scene and at the same time mute everything else. While the loop plays you can change patterns, edit your setup and prepare any other machines for the next phrase, track or part of your performance. Move back the xfader back for a smooth transition from the recorded material to is again coming from other machines and parts. Combined with other gear, the OT can stream long samples, that can be timestretched, to add variety to your arrangement.

In my setup I have a track with a long sample chain of synth loops, one track has a sample chain with top and percussion loops, one with bass loops, another track is dedicated to FX and VOX elements, again as sample chains. Sample packs that can be purchased for use in DAWs can be used with the OT, pretty much the same as if you are playing STEMS or Remix Sets with DJ gear. In my case I use these loops and sample chains to enrich the things coming from my other gear and to transition between elements.

The OT can be used as a mixer into which other gear feeds in. Dedicating Track 8 as the master track, the compressor and other FX can be used to bring everything together. With two stereo inputs, this does not work for large setups but considering that the Analog Rytm or Analog Four also feature external inputs it is possible to avoid a chunky external mixer. Having said this, an external mixer is great for more refined control if you feed individual tracks from the Rytm or Analog Keys separately into a mixer. Muting and cueing tracks from the A4 is not necessarily the most convenient experience, which is an argument for the Analog Keys with separate outputs that go into a mixer.

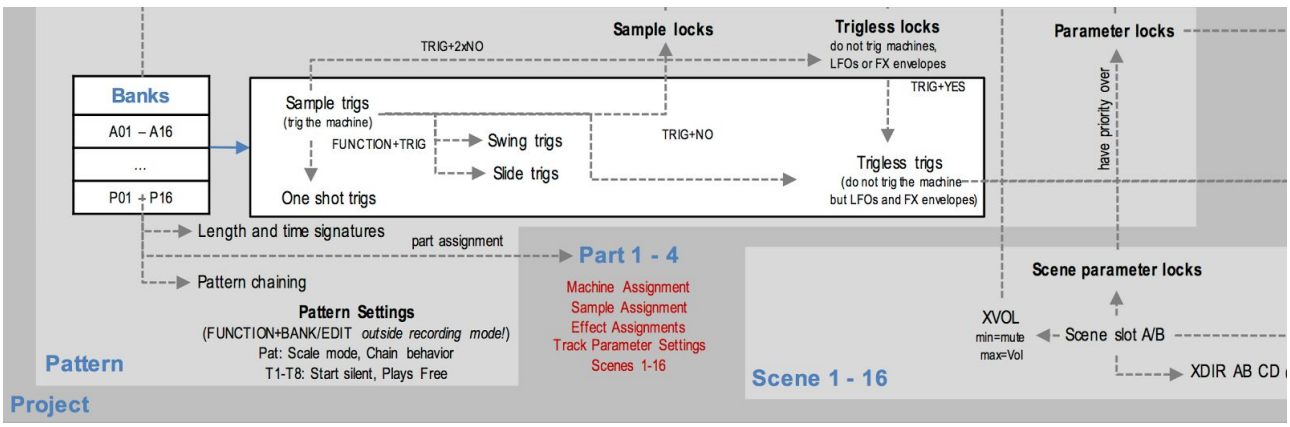
At the center of the Elektron machines is however the sequencer. Four pages, each with 16 steps, where at each step we can change what is played and how … giving endless possibilities.

Patterns

A pattern is defined by the four pages sequencer. Say, we choose each step to represent a 1/16th note, the four pages of the sequencer make up a 4 bar pattern. 16 patterns are grouped into a bank, of which we have 16 per project. Bank 1 contains pattern A01-A16, Bank 2, B01 to B16 and so forth. Changes of pattern and banks are instant, so that the labelling is just a means to organize things, if you wish. Patterns can also be chained and arranged with the arranger of the OT.

At every step we can edit the playback of material for every track (that is eight audio tracks and eight MIDI tracks). The two most important concepts to understand are "**trigs**" and "**locks**". The most important trigs for audio tracks are "**sample trigs**" and "**note trigs**" for MIDI tracks. Sample trigs trig the machines link to the tracks (ie flix machine, static machine, thru machine, neighbor machine or pickup machine). Sample files loaded onto the OT are played with either flex or static machines. For any track, at each step of the sequencer we can thus set a sample trig to initiate play of material in the tracks. Going through the pattern, every time the sequencer is through the four pages, it will return to a trig and execute the trig again. In some cases, eg. playing a riser sample within a sample chain, we may want the sample to play only once. This can be done with "**one shot trigs"**. They trig a sample or track recorder only once, so next time round when the sequencer goes through the four pages, nothing happens … unless we re-arm the track in the meantime. The two next trig types are "**swing trigs**" to affect the timing of the sample trigs and "**slide trigs**" to make the parameter values of a sample trig slide between trigs. The other two trigs that exist are "recorder trigs" to initiate sampling with track recorders and "trigless trigs" that do not trig machines but trig LFOs and FX envelopes.

Closely links to trigs are "locks" of which we have four types. A "**parameter lock**" allows every trig to have its own unique parameter values and "**sample locks**" allow each sample trig of a track to play a different sample. These two most important lock types are complemented with "**trigless locks**" that do not trig machine, or LFOs or FX envelopes and "**scene parameter locks**", which are the same as parameter locks but used with scenes.



Parts and Scenes

Parts are another organizing tool, where pattern can be kept but the assignment of machines, the sample assignment, effect assignments, track parameter settings and scenes are changed. A good example is to just change the effects and have a dedicated set of scenes for a specific part of a track, creating variation to the basic loop encoded by the original pattern. Each pattern is thus linked to a part, where the idea is that information about triggers and parameter locks is linked to

the pattern, while information about machines, samples, effects, volume settings and scenes is kept with parts. Of course, one could just change effects while a pattern is running and with 16 scenes available this may well be enough to create variations and even diverge quite far from the original pattern. Using FUNCTION+RELOAD at any time allows us to jump back. Parts are a more organized version of this approach.

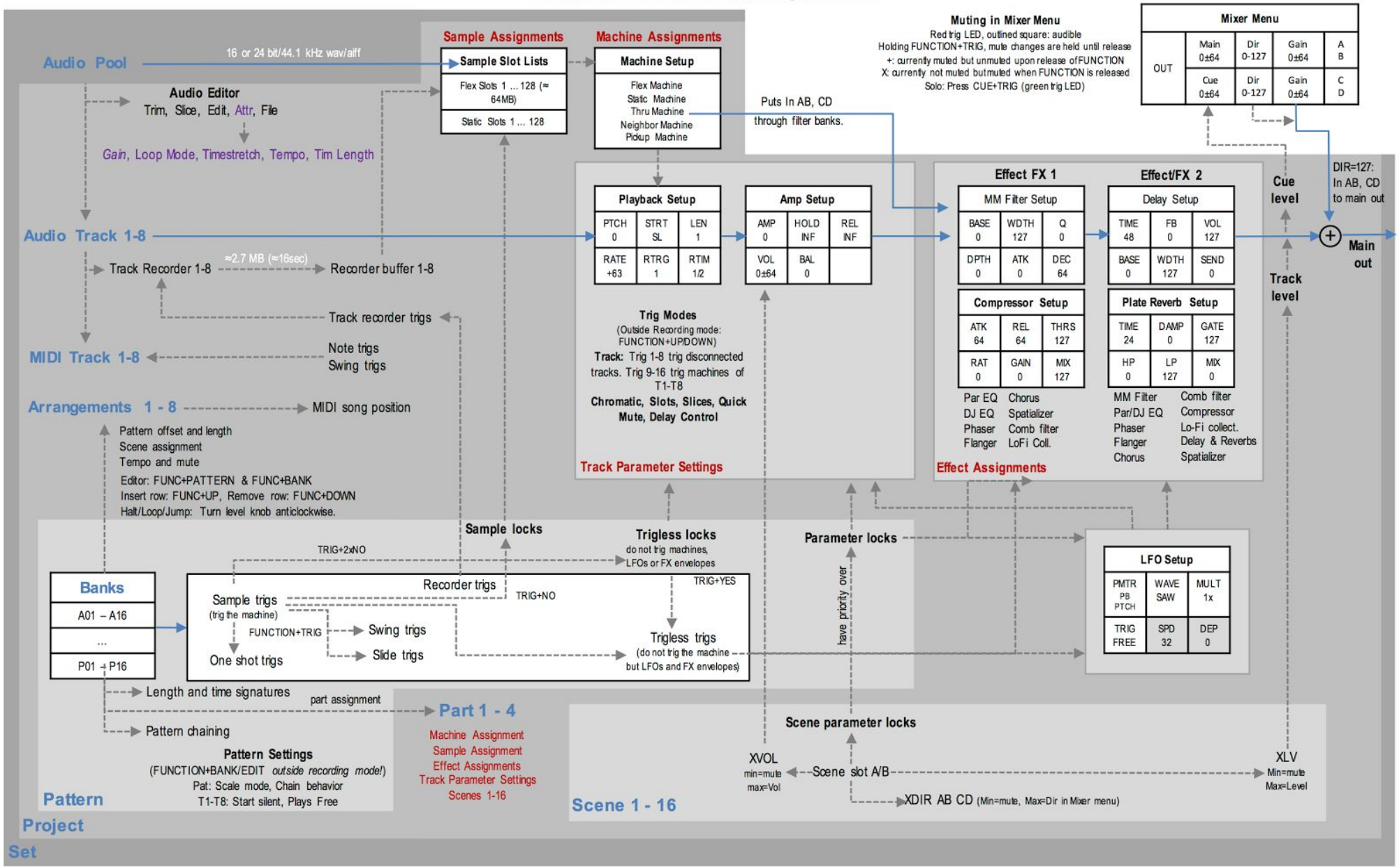
A common approach is thus to create a pattern, setting up track parameters in the Playback and Amp Setup pages, decide upon effects and practice on the go variations. Once you are happy with what you have as a basic loop, involving all tracks, you save this into Part 1. What you got can now be varied or radically changed. Let us have a look at creating a break. We have our basic loop going, involving all tracks, with effects set up to create slight variations on the fly. This is stored in a pattern and we now go into the Part Quick Select Menu (FUNCTION+MIDI/PART). The part currently linked to our pattern is shown with inverted graphics. An asterisk reminds us to save this part (FUNCTION+BANK/EDIT). We have now pattern and part together in a state we are happy with. Next, we copy the current pattern into a new one. This new pattern will initially be linked to the same part. We can now however start making new machine assignments, sample assignments, effect assignments etc and thereby create ideas for a new part. Take for example the creation for a break. We remove the kick from our drum loop but let the top loop continue to play. A sample is exchanged in one track to have some atmospheric element. Effects and scenes are then used to create a riser effect, before returning to the main part of the track. Storing ideas for a break and effects in a part, we can assign several pattern to the same part. So once we are happy with our dedicated break elements, we save this in a new part.

With scenes being linked to parts, we can create for each part a dedicated set of scenes to modify parameter values. For example, rather than going into the effect menus and playing with the parameters in a live situation, we can plan our parameter changes that make sense for this particular part of our track and then store this changes in scenes. The scenes may focus on changes in a particular track, or we wish to move gradually from one effect setting to another. As indicated in the large overall graphical summary, scene parameter locks have priority over normal parameter locks. Special for scenes is how volumes are handled. The graphic shows how XVOL controls the VOL setting in the Amp Setup, before signals go into the effects section. The parameter XLV applies to the track level, post effects.

For the effect assignments, the graphic shows four examples of commonly used effects and their default settings. This should help the beginner to return to a neutral state after experimentation. The default settings for most other menus, machines and effects can be found in the How To … section of this document. Finally, I have included a few notes on menus, commands I found particularly useful and which are easy to forget and difficult to pick out from the manual when one is in a hurry.

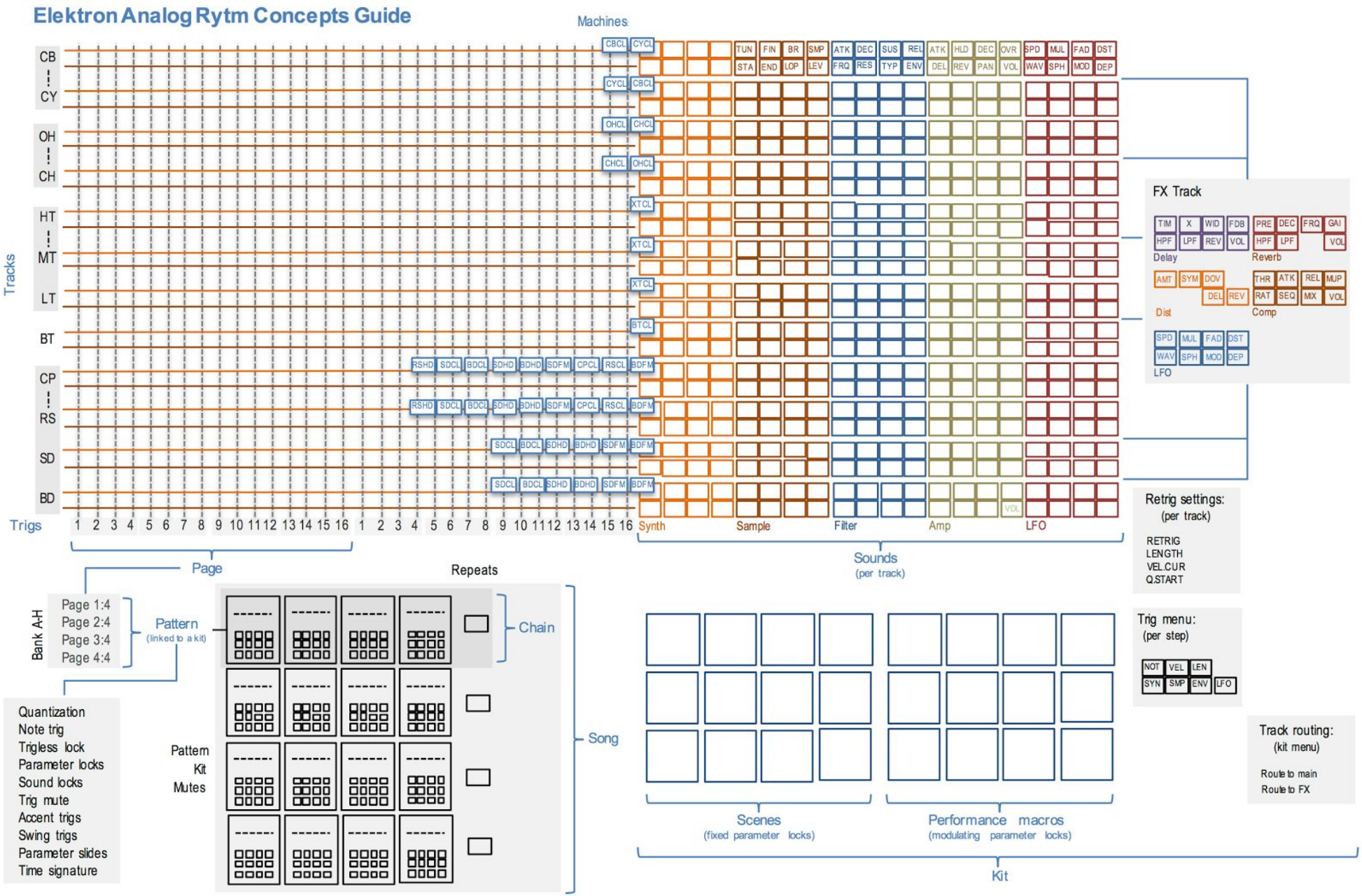
I found it useful to print the diagrams out and have them at hand while working with the machines. To make the diagrams more readable I prepared a version that maximises the space of an A4 sheet of paper. You can find the pdf to this file HERE.

Elektron Octatrack Concepts Guide

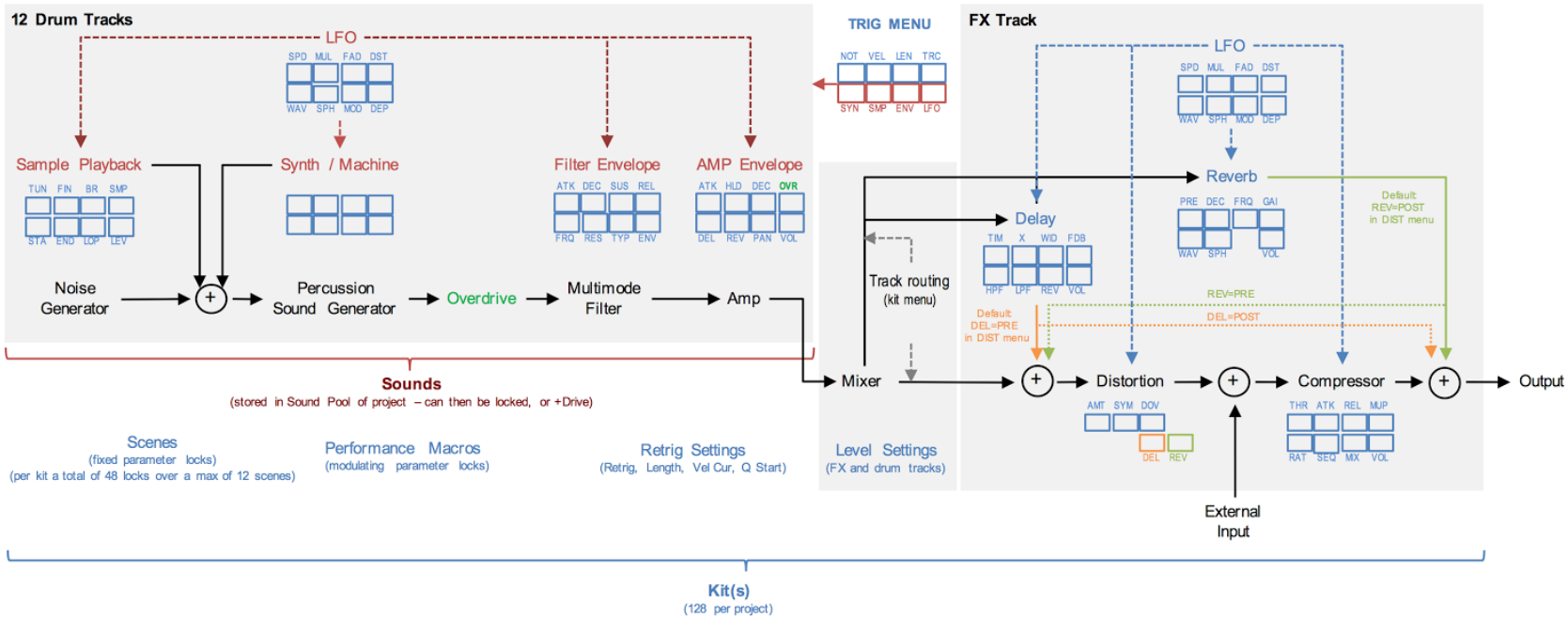


Key Concepts of the Analog Rytm and Analog Four

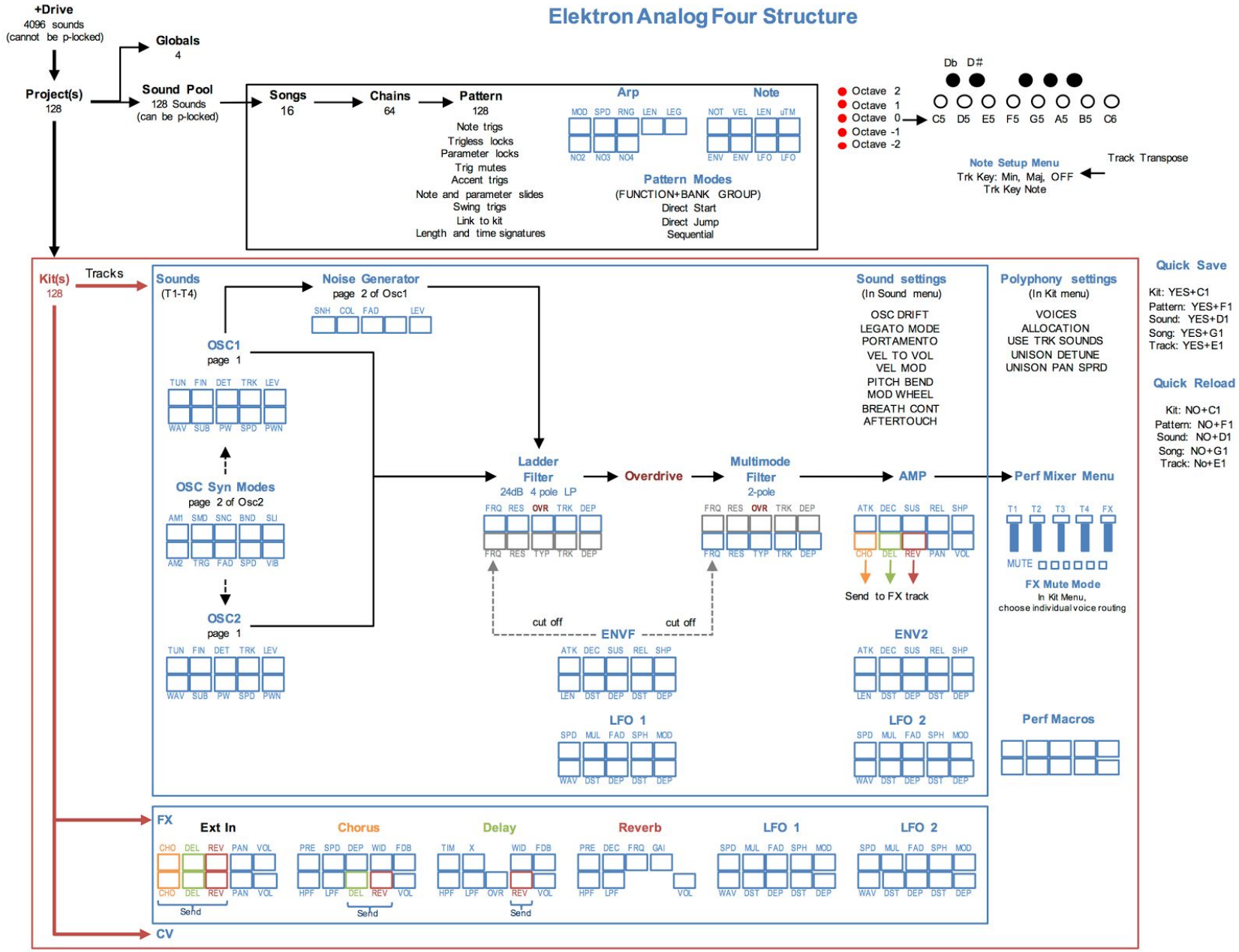
Again, I shall keep the text to a minimum and let graphical illustrations speak for themselves. The manuals of the machines contain all you need to know and there is very little missing. It can however be cumbersome to browse through a thick manual. For this reason, I created the graphical illustrations to condense as much information as possible onto one page. For a beginner it can be useful to have those graphics printed out to your side. To make the diagrams more readable I prepared a version that maximises the space of an A4 sheet of paper. You can find the pdf to this file HERE for a graphical summary of the Analog Rytm Sound Architecture, HERE for Analog Rytm Concepts, and HERE for the Analog Four Structure. I have furthermore prepared some sheets to take notes while programming the Analog Rytm. This note taking is, for example, useful when you want to learn from presets and purchased sound packs. They can be found HERE.


Elektron Analog Rytm Concepts Guide
Machines
Tracks
CB
CY
OH
CH
HT
MT
LT
BT
CP
RS
SD
BD
Trigs
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Synth
Sample
Filter
Amp
LFO
Sounds
(per track)
Page
FX Track
Delay
Reverb
Dist
Comp
LFO
Retrig settings:
(per track)
RETRIG
LENGTH
VEL.CUR
Q.START
Repeats
Bank A-H
Page 1:4
Page 2:4
Page 3:4
Page 4:4
Pattern
(linked to a kit)
Chain
Song
Quantization
Note trig
Trigless lock
Parameter locks
Sound locks
Trig mute
Accent trigs
Swing trigs
Parameter slides
Time signature
Pattern
Kit
Mutes
Trig menu:
(per step)
Track routing:
(kit menu)
Route to main
Route to FX
Scenes
(fixed parameter locks)
Performance macros
(modulating parameter locks)
Kit

Elektron Analog Rytm Sound Architecture



Elektron Analog Four Structure



Compression Techniques

General Considerations

Compression can reduce the output level. In order to compensate for the reduced signal levels, on the AR the MUP parameter provides what is referred to as “makeup gain”. On the OT, there is a GAIN parameter to adjust the output level. Very hard compression, with the ratio full up is also called brickwall limiting. A ratio of 100:1 means that for every 100 dB over the threshold, the compressor will allow only 1dB through.

The strategy is to first seek opportunities for cutting things down, rather than boosting things and consider EQing before compression:

- Unroll any unwanted low and high frequencies.
- The rule is to avoid boosting, use preferably cutting.
- Boost max 2 or 3dB.
- Use wide Q values for boosting, keeping it more natural.
- Between 100 and 800 Hz is the warmth area, boosting this area is adding warmth
- … but between 250 and 800 Hz, if the area is too busy, the mix sounds muddy.
- Between 1k and 6kHz is the area that gives punch, knock and bite and presence
- Between 6 and 10kHz lies the clarity and crispness.
- Above 10kHz one adds air but it can also get nasty
- High frequencies gives the impression the sound is closer to us.
- Lows, <100 Hz: subbass and the bottom of your kick drum
- Low mids, 100Hz to 1kHz: the body of the snare, percussions, bass line.
- High mids, 1kHz to 10kHz: claps, top end of snares, keyboards, pianos.
- Highs, >10kHz: HiHats, triangles, shakers.

For kicks, fast attack and medium release for taming the transients, reducing the clicky part af the start of the waveform and reducing its relative volume. Good for smoother kicks in deep and minimal styles. Medium attack and release: retain a kick’s initial punch by letting the first part of the sound go through. Good for a baggy kick in electro styles

For percs are at lower volume, compared to the kick, keep the ratio fully up. The attack should be very short, leaving only threshold and release to play with. Check the volume of the kick and hat in the loop by putting the loop frame around them. In drum loops the transients are the loudest. Set the release to release and start reducing the threshold. Then put the release fully up and slowly reduce it.

For snare sounds bring the initial transient/click out more, by starting with a high ratio, threshold to the middle. The transient is the loudest part, so we don’t want to turn the attack up. Turn the attack down and set the release that the compressor recovers. Next move the attack up to let the transient through.

Taming Transients: Fast Attack + Fast Release + High Threshold

Conventional downward compressors detect when a signal’s amplitude is higher than a threshold, and then respond by reducing the amplitude of the signal. By using a fast attack time and a fast release time, the compressor will respond almost instantaneously when a signal’s amplitude

crosses the threshold. Therefore, gain reduction will primarily be applied only when the signal's amplitude is above the threshold. When the amplitude drops below the threshold, gain reduction will not be applied.

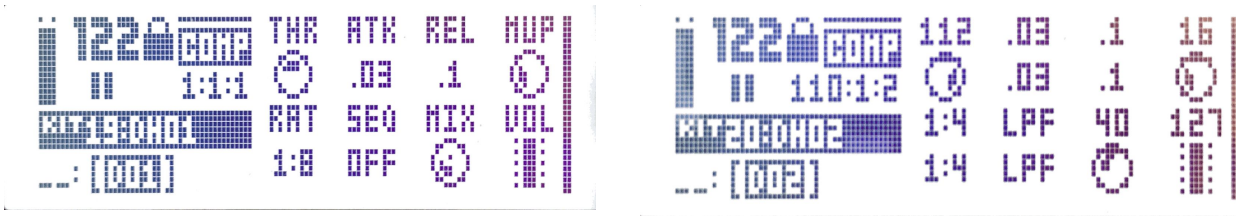
If the threshold is set so that only the attack of a signal triggers the compressor, then these settings on a compressor can be used to tame the transients of a signal and also help prevent a signal from clipping. The threshold can be adjusted to change how much of the transient is changed. Lowering the threshold and increasing the ratio will squash more of the transient, resulting in a higher relative amplitude for the note's sustain. Extreme settings with this technique work well in parallel compression.

This transient tamer technique can be used to perceptually push an instrument back in a mix because the attack does not cut through as much.

Reference

http://theproaudiofiles.com/compression-techniques/

Drum Bus Compression on the AR



The Analog Rytm has an excellent compressor on the FX track. What I here describe is a tip how to make the drum loop coming out from the Rytm a little bit tighter, punchier and a bit groovier by using drum buss compression.

Before we start, remove any reverb for the time being in order to hear the compression more clearly. A set of typical parameter values is shown on the right image above.

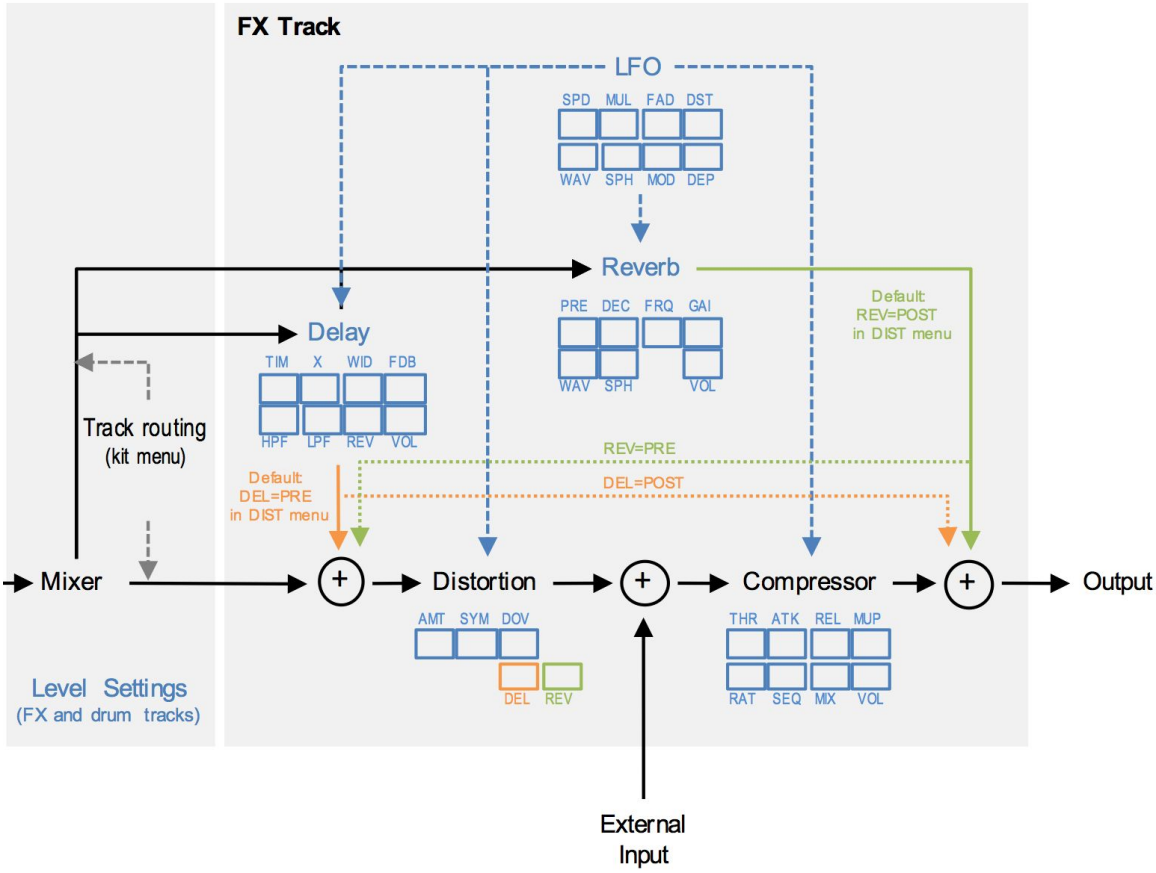
The first thing Keith Mills from Quantize Courses recommends in his tutorial (see reference below) is to add some extreme compression by bringing down the threshold. We can the amount of compression by watching the vertical bar on the right of the screen. The reason to do this is that when the compressor is having to react very hard, it is easier to hear what each of the parameters is doing to the overall sound.

With some extreme compression applied, we want to get the punch and the snap back. To do this, increase the attack to allow the initial transients through. While listening, focus on the kick or the clap. The range for the AR compressor's attack is 0.03 to 30 milliseconds. (In Ableton the attack time goes all the way to 300ms.)

The next step is to set the release, the time it takes for the compression to recover in quieter moments. The AR's range is 0.1 to 2 seconds and there are two autorelease presets, A1 and A2, where A2 is giving a slightly longer time than A1. The release will affect the groove, a short time giving a more hurried feel, while longer times are a bit more relaxed. While listening, focus on things with long tails or something like a shaker with a busy pattern, where changing the release time you will hear it pumping up and down.

One could now dial the compression back and finish off. For most drum loops, the kick will be the dominant element and this will also largely influence the compression. In order to give the other elements more space, the AR offers a sidechain EQ. We select a low-cut, ie the HPF option, which passes the signal through a highpass filter before it is analysed for compression, making the compressor react less to the kick or bass. This setting will reduce the pumping, while choosing a LPF will enhance the pumping effect as the compressor will mostly react to the kick/bass. The HIT option on the AR results in a balanced equalization of the sidechain signal, making the compressor react similarly to all frequencies. Choosing the HPF, we now need to dial back the heavy compression applied to begin with. One way to do this is to reduce the ratio.

A final tip for consideration is the routing of the signals going through the delay and reverb. In the Distortion menu we have the option of PRE and POST, to have the signals passing through the delay and reverb going in before or after the compressor. The default for the Delay is PRE and for the Reverb it is POST. By choosing PRE for the reverb, the compression can also give the reverb a bit more of the groove that was realised with the approach described here.



Reference

https://youtu.be/g-mFAVbx-KI

(I recommend not only Keith Mill's free online tutorials but also Ableton training courses - I was very happy with the training I got from him.)

https://youtu.be/RZIktuWP7I4

(This video deals with high pass filtering in compression; as means to avoid the kick being squashed in compression)

Gain Staging

Getting the volume levels right on one Elektron machine, let alone on several of them, may seem complex: For example, on the AR, the volume of the active track is controlled with the Level knob. For each track, in the Amp page there is a VOL parameter, the Synth and Sample pages also have level settings, and then there is the compressor with its Vol parameter. Finally, there is the Master Volume controlling the main outputs of the AR.

On sample packs, purchased from Elektron the default track volume is typically set between 100-110 and for the Synth page we typically find LEV=100. External MIDI controller, like Novation's LaunchControlXL or the AG-KW Oktakontrol, control the VOL parameter in the Amp menu between -64 and 0. One recommended strategy is therefore to first increase the VOL parameter on the Amp page to maximum and then set with the Level Knob the track level to the desired max level for production and live use. This allows you to swiftly move up a external volume fader, knowing that the max, this will still be an ok value. Even if you are not using external devices to control the volume, I recommend to first fix the track levels and then focus, during performance, on changes of the parameter pages and use the volume parameter for adjusting volume levels on the fly.

Using DAWs, one often learns that for individual tracks, one aims for something near -12dB throughout the chain of effects that are behind an individual track. Bringing other tracks (and in our case other machines) together in a master channel, this leaves some space for final compression and limiting in the mix-down. (For further mastering after the mix down, one would leave from the -12 something near -6db for the final touches).

Using a DAW can also give hints for gain staging. Load a purchased track into your DAW and play it through the system at a suitable volume. Then start with the kick on the Elektron machine and adjust its and the other levels accordingly.

Note that for parameter locks and performance macros, the Amp volume may be parameter locked, which means that if you change your Amp values, you should check the difference this makes to performance macros.

Reference

http://www.elektronauts.com/topics/view/6449/53863/page:1#53863

The Psychology of Knobism, Button and Faderism

Every so often, surfing the Internet, I come across a photo of a NASA space shuttle cockpit. My instant response is to like such pictures and it only recently dawned upon me why this is the case: my fatal attraction to knobs, buttons and faders.

One of the most popular type of threads in music forums are shots of setups and studios. Quite frequently the pictures posted look similar to the cockpit of an airplane or space shuttle ... There is a genuine interest in these pictures, providing inspiration for what instruments and sounds could work together and how one could make the gadgets work together in a setup. Behind each setup is a story that explains the background, motivation and goals associated with the particular setup. I enjoy looking at these pics and also watching videos, where people explain their setup. A source for inspiration can also be sessions on Boilerroom.tv. Examples come from Henry Saiz (https://youtu.be/5Pe6B72tzuE) and Kink (https://youtu.be/osS2zsW8mLk). Kink explains his setup in this video: https://youtu.be/AJrsbprvbXY .

What I like to do here is to describe the story behind the setup I have been working on for the last couple of months. Any setup should ultimately be an individual effort, tailored to your interests but maybe there are some ideas in seeing and hearing about someone else his setup.

I am born in 1966, which meant that I was exposed, in my youth, to a flourishing scene of electronic music and increasing use of synthesizers in music in general. Beyond building my own loudspeakers and soldering together a computer, I was only a consumer and had no training in music. Going to clubs at weekends was very exciting. I did not care too much about the music, it was the atmosphere, the diversity of people, their behaviour, the lights, the adventure surrounding those trips that sticks in my memory. Although I still enjoy going into clubs, favoring house music, from deep and tech house, to techno, at my age, there is a good chance that the other clubbers consider me too old. So, when a few years ago I was offered a gig as a DJ, I was very excited. I had zero experience with DJing but I got six months notice. The idea was, that as a professor at our University, I would play at a local club and the proceeds go to some good cause. I saw this as a unique chance to learn about DJing and spent the months of preparation as if I had won a space

shuttle trip to the moon. In fact, I was “over the moon” when I got further offers afterwards. Since then I have played on various occasions and had these magic moments when music can take you away into another space. Rather than being that old chap hanging around awkwardly, or scare others with me non-ability to dance, I can have a good time, with other likeminded people.

Apart from the selection and order of tracks being played, a key element of the experience as a DJ, is to loop and manipulate tracks. I enjoy isolating and layering elements and for this reason I use Native Instrument’s Traktor software and their controllers. Eventually I turned to using NI’s Remix Sets, which are packs of loops that together make up a track. One can then resemble the original track, or organize it in layers and time-wise as you wish. I did however find that it was quite likely that I not only mess around with loops but also mess up. NI’s new concepts of Stems is much easier to use. With Remix Sets, you must arrange the track in vertical (layers) and over time, while the layers of Stem files cover the entire track, so that one just fades in and out layers. As a digital DJ, the audience has an expectation of high quality sounds and perfect transitions, breaks etc. There is an appreciation for the use of effects but the expectations are high that it sounds smooth and perfect as if it would come from a CD. When you perform with a hardware setup, the audience will appreciate a lot more, that you are creating the music in real time and hands on and I don’t mind at all if I can hear that a recording of the performance would not make it straight onto a CD and iTunes. While DJing with Remix Sets can be very creative, playing your own loops and arranging them live, creating effects, it could be as hands-on and creative as a hardware setup, and yet the perception of the artist and the audience differs. Starting to create my own loops, I soon got the desire to have synths, and effect units in front of me, not a DJ controller and laptop.

As a University professor, my research deals with the search for pattern in data. I suppose that this is also a reason why I enjoy music in general, but DJing and music making in particular. The fact that a few lines and dots can encode for something as beautiful as a symphony that brings you to tears, is similar to mathematical equations we use to model the world around us. I started to first use purchased Remix Sets, creating my own pattern of music, and soon got interested in making my own loops. Towards this goal I had to learn using a DAW and I had to learn about making music. A great development over the last decade is that with a reasonable laptop, it is quite affordable to get professional tools at your hands. This encouraged me to learn Ableton with Quantize Courses. I choose Keith Mills as a tutor because his concept is to teach you how to turn your ideas into music, rather than focussing on teaching the functionality of the DAW. You learn using the DAW, while you learn making your own music. Once I learned about creating a track over a period of a couple of months, I wanted to return to pressing buttons, turning knobs and pushing faders. Most important however is for me the goal not to produce tracks but to play music. I do not make music for a living, and I do not seek happiness in others clicking on or downloading things I put on the Internet. Selfishly, I want to enjoy the process of making music any time I want and not just when I have a gig. The setup I describe here, is therefore designed to leave a maximum amount of freedom to jam, to create the music in different ways, every time I switch the gear on. While all machines are linked through a common MIDI clock, there is otherwise no linkage between parts, chains, songs or arrangements.

