



RUDI-J's "ELEPHANT" TSI



*A cross-linked TSI for the VCI-400SE,
MASCHINE (MK1) and Behringer's BCR 2000*

Version 2.0, January 2014

Main Features:

- Enhanced EQ control with kill functionality and EQ blend support
- Isolated FX, fine adjustable by enhanced EQ
- Sample deck control on VCI and MASCHINE; Loop sampler (VCI)
- Manual FX knob/button control on VCI, MASCHINE and BCR 2000.
- 4 banks with velocity sensitive FX pads; 2 banks for key adjustments (MASCHINE)
- Unique Jog-FX functionality featuring FX parameter velocity control presets, adjustable thresholds for Jog-FX button control, dry/wet auto-decay presets, 4 multi-unit activation modes
- GRATIFY section harboring 27 banks with a multitude of effect presets and Superknob functionality (4 modes); ability to duplicate GRATIFY FX selection to Jog-FX units
- GRID (Beatslicer FX) with 32 presets
- Recall of FX to deck assignments for FX1&2 when switching decks on the VCI.
- SLICER featuring static and dynamic mode à la TRAKTOR DJ
- HOTCUES, beat juggling scratch on VCI and MASCHINE (2 banks); Loop controls (VCI)
- 4+1 selectable screen layouts; extensive LED feedback

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Preface

About one year has passed since the release of my first public available mapping for the VCI-400SE on the DJTT mapping blog. As I received promising feedback for that one I felt encouraged to start working on an enhanced version soon. When figuring out the blending EQ, the isolator, new version of the SLICER and Jog-FX using LoopBe virtual Midi ports and MIDIOX as middleware between Midi devices and Traktor, I soon realized that the density of new functionality wouldn't fit anymore onto just one controller. This is why I present this new mapping as a combined solution involving also MASCHINE and the BCR-2000, even though this might reduce the scope of potential target users drastically.

By late summer 2013 I also realized that the complexity of midi routing meanwhile also involving dedicated Midi translation on particular mapping routes had reached a complexity level, where documentation became an absolute necessity to maintain the mapping project in the first place. I thus started the technical documentation (basically this document here) and fortunately I didn't surrender (and just went partly mad) in front of the huge workload piling up.

As part of this process, I began wondering whether the heavily used concept of "Midi Linked Modifiers" (MLM) for Traktor has been introduced somewhere else already, but so far at least I didn't find evidence for it on the internet. In particular I didn't find sources describing the concept in the same way in relation to the hereby possible implementation of global modifiers, and sequential processing of mapping instructions in Traktor. So I included a description in the "implementation notes" dedicated to the explanation of the technical approach for the individual mapping device files allowing you guys to take advantage of this combined Midi routing+ mapping technique opening a whole new dimension of mapping versatility even though you probably own different controllers.

The downside of involving MIDIOX on such a deep level is however, that my Elephant mapping will only work on Windows (XP, 7, most probably 8) as this tool is not available for the Macintosh. Sorry for that, but of course MLMs can be implemented as well on the Mac using compatible virtual port software.

From the video you may have noticed that I am a fan of DnB music, this might also explain, why the majority of FX settings are with regards to that music style. This document may prove helpful for all of those who plan to adjust FX presets to their own needs.

Hope you have fun with this TSI and if not (due to buggy design) please let me know so I can fix swiftly what's been going wrong.

Finally I want to dedicate this work to my wife, daughter and son and express my excuses for being mentally and physically absent so often throughout 2013 -- "thank you for your understanding" --

Yours

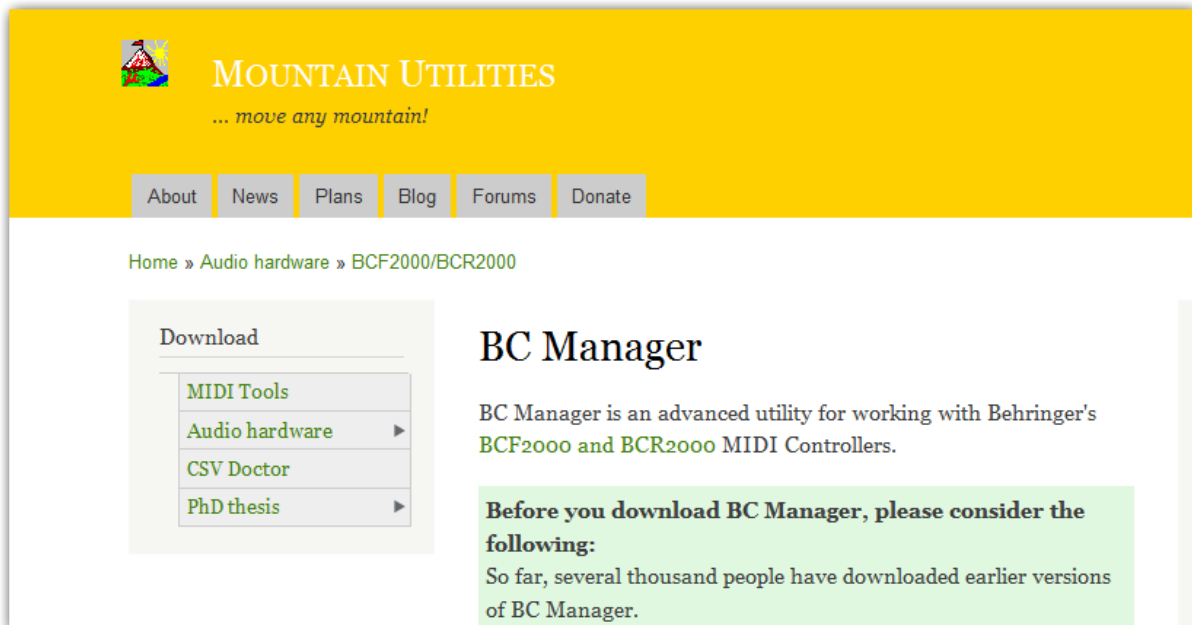
Rüdi

Preparing installation

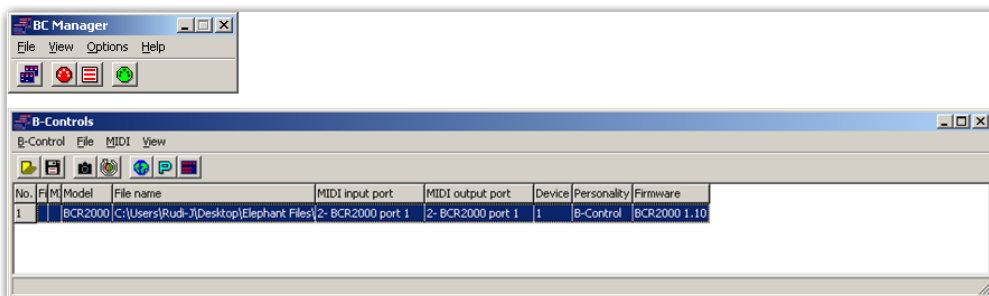
The ELEPHANT TRAKTOR mapping is designed to work in an environment with multiple virtual MIDI ports and MIDIOX as a middleware between the MIDI hardware and TRAKTOR. In addition to that the controllers involved require special preparation in terms of firmware or setup. The following chapters describe how to acquire all utilities and get you started. **In any case it is a good idea to create a system restore point in Windows and to save all current controller configurations in a safe place before you proceed.**

BC Manager

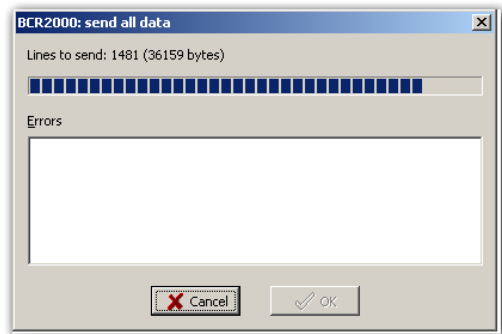
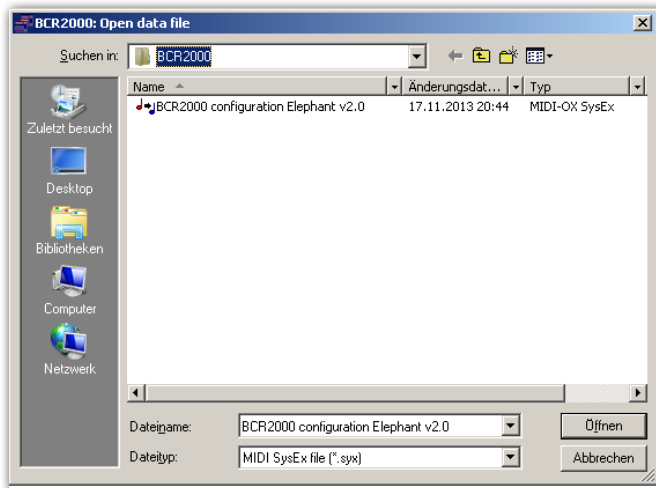
BC Manager is a shareware from Mountain Utilities at <http://mountainutilities.eu/> (please donate to support the developer). We need that software in order to set up the BCR 2000 in the way it will be used for the ELEPHANT project.