The reason why I have chosen the Elektron machines was already described in the preface to this text. The centre of my setup is a mixer into which I feed the outputs of a drum synthesizer (AR), a multipurpose synthesizer (A4), a sampler to play loops (OT) and a laptop with a DAW playing tow software synthesizer (AAS’s Ultra Analog and Lennart’s Sylenth1). I could do without the laptop, or an iPad, or an additional monophonic bass synth …. but then I enjoy these buttons, knobs and faders so much that I want to have a setup that can grow over time, if I so desire. As I play my set, I move through patterns on the Elektron machines, spending about 5 and up to 10 minutes with each pattern. 16 pattern can thus cover a session or gig lasting well over an hour. Playing pattern

D01 on the OT, I will play D01 on all the other Elektron machines, but the changes of pattern is not linked. To transition between pattern, I move from playing sounds on one or two machines only, while I change the pattern and move with one machine after the other to a new pattern. I want to decide when and how to do this, on the spot. From the mixer, I can send the incoming sounds out to external effect units. For the AR and A4, these are the main outs. From the AR, one could separate the tracks and feed them individually into the mixer but I do this only for the kick as a trigger signal for ducking and sidechaining. The focus is thus on creating sounds on the AR, and feeding the main output into the mixer.

The tracks of the OT are filled with sample chains. For each pattern, I have one or two slices of a sample chain being associated with the pattern. Track 1 has a sample chain with loops covering synth elements, track 2 is for top loops, track 3 for bass loops, track 4 for percussive loops, coming from instruments and with sounds that I could not create with the other gear. Track five has sample chains for drones and transient sounds on page 1, FX elements on page 2, atmospheric background and layering elements on page 3, and risers and impacts on page 4 (the first eight trigs for risers, the last eight trigs for impacts, crashes etc). Track six contains 16 bar atmospheric samples for use in breaks, track seven has vocal loops, mostly of the FXed type and track eight is for “proper” vocals.

The focus for playing is on the AR and A4, the OT serves as a complement to enrich the other stuff. For example, I purchased some percussive loops coming from african, or latin american instruments, with sounds I could never generate myself and with grooves that I cannot think of playing myself. Transitioning between patterns on the Elektrons, I can play two or three tracks of the OT together, run these tracks through the external effect units, while changing patterns on the AR and A4. On the OT, I use the Cue outputs as normal outputs, so that I can divert OT tracks to external effect units. At any point in time, I have to choose which tracks on the OT, AR and A4 to play and how to manipulate the sounds with the onboard effects as well as the external effect units. For each pattern and each track, I have on each track of the OT also several slices to choose from. In addition I can choose to play two synths in the DAW, not with loops or a sequencer running, playing pads, arpeggios or chords freely with a keyboard (or the Push).

This setup ensures that every time I sit down, things will turn out different, every time. This level of choices, or complexity, may not be ideal for live performances and everyone else but then I do not make music for a living and when I perform live, the audience will be aware that I create the music in real time, hands on and in response to atmosphere of the moment.

Dark Trinity Tips

The combination of the OT, AR and A4/Keys is, among Elektronauts, also referred to as the ‘Dark Trinity’, referring to the black colour of the machines. (Previous machines of Elektron had a silver finish). The present chapter focuses on general tips, that apply to any of the machines, or in their combination.

Tips for the Setup of the Dark Trinity

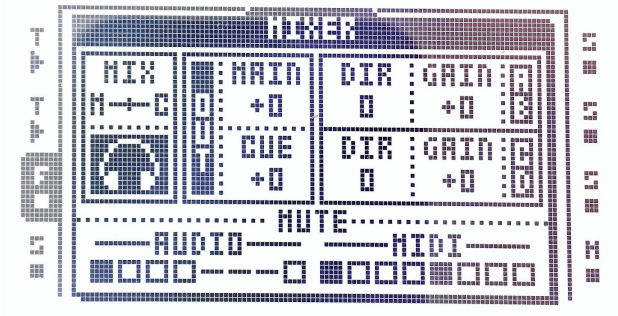
These notes are a rough version and far from being comprehensive. They may still be useful to the beginner, trying to use the three machines together. There are too many options really, to tell others how to do it and most people will have other requirements because other pieces of equipment are going to join the party. These notes are thus really only intended to give hints to

those to who struggle with their very first attempt to get things connected up and work together. For more information check the Elektronaut forum, and of course read the manual (repeatedly :-)

In my setup, the AR creates the beats, the A4/AK is used for bass and synth sounds and the OT plays back loops and samples the audio from the AR and A4/AK.

For the first Version of a dark trinity setup, the AR goes into the A4, which goes into the OT. The OT has two input pairs, AB and CD and in this scenario, only AB would be used. Another motivation for this setup is the use of internal effects of the A4/AK on the incoming signal from the AR, creating a performance macro on the A4, controlling the desired FX parameters. The macro can, for example, control the CHO, DEL and REV parameters in the EXT IN page of the FX track on the A4.

- Connect the AR main outputs to the A4 inputs, the A4 main outputs to one of the input pairs of the OT (we here assume the input pair A/B).
- Set the master volume on the AR somewhere between 15:00 and 18:00
- Connect a MIDI cable from the OT MIDI OUT to the MIDI IN of the A4 and use a MIDI cable from the A4 MIDI THRU to the AR MIDI in.
- Make sure the AR and A4 are MIDI slaved to the Octatrack:
    - FUNCTION+GLOBAL -> MIDI CONFIG -> MIDI SYNC:
        - Activate CLOCK RECEIVE
        - … and consider PROG CH RECEIVE
        - Activate TRANSPORT RECEIVE
    - FUNCTION+GLOBAL -> MIDI CONFIG -> MIDI PORT CONFIG:
        - Set INPUT FROM to MIDI (or MIDI+USB)
- On the A4/AK:
    - Press the fifth (FX) TRACK key.
    - Press the Ext In (Osc 1) key:
        - Using knobs E and J, turn up the volume of both channels to 120. This will pass the sound of the AR through. On the EXT IN page you can now design a performance macro, controlling the CHO, DEL, REV parameters, manipulating the AR signal.
- On the OT:
    - Create a new project:
        - Open the project menu with FUNCTION+Project, go to the CHANGE submenu and CREATE EMPTY PROJECT.
    - Open the PROJECT menu by pressing FUNCTION+MIXER:
    - Go to the MIDI menu and SYNC sub menu:
        - Enable both TRANSPORT SEND and CLOCK SEND.
- There are two methods to set the OT up (DIR and THRU). I shall first describe the **THRU method**: The Thru machine offers more use of effects to the incoming audio but at the same time it occupies one of the tracks (here TRACK 1). If one connects the AR into the A4, the drum tracks can be manipulated with the A4 and its performance macros. This is an argument against occupying a track for the AB input on the OT. In that case the DIR method may be better.
    - Open the mixer menu by pressing MIXER. Make sure DIR for AB is set to 0. This will make the incoming sound available to only Thru machines.
    - Assign a Thru machine to track 1:
        - Select track 1 by pressing the T1 key.
        - Double click the T1 button to open the quick assign menu.
        - Select the THRU machine.
        - To ensure the THRU machine listens to input A/B, select track one by pressing the T1 button and set INAB to A B by turning knob A.
    - Select track 1 and place a sample trig on the first step of the sequencer. This is necessary to start passing through incoming audio:

        - Press the REC button and then the first trig button.
    - **DIR Method** (as an alternative to the THRU method): In the mixer menu, set the DIR value for AB to 127. This will route the incoming signal on AB to the OT output at full volume. (Check the VOL settings on the A4 EXT IN channel to balance the volumes). The incoming sound from the AR/A4 can no longer be muted but one can now choose a different machine on the track and play a sample/slices on that track in addition to the signal coming through from the AR/A4. Now T1 can be assigned a sample or flex machine and the track is no longer used in relation to the AR and A4.
    - 

- Turn track 8 into the master channel. The track effects of track 8 will then affect all the other tracks as well as any audio coming from the external inputs:
    - FUNCTION+PROJECT, select CONTROL and AUDIO submenu:
        - select for TRACK 8, MASTER

When connection Elektron gear, one can use the MIDI turbo mode. Press FUNCTION+MIXER on the OT, go to TURBO STATUS. Use the right arrow to increase NEGOTIATE to x10 and press YES to initiate negotiations.

It may then turn out that the volume levels and gains within the devices need adjustments. There are numerous discussions about volume and gain levels and lots of confusion about the handling of levels between the AR, A4 and OT. From the discussions in the Elektronaut forum it appears that the OT reduces the level of an incoming machine by -12dB but also connecting the AR to the A4 and listening the main outputs of the A4, the level may appear somewhat low. The following notes may help you to check all the relevant places where volumes, levels and gains can be controlled. The values I give may not work for everyone though - this needs playing around, possibly another external device, mixer etc to get things suitable for your purposes.

For the AR, I loaded the factory presets and used Bank A, Pattern 1 (A01), Kit1: STUBB. (Note that if you reload projects at this stage, you have to repeat the MIDI setup described above). No changes to the track levels were made. Starting with the Master Volume on the AR at about 9:00, the headphone levels are (in the author's case) reasonable.

For the A4, I used the presets, Bank A, Pattern 1 (A01), Kit1. POLYTRON. With Master volume set to 9:00, the headphone volume is a lot higher than the output of the AR with the same setting. The track level (level knob on the left of the display is at 116. Pressing the FX track and then the Ext in page, both levels of the input are set to max=127. The sounds from the AR can hardly be heard together with the A4 sounds. (Check by muting the A4 tracks).

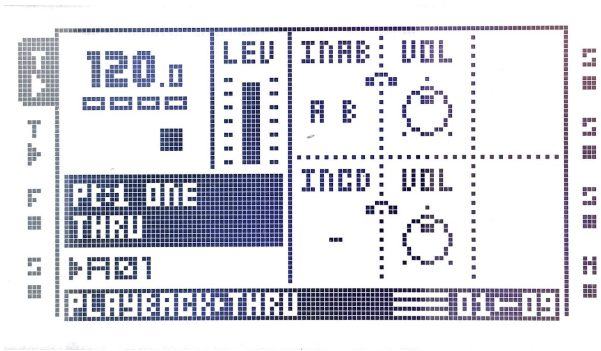
If for the four A4 tracks the volume (knob J) on the AMP page is reduced to values below 20, the levels for the sounds of the AR and A4 match reasonably well - on the headphone connected to the A4 and the OT (volume knob at about 2:00) but also on Rokit 6 studio monitors connected to the OT, with the following settings:

- Mixer page: GAIN=+63 (max) for C / D (knob F).

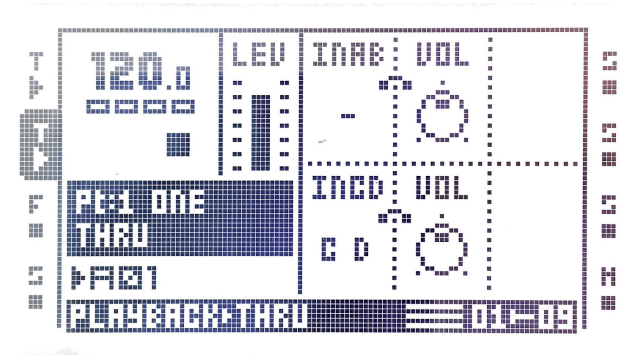
- Press T1 (the external input from the A4, here on C/d) and press PLAYBACK, we have LEV=127 (max, controlled with the level knob on the right) and for INCD a VOL=+63 (controlled by knob E)
- Press T1, on the Amp page, we have LEV=127 (max, controlled by the Level knob) and set VOL=+63 (max, controlled by knob D).
- Press T8 (set up as the master track), we have LEV=127 (max).
- FUNCTION+Level to zero.

The OT is here only used as a mixer and sequencer for the AR and A4. Feeding the AR into the A4/AK, and the A4 into the OT is an example suggested by Elektron in their AR manual. I eventually arrived at a setup in which the AR and A4 go separately into the OT, without occupying a track (but having T8 as a Master). Having an additional separate mixer, all machines, including the OT would go separately into the mixer. In such a setup one would consider the use of external effects units (using Send and Returns on the mixer to select signals going through the effects) and the use of an external compressor to help glue everything together.

A second possible setup, I mention here, is to feed the AR and A4 separately into the OT, say the A4 into AB and the AR into CD and have machines assigned to the AR and A4, which means they each occupy a track but then one can manipulate the signals with the effects of the OT For Track 1:



and for Track 2:



Yet another scenario is to connect the AR and A4 separately into the AB and CD inputs of the OT but use the Dir method (DIR=127 for AB and CD). In this scenario, I use the input of the A4 for another synthesizer (say on the iPad) and put that signal through the effects of the A4.

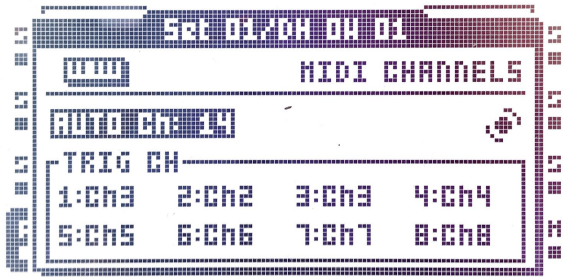
MIDI Considerations

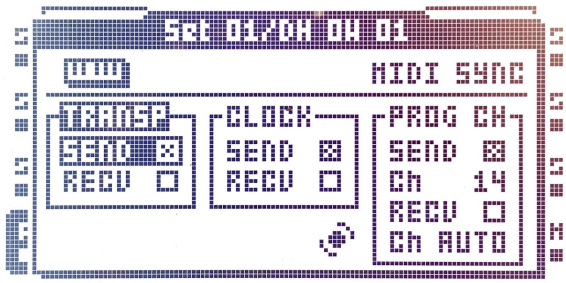
Following the physical connection one has to start thinking of how to connect the play of patterns, scenes and songs/arrangements. Setting up the OT to provide the master clock, there are several options to have the AR/A4 being linked to the OT:

- Using MIDI clock, transport and Program Change messages, the patterns on the AR/A4 follow pattern changes on the OT.
- Using the MIDI clock, transport and Song Pointer Position messages from the OT, Songs on the AR can follow the OT's Arrangements.

There are too many possibilities with MIDI to discuss them all. For the A4 and OT, see the video from "Seen from Space": https://youtu.be/IPs_gZaTIO4 for their connection. On the AR and A4, I recommend to begin with, to set in the MIDI port configuration submenu the destination for changes to encoders, pads, keyboard etc to internal as otherwise changes to them are sent out and may interfere with other MIDI messages across the devices. Another source to make mistakes is the OT's MIDI channel submenu, where one is tempted to use the up/down arrows to scroll through the menu, when this actually changes the channel numbers.

With the OT at the heart of the setup, I suggest as a starting point the following changes in the MIDI Control menu: (FUNCTION+MIXER/PROJECT -> MIDI -> MIDI CONTROL menu):





Next, we set the AR and A4 up to receive nothing but clock and transport control from the OT. This gives us a starting point in which the OT controls the sequencer on all machines, including changes in pattern. On the A4, go into the following menus (FUNCTION+GLOBAL):

- *MIDI SYNC Menu:* Tick Clock Receive, Untick Clock Send, Tick Transport Receive, Untick Transport Send, Tick Prog Ch Receive and untick Prof Ch Send.
- *MIDI Port Config Menu:* Out Port Func set to MIDI. Thru Port Func set to MIDI. Input from MIDI+USB. Output to MIDI+USB. Output Ch set to AUTO CH. Parameter Output set to CC and Encoder Dest set to INT. Keyboard Dst set to INT and Mute Dest set to INT. Receive Notes ticked. Receive CC/NRPN ticked.

In the MIDI Channels menu, I set the Auto Channel to 14 and Prog Ch In and Out Ch to AUTO. For the AR, the same is done - receive clock and transport but do not sent these. Also on the AR, tick Prog Ch Receive and untick Prog Ch Send. For the AR it is particularly to begin with recommended to the the Encoder Dest, Pad Dest and Mute Dest and Pressure Destinations to INT only. The same is true for the A4 and the OT. If these machines send MIDI signals out from knob movements and pad actions, it may happy that this changes things on other machines. The default is INT+EXT and I would advice to start with INT only and then develop the setup, step by step.

With the setup described here, you could connect an iPad to control the A4 with MIDI notes and have all machines being in sync and with the pattern changing in unison. Depending on preferences and individual setups one can then go on to explore MIDI in more detail.

Reference

https://youtu.be/IPs_gZaTIO4

http://www.elektronauts.com/topics/view/14446/121623/page:1#121623

Summary of MIDI Settings

The following tables summarize all MIDI options in the menus. In the left column an example for settings linked to the discussion in the text is given. The Auto Channel is here chosen as 14 because when an AR is in the setup, there are 12 audio tracks and thus channel 11, for instance, would be taken. (With a MIDI router, like the iConnectMIDI, one could remap channels in the router)

Analog Rytm MIDI CONFIG		
MIDI Sync		
x	Clock Receive	This determines whether the AR should receive its clock signal from outside (say the OT).
	Clock Send	If the AR receives the clock from outside, don't tick this box unless you have a more complex setup in which the AR controls other gear.
x	Transport Receive	This refers to the start, stop and pause (and song position marker) of the sequencer. In a setup in which the OT, or a DAW controls the sequencer, tick this box.
	Transport Send	Unless the AR does not control other gear, do not tick this option.
x	Prog CH Receive	This determines whether the AR should receive or respond to program change messages, which select the pattern on the AR. The channel on which this happens is determined below. In a setup with an OT as the central sequencer, this option is chosen.
	Prog CH Send	When active program change message are send when pattern are changed. Unless the AR is controlling other gear, do not choose this option.
MIDI Port Config		
	Turbo Speed	Press Yes/Save to start the turbo speed negotiation. The speed is chosen automatically.
MIDI	Out Port Func	This decides what the MIDI out port is sending. The most common option would be "MIDI".
MIDI	Thru Port Func	As above
MIDI	Input from	If the AR is connected via a MIDI cable to the OT or some MIDI router, the choice here is 'MIDI'. For Overbridge there is a global mode, so that this does not need to be considered here in relation to Overbrigde.
MIDI	Output To	As above. 'MIDI+USB' is an option that will limit the speed of file transfers to the AR.For file transfer (e.g with the c& Sysex tool) choose 'USB' here.
Auto Ch	Output Ch	This decides upon whether the pads and knobs will send data on the auto channel or the track channel. This is linked to the "Dest" options below.
CC	Parameter Output	Determines whether CC or NRPN MIDI messages are send. Most commonly 'CC' is chosen here.
INT	Encoder Dest	This decides whether changes of the data entry and level knobs send signals out (INT+EXT). Unless you want the knobs to control external devices, choose 'INT' here.
INT	Pad Dest	As above.

INT	Pressure Dest	As above.
INT	Mute Dest	As above.
	Receive Notes	
	Receive CC /NRPN	
MIDI Channels		
1	Track 1 Channel	The usual setting is for the track number to match the channel number. The option ‘OFF’ will make the track disregard any incoming MIDI messages.
2	Track 2 Channel	
..	..	..
12	Track 12 Channel	
13	Track FX Channel	
15	Perf Channel	Selects the MIDI channel on which knob information is send when Performance Mode is active. The default is ‘15’.
14	Auto Channel	Selects the MIDI channel that will give access to the currently active track. An external MIDI controller can thereby be used to control, on this channel, the active track. The selection of the active track requires two buttons to be pressed simultaneously (TRACK+PAD). Using this channel and an external device this could be used to make changes to the active track faster.
Auto	Prog Ch In Ch	MIDI program change messages select pattern (A01-H16) on the AR. This entry is linked to the Prog CH Receive choice above where it is decided whether the AR should respond to such messages.
Auto	Prog Ch Out Ch	This entry is linked to the Prog CH Send choice above.

Analog Four MIDI CONFIG		
MIDI Sync		
x	Clock Receive	This determines whether the A$ should receive its clock signal from outside (say the OT).
	Clock Send	If the A4 receives the clock from outside, don’t tick this box unless you have a more complex setup in which the A4 controls other gear.
x	Transport Receive	This refers to the start, stop and pause (and song position marker) of the sequencer. In a setup in which the OT, or a DAW controls the sequncer, tick this box.
	Transport Send	Unless the A4 does not control other gear, do not tick this option.
x	Prog CH Receive	This determines whether the A4 should receive or respond to program change messages, which select the pattern on the A4. The channel on which this happens is determined below. In a setup with an OT as the central sequencer, this option is chosen.
	Prog CH Send	When active program change message are send when pattern are changed. Unless the A4 is controlling other gear, do not choose this option.
MIDI Port Config		

	Turbo Speed	Press Yes/Save to start the turbo speed negotiation. The speed is chosen automatically.
MIDI	Out Port Func	This decides what the MIDI out port is sending. The most common option would be “MIDI”.
MIDI	Thru Port Func	As above
MIDI	Input from	If the A4 is connected via a MIDI cable to the OT or some MIDI router, the choice here is ‘MIDI’. For Overbridge there is a global mode, so that this does not need to be considered here in relation to Overbrigde.
MIDI	Output To	As above. ‘MIDI+USB’ is an option that will limit the speed of file transfers to the A4.For file transfer (e.g with the c& Sysex tool) choose ‘USB’ here.
Auto Ch	Output Ch	This decides upon whether the pads and knobs will send data on the auto channel or the track channel. This is linked to the “Dest” options below.
CC	Parameter Output	Determines whether CC or NRPN MIDI messages are send. Most commonly ‘CC’ is chosen here.
INT	Encoder Dest	This decides whether changes of the data entry and level knobs send signals out (INT+EXT). Unless you want the knobs to control external devices, choose ‘INT’ here.
INT	Keyboard Dest	As above.
INT	Mute Dest	As above.
x	Receive Notes	When active makes it possible to play the A4 using an external MIDI devices, such as a keyboard.
x	Receive CC /NRPN	When active makes it possible to control A4 parameters from an external MIDI device sending CC data.
	Live Rec on Trk Ch	no description in the manual
MIDI Channels		
1	Track 1 Channel	The usual setting is for the track number to match the channel number. The option ‘OFF’ will make the track disregard any incoming MIDI messages.
2	Track 2 Channel	
..	..	..
4	Track 4 Channel	
5	Track FX Channel	
6	Track CV Channel	
85	Perf Channel	Selects the MIDI channel on which knob information is send when Performance Mode is active. The default is ‘8’.
14	Auto Channel	Selects the MIDI channel that will give access to the currently active track. An external MIDI controller can thereby be used to control, on this channel, the active track.
Auto	Prog Ch In Ch	This determines the channel on which the A4 listens for pattern changes. MIDI program change messages select pattern (A01-H16) on the A4. This entry is linked to the Prog CH Receive choice above where it is decided whether the AR should respond to such messages.

Auto	Prog Ch Out Ch	This entry is linked to the Prog CH Send choice above.
Multi Map Edit		
		… advanced stuff, not considered here.

Octatrack MIDI CONFIG		
MIDI Control		
x	Audio CC In	Determines whether the audio tracks react to incoming MIDI CCs or not. Using an external MIDI controller, like the Oktakontrol, this option should be ticked to allow for muting of tracks through buttons on the external controller (as well as changes to the parameters, effects etc).
INT	Audio CC Out	Sets in what way the knobs used for audio tracks will transmit MIDI CCs.
	Audio Note In	Controls whether incoming MIDI notes should affect audio tracks. This includes the external triggering of tracks and machines.
INT	Audio Note Out	Sets what MIDI information the Trig keys transmit.
MIDI Sync		
Send	Transport	Decides whether the OT acts as the hub of a setup, or whether it receives transport commands (stop, play, pause).
Send	Clock	Decides whether the OT acts as the hub of a setup, driving the clocks of other devices or whether it receives clock signals for the sequencer.
Send 14	Prog Ch Send	When checked, the OT will send out program change messages that are representing pattern changes. Ch is here set to AUTO. It is possible to have the RECV checked together with SEND but this is not considered here (see the manual for advice on this).
MIDI Channels		
14	Auto Channel	Sets the MIDI channel giving access to the currently active track. Note that for the Octakontrol faderbox the auto channel is not used. The buttons and faders of the OK send on MIDI channels 1-8.
	Trig Channel	Here the common choice is to match track with channel numbers.

Track Organisation

While there are convincing examples of music made with just one Elektron machine, say the Octatrack or the Analog Rytm, having several machines should suffice for complete live setup. In the dark trinity, the AR provides all drum elements, the A4 key and lead elements and the Octatrack can serve as a mixer, sampler and recording device. Feeding the AR and A4 into the OT, occupying individual tracks, the OT as a mixer can cue each track in live performances. Dedicated one track as the master, we can use effects and compression to glue all elements together. Say, we dedicate one track of the OT for recording (for example to perform the x-fader transition trick), we are left with four tracks to spare on the OT. We could load a sample chain with atmospheric loops on one, a chain of FX elements, like risers, sweeps etc into another track, maybe one track with vocal elements, leaving us with two more to play with. Does anyone need more?

Overbridge now allows the integration of the Elektron Analog machines with Ableton, opening up endless possibilities. Many will argue that the goal of using hardware is a way to steer clear of a laptop and they will probably enjoy the ability to make music with just the machines. In any case, most of us enjoy the creation of a setup, as is evident by the always popular “show me you setup” threads in any music forum. Also evident from the pictures people post from their setup, there is a chance that a setup grows over time and soon enough the desire for a dedicated mixer arises.

Let us now look at a live performance setup in which the OT plays a supportive role. The core drum elements come from the AR and key or lead elements come from the A4. The OT will house elements that complement the AR and A4 but we will also consider FX elements, like risers or sweeps that can be fed in from the OT on the press of a button, more easily than this would be possible with the AR or A4. In addition to vocal material and decorative percussion loops, we shall also consider some synth, bass and top loops. The strategy for this is to allow all sounds to come from the OT, at least for a short while, for a break, and in order to make changes on the AR and A4 while these are “offline”. The overall setup is thus one geared towards a live performance in which elements are brought in and taken out as we wish and not as is dictated by some loop, pattern, or arrangement. The tracks on all machines are organised into pattern that match. That is, when a pattern, say D01, is played on all machines, we know that the elements are meant to work together. We could link changes in pattern across machines. In that case we could dedicate one track on the OT for recording, as described for the x-fader transition trick. Once we wish to make a transition to a new pattern, we start a four bar recording which is then played from the OT, while we can change the pattern on all machine simultaneously. The difficulty lies then in introducing the new elements, i.e. leaving the recorded loop. For this to work, the elements in the pattern need to match very well. Another strategy is therefore not to link pattern changes but to gradually, or suddenly in a break, “move over” to the OT for playing. For this reason will have some bass, synth or musical loops on the OT. We thus transition to the OT, change the pattern on the AR and A4, to then introduce new elements from those machines.

Let us therefore place a chain with 32 loop samples, containing “synth elements”, each 4 bars long on the first track of the OT. In the sample editor of the OT we have in the ATTR menu the loop mode on and in the SLICE menu, we have set loop point in the chain (see the chapter on creating sample chains). We name the file loaded into T1 “XYZSyOTL0432.wav”. The first three letters are freely chosen, the “Sy” tells us that we are dealing with synth elements, “OT” reminds us that the sample chain is for the OT (not the AR), “L” tells us that the elements of the sample chain are intended to be played as a loo. The“04” indicates the length of the loop and “32” is the number of loop samples in the chain. The naming scheme ensures that the most important information is always readable from the different menus on the OT.

On track 2 of the OT we place a chain with top loops, say “XYZToOTL0220”. These top loops are chosen to work together with the kick on the AR. Track 3 will house bass loops, and T4 a chain with vocal phrases. Track 7 will have loops with vocal fx elements, that are there for breaks and as decorative elements. Track 8 can be used as the master track (using the OT as a mixer), or together with an external mixer, this track could also be used for samples. When a track is used for recording on the OT, I recommend using T4, so that the bottom two tracks are recording and master track, having them sort of together. The “synth elements” of T1 can also contain atmospheric elements that can be looped. Loops on the Elektron machines are limited to 4 bars and it is therefore a good idea to also have some longer evolving elements. I thus place atmospheric samples on Track 6 and make these samples 16 bars long. When preparing for a 16 bar break, just after a pattern starts on page one, I arm Track 6 by pressing FUNCTION+YES and have then four bars time before the sample kicks in. The file on T6 is named “Atm01OTS1632” (which with our naming scheme will be displayed as ‘Atm01S1632’). The “01” is here the name or

number and the “S” tells us that the elements in the chain are played as single shots (loop mode off and no loop points in the sample editor), 16 is the length of the samples and there are 32 slices in this chain.

Track 5 will host sample chains with 64 FX elements, each 4 bars long. The 64 elements are divided into groups: Sweeps (slices 1-16), FX one shots (slices 17-32), atmospheric decorative elements (slices 33-48), Risers (slices 49-56) and Impacts (slices 57-64). By pressing FUNCTION+DOWN ARROW together, we can select the Slices Mode on the OT. We can now select the type of elements by going through the four pages (Sweeps on Page 1, FX one shots on Page 2, Atmospheric elements on Page 3 and Risers and Impacts on Page 4). Being on Page 4, we know that risers are placed on trig buttons 1-8 and impacts on 9-16. This is very handy for quick access to these elements in live performances.

OT Track Organisation			
T1 S	XYZ**Sy**OTL0432	M**FX**01OTM0464 selected in slice mode	T5 S
T2 S	XZY**To**OTL0220	**Atm**01OTS1632 played as one shots (16 bars long)	T6 S
T3 S	XYZ**Ba**OTL0420	**Vox**02OTL0464	T7 S
T4 F	Recording	Master track	T8

Connecting and Using other Gear

iConnectMIDI and Novation LaunchControl XL

Muting tracks and adjusting volume levels directly on the Elektron machines can be cumbersome in live performances. One option is to use a separate mixer with volume faders and mute/solo buttons. On the AR muting tracks is easy with the pads but for the A4 and the OT it is less trivial to do such changes fast. Having an OT going into a mixer, one would not be able to control individual tracks from the mixer but on the main out. Novation’s LaunchControl XL (LCXL) and AK-GW’s Oktakontrol can be used for this purpose. There are templates available for the LCXL controlling the OT but since I have the Oktakontrol (OK) to control with its faders the volume and having convenient mute buttons, I shall here indicate how to use the LCXL with the A4.

To use the LCXL stand-alone, make sure you checked the Novation website for details on the latest firmware that allows such an operation. Next you need a MIDI router into which you plug your USB cable from the LCXL. I do this with the iConnectMIDI4+ (iCM4), where I plug the LCXL USB cable into USB host jack 1 on the back. The following table shows my own setup, which is then also reflected in the screenshots for the iConnect editor below.

Possible Setup for the iConnectMIDI4+		
MIDI 1	Front panel	I have my OT MIDI out going into MIDI 1 In and the MIDI 1 Out of the iCM4 going into the OT’s MIDI In. The signals from the OT are routed to all other devices with transport

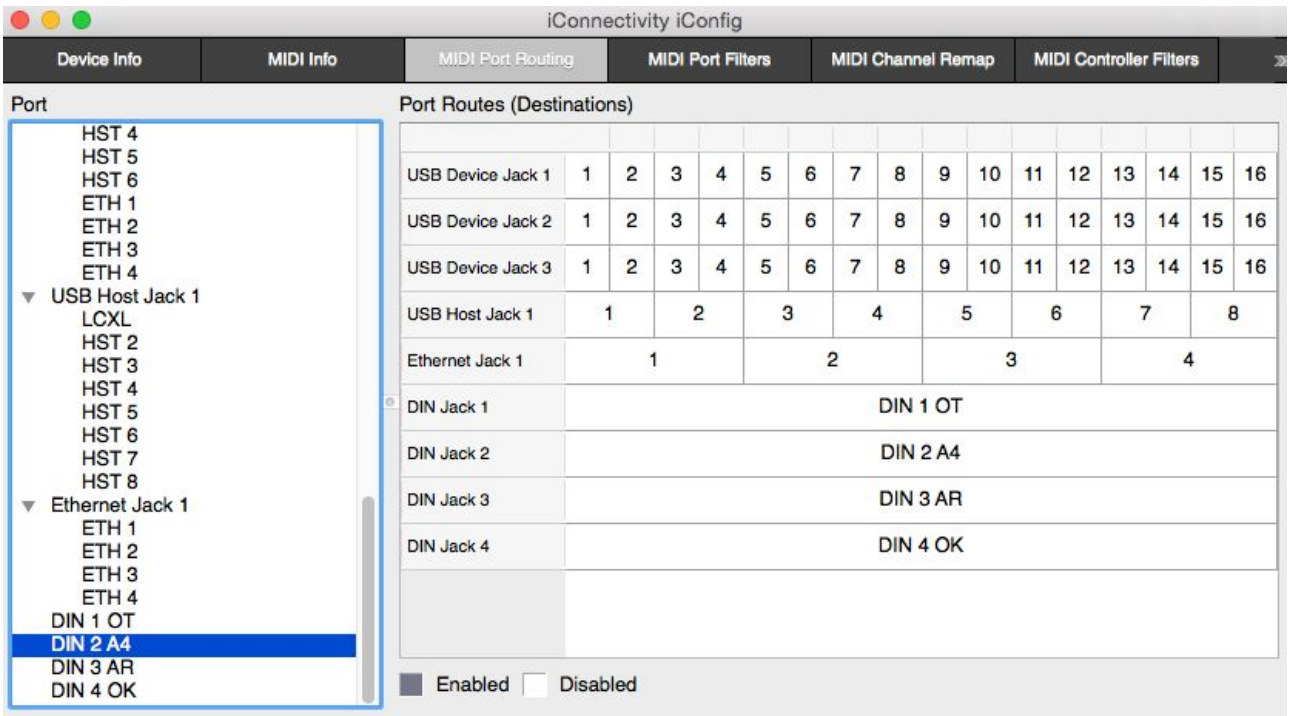
		control so that these can follow the sequencer on the OT.
USB Device Jack 1	Front panel	I have here an iPad connected.
USB Device Jack 2	Front panel	
USB Device Jack 3	Rear panel	This goes into my computer/DAW and is also the connection for the iCM4 Editor software to set the device up.
USB Host Jack 1	Rear panel	For MIDI controllers or keyboards. One could connect a USB hub here to run up to eight USB controllers on this one physical USB jack.
MIDI 2	Rear panel	I have the MIDI 2 Out of the iConnect going into the MIDI In of the A4.
MIDI 3	Rear panel	I have the MIDI 3 Out going into MIDI In of the AR.
MIDI 4	Rear panel	I have the MIDI Out of the Oktakontrol going into the MIDI 4 In on the iCM4. The Oktakontrol has eight faders and Mute/Solo buttons to control the track volumes of the audio tracks on the OT.

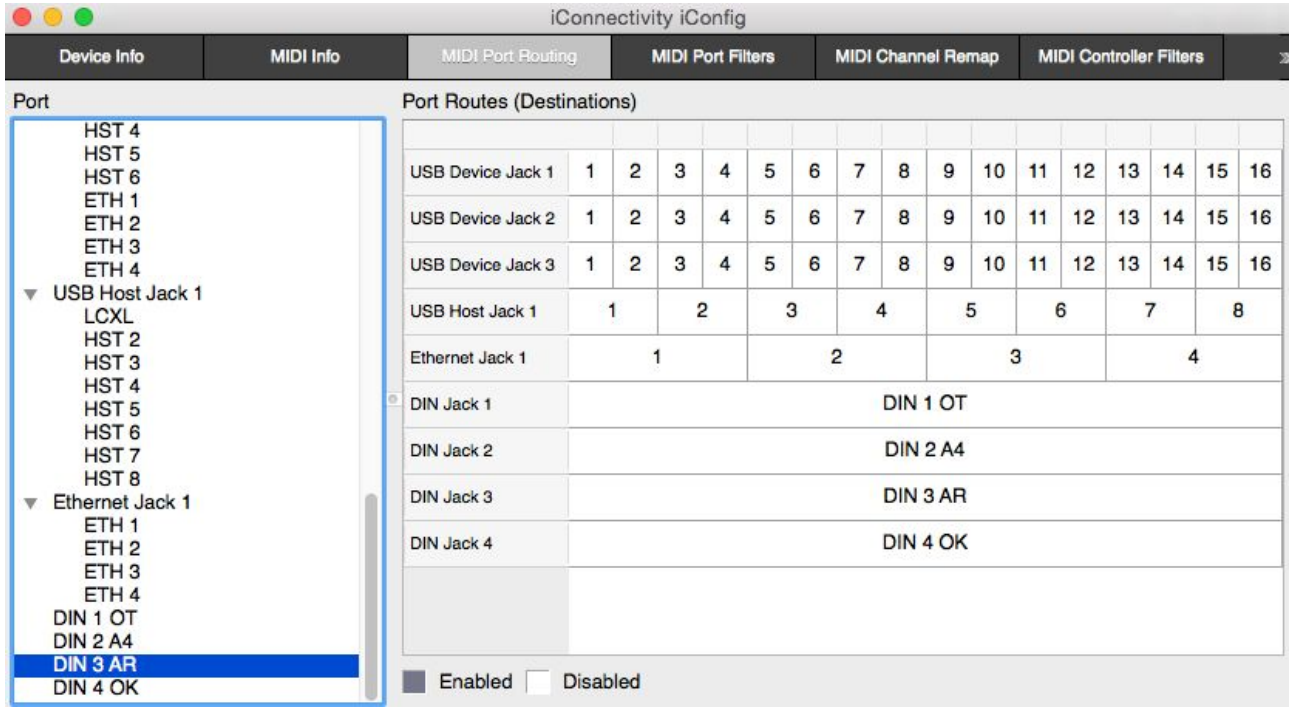
To route the LCXL messages to the A4, I open the iCM4 iConfig Programme. Make sure the iConnectMIDI router is connected via a USB cable directly to your laptop or computer rather than through an USB hub as otherwise the devices are sometimes not recognised. Saving the configuration at the end of the editing to the device allows one to use the MIDI router standalone without a USB connection to a computer. In the MIDI Port Routing submenu, I select on the left the “HST 1” of the USB Host Jack 1. In the figure below I have renamed this to “LCXL”. On the right, I see the destinations. In my setup I route the MIDI messages from the LCXL to the DIN 2 Out Port, connected via a MIDI cable to the MIDI In of the A4.

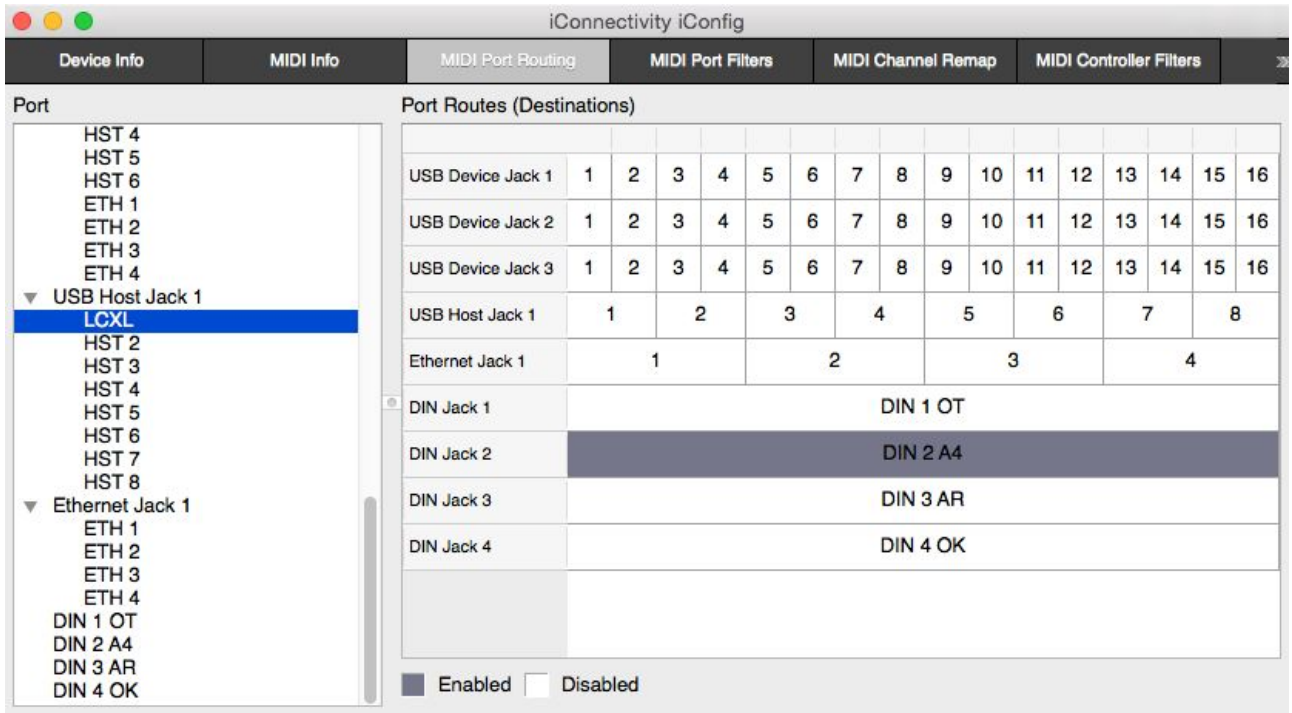
On the A4 in the Global Settings, in the MIDI Port Configuration ensure that the A4 listens to notes and CC messages (see previous section). The Input and Output are set to ‘MIDI’ and the Parameter Output is set to ‘CC’.

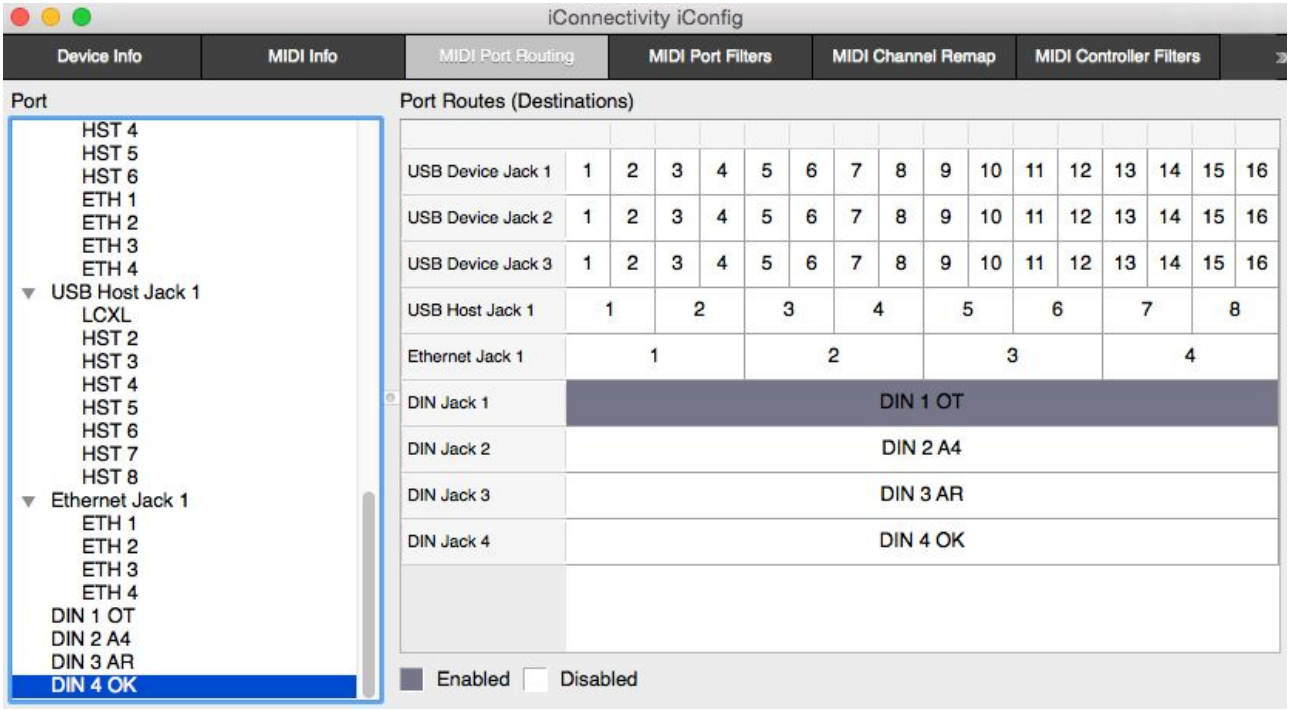
The iConnect device are apealing because they allow MIDI and audio routing between MIDI controller, synths, PCs/Macs and iOS devices like an iPad. There are numerous iOS apps which offer MIDI control, not only to other apps but also of external hardware. StepPolyArp, ChordPolyPad, Arp Pro, Arpist, SP Pro, SP Electro, Fingertip MIDI, Navichord are only a few examples for alternatives to a conventional keyboard. Connecting the iPad or iPhone to an iConnectMIDI or iConnectAUDIO device is easy. While the iConnectMIDI allows MIDI apps on an iOS device to be used to control other hardware, it is not possible to stream audio with that device. In order to play software synths on an iPad, something the iConnectAUDIO is required.

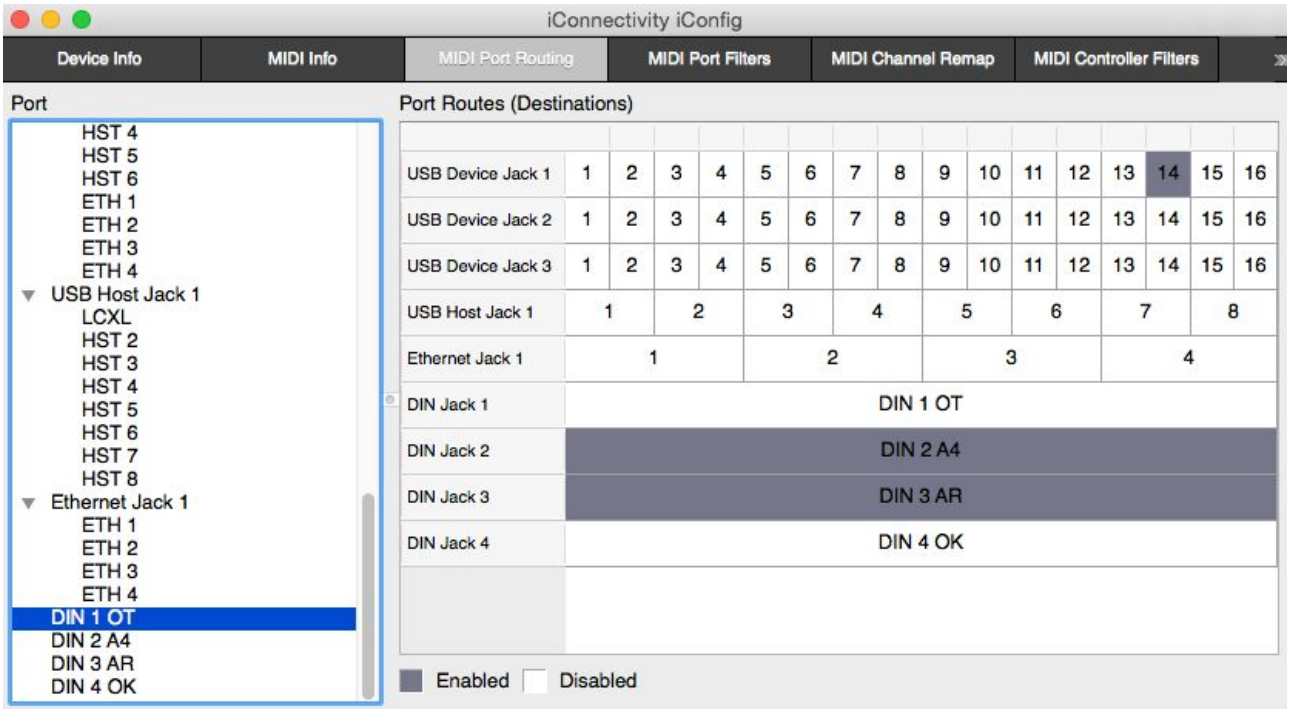

Analog Rytm
MIDI Thru
H9
MIDI In
ICM 3 OUT
Analog Four
MIDI Out
ICM 2 IN
MIDI In
ICM 2 OUT
iConnectMIDI4+
MIDI In
OT Out
MIDI Out
OT In
Octatrack
MIDI Out
ICM 1 In
MIDI In
ICM 1 Out
2
3
4
DAW
MIDI In
A4 OUT
MIDI Out
A4 IN
MIDI In
AR IN
MIDI In
OK Out
USB MIDI Controller (USB hub)
ICM 4 In


iConnectivity iConfig
Device Info
MIDI Info
MIDI Port Routing
MIDI Port Filters
MIDI Channel Remap
MIDI Controller Filters
Port
HST 4
HST 5
HST 6
ETH 1
ETH 2
ETH 3
ETH 4
USB Host Jack 1
LCXL
HST 2
HST 3
HST 4
HST 5
HST 6
HST 7
HST 8
Ethernet Jack 1
ETH 1
ETH 2
ETH 3
ETH 4
DIN 1 OT
DIN 2 A4
DIN 3 AR
DIN 4 OK
Port Routes (Destinations)
USB Device Jack 1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
USB Device Jack 2 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
USB Device Jack 3 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
USB Host Jack 1 1 2 3 4 5 6 7 8
Ethernet Jack 1 1 2 3 4
DIN Jack 1 DIN 1 OT
DIN Jack 2 DIN 2 A4
DIN Jack 3 DIN 3 AR
DIN Jack 4 DIN 4 OK
Enabled
Disabled


iConnectivity iConfig
Device Info
MIDI Info
MIDI Port Routing
MIDI Port Filters
MIDI Channel Remap
MIDI Controller Filters
Port
HST 4
HST 5
HST 6
ETH 1
ETH 2
ETH 3
ETH 4
USB Host Jack 1
LCXL
HST 2
HST 3
HST 4
HST 5
HST 6
HST 7
HST 8
Ethernet Jack 1
ETH 1
ETH 2
ETH 3
ETH 4
DIN 1 OT
DIN 2 A4
DIN 3 AR
DIN 4 OK
Port Routes (Destinations)
USB Device Jack 1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
USB Device Jack 2 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
USB Device Jack 3 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
USB Host Jack 1 1 2 3 4 5 6 7 8
Ethernet Jack 1 1 2 3 4
DIN Jack 1 DIN 1 OT
DIN Jack 2 DIN 2 A4
DIN Jack 3 DIN 3 AR
DIN Jack 4 DIN 4 OK
Enabled
Disabled


iConnectivity iConfig
Device Info
MIDI Info
MIDI Port Routing
MIDI Port Filters
MIDI Channel Remap
MIDI Controller Filters
Port
HST 4
HST 5
HST 6
ETH 1
ETH 2
ETH 3
ETH 4
USB Host Jack 1
LCXL
HST 2
HST 3
HST 4
HST 5
HST 6
HST 7
HST 8
Ethernet Jack 1
ETH 1
ETH 2
ETH 3
ETH 4
DIN 1 OT
DIN 2 A4
DIN 3 AR
DIN 4 OK
Port Routes (Destinations)
USB Device Jack 1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
USB Device Jack 2 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
USB Device Jack 3 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
USB Host Jack 1 1 2 3 4 5 6 7 8
Ethernet Jack 1 1 2 3 4
DIN Jack 1 DIN 1 OT
DIN Jack 2 DIN 2 A4
DIN Jack 3 DIN 3 AR
DIN Jack 4 DIN 4 OK
Enabled
Disabled





Next we connect the LCXL directly to the laptop (not through the iConnect) and open the LaunchControl Editor. We select User Template 1 by pressing User and the first button at the bottom of the LCXL. In the editor we click on a control element, say the first fader. The fader will be highlighted and we can set the parameters on the right. For the fader controlling the volume parameter of the Amp page, we look up the Users Manual and find in the Appendix that the CC for this is “7”, which we enter in the CC field. For the mute buttons, at the bottom of the LCXL, click one and select on the right for the Message Type ‘CC’, then choose the CC Nr, which is 94 for the track mute on the A4. The MIDI Channel is chosen to match the track, ‘1’ for track one and Button 1 below the first fader, and so forth. The Max/Min values can be left to their default 0/127. Value 0 means the track is unmuted and values 1-127 mean that the track is muted. Values can be received on the track channels and on the auto channel but the mutes are only sent out on the track channels. For the 'Press Type' choose the 'Toggle' setting, meaning you have to press to mute and the press again to unmute and so on. Having done mappings for all knobs and faders,

we then save the template to a file, and/or directly to the LCXL, and then connect the LCXL directly to the MIDI router.

Unfortunately it is, at present, not possible to control the LEDs to get visual feedback on the mute status on the LCXL. Another problem is that the faders do not pick the Amp Vol values up when pattern are changed. This can make it difficult to use the LCXL with the A4 in live performances. Changing patterns, the knobs on the LCXL will not match the values in the OT. One has to turn the knob to “catch” the current value, before making changes. This is very prone to errors. For most Elektronauts it is probably true that we love knobs, buttons and faders and we just can’t get enough of them. We are thus tempted to buy the thing that has more knobs. Thinking about it, I realised that one reason to buy the Elektron machines is to do as much as possible with them, not to remote control them. For level control and muting of tracks there is however a good reason. Muting a track requires two buttons being pressed at the same time and adjusting the levels of a track requires us to first select the track, then go to the Amp page and then adjust the level. For muting and level control it is not possible to do this for several tracks at the same time. This is where a faderbox can do a good job.

For the OT, Oktakontrol works very well, with visual feedback on the mute status and excellent faders. There are no problems with volume adjustments following pattern changes. It is possible to mute and adjust the levels of several tracks at the same time and with one hand. The LCXL offers many more knobs but because the parameter values in the OT need to be picked up, before they can be controlled, in a live performance the use of the LCXL’s knobs may be tricky.

Reference

Thanks go to Neil Baldwin, Noxical and Avantronica for help during my exploration into an LCXL mapping for the A4.

Keith McMillen QuNexus (with the A4/AK)

The Keith McMillen QuNexus is a keyboard MIDI controller, where the keys can detect finger pressure, velocity and tilt. To use the QuNexus with the A4 one requires either the Keith McMillen MIDI expander, or something like the iConnectMIDI (or iConnectAUDIO) device discussed above.

To set the QuNexus up, connect it directly to your computer and do not run any other software that could send MIDI signals. This is to ensure that nothing goes wrong when updating the firmware on the keyboard. Opening the QuNexus editor, first check for the firmware update.

In the Library menu on the right choose the Pressure & Tilt preset and then Save As it under the same Analog 4. On the A4 we assume that in the Global Menu > MIDI Config > MIDI channels the the Auto Channel Ch14 and that in the MIDI Port Configuration menu the box for Receive Notes and Receive CC/NRPN are ticked. In the Preset menu on the bottom left, choose for USB and Expander channel 14. (Channel 14 gives access to the currently active track on the A4). Go to the Library menu and click on Save and choose the Send to D option. Tapping the Shift/Preset button on the QuNexus, the button will flash and one of the four buttons on the left will indicate the currently selected preset. Press D and the preset selection mode will exited automatically. The QuNexus can not only be used to play the A4 without a pattern and p-locks. A track that has parameter locks but it muted can still be played with the QuNexus.

Connect the iConnectivityMIDI device directly with the computer and connect the QuNexus with the iConnectMIDI device, using the USB Host Jack 1 on the back of the device (either direct or via a USB hub). Launch the iConfig software and choose the MIDI Port Routing tab on the top. Go to the Port menu on the left and click on the HST 2 port in the USB Host Jack 1 menu. On the right window (Port Routes) click on DIN Jack 2 to send MIDI to the A4. Here is a cheat sheet for use of the QuNexus without a laptop and the editor:

Changing Preset	Tap the Shift button (button LED flashes) and then select preset A to D. Tap Shift button again.
Enter Live Edit Mode	Hold the Shift button for two and a half seconds until the blue LED of the Shift button goes on and stays lit. To exit, just tap the Shift button.
Change the MIDI channel	Enter Live Edit Mode. Hit the button with “Channel” above. Use the -Oct+ buttons to increment or decrement to the desired number. Numbers above 12 are displayed with a solid LED in the tens place and a blinking LED in the ones place. Hit the “Channel” button again to exit.

Note that changes in Live Edit Mode will not persist when the QuNexus is unplugged.

Using the OT CUE Output with external Effect Units

Using an external effect unit we can send a track’s signal through the CUE outputs and have them either return through an OT input, or just send the signal off to a separate mixer into which we the cue outs and main outs connected as inputs. When cueing a signal on the OT, the signal is audible on the cue output AND the main output. We must therefore ensure that we mute the main track if we only want the affected signal to be heard.

FUNCTION+MIXER/PROJECT > System > Personalize. Tick “Cue Focusses Track” so that by cueing a track, it will also be focussed on. Do not tick “Cue Mutes Track” so that a track being cued.

FUNCTION+MIXER/PROJECT > Control > Audio. Tick Cue CFG Normal.

In use: Press the Mixer button and mute the track you wish to send to the effect unit. (Alternatively press FUNCTION+Tx. The track LED turns orange). Then press CUE+Tx to send Tx to the effect unit. When finished, remove CUE (stop track LED from flashing by pressing CUE+Tx again) and then unmute the track.

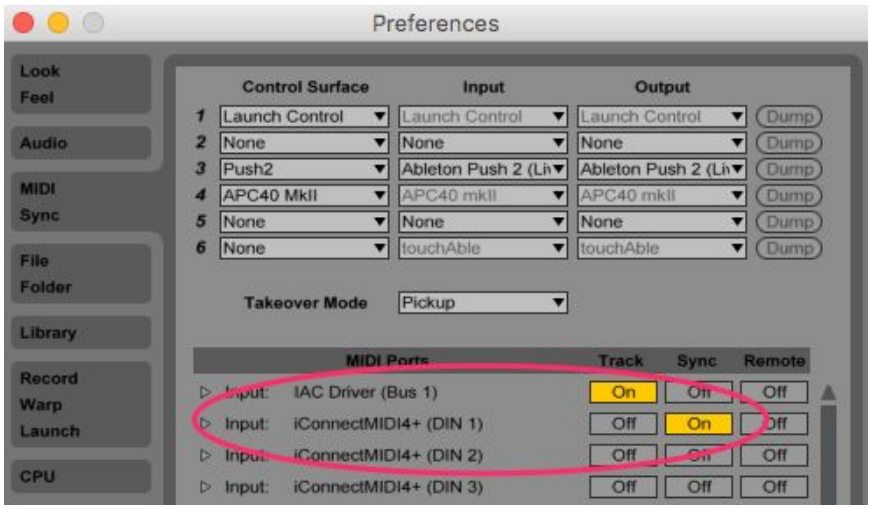
Using Ableton and Push (and Overhub)

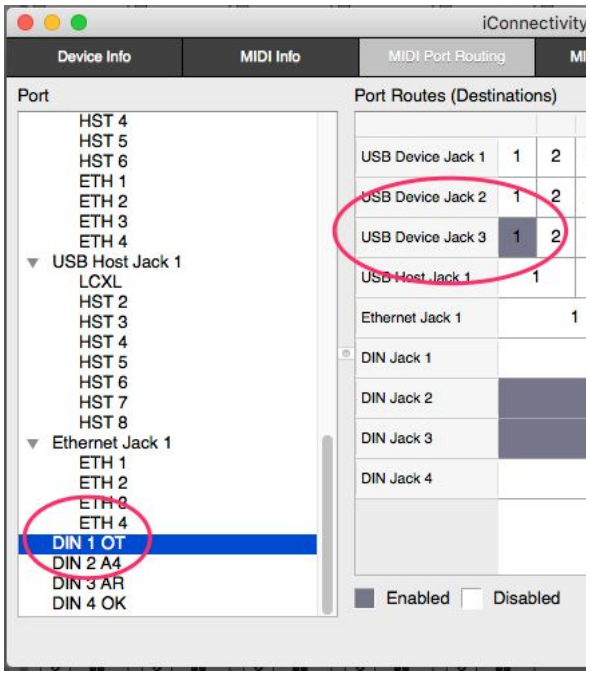
For the following setup we do not use Elektron’s Overbridge Technology. The goal is to connect a DAW (in my example Ableton) to play software synths. I use Elektron’s Overhub USB port. The port goes into the laptop, and the 7 USB ports go to the AR, A4, OT, Ableton Push, the A&H Qu Pac mixer and the iConnectivityMIDI4+.

Using the OT to MIDI control Ableton,

- In the iConnectivityMIDI4+'s iConnectivity config editor, on the left hand side I select "DIN 1" (the MIDI port on the front panel, connected to the OT). In the column on the right, we see the destinations. Here we set for USB Device Jack 3 Port 1 ON. USB Device Jack 3 is on the rear panel, the second USB port from the left. This USB cable goes into the Overhub USB port and then to the laptop.
- In Ableton Live's preferences, go to the MIDI/Sync submenu. For the row showing as an input "iConnectivityMIDI4+ (DIN 1), switch on Sync.
- In Ableton Live, in the top left corner, activate external sync. Usable MIDI signals are indicated by the two small boxes next to the Ext switch. The upper square flashes when usable MIDI signals are received.

PS: To stream audio from Ableton, in combination with the Qu Pac Mixer, I feed Ableton's Master Out through channels 15 & 16 and the CUE signals (and the metronome) through 19 & 20. The setup of a audio channels is done on a Mac using the Audio MIDI Setup programme.





Eventide H9 Effect Pedal

I summarize here only those things I found useful to remember before or during making music. A cheat sheet, if you like. Note that in the table below (as in the manual), “preset” refers to a preset together with its algorithm. If one wants to use two presets of particular algorithm, they must be stored as two “presets”.

Select Preset/Algorithm	Press the Preset button to switch between algorithm selection and preset selection.
Bypass effect	Press the left footswitch (see “Active” LED)
Cue effect	With Tap LED off, the right footswitch is used to setup up/down through presets. The direction changes with the encoder being press. (To get the Tap LED off, press and hold the right footswitch).
Load a cued preset	Press the left footswitch when the preset number is flashing.
Cancel a cued preset	Press any of the radio buttons or by pressing and holding the encoder.
Display name of algorithm	Press Preset button.
Switch tuner on	Press both footswitches together.
Setting input/output levels	Do this in with the iOS control app.

The following settings deserve consideration for using the H9 with Elektron gear:

General Settings:	
> Bypass Enabled	No

> Kill Dry Audio	If this is enabled, the dry signal is removed from the output. Using the A&H Qu Pac mixer, on the routing screen both, the signal in question should then be send to MixXY (generating the wet part) and the LR mix (dry signal)
> Global Tempo	Yes to use the current tempo, coming from the MIDI input. No means that the tempor stored with the presets is used. If set to No, the values stored with the preset is used.
> Global Mix	No. (Yes - the mix settings of the preset is ignored).
Input Gain and Level Meters	Adjust here the input gain - best with the iOS app. (eg 12dB)
MIDI Settings:	
> MIDI receive channel	
> MIDI clock	Enable MINI Input Clock: Yes Enable MIDI Clock Filter: Yes (!)

To ensure that pattern changes do not have unexpected consequence (e.g. preset changes) on the H9, use the iOS software check the “Program Change receive map” in the MIDI menu. Alternatively, if you don’t need program changes being sent by the clock master, say the OT, then tick off the PROG CH option on the OT. The following figure shows a setup using the OT to play sample, which are send via the A&H QuPac mixer to the H9 and back:

Tuning AR and A4 sounds with the Eventide H9 Tuner

The Eventide H9 includes numerous effects but also a tuner. While it is also possible to route signals with Overbridge to a DAW and use a tuner there for the sounds on the AR and A4, having the H9 set up as an external FX unit to some mixer, I can feed individual tracks through the H9 to tune the key of a track.

Use either the H9 control app (>Pedal>Tuner), or press both footswitches on the pedal together to start the tuner. Rather than using the sequencer, I found it useful to retrigger a track signal to identify and set its pitch: Select a track by pressing TRACK and then a pad. Outside the mute mode of the AR, press and hold RETRIG and hit the pad of the track you want to measure.

Pioneer RMX-500 Remix Station

The RMX remix station can be used to pass the main output mix through, or as an send and return unit. The main drawback of this device is the missing option to clock it via MIDI.

The Rythm FX section is useful to create variations, say with the Roll effect, or by overdubbing. The Scene FX section on the other hand is useful to create tension, for risers and transitions.

I provide here only a cheat sheet for settings and button combinations that one may forget easily. The *signal level* allows a -10dB, 0dB, and +4dB treatment of the input signal. The manual suggest a +4dB setting if the unit is placed between the master out of a “DJ mixer” and the PA, 0dB if it placed between the master out of a DJ controller and -10dB if it is used in a send and return channel from a DJ mixer.

Setting the BPM manually	Press and hold TAP, while setting the value with the Nudge buttons.
Setting Echo+ beat synchronization	Use the up/down arrows on the right hand side (Echo+Beat).
Customizing effect parameters	Press Customize Shift and the effect button. (My choice: rU2 for the Reverb Up and SU1 for the Spiral Up; nS4 for the Noise, EC2 for the Echo, Md2 for MOD, HP1 for HPF, LP1 for LPF, ZP1 for ZIP, SD2 for Spiral Down and rd2 for Reverb Down.
Using the sequencer	Press the Overdub button. While the button flashes, recording takes place. Press Overdub again to finish recording. Note that to apply Rythm FX effects during recording, the corresponding effect button needs to be pressed.
Setting the sequencer length	Press the Customize Shift button plus the Overdub button to switch between 4 and 8 beats.

Choosing and using a Separate Mixer

This is not the place for excuses: We love the gear we use for making music, we enjoy the process of putting devices together. Many, if not most setups, are created to cater for very specific needs. These needs and the ideas that go into the building of a setup are part of the creative process. While live performances are forced to consider lightweight setups that can travel more easily, bedroom producers may be limited by the views of their partner about the decreasing space that is available in the house. It is therefore not uncommon to grow synths on walls…

Maybe one of the first excuses - I meant “reason” - to expand the setup, may be the use of external effects. An Eventide or Strymon paddle? Yes! Or, an effect machine like the Korg Kaoss Pad, or the Pioneer DJ RMX effect engines are further options. In any case, we quickly run out of channels on the Octatrack, creating the need for a dedicated mixer. Most of us can’t get enough of knobs, buttons and faders, and thus there is again the temptation to go big. Having the AR, the A4, the OT or another Synthesizer, one or two external effect devices, the count is quickly reaching 12 channels.

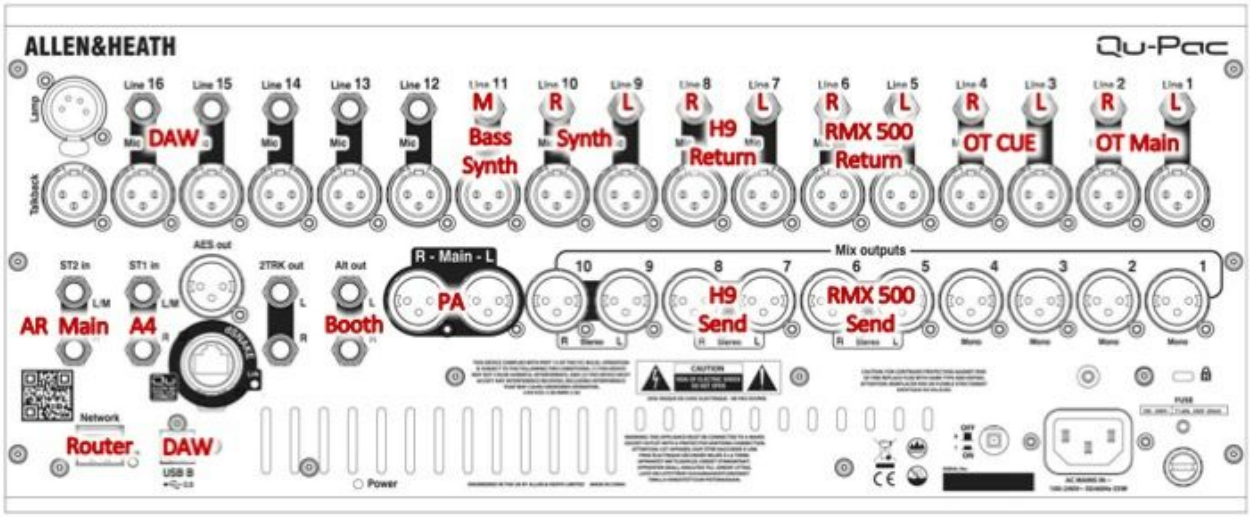
For those using a laptop in the setup, there is also an interest for a built-in USB or Firewire interface. We could then do away with the separate audio interface we always had. We could thus make ourselves believe that buying a mixer would reduce ‘something’. Now, with most mixer having 12+ channels, they will not operate the level controls with knobs but with faders. A piece of advice is then to take out a tape measure and check the dimensions of the mixer, before making the purchase on the Internet. The truth is that such mixers get very large, very quickly and suddenly the mixer takes more space than all the Elektron gear together. Furthermore, thinking about it, most level control is easily done on the Elektron machines. This and the considerations for space are an argument for digital mixers. A major drawback of most digital mixers is that DJ style EQing is not possible, or cumbersome to realize. For this reason it is not surprising that one sees a mixer with lots of channels in a setup plus a DJ mixer, for EQing and/or for the effects in some DJ mixers.

A Setup with the Allen & Heath Qu Pac

What I shall describe here is a setup that involves a digital mixer from the Allen & Heath Qu Series. Even though what follows is quite specific to that mixer, what I recommend anyone looking for a mixer, to get first the User Manual from the manufacturer’s website and start mapping your setup onto the machine, as described below. I did this for several mixers before purchasing one and I realised that it really is a good idea to go into the manual and figure out what can be done, and what not.

I decided for the Qu Pac because it saves a lot of space for a large number of channels (up to 32). Although Allen & Heath offer Apps to control the mixer via an iPad and iPhone, this is not necessary as all elements can be accessed very easily from the screen and the buttons. There are 15 user configurable softkeys that can be freely assigned, allowing in many cases a one button operation. The Qu Series will appeal to Elektronauts because the options to configure this mixer are enormous. The most important advice is thus to print out the detailed “System Block Diagram” provided in the Qu Mixer Reference Guide (available from the A&H website). That diagram is absolutely vital to appreciate the options available. It took me several days to get a basic understanding of the options available.

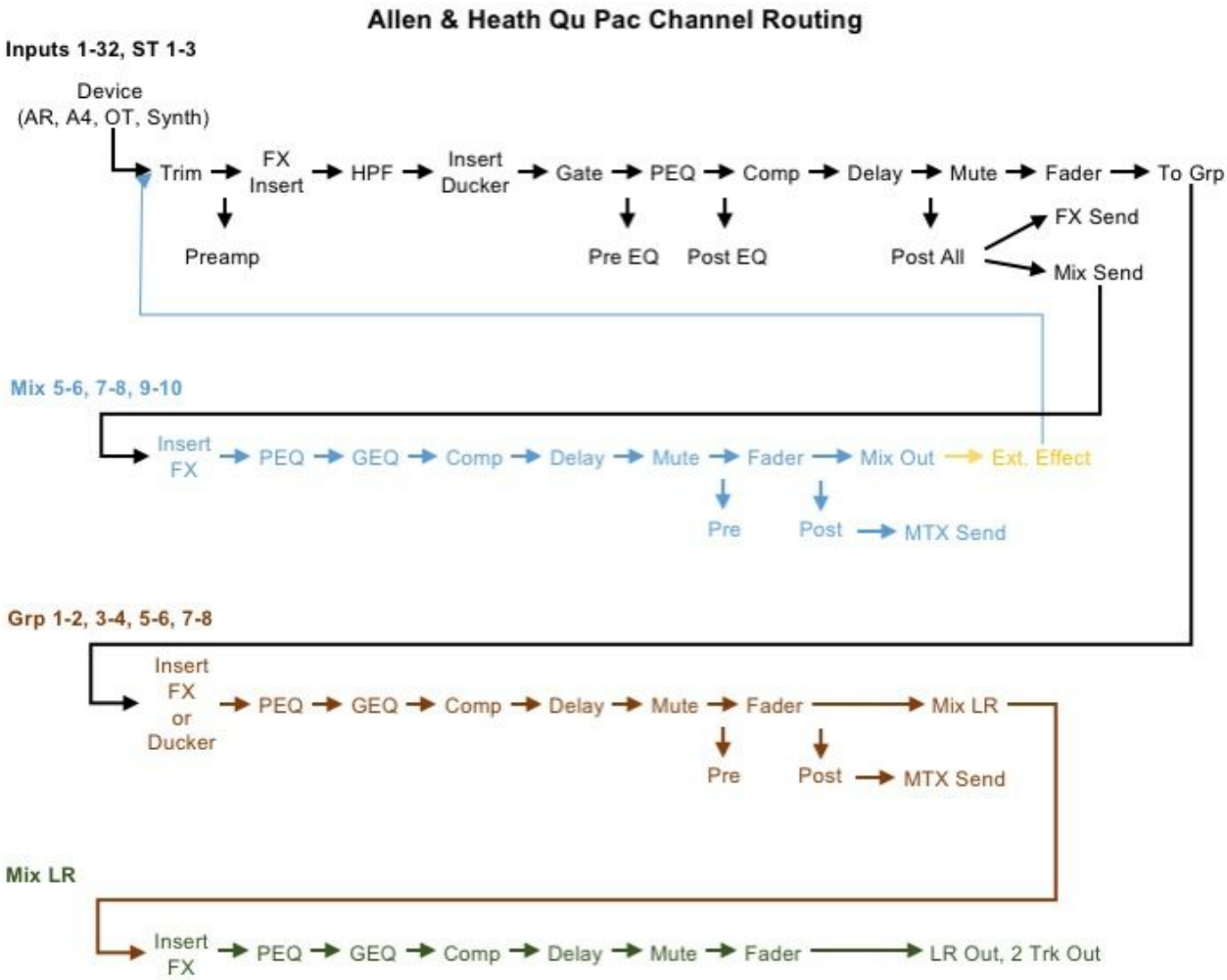
In the setup presented here, we assume the following devices to be connected to the mixer: AR, A4, OT, Laptop/DAW, OK, another keyboard instrument (“synth”) and a bass synth. Furthermore, two external effect devices are considered (here referred to as “RMX 500” and “H9”). The assignment of these devices to the channels of the A&H Qu Pac mixer is shown in the figure below.



A digital mixer offers various processing options, including effects and in case of the A&H Qu series even a spectral analysis (in addition to graphical representations of the EQing, effects etc). Another great feature is the possibility to assign arbitrary combinations of devices and channels to the internal and external effects. There are 100 “Scenes” available in which one can realize different setups and the softkeys on the front panel can be used to recall the routing with the single press of a button.

Using a Group that collects devices and feeds into the LR Mix

If scenes are used to realise routings to external effects, it is important to remember that scenes will also save volume settings. Programming scenes, one has to make sure that all levels (e.g of the LR mix going into the PA) are not changed in between, as otherwise volume jumps could occur when scenes are switched. For this reason one should consider feeding all device and return channels into group channel, which then goes into the main Mix LR channel, where we can control the overall volume, independent of scene changes.



Setting up the scenes with the channel routing sketched in the figure, we go through the following steps for the setup of the Qu mixer:

1. Press Setup > Audio > Make PAFL choices. Set InputAFL=Off so that one can mute an input but still listen to it over the headphone. Set LR to PAFL on.
2. Press Channel, select a channel, press Processing, name channel and consider linking two mono channels into a stereo channel (in which case you press again Channel and set the panning for the left and right channel).
3. Press Setup > Custom Layers > Assign channels for Sel keys. E.g. choose for Sel 16 “Mix LR” to have quick access to the main output.
4. Press Scenes > Safes > Mix > LR = Safe (the overall volume will not be changed through the recall of scenes).
5. Press Scenes > Global Filter > Block Custom Layer, Softkeys, AMM, Talkback. To ensure that the names of channels are not changed when scenes are recalled, block in the Global Filter In/FX and Out sections “Names”.
6. Press Scenes > Name a scene and recall it.
    a. Press Channel > Select as Current Mix LR. Go through all sources and only let Grp 1-2 be assigned (“On”) for Mix LR (and set volume).
    b. Select as Current Mix Grp 1-2 and
        i. For anything that should go straight to the main output (of the group and then to LR), switch the channel “On” for Mix Grp 1-2 (and set volume).
        ii. Switch also “On” those channels that are feeding back from some external FX device (here via Mix 5-6 and Mix 7-8).

iii. or anything that should be send out via Mix 5-6, 7-8 via an external device, set these sources to “Off” for Mix Grp 1-2.

c. Select as Current Mix, Mix 5-6 (7-8). Select those sources “On” that should be send out through Mix 5-6 (7-8) and ensure every other source is “Off” for Mix 5-6 (7-8).

7. Press Scenes and ensure the current scene is the one edited and the current scene is the one marked in orange. Store the scene.
8. Press Setup > Control > Set SoftKeys (e.g assign scene selection to softkeys).
9. Press Qu-Control > E.g. Have one button being the Master Fader for Mix LR to have quick overall level control and have one button for Master Mute of Mix LR to quickly mute the main output.

Rather than feeding all devices into one group, one may consider using several groups for similar input amping, glue compression and so forth. On the Qu Pac, four groups are available. Choosing a new mixer, I recommend downloading the User Manual of the mixer and to then map your setup onto the layout or diagrams that can usually be found in the pdf files of the manuals.

Routing Devices through the Qu-internal FX rack

In the previous section we fed external devices, and returns from external effect units, into the group Grp1-2 and Grp1-2 in turn was fed into the main out Mix LR. The reason to not go directly from the channels into LR was to keep the level control of the main mix to be independent of changes in scenes. We are now going to look at the routing channels through a reverb and delay placed in the Allen & Heath Qu internal FX rack. It is indeed possible to use the Qu Pac for live performance manipulation of sounds. This requires a few clicks to select the relevant track and routing and then the turning of a knob is used to dial in the effect. One can easily switch between effects using the routing screen during the live manipulation. I doubt that a DJ mixer is much simpler to use in that respect.

Setting the FX channel up there are numerous faders, mutes and On/Offs involved. We begin by setting up the Qu internal FX rack. Note that each scene can have a different effect rack. To set the rack up, press the “FX” button on the front panel and choose with the tab one of the four FX slots. Using the Fn button we can select effects from the library. We shall here consider a scenario with a delay in FX1 and a reverb in FX2.