Start the utility following installation. Connect your Hardware controller and “detect” the BCR 2000 controller in the software using the “B-Controls” MIDI command “detect B-Controls”. Then, load the “BCR 2000 configuration Elephant v2.0.syx” using the “File-Open” menu from the “B-Controls” menu. Find and open the file in the BCR 2000 directory of the zip file:



Note: If the “B-Controls” window doesn’t appear automatically, open it by clicking the BCR icon in the “BC-manager” window.

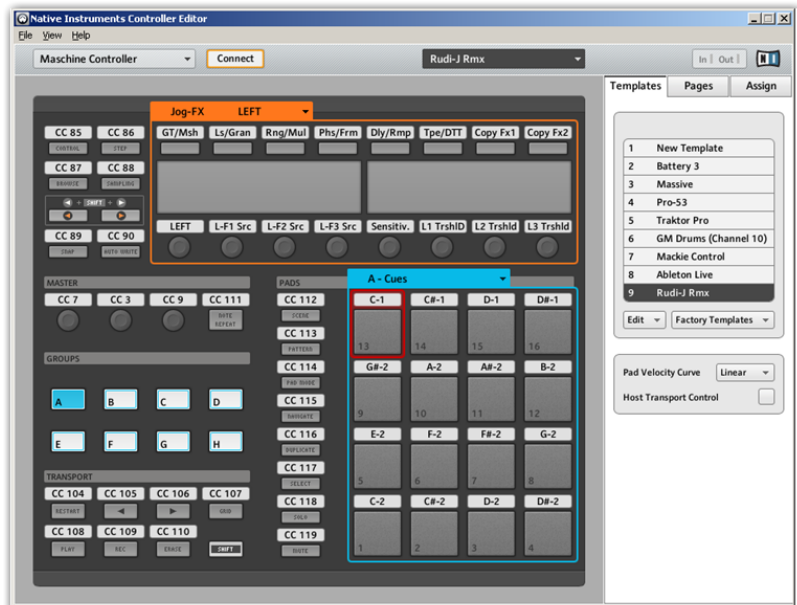
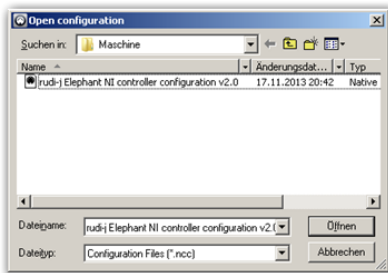


Once you are done with this, the only thing that's left to be done is to send the actual configuration to your BCR 2000 using the "MIDI – Send all data" command from the "B-Controls" window.

The BCR LEDs will blink throughout the transfer of the programming. When finished the controller should Display "P32", however, once you switch it if off and on again it should display "P01". Don't worry about this, both modes are OK.

Native Instruments controller editor

I am sure you are familiar with this one as it comes together with your MASCHINE installation. Load the "rudi-j Elephant NI controller configuration v2.0.ncc" from the Zip file and confirm that a new template "Rudi-J RMX" is available for MASCHINE. At the end of this process your controller editor interface should look like shown below and your MASCHINE controller should use the template "Rudi-J Rmx".



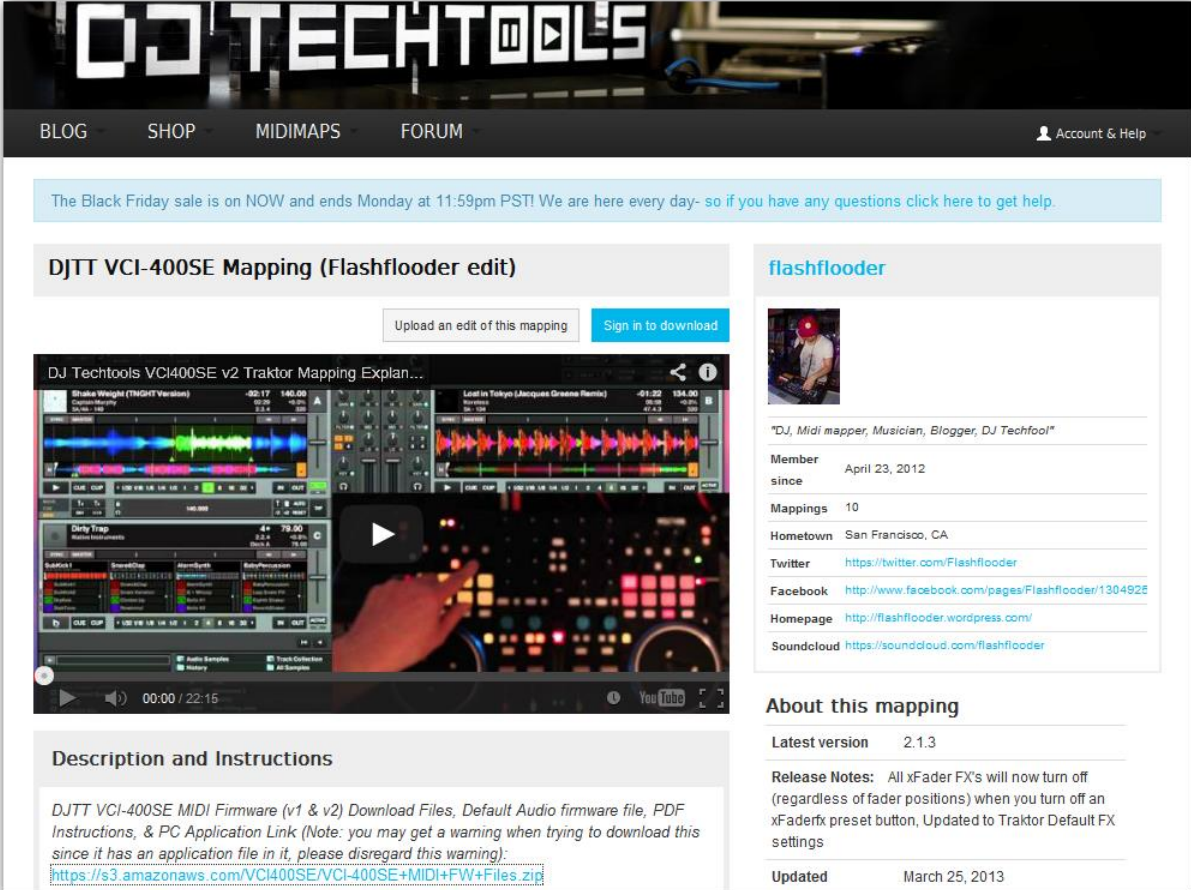
Note: As I am actually not familiar with MASCHINE MK2 I am not sure if everything will as well work out nicely when you are using MASCHINE MK2 instead of MK1.

On the other hand I assume it is very likely most functionality will be the same in terms of MIDI mapping.

VCI-400SE

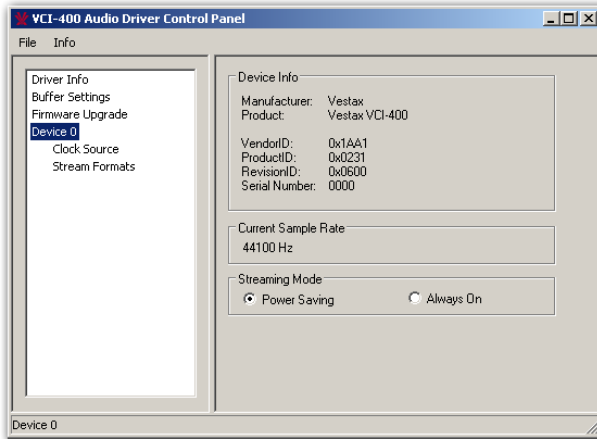
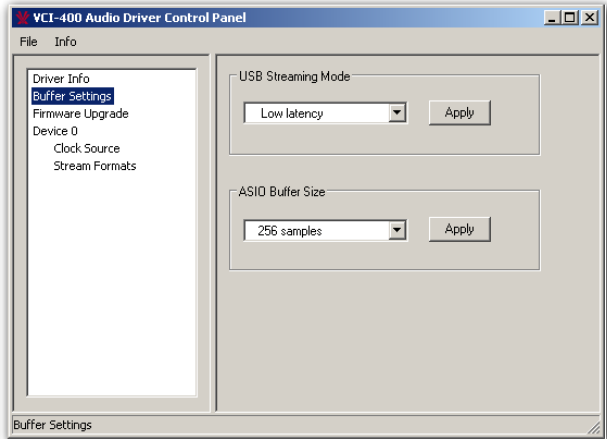
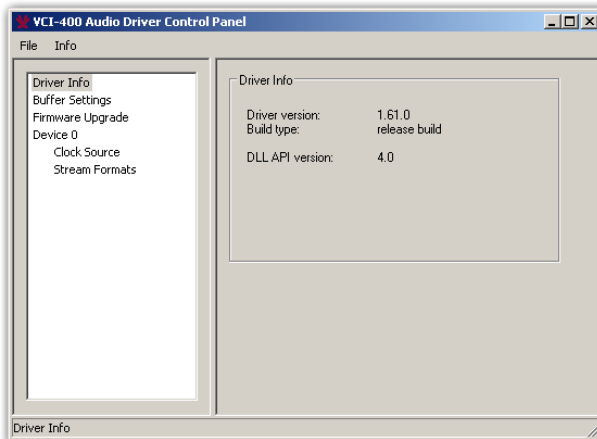
The ELEPHANT project is based on the original USB firmware of the VCI-400SE (no matter what audio firmware version from VESTAX you are using). In case you currently use version 2 of the USB firmware, you may want to convert back to v1.