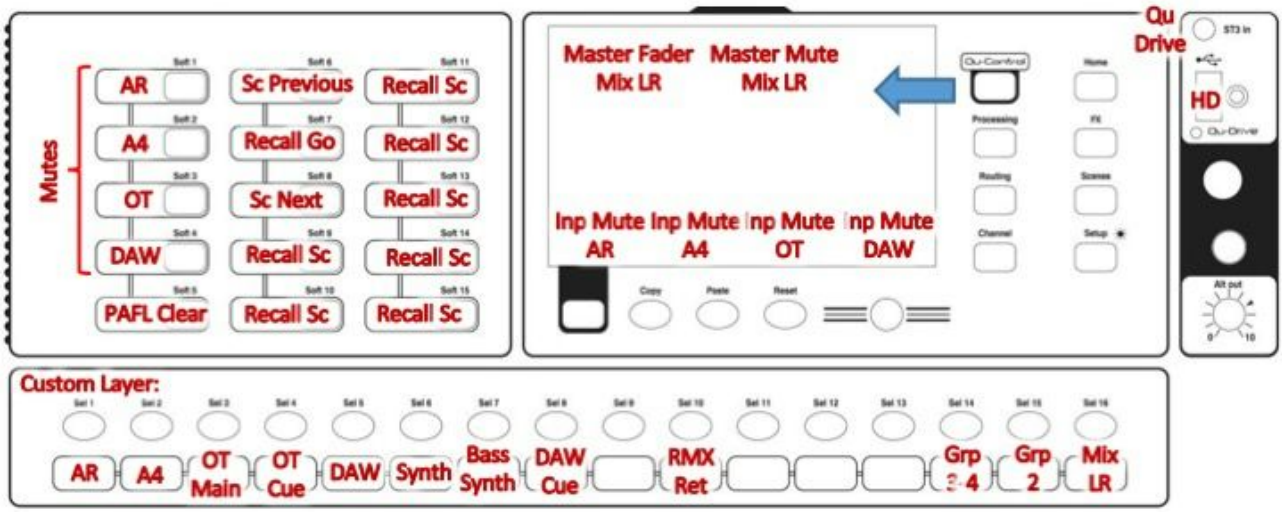
The most right tab toggles between the front and back panel few. On the back panel we need to decide for the patching of the FX. For delays and reverbs it is most common to use them in a send and return manner. To this end we choose “Mix > Return”. For the “Input” we choose the mix bus going into the FX unit. In our case we want the FX1 bus to go into FX1. For the reverb it would be FX2.

We now need to feed the FX returns into our group Grp1-2, which gathers everything before sending it off to the main LR mix going out to the PA. Press “Channel” and select for the current mix “Grp1-2”. Select the tab “ST, FX, Grp” and press FX1Ret. Switch the return channel on for Grp1-2 and set the level to 0dB. Do the same for the other FX returns as required. (No need to consider the “FX, Mix” tab at this point).

Next, we select a channel (Input channels 1-32, St1-3), pressing first “Channel”. We can select the channel by first choosing a tab (e.g “St, FX, Grp” to pick St2 where the AR goes into stereo channel 2), or having linked St2 (the AR) with the select button “Sel 1” in the custom layer, we press Sel 1 to quickly access the fader strip for the AR. Pressing the “Routing” button on the front panel, we are presented with an overview of the selected input to the mixes, FXs and groups.

Choosing the tab “FX Sends”, we select “Post” for at least FX1 and FX2 as this is most commonly done (the FX following the fader). We can now decide into which FX unit the AR should feed by pressing On/Off and adjusting the level in the same menu. There is no need for a router and the use of iPad and iPhone apps, they will not make things easier or faster in live performances.

For a live performance, the workflow is then to first select an instrument (input channel) using the select keys on the front panel (freely assigned via Setup > Control > Custom Layer). Next we press the Routing button and select the FX Sends tab (which would already be there if this was previously done). We have now in view the sends of our instrument to all four FX units, can adjust levels and On/Off very quickly. In the figure below is an example for the assignment of the custom layer select keys, the softkeys and the Qu-Control menu. The Qu Control menu allows us to have mute buttons, so that we could also turn the mutes on the softkeys into further scene recalls. In the middle row of softkeys we have two buttons to scroll through the list of scenes and one button in between to recall that scenes. With the Elektron machines, scenes on the Qu Pac stand for different routings to external and internal FX units. For example, pressing one of the soft keys, we can route everything coming from the A4 to an external effect unit. With 100 scenes available, there should be no shortage of routing options.



In the setup described we can use both, external and internal FX units, on the fly in a live performance. Something that is set up prior to a performance is the compression. The Qu mixers from Allen & Heath have compression on board, for all input channels, for groups and for mixes … plenty of options but in case of compression this may just be a little too much. To begin with one should focus on compression for individual channels if they are dedicated to a particular source (e.g just vocals). In the setup described here, the Elektron machines deliver from their tracks different things through their main outputs to the input of the mixer. The focus for compression would thus be on groups, for instance, to glue different elements together and of course on the main out LR mix for overall limiting and compression at the end of the chain.

Free Assignment with and without Scenes

An alternative to scenes is to freely route the devices to external and internal FX units. This will be done on the Routing screen, selecting the Mix Sends and FX Sends submenus and using the custom layer select keys to switch focus.

In Setup > Control > Custom Layer, assign the green custom layer buttons on the front of the Qu Pac to the inputs we wish to route (our drum synthesizer, sampler, synths, DAW etc).

Press the yellow Channel button and choose LR as the current mix. Select the FX external and internal return channels (which are usually not mapped onto the custom layer select keys) and make sure the returns are feeding into the LR mix (switch on and set to zero dB) but do not feed into any other mix. (In the setting above, using groups, the FX returns would not go into the LR but into a group).

Next, press the green Routing button, and use the select keys in the custom layer (or via the yellow Channel button) to select the input sources. Then go go through the Mix Sens and FX Sends menus to make the required FX settings on the fly. One could also store now different routings in scenes, or at least one scene that resets everything.

The idea was however here to operate in the Routing menu, live and in real time. We press a select key on the custom layer to choose an input, and in the Routing menu we can then easily route signals to the external and internal effect units, without changing assignments in groups. This is the advantage compared to the way things were done in the previous section. There it would not be so straightforward to change routings as one has to switch between the LR mix and the groups. The setup in the previous section would thus assume that one has all possible routings encoded in scenes and one focusses on selecting scenes.

What is described here, however, is to do things on the fly in the routing menu. It would then make sense to have one scene to reset everything as a kind of panic button if we can remember in the heat of the moment what is going on. But otherwise one would probably not use programmed scenes for the following reason: Because we have not used groups here, we have to make sure that the level of the main LR mix going into the PA is the same in all scenes and should not be changed during the performance as otherwise volume jumps occur.

Noise Sweeps with the Qu Mixer or RMX-500 and the Eventide H9

The Pioneer RMX effect engines and also the Allen & Heath Qu mixers provide noise generators. Feeding these into an effect pedal, like the Eventide H9, one is able to create interesting noise sweep and atmospheric elements.

In the setup described above, the Pioneer RMX-500 is feeding into linked channels 5 and 6. Normally the RMX is a destination for a signal but it has a noise generator on board, which works with no signal going into the RMX. We will just use the noise source going into the Qu Pac mixer's channels 5 and 6. We can assign channel five to a select key in the Custom Layer. Selecting the focus on Channel 5, we press the Routing button. We then ensure that the RMX return channel does not go anywhere else (eg the LR mix) and instead feeds into Mix 7-8, which is the send channel for the Eventide H9 Max effect pedal. The SpaceTime and Space algorithms work particularly well, specifically the following presets:

- F9 Spacetime Aphelion
- F13 Spacetime Shadows
- F23 Spacetime Outer Limits
- F24 Spacetime Star Sailor
- F8 Shimmer Quasar (Space)
- F13 Shimmer Amedeo-Bass Syth (Space)
- F1 Modechoverb (Space)
- F9 Blackhole Train Tracks (Space)

Turning the Scene FX knob on the RMX, we can create the sweep or atmospheric patch.

The procedure with the signal generator of the Allen & Heath Qu mixers is as follows. Press Setup, then select the Audio menu and then the SigGen submenu. To begin with ensure the level is set to -inf or very low value and/or the noise source being mute. Then select one of the noise sources on offer. White noise, Pink Noise and Band-pass Noise all work well. All that need to be done is to select in the same menu, on the right the destination, which is here Mix 7-8 for the H9 and then to turn the level knob. The same algorithms and presets listed above work.

At the end of using the noise generators, make sure the routing settings are removed. Note that switching to another scene will not remove the settings on the SigGen page! (I have one scene to clear/reset routings to some default but this does not work for this page).

Using the Octatrack as a Sample Player

The OT can be used as a sampler, looper, sample player, effect unit and mixer. If it is not used as a mixer but instead its main outputs are fed into another mixer, then the role of the Cue outputs is worth some consideration. See the other section on Track Organisation for ideas on how to organise sample chains on the OT so that the combination of them plays a song.

If, for example, you use the OT to host samples or sample chains, say one track providing a drum loop, another synth loops, another ambient elements, or some FX loops, then it can make sense to have two output routes available. In other words, you direct a track to different outputs, which then go into separate inputs on another mixer, where they can be treated in different ways with effects. In this case, make sure the cue level (press CUE to see the main level indicator switch to the cue level) is the same as the track level: Press CUE and use the Level knob to adjust the value.

Project Menu > System > Personalize:

“Cue focusses track”	This is just saying that if you cue a track, it will also be focussed. In many cases cueing a track, you also may want to adjust other settings for this track and now you save the task of focussing on that track.
“Cue mutes track”	This combines cueing with muting. If you use cueing to feed the cue output into another mixer (where you can do cueing/previewing etc), you may want to choose this option (which is not the default). Pressing Cue+Tx will direct the track to the cue outs and will at the same time mute the signal to the main outs of the OT. Ensure that in Project Menu > System > Audio the Cue Cfg option “Normal” is chosen.

Cued tracks have a flashing LED.

Creating Sample Chains for the Rytm and Octatrack

A sample chain groups one samples into one file. Both, the OT and the AR allow users to load a sample chain into a sample slot and then address individual slices. With the sequencer the slices can be parameter locked. On the AR, the STA and END parameters of the Sample page define start and end points for the slices played. On the OT, slices are played by using the STRT parameter in the playback menu. There are a variety of uses for sample chains. Some use them to create variations, having similar or related sounds in a chain, or they help saving ‘physical tracks’

on the machine by putting things that could otherwise be on different tracks, together into one chain (e.g. drum loops). Yet another use is to have single waveform samples in chain and thus “play” these samples. Using the pads and chromatic mode on the AR, one can then use the machine to play it like a synth.

The AR can only play mono samples, while the OT can play stereo samples. Preparing sample chains with a DAW, render chains for the AR at 16bit, 48khz and convert them into mono. For the OT, render chains at 44.1kHz (16 or 24 bit) and do not turn sample into mono. Something to keep in mind is that when using Flex machines, one should not forget the limit of about 80MB on the OT.

For the AR, the consolidated and exported sample chains will typically contain either 15, 30, 60 or 120 slices. Say we have only 13 samples to build a chain. We then create a sample chain with 15 slices, the last two being empty. More on this later. For the OT, the consolidated and exported sample chains typically contain 4, 6 8, 12, 16, 24, 32, 48, 64. The OT allows you to assign the slices to the trig keys, which is sometimes a motivation to use 16 slices on the OT.

The number of slices differ for the AR and OT. For the AR the number of slices must fit into 120 to have them spread out equally and for the OT this number is 128. These two numbers, 120 and 128, are important below when it comes to calculate the rendering length of the sample chain within a DAW.

Creating sample chains with a DAW

I use here Ableton but the principle will be the same for any other DAW. The most important idea is to equally space individual samples. If all samples in a chain have the same length, this is easy. If the length are mixed, identify first the longest length. Say, this is 4 bars, ensure than that any other samples with shorter samples will still occupy 4 bars in the timeline.

Warping: Depending on the type of samples combined in a chain, check whether the DAW should, or should not warp/timestretch samples.

When I assemble samples from purchased sample packs, these usually have fixed bar lengths and can be more easily combined in chains. With the BPM being not too different between the samples, warping them to a common BPM works fine.

Because samples do not have to have the same length if they are spaced equally and because the tempo does not really matter, one can increase the tempo to remove gaps between samples, so that they make up less memory. For chains created from purchased sample packs this will in most cases not be necessary. Because spaced out the individual samples equally, we do not have to identify start and end points of slices manually, or use the zero-crossing algorithm on the OT. The whole procedure is thus quite simple.

Fades: Especially for one shot samples, ensure that they play out well before the next slides starts. In some cases you want to turn off the option “Create Fades on Clip Edges” in the Ableton Preference menu (under "Record/Warp/Launch"), but sometimes these fades may come in handy but can then be created in the session and arrangement views later when required.

Grouping: If I create chains of similar items, e.g. risers or impact sampes, I group things with similar sounds or styles within the chain. If there is a sufficient number of samples with the same length I also keep these together, or even consider creating separate chains for different bar length as this simplifies the process in Ableton - no need to align the samples in a chain one by one in the

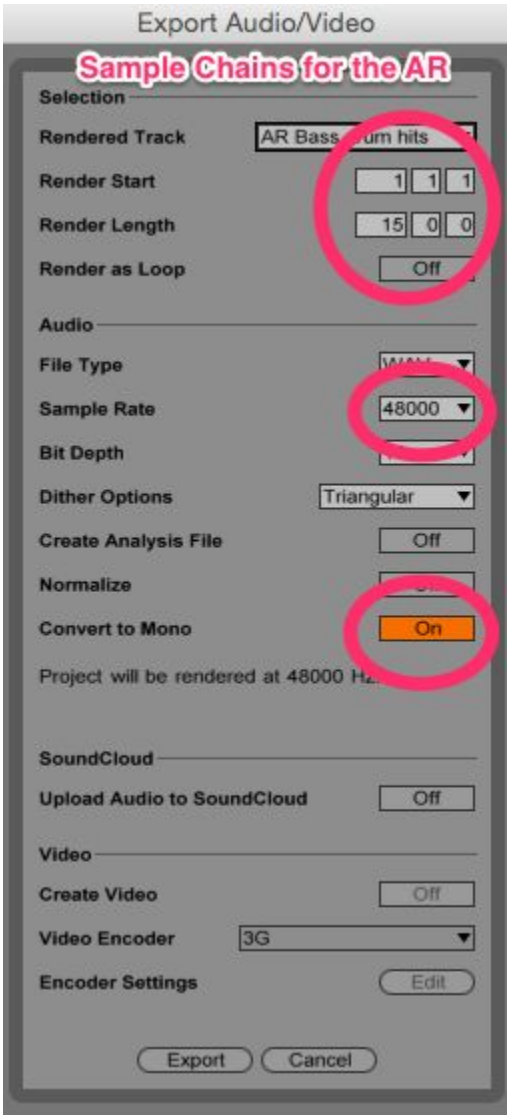
timeline but just drag and drop them from the session view into the arrangement view. (I first gather candidates from my sample packs in Ableton' session view, audition and group them.)

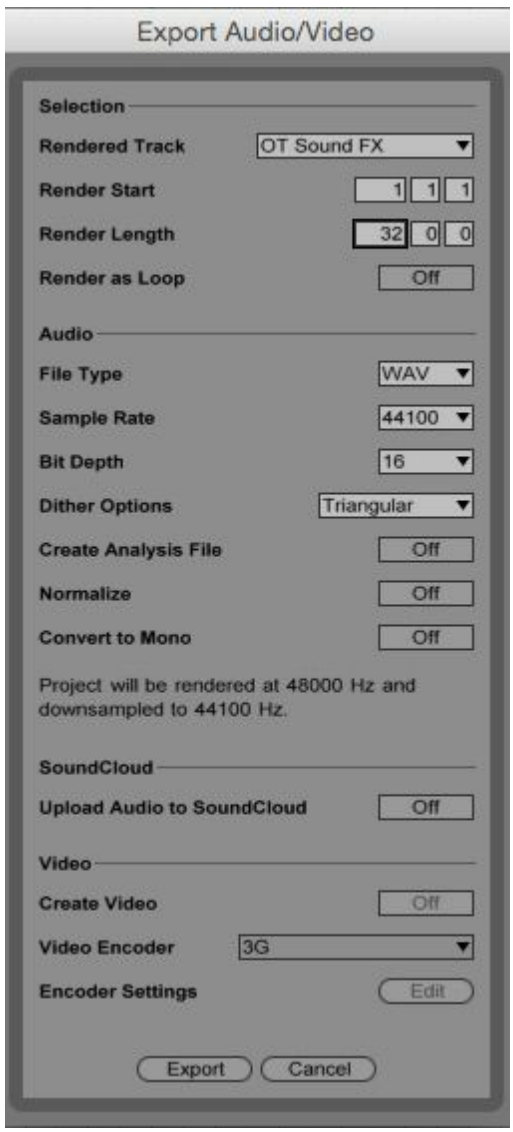
Editing: If the sample are not from some professional sample packs, consider some using an EQ to cut things off below 30Hz. In the Elektronaut forum one user wrote that he always checks a few key frequencies, and dips them if necessary : 40 Hz, 200 Hz, 5k, 13k.

Creating a sample chain in Ableton

Once a sample chain is assembled and equally spaced out across the timeline in Ableton's arrangement view, the samples are consolidated into a single file. Next, the file is exported. First decide upon the track that is exported. If the master track is chosen, ensure that no other tracks are playing and that unnecessary effects etc are removed in the recording chain. The file type is .wav, the bit depth is chosen, say 16bit working for both the OT and AR, and normally there is no normalization necessary so that we turn these options off.

For the AR, make sure the correct Sample Rate is chosen (48000) and the option "Convert to Mono" is chosen. Put a utility on the Ableton track with panorama set to 0% so that you can hear things in mono like they'll be on the Rytm. Very important is then the "Render to Length" option.





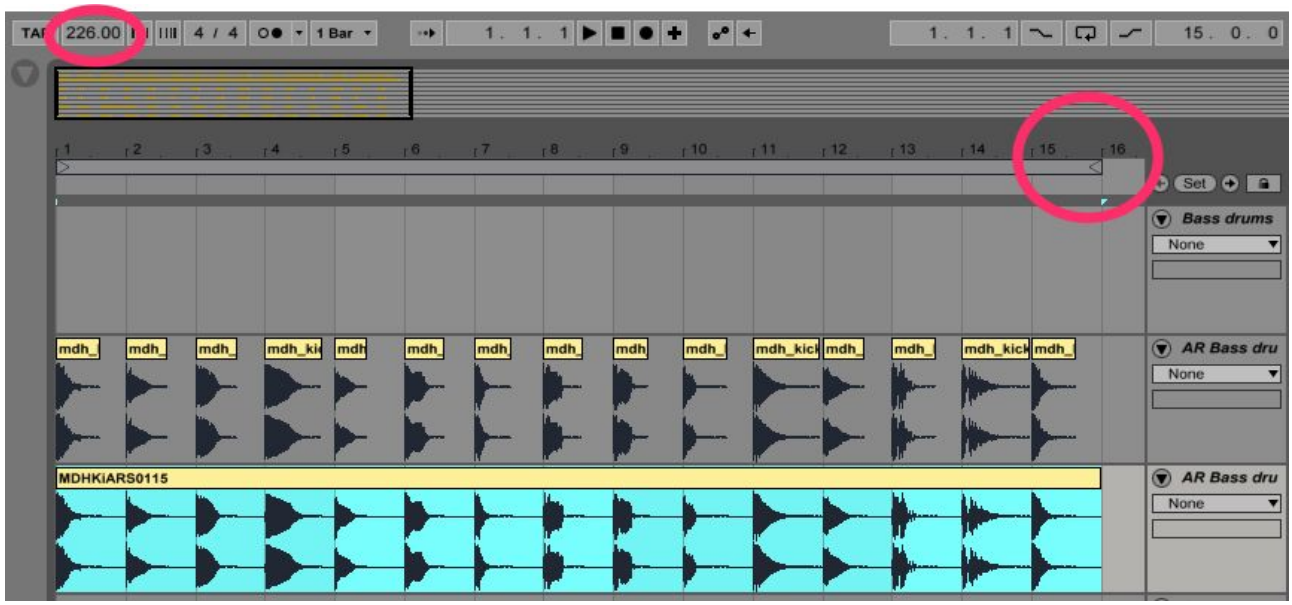
I first, turn off "Create Fades on Clip Edges" in Preferences -> Record/Warp/Launch and turn warp off on all samples. Also make sure there are no devices on the track you don't want to be their (eg filters). When exporting the files it is usually better to choose the individual track, rather than exporting what goes through the master channel.

Example I (AR)

We have 13 four bar samples that we combine in a chain. We consolidate the samples and during export we render to length 4x15=60 because 15 is the next higher length the AR can handle well with its splitting of samples using the STA and END parameters in the Sample menu. So, if 60 is the desired render length, we set 1:1:1 to 60:0:0 in the menu.

Example II (OT)

I have 9 samples, each 2 bars long, in the Ableton arrangement view only bars 1 to 18 will be filled. I then choose the next length that can be cut in the OT, that is 12x2=24 in the "Render length" option of the Ableton export menu. In the OT audio editor I cut the file into 12 slices, although only 9 slices will have sound.



Example III (AR)

I have 15 drum hits of different length but only a few are (unwarped) just a tiny bit longer than ½. In the arrangement view I place on bars 1 to 15 (see picture above). I then increase the tempo so that the longest sample does not overlap with the next one. Removing gaps reduces the file size (which in this case is about 10MBytes). I then mark the region from 1.0 to 16.0 (see image above) and consolidate the clips into one sample. Next, mark the track with the consolidated file (solo it) and then export that track and choose a render length 15.0.0 (from a start 1.1.1). On the AR, the first slices starts at 0 and ends at 8, the second slice starts at 8 and ends at 16 and so on, in increments of 8 until the last slice, starts at 112 and ends at 120. For a 30 slice chain, start points will be 0, 4, 8, 12, 16, etc. (120 divided by 30 is 4).

In my Ableton template, I have in the session view tracks for Impact Samples, Risers, Sound FX, Vocal samples, Vocal FX, Atmospheric samples, Synth samples, Musical loops, Top loops, and Percussion loops (see below under File naming for an explanation of what this includes).

In each session view track I gather groups with different bar lengths. I then drag and consolidate these groups into a new track in the arrangement view. If among the Sound FX samples in the track of the same name, a group consists of 2 bar Sound FX samples, I name that track in which I consolidate and from which I export the wav file "OT Sound FX 2 bar slices". It is then later easy to add sample and re-do exports if necessary.

Regarding the setting of track and mixer levels, creating sample chains from purchased sample packs, I usually have all levels set to 0dB.

Example IV (AR)

By having 120 sample hits in a chain it is rather easy to address the slices. With the cowbell on track CB12 being somewhat unpopular nowadays, this track could well be dedicated to sample play, hosting a sample chains with lots of percussive single hits. A typical wav file size for 120 short hits that are no longer than 1/16, recorded at 40 BPM would be 3,7MB. Here is a workflow to create such a sample chain:

1. Open a fresh Ableton live set and get rid of any return channels and any unwanted devices on your tracks.
2. Set all levels to 0dB.
3. Set the tempo to 40 BPM.
4. Go into the arrangement view and set the grid size to 1/16.
5. 120 hits a 1/16 th note, which takes us up to bar 7.3
6. Drag your samples (e.g. percussive hits) into the arrangement, each one must be shorter than, or shortened to 1/16 in length and lined up on the grid.
7. Once all 120 samples are lined up, duplicate the track before consolitating (just in case you have to go back …)
8. Consolidate the entire collection into a single file.
9. Set the “solo” button of the track before exporting.
10. Go to the export audio menu, choose track with the soloed consolidated sample. Choose a sample rate of 48000. Convert to mono, set to “on”.
11. Transfer the sample chain to the AR and be creative.

The time line in Ableton now matches with the STA parameter in the AR as follows:

DAW	AR
1	0
1.1.2	1
1.1.3	2
1.2.4	3
1.2	4
1.2.2	5
1.2.3	6
1.2.4	7
1.3	8

1.3.2	9
...	...

With 120 hits, the STA and END parameter are always one count apart. (Do however consider end points lower than the start points and see whether this sound good as well ;-) Going to the Amp page and setting the HLD and DEC parameters one can set these values (e.g. HLD somewhere between 20 to 30 and DEC 2 to 5) so that only the STA parameter needs to be changed to select a slice. This can be used creatively by changing the start parameter with a LFO, or in relation to a scene or performance macro.

Transferring the samples to the AR

In the Global menu, check in the MIDI config set Output to USB only, rather than using "MIDI+USB". This increases the speed for the transfer.

1. Connect the Elektron machine with a laptop via USB.
2. Set the directory to which files are to be loaded: FUNCTION+GLOBAL, go to the SAMPLES subfolder, use the LEFT arrow to select "UPLOAD HERE" from the menu.
3. Make sure the AR is receiving data over USB: FUNCTION+GLOBAL, select MIDI CONFIG submenu, to to MIDI PORT CONFIG and set INPUT FROM to USB.
4. Open the Sysex C6 utility on the laptop.
5. In the Config settings, select the AR as MIDI IN and OUT, tick the boxes for SDS Handshake, Use Extended SDS and Send SDS-1UW name.
6. Drag files for transfer into the C6 file window.
7. In the C6 file menu, the files for transfer need to be marked (!)
8. Press Send and wait ….
9. If on the AR the sample is to be linked to a particular track, first select the track with TRACK+PAD, double click SAMPLE and select an empty sample slot with the data entry knob D.
10. In the Global menu, select the sample and make sure it is loaded to the project. The sample will now be loaded to previously chosen track.

Elektron provides a tutorial video for transferring samples and packs, which is identical to the info above but they explain also the creation of a project and the transfer of "proper" sample packs:

https://www.youtube.com/watch?v=MliQZYlGKPU

A sample chain with 15 kick samples can reach about 10MB. Per project, the sample memory is at 16bit, mono and 48kHz limited to 64 MB. 30 slices, each 16 bar long pad sounds, will generate a wav file of about 90MB, which will not work. For short hits, like hats, make sure to remove gaps between the hits so as to reduce the file size. (For claps and hats my file sizes are typically between 1,5 and 2MB). As shown in the figure above, in Ableton this is done by increasing the tempo. The BPM in the DAW do not matter at all for using the samples on the AR, all that matters is that the samples are equally spaced.

On the AR, check not only the Sample menu but also the Trig menu and in particular the SMP and ENV settings. The samples will also go through the filter, so that the settings in the Filter menu will influence how the samples in the chain are played.

Selecting slices/hits within the sample chain on the AR

For the AR: If you're working with a chain that has 60 slices, then you'll want to set start points at 0, or 2, or 4, 6, 8 etc. and end at 2, or 4, or 6, 8, 10, respectively. Each slice is 2 divisions (120 divided by 60 is 2) If there are 30 slices in a chain, then 0,4,8,12,16 etc for start points, with end points 4 slices after respectively (120 divided by 30 is 4) For a 30 slice chain, start points will be 0, 4, 8, 12, 16, etc. For a 15 slices chain slice 1 has the start 0, end 8; slice 2 starts at 8 and endpoint 16, etc.:

Slice #	Start	End
1	0	8
2	8	16
3	16	24
4	24	32
5	32	40
6	40	48
7	48	56
8	56	64
9	64	72
10	72	80
11	80	88
12	88	96
13	96	104
14	104	112
15	112	120

Someone kindly provide a “calculator” for this: http://bit.ly/rytmcalc

Invert these values for reversed samples. On the AR, I had to choose the starting point at 9 to get the reverse (not 8).

The Elektronaut forum member AdamJay recommends to render 16bar loops for the AR, by turning them into two 8 slice loops, as 120 is divisible by 8, and then use parameter locks to change from one loop to the other.

Check Example IV above with tips on how to simplify addressing slices.

Handling sample chains on the OT

Transferring .wav files to the OT is very easy. Select the USB mode in the System menu and drag files across into the AUDIO directory of a set.

On the OT, there is not much difference whether one uses a Flex or Static machine. As “secretmusic” wrote in the forum: "the only really obvious difference is that you are streaming static samples from the card, so there is no limitation on the size of them (aside from the size of your card, obviously). So if you're doing 64 slice chains of ambiances, you will HAVE to use a static

slot, as the OT simply would not have enough RAM to load the whole chain. In general, I try to keep the RAM free for resampling. So I favor static slots, especially since i tend to use long chains that would fill up the RAM very quickly."

Select a track with a Flex or Static machine assigned to it. Load a sample into the sample slot list by pressing FUNCTION+PLAYBACK. Either select a machine or press the RIGHT arrow to go to the sample slot list. To load a new sample from the audio pool to an empty sample slot, select the sample slot and press ENTER/YES. The file browser will be opened. If a sample slot contains already a sample, press the right arrow key to access the audio pool without assigning the selected sample slot to the machine. Turn the new chain into the active sample for the track and press FUNCTION+BANK/EDIT to open the audio editor. Select the Slice submenu by pressing the Amp key. Press again FUNCTION+BANK/EDIT and select the “Create slice grid” option and choose the appropriate number of slices. If the chain was created in a DAW with equal spacings between individual samples, say no to “zero crossing align markers” (divides the chain into pieces of equal length). Next, consider creating linear locks for the slices by pressing FUNCTION+BANK/EDIT again (in the slices submenu) and choose “Create linear locks”. Now the slices are locked to the trig keys. Make sure SLIC is set to ON in the Playback Setup menu (if linear locks are created, this will be done automatically).

Check the ATTR submenu of the audio editor. Check whether LOOP MODE should be on or, depending on the nature of the slices and how you want to play them. If loop markers should be respected (ie slices should loop), set this to ON and ensure that you set loop markers in the SLICE menu (this can be done quickly by turning knob B slightly to the left). Note that if your chain contains samples that should be looped, they should have all the same length. If a slice is shorter than others, one cannot loop this slices (looping is from the Loop point to the End point, which would then be a quite gap).

Select the appropriate Timestretch option. NORMAL is an algorithm that suitable for most material. Note: If the TSTR parameter in the FLEX/STATIC PLAYBACK SETUP menu is set to AUTO, different timestretch settings can be applied to different samples used in a track.

The ORIGINAL TEMPO is the calculated BPM. Change this to the BPM that you know from creating the chains in the DAW. Press FUNCTION and turn the LEVEL knob for this. Watch the TRIM and LOOP LEN parameters changing to the value chosen for the render length in the file export menu of the DAW.

Next check the QUANTIZED TRIG option to choose an appropriate mode. DIRECT will make the sample play immediately once it is triggered.

Now go to the FILE submenu and save the sample settings. Another thing to watch is the GAIN setting in the ATTR submenu of the Audio Editor. For samples loading to tracks with Flex machines, the gain is apparently set to -12dB by default.

To hear the samples play, make sure that the track is not muted. In SLICE TRIG MODE (FUNCTION+DOWN ARROW), the slices can be conveniently played back with the trig keys. If each slice in the chain is a loop, set LOOP in the Playback Setup for the track to ON. However, this then applies to all samples linked to that track. If set to AUTO, the settings can vary from sample to sample. In the ATTR submenu of the sample editor, one can set the LOOP MODE for the individual sample to ON but then one also has to set loop points for the slices: Go to the SLICE submenu and use the arrow keys to select a slice. Turn knob B to add a loop point, which should

be then moved right to the start, above the S(tart) point. (Turning the knob for the first time to the left, does the job in one touch).

Note that a pattern in the sequencer consists of four pages. If the pattern scale is set to 64/64 1x, each trig will correspond to a 16th and four pages to 4 bars. If a sample/slice is 8 bars long, setting a sample trig, will retrigger the sample after 4 bars.

Playing long samples/slices on the OT

Assume a scenario in which a 8bar slices is to be played with the scale setup being 64/64 1x, so that each of the 16 trigs is a 16th note and hence the four pages represent four bars:

1. Enter Grid Recording mode and enter a sample trig by pressing the first trig key.
2. If the 8 bar sample is a slice in a chain, parameter lock the slice by pressing and holding the TRIG key and select with STRT (knob B) the slice that is to be played.
3. Start play of the pattern and before the four pages are completed, press TRIG+ENTER/NO twice to turn the sample trig into a trigless lock. Trigless locks are indicated by half-bright green trig LEDs.
4. If LOOP on the track's Playback Setup is set to ON, the 8 bar slice will be looped. However, there may be a click at the end of the 8 bars, which one does not have if LOOP is set OFF or AUTO (and the LOOP MODE of the ATTR submenu for the slice is OFF or ON) and if one then switches forth and back between a sample trig and trigless lock. Setting Loop points in the SLICE menu of the sample audio editor (turning knob B to the left to create a loop point covering the full length of the slice) and setting in the ATTR menu LOOP MODE to ON (LOOP mode to AUTO in the track's Playback Setup menu). Ensure that you are outside grid recording mode to open the track's Playback Setup menu with FUNCTION+EDIT.
5. Switching from trigless lock to sample trig: Press the TRIG key of the trigless lock to turn it back into a sample trig.

Another approach is to use one-shot trigs, which however also requires re-arming. A free running sample is yet another option: (1) Select the relevant track by pressing the TRACK key. (2) Outside grid recording mode, press FUNCTION+BANK/EDIT to open the Pattern Settings Menu. Use the DOWN arrow key to get to the relevant page for the track of choice and tick the PLAYS FREE option. (3) The track is now disconnected from the sequencer. When PLAY is pressed, the track will not start playing. Instead, use Trig keys 1-8 to trig disconnected tracks. This however requires a trig to be set (which will be re-trigged after four pages …). Alternatively press TRACK+PLAY to play the sample and TRACK+STOP to stop it. (4) Different slices can now to selected with the STRT parameter. (5) With LOOP MODE set to ON in the ATTR menu of the slice/sample and LOOP in the Playback Setup of the track set to ON, and no loop points set (using knob B in the SLICE menu) the sample/slice will loop. (Ensure that you are outside grid recording mode to open the track's Playback Setup menu with FUNCTION+EDIT). Compared to the manual approach described above, I have a slight click when the slice loops. Setting a loop point for slices (turn knob B to the left to set one that covers the whole slice) and then choosing the option AUTO in the Playback Setup for the track, there is no click while looping! Note that in this case changing the STRT parameter to select a different slice, will only come into effect by triggering the machine again (with TRACK+PLAY). Monitor progression through sample/slice by pressing TRACK+BANK/EDIT and go to the SLICE submenu of the audio editor. Slices can also be selected with the trig keys by going into the Slices Trig Mode (press FUNCTION+DOWN arrow key, outside the editor).

Finally, a suggestion from 'Sternenlicht' in the Elektronauts forum: Creating a 16 or 32 bar long atmosphere in a DWA, on the OT one can use the audio editor to apply a slice grid of 16 or 32

slices. Now you can lock the slice position to a scene, so scene one, gets slice one, scene two slice two and so on. The advantage of this, is that you can sequence now with the *arranger* the used scenes, and therefore you can control which part of your atmosphere /pad or long melodic part is played with the lockable scenes. With this approach you can trigger longer samples, distributed over several patterns.

A Strategy to Name Files

Creating sample chains for the AR and OT, it makes sense to have a naming scheme. For the OT only ten characters of the filename are shown. By default the first and last five characters. In the preferences ("Personalization") one can change this to the first and last ten characters. To differentiate in the menus sample chains, I have devised the following scheme that works well for most menus, providing all the information necessary to identify file names. With the displays being limited to the length of names shown, one could otherwise have two different filenames that appear identical in the reduced displayed version.

An example would be the file name "Imp01ARS0413.wav" telling me that the chain gathers impacts, including crashes etc. The file number is 01 and the chain is created for the AR (this allows me to keep chains mixed in one folder of the computer with no risk of mixing chains for the different machines). In this example, each slices is 4 bars long and there are in total 13 usable samples in the chain. From this number, I also know that on the AR, I must choose the STA and END parameters in the Sample page with respect to 15 slices. If this would be a chain for the OT, I would select slices by selecting the STRT parameter between 1 and 16. (Always going to the next higher number of slices the machine handles, eg 2,3,4,6,8,12,16,24,32,48 for the OT and 15, 30, 60, 120 for the AR).

The general naming scheme I use is thus: 11122:33:XXXX …. XXXX:45566

1. Kind of loop:
    - Voc: Vocal samples
    - VoX: Vocal FX samples (incl glitched sounds)
    - Imp: Impacts (e.g. crashes)
    - Ris: Risers
    - Ble: Bleeps
    - Mus: Musical loops containing multiple elements (e.g. synth & vocals)
    - Atm: Atmospheric samples (e.g. sweeps, pads)
    - SFX: Sound FX (incl sweeps and impacts)
    - Syn: Synth samples (incl chords, stabs, bass)
    - Top: Top loops (incl high frequency and sparser material)
    - Per: Percussion loops (incl congas, claves etc)
    - Dru: Drum kit material (incl kick, tom, bass, HH, claps etc)
2. File number (distinguishing chains of the same kind)
3. Elektron machine the chain is created for:
    - OT: Octatrack
    - AR: Analog Rytm
4. Type (the way it is likely to be used):
    - L: loops
    - S: Single shots
    - M: Mixed loops and single shots
5. Length:
    - ##: bar length. In case of kicks, the length may be ½ bar, for which I then write "12"

6. Number of samples added to the chain. The chosen number of slices on the OT will then be the next higher option for slicing available on the OT (2,3,4,6,8,12,16,24,32,48) or the AR (15, 30, 60, 120).

Other codes that could be used are “D/W” to distinguish “dry”and “wet” recordings and the musical key of the slices. Or include the BPM and notes to whether slice samples were warped, or not.

Creating sample chains for drum kits, with chains for kick, hats, claps, percs, snares etc, I use the first three letters to give the drum kit a name (eg. “MDH” for Melodic Deep House, or “SM56” to identify the source of the samples). I then use two letters to identify the kind of hit, eg Ki, Ba, Sn, Ha, HH, Pe, Cl, etc. This is followed by “AR” to indicate for which Elektron machine the chains was rendered. The last two digits tell me how many slices there are in the chain.

Note: The last two digits indicate the actual number of slices in the wav file. The OT audio editor allows slicing for 2,3,4,6,8,12,16,24,32,48 slices. The export from Ableton is then done to the next highest number the OT can slice for. Say there are 19 slices in the wav file, we slice it on the OT into 24 slices. This makes it necessary to export the correct length calculated as follows: Say, the samples (which will become slices) are 8 bars long and we have 19 samples, we then export in Ableton from 1:1:1 to 192:0:0 because 8x24=192. If samples with different tempos are combined (using warping to a common BPM), make sure to check the ATTR submenu of the Audio Editor and enter the correct BPM so that the Loop Len in bars is correct (in the example, LOOP LEN should be displayed with 192).

Searching for “sample chains” in the Elektronaut forum, various people are also offering sample “packs” for use with the OT and AR.

Sampled Synths

Highly recommended are the discussions in the Elektronaut forum on using single waveform samples to create entirely new sounds from samples. On the AR the pad and the chromatic mode lend themselve for this very well. For the OT, one could sample different pitches (say, starting at C and then D#, F#, A, C …) and by taking 16 slices, these can be played with the trig keys. Using parameter locking with such sample chains, the Rate, Length and Pitch parameters are then to play with.

Reference

http://www.elektronauts.com/topics/view/1099/32665/page:3#32665

http://www.elektronauts.com/topics/view/12846/106005/page:1#106005

http://www.elektronauts.com/topics/view/12816

http://youtu.be/QP-KFpfSebM

http://patcharena.com/tag/how-to-use-octatrack-sample-chains/

http://youtu.be/aW_m04bLOk8

https://www.youtube.com/watch?v=fiTS7hqnElQ&index=9&list=PLnU8PFTEF_jGI7GIE-7nse-OmVdIF-tlH

http://bit.ly/rytmcalc (a sample slice calculator)

https://soundcloud.com/groups/elektron-octatrack-sample-chains

Tips for the Elektron Analog Four/Key

LFO Settings

In the Subsection “Working with HiHats” of Section “Tips for the Analog Rytm”, I provide an example to learn using LFO settings.

The following table summarizes some typical AF/AK LFO times (in beats):

SPD	Multiplier (MUL)							
	1x	2x	4x	8x	16x	32x	64x	128x
1	128	64	32	16	8	4	2	1
2	64	32	16	8	4	2	1	0.5
4	32	16	8	4	2	1	0.5	0.25
8	16	8	4	2	1	0.5	0.25	0.125
16	8	4	2	1	0.5	0.25	0.125	0.063
32	4	2	1	0.5	0.25	0.125	0.063	0.031

To get a LFO shape to cycle every bar, we set MUL=128 and SPD=1, or SPD=4 and MUL=32 and so forth (MOD=FRE, the LFO running continuously, never restarting or stopping).

Editing Performance Macros

With four tracks and up to 10 performance macros per pattern, there are various options how to organise and name performance macros. If one uses ex

Encoding performance macros, probably the most common mistake I keep repeating is to press a knob and thereby change the track to which the change should apply. For those macros for which I

want to manipulate only parameters of a particular track, I therefore first press all knobs to have that track selected (and possibly the FX track).

During performance macro editing, the level knob gives us a simulation of what the macro will give. I frequently turn this knob up, to focus on the maximum change. I then choose a lower knob that will dial in a particular change and turn this one also far up. The reason is that when I then select with the corresponding upper knob what parameter I wish to change, I immediately hear the effect. Scrolling through the list, I will thereby “audion” the effect that parameter will have.

Whenever you are happy with what you did with one knob, save the kit to ensure that if you later get lost and have to reload the kit, your effort is not lost. For the naming of knobs, I put the track number(s) that affected first (to easily see which knob to choose) and the write either “BI” or “LI” to know whether this knob will be moved from middle position, or whether it is one that starts from zero, turning it just clockwise to get the effect.

For live performances, the Performance Mixer and Performance mutes are very useful. For muting in the performance menu (press the Perf key twice), do remember to turn OFF grid recording mode as you may otherwise remove trigs from your pattern, rather than muting tracks!

Sound Design Tips

The presets, or sound packs available from the Elektron site are good places to start learning the design of sounds and their integration into pattern, including the use of parameter locks.

Loading free or purchased sound packs onto the A4/AK, I recommend to take note of the sound bank to which they are stored, so that you later remember that the sounds of pack “XYZ” are stored in G001 to G128. There is otherwise later not way to know from which pack a sound originated.

The presets come with pattern, while most sound packs only provide sounds. I therefore first started with exploring the presets by copying them into a new project. The presets occupy banks A to C, so that I start with bank D and patterns D01 to D16 for my own explorations. I then go forth and back to see whether I like to copy a pattern, together with the kit and its sounds (using copy and paste outside grid recording mode, that is, FUNCTION+REC for copy and FUNCTION+STOP for paste), or whether I just like a particular track, its trig pattern and its sound. The track’s trigs can be copied with FUNCTION+REC (in grid recording mode!) and then the track’s sound is copied separately by pressing the Trk button together with REC and STOP. “Cutting” individual tracks sounds out of a kit, it can happen that FX settings and sound settings (e.g polyphony) differ, so this does not always work perfectly but is often a good starting point, nevertheless.

When saving a kit, the parameter page settings of the synth tracks (those settings that constitute a sound) are saved together with the kit. However, do note that if you then tweak the sound, changes to the track sound will not affect the loaded sound, only the kit. For this reason it is possible to have in different pattern and kits sounds that have the same name but sound different. To ensure that a sound you like is not further changed, go into the Sound Manager and use the toggle option to write protect it.

Several pattern can use the same kit but then, if you make changes to a kit somewhere, these changes will also apply to the other pattern that are linked to that kit. For this reason, I copy a pattern from the presets to another location and then save for each pattern a new kit, pattern D05 is then linked to a kit with the name D05.

Starting your practice with presets, copied or renamed into a new project, the sound pool of the active project is likely to be full to the maximum of the 128 sounds that can be stored in the sound pool. Sounds can also be kept in the +Drive but only with the sounds in the sound pool of the active project, can be p-locked on the sequencer. Sounds in the +Drive are organized into 16 banks, A to P, each taking up to 256 sounds.

Searching for sounds is best done with the Sound Browser (FUNCTION+SOUND), with is faster because it does not show empty sound slots. Double pressing a Trk key will also open the Sound Browser. The Sound Manager is used for tagging and organization, although this is somewhat tedious on the A4. In the sound manager you can also load sounds from the +Drive into the active project's sound pool (and vice versa). Sounds can here also be saved and renamed.

A difficulty is the role of the FX track. Since the FX tracks applies to all tracks, one has to go forth and back to find settings for the FX track parameters that suit all tracks. To this end, it is important to note the following: When selecting the FX track, the track LED of the previously active track will become half bright. This indicates that the keyboard keys will still trig notes on this track. This allows you to hear how parameter changes affect the previously active track. Press Trk5 again to make the FX track fully active.

I have myself not the experience to provide tips for systematic sound design with the A4/AK. Our fellow Elektronaut "Burn Cycle" has produced a range of sound packs and has kindly shared the followed advice on the Elektronauts forum (see also his YouTube channel "Burn Cycle Music").

1. Make sure Performance knobs are at zero as otherwise the knob settings influence the auditing of sounds in the sound browser.
2. Deactivate unison to begin with, and most likely poly too. The same for FX. These things are the gravy for later on. For a bread and butter +drive sound, you want the sound not to be dependent on a kit's FX settings.
3. The button combo TRACK+COPY and TRACK+PASTE can be handy to copy the sound to other tracks before tweaking on. It's sort of a checkpoint, so you can have up to three checkpoints and one track where you are tweaking along. This allows you to backtrack when things go wrong or get interesting without having to immediately save/load a sound in the sound manager.
4. Try to determine the filter mode early on. Consider LP2, then LP1, then BP. The HP is more complicated when it comes to filter cutoff/res.
5. Turning osc levels beyond 50 will create a bit of distortion.
6. Turning overdrive to the right will create fuzz, to the left will just boost the signal.
7. Using PWM and osc sync makes quite a difference, the envs too of course. A cheat sheet for the envelope shape is given below.
8. Some chorus like effect or movement or fattening can also be created using pwm.
9. For more impact, consider using the osc retrig (trig) option in the Osc2 submenu. Think basses or percussion sounds.
10. Bend depth and slide can create unexpected results, without having to use up a env slot for pitch.
11. Filter tracking is probably a good idea for sound that will end up as "arp sounds". This way higher notes in the arp will be brighter and add interest to the sound.

Reading the User Manual's section on oscillators, filters and envelopes is essential reading for the sound design. In this case, the manual provides more than just core definitions. Take also note of the

hint in the manual on how to “programme” triadic chords. For the envelope shapes of the A4/AK the following info helps (see manual):

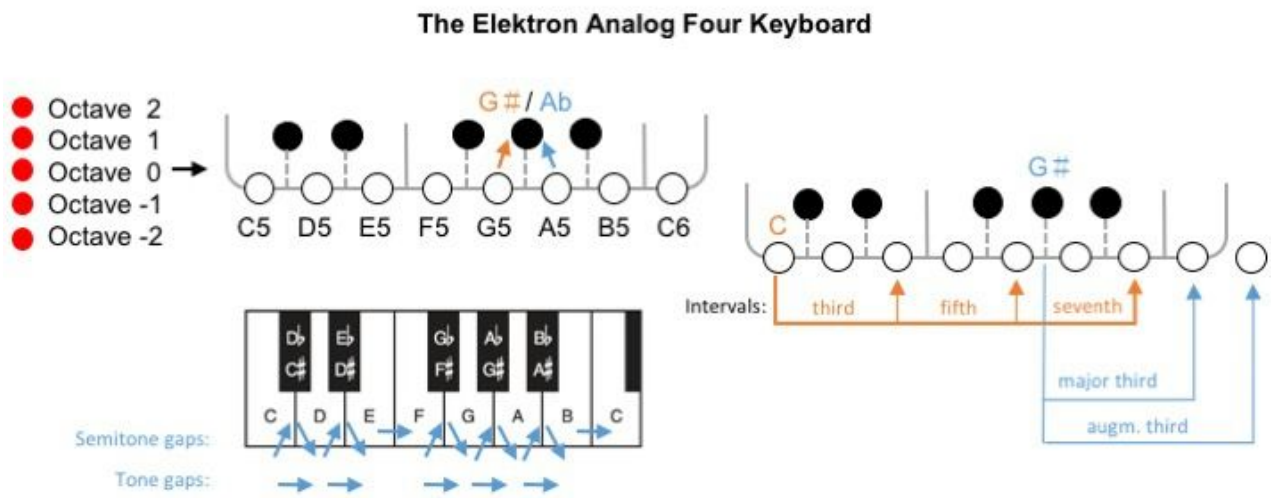
0-1	Linear attack and decay/release. An envelope shape suitable for controlling the filters if linear attack/decay/release sweeps are desired. When used as an amplitude envelope the decay and release phase appears to drop quicker towards the end, making it most useful for sounds that should fade out without a tail.
2-3	This can be considered the standard envelope shape. Decay and release fall quicker in the beginning of their phase, behaving more snappy and – just like acoustic sounds tend to do – leaving a tail instead of ending abruptly. This envelope shape is useful for creating distinct sounds, for example kick drums and basses, but also lengthier sounds like pads.
4-5	Exponential attack, linear decay/release. This shape makes the envelope rise quicker and quicker. This envelope is suitable when for example creating sounds appearing to be played in reverse or for sounds requiring a sudden attack.
6-7	Exponential attack, exponential decay/release. Since our hearing perceives loudness exponentially, this shape is primarily useful as an amplitude envelope for very long sounds that are supposed to fade in and fade out at a very constant rate. When used as a filter envelope, very clicky, whip lash-like sounds can also be obtained by using this shape.
8-9	Full attack, linear decay/release. The envelope will immediately rise to the full envelope level and stay there for the whole attack phase. The ATK parameter sets the duration of this attack phase. The envelope shape is useful as amplitude envelope for certain percussive sounds that need a punch at full volume followed by a quick decay, or for other sounds that should contain a full body before being entering the decay phase.
10-11	Full attack, exponential decay/release. The envelope behaves like the aforementioned shape 8-9, but decay and release will fall in a more snappy fashion, ending with a tail. This makes it even more useful for percussive sounds.

Reference

http://www.elektronauts.com/topics/view/19285/154031/page:1#154031

Finding your Keys

In the chapter for the “Dark Trinity” I presented a live performance setup that involves the OT to play loops. The idea is that when we wish to change pattern or any settings on the AR and/or A4, we “move over” and play some loops from the OT, giving us time to adjust things on the other machines. Having changed the pattern, we can then begin introducing new elements, to eventually fade down on the OT loops. If any of the loops or samples used have bass or melodic elements, they are set in a particular musical key that determines the character. If we are not to complement with these loops elements on the AR and A4, we need to make sure that our sounds are in the same key and progressing through our set we should ensure that the elements match.



The information required to match elements in a set can be found from the *Circle of Fifths*. The table below maps out the Circle of Fifth. Moving through a set, we would either go down through the rows, or jump between minor and major keys. Moving this way, the elements of the music fit together, sound good together. I have also included the notation used in DJ software (Traktor and Mixed In Key), which have algorithms to detect the key of a track. Their notation is quite simple in that we just progressive upwards and downwards in the numbers. Well, of course there are no rules, just common approaches and one should really do whatever you and others like. In DJing it can make sense to jump in certain steps and between minor and major to create a certain energy or mood. The mood and brightness, the feeling of chords and chord progressions are really fascinating topics. All I summarize here are few essential things that help you to get your sounds on the A4, AR and OT to match better.

The two main groups of keys we need to be aware of are major and minor keys, where for the minor keys we focus here on what is called “natural minor” (harmonic minor and melodic minor being further variations). It is for this reason that we have different, simplified notations :-) The table below summarizes them all.

Minor			**Major**		
Camelot	*Open Key*	*Scale*	*Camelot*	*Open Key*	*Scale*
1A	6m	Abm, G#m	1B	6d	Cb, B
2A	7m	Ebm, D#m	2b	7s	Gb, F#
3A	8m	Bbm, A#m	3B	8d	Db, C#
4A	9m	Fm	4B	9d	Ab, G#
5A	10m	Cm	5B	10d	Eb, D#
6A	11m	Gm	6B	11d	Bb, A#
7A	12m	Dm	7B	12d	F
8A	1m	Am	8B	1d	C
9A	2m	Em	9B	2d	G
10A	3m	Bm	10B	3d	D
11A	4m	Gbm, F#m	11B	4d	A
12A	5m	Dbm, C#m	12B	5d	E

Let us consider now assume that to begin with in our set we have a loop on the OT that we know is in G#m (G sharp minor). (Most educational material on musical theory will start with C major, which is why I deliberately choose a less convenient example here). If you purchase samples, the labelling of the files will usually not use the #. The table tells us that as we progress through our set, we could move from G# to D#, or from a minor key, to a major key, specifically B. In musical terms, G# is called the *relative minor* to the B major key and the reason why we can so easily move between these keys is the fact that they share the same notes. ("major" and "minor" define the *mode* or type of scale).

Let us then look at the scale of notes that are linked to the key of G#m. Focusing on one key of the keyboard, say the black key between the white keys for G and A. Looked at from G, the black key is referred to as G# ("G sharp") and looked at from A, it is called Ab ("A flat", in the literature also denoted as A ♭). Constructing a scale from G#, this can therefore be presented in two ways, using either "flats" (b) or "sharps" (#):

Notes in the scale of G# minor (Ab)								
G#m	G#	A#	B	C#	D#	E	F#	G#
Ab	Ab	Bb	Cb	Db	Eb	Fb	Gb	Ab

Using a DAW, like Ableton and the Push as a keyboard, the notation to get used to would be Ab.

Chords and Chord Progressions

Knowing from a sample loop the key our music should be set in, we can look at the notes in the scale of that key. So while we are in G#m, we play the notes listed in the table above, and as we move through our set during a live performance, we could change the key from G#m to B, or D#m. Looking at the notes in the scales of those keys, we can see why this strategy works - the different keys share notes, which is why the different keys and different scales fit together:

G#m:	G#	A#	B	C#	D#	E	F#	G#
B maj:	B	C#	D#	E	F#	G#	A#	B
D#m:	D#	E#	F#	G#	A#	B	C#	D#

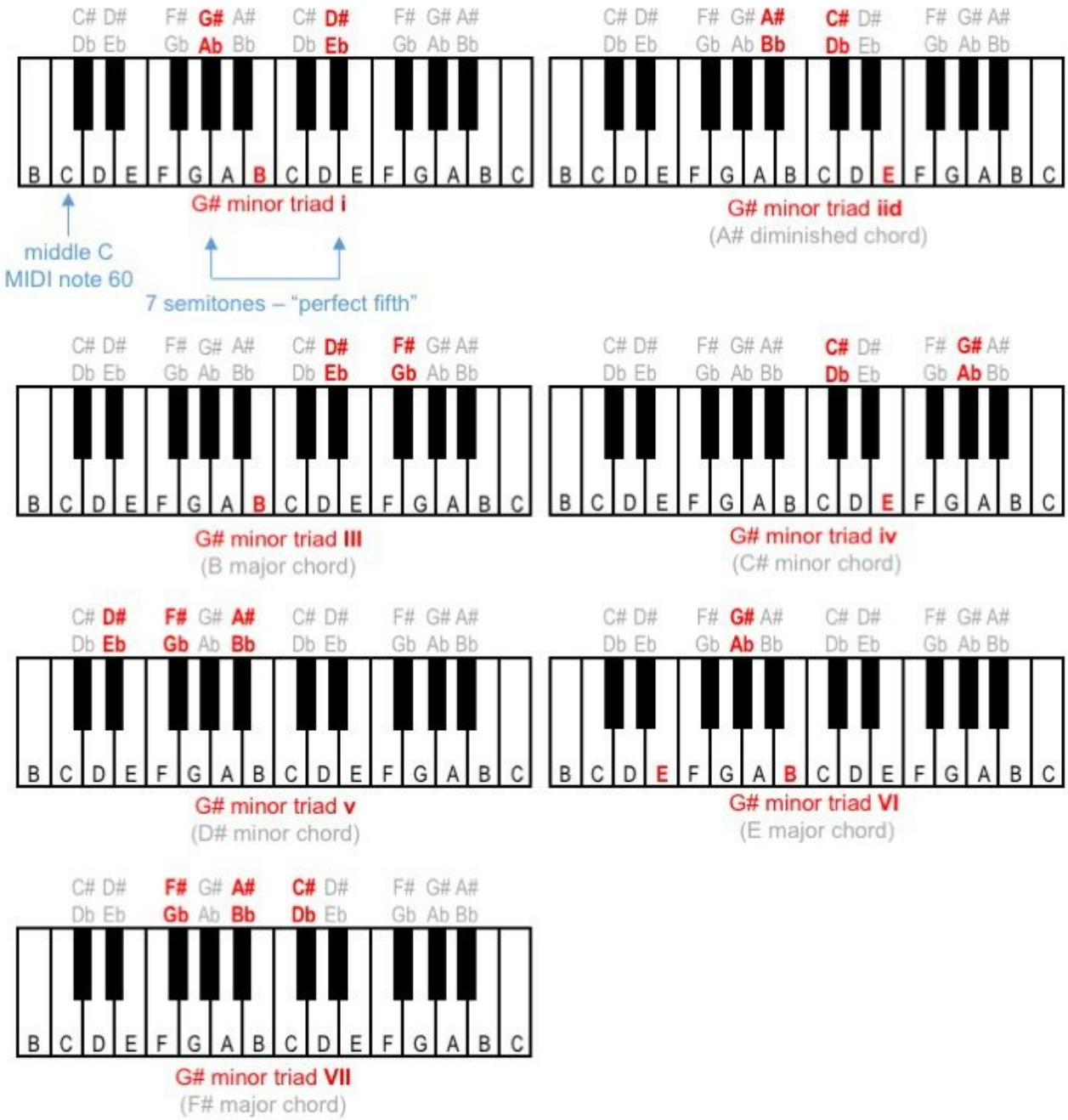
The next step is to build chords from the notes in a scale and then sequences of chords, or *chord progressions*. It is for the construction of chords that we require the notion of *intervals*. Chords are made up of intervals and the intervals are what gives chords their character, or characteristic sound. The first interval we look at is called a "third". Counting the number of semitones between two notes, if we find four semitones this is called a "major third" and if we count only three this is called a "minor third", which is sometime denoted as "m3". For example, between G# and C we count four semitones, and hence this interval between G# and C is a major third' ("M3"). Seventh can also be minor or major, depending upon whether we count 10 or 11 semitones. In addition to sixth and fourth, another important interval is the fifth, or *perfect fifth*, to indicate that this interval is special, providing the stable background to chords (while imperfect intervals such as the third and seventh) determine whether the chord is minor or major. The perfect fifth is 7 semitones above, which, starting from G#, takes us to D# (Eb) on the keyboard. Playing the G# and its perfect fifth sound "pleasant" (consonant), which is why this is a common combination in chords. Then there is also an "augmented 5th" (sometimes denoted #5, which can also be called "minor 6th" sometimes denoted m6), which is eight semitones up. One could go on, until 12 semitones, which gives us an octave.

A *major triad* is a chord that combines a perfect fifth, with a major third. Say we are in the scale of C major, starting from C, the perfect fifth takes us to a G and a major third (4 semitones in between) takes us to an E. Playing the notes of a triad together, we have a chord that sounds pleasant. When the fifth is combined not with a major, but a minor third (three semitones in between), this leads to another chord called a minor triad. Say we are in C major, starting from a C, the perfect fifth takes us again to the G, but the minor third takes us know to Eb. The most important note in a triad is called the *root*. Building a triad we start with the root, add a note a third higher and another one that is a fifth higher than the root.

We can now go through the notes of a scale and create triads and to distinguish them, another notation comes along. Major triads are given an uppercase Roman numeral, while minor triads are given lowercase Roman numerals. For G#m we end up with the following triads, including all possible naming found in the literature:

G# minor triads				
1	i	G#m (Ab minor)	G#, B, D#	Ab, B, Eb
2	iid	A#d (Bd dim)	A#, C#, G#	Bb, Db, E
3	III	B (B major)	B, D#, F#	B, Eb, Gb
4	iv	C#m (Db minor)	C#, E, G#	Db, E, Ab
5	v	D#m (Eb minor)	D#, F#, A#	Eb, Gb, Bb
6	VI	E (E major)	E, G#, B	E, Ab, B
7	VII	F# (Gb major)	F#, A#, C#	Gb, Bb, Db

The pattern in the brackets of the third column, going ‘minor - diminished - major - minor - minor - major - major’ is the same for triads in any minor scale. For major scale the pattern will go ‘major - minor - minor - major - major - minor - diminished’. The “d” stands for “diminished” and is also often shown with a small superscript circle “º” … just like the “b” (“flat”) is actually supposed to be a “♭”. When a major interval, say a third, is increased by a further semitone it becomes and *augmented third* and when a minor third is decreased in size by a semitone, it becomes a *diminished third*.



These triads are thus most important chords formed from a scale. The next refinement is to consider *seventh*, requiring four fingers when played on a keyboard, and more oscillators on the synth. The intervals considered so far are the perfect, major/minor, augmented/diminished. This is complemented by an *inversion* of each interval, which we shall also skip here.

Main and Alternative Progressions in G#m					
MP	E	C#m	G#m	D#m	"Alternative"
	VI	iv	i	v	
AP1	C#m	A	E	B	
AP2	B	G#m	D#m	A#m	
MP	G#m	D#m	E	C#m	"Cliche"
	i	v	VI	iv	
AP1	E	B	C#m	A	

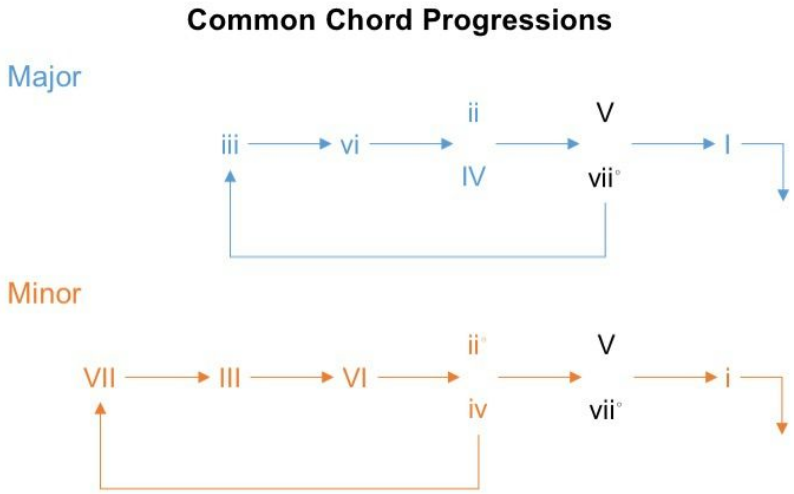
AP2	D#m	A#m	B	G#m	
MP	G#m	E	A#dim	C#m	“Endless”
	i	VI	ii dim	iv	
AP1	E	C#m	F#m	A	
AP2	D#m	B	E#dim	G#m	
MP	G#m	B	C#m	E	“Energetic”
	i	III	iv	VI	
AP1	E	G#m	A	C#m	
AP2	D#m	F#	G#m	B	
MP	G#m	C#m	G#m	D#m	“Memories”
	i	iv	i	v	
MP	C#m	G#m	C#m	D#m	“Rebellious”
	iv	i	iv	v	
MP	G#m	C#m	D#m	D#m	“Sad”
	i	iv	v	v	

When chords are placed in a sequence, we get a *chord progression*. The concept of “tonality” is used to characterize progressions. The *tonic chord* is the chord build on the first degree of the scale and is considered most important, often acting as the “home base” for a chord progression to start and end with The tonic chord is backed up by the *dominant chord*, which always occurs on degree five of the scale. The other important chord is the one build on degree four of the scale, called the *subdominant chord*. Chords 1, 4, and 5 are thus the most important ones to learn. We are now quite close to have everything together to create harmonies. We leave this however to the specialised literature, all I wanted to provide here is a dictionary of terms and an example for how to consider chords in playing a synth. The table above is what we need to get hold off for playing a keyboard, or encoding chord progressions with the A4. One can either derive chord progressions from the rules described here, but there are also smartphone apps that help out … and of course various tools for DAWs.

Main and Alternative Progressions in C natural minor					
MP	Ab Ab, C, Eb	Fm F,Ab,C	Cm C, Eb, G	Gm G, Bb D	“Alternative”
	VI	iv	i	v	
AP	Fm F, Ab, C	Dd D, F, Ab	Ab Ab, C, Eb	Eb Eb, G, Bb	
	iv	iid	VI	III	
MP	Cm C, Eb, G	Gm G, Bb, D	Ab Ab, C, Eb	Fm F, Ab, C	“Cliche”
	i	v	VI	iv	
AP	Gm G, Bb, D	Dd D, F, Ab	Eb Eb, G, Bb	Cm C, Eb, G	
	v	iid	III	i	

Looking at another set of minor chord progression, we notice that one can memorise them by recalling sequences, like 6-4-1-5, 1-5-6-4, 1-6-2-4, or 1-3-4-6 and that these are the same for different scales. Using an “In Key” device, like Ableton’s Push, the triads form triads on the device. Playing chords is then rather easy.

The tables above give examples of typical chord progressions for particular keys. More generally we have the following pattern for common chord progressions, summarized in the following figure.



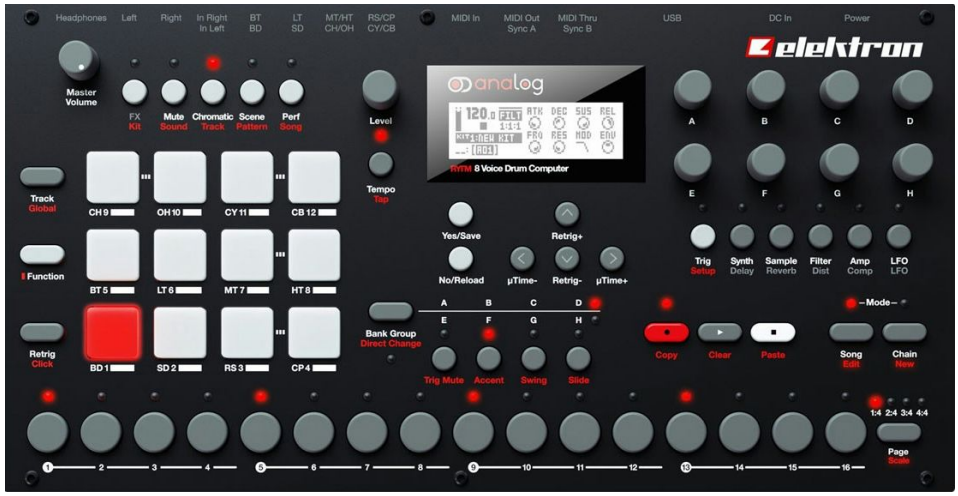
In a major key, the destination for chord progressions tends to be the I chord. The image shows ways to get to this chord. Coming from vi, we have ii and IV as alternatives. These pattern are no strict rules but guidance and all that is being said here is that the cadences V to I and ivv° to I are frequently used. The strongest way to approach V is a from ii and the strongest approach to ivv° is coming from IV. Since I is the strongest chord, it can be followed by anything. The V and ivv° chords are referred to as the *dominants* and ii and IV are labeled as *predominants*.

Common chord progressions for minor scales is very similar, only that the strongest way to approach III is from VII.

Reference

Michael Hewitt: *Music Theory for Computer Musicians*. Course Technology PTR, 2008
Warp Academy: *Push and Basic Music Theory*, YouTube 2014

Drum Loop Programming with the Rytm

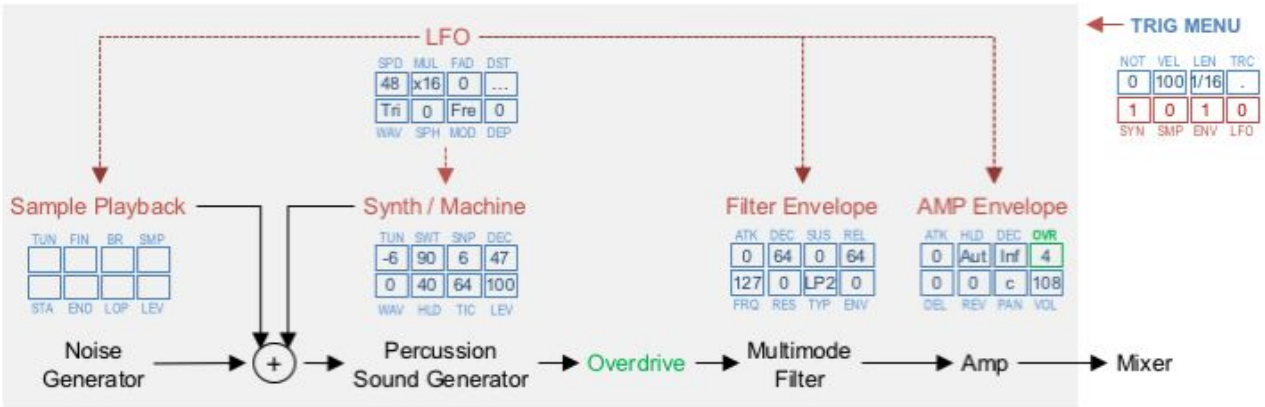


Creating tracks with a DAW, one usually starts with the programming of a drum loop and from there complements this with the bass and other melodic elements, FX etc. I shall here give a basic introduction into drum loop programming with the AR. For those understanding German, thanks to Kai Chonishivli there is an excellent video workshop available on YouTube (link below).

Setting up a Core Drum Loop

The kick, or bass drum (track BD1 on the AR) is the most important element from which we start. We start with a new project, or with an empty place on some bank and set the tempo to 122 BPM (or whatever you prefer). It is also an good idea to save your experiments as a new kit.

The first thing to do is to choose a sound for the bass/kick drum track. If you are starting out, I would recommend learning from preset and sound packs one can purchase from Elektron (including various free packs). The current sound for the selected track can be checked by pressing TRACK and the BD1 pad. The sound will be briefly displayed. Choose a sound for the BD1 track by opening the sound browser with FUNCTION+MUTE/SOUND. The following figure summarises the elements of an AR sound and gives some typical values one could use for a house kick drum:



Kick Drum Synthesis

For those who want to delve into more depths of kick drum design, the anatomy of a kick drum includes the following elements:

- Clicking part:
    - right at the start of the waveform.
    - contains high frequencies.
    - very short, 10ms or less.
    - the clicky part helps the kick drum cutting through the mix and one should watch out not to filter it accidentally out with some attack envelope setting.
- Punchy section:
    - the part that is felt in the chest.
    - starts at a higher pitch and rapidly moves to a lower pitch
- Longer tail section, a fixed tone, the subby part.
    - constant pitch, waves of equal period.
- The length of the kick drum is also determined by the question whether we need space for a bass, or whether the kick is pretty much also the bass.

The 909 kick drum is known for its solid punch, while the 808 provides a subbed-out thump with longer tail. The depth and length of the kick should be directly related to the bassline, which in our workflow comes only later into consideration. A higher, short kick will work well with a booming, deep bassline, while a higher bassline will sit nicely alongside a longer, deep kick drum (e.g. the 808). Tune the kick to the key of the track and adjust the amp envelope to get the right length. Use a tuner from some external gear (e.g included in an effect or guitar pedal, or consider using Overbridge and a tuner within the DAW. Subbass elements require good studio speakers and headphone to check them.

With regard to compression and a frequency spectrum (which is difficult to analyse with the Elektron machines, unless you use Overbridge, a DAW or some other gear), we have the following considerations:

- Compression:
    - A fast attack / medium release tames the transients, reducing the clicky part of the start of the waveform and reducing its relative volume. Good for smoother kicks in deep and minimal styles.
    - Medium attack and release: retain a kick’s initial punch by letting the first part of the sound go through. Good for a baggy kick in electro styles.

- Frequencies:
    - High-end of the kick, 1-18 kHz: the kick’s detail and clarity. For extra edge and bite, boost around 2-4 kHz and for extra clarity in the high-hat zone boost above 4 kHz.
    - Mid-range, 120 Hz - 1 kHz: the knock, thump and punch of a kick. If you boost the mid-range knock between 200-800 Hz (not more than 3dB), then reduce the bass a few dBs around 200-400 Hz to reduce overlap.
    - Low-end, 20-120 Hz: weight and warmth can be increased with a boost in the 60-80 Hz region.

With respect to frequencies, the elements of a track are frequently discussed in terms of the following bands:

- Lows, <100 Hz: subbass and the bottom of your kick drum.
- Low mids, 100 Hz to 1 kHz: the body of the snare, percussions, bass line.
- High mids, 1 kHz to 10 kHz: claps, top end of snares, keyboards, pianos.
- Highs, >10 kHz: HiHats, triangles, shakers.

Creating a Pattern

Opening the Scale Menu (FUNCTION+PAGE/SCALE), we choose the Normal Mode and a 16/16 1x pattern, allowing us to focus on a one bar pattern. We place trigs for the kick drum on steps 1, 5, 9, 13. When a pattern is described one finds often the term “off beats”. In music that progresses regularly in 4-4 time, counted as "1 2 3 4, 1 2 3 4...", the first beat of the bar (downbeat) is usually the strongest accent in the melody and the likeliest place for a chord change, the third is the next strongest: these are "on" beats. The second and fourth are weaker and subsequently referred to as the "off-beats". Sometimes, the second and fourth beat of the bar are also called “back beats” or “off beats”.

After the kick, the next element in a house groove is the snare drum (track SD2), and/or a clap (track CP4), providing a counterpoint to the steady kick. They are typically placed on the second and fourth beat of the bar, i.e. trigs on 5 and 13. The snare would then back up the weaker off beats at 5 and 13.. A variation for a more tech-house feel, is to place the SD not on the same trigs of the clap (5, 13) but on 5, 12, 15, and 16. Or, try a snare drum on 1, 5, 9, 13 and. In a frequency spectrum, the clap is usually sitting in the high mids, 1 kHz upwards. The snares are across the low and high mids, the body sits in the low mids and the crack of the snares sits in the high mids.

Hi-hats are another essential component that can be used to emphasize the rhythm and to increase its pace. Closed hats are short and tight, while open hats have a longer sustain. In an acoustic drum they cannot be played together, which is why we usually place them accordingly on our sequencer. Closed hats are now placed on trigs 1, 2, 4, 5, 6, 8, 9, 10, 12, 13, 14, 16 of track CH9 and open hats are placed on the gaps left by the CH, that is, trigs on 3, 7, 11, 15. Alternatively, place closed hats on 2, 4, 6, 8, 10 12, 14, 16 and open hi hats on 3, 7, 11, and 15 giving you a very well known and recognisable pattern. (On other sequencers, like the Roland Aira TR-8 drum machine, there is a ride (RS) element, which would then be placed on 1, 3, 5, 7, 9, 11, 13, 15). Combine this with a snare drum on 12 and 15, or on 4, 7, 12 and 15. The latter suggests itself as a bassline pattern, maybe matching with the low tom (LT) track or other percussive elements, placed on the same steps. On the AR, the toms can be very deep, especially when pitching down.

Having suggested alternatives here, which may be confusing to begin with, one should get used to experimenting. When you enter pattern, the FUNCTION+LEFT/RIGHT arrow combination may be useful to test the positioning of pattern as this will shift trig patterns left and right.

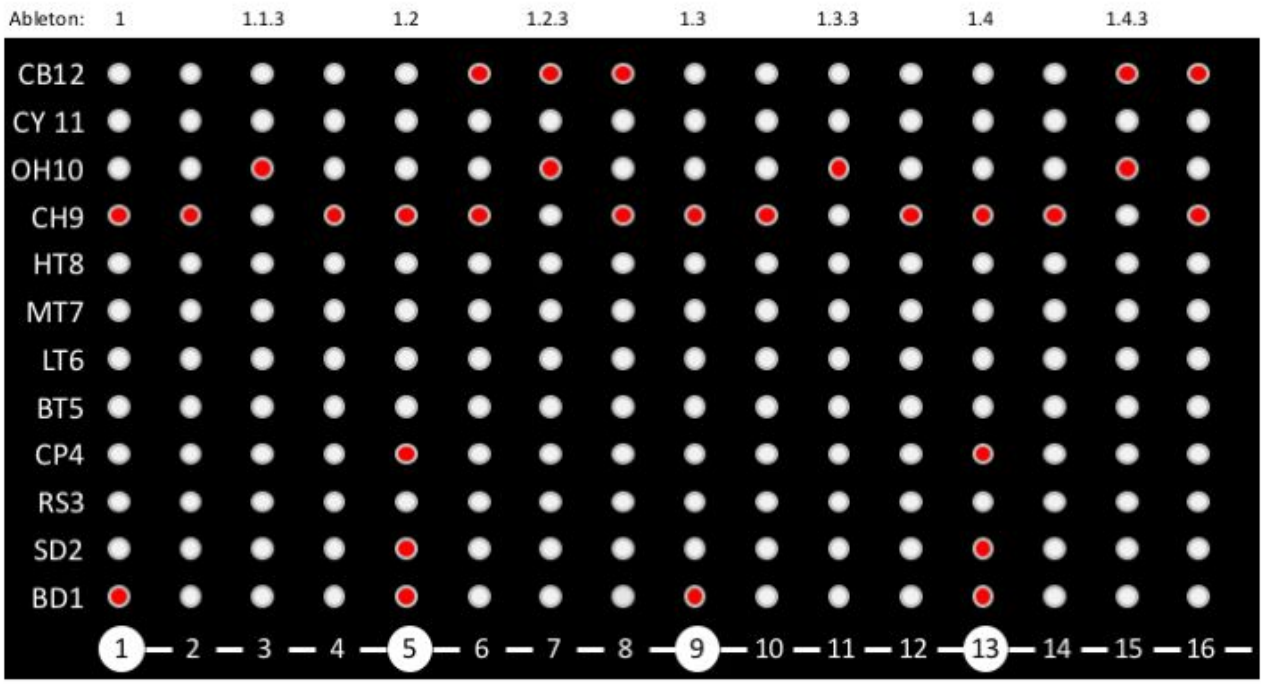
A refinement of the kick pattern is to add a ghost note on step 16, with a low velocity. Press and hold trig 16 and on the Trig men, choose a low value for the velocity. In a live performance, an option is to vary the pattern by placing an additional trig on 16. For effects, a delay on a hi-hat can increase the pace of a track and can also introduce an additional element to the rhythm. It is also quite common to use an LFO on them. For example, try on OH12 an LFO with SPD=1, MUL=x32, DST=VOL, WAV=TRI, SPH=0, MOD=FRE, DEP=+22. To begin with, one should however focus on the pattern and groove and not focus too much on using effects, which can be done later. If one adds too many details on the Filter, Amp and LFO pages at this stage, one is less prepared to change things around. It is however important to experiment and one should expect that something sounds initially fine and later, in the context of other tracks, it does not make sense. We should

then not hesitate to go back and start all over. If one has introduced already lots of parameter locks on the sequencer, one is less likely to make radical changes to the pattern.

A refinement of the claps is to move them ever so slightly ahead of the kick. On the AR, we press the trigs in grid recording mode, and use the left arrow to move the tricks in small steps.

The cowbell is somewhat out of date but one can then use on track CB12 a sample of some percussive hit and place trigs on 6, 7, 8 and 15, 16.

The result of our efforts for a one bar drum loop can be visualized in the following way (eg):



Fine Tuning for Levels and Timing

Fine tuning of our sounds on the tracks includes adjustments to swing/shuffle, velocity variations, accentuation and ghost notes. Live recording is one way to “humanize” a pattern, alternatively we vary the velocity of steps in a semi-random fashion. Check out Cuckoo’s AR Walkthrough video (link below) for tips on live recording. For the present exercise, we will programme this. The influence of ***velocity changes*** can be seen by changing, in the pattern from the figure above, the velocity of CH9 for steps 1, 5, 9, 13 to about 60-70. The sound turns from something basic into something quite awful … To check out the positive influence of velocity changes on the groove, it is best to experiment with a closed high hat placed on every of the 16 step. On CH9, try first with all velocities set to 100, for all sixteen steps, listen and then do the following. Set the velocities for the sixteen steps: 100, 90, 70, 85, 75, 100, 94, 73, 55, 100, 72, 68, 90, 60, 85, 60 …. and notice the difference!