Fortunately **flashflooder** from DJTT provides a link with instructions including the actual firmware here <https://maps.djtechtools.com/mappings/166>. Please keep in mind that the firmware up/downgrade will only work with a VCI400SE and not the regular version of the VCI-400.



The screenshot shows the DJTT website interface. At the top, there's a navigation bar with 'BLOG', 'SHOP', 'MIDIMAPS', and 'FORUM'. A banner for a Black Friday sale is visible. The main content area is titled 'DJTT VCI-400SE Mapping (Flashflooder edit)'. It includes a video player showing a Traktor DJ interface with a hand on a controller. To the right is a user profile for 'flashflooder', a DJ, with details like membership since April 23, 2012, and 10 mappings. Below the video is a 'Description and Instructions' section with a link to a ZIP file: <https://s3.amazonaws.com/VCI400SE/VCI-400SE+MIDI+FW+Files.zip>. The 'About this mapping' section shows the latest version is 2.1.3, released on March 25, 2013.

A far as the audio firmware is concerned I am using the original **version 1.61 from Vestax** w.o. the ability to use the controller as a standalone mixer. The reason for this is that I rather prefer to feed in the sound of MASCHINE or a microphone into TRAKTOR using TRAKTOR's live inputs.



On my computer (equipped with intel i5), at least to my experience, above shown driver settings work best for low latency of MIDI and AUDIO on an acceptable quality level.

On the other hand I found out (at least in my environment) higher than 44.1 KHz sample rate don't work smoothly and will unfortunately create lots of audio cracks and drop outs.

LoopBe30

LoopBe30
Provides up to 30 Virtual MIDI Ports - It's [LoopBe1](#) x 30

Basically LoopBe30 provides 30 independent "invisible cables" to connect MIDI outputs of applications to any other application's MIDI input. You may connect up to 8 applications to every single input and up to 8 application to every single output, all sending and receiving at the same time. Every port provides the full 16 MIDI channels.

Near Zero Latency.

LoopBe30 is a native Windows™ 2k/XP/Vista/7 WDM kernel mode driver. Expect the lowest possible latency.

Adjustable Number of ports - 1 to 30 in Windows Xp / Vista (1 to 9 in Windows 2000)

Select only the number you need and only that number of ports will be installed on your system and be visible in your audio applications. This will save system resources and usability.

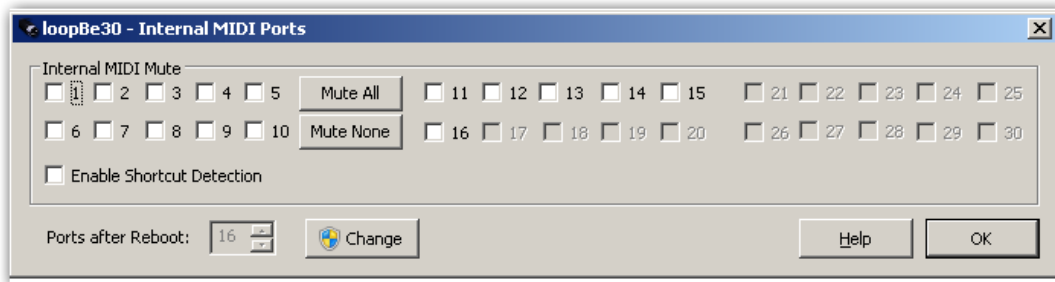
This can be done using the system tray application (LoopBe30 Monitor). Additionally you can mute each MIDI port individually. A muted port behaves similarly to an audio device. All data sent to the port is simply discarded, but the sending application will not realize anything.

Enable or disable powerful MIDI Shortcut / Feedback Detection.

LoopBe30 comes with the powerful [shortcut detection of LoopBe1](#). It mutes its ports if the data rate is higher than the MIDI specification of 31.25 kbps. Sometimes it might be necessary or desirable to send more data, for example by sending excessive MIDI polyphonic aftertouch messages. A hardware legacy device would fail here, but not LoopBe30. If you want to send more data than allowed by the spec, and you are sure your setup is shortcut free, simply disable the shortcut detection.

LoopBe30 is a shareware available at <http://www.nerds.de/> (at a cost of about US\$ 20) that provides you with up to 30 virtual MIDI ports on your Windows computer.

Once you have downloaded and installed the software, **configure 16 virtual MIDI ports**. No need to activate the “shortcut detection” feature, but no harm as well.



It might as well be possible to use other utilities to create virtual MIDI ports, but I am very satisfied with this one, that's why I recommend it to be used although I do admit that I didn't even test other options.

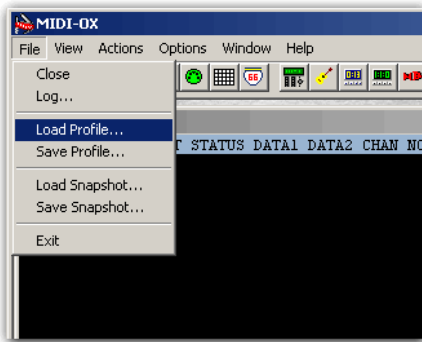
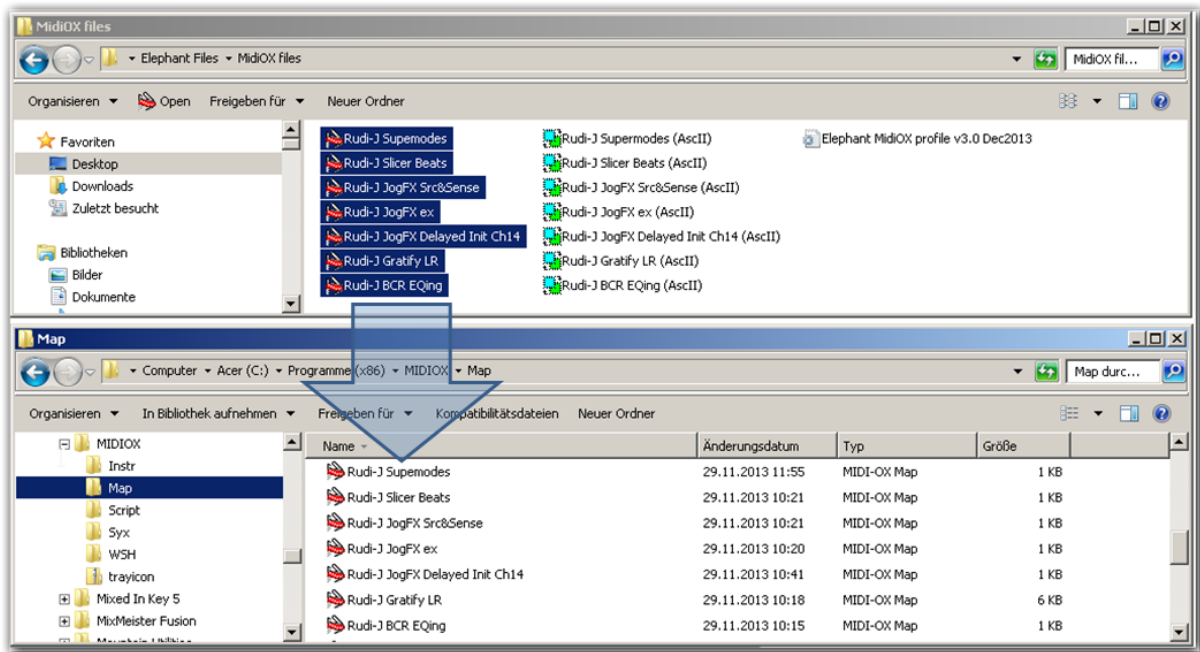
MIDI-OX

MidiOX is a utility that can even be downloaded for free, although it would be again very nice of you to also donate some money to help these guys maintaining their wonderful project.

The software can be found at <http://www.midiox.com/>.