“Syncopation” is a widely used technique to add interest to repeating patterns. This stresses music occurring off beat rather than on it. This variation of the rhythm is somewhat unexpected, as it which makes part the tune appear off-beat. More simply and according to Wikipedia, syncopation is a general term for "a disturbance or interruption of the regular flow of rhythm": a "placement of rhythmic stresses or accents where they wouldn't normally occur. In the 4-4 time signature the first and third beats are most likely the place where we introduce new elements, change chords etc, as a consequence of which the first and third beat in a bar will often receive the accent of the music

with notes on these two beat appearing a little louder. With ***accentuation*** of notes that occur off beat, on 3 and 5, the result is syncopation can improve the rhythm considerably. For live performances it can also be a good idea to change the syncopation every few bars on rhythmical elements such as hi hats.

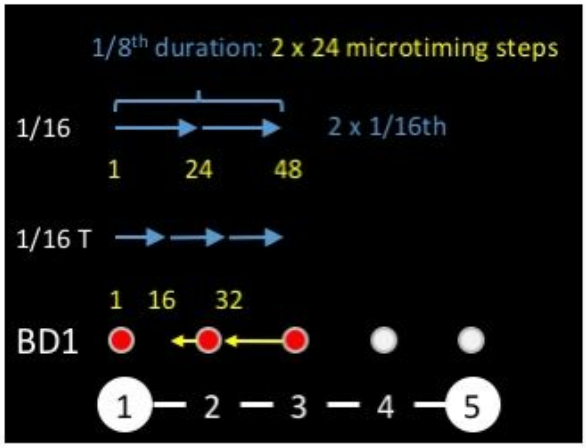
On the AR, we can add *accent trigs* to quickly change the velocity for chosen steps of a track. These accent levels are then also a popular target for modulation, for example, by an LFO. Select a track by pressing TRACK+PAD, and then open the Accent Menu by pressing FUNCTION+BANK B/F. If accent trigs are present the trig LEDs display them. To accentuate certain notes, place trigs on steps with note trigs, while the accent menu is open and choose an accent level higher than 32. A note trig can be quickly accented by pressing a note trig and press BANK B/F. An accent trig will then be placed on the same setup. To check whether an accent trig is on top of a note trig, press the trig key and check whether the BANK B/F LED lights up.

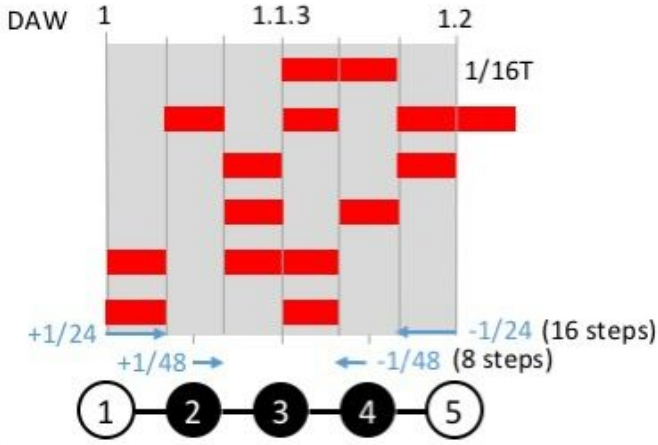
Next, ***ghost notes*** can be employed improve the pattern, to make the pattern groove. On the snare track SD2, add to what is in the pattern above, at steps 1, 3, 7, 11, and 15, notes with a very low velocity with values between 2 and 6. Notice the difference this makes to the track soloed and in relation to the other tracks.

We indicated already above, that moving the clap it tiny bit can make things sound better. Other examples are small forward (right) shifts of the closed high hat, or the low tom, and also of the snare. There are no general rules and one has to carefully listen to see the effect for the track soloed and then in the context of the other tracks. Moving things slightly behind the kick, will tend to create a more laid-back feel, while moving things ever so slightly ahead of the kick, will create a more intense feel.

Swing, also referred to as “shuffle”, is used to avoid too monotonous or robotic rhythms. To adjust the swing setting of the pattern, press FUNCTION+BANK C/G. The swing pattern is shown by the trig LEDs and the up/down arrows are used to adjust the swing ratio. A value of 50% is default, 60-70 is what should try to begin with. When applying swing, some notes get shifted away from the grid, while other stay in place. In a typical note shuffle pattern with 16th notes, every second note gets dragged a little later in time.

Triplets are also a popular means to create (“syncopated”) grooves by changes to the timing. Rather than dividing a bar up into four steps, its is divided into three. The notation ⅛ is used to say that a bar is divided into 1/8th notes. A ¼ note could then be split into two 1/8th notes. The triplet notation 1/8T then says that instead of two 1/8th notes, we have 3 x ⅛ notes over the duration of a quarter of the bar. Similar, 1/16T says that 3 x 1/16 notes are covering the space of a ⅛ note in the 4-4 pattern. 1/32T says that 3 x 1/32 notes are covering the duration of a 1/16th note. For the AR, 1/16T then says that a 1/8th note duration of two sequencer steps is now represented by three 1/16th notes. Let us focus on the first bar and sequencer steps 1, 2, and 3. To bring three sequencer steps into the duration of two 1/16th notes, that is, we have to nudge step 2 and step 3 to the left. The following figure illustrates this. On left, the yellow arrows show the microshift required to generate a triplet with the first three sequencer steps:





On the right all information is provided to convert any 1/16T groove pattern into the AR sequencer. Depending on what pattern we would have in the DAW, we either shift a trig on the sequencer 8 or 16 steps to the left, or right.

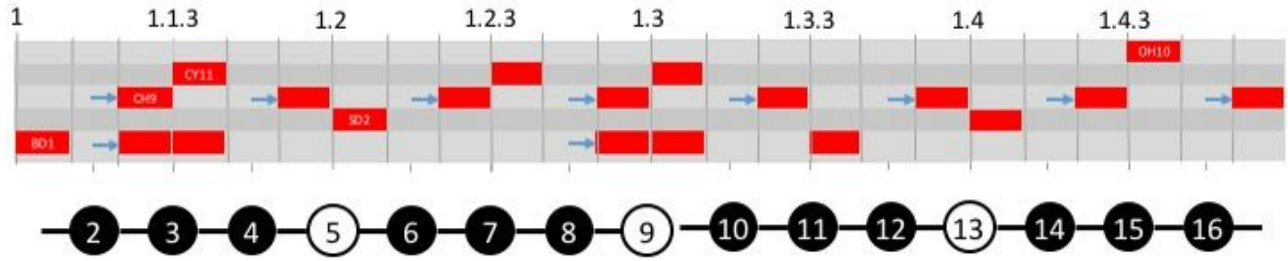
There are several ways to realise triplets with the AR. The first option to achieve this is by microtiming of trigs (hold a trig and press the left/right arrow for the menu to appear).. Each 1/16th note is divided into 24 microtiming steps (16 x 24 = 384; each micro timing step is 1/384th of a note). For the 1/16T triplet grid above, we have 2x24 microtiming steps covering the two 1/16th notes of steps 1 and 2. This is now divided by three. The second sequencer step has therefore to be moved 24-16=8 steps to the left (-1/48 in the microtiming menu). Step 3 moves from 48 microsteps away from step 1, to 48-32=16 steps to the left (-1/24 in the microtiming menu). To programme 1/4t you need to use the microtiming to shift the trigs and place each one 64/384 ths after the preceding beat (384/6=64).

An alternative is to use retrigs. Press and hold a trig and then use the left/right arrow to open the micro timing menu. Change retrig rate with knob E to 1/12 to create triplets. Retrigs are unfortunately not affected by swing. Yet another way is to set sequence length to 12 steps. Standard 4/4 kicks would go on steps 1, 4, 7, 10 instead of 1, 5, 9, and 13. To sync to an external clock set time to 3/4 in scale menu. Finally, using a 67% swing setting also produces triplets.

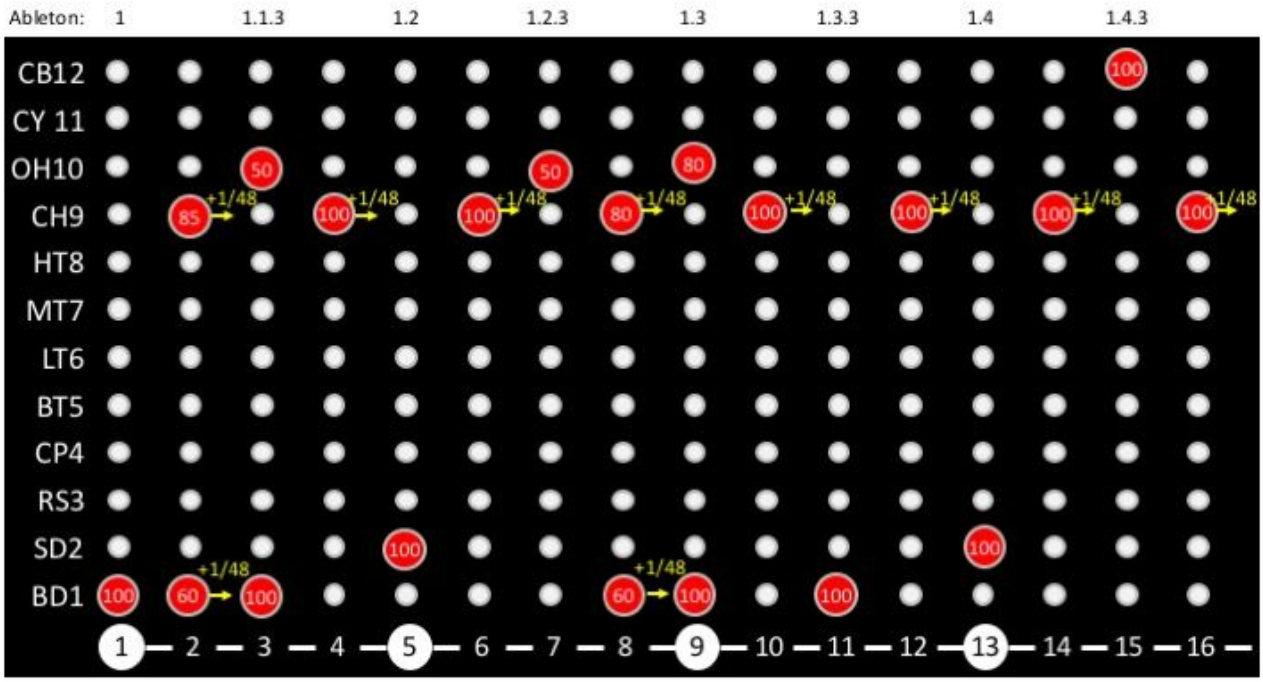
An excellent more advanced video tutorial about polyrhythms was prepared by Carl Mikael (see link below).

Example Hip Hop Pattern

In addition to the house style pattern above we here summarize a hip hop pattern. The pattern is equivalent to hip hop pattern #31 in the book by Josh Bess (s. below). It is a 1/16T pattern. In a DAW the first bar of the pattern would look like this:



Below the DAW layout we have the AR sequencer steps. With blue arrow we have indicated those places that require a microshift. The entire pattern could also be visualized for the AR sequencer, including the required microshift moves and velocities indicated inside the circles:



The pattern from the book (also demonstrated in Kai Chonishivli's excellent video series) is actually a two bar pattern but for the sake of simplicity, I show here only the first sequencer page. Extending the pattern to two pages, one can then also introduce on the second page elements for the LT, MT and HT tracks. For example, something on steps 7 & 8 for track MT7, steps 9 & 10 on HT8 and steps 13 & 14 for LT6.

To experiment with accentuation, focus on track BD1, press FUNCTION+BANK B/F, set accent trigs on steps 1 and 9, and use the level knob to increase the accentuation up to 127. To experiment with ghost notes, focus on SD2 and add trigs on 1 and 3, set the velocity to very low values, say 7 and 10, respectively.

Summary of a Drum Loop Programming Workflow

Summarising our current discussion and looking ahead, we have the following suggested workflow, with some added tips for further experimentation:

1. For your genre, identify characteristic sounds (e.g. 808 or 909 kick drums)

2. Get inspired by known pattern as a starting point.

3. Start with a core loop of one bar length (Page 1) and expand later.
    a. Start with sound of bass/kick drum (BD1), then snare drum (SD2) and/or clap (CP4), then hi hats (CH09 and OH10). Ensure no LFO, filtering or effects are introduced, consider this later.
    b. Start with the synth engine first and then consider a layered sample to sculpture the kick sound.
    c. In case you don't like the sound of the snare, check whether high pass filtering helps (although heaving filtering and effects should really come later)
    d. Consider percussive hits (eg on CB12).

e. Switch between soloing a sound and listening to it in the context of the other elements. For example, check the open hi hats relation with the clap etc. Expect that things may sound good on its own, or in combination with another track but that overall things are not working out. Go back and forth, experiment!

4. Finetuning - pattern:
    a. Consider adding ghost notes.
    b. Consider using triplets.
    c. Consider ***flams*** (two taps,a grace note followed by a full volume tap) played very close together in order to sound like one slightly longer note). With the AR, you can put two 16th note trigs back-to-back and adjust the micro-timing on one to as close to the other as possible. p-lock velocity. Alternatively, consider retrig for flams, just set short enough gate time and a suitable interval. E.g. using a RATE of 1/64, a LEN of 0.313 and a VEL of -14. Flams can fit well to the snare drum.
    d. Check “choke groups” and ensure that sounds that can or should not be played together do not overlap in the pattern and their note lengths. This may be due to the hardware and shared voices (eg RS-CP, MT-HT, CH-OH and CY-CB)
    e. If you have more than one percussive elements of similar frequencies, consider the working together, one being an answer to the other (pan one to the left, the other more to the right).
    f. Consider matching the snare pattern with the low tom (LT) pattern.

5. Finetuning - timing:
    a. Live recording or manual nudging of notes to humanize the groove.
    b. Swing (shuffle). To see the effect, press FUNCTION+BANK C/D and use the level knob.

6. Finetuning - levels:
    a. Live recording or semi-random manual adjustment for step velocities.
    b. Accentuation.
    c. Consider using an LFO for modulation.

7. Finetuning - sounds:
    a. If you are using sound packs, check whether the legacy mode is set in the sound settings (see OS 1.22 update)
    b. Consider delays on hi hats and percussive elements, making them more bouncy; reverbs on the clap and so forth. To begin with, however, focus on the groove and use effects sparingly.
    c. Add reverb but again, focus initially on the groove.
    d. Position elements in the stereo field. Start with panning of the hi hats. Claps are difficult to pan. To give them a bit more width, collect two different samples, pan one to the left, the other to the right. For more advanced high hat tuning, consider for the closed hi hat, two tracks of the same sample, with ghost notes in different places, panning the one track fully right and fully left on the other. Furthermore, add some track delay (e.g. -2ms) to one of the tracks. For both tracks, playing the same pattern, this delay gives an ever so slightly different sound on each side, giving us this stereo width.

8. Check the track volume levels of tracks against each other. (cf track level vs amp volume) to balance the volume of the different tracks.

9. EQing of tracks to separate overlapping frequencies, to emphasize and to avoid an overall muddy sounds.
    a. The parameters of the filter envelope are Attack (how fast the volume comes in), Decay (how slow the volume decays), Sustain (determines the values after the decay is finished), Release (how long it takes to reach zero).
    b. On snares high pass filtering may have a big impact.
    c. Use a low cut on the reverb filter to avoid muddening the low end up too much.
    d. Overall, avoid too much of high frequency sound as this may make the listeners tired. (Such advice is of course just a suggestion and as always, rules are there to be broken).

10. Consider using an exponential one shot LFO to add "snap" to a sound (e.g. on snares)

11. Compression for loudness and glueing.

12. Expanding the loop.
    a. Use conditional trigs! (see also live performance tips)

13. Add a bassline
    a. Ensure the kick and bass are playing in the same key.
    b. Bass notes as high up as the major fifths can play at the same time as the kick without risk of a clash of frequencies. They are however better placed at the end of the kick note so that the transitions at the start of the notes are not colliding.
    c. One can also use a Tom sample and transpose this a few semitones down.

14. Add melodic and synth elements, pads, stabs.

15. Add FX elements, pitch bend effects, risers, sweeps, vocals.

16. Create scenes and performance macros.

References

Analog Rytm Cuckoo Walkthrough #1:
https://youtu.be/1egKAzWVfo4?list=PLD5-YGxDn2JVQ1TY5db80EzbdC9I6d8lU

Josh Bess: Electronic Dance Music Grooves. Hal Leonard Corporation, 2015

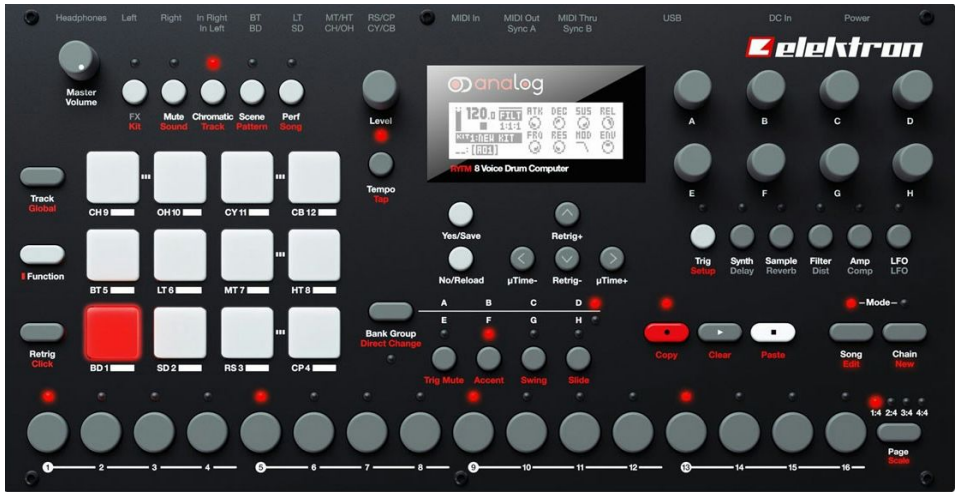
Carl Mikael: Creating Polyrhythms with the Elektron Octatrack:
http://youtu.be/cVJmC28OgAI

Quantize Courses Ableton Kick Drum Design Course:
https://quantizecourses.com/video-courses/kick-drum-design-video-pack/

Attack Magazine Beat Dissected Series:
https://www.attackmagazine.com/technique/beat-dissected/rolling-deep-house/

Recording.de Beat Programming Workship (in German):
https://www.youtube.com/playlist?list=PLft17iB4mUuhNE_AUpN0hvJWCycA3fmvJ

Tips for the Elektron Analog Rytm



OS 1.22 Update: Trig Conditions and Fills

The OS update 1.22 brought some fantastic additions to the AR and A4. Trig conditions ("conditional locks") are most useful to create loops that are longer than four bars but generally to introduce variations in loops. Elektron explains the changes for the AR and A4 in this video: https://youtu.be/BEXY6NhnSBw , which includes FM synthesis for the A4. Carl Mikael produced an excellent video explaining trig conditions for the AR: https://youtu.be/2XVckY1KsP0

Ean Golden's "Pull a Kick out of Your Hat" Trick

In a DJ TechTools Video (https://youtu.be/NmLeUZsaexc) from July 2014, Ean Golden presents a trick that uses a sample that has a kick and high frequency hi hat element or kick with a ride on it. With a high pass filter one can then play either the high hat, accompanying another 4-4 kick pattern in a track, or by bringing down the high pass filter cut off, a fill is added from the kick-hh sample. This kick-hh sample is played on 16th notes. The trick is to move down the cut off frequency of the high pass filter working on the sample so that the normal kick pattern is accompanied not just with the high-hat but also a drum fill. This works very well with techno and house tracks and using a performance macro one can rhythmically add a nice touch to a basic drum loop - all with the press of a button (pad). The trick is super easy but works so well that I highly recommend it. The reason why I enjoy this one is that a single press of a pad makes such a difference - a nice example for the AR performance macros and the fact that each track has a synth engine, as well as sample play.

The trick is presented using the Midi Fighter Twister and using NI Traktor DJ software. The starting point is a kick sample with a high hat in it. We shall here translate this idea to the AR and use the fact that the tracks of the AR used to synthesize a high hat, can also play a sample, which in this case will be a kick sample.

We assume that on track BD1 we have a kick playing with trigs played on trig keys 1-5-9-13, the usual 4-4 pattern. We now focus on track CH9 and first switch off the sample play in the Trig menu

in order to first create a high frequency hat sound that plays every 1/16, ie trigs placed on every trig key.

Next, we choose in the filter menu the high pass filter HP2 or HP1. Still in the filter menu, we adjust the FRQ parameter so that we are happy with a high hat that accompanies the kick on the BD1 track.

We now add on track CH9 (or another track of the top row) the sample play with SMP=1 in the trig menu and choose in the sample menu a kick sample. We should now have the kick on BD1 being accompanied with a high hat on CH9. Going to the filter menu, we now adjust the FRQ parameter for a cut off frequency where we hear the high hat but not the kick sample on CH9. By turning the FRQ knob E counterclockwise, we bring in the kick on the 16th notes. We take note of the FRQ value where we are happy with the high hat (no kick) to now modulate this value with a performance macro.

Next, go into the performance edit mode (press and hold Perf for a short while) and select the pad for the performance macro (a natural choice being the pad of CH9). Pressing the pad, we can now create a performance lock for the FRQ parameter in the filter menu. Add anything else to your own taste and voila we can enrich our normal drum loop with a drum fill at the press of a button. Great fun to rhythmically press the pad during a performance. PS: Compare this with the Retrig button, which can also be used to retrig sounds in quick succession.

Reference

Ean Golden's "Pull a Hat out of Your Kick" Trick: https://youtu.be/NmLeUZsaexc

Working with Hi Hats

Closed hats (CH), on the AR placed on track 9, are typically short and tight. Using a DAW, a common trick is to pan identical closed hats hard left and right and then create a 16th note sequence that alternatively triggers the left and right hats for fizzing rhythmic width.

To get a feel for the LFO settings, we place 16 trigs per page (1/16 notes) and use on track CH9, to begin with, the following settings for the LFO: SPD=8, MUL=x1, no FAD, DST=PAN, WAV=SIN, SPH=0, MOD=HLD, DEP=127. What we should hear is that the CHs are panned very slowly from left to right, every four bars. Setting the speed parameter SPD to 32, the movement will occur already after two bars. Now keeping SPD=32 and set MUL=x2, the movement is every bar. Increasing the MUL parameter to x4, x8 we increase the speed of the movement. Using this effect in music, one would then reduce the depth to something like DEP=20 and less. The following settings could be used to turn a static and monotonic hi hat 16th note pattern into something that adds groove:

Modifying the MUL parameter with a performance macro is a good idea and allows even more rhythmic input from the hi hats. Adding delays on a hi-hat is another idea to increase the pace of a track and introduce an extra element of rhythm.

Working with Claps

On the AR, claps (CP) are generated with track 4. During breaks, with the kick removed, it can work well to send the clap with the DEL parameter on the Amp page into a delay. Rather than doing this "online" in the Amp menu, this can be done with a performance macro. Increasing the FRQ parameter of a HP filter is also frequently done in combination and can be used to construct a buildup with a performance pad. Also add a little reverb to your taste. Creating a build up, in addition to the claps, the same performance macro could be used to add distortion (the OVR parameter for BT5) to the bassline.

A monotonous clap can be made more interesting by adding (p-locking) to every fourth clap a delay and some reverb.

Sticky Performance Pads and Reverb Tails

Cuckoo was one of the first to realise this as a trick, while others were asking whether it is a bug. The idea is to make the current performance macro/pad "stick", allowing you to move on to other things.

You first set up a performance macro by entering performance mode (press and hold the Perf key, select a pad and while keeping the pad pressed you can lock parameter changes to pressing the pad). Once the editing is done, press PERF again to exit edit mode. Being in performance mode (not performance edit mode), you can press the pad to realise the parameter changes. If you keep the pad pressed and then switch to mute (chromatic or scene) mode, the performance macro will "stick" until you return to the performance mode and press again the pad. It is also possible to make a performance macro stick without leaving the performance mode: press the pad, then press the RETRIG (or TRACK) key, then release the pad before releasing the RETRIG (TRACK) key, making the performance macro stick.

An application of this is to create a build, using a performance macro to increase the reverb across several tracks (possibly also linking the decay of the reverb to the macro). When the performance pad is released, the reverb dies out quickly and the trick can be used to keep a long reverb tail. I do not use performance pads on the kick drum often; I usually mute it, or if I want a more subtle change, I could use a scene. The kick drum pad is thus suitable for a performance macro that applies to various other tracks and is easy to remember across kits and pattern. One idea for performance macro on BD1 is to modify 7 parameters on the FX track, e.g. PRE=+127, DEC=+100, FRQ=+70, GAI=+100, HPF=-127, LPF=+127, VOL=+100 to send higher frequency sounds during breaks into space.

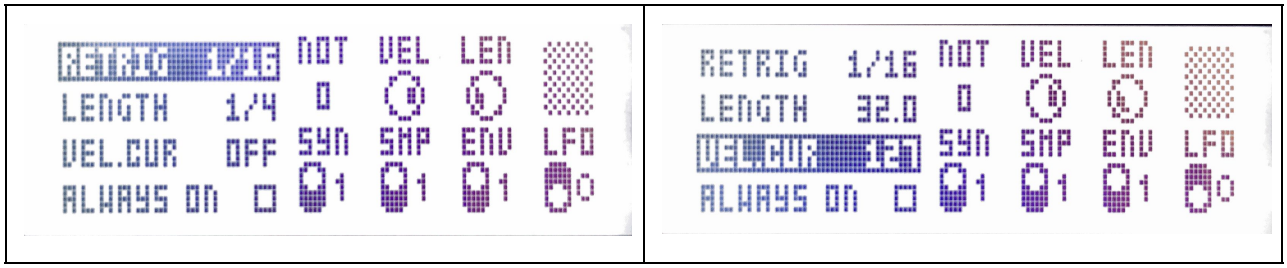
Reference

http://www.elektronauts.com/topics/view/5523/142348/page:1#142348

http://www.elektronauts.com/topics/view/8380/142346/page:1#142346

Creating Retrig Swells

Outside the mute mode, selecting a track and then pressing the RETRIG button, shows us the settings to retrigger sounds of that track. Let us consider a scenario in which track CP4 has a clap with a standard pattern of trigs 5-9-13 across a 64/64 pattern. Pressing the Retrig button, we might see something like this on the left hand side:



In this example, pressing the retrig button together with the track's pad (whether the track is muted, or not!), the sound of that track will be retriggered at the rate 1/16. With the velocity curve being OFF, we do not need to consider the length value and with ALWAYS ON being not ticked, we have to press the RETRIG button in addition to the pad to retrigger the sound. This may already be enough for some cases but it become probably more interesting for many more situations if we can create a swell.

Say we want the retriggering to swell up over over one bar, we set LENGTH=16 (2 bars would be 32 etc). Next, we set VEL.CUR=+127 to create a fade in (-127 for falls, or fade outs). To operate the effect we press the RETRIG and hit the pad with low pressure and hold. This can be tricky and another option, by which we however loose the normed p-locked claps, is to go to the trig menu (shown in the figure above) and set VEL=1. If we now press the RETRIG button, the FUNCTION button and then hit the pad (no matter how hard), the retriggering will start with at a low volume and increases over the period set by the LENGTH parameter.

Tips for the Elektron Octatrack

General Considerations

Samples on the OT can be kept in RAM memory, or streamed from the CF memory card. While streaming allows us to use huge files, RAM is limited to about 64MB across the Flex slots. From what is on the CF card, one selects files and assigns them to the static and flex sample slot lists. There they can be addressed through sample and slice locks.

Working with pattern, the Track Trig Edit Menu is important to remember. This menu is opened by pressing FUNCTION+BANK when grid recording mode is active. It offers an overview of trigs and trig types on the sequencer.

Xfader Transition Trick

The goal is to record in Scene A what is currently playing on the OT (with or without what comes from the external inputs) and then by moving the crossfader over to Scene B, play the recording. This then allows you to make changes to pattern, samples or sample chains on tracks. For the description here, we will record on Track 4, which is assigned a flex machine.

Setup: Check that on the Playback page PTCH=0 and RATE=63. Make sure that in the Playback Setup Menu you have LEN=OFF. Note that TSTR in the PLAYBACK SETUP menu must be set to either AUTO, NORM or BEAT for this to function. If set to AUTO, make sure time stretch is activated for the recorder buffer. That is done in the ATTRIBUTES menu of the audio editor. Track 8 should be set as the Master track. Select Track 4, and assign recorder buffer R4 to it (double click on T4). Note that on T4, where we record and then play back, there cannot be a one shot trig on the first sequencer step as otherwise the recording would not automatically start playing when the recording is completed (unless you want to start the playback of the recording manually before moving the crossfader over to Scene B). A *sample trig* on T4 is required to play the recording automatically. Set the level for T4 to 127. Open the Recording Setup Menu 1 with FUNCTION + AUDIO AB and decide for INAB and INCD whether the external inputs should be recorded. We set the recording length as RLEN=64 (sequencer steps), which fits into the default recorder buffer size. We also choose TRIG=ONE and LOOP=OFF. For the internal recording source we choose SRC3=T8 (master track). Setting SRC3 to CUE, one can create a variation of this trick in which the

tracks that are recorded can be individually selected (cued tracks have blinking LEDs). For Recorder Setup Menu 2 (FUNCTION+ AUDIO CD) we assume the defaults, including FIN=0, FOUT=0. Next we assign scenes. We shall here use scene 15 for slot A and scene 16 for slot B. Scene 15 is for anything playing normal during the recording. Select Track 4 and select the Amp menu. Hold down the button for Scene A and select (for Track 4) with knob F crossfader XVOL=MIN. Track 4 will thus be silent during the recording. When we move the crossfader over to Scene 16 in slot B, we want to hear the recorded loop. Press and hold the Scene B button and select (for Track 4) with knob F for XVOL=MAX. Next, select all other tracks, press and hold the Scene B button and select with knob F, XVOL=MIN. Next, we set a one-shot *recording* trig on Track 4: FUNCTION+REC AB, enter grid recording mode, and press FUNCTION + Trig Key 1. Blinks if not armed, otherwise constant yellow.

Preparation: Select T4 and ensure there is a single sample trig for T4, not a one shot trig. Move the crossfader to the left (Scene A). Have both scenes active (LED on).

Using the trick: Go into grid recording mode (Rec button). Open recorder setup for T4 (FUNCTION+REC AB). Arm the recorder by pressing T4 + ENTER/YES (constant yellow trig LED in grid recording mode) - the recording will start with the next start of the 4 bar pattern.

In the Recording Setup Menu 1, the upper arrow shows the recording, while the lower arrow runs in parallel playing back. After one bar, the upper arrow is no longer there, indicating that the recording is completed. The lower arrow should continue. Now move the crossfader over to Scene B to hear the recording.

Once the recording plays, one can now make changes to other tracks, change patterns, load new samples etc. If patterns are changed, do not forget that for T4 there should be trig placed on the first step of the sequencer to ensure the playback of the recording continues.

Note that if external inputs AB and/or CD are routed directly to the main output (DIR=127 in the mixer menu), they will continue to play, they are not silenced through the scene. In a setup in which external inputs are routed directly through to the main output on Track 8, deselect IN AB and CD in the Recorder Setup Menu. The effect works work well with the Octakontrol, which provide volume faders for the OT. Another tip: Using a Delay on Track 4 one can use knob F, to change the Send from 127 to 0 and create an echo to transition from the recording to new elements (see Echo Freeze Trick below). This give also a hint for the case that you move the crossfader to Scene B and you hear nothing …. check if you have a delay in place with Send being 0 … .

The way how this “trick” is used depends strongly on the intended role of the external inputs in the recording and how the external inputs are setup, using through machines (occupying a track on the OT and thereby recorded) or whether the DIR method is used, where the external inputs are routed directly to the main output of the OT. Using the DIR method and having the AR/A4 coming into the OT, one can keep them running (and do not record them INAB=--). Note that scenes are included in Parts. Once the setup is completed, check that you save the Part. Credit for this trick goes to Tarekith https://youtu.be/f1D_UurOook

Reference

https://www.youtube.com/watch?v=EUhiMk3U8sg&feature=youtu.be

Woosh Effect

Select a continuous white noise loop sample or something with many frequencies in so that a frequency sweep makes sense. I here assume that we have a sample chain with one slice that contains a noise sample. Ensure that this slice is looped. The idea is to make a filter sweep, combined with an LFO for use as a transition effect that can be used during a break, creating tension before the kick drops back in. The effect will be controlled with the crossfader. The effects uses Effect 1 (Filter) and an LFO. In order to leave the defaults of Effect 1 (Filter) untouched, all changes are locked to scenes. Select a scene. To set LFO1, press FUNCTION+LFO and select for PMTR=AMP VOL, WAVE=ISQR, MULT=16x or 32x, TRIG=TRIG. Press LFO to go to the main LFO parameter page. Press and hold SCENE A, lock SPD1=16 and DEP1=127. Press Effect 1 and then press and hold SCENE A to set BASE=120 (which gives silence, the effect is full on around 90 and by moving the crossfader over we can get silence after the drop), Q=65 (WDTH=127, ATK=0, DEC=64, DPTH=0, HP=LP=12dB, ENV=WDTH, HOLD=OFF, Q=BDTH, DIST=OFF remain unchanged). This would be the setting for the woosh effect being full on. (Consider adding reverb). Select Scene B and move crossfader over. For Effect 1, press and hold SCENE B and set for the Filter Q=100, BASE=60 and for the LFO, SP1=16 or 32, DEP1=10 and XLV=MIN. Press and hold Scene B and on the Playback page for the noise sample, set the STRT parameter to pick the slice in the sample chain that contains the noise sample. Moving the crossfader from Scene B to Scene A on the left increases the effect, introducing a pumping woosh. The track containing the sample chain with the noise sample can be handled in different ways. Say the sample chain contains other SFXs one shots, that should not necessarily be looped. In the Playback Setup we than have LOOP=AUTO and in the Audio Editor ATTR submenu LOOP MODE=ON. Then those slices that have a loop point, will loop and the others not. For such a track with SFX one would have to consider muting the track, say after the woosh effect to avoid surprises. For the woosh effect first the two scenes need to be assigned to the crossfader and then (in the scenario with the free running track), pressing the track button + Play will launch the noise loop. Don’t forget to save the effort by saving the Part (FUNCTION+MIDI/PART and then FUNCTION+BANK/EDIT) and also to save the project regularly.

Playing Long Samples

Approach 1: A pattern in the sequencer consists of four pages. If the pattern scale is set to 64/64 1x, each trig will correspond to a 16th and four pages to 4 bars. If a sample/slice is more than four bars long, setting a sample trig, will retrigger the sample after 4 bars. Solution: Assume a scenario in which a 8bar slices is to be played with the scale setup being 64/64 1x, so that each of the 16 trigs is a 16th note and hence the four pages represent four bars: (1) Enter Grid Recording mode and enter a sample trig by pressing the first trig key. (2) If the 8 bar sample is a slice in a chain, parameter lock the slice by pressing and holding the TRIG key and select with STRT (knob B) the slice that is to be played. (3) Start play of the pattern and before the four pages are completed, press TRIG+ENTER/NO twice to turn the sample trig into a trigless lock. Trigless locks are indicated by half-bright green trig LEDs. (4) Set Loop points in the SLICE menu of the sample audio editor (turning knob B to the left to create a loop point covering the full length of the slice) and setting in the ATTR menu LOOP MODE to ON (LOOP mode to AUTO in the track’s Playback Setup menu). Ensure that you are outside grid recording mode to open the track’s Playback Setup menu with FUNCTION+EDIT. (5) Switching from trigless lock to sample trig: Press the TRIG key of the trigless lock to turn it back into a sample trig. If it is not desired that the sample plays out when the sequencer is stopped, ensure the release in the Amp section is low.

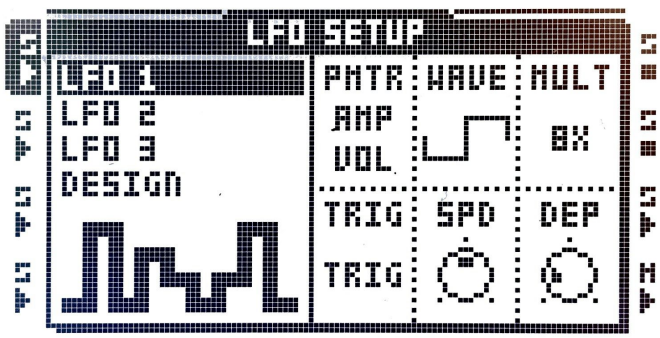
Approach 2: A free running sample is another option: (1) Select the relevant track by pressing the TRACK key. (2) Outside grid recording mode, press FUNCTION+BANK/EDIT to open the Pattern Settings Menu. Use the DOWN arrow key to get to the relevant page for the track of choice and tick the PLAYS FREE option. (3) The track is now disconnected from the sequencer. When PLAY is pressed, the track will not start playing. Instead, use Trig keys 1-8 to trig disconnected tracks. This however requires a trig to be set (which will be re-trigged after four pages …). Alternatively press TRACK+PLAY to play the sample and TRACK+STOP to stop it. (4) Different slices can now to selected with the STRT parameter. (5) With LOOP MODE set to ON in the ATTR menu of the slice/sample and LOOP in the Playback Setup of the track set to ON, and no loop points set (using knob B in the SLICE menu) the sample/slice will loop. (Ensure that you are outside grid recording mode to open the track's Playback Setup menu with FUNCTION+EDIT). Compared to the manual approach described above, I have a slight click when the slice loops. Setting a loop point for slices (turn knob B to the left to set one that covers the whole slice) and then choosing the option AUTO in the Playback Setup for the track, there is no click while looping! Note that in this case changing the STRT parameter to select a different slice, will only come into effect by triggering the machine again (with TRACK+PLAY). Monitor progression through sample/slice by pressing TRACK+BANK/EDIT and go to the SLICE submenu of the audio editor. Slices can also be selected with the trig keys by going into the Slices Trig Mode (press FUNCTION+DOWN arrow key, outside the editor).

The Beatrepeat Effect

Setup: In the Echo Freeze Setup Page (FUNCTION+FX2 on a track with a delay chosen for FX2). Set LOCK=ON, and set SEND=0 so that the delay can function as a repeater. Set the FB parameter on the FX2 main page to 127. Operation: Press FUNCTION+UP/DOWN, scrolling down to the Delay Control menu. Green lit LEDs, above trig keys 9-16, indicate tracks with a delay effect. Pressing one or more of these, will allow trig keys 1-8 to adjust the TIME parameter of the selected tracks. The lower the key number, the lower the TIME value, i.e. one would in quick succession press the keys from right to left (eg T6 to T2).

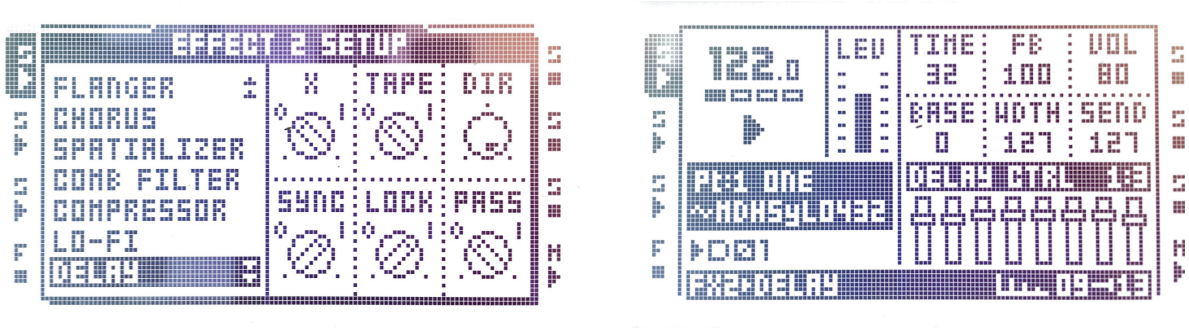
Pumping Effect

There is no sidechaining possible with the OT but an LFO can be used to simulate a similar effect. One option is to duck the volume of a sample. We assume a 4-4 kick with 122 BPM on some track of the OT, or coming from the AR. We place an atmospheric sample on track 1, maybe something that has already a small and slow pitch change included (although this could be also be realised on the OT by combining LFOs). We then go to the LFO page for T1 and use the following settings: PMTR=AMP VOL, WAVE=ISQR, MULT=x8, TRIG SYNC=TRIG, SPD=64, DEP=25.