Once the software is downloaded and installed, the **MIDI-OX translation maps** – delivered in .TXM ASCII format as well as “native” .OXM format

in the zip file directory “MODIOX” need to be transferred into the map directory of MIDI-OX on your PC. You can use the MS Windows explorer to accomplish this. Note that **you only need to copy all .oxm files** (the ones with the swiss knife icon) into MIDI-OXs working directory in the Windows programs folder:

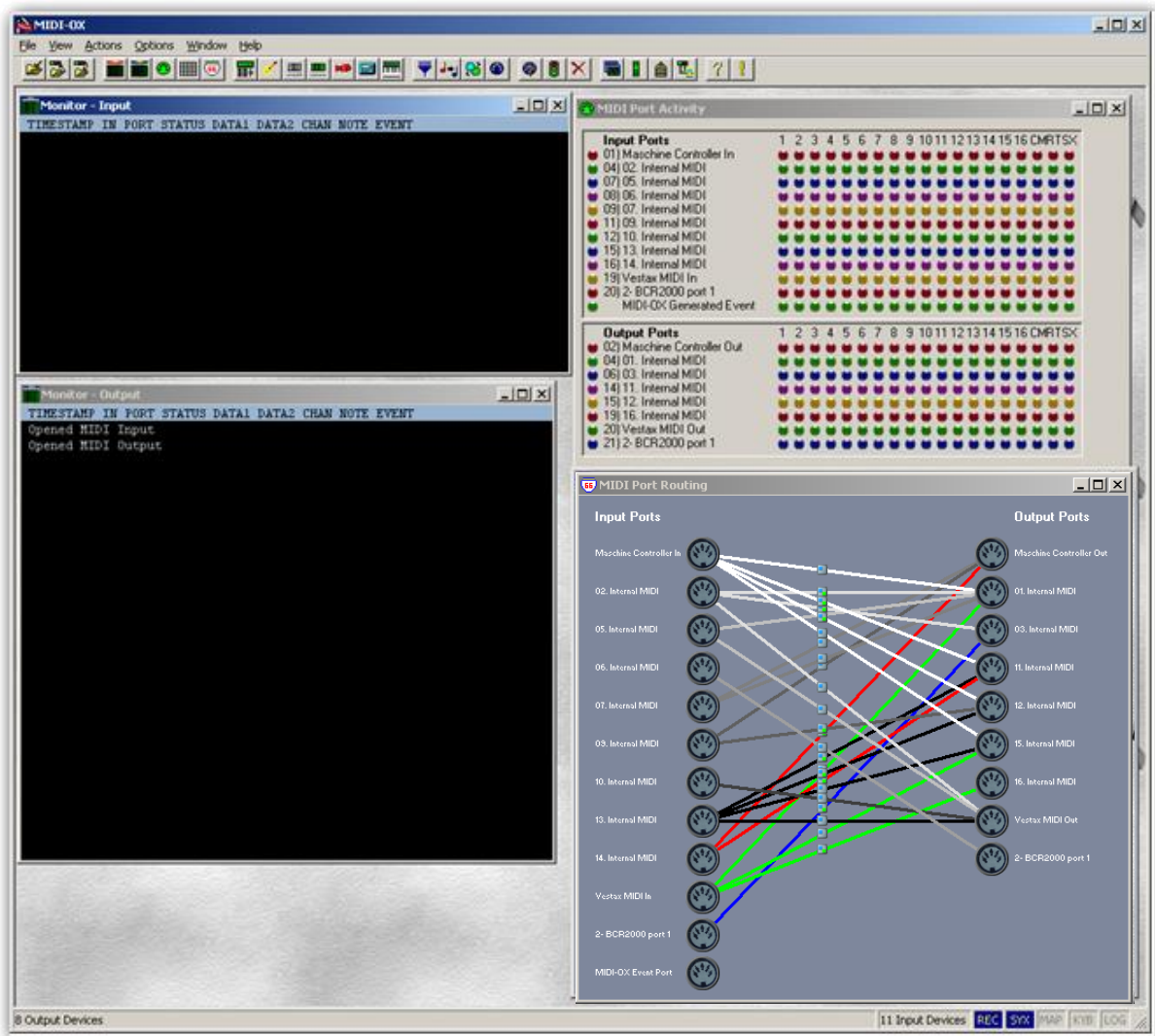


When you are done and all MIDI hardware is connected and ON, it is time to load the profile **“Elephant MIDI-OX profile v3.0 Dec2013”** into MIDI-OX from the ZIP directory.

This file should load all MIDI Port connections and install all customized and “.oxm” mapped connection between them automatically.

Note that loading the profile only makes sense if all required MIDI ports do exist.

Meanwhile, your screen should look like this now:



The “Midi Port Routing” shows all the connections, and once you touch any control on any controller (except Kontrol F1), MIDI traffic should appear in the two black frames labeled “monitor” in real-time.

In case the routing of MIDI devices looks for whatever reason partly different, please note that the chapter “Implementation notes” probably contains some useful information to repair your setup.

To get rid of the MIDIOX window – **without terminating the program** – just minimize it. A small icon will remain in the Windows bottom bar.

Note that from all utilities mentioned here only LoopBe30 and MIDIOX are required to run in parallel with TRAKTOR. Because LoopBe30 will start automatically when Windows is started, the only program to be launched before launching TRAKTOR is MIDIOX.

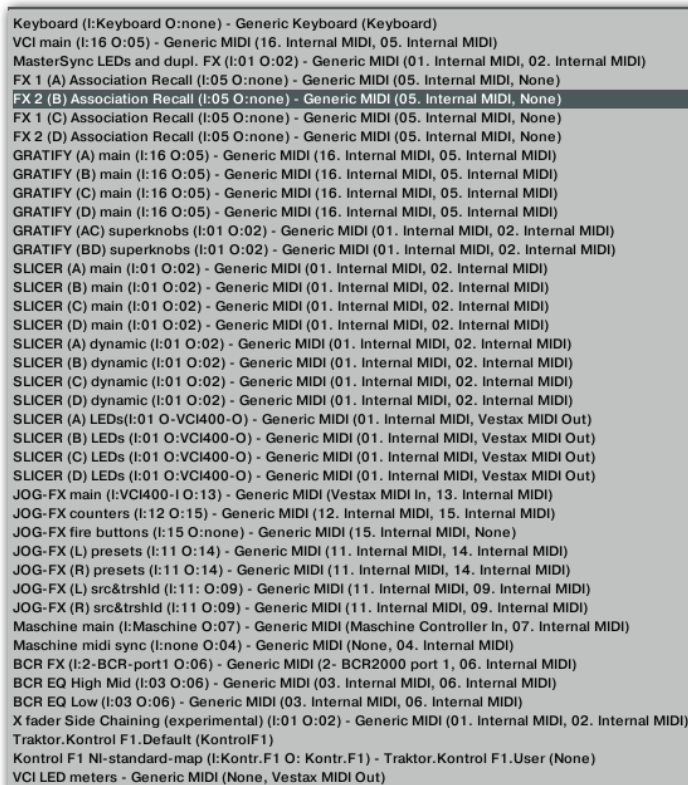
Loading the TSI

Make sure you have got your current environment secured before you load your downloaded TSI file. **In particular save your current TSI file using the “EXPORT” function of TP.** Use the import TSI function (big Import button) in the preferences/controller-manager menu of TP and import at least the following portions from the file “**ELEPHANT (all TSIs 01-40).tsi**”:

- Controller Mappings
- GUI Layout
- Effect settings
- Other preferences and settings

Import two times as (I heard) this might be necessary to really inherit certain FX settings. Now your TSI should contain 40 so called “devices”. These – in TRAKTOR terminology – contain the “assignment tables” that actually represent the ELEPHANT mapping. The “device” dialogue in the

TRAKTOR menu **setup/controller** should now look like shown here.



Important: Once done, double check that the MIDI In- and Out-ports (conveniently included in the TRAKTOR device naming) do really match the actual ports TRAKTOR is using.

If there is any mismatch try to repair by manually changing the in- and out ports relying on the in/out description provided in the device names in braces.

Note that due to the large size of the TSI file, every time you load or close the setup screen, or when you switch from working in one device to another you probably need to spend 2-3 minutes just waiting for TRAKTOR to

react. This behavior is probably dependent on installed RAM size, but fortunately has no effect on TRAKTOR's responsiveness to AUDIO or MIDI. It appears that this TSI is acting at the borderline of what TRAKTOR can actually manage in terms of TSI size.

For those who just want to look up certain devices just to study the mapping, rather than using it, please note that there are smaller TSI files included in the ZIP-file, which can alternatively be loaded using the “small” import button in the device dialogue in order to go selectively for just one or two of these 40 devices.

In case you even want to include further controller open your “old” TSI and re-import any other controller mappings you intend to use in parallel. Make sure this time you use the “little” import button that pops up in the upper part behind the “Add...” button to avoid overwriting what you just loaded.

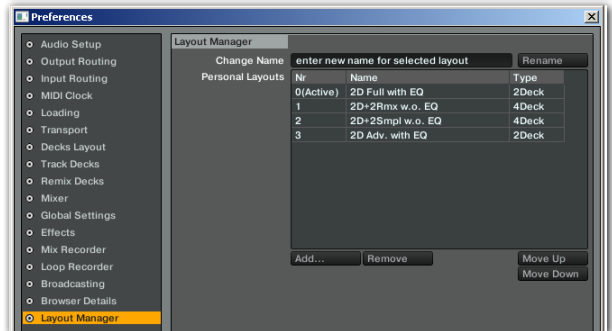
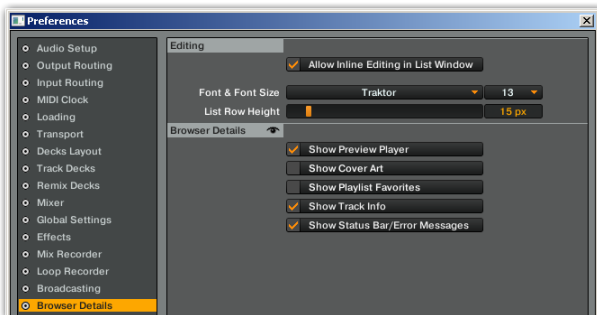
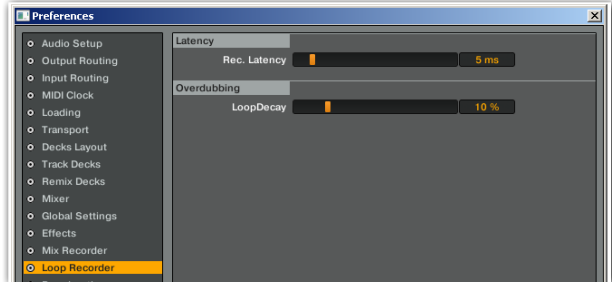
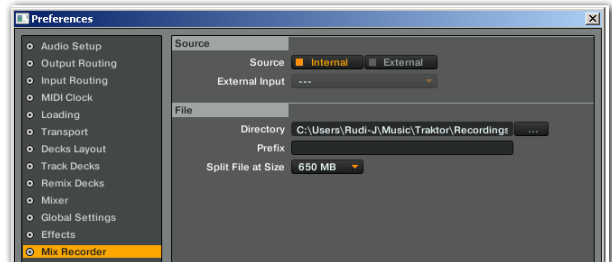
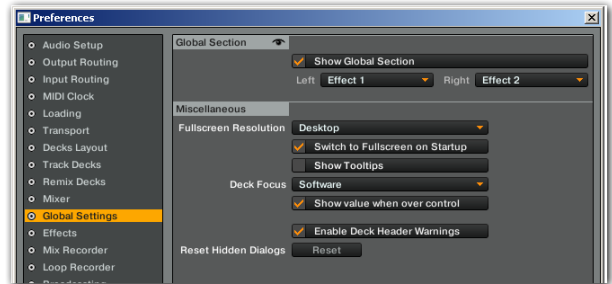
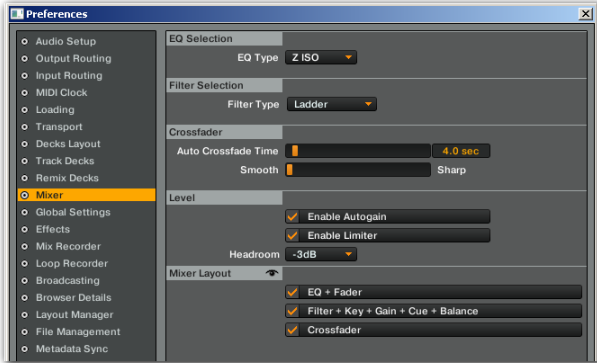
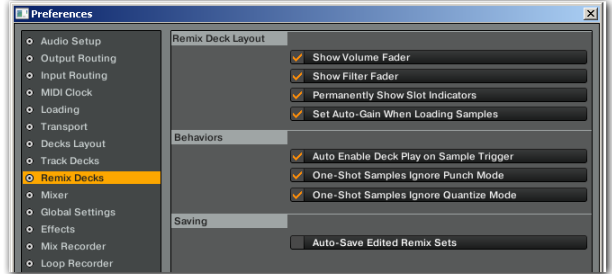
Double check all preferences after this to make sure everything meets your convenience.

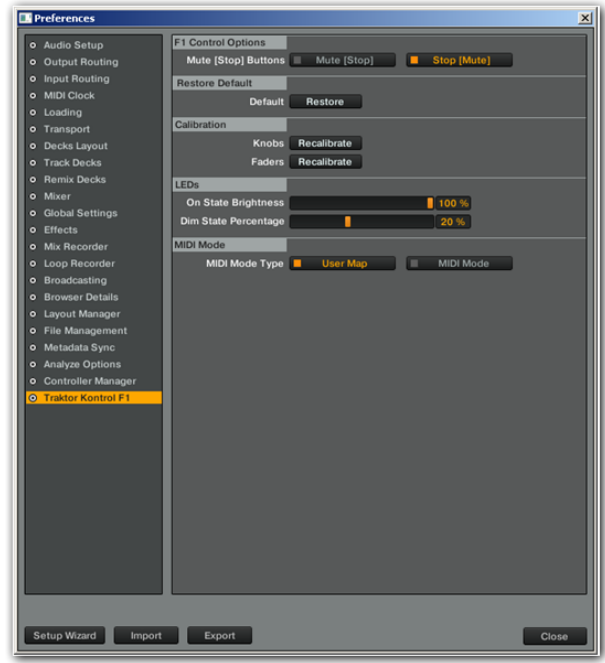
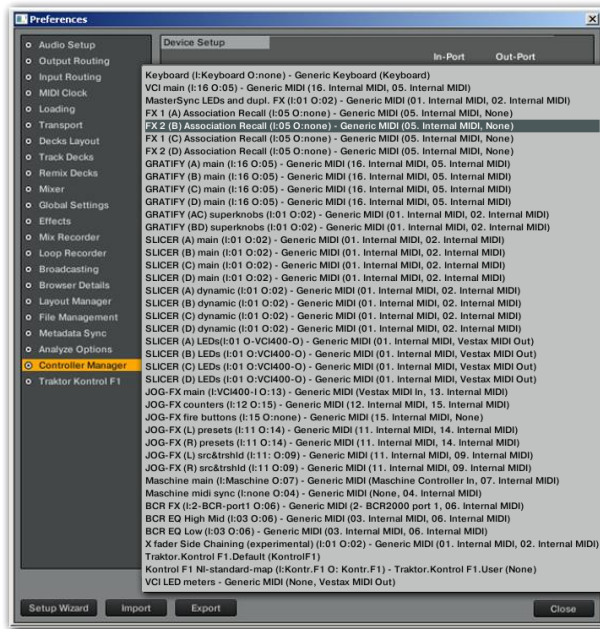
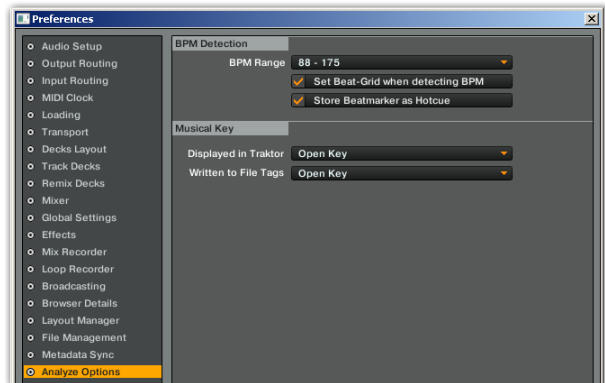
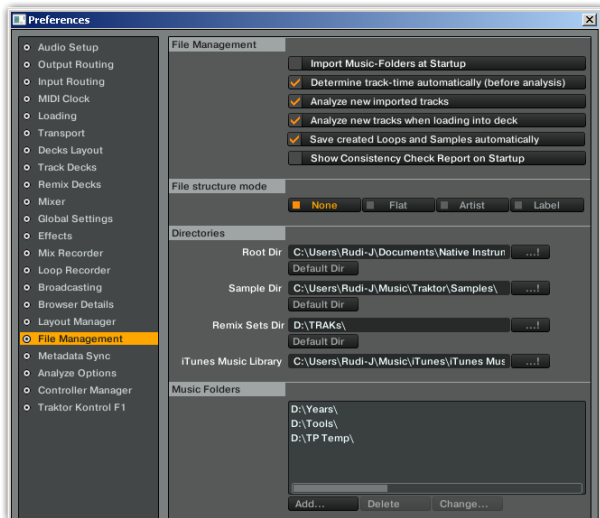
TRAKTOR’s setting walkthrough

All settings should of course install automatically once you load the TSI. However, for your reference, the all the screens are documented here as screen snapshots:



7.8ms overall audio latency should be quite acceptable...





The TRAKTOR Kontrol F1 is actually optional for this mapping. All functionality described in the subsequent chapters will be available no matter if the Kontrol F1 is present or not. So if you don't have one, just delete the two devices or in case you want to use your own custom made F1 mapping, just replace the F1 devices with your own files.

Description of mapping functionality

Now that everything is loaded and installed the mapping should be functional. Before we come to the more advanced features of the mapping let's consider some basic functionality first.

Basic controls

This chapter describes all basic transport controls and adjustments available on the three controllers.

Browsing and loading tracks



Browsing is unchanged with regards to the original DJTT mapping: Twisting the **browse** encoder will browse in the current playlist. Pressing the encoder and releasing it will toggle the view between **List view** with minimized decks and the last active screen layout. Pushing and turning the encoder will browse through your **favourite playlists**. Holding **main shift** and

turning the encoder will navigate you through your **collection tree**. Pushing the encoder while shift is held down will **open close subdirectories/playlists** in the tree.

Loading tracks / changing deck flavors

To load a track selected in the browser press the **load** button of the selected deck. Pressing **shift** while pressing the load button for deck C or deck D will toggle the **deck flavour** from track deck to remix deck to live deck . Loading remix sets into decks C and D will only work if they are assigned to be remix decks before. On each switch of flavor a deck will be forced to stop play out and the entire content of the deck will be purged.

Note: The "stop and erase everything" policy was introduced in this mapping as it seems in TP2.6 track decks and remix decks even though when they are not the currently selected flavor mode – seem to "survive" in the background and sometime cause unwanted side effects.

Switching between decks and screen layout



Like in the original mapping the **performance section, transport section and jogs can be associated to either deck A or C** on the left side by using switch **Deck C/A** and in the same way on the right by using switch **Deck B/D** toggeling control for decks B and D.

In addition to this the the **screen layout** can as well be controlled by pressing (main) **shift** when toggeling between decks. The follwong screen layouts are provided:

Shift + Deck C/A in “A” position: Decks A+B visible in full mode incl. EQ; C+D hidden.