The Echo Freeze Effect

Setup: For the track(s) in question, ensure for FX2 a delays is selected. Step 1: Open the Echo Freeze Setup Page by pressing FUNCTION+EFFECT2. Set X=0, TAPE=1, DIR=127, SYNC=1, LOCK=1, PASS=0. For the TAPE=ON you get slewed modulation, for TAPE=OFF a stepped modulation. DIR=127 to mix the entire dry signal with the delay signal. A min setting will make only the delay signal be heard. Step 2: Press the Effect 2 key to get the FX2 main menu - which can be opened while the Delay Control Menu (FUNCTION+DOWN) is open. Set TIME=32, FB=100, VOL=80, BASE=0, WDTH=127, SEND=127. Experiment with different TIME values, say TIME=64 (one bar delay) or TIME=32 (fast). SEND=127 sends the whole signal into the delay, with SEND=0 the effect is engaged. Note that if SEND=0 and the delay buffer is empty, no sound is coming from that track … just in case, at some point, you are wondering why one track is “dead”. Set FB=100 and experiment to find some suitable parameter. The higher the FB value, the longer is the echo. The volume of the freeze effect can be controlled with the VOL parameter on the delay main page.



Operation: (i) with the Delay Control menu (FUNCTION+UP/DOWN, and scrolling down to the Delay Control menu (Delay Trig Mode). Green lit LEDs, above trig keys 9-16, indicate tracks with a delay effect. Pressing one or more of these, will allow trig keys 1-8 to adjust the TIME parameter of the selected tracks. The lower the key number, the lower the TIME value. Press and hold the trig keys T9 to T16 to engage the effect. (ii) Alternatively, we can assign a Scene, and link the crossfader position where the effect is in full action with a SEND=0. The advantage of a scene is that we can combine the delay with other effects on FX1.

Variations: If you want the dry signal on top of the freezes, turn PASS on. One can hi-pass the freeze effect with the BASE parameter.

Handling Sample Chains

Transfer a .wav file to the OT Audio folder. Select a track with a Flex or Static machine assigned to it. Load a sample into the sample slot list by pressing FUNCTION+PLAYBACK. Either select a machine or press the RIGHT arrow to go to the sample slot list. To load a new sample from the audio pool to an empty sample slot, select the sample slot and press ENTER/YES. The file browser will be opened. If a sample slot contains already a sample, press the right arrow key to access the audio pool without assigning the selected sample slot to the machine. Turn the new chain into the active sample for the track and press FUNCTION+BANK/EDIT to open the audio editor. Select the Slice submenu by pressing the Amp key. Press again FUNCTION+BANK/EDIT and select the “Create slice grid” option and choose the appropriate number of slices. If the chain was created in a DAW with equal spacings between individual samples, say no to “zero crossing align markers”. Next create linear locks for the slices by pressing FUNCTION+BANK/EDIT again (in the slices submenu) and choose “Create linear locks”. Now the slices are locked to the trig keys. Make sure SLIC is set to ON in the Playback Setup menu. To hear the samples play, make

sure that the track is not muted. In SLICE TRIG MODE (FUNCTION+DOWN ARROW), the slices can be conveniently played back with the trig keys. If each slice in the chain is a loop, set LOOP in the Playback Setup for the track to ON. However, this then applies to all samples linked to that track. If set to AUTO, the settings can vary from sample to sample. In the ATTR submenu of the sample editor, one can set the LOOP MODE for the individual sample to ON but then one also has to set loop points for the slices: Go to the SLICE submenu and use the arrow keys to select a slice. Turn knob B to add a loop point, which should be then moved right to the start, above the S(tart) point. (Turning the knob for the first time to the left, does the job in one touch).

“How to …” Reference for the Elektron Octatrack

The purpose of this reference is not to replace the manual but to complement it. Once you have studied the User’s Manual, a common problem is to remember the very large number of options these machines offer. The present text addresses this problem by providing a quick “lookup” reference that orders entry by tasks. To this end, the wording follows closely the manual and entries are ordered alphabetically. The “Check” section may prove useful in case you wonder what a LEDs or events on the screen refer to. For example, you find here information what a yellow Card Status LED means.

Activate

- /re-arm one shot **recorder trigs**: In grid recording in grid recording mode (or the recording setup and track trig edit menu) all one shot trigs will be re-armed when pressing ENTER/YES. Pressing TRACK+ENTER/YES will also re-arm all one short recorder trigs of a track (for as long as the as the key combination is held). One shot recorder trigs are disarmed with TRACK + EXIT/NO and both of these combinations also work if grid recording mode is not active. One shot sample trigs will not be affected when in Grid Recording mode.
- /re-arm one shot **sample trigs**: FUNCTION+ENTER/YES … of the active track even if the sequencer is running. FUNCTION+ENTER/NO will disarm one shot sample trigs of the active track. One short recorder trigs will not be affected when in Grid Recording mode. One shot trigs that have been activated by the sequencer are indicated by alternating yellow/red trig LEDs. Quickly pressing STOP+STOP while the sequencer is stopped, will also re-arm all one shot trigs.
- Sampling source for recorder trig: Keep the TRIG button of the recorder trig pressed
- **Slice playback** functionality: Double press PLAYBACK key to open the Playback Setup menu. Set SLIC to ON.
- **Trig recording mode**: Press REC.

Add

- **Comment to arrangement:** see Add Remark
- **Content to the audio pool**: Connect the OT to a computer via the USB cable. Open the Project menu and select SYSTEM and then USB Disc Mode. Use the computer to manage files. It is recommended to put audio files only in the AUDIO folder. Got to PROJECT->SYSTEM->CARD TOOLS for file management with the OT.
- **One-shot sample trig:** Press FUNCTION+TRIG on an existing sample trig. FUNCTION+ENTER/YES will re-arm all one shot trigs of a track.

- **One-shot recorder trig:** Open the Recording Setup Menu with FUNCTION + REC A B and enter grid recording mode. Press FUNCTION + TRIG key. A yellow trig LED indicates a one short trig. When the trig LED is flashing, arm the track first with Trk KEY + ENTER/YES.
- **Parameter locks to a scene:** Press the relevant SCENE button, and choose the value of the track parameters. The graphics of locked parameters will be inverted.
- **Recorder trig:** Select track and open the Recorder Setup Menu 1 with FUNCTION+REC AB. Enter grid recording mode and place the trig. Turn it into a one-shot recorder trig with FUNCTION+TRIG KEY.
- **Remark to arrangement:** Enter Arrangement Mode by pressing FUNCTION+PATTERN/ARRANGER. Next, press FUNCTION+BANK/EDIT to open the Arranger menu and choose the Edit submenu. Insert a new row by pressing FUNCTION+DOWN. Go to row PAT with the Right Arrow key and turn the Level knob anti-clockwise until REM appears. Press the Right Arrow key and then press YES to open the naming menu. FUNCTION will open the pop up menu.
- **Sample lock:** Each sample trig can play a different sample. In grid recording mode, open the Sample Lock menu by holding down a TRIG key and either pressing the UP/DOWN keys or turning the LEVEL knob. While holding the TRIG key, select a new sample and press ENTER/YES to lock it. Continue to hold the TRIG key and select slice or other set other parameter locks.
- **Slide trig:** Enter grid recording mode and then open the Track Edit Menu with FUNCTION+BANK/EDIT.
- **Swing trig:** Enter grid recording mode and then open the Track Edit Menu with FUNCTION+BANK/EDIT.
- **Track recorder trig:** Select track and open the Recorder Setup Menu with FUNCTION+REC AB. Go into grid recording mode by pressing REC and place a trig (or one shot trig with FUNCTION+TRIG KEY on an existing trig).

Arm

- **One shot trigs, for a particular track:** Go into Grid Recording Mode and press ENTER/YES. In the SYSTEM > PERSONALIZE menu this behavior can be disabled. Alternatively press FUNCTION+ENTER/YES
- **One shot trigs, for all tracks:** Go outside Grid Recording Mode and press ENTER/YES to re-arm all tracks.
- **Dis-arm one shot recorder trigs**, **for a particular track:** TRACK+EXIT/NO
- **Dis-arm one shot trigs, for all tracks:** Go outside Grid Recording Mode and press EXIT/NO
- **Recorder Track:** Press TRACK and ENTER/YES.

Assign

- **Effect:** Each track features two assignable effects. Press FUNCTION+EFFECT1/EFFECT2 or quickly double press EFFECT1/EFFECT2 to open up the effect setup menu. See also Edit Effects.
- **Machines to tracks:** (i) via PLAYBACK setup menu. (ii) double click a TRACK button. If the track contained a Static or Flex machine, use the LEFT arrow to access the machine list. Afterwards, access the sample slot list by pressing the RIGHT arrow key.
- **Samples to machines:** see Assign ‘machines to tracks.
- **Sample to trig:** Press REC to get into the grid recording mode, then press TRIG key + UP/DOWN arrow (or turning the Level knob). Select sample and press ENTER/YES. The trig LED will rapidly flash.
- **Scene to the selected scene slot:** SCENE A/B+TRIG. SCENE+Data Entry knob will assign the chosen parameter value to the scene. FUNCTION+SCENE will mute the scene.
- **Scene to pattern in arrangement:** Press FUNCTION+PATTERN to enter arrangement mode. Press FUNCTION+BANK/EDIT to open the arranger menu. Choose Edit. Move the two columns entitled “SCENE”. The first column is for scene A slot and the second column

for slot B. Use the level knob (or press Scene A/B+TRIG) to assign scenes. The scenes are chosen from the part linked to the pattern of the arrangement row.

Change

- **BPM** - see Tempo.
- **Cue level:** CUE+LEVEL knob.
- **Main output level:** FUNCTION+LEVEL knob. (not in STUDIO mode of the CUE CFG)
- Pitch of a sample: Press PLAYBACK to open the playback page and adjust the PTCH parameter with knob A.
- **Sample trig into trigless lock:** Press TRIG+EXIT/NO twice. To turn a trigless lock to a trigless trig, press TRIG+ENTER/YES. When pressing the trig key of a trigless lock, it will turn into a sample trig. Press the trig key again to remove the sample trig altogether.
- **Sample trig into trigless trig:** Press TRIG+EXIT/NO. To turn a trigless lock to a trigless trig, press TRIG+ENTER/YES. When pressing the trig key of a trigless trig, it will turn into a sample trig. press the trig key again to remove the sample trig altogether.
- **Sample trig into one-shot trig:** Press FUNCTION+TRIG on an existing trig. FUNCTION+ENTER/YES will re-arm all one shot trigs of a track.
- **Tempo:** TRACK+LEFT/RIGHT to nudge the tempo +/-10%. Press TEMPO to open the tempo menu. Use the LEVEL encoder to change the tempo in integer steps. The UP and DOWN arrow keys change the decimal part of the tempo. Holding FUNCTION while adjusting the tempo will not change the tempo until the FUNCTION button is released. To tap a tempo, hold the FUNCTION key and tap the TEMPO key for at least four taps.
- **Track level:** Level knob.
- **Trig mode:** Press FUNCTION+UP or DOWN arrow. When no recording mode is active, in TRACK TRIG MODE, trig keys 1-8 trig any disconnected audio tracks and trig keys 9-16 trig the machines of the eight tracks. In SLOTS TRIG MODE, the trigs will play different samples on the same track. In SLICES TRIG MODE, the trig keys will trigger slices. In QUICK MUTE MODE, the eight leftmost trig keys mute the audio tracks, while the other trig keys mute the MIDI tracks.

Chain

- **Pattern:** Press and hold the PATTERN button and then press and hold the TRIG keys in the order they should be chained. You can only use pattern in the same bank and each pattern can only appear once. A chain is indicated by a double arrow between the current and next pattern. Pressing stop twice unlinks a chain.

Check

- **“+”** next to the track indicator on the display: Recording going on.
- **Bank:** Press BANK. The trig LED of the active bank will be lit red.
- **Card status:** A blinking green LED means that the card is being read. A red LED means the card is written to. A yellow LED means that the card cannot be written to until STOP is pressed.
- Mixer menu **mute status:** in the mixer menu, mute and unmute tracks with the trig keys (T1-T8 for audio tracks and T9-T16 for MIDI tracks). A “-“ indicates a muted track. A lid trig LED and an outline square indicate an audible track. A green trig LED indicates a soloed track (press CUE+trig key for soloing).
- Arrangement **mute status**: Enter Arrangement Mode, open the Arranger Menu, open the Arrangement Editor. Use the right arrow to go to the last column (“M”) and press YES. A “M” in the row indicates that tracks are muted for the arrangement row.
- **MIDI activity:** Two pixels in the upper left corner of the LCD screen indicate MIDI activity. The left pixel blinks when MIDI data is received, the right pixel blinks when MIDI data is send out.
- **Mute status:** See Check Mixer menu mute status and Check Arrangement mute status.

- **Part menu:** The part marked with an asterisk indicates a part that has been changed but it not saved. Press FUNCTION+BANK/EDIT to open menu for saving.
- **Pattern:** Press PATTERN - the active pattern is indicated by a red trig LED. Patterns containing data are indicated by green trig LEDs.
- **Rec LED:**
    - *Red:* Grid recording mode is active.
- **Recording status:** Select track and then open with FUNCTION+REC AB and FUNCTION+REC CD the two recording setup menus. FUNCTION+BANK/EDIT gives further edit options. While running, the *top arrow* shows the recording, while the *lower arrow* shows the playback position. In the bottom right, the available recording time is shown in seconds and in sequencer steps. When playing or recording, the tape recorder wheel is moving.
- **Double arrow** between pattern: a double arrow between the current pattern and the pattern that will play next indicates a pattern chain. Unlink a chain by pressing STOP twice.
- **Scene:** The scenes currently assigned to the scene slots are displayed in the lower right part of the LCD screen. Another way to check this is by pressing the Scene button. The scene assigned to the slot for which the button is pressed, is indicated by a red trig LED and the scene assigned to the other slot is indicated by a green LED. Scenes containing locks are indicated by half-bright green trig LEDs.
- **Scene locks:** Press and hold the Scene key. The track LEDs of all tracks containing scene locks will turn half-bright green and/or start to blink. Selecting one of these tracks will show half-bright green and/or blinking Track Parameter LEDs. They indicate which track parameter pages contain scene locks.
- **Track LED:**
    - *Green:* Deselected, unmuted, audible track.
    - *Red:* Selected, unmuted, audible track.
    - *Yellow:* A muted and currently active track.
    - *Unlit:* A muted and currently not selected inaudible track.
    - *Flashing:* indicates a track that is cued.
- **Tracks with delay:** FUNCTION+UP/DOWN, scrolling down to select the Delay Control menu. Green lit TRIG LEDs above trig keys 9-16 indicate tracks with a delay effect. Pressing one or more of these, will allow trig keys 1-8 to adjust the TIME parameter of the selected tracks. The lower the key number, the lower the TIME value.
- **Trig LEDs:**
    - *Blinking:* indicates cued tracks.
    - *Red* - Pressing PATTERN, indicates the currently active pattern.
    - *Red* - Rapidly flashing: Indicates a sample lock.
    - *Green* - pattern containing data. A red trig LED also indicates a sample trig.
    - *Yellow:* One shot trig. See Enter one shot trigs. One shot trigs that have been activated by the sequencer are indicated by alternating yellow/red trig LEDs. Quickly pressing STOP+STOP while the sequencer is stopped, will re-arm all one shot trigs.
    - *Yellow and red alternating:* Activated one shot trig (see yellow trig LED). Re-arm with FUNCTION+YES or TRACK+ENTER/YES.
    - *Green:* Indicates a slide trig.
    - *Green half-bright:* indicates a trigless lock.
    - *Green full-bright:* indicates a trigless trig in grid recording mode.
- **Trig mode:** The currently active trig mode is indicated in the lower right part of the LCD screen. When no recording mode is active, in TRACK TRIG MODE, trig keys 1-8 trig any disconnected audio tracks and trig keys 9-16 trig the machines of the eight tracks. In SLOTS TRIG MODE, pressing a trig key when no recording mode is active, will trig a specific sample in either the Flex or Static sample slot list.

Clear

- *In general:* FUNCTION+CLEAR (Undo by repeating the operation)
- **Page** (of parameter values): See Reset.

- **Recorder buffer:** Open the Recording Setup Menu and press FUNCTION+PLAY. Grid Recording mode needs to be inactive for this to function.
- **Sample slot:** Either through the File menu (double click track, right arrow) or FUNCTION+CLEAR.
- **Scene parameter lock data:** Hold a Scene button and press PLAY. Undo by repeating the operation.
- **Track from trigs:** Enter Grid Recording Mode, select track and press FUNCTION+PLAY. The operation can be undone by pressing FUNCTION+PLAY again.
- **Track parameter page:** Select the Track Parameter page you wish to clear and press TRACK PARAMETER+PLAY. Undo the operation by pressing TRACK PARAMETER+PLAY again.
- **Trigs:** Activate grid recording mode by pressing REC. Then press FUNCTION+PLAY/CLEAR to clear all trigs of the track.
- **Trig locks:** Hold and press the TRIG key of the trig whose content you want to clear. Then press PLAY to clear the trig of all parameter locks. This operation can be undone by repeating the operation.

Copy

- **Bank:** Check copying parts (eg. across banks) and in the OT manual see “Card Tools”.
- **Pattern:** Exit grid recording mode first, select the pattern for copy, then press FUNCTION+REC.
- **Scene:** Press and hold the scene key and press REC. Paste a scene by holding a scene key and pressing STOP.
- **Track:** Enter Grid Recording Mode. Select the track you want to copy by pressing its TRACK key. Press FUNCTION+REC to copy. The copied information consists of trigs, parameter locks, machine and FX assignments. Select the destination track and paste the data by pressing FUNCTION+STOP. The operation can be undone by pressing FUNCTION+STOP a second time.
- **Track page:** Copying all trigs and parameter locks for an entire page of the sequencer, enter first Grid Recording Mode. Select the track containing the data you want to copy, then select the track page you want to copy by pressing the PATTERN PAGE key. Hold the Pattern Page key and press REC to copy the track page. Select the track page you want to paste the copies page to and paste by holding the PATTERN PAGE key while pressing the STOP key. This operation can be undone by pressing PATTERN PAGE+STOP. The copied data can also be pasted to another track: After having performed the track page copy command, select the new track and, if needed, the track page. Then paste.
- **Track parameter page:** To copy the settings of the MAIN and SETUP pages, select the TRACK PARAMETER PAGE you wish to copy and press TRACK PARAMETER+STOP. This operation can be undone by pressing TRACK PARAMETER+STOP again.
- **Trigs:** Enter Grid Recording Mode and then open the Trig Edit menu (FUNCTION+BANK). Press and hold the trig you want to copy and press the REC key. Hold the trig key corresponding to the location you want to paste the trig to and press the STOP key to complete the paste operation.

Create

- **Arrangement:** Enter Arrangment Mode by pressing FUNCTION+PATTERN/ARRANGER. FUNCTION+BANK/EDIT opens the Arranger Menu. See Edit Arrangement. See also Add Remark to arrangement. Start the arrangement by pressing PLAY in the arrangement mode. Navigate in the arrangement with the Up/Down arrows. Press ENTER/YES to play another row.
- **Free playing (disconnected) tracks:** To start and stop tracks individually, tracks can be disconnected from the sequencer. The first eight TRIG keys trig disconnected tracks (in TRACKS trig mode (selected by pressing FUNCTION+UP or DOWN). Outside the grid recording mode, press FUNCTION+BANK/EDIT and use the UP/DOWN keys to go to the

playback settings. Check the PLAYS FREE box. When PLAY is pressed, the track now not start but needs to be triggered manually by pressing the relevant trig key among the first eight trig keys.

- **Pattern chains:** Press and hold the PATTERN button and then press and hold the trig keys in the order they should be chained.
- **Sample lock:** look under Add
- **Slide trig:** look under Add
- **Swing trig:** look under Add
- **Track recorder trig:** see under Add

Cue

- **Track:** CUE+TRACK. By pressing CUE plus the AUDIO RECORD buttons it is also possible.

Delete

- **Arrangement row:** In the arrangement editor, press FUNCTION+UP to remove a row.
- **Letters** in naming menu: FUNCTION+EXIT/NO. CUE+NO without the pop up-menu.
- **Level lock** in scene: Press the LEVEL knob while holding down the SCENE key pressed. An XVOL lock is removed by pressing the corresponding data entry knob while keeping the SCENE button pressed. An XDIR AB lock is removed by pressing knob B while keeping the SCENE button pressed. XDIR CD is removed by pressing knob C while keeping the SCENE button pressed.
- **Loop point:** Open Slice Edit Menu with FUNCTION+BANK/EDIT. Select Slice submenu, select slice of choice and press FUNCTION+BANK/EDIT and select Disable Loop to delete the loop point of the selected slice.
- **Pattern chain:** to unlink the patterns in a chain, press STOP once to stop playing the chain and then press again STOP to unlink the pattern in a chain.
- **Project:** Project: FUNCTION+MIXER to open the project menu, go the CHANGE submenu and press FUNCTION+BANK.
- **Sample trig:** press the trig again.
- **Samples:** Remove unused samples from the project (sample slot lists, remaining in the audio pool), by opening the Project Menu with FUNCTION+MIXER/PROJECT and then choose PURGE SAMPLES option.
- **Scene lock:** Hold the scene button and press the corresponding data entry knob.

Edit

- **Arrangement:** Press FUNCTION+PATTERN to enter arrangement mode, then FUNCTION+BANK/EDIT to open the arranger menu. Select Edit for the arrangement editor. Insert a row with FUNCTION+DOWN. Remove a row by FUNCTION+UP. Use left/right arrow keys to move the focus between the columns. To insert a loop, choose HALT in the PAT column, move with the cursor to the right and turn level knob for LOOP to appear on the left.
- **Effects** (Default FX1=Filter, FX2=Delay) - see also Reset Parameter Values below:
    - Delay: For a one beat delay, 4x16th notes, the delay time should be set to 64. SEND determines how much of the signal is send to the delay. DIR sets how much of the dry signal will be mixed with the delay signal. A min setting will make only the delay signal be heard. *Defaults:* TIME=48, FB=0, VOL=127, BASE=0, WDTH=127, SEND=0. DIR=127, TAPE=1, X=0, SYNC=1, LOCK=0, PASS=0 (OFF).
- **Filter:** To use it as a HP filter, set WIDTH to max and sweep the BASE. To use it as a LP filter, set BASE to min and sweep the WIDTH. *Defaults:* BASE=0, WDTH=127, Q=0, DPTH=0, ATK=0, DEC=64. HP=LP=12dB, ENV=WDTH, HOLD=OFF, Q=BOTH, DIST=OFF.

    - LoFi collection: DIST controls the signal overload distortion. Starting from zero, increase BRR and SRR for dramatic effects. Defaults: AMPH=OFF, DIST=0, AMF=0, SRR=0, BRR=0, AMD=0.
    - Plate Reverb Factory default: GVOL=0, BAL=0, MONO=0, MIXF=MIX, TIME=24, DAMP=0, GATE=127, HP=0, LP=127, MIX=0.
    - Spring Reverb Factory default: TYPE=2, BAL=0, TIME=23, HP=20, LP=127, MIX=0.
    - Dark Reverb Factory default: PRE=0, BAL=0, MONO=0, MIXF=MIX, TIME=24, SHVG=0, SHVF=127, HP=0, LP=127, MIX=0.
- **LFO:**
    - Defaults: SPD1=32, SPD2=32, SPD3=32, DEP1=DEP2=DEP3=0. PMTR=PB PTCH, TRIG=FREE, MULT=1x, WAVE=saw
- **Names:** FUNCTION+NO to delete a character like a backspace Button on a keyboard.
- **Parts:** Press FUNCTION+MIDI/PART to open the Part Quick Select Menu, select a part with the arrow keys and then press FUNCTION+BANK/EDIT to open the Parts Edit pop-up menu.
- **Pattern settings:** FUNCTION + BANK (in the default screen).
- **Recording:** Open Recording Setup Menu and press FUNCTION+BANK/EDIT to open submenus. Choose “Edit this recording”.
- **Sample:** (i) from the quick assign menu - double click the TRACK key, select sample and press FUNCTION+BANK to open the sample editor. (ii) from the playback setup menu - double click PLAYBACK or press FUNCTION+PLAYBACK. Navigate to the Flex or Static sample slot list, select a sample and press FUNCTION+BANK/EDIT. (iii) from tracks and track recorders - TRACK+BANK. See p.96 of the manual.
    - Level knob: Navigate waveform.
    - Knob A: Start point.
    - Knob B: Loop point marker.
    - Knob C: End point.
    - Knob D: y-axis zoom.
    - Knob E: Scroll the waveform.
    - Knob F: Zoom x-axis.
    - Hold FUNCTION while using the knobs A,B,C to snap to zero amplitude crossings.
    - FUNCTION+BANK: Opens Sub Edit Menus
- **Track Parameter Pages - Default settings:** (see Reset Parameter Values)
    - Playback factory defaults: PTCH=0, STRT=0, LEN=1, RATE=63, RTRG=1, RTIM=1/2, LOOP=AUTO, SLIC=OFF, LEN=OFF, RATE=PTCH, TSTR=Auto, TSNS=64.
    - Amp factory defaults: ATK=0, HOLD=INF, REL=INF, VOL=0, BAL=0, AMP=RTRG, SYNC=ON, ATCK=LIN, FX1=ANLG, FX2=ANLG.
    - LFO factory defaults: SPD1=32, SPD2=32, SPD3=32, DEP1=0, DEP2=0, DEP3=0, PMTR=PB PTCH, TRIG=FREE, MULT=x1, SPD=32, DEP=0.
    - Effect 1 factory default: FIter. Defaults: HP=LP=12dB, ENV=WDTH, DIST=OFF, HOLD=OFF, Q=BDTH, BASE=0, WDTH=127, Q=0, DPTH=0, ATK=0, DEC=64.
    - Effect 2 factory default: Delay. Defaults: TIME=48, FB=0, VOL=127, BASE=0, WDTH=127, SEND=0, X=OFF, TAPE=On, DIR=127, SYNC=ON, LOCK=OFF, PASS=OFF.
- **Trig settings:** In grid recording mode, press FUNCTION+BANK.

Erase

- **Characters:** FUNCTION+EXIT/NO, or (without the menu popping up) CUE+EXIT/NO.
- **Parameter locks:** In live recording mode, press and hold FUNCTION+EXIT/NO. All trigs hits by the running LED of the sequencer will be erased from the active track. Sample locks will however not be erased. To remove specific parameter locks in real time, press EXIT/NO while pressing the data entry knob.
- **Sample locks** in real time: In live recording mode, press EXIT/NO while pressing the LEVEL knob.

- **Trigs:** In live recording mode, press and hold EXIT/NO + the TRACK key of the track you wish to areas trigs from. All trigs hits by the running LED of the sequencer will be erased from the active track. The trigs of more than one track can be removed by pressing several TRACK keys simultaneously.

Enter

- **Arrangement mode:** FUNCTION+PATTERN/ARRANGER. While being in Arranger mode, press FUNCTION+BANK/EDIT to open the Arranger menu.
- **Grid recording mode:** Press REC.
- **Live recording mode:** Hold REC while pressing PLAY.
- **One shot trigs:** Press FUNCTION + the TRIG key of an existing sample trig. The trig LED will change from red to yellow. One shot trigs that have been activated by the sequencer are indicated by alternating yellow/red trig LEDs. Quickly pressing STOP+STOP while the sequencer is stopped, will re-arm all one shot trigs.
- **Trigless lock:** Press FUNCTION+TRIG. They are indicated by half-bright green LEDs.

Insert

- **Arrangement row:** Enter Arrangement mode by pressing FUNCTION+PATTERN. Press FUNCTION+BANK/EDIT to open the arrangement editor. Press FUNCTION+DOWN to insert a row. Remove a row with FUNCTION+UP. Use left/right arrow keys to move the focus between the columns of the editor. Select pattern by using the LEVEL knob or press pressing the appropriate BANK/PATTERN+TRIG key combination.
- **Loop in arrangement:** In the arrangement editor, insert a new row by pressing FUNCTION+DOWN. Turn the Level knob anti-clockwise until HALT appears in the PAT column. Use the right arrow to move the focus to the REP column and turn the Level knob anti-clockwise for LOOP to appear in the PAT column. The arrangement section will now loop infinitely between row 000 (REP column, changeable) and the row containing the loop command.

Loading

- **Samples** to the sample slot lists of a track: Select a track, FUNCTION+PLAYBACK, press RIGHT arrow to enter sample slot list. A sample is loaded by selecting it and either pressing ENTER/YES or the RIGHT arrow key. However, the file browser is not closed until the ENTER/YES is released. This makes it possible to keep holding ENTER/YES and use the UP/DOWN arrow keys to instantly load and try samples, without having to re-open the file browser for each file.

Mute

- **Scene:** FUNCTION+SCENE A/B
- **Track:** (i) with the mixer menu open - use the trig keys to mute a track. “-“ indicates a muted track, a and outlined square indicates an audible track. While holding FUNCTION and pressing the trig keys, the mute changes will be held until FUNCTION is released (indicated by a “+”). A track that is currently not muted but will be muted when FUNCTION is released, is displayed by an “x”. (ii) Outside the mixer menu, press FUNCTION + TRACK key.
- **Tracks in arrangement:** Open arranger with FUNCTION+PATTERN, open Arrangement Editor with FUNCTION+BANK/EDIT. Choose Edit. Move cursor to the column “M” and the press ENTER/YES to open the Row Mute Window.

Naming

- **Things:** Open pop up-menu: FUNCTION. Use the arrow keys while pressing the FUNCTION button. Pressing CUE instead of FUNCTION, allows naming commands without the pop up-menu appearing. While keeping FUNCTION pressed, use the arrow keys to select a letter/number/symbol. Release the FUNCTION key to insert the character. For naming projects, sets and samples, there are two popup menus with more choices. Scroll between them by using the Up/Down arrows. Press FUNCTION+EXIT/NO to quickly erase characters. Alternatively, press CUE+EXIT/NO to erase a letter (without the popup menu). Press ENTER/YES to complete the naming.

Open

- **Arranger menu:** Press FUNCTION+BANK/EDIT while arranger mode is active (cf. Enter).
- **Arrangement editor:** Enter Arrangement Mode by pressing FUNCTION+PATTERN. Press FUNCTION+BANK to open the Arranger Menu and choose the EDIT submenu to open the arrangement editor.
- **Audio editor:** Press TRACK key + BANK/EDIT
- **Pattern settings menu:** Press FUNCTION+BANK/EDIT when in grid recording mode is not active.
- **Playback Setup Menu:** Double press PLAYBACK. Press TRACK+BANK to open sample in audio editor.
- **Recording Setup Menu:** FUNCTION+ AUDIO REC AB /N AUDIO REC CD.
- **Sample Lock Menu:** In grid recording mode, open the Sample Lock menu by holding down a TRIG key and either pressing the UP/DOWN keys or turning the LEVEL knob.
- **Scale Setup Menu:** Press FUNCTION+PATTERN PAGE.
- **Track trig edit Menu:** Press FUNCTION+BANK/EDIT in grid recording mode.

Paste

- FUNCTION+STOP. Undo by repeating the operation.

Play

- **Arrangement:** Enter Arrangement Mode by pressing FUNCTION+PATTERN. Press PLAY.
- **Machine of a track**: see Trig
- **Slices:** Using trigs, the STRT parameter in the Playback menu can be used to play slices in a sample chain. An alternative is the Slice Trig Mode: Press FUNCTION+DOWN and go to the Slices submenu. The slices are divided into four pages and the trig keys are used to trigger the slices in those pages. To make this work, ensure that in the Playback Setup Menu the SLIC parameter is set to ON. Also check and consider the Pattern Settings Menu (FUNCTION+BANK/EDIT outside grid recording mode) and there the Plays Free option.

Preview

- **Samples:** FUNCTION+YES (through the main output) or CUE+ENTER/YES (through the cue outputs)

Record

- **Audio from a track:** Press TRACK+AUDIO RECORD.

Reset

- **Parameter value changes:** To clear the main page of parameter values (not including the track level), press and hold the Parameter main page button (Playback, Amp, LFO, Effect 1, Effect 2) and press PLAY/CLEAR.

Reload

- **Bank:** Reload the current bank by first opening the Project Menu with FUNCTION+MIXER/PROJECT, choose the RELOAD CUR BANK option.
- **Effect settings:** See Edit
- **Part:** Reload active part to its saved settings by pressing FUNCTION+CUE/RELOAD.
- **Project:** Open Project Menu with FUNCTION+MIXER/PROJECT, choose RELOAD option.

Remove (see Delete)

- **Clicks in recordings:** To remove unwanted clicks that might occur when a recorded sample loops, set FIN and FOUT in the Recording Setup 2 Menu (FUNCTION+AUDIO REC CD) to their lowest values.

Rename

- **Part:** Press FUNCTION+MIDI/PART to open the part select menu. Press FUNCTION+BANK/EDIT for the edit menu.
- **Project:** FUNCTION+MIXER/PROJECT to open the project menu, go to the CHANGE submenu and press FUNCTION+BANK/EDIT.

Rotate

- **LFO designer sequence:** FUNCTION+LEFT/RIGHT

Sampling

- of the **audio inputs** (manually): TRACK+AUDIO REC AB/CD. Alternatively check recorder trig sampling.
- of the **audio tracks** (manually): TRACK+MIDI. https://youtu.be/f1D_UurOook

Save

- **Bank:** Save the current bank by first opening the Project Menu with FUNCTION+MIXER/PROJECT, choose the SAVE CUR BANK option.
- **Part:** Press FUNCTION+MIDI/PART to open the part quick select menu. If a part has been altered but not saved, it will be marked with an asterisk. Press FUNCTION+BANK/EDIT to open the parts edit pop-up menu.
- **Project:** Open the project menu and go to SAVE.
- **Project** into a new one: Open the project menu and go to CHANGE, CREATE NEW PROJECT (why not SAVE TO NEW?). Press FUNCTION+BANK/EDIT for further options in the change menu.
- **Recording:** Open Recording Setup Menu and press FUNCTION+BANK/EDIT to open submenus. Choose “Save this recording”.

Select

- **Active bank:** BANK+TRIG

- **Active pattern page:** In grid recording mode, press PATTERN PAGE.
- Part: To link a part to the active pattern, press FUNCTION+MIDI/PART to open the Part Quick Select menu.
- **Inputs or inputs of input pairs for recording:** Enter Recording Setup Menu 1 by pressing FUNCTION +AUDIO REC AB. Select for INAB and INCD.
- **Pattern in active bank:** Press PATTERN+TRIG key.
- **Pattern in different bank:** Press BANK+TRIG key and when the “choose pattern” menu appears, press a TRIG key.
- **Trig mode:** FUNCTION+UP/DOWN when no recording mode is active.

Set

- **BPM** by tapping: FUNCTION+TEMPO
- **Cue level:** CUE+LEVEL.
- **Output volume level:** FUNCTION+LEVEL
- **Recording length:** Enter Recording Setup Menu 1 by pressing FUNCTION + AUDIO REC AB. Set RLEN.
- **Track length:** Press FUNCTION+PATTERN PAGE.
- **Track level:** LEVEL.

Shift

- **Trigs:** In grid recording mode, hold down FUNCTION while pressing the LEFT or RIGHT arrow keys.

Stop

- **Playback of THRU machines:** Press TRACK+STOP
- **Playback of a sample** with stopping the sequencer: Once playback is initiated with a trig, it will last as long as LEN is set for, and the volume will be held as long as your amp HOLD is set for, at which point it will enter the REL stage of the envelope, and fade for as long as that's set for. Say your sample is one bar, and instead you slice it into a grid of 16, put a trig on each step, and then create linear locks in the audio editor. if you set LEN to 1 slice, HOLD to 1, and REL to 0, when you stop the sequencer it'll play the last slice that was trigged, and then playback will stop.

Solo

- **Track:** In the mixer menu, press CUE+TRIG key. This is indicated by an “S” and green trig LED.

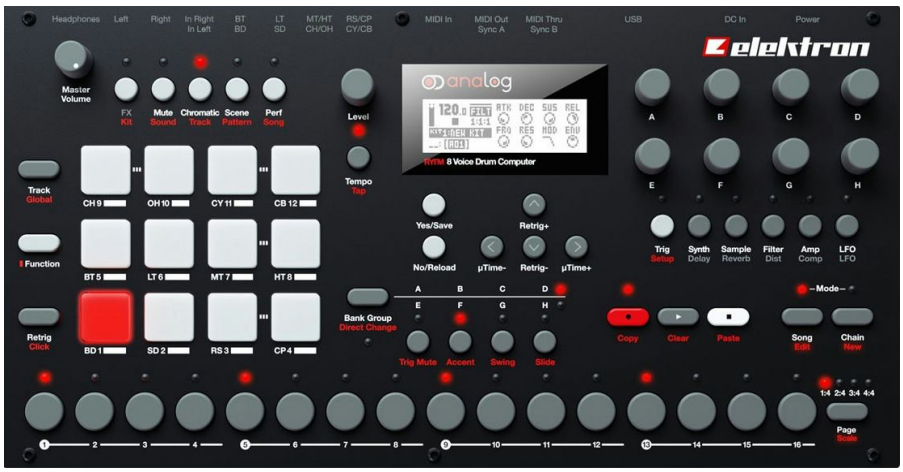
Trig

- **Disconnected (free playing) tracks:** To start and stop tracks individually, tracks can be disconnected from the sequencer. The first eight TRIG keys trig disconnected tracks. Outside the grid recording mode, press FUNCTION+BANK/EDIT and use the UP/DOWN keys to go to the playback settings. Check the PLAYS FREE box. When PLAY is pressed, the track now not start but needs to be triggered manually by pressing the relevant trig key among the first eight trig keys.
- **Machine of a track:** When not in any recording mode and with the TRACKS trig mode chosen (FUNCTION+UP or DOWN), Trig keys 9-16 will will the machines of the eight tracks. Alternatively, machines can also be trigged by pressing TRACK+PLAY
- **Sample assigned to machine of a track:** TRACK+PLAY. Stop playback of the machine by pressing TRACK+STOP.
- **Trigless trig:** Outside any recording mode press FUNCTION + TRIG 9..16

Undo

- **Changes to a part:** FUNCTION+CUE/RELOAD.

“How to …” Reference for the Analog Rytm



As with the previous section, the purpose of this section is not to replace the manual but to complement it.

Activate (cf. Enter)

- **Chain mode:** Press CHAIN MODE.
- **Drum track** for editing**:** Press TRACK+PAD.
- **Fill mode:** (i) for one pattern iteration - press YES+SCALE; (ii) momentarily - press SCALE key when not in grid recording mode (fill mode is activated for as long as the key is pressed). On the Trig page, the Trig Condition (TRC) is true when the sequencer is in fill mode.
- **Live recording mode:** RECORD+PLAY.
- **Metronome:** Press FUNCTION+RETRIG for a second.
- **Quantization of live recording:** RECORD + 2x PLAY.
- **Synth part or the Sample part of the track Sound:** Press TRIG setup.
- **Solo of a track:** In MUTE mode, press RETRIG+PADS.
- **Song mode:** Press the SONG MODE key.