Shift + Deck C/A in “C” position: Decks A+B in full mode, C+D in small mode; no EQ.

Shift + Deck B/D in “B” position: Decks A+B in advanced mode incl. EQ; C+D hidden.

Shift + Deck B/D in “D” position: Decks A+B in advanced mode, C+D in advanced mode.

Note: In case you need to include other elements in your screen layouts, feel free to change and even rename these 4 screen layouts using the functionality of TPs set up menu. As long as the sequence and numbering of layouts is preserved the above described switching mechanism should still work.

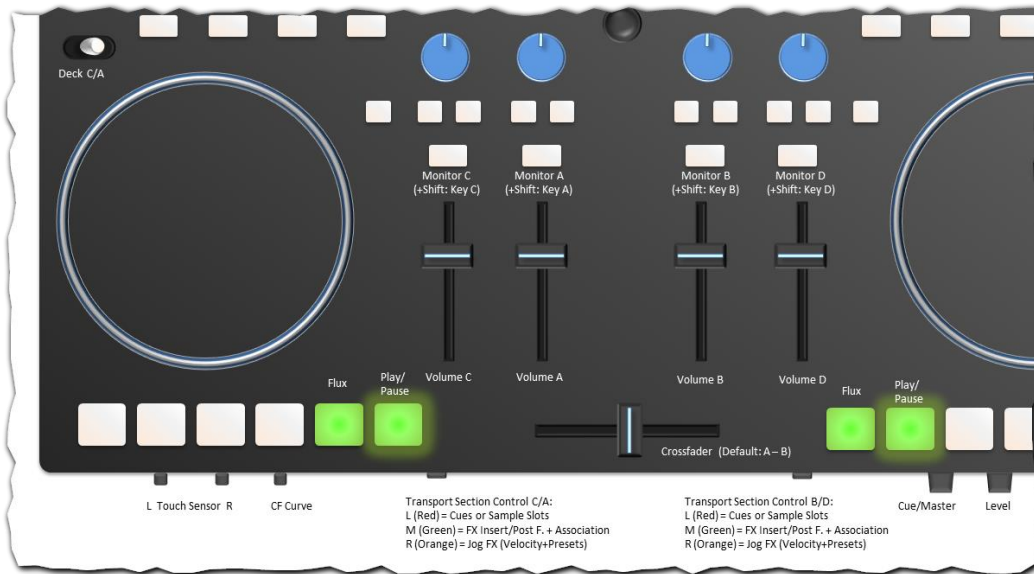
Note: Switching between decks on the left between A and C will as well store/recall the last assignment of FX 1 to decks A, B, C, D. Likewise, switching between Decks B and D will store/recall the last assignments of FX2 to decks A,B,C,D. For more information on why this is implemented please refer to the EFFECTS chapter in this manual, in particular refer to the explanation of the GRATIFY performance section.

Keyboard controls

Even though much of the functionality of this mapping is controlled via MIDI it also comes of course with a keyboard device mapping containing functionality for hotcue jumping, managing favorites, browsing playlists and functionality to control the preview player as shown below. Other than that the keyboard mapping is not loaded with special functionality that is interlinked with the ELEPHANT MIDI mapping. In other words, if you prefer to use your own custom made keyboard mapping, just go ahead and replace the device with your own keyboard device file in the TRAKTOR configuration.



Play/pause, FLUX mode, monitoring, key lock, crossfade and volume controls (VCI)



The behavior of all deck **volume controls** and the **cross fader curve** should be self-explanatory. The little knob at the front of the controller adjusts the **cross fader curve**: turned to left = flat curve; turned all the way right = steep curve. The **play/pause** button and **Flux mode button** works with the associated deck in any of the three possible modes the transport section can be in. When Flux mode is on, the button will be lit. When a deck is playing the play/pause button will blink in the frequency of the associated deck's bpm.

- When a deck is playing, **Play/Pause** will halt play out of the deck.
- When a deck is paused, **Play/Pause** will resume playing from the current position.
- When a deck is playing, **Shift + Play/Pause** will beat-jump to the current/last cue.
- When a deck is stopped, **Shift + Play/Pause** will jump to the current/last cue and start playing.
- When a deck is stopped, pressing and holding a (hot)cue will restart playing (but the Play/Pause button remains un-lit), if then followed by pressing **Play/Pause** the payout will continue even when the (hot)cue button is released.

Note: The original “cue” button is no longer available in the VCI transport section, however the SLICER function of the performance section allows dropping a cue point on the fly and a cue button for the current deck is as well available on the MASCHINE interface.

The **Monitor** buttons if used without shift, will route the decks output to the preview monitor and indicate the current status (on/off) by visual feedback. If used in conjunction with main-Shift, they are toggling the **key lock** mode for the respective deck (incl. visual feedback). Furthermore, it is possible to **decrement/increment the current key by 1.00** when pressing the button together with **“Shift-L” / “Shift-R”** respectively.

In case deck C or D are configured to be remix decks switching monitoring on/off for these decks will result in monitoring all slots in playback mode. However, once the slot individual monitoring functions of the sample decks are used this will override the “global” monitoring mode for the remix decks and the button's light will turn dark (More on that behavior is described in the chapter

dedicated to sample decks). Once you press the monitoring button again you'll be here again all playing slots and the LED lights up again.

Play/pause, FLUX mode and current deck selection (MASCHINE)



On MASCHINE, 4 buttons are available to select TRAKTOR's current deck **A, B, C** or **D**. The buttons **Play/Pause**, **FLUX** and **Cue** will always relate to TRAKTOR's current deck. Play/Pause will toggle between play and Pause and blink in bpm rhythm when active. **Shift 1 + Play/Pause** will jump to the current Cue and start/continue play out no matter if the deck was stopped or playing. On a stopped deck, **Cue** will start playing from the current Cue as long as it is pressed (to continue play out just press **Play/Pause** before to release **Cue**). On a playing deck **Cue** will stop the deck and jump to the current Cue point in the track. On a stopped deck **Shift1+Cue** will drop a cue point and start playing. When the deck is playing **Shift1+Cue** will jump back to the current cue and continue playing from there. **Shift2+Cue** will just drop a floating cue point at the current position.

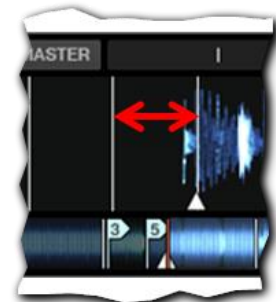
Master Tempo, aux volume, BPM, headphone volume and grid display (MASCHINE)



The **Master Tempo** knob on MASCHINE controls TRAKTOR's master tempo directly. Fine adjustments are possible if used in conjunction with **Shift1**.

AUX Volume is adjusting the volume of the auxiliary input of TRAKTOR.

Shift1+AUX Volume is adjusting the **Headphone's Volume** on the TRAKTOR mixer (not to be confused with the headphone volume

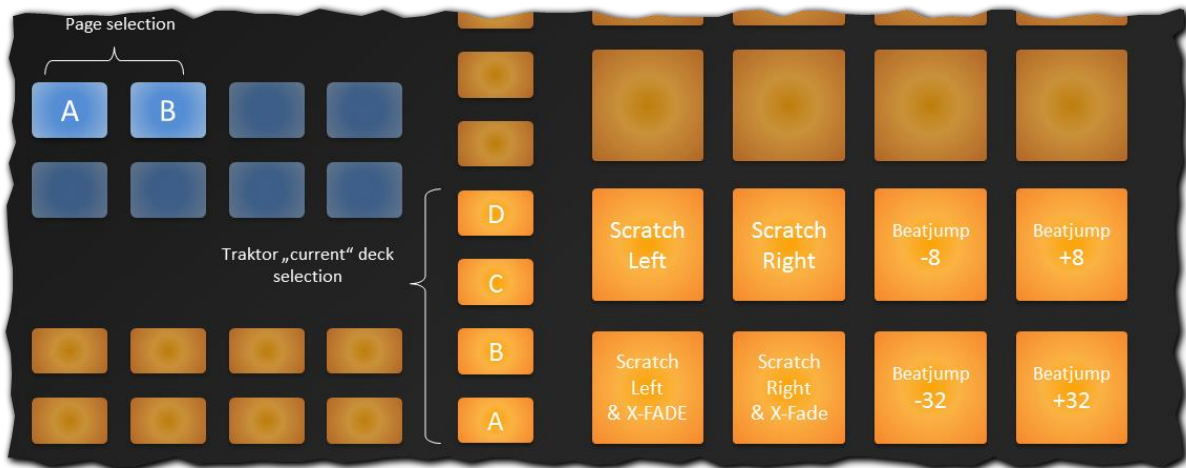


knob on the Front of the VCI that is adjusting the built-in hardware headphone amplifier of the VCI-400SE)

The **Bpm/2** and **Bpm*2** buttons relate to TRAKTOR's current deck and will divide or multiply the current's tracks bpm if the track is unlocked. In case the track is locked, and you still need to divide the bpm by two, **press and hold Bpm*2** first (this will unlock the track temporarily) then press **Bpm/2** and release the buttons (this will lock the track again). Accordingly, to double a locked track's bpm just do the opposite.

To decrease/increase the size between beats of TRAKTOR's grid display press **Shift1+Bpm/2** or **Shif1+Bpm*2** respectively.

Scratching & beat juggling (MASCHINE)



When in pad pages A or B the TRAKTOR current deck can be selected by buttons A, B, C, D. **Beat juggling to positions +/- 8 beats or +/- 32 beats** can be accomplished by the respective pads on these two pad pages. Any command will refer to TRAKTOR's "current deck".

As the pads on MASCHINE are also pressure sensitive, a **scratching functionality** has been implemented on MASCHINE. **Scratch Left / Right** will operate like a Jog Scratch: **Scratch Left** will stop the track temporarily and scratch a little backwards on pressing the pad down and scratch forward when releasing the pressure. **Scratch Right** will do the opposite. The pads **Scratch Left & X-Fade** and **Scratch Right & X-Fade** will do the same, but **simultaneously operate the cross fader** back and forth as indicated.

Note that when the current deck is "B" and any of the 16 pads are operated the current deck will immediately change to deck A. Likewise, when in pad page B, when "A" is current deck, the current deck is switched to "B" upon any operations in pad page B. Furthermore, when in pad page A and current deck is A or when in pad Page B and current deck is B, all 8 pads in the bottom are lit. (This is to avoid confusion between pad pages A/B vs current deck selection A/B: "Normally" both assignments should be the same, (but unfortunately it is not possible to detect a pad page change by MIDI controls).

This means on the other hand: when these 8 pads are used for decks C or D, all buttons will be unlit (to indicate that even though pad pages A or B are active the active decks are not A or B.)



Main Volume

Main volume is controlled by the knob on the top in direct mode.

Filters

Filters are controlled by knobs as indicated in their respective decks column. Operation of knobs is not affected by shift states.

Note: The default setting in this TSI is the “Ladder” filter type. This is just to my personal preferences and can of course be changed in the settings without any side effects for the mapping.

Shift states

The main shift on the VCI is activated by pressing and holding the **Main Shift** button (invoking a visual feedback). To ease ergonomic access of certain functionality the main shift can alternatively be initiated when any of the indicated buttons of the Left or Right performance section are pressed. Additional shift states can be activated by pressing **Shift-L** or **Shift-R** encoders.

Gain and Key

On the VCI each deck has its own **Gain** control that is shared to be used in combination with **(Main) Shift** for (continuous) adjustment of the decks key. Knobs are set up for “soft takeover” of control input if pressed with “**Shift-L**”. Furthermore 4 **Key** knobs for continuous adjustment on the BCR are available as shown below. Unlike to the VCI, touching a key knob on the BCR automatically will switch key lock on for the involved deck. If Key lock for the deck is off the respective LED circle on the BCR will turn dark.

Autogain

For adjustments of **Autogain** values 4 knobs on BCR 2000 with independent visual feedback for gain are available.

*Note that when **Gain** or **Autogain** knobs are touched on the VCI or BCR TRAKTOR’s screen display (Gain/Autogain) switches accordingly.*

Note also that Autogain values can only be adjusted on loaded, un-locked tracks. For on-the-fly un-locking un-locking of a loaded track see also “doubling / bisecting bpm”







Pan (Balance adjustment)

Pan adjustments of decks can be controlled via 4 knobs on BCR 2000 as shown above.

Masters, and Sync

The TRAKTOR **Auto** master feature and the clock **Master** can be toggled using the named buttons on the top of the VCI-400SE. **Master** and **Sync** states of the decks are all controlled and managed by their respective **Master/Sync** Buttons.

- Deck **Sync** on/off can be toggled by pressing the deck’s **Master/Sync** button.
- Deck **Tempo master** on/off can be toggled by pressing a deck’s **Main Shift + Master/Sync** button.

Status of deck's Master/Sync button	Master	Sync
 Button is constantly dark	Off	off
 Button is constantly lit	Off	On
 Button is blinking acc. to bpm with long dark period	On	off
 Button is blinking acc. to bpm with long lit period	On	On

Note that a deck can only be a master deck when it is playing.

A special feature of this mapping is the **4 state visual feedbacks** of the deck’s **Master/Sync** buttons:

Just one of all 4 decks can of course be the master (first of all indicated by a blinking LED). Then for this master deck it will depend on “how” the LED is blinking whether sync for that deck is on or off as explained in the table to the left.

Tempo

Without main shift engaged, the **tempo**-faders control the deck's pitch in absolute and direct control. In the TRAKTOR settings the range is preset to 50% (can be changed in the preference settings). Once **main shift** is pressed simultaneously while moving the fader, the fader control changes to a relative mode with a very fine graduation allowing for **precise adjustments** within a range of about +/- 0,25 bpm. If in this mode the fader has reached it outmost top or bottom position, but the desired value has not been reached yet, just press either **Shift-L** or **Shift-R** to "mute" the fader-control, so that it can be moved to a **new starting position** (usually the other end of the scale), then just proceed making fine adjustments using again **Main Shift**.

When working without sync the **tempo bend** technique can be employed by toggling off **vinyl mode** and moving the jog wheel around, to adjust the pitch of the deck.

Note: Shit can happen – in this context here in particular when a deck is started for playback without having noticed, that the pitch has been (automatically) set to match the bpm of another (probably totally aberrant bpm value of an auto-master deck) just because "sync" was still switched on and forgotten. If this happens to me I "panic" and I instinctively grab the tempo fader to correct the pitch – but of course in vain, because when sync is still engaged it will render any tempo fader action meaningless. For this reason a "panic sync off" feature has been implemented in this mapping.

"Panic sync off" functionality:

When a tempo fader for a deck is moved (with shift status off) the Sync is automatically turned off for that particular deck, allowing the fader to move under all circumstances.

Equalizing



This mapping comes with a few advanced features supporting EQ-based mixing techniques such as “EQ Blend”, “Swapping Basslines” described in more detail here:

<http://www.djtechtools.com/2012/03/11/eq-critical-dj-techniques-theory/>

The “Z Iso” mixer is used in this mapping that will entirely kill bands, when a knob has been twisted fully to the left. Choosing another type of TRAKTOR EQ emulation in the settings is fine as long as it sticks to the Low/Mid/High

concept.

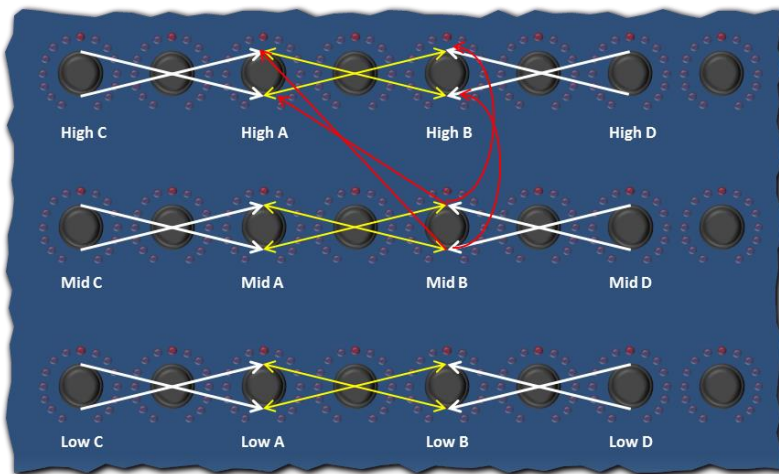
Regarding EQ kill, please note that in this mapping whenever an EQ knob is fully twisted to the left the TRAKTOR EQ kill functionality will be engaged automatically and vice versa. This feature may come in handy when TRAKTOR EQ emulators are to be used, that do not fully kill frequency bands when adjusted to 0%.

(Basic) Equalizers (VCI-400SE)

Basic equalizing **Low/Mid/High** in ranges from -100% to +100% with neutral (center) position at 0% works straightforward using the labeled knobs of the VCI-400SE without shift. Note that very conveniently at 0% the VCI400 will snap into place.

EQ-Killing can be achieved by pressing **main shift** and moving the according Frequency knob on the VCI just slightly to either side.

(Advanced) Equalizers (BCR 2000)



On the BCR 2000 knob columns 1, 3, 5 and 7 are also available to equalize high, mid, lows of decks C, A, B, D respectively. However the way the knobs are working on this controller is interlinked in a special way as illustrated to the left. Knob “Mid B” is special, as it controls not only “Mid A” in reverse symmetry, but also “High B” (in symmetry) and “High A” (reverse symmetry).

- When reducing or increasing the level of highs on deck A the level of highs of deck B will change in reverse symmetry, but as a maximum value, high A or B can only reach the center position (0%).
- The same is happening vice versa, when the level of highs on deck B is changed.
- Mids and lows of deck A and B are interlinked in the same way.
- Highs raise/decrease very quickly between -100% and -20%. Mids between -100% and -40%. In effect the **crossfading point** (i.e. where both levels are equal) is **for high frequencies at about -13%**, for **mid frequencies at about -30%** and **for low frequencies at about -50%**.
- **Any EQ-level reaching -100% automatically invokes a kill** for that level. (observe the change on TRAKTOR’s screen and at the same time the red LEDs of the BCR’s knob for the particular parameter going off)
- Highs, mids and lows of **deck A and C** as well as highs, mids and lows of **deck B and D** are also interlinked, but here changing the level of H/M/L on deck C will only have an effect on deck A **but not vice versa**. The same is true for changes of EQ-levels on deck D invoked on the BCR with regards to deck B.