Add

- **Accent trigs:** The velocity of a chosen step can be changed by opening the Accent menu by pressing FUNCTION plus the BANK **B/F** key. Select the track that will be affected by pressing the corresponding track key. Select the accent value by turning the level knob. Quick version: In grid recording mode, keep a note trig pressed and select the BANK **B/F** key to add an accent trig.
- **Chain** to a song row: Enter song mode by pressing FUNCTION+EDIT/SONG, select row, then press RIGHT arrow to position cursor and then press relevant BANK and TRIG keys.
- **Mutes** to a song outside song edit mode: Song mutes can be instantly added to any track of the active pattern in a chain or song by activating MUTE mode and then press and hold SONG MODE and tap the PADS of the tracks you wish to mute.
- **Parameter slides:** (i) Open the menu by pressing FUNCTION+BANK **D/H**. Press a trig key to place a slide on the sequencer. (ii) Quick version: Keep the note trig or trigless lock pressed and press BANK **D/H**. A locked parameter will slide to the unlocked value and vice versa. To make a parameter value slide, place a slide trig on the same sequencer step as the trig whose parameters you want to slide. The speed is completed when the next trig is reached.
- **Song mutes:** see Mutes above.

- **Song row** in SONG mode: Enter song mode by pressing FUNCTION+EDIT/SONG and then press FUNCTION+YES. Assign a pattern by pressing the relevant BANK and TRIG keys.
- **Trig mutes:** Open trig mute menu by pressing FUNCTION+BANK **A/E**. Trig mutes are entered by pressing the trig keys. While on the trig mute screen, the trigs entered will mute any trigs placed on the active track, given the trigs are on the same sequencer step. The steps containing note trigs will be shown with dimly lit trig LEDs.

Copy

- **Copy, Paste, Clear**: FUNCTION+REC or STOP or PLAY. **Undo** by repeating this.
- **Copy/paste/clear individual sequencer tracks**: As with copy pattern but Grid Recording model needs to be active.
- **Filter page settings**: Press FILTER+REC. Go to other track and press FILTER+STOP to paste.
- **Kit:** Open Kit menu by pressing FUNCTION+KIT/FX. Select Load or Save Kit submenu and go to the kit you want to copy. Press FUNCTION+COPY/REC. Works also across projects: After copy, load another project, select bank group and go into the kit menu, into the load/save kit submenu and select an empty slot and then press FUNCTION+REC to paste. Note that pattern are copied separately. Samples are not copied across projects.
- **Page** (of a pattern)**:** see Track page below.
- **Pattern**: Select a pattern, and then exit the Grid Recording mode. Press FUNCTION+REC to copy. Select another location or bank and press FUNCTION+STOP to paste. Undo by pressing FUNCTION+STOP again. Copy and paste of pattern also words in song edit mode (FUNCTION+SONG/EDIT).
- **Pattern** - Quick version: Press and hold BANK key, press and hold TRIG key and press COPY. The menu indicates the copying of the pattern. Press and hold the BANK key plus the TRIG key you want to paste to and press AND HOLD stop/paste for long enough so that the menu with the question disappears.
- **Performance macro copy/paste/clear:** In performance mode, go into the edit mode by pressing Perf for one second, then FUNCTION+REC to copy. Change location and be again in performance mode and into performance edit mode, select pad and press FUNCTION+STOP to paste. Performance macros can be copied across projects by copying kits and then copying the macro as described here.
- **Track page copy/paste/clear:** With Grid Recording mode active, select the track page of choice. Copy by pressing PAGE+REC. Select new track page and press PAGE+STOP to paste. Undo by pressing PAGE+STOP again. Press PAGE+PLAY to clear the active track page. Undo by repeating this.
- **Trig**: Activate GRID RECORDING mode. Press and hold a trig and press REC to copy. Paste by holding another TRIG key and pressing STOP. It is possible to copy multiple trigs.
- **Scene copy/paste/clear scene:** In Scene edit mode, FUNCTION+RECORD/STOP/PLAY.
- **Sound:** TRACK+RECORD, select track you want to copy to with TRACK + pad, paste by TRACK+STOP.

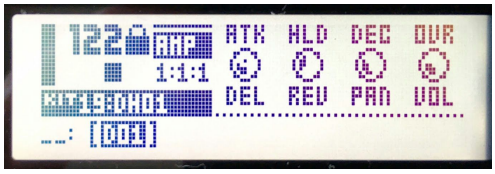
Change

- **FX send levels:** See De-Activate legacy FX send levels.
- **Note trig into trigless lock**: Set SYN and SMP in the TRIG MENU to zero.
- **Pattern length**: Press FUNCTION+SCALE to enter the scale mode. Press PAGE repeatedly to extend the pattern.
- **Pattern play mode**: FUNCTION+BANK GROUP toggles through direct jump, sequential, direct start.
- **Pattern mode:** Toggle between the pattern modes by pressing FUNCTION+BANK GROUP.
- **Song play position**: Change the position from where a song starts playing by going into song edit mode (FUNCTION+EDIT/SONG). Highlight a pattern and press YES.

- **Song row repeats:** Press FUNCTION+SONG/EDIT to enter song edit mode. Move the cursor to the second column and use data entry knob A to change the number of repeats.

Check

- **"_ _ :"** Indicates that the scratch pad row is now active. Cf. Song mode.
- **Accents:** Open the accent menu by pressing FUNCTION plus the BANK **B/F** key. When the menu is open, the sequencer will display accent trigs. Place or remove accent trigs by pressing the trig keys. If an accent trig is placed on the same sequencer step as a note trig, the note trig will be accentuated. In grid recording mode, press a note trig/trigless lock to quickly see if an accent trig is placed on the same sequencer step as the trig. If that is the case, the BANK **B/F** LED will light up.
- **Active scene** (Scene mode)**:** When active, the pad to which the scene is assigned will glow blue. The <PADS> of non-empty, inactive scenes glow half-bright blue. Empty scenes have unlit pads. If the pad of the active track contains a scene, the pad will exhibit violet color (a mix of the active track color and the scene color, red and blue).
- **Active Scenes** (outside scene mode)**:** The LED light atop the SCENE key will stay lit, half-bright red, if any of the scenes are active.
- **Note pitch parameter locks:** Enter Chromatic mode. A note pitch parameter lock will be shown with a red color pad when you press and hold a trig key containing such a lock.
- **Muted trigs:** Press a note trig or trigless lock to quickly see if a trig mute trig is placed on the same sequencer step as the trig. If that is the case, the BANK **A/E** LED will light up.
- **Mutes** in a song: When a song contains programmed mutes of tracks in a pattern, the LED adjacent to the MUTE, SONG and CHAIN keys will be dimly lit, whether any of these modes are active or not. Whenever a pattern containing song mutes is selected, and MUTE mode is active, the pads linked to programmed mutes the green of the pads will be more dimly let than normally.
- **Parameter values:** Press and hold the parameter buttons Trig, Sample, Synth, Filter, Amp and LFO.
- **Parameter macros:** Enter performance mode by pressing PERF. Press and hold PERF to enter edit mode. Performance macros are indicated by a green pad. The number of parameter locks is indicated in the display. The pads of the drum tracks containing parameter locks will glow half-bright red. Press and hold the pad associated with the performance macro and go through the parameter menus, looking out for inverted graphics that indicate parameters changed in the macro. Repeat for all tracks (selected by TRACK+PAD). If parameters in the FX are locks, the FX LED flickers.
- **Parameter slides:** Press a note trig/trigless lock to quickly see if a parameter slide is placed on the same sequencer step as the trig If that is the case, the BANK **D/H** LED will light up.
- **Pattern mode:** Red pattern mode LED - Direct Start. Green pattern mode LED - Direct jump. Unlit pattern mode LED - Sequential.
- **Sample** linked to a pad: Press SAMPLE and then press knob D.
- **Scene macros:** Enter scene mode by pressing SCENE. Pads with scenes assigned to them will glow blue. Select scene and press and hold SCENE to enter edit mode. If the pad of the active track contains a scene, the pad will exhibit a violet colour. The number of parameter locks associated are indicated in the display. Press and hold the pad for the scene macro. The pads of tracks containing parameter locks will glow half-bright red and flicker. If a scene contains FX track parameters, the FX track LED flickers. Select the tracks one by one by pressing TRACK+PAD and the for each track, press and hold the scene pad and go through the parameter pages to look out for inverted graphics.
- **Sound** linked to a track: TRACK + pad to briefly display the current sound.
- **Trig mutes:** Press REC for grid recording mode. Press a note/trigless lock to quickly see if a trig mute is placed on the same sequencer step as the trig. If that is the case, the BANK **A/E** LED will light up.

- 

Worried? Don't, this is no bug. Check whether you are in Song or Chain mode and exit from there.

Clear

- **Kit:** In the Kit menu, CLEAR KIT will clear the content of the currently loaded kit, basically initializing it. Note that no kit information will be permanently lost until the kit is saved to the same kit slot it was loaded from.
- **Parameter value changes:** see Reset.
- **Pattern:** Outside grid recording mode, press FUNCTION+PLAY.
- **Track:** In grid recording mode, press FUNCTION+PLAY. Undo by repeating this.

Create

- **Chain**:
  - Outside chain mode: FUNCTION+CHAIN MODE for a new, blank, scratch pad row
  - In chain mode:
    - CHAIN+LEFT/RIGHT to move chain cursor before, on or after a pattern.
    - BANK X/X+TRIG insert/replace pattern
    - BANK X/X plus multiple trigs to quickly create a chain of patterns (erases previous chain)
  - New chain row: FUNCTION+CHAIN. The scratch pad row will be moved, which can be seen when entering the SONG EDIT menu (by pressing FUNCTION+SONG/EDIT).
  - In song mode: FUNCTION+YES
- **Fills:** On the Trig page, use the TRC parameter to create conditions for the trig. To trig a series of trigs, all together with same prob/pattern, fix the condition for the first trig and set the trig cond for the others to PRE. Activate fill mode: (i) for one pattern iteration - press YES+SCALE; (ii) momentarily - press SCALE key when not in grid recording mode (fill mode is activated for as long as the key is pressed). Use FILL without the bar above and the momentary fill mode activation to initiate pre-programmed fills.
- **Song mutes**: Song mutes can be instantly added to any track of the active pattern in a chain or song by activating MUTE mode and then press and hold SONG MODE and tap the PADS of the tracks you wish to mute.

De-Activate

- **Metronome:** Press FUNCTION+RETRIG for a second.
- **Quantization of live recording**: RECORD + 2x PLAY.
- **The Synth part or the Sample part of the track Sound**: Press TRIG setup.
- **Legacy FX send levels:** From OS 1.22 onwards the FX send levels have been optimised/changed. Everything created before the OS update, will have the legacy mode set on by default. Select a track with TRACK+PAD and then press FUNCTION+MUTE/SOUND. Untick the legacy mode (can be undone).

Delete (cf. erase, remove)

- **Kit:** In the kit menu (FUNCTION+FX/KIT), select Load or Save Kit submenu and go to the kit you want to delete. Press FUNCTION+PLAY/CLEAR.
- **Pattern** in chain: Press CHAIN+LEFT/RiGHT to move the cursor within a chain. Depending upon the location of the cursor, either the pattern located before the cursor, or the one highlighted by it, will be erased.

- **Song row** in SONG mode: FUNCTION+NO.

Edit

- **Defaults** (starting a clear kit): - check Trig Menu for control of ENV and LFO!
    - **SAMP:** TUN=0, FIN=0, BR=0.
    - **TRIG:** NOT=0, VEL=98, LEN=3.13.
    - **SYN:** TUN=+16, DEC=63, SNP=1, NOL=0, LEV=100.
    - **FILT:** ATK=0, DEC=64, SUS=0, REL=64, FRQ=127, RES=0, TYP=LP2, ENV=0.
    - **AMP:** ATK=0, HLD=AUTO, DEC=INF, OVR=0, DEL=0, REV=0, PAN=0, VOL=110.
    - **LFO:** SPD=+48, MUL=x16, FAD=0, DST=..., WAV=TRI, SPH=0, MOD=FRE, DEP=0.
    - **DEL:** TIM=24, X=0, WID=0, FDB=50, HPF=32, LPF=96, REV=0, VOL=110.
    - **REV:** PRE=8, DEC=41, FRQ=64, GAI=32, HPF=32, LPF=96, VOL=110.
    - **DIST:** AMT=0, SYM=0, DOV=0, DEL=PRE, REV=POST.
    - **COMP:** THR=96, ATK=0.3, REL=0.4, MUP=0, RAT=1:2, SEQ=LPF, MIX=0, VOL=64.
    - **LFO:** SPD=+48, MUL=x16, FAD=0, DST=..., WAV=TRI, SPH=0, MOD=FRE, DEP=0.
- **Names:** Use arrow keys for navigation. FUNCTION+NO/RELOAD will erase letters.
- **Note trigs**: In Grid Recording Mode (Press REC) and then place trigs. Editing: press trig for longer. For locked parameters, the graphics are inverted and the trig LED is flashing to indicate that trig has a parameter lock associated with it.
- **Parameters:** If the Data Entry knob is pressed while it is turned, parameters will be adjusted in larger increments. Pressing FUNCTION while editing, certain parameters will make the parameter values jump to appropriate positions.
- **Performance macros**: PERF to enter performance mode. Select macro with FUNCTION + pad. Select track to change with TRACK + pad. Press and hold macro pad and then change parameters. Note: No pressure adds zero, medium pressure adds 12, maximum pressure adds 24.
- **Retrigs**: Press TRIG key and then RETRIG. Outside the mute mode, pressing the RETRIG button will display the retrig settings for the chosen track.
- **Repeats of song rows:** Press FUNCTION+SONG/EDIT to enter song edit mode. Move the cursor to the second column and use data entry knob A to change the number of repeats.
- **Scene:** Select which scene to edit by pressing one of the PADS. Then press and hold the SCENE key for a short while in order to edit the scene. When SCENE mode is active, FUNCTION + one of the PADS offers a convenient shortcut to scene edit mode.
- **Songs:** FUNCTION+SONG mode.
- **Swing settings**: FUNCTION+BANK **C/G**. For individual trigs, press the TRIG+muTime.
- **Trigless locks**: (parameter changes without play notes). Press FUNCTION+TRIG. Setting SYN and SMP (on the trip page) to zero, turns a note trig into a trigless lock. Editing: press trig for longer.
- **Sound locks:** Press and hold a note trig and turn the LEVEL knob. The Sound pool will appear. Scroll through the list with the level knob and select sound by releasing the trig key. The trig LED will start to flash. Press and hold the trig key to show the assigned sound. The first position in the sound pool list, titled TRACK SOUND, is the default selection, which plays the corresponding track sound of the active kit.

Erase (cf Remove, Delete)

- **Chain**: CHAIN MODE+NO. Depending the chain cursor location, either erase the pattern located before the cursor or the one highlighted by it.
- **Letters**: FUNCTION+NO/RELOAD.
- **Pattern:** In song mode: select pattern, FUNCTION+NO. In chain mode, depending on the location of the chain cursor, CHAIN MODE+NO/RELOAD will either erase the pattern located before the cursor, or the one highlighted by it.

- **Sequences of trigs** (eg from live recording): NO + one (or more) pads to erase a sequence of recorded trigs on one (or more) tracks. All steps reached on the pattern playing are erased until the keys are released.
- **Song row:** In Song mode, mark pattern, FUNCTION+NO, repeat for all pattern in row.

Enter (cf Activate)

- **Chain mode:** Press CHAIN.
- **Grid recording mode**: Press REC.
- **Live recording mode**: Press RECORD+PLAY. Press PLAY to exit (while keeping the sequencer going). Press STOP to stop both, the recording and the sequencer.
- **Parameter values:** Turn knob. Press+turn for larger increments. FUNCTION + turn for preset values that make sense in the given context.
- **Performance edit mode:** In performance mode, press and hold PER key for a while.
- **Scene edit mode:** In performance mode, FUNCTION plus one of the pads gives a shortcut to enter the edit mode.
- **Scene edit mode:** In scene mode, FUNCTION + one of the pads is a shortcut to the scene edit mode.
- **Song edit mode:** Press SONG and then FUNCTION+SONG/EDIT.
- **Song mutes**: Song mutes can be instantly added to any track of the active pattern in a chain or song by activating MUTE mode and then press and hold SONG MODE and tap the PADS of the tracks you wish to mute.
- **Trigs:** Enter grid recording mode by pressing REC. Select the track to which you want to add trigs by pressing TRACK+PAD. Place note trigs on the sequencer by pressing the trig keys 1-16. To add a trigless lock, press FUNCTION+TRIG.

Exit

- **Song edit mode:** Pressing FUNCTION+SONG or NO will exit the song edit mode but make sure that the active pattern is in the scratch pad row as otherwise any further changes are made in the song.

Load

- **Sample**: Select a drum track by pressing TRACK + one of the PADS. Press SAMPLE and then data entry knob D or press the SAMPLE button twice. Make sure the sample is loaded to the project: FUNCTION+TRACK/GLOBAL, go to the SAMPLES submenu, select sample (FUNCTION+YES to preview a sample) and load it (with YES) to the project by using the menu reachable with the RIGHT arrow key. Press FUNCTION + YES/SAVE to enter the menu to manage the sample file.

Move

- **Pattern in a chain:** Go into song edit mode by pressing FUNCTION+SONG. Highlight a pattern by moving the cursor to it and press YES. Then press FUNCTION plus LEFT/RIGHT to move the pattern in the song row.
- **Song row:** Go into song edit mode by pressing FUNCTION+SONG. Move the cursor to the song row that is to be moved and press FUNCTION+UP/DOWN.
- **Through menus:** FUNCTION+Up/down arrows moves cursor one menu page at a time.
- **Trigs:** Shift all trigs left/right by pressing FUNCTION+LEFT/RIGHT. Use TRIG+LEFT/RIGHT to shift a single trig a fractional step left or right.

Mute

- **Pads**: Enter MUTE mode. Press pad to mute/unmute. Press and hold FUNCTION and any of the pads in order to preselect a mute, or mute/unmute several tracks in one go. Press RETRIG+PAD to solo a track.
- **Pads in a song pattern:** Press FUNCTION+SONG/EDIT to enter song edit mode. Press MUTE to enter mute mode.
- **Trigs**: FUNCTION+BANK A/E to enter Trig Mute menu. Shortcut: keep the note trig or trigless lock pressed and press the BANK **A/E** key.

Play

- **Sound:** Play the drum track sounds of the active kit by tapping any of the twelve pads. Use FUNCTION+PADS to trig the Sound at the velocity set on the trig page for each track (Vel parameter). Alternatively press keys 1-12 to play the sounds with the VEL value. Press and hold RETRIG+PAD to continuously retrig the track Sound for as long as the pad is hold.
- **Song from beginning:** Double press STOP.

Preview

- **Sample**: FUNCTION+YES.
- **Sound:** Open the Sound Browser, select sound and tap the pad of the active track.

Record

- **Trigs live**: Press RECORD+PLAY. Press PLAY to exit Live Recording model. Press STOP to also stop the sequencer.

Reload

- **Defaults:** see Edit -> Defaults
- **Pattern**: RELOAD+SCENE … undoing changes made to the active pattern.
- **Song**: RELOAD+Chromatic or Scene or Performance.
- **Sound** (consisting of the parameter settings found in the PARAMETER pages called SYNTH, SAMPLE, FILTER, AMP and LFO) to its original state, press RELOAD+MUTE.
- **Track:** RELOAD+Chromatic
- **Kit** (which includes the 12 track sounds) to its original state, press RELOAD+FX.

Remove (cf Erase, Delete)

- **Chain:** Enter Song edit mode by pressing FUNCTION+SONG/EDIT. Mark pattern and press FUNCTION+NO repeatedly. (Does not work for scratch pad row)
- **Pattern** in chain: Press CHAIN+LEFT/RiGHT to move the cursor within a chain. Depending upon the location of the cursor, either the pattern located before the cursor, or the one highlighted by it, will be erased by pressing FUNCTION+NO.
- **Parameter locks** of all tracks in live recording mode, press and hold FUNCTION+RELOAD. (Sound locks will not be removed). Press NO plus one or several of the pads in order to erase a sequence of recorded trigs on a specific track or on several tracks in time with the sequencer, i.e., all steps reached on the pattern playing will be erased until the keys are released. (Sound locks will not be erased). Remove a specific parameter lock in real time by pressing NO while pressing the data entry knob corresponding to the parameter that will be removed.
- **Hiss or noise:** The first thing to check is Amp Decay. It's set to INF a lot of the time and turning it down a bit usually gets rid of a fair amount of noise.Try mix control to remove

compression: completely anti-clockwise is just the dry signal. Fully clockwise is 100% compressed. Centre is 50/50, parallel compression. Do you have the Master distortion set to 0? That is often overlooked and a source of noise.

Reset

- Parameter value changes: To clear the main page of parameter values (not including the track level), press and hold the Parameter main page button (Playback, Amp, LFO, Effect 1, Effect 2) and press PLAY/CLEAR.

Retrigger

- **Pads**: Press RETRIG+PAD

Save

- **Kit:** SAVE+FX (includes Scene and Performance mode settings). NOTE: Only the active kit is being saved when powering off the AR. Don't forget to save any other kits created!
- **Pattern:** SAVE+SCENE
- **Project changes to the +Drive:** Save the project through the Project menu. Note: don't worry if the rename menu appears, another Yes will save it under the given name.
- **Sound of a track in the active kit:** SAVE+MUTE
- **Track:** SAVE+CHROMATIC
- **Song:** SAVE+PERF/SONG, got to SAVE SONG (max 16 songs)

Select

- **Drum track for editing or for chromatic play: TRACK+PAD.**
- **Drum track machine: Select track and then quickly press SYNTH parameter key twice.**
- **Mute:** Enter MUTE mode, then FUNCTION+PADS
- **Pattern:** Press BANK key followed by a TRIG key to select a pattern within the selected bank.
- **Pattern mode**: Press FUNCTION + BANK to toggle through the modes (direct start, direct jump, sequential).
- **Sample:** Press SAMPLE twice, quickly. Turn knob D for selection. Tap the pad of the active track while browsing to listen to the sample currently outlined. Press FUNCTION+SAVE to replace the sample.

Set

- **Parameters**: Press TRACK+PAD to select a drum track. Press Synth, Sample, Filter, Amp, or LFO menu. Turn data entry knobs. Note/**Undo**: To reload the Sound to its original state, press RELOAD+MUTE.
- **Song mutes**: Song mutes can be instantly added to any track of the active pattern in a chain or song by activating MUTE mode and then press and hold SONG MODE and tap the PADS of the tracks you wish to mute.
- **Tempo**: FUNCTION+TEMPO to tap tempo. Hold ARROW keys left/right to temporarily nudge tempo +/- 10%. Press TEMPO key to change overall BPM setting.

Solo

- **Track**: Press MUTE, to enter mute mode, press RETRIG plus the pad that should be soloed.

Shift

- **Trigs**: While in Grid Recording mode, hold down FUNCTION while pressing left or right arrow keys to perform the trig shift.

Turn On/Off (cf. activate)

- **Quantization**: Press REC and twice play.

Undo

- **Copy, Paste, Clear** (FUNCTION+REC or STOP or PLAY) can be undone by repeating the command.
- **Parameter locks**: Hold TRIG plus pressing the data entry knob of the locked parameter. Removing a note trig and entering it again, will erase all parameter locks from the trig.
- **Pattern changes:** Press NO+SCENE to reload pattern and thereby undo changes to the active pattern.
- **Reload the Sound** to its original state, press RELOAD + MUTE.
- **Reload the whole kit** to its original state, press RELOAD + FX.

Use

- **Track Routing Creatively (FX Mute Mode):** For the setup go in the Global Menu, choose the Track Routing submenu and choose the default by which 12/12 tracks are routed to main and send to FX. For performance use of the routing, go into the Kit Menu and then to the Track Routing submenu. Untick the option “Use Global Setting”. Choosing the “Route to Main” option, tracks can now be muted with the green pads, like in Mute Mode but in this instance the wet FX of the tracks you are muting are still heard. This is great for going into breakdowns via mutes but retaining a lot of space by leaving the delay and reverb going. It also makes for good live intros when combined with the actual Mute mode. Going to the "SEND TO FX" line, all the pads light up yellow, you can mute the FX output of tracks. You can keep that menu open and go in and out of it, along with actual Mute mode (and Scene mode, Performance mode) easily. (Credit: Adam Jay)

“How to …” Reference for the Analog Four (Keys)

In case you cannot find here what you are looking for, check the other sections. There are many things that are identical with the Elektron machines, which makes it easy to learn a new machine, if you are already familiar with one of them.

Activate

- **Fill mode:** (i) for one pattern iteration - press YES+SCALE; (ii) momentarily - press SCALE key when not in grid recording mode (fill mode is activated for as long as the key is pressed). See also Create Fills.
- **Quantization (live recording mode):** Double press PLAY.
- **Transpose functionality:** Press TRANSPOSE+TRACK.
- **Transpose lock functionality:** Press FUNCTION+TRANSPOSE.

Add

- **Accent trig:** Open Accent Menu by pressing FUNCTION+BANK B/F. Alternatively, keep a note trig pressed and press BANK B/F. Press a note trig/trigless lock to quickly see if an accent trig is placed on the same sequencer step as the trig. In that case the BANK B/F LED will light up.
- **Note slide:** Enter note slide menu by pressing FUNCTION+BANK C/G. When this menu is active, and TRIG keys are pressed, note slide trigs will be placed on the sequencer. Alternatively, keep a note trig pressed and press BANK C/G. If a note slide trig is placed on the same step as a note trig, the pitch of the previous note trig will slide. Press a note trig lock to quickly see if a note slide trig is placed on the same sequencer step as the trig. If that is the case, the BANK C/G LED will light up.
- **Parameter locks:** In grid recording mode, press and hold a TRIG key and adjust parameter with the data entry knobs.
- **Parameter slide:** Open the menu by pressing FUNCTION+BANK D/H. When the menu is active and TRIG keys are pressed, slide trigs will be placed on the sequencer. Alternatively, Keep the note trig or trigless lock pressed and press BANK D/H. To make a parameter value slide, place a slide trig on the same sequencer step as the trig whose parameters you want to slide. The speed of the slide is relative to the tempo and the slide is completed when the next trig is reached. Several parameters can slide at the same time. Press a note trig/trigless lock to quickly see if a parameter slide trig is placed on the same step. If that is the case, the BANK D/H LED will light up.
- **Sound locks:** Press and hold a note trig and turn the LEVEL knob.

- **Sound locks (in real time):** Open the sound browser (double tap on Track) and play the mini keyboard. Whichever sound from the pool you have in the browser will be inserted into the step it was played at. Credit: Avantronica.
- **Song row:** FUNCTION+YES/SAVE in Song Mode.
- **Trig (Note):** Select track and enter grid recording mode. Place note trigs on the sequencer by pressing the TRIG keys. To add note values to trigs of the synth tracks, press and hold a TRIG key while pressing a keyboard key.
- **Trigless lock:** Press FUNCTION and TRIG. Add micro timing to a note trig by pressing and holding the TRIG key while pressing LEFT/RIGHT.
- **Trig mute:** Open the menu by pressing FUNCTION+BANK A/E. A note trig or trigless lock and be muted by pressing the note trig or trigless lock key and press BANK A/E.

Change

- **Pattern mode:** Press FUNCTION+BANK GROUP
- **Scale setup:** Access the scale setup menu by pressing FUNCTION+PAGE
- **Tempo:** Press TEMPO and use the LEVEL knob. The UP/DOWN keys change the decimal part. To tap a tempo setting, hold the FUNCTION key and tap the TEMPO key. The LEFT/RIGHT keys are used to shift the tempo by +/- 10%.

Check

- **"_ _ :"** Scratch pad row is active (cf. chains and songs)
- "*" after the name in Kits Menu: Indicates a kit not used by any pattern.
- **Accent trig:** Press a note trig/trigless lock to quickly see if an accent trig is placed on the same sequencer step as the trig. In that case the BANK B/F LED will light up.
- **Kits** not used by any pattern: Open the kit menu kits not used by any pattern are indicated by an asterisk after the kit name.
- **Note slide trig:** Press a note trig lock to quickly see if a note slide trig is placed on the same sequencer step as the trig. If that is the case, the BANK C/G LED will light up.
- **Parameter slide:** Press a note trig/trigless lock to quickly see if a parameter slide trig is placed on the same step. If that is the case, the BANK D/H LED will light up.
- **Parameter values:** Press and hold the parameter buttons Arp, Note, Osc1, Osc2, etc.
- **Track LED - half-bright** ... when FX track is selected: Indicates that the keyboard keys still trig notes on this track. This allows hearing how effect parameters changes will affect the previously active track. Press Trk5 again to make the FX track fully active.
- **Track LED - unlit:** muted track.
- **Track LED - half bright.** When selecting the FX track, the keyboard is still triggering notes of the previously active track. This allows hearing how effect parameter changes will affect the previously active track. Press Trk5 again to make the FX track fully active.
- **Track LED - green:** audible track.
- **Track LED - yellow:** active muted track.
- **Trig LED - full-bright:** note trig.
- **Trig LED - half-bright:** trigless lock.
- **Trig mute trigs:** Press a note trig/trigless lock to quickly see if a trig mute is placed on the same sequencer step as the trig. If that is the case, the BANK A/E LED will light up.
- **Transpose activated tracks:** When pressing and holding the TRANSPOSE key, lit track LEDs indicate which tracks are transpose activated.
- **Transpose lock:** If the transpose lock functionality is activated, the Transpose LED will be full bright.
- **Sound:** press Track keys 1-4 and the loaded sound is displayed for a short moment. To check the sound of a sound lock, press and hold the TRIG key of a note trig.
- **Write protection** for a sound: Open the Sound Manager vis the Sound Menu and then check the Toggle option to write protect the sound (showing a lock).

Clear

- FUNCTION+PLAY
- **Chain:** CHAIN MODE + PLAY.
- **Track sound:** Open Sound menu with FUNCTION+SOUND and select Clear Track Sound option. This will set the parameter page parameters of the active track to their default values.

Copy

- FUNCTION+REC
- **Kit:** Copy, clear and paste are possible in the Load Kit, Save Kit and Performance Setup menus. Note: A pattern is linked to a kit but the kit does not include the pattern. If you wish to copy a preset you like, copy the pattern and the link with the kit and its sounds will be copied as well.
- **Pattern:** After a BANK key has been pressed, a window will appear for a short while, during which a TRIG key is used to select pattern. Before releasing any key, REC, PLAY, STOP can be pressed to clear, copy, and paste multiple pattern at the same time. The active pattern can be copied by pressing FUNCTION+REC outside the grid recording mode.
- **Preset:** If you wish to copy a preset you like, copy the pattern and the link with the kit and its sounds will be copied as well. The kit can then be modified and saved under a new name (w FUNCTION+KIT).
- **Performance macros** (across pattern): Press FUNCTION+PERF, choose PERF CONFIGURE, select performance macro for copying, PRESS FUNCTION+REC to copy, exit menus, select new pattern, go into the PER CONFIGURE menu again, select slot and paste with FUNCTION+STOP.
- **Sound:** Press TRACK+REC.
- **Track:** Select track to copy, enter Grid Recording Mode by pressing REC and press FUNCTION+REC to copy. Select a destination track and press FUNCTION+STOP/PASTE. Press gain to Undo. Note that the sound of a track need to be copied separately.
- **Trig:** In grid recording mode, press and hold a trig and press REC to copy. Paste by holding another trig key and press STOP. Several trigs can be copied at the same time.

Create

- **Chain (quick mode):** Press and hold BANK X/X and then press the trig key for the pattern you want the chain to start with. As long as you keep the first TRIG key pressed, subsequent TRIG keys pressed will add patterns to the chain. FUNCTION + CHAIN MODE will create a new, blank, scratch pad row.
- **Fills:** On the Note page, use the TRC parameter to create conditions for the trig. Activate fill mode: (i) for one pattern iteration - press YES+SCALE; (ii) momentarily - press SCALE key when not in grid recording mode (fill mode is activated for as long as the key is pressed). Use FILL without the bar above and the momentary fill mode activation to initiate pre-programmed fills.
- **Performance Macros:** Press the PERFORMANCE key. Click any of the knobs A to E repeatedly to select the track that the performance macro will be associated with. Then turn the knob in the upper row to select the parameter and click to confirm or by pressing YES. Data entry knobs F to J are used to set the depth of the five track parameters. The depth is an offset to the original track parameter value. The level knob is used (while being in the setup menu) to check the effect. Press the LEVEL knob to make the performance macro knob work in a bipolar fashion (from -64 to +64, instead 0-127). Turn the LEVEL knob to preview the effect.
- **Sidechaining effect:** If you want to make the bassline duck the kickdrum, one can simulate sidechain compression using ENV2 with trigless trigs to lower the AMP VOL of the bassline on each bassdrum hit: (i) disable ENV2 retrig for all notes in the bassline. (ii)

enable ENV2 retrig only on the steps where there's a kickdrum. (iii) this includes steps where there's no bassline trig, this is where trigless trigs are used. Credit: Void

Delete

- **Letters:** FUNCTION+NO/RELOAD.
- **Pattern** in chain: Pressing CHAIN MODE + NO/RELOAD will, depending on the location of the chain cursor, either erase the pattern located before the cursor or the one highlighted by it.
- **Parameter locks** (in real time): While live recording mode is active, press and hold FUNCTION+NO/RELOAD. Individually: press the trig key and the relevant data entry knob.
- **Trigs (real time):** In live recording mode, press and hold TRACK+NO/RELOAD. All trigs hit by the running LED of the sequencer will be erased from the active track. Trigs of more than one track can be removed by pressing several TRACK keys simultenously.

Edit

- **Defaults:** *Chorus* - PRE=117, SPD=51, DEP=90, WID=107, FDB=-64, HPF=0, LPF=127, DEL=0, REV=0, VOL=14. *Reverb* - PRE=8, DEC=33, FRQ=64, GAI=64, HPF=0, LPF=127, VOL=64. LFO1 (page 1) - SPD=32, MUL=x16, FAD=0, SPH=0,MODE=FRE, DST=TIM, DEP=0, DST=FDB, DEP=0. LFO2 (page 2) - SPD=32, MUL=x16, FAD=0, SPH=0, MOD=FRE, DIST=SPD, DEP=0, DST=VOL, DEP=0.
- **Track volume:** Select a track and the adjust with the Level knob. Click Perf twice to get to the Performance mixer menu.

Enter (cf. Add)

- **Grid recording mode:** Press REC. Pressing REC in live recording mode, will switch to grid recording mode.
- **Live recording mode:** Hold REC and press PLAY. Exit by pressing PLAY. Exit to grid recording mode by pressing REC.
- **Parameter locks:** In grid recording mode, press and hold a TRIG key and adjust parameter with the data entry knobs.
- **Sound lock:** Press and hold a note trig and turn the LEVEL knob.

Erase (see Delete)

Exit

- **Live recording mode:** Press PLAY while the sequencer runs and keeps running. If live recording mode is active and REC is pressed, grid recording mode is entered.

Load

- **Project:** FUNCTION+C2 (Global) … for one second.

Mute

- **Tracks:** Press FUNCTION+Trk. In performance mode this is also very convenien: Press Perf twice and TRIG keys 1-6 mute the tracks. An outlined square and a bright Trig LED means a track is audible. A minus sign indicates the track is muted. A track that is currently muted but will be unmuted when the FUNCTION key is released, is indicated by a “+”. A track that is currently not muted but will be muted when FUNCTION is released, is indicated by an “*”.

- **Trigs:** Open the Trig Mute menu with FUNCTION+BANK A/E. Select the track to which you want to add trig mute trigs. Entered trigs will mute any trigs on the same sequencer steps.

Open

- **Arpeggiator menu:** Press ARP. FUNCTION+ARP for the arpeggiator setup menu.
- **Global menu:** FUNCTION+C2 (Global)
- **Kit menu:** FUNCTION+C1 (Kit)
- **Mixer menu:** Press Perf twice.
- **Performance setup menu:** FUNCTION+PERFORMANCE
- **Performance mixer menu:** Click PERF twice. For muting tracks in performance mode do not forget to exit grid recording mode!
- **Sound browser:** Double press Track key 1,2,3,4 or press and hold FUNCTION+D1 (Sound) for one second.
- **Sound manager:** via sound menu.
- **Sound menu:** FUNCTION+SOUND

Parameter

- **Editing:** Press the data entry knob down while turning to quickly change values in larger increments. Keep FUNCTION pressed while editing to select among values that fit this context.

Paste

- FUNCTION+STOP

Play

- **Sound:** Select the Sound by pressing a key Trk 1-4.

Preview

- **Kits:** By saving the current kit (Press YES+KIT) and then going into the sound browser, one can use FUNCTION+YES to load the sound to the current track without leaving the sound browser. To return to the ‘original’ or previous state, press NO+KIT.
- **Sounds:** (i) A sound can be previewed via the mini keyboard or via the MIDI auto channel. (ii) By saving the current kit (Press YES+KIT) and then going into the sound browser, one can use FUNCTION+YES to load the sound to the current track without leaving the sound browser. To return to the ‘original’ or previous state, press NO+SOUND. The trig keys select the bank (A to P), each containing up to 256 sounds. Use FUNCTION+UP/DOWN for faster scrolling.
- **Trig:** Preview a note trig, including parameter locks, by pressing TRIG+ a KEYBOARD key.

Reload

- **Kit:** NO/RELOAD+C1 (Kit)
- **Pattern:** NO+F1 (Pattern)
- **Sound:** NO/RELOAD+D1 (Sound)
- Song: NO/RELOAD+G1 (Song)
- **Track:** NO/RELOAD+E1 (Track)

Remove (see Delete)

Save

- **FX and CV parameter settings:** These parameters are saved with the kit.
- **Kit:** YES/SAVE+C1 (Kit). Note: Consider turning ON the RELOAD KIT ON CHG in the GLOBAL settings. It is set OFF by default. When it's set to OFF, a quick change of patterns will reload the kit and reset your sounds to where they were before you saved them.
- **Pattern**: YES/SAVE+F1 (Pattern)
- **Sound** (of active track): YES/SAVE+D1 (Sound)
- **Song:** YES/SAVE+G1 (Song)
- **Track:** YES/SAVE+E1 (Track)

Shift

- **Trigs:** While in grid recording mode, hold down FUNCTION while pressing LEFT/RIGHT to perform a trig shift.

Select

- **Pattern:** After a BANK key has been pressed, a window will appear for a short while, during which a TRIG key is used to select pattern.
- **Polyphony:** See POLY CONFIG in Kit Menu (FUNCTION+C1).
- **Sound:** see Open Sound Menu. Press and turn the level knob for fast scrolling.

Transpose

- **Notes:** Press and hold TRANSPOSE and press a keyboard key. Select a different octave range by pressing UP/DOWN. The notes are transposed according to the TRK KEY NOTE and TRK KEY SCALE settings in the NOTES SETUP.
- **Track:** TRANSPOSE+TRACK de/activates the transpose functionality for tracks. When pressing and holding the TRANSPOSE key, lit track LEDs indicate which tracks are transpose activated.

Use

- **Track Routing Creatively (FX Mute Mode):** For the setup, go into to Global Menu and choose the Voice Routing submenu. Choose the default by which Trk1-4 go to Main and FX. For performance use of voice/FX routing, go to the Kit Menu and choose the Voice Routing submenu. Untick the option Use Global Setting to open up options for individual track muting. Trig buttons 1-4 light up for "route to main", and 9-12 light up for "route to fx" and, they also blink half lit in accordance to the trigs in the track. With trig buttons 1-4 one can now mute tracks like using FUNCTION+Trk button or in the performance menu but in this instance the wet FX of the tracks you are muting are still heard. This is great for going into breakdowns via mutes but retaining a lot of space by leaving the delay and reverb going. (Credit: Adam Jay)