*How can this feature be used? First of all this cross-link between highs, mids and lows comes in handy for **EQ blended crossfading** between decks A and B.*

Here is a basic example of how this feature might be used in a mix:

1. Load synced tracks eligible for mixing in decks A and B.
2. Switch the cross fader to A and start both decks in sync (you should only hear deck A)
3. Turn highs, mids, lows on BCR 2000 for deck B to minimum (all killed)
4. Then, bring the cross fader in the middle position (you still just hear deck A)
5. Now by twisting either EQ knobs of deck A down or EQ knobs of deck B up you can exchange the EQ levels of H/M/L selectively between both deck in total symmetry.

Furthermore the 3 EQ-level links between A<->B, C->A, D->B can also be used for frequency isolation as a basis for the isolated FX feature discussed in one of the following chapters.

(Advanced) Equalizers (VCI-400SE)

Following the same logic and symmetry as on the BCR, reverse operation of EQs is also implemented on the VCI, but here **restricted to EQ-Kill** operation in combination with “Shift L” and “Shift R” buttons. The following table summarizes all options in basic and advanced EQ control.

Shift pressed	VCI EQ knob..	..for Deck	Effect on of corresponding value High - Mid - Low
-	High - Mid - Low	A - B - C - D	If on, EQ kill is switched off and value takes up current knob position. (i.e. basic EQ operation as described earlier)
Main shift	High - Mid - Low	A - B - C - D	EQ kill is activated and respective H/M/L value is set to -100%
Shift L	High - Mid - Low	A	Deck A: EQ kill is activated and value parameter is set to -100% Deck B: EQ kill is switched off and value set to 0%
Shift L	High - Mid - Low	B	Deck B: EQ kill is activated and value parameter is set to -100% Deck A: EQ kill is switched off and value set to 0%
Shift L	High - Mid - Low	C	Deck C: EQ kill is activated and value parameter is set to -100% Deck A: EQ kill is switched off and value set to 0%
Shift L	High - Mid - Low	D	Deck D: EQ kill is activated and value parameter is set to -100% Deck B: EQ kill is switched off and value set to 0%
Shift R	High - Mid - Low	A	Deck A: EQ kill is switched off and value takes up current knob position Deck B: EQ kill is activated and value parameter is set to -100%
Shift R	High - Mid - Low	B	Deck B: EQ kill is switched off and value takes up current knob position Deck A: EQ kill is activated and value parameter is set to -100%
Shift R	High - Mid - Low	C	Deck C: EQ kill is switched off and value takes up current knob position Deck A: EQ kill is activated and value parameter is set to -100%
Shift R	High - Mid - Low	D	Deck D: EQ kill is switched off and value takes up current knob position Deck B: EQ kill is activated and value parameter is set to -100%

Note, that all EQ kill operations and level adjustments are as well visible on the LED feedback of the BCR. It is also possible to first use the VCI to kill i.e. the highs on deck A / restore highs on deck B and then to use the BCR to smoothly replace the highs from deck B again with the highs of deck A.

Isolated FX

Creating An Isolator Effect Mapping In Traktor

POSTED BY DAN WHITE ON JANUARY 7, 2013

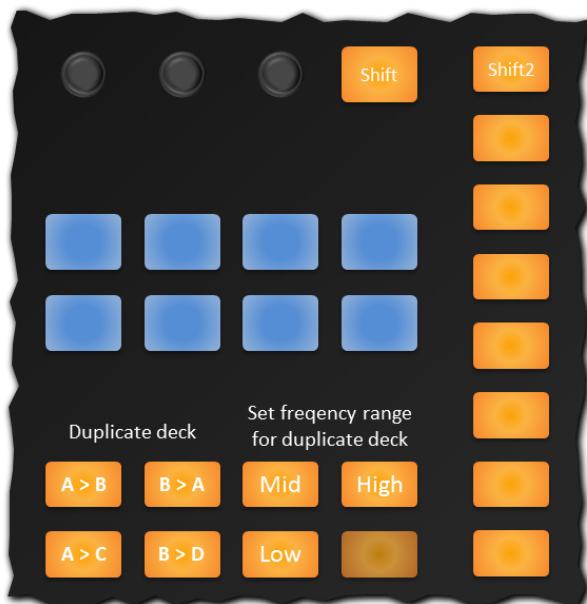
139 Comments

In DJTT HQ, many of our staff have grown to love the Pioneer RMX-1000 for its dynamic and expressive isolator effects. But even in [our initial review](#) of the unit, readers pondered if Traktor could be made to emulate this style of effect – and finally one of our own DJTT community members has succeeded at building a mapping that does exactly that using a secondary deck. Read on to learn more!

ISOLATION EFFECTS IN USE

First off, major congratulations and thanks to DJTT member **Stewe** are in order for pioneering this advanced performance technique in Traktor. It's an impressive feat to map

My concept of a “RMX-1000 inspired” EQ isolation implementation in TRAKTOR for using FX only on a selected frequencies of a track is of course based on Stewe’s idea, published by Dan White on the DJTT blog in Jan 2013.



In my implementation I use the buttons on MASCHINE’s transport section to control deck duplication, whereas fine adjustments for EQ settings can still be made using the EQ knobs on the BCR 2000 as described in the previous section about equalizing.

When aiming to isolate frequency-bands, the first step is of course to make a selection on target frequencies. This can be done by the toggle buttons **Mid**, **High** and **Low** on the MASCHINE. If one of those buttons is lit it means that this **frequency band is used in reverse-symmetry during duplication** (in relation to the other bands).

The four duplication buttons on the left are used for triggering the actual deck duplication. If all that sounds confusing so far, here is an example how that can work out practically:

Let’s assume the **Mid** button is lit and **A > B** is pressed, so that deck A is duplicated to deck B. Now, the mids on deck A are still engaged, but highs, and lows are killed. Likewise, in symmetry on deck B, mids are killed, whereas highs and lows are at 0%. The track is now running isolated with its mid-frequencies on deck A (ready for FX manipulation), whereas the remaining frequencies can play out unaffected on deck B.

Accordingly MASCHINE’s duplicate deck buttons **A>C** and **B>D** make use of decks C and D for duplication, for instance when an outgoing track on deck A is going to be cross-faded into an incoming track on deck B, but deck A and probably also the incoming track on deck B are to be isolated using deck-combos A+C and B+D. For this reason, triggering **A>C** will also add deck C to the left side of the cross-fader decks. Likewise pushing **B>D** will add deck D to the right side of the cross fader. These changes of the assignment of decks C/D concerning the x-fader can also be nicely observed (and manually overridden) on the BCR as shown below.



Note: Duplicating to decks C and D is only possible if the decks are in track deck flavor. However beware: any track loaded or playing on a target deck is overwritten by the duplication activity.

The **visual feedback** of the **duplication buttons** (if source deck is playing, blinking at bpm freq.) can nicely be used to visually observe if the track and its duplicate are still running in sync.

Once duplication is effective the EQ knobs on the BCR can be used to fine tune the selection of frequency bands. By now it should also be obvious, why the cross-linked decks in the EQ

section of the BCR are A-B, A-C and B-D: It is of course, because they match with the utilization of decks in the EQ-isolator mapping and come in handy for the fine tuning of isolation.

Returning from isolated (=double deck) to single deck mode

In order to get rid of the EQ isolation the **Shift** button on the MASCHINE is used: Holding **Shift** when pressing **A>C** will stop the track on deck C and reset all EQ-frequencies on source and target (deck A and C) to 0%, whilst the track on deck A continues to play. Furthermore deck C is released from the X-fader assignment. Holding **Shift** when pressing **A>C** again, will even un-load the track on deck C. The same behavior is valid for all other duplication buttons: **Shift + A>B** will stop/reset deck A, **Shift + B>A** will stop/reset deck B and **Shift + B>D** will stop/reset deck D plus to release D from the cross fader.

Quick reset of deck's EQ

To just reset the EQs of a particular deck without affecting the track, hold both shift buttons **Shift+Shift2** pressed simultaneously, and then press any of the **duplicate decks** buttons on MASCHINE to reset the EQ of the associated deck H/M/L to 0%/0%/0% as shown in below table (including releasing any EQ kill)

Pressed with Shift+Shift2	Resets EQ high/mid/low	Pressed with Shift+Shift2	Resets EQ high/mid/low
	A		B
	C		D

These explanations may have been complication, however keep in mind once acquainted with the functionality it is possible within a fraction of a second to split up a track into two, isolate a frequency, apply an effect and then swiftly return to "business as usual".

Loop recorder



Unfortunately even in TP 2.6 the source for the loop recorder can still only be manually set with the mouse (due to lack of a midi command for that). It is recommended to set it to “cue” in order to be able to select a source on the fly by the monitor cue buttons. The size of the loop should be adjusted before recording using **Main Shift + Size** button. Recording i.e. overdubbing starts with pressing and holding the **Rec** button. The last recording (i.e. the last overdub) can always be **discarded/recalled** by pressing **Main Shift + Rec**. The dry/wet **volume** of playback can be adjusted using the small fader **Looper level** (50% max). Additionally, on MASCHINE, a knob is available for



control of the Loop Recorder. Playback can be started/stopped using button **Play**. Getting rid of and deleting the entire sample recorded is accomplished by pressing **Main Shift + Play**

Loop control (decks)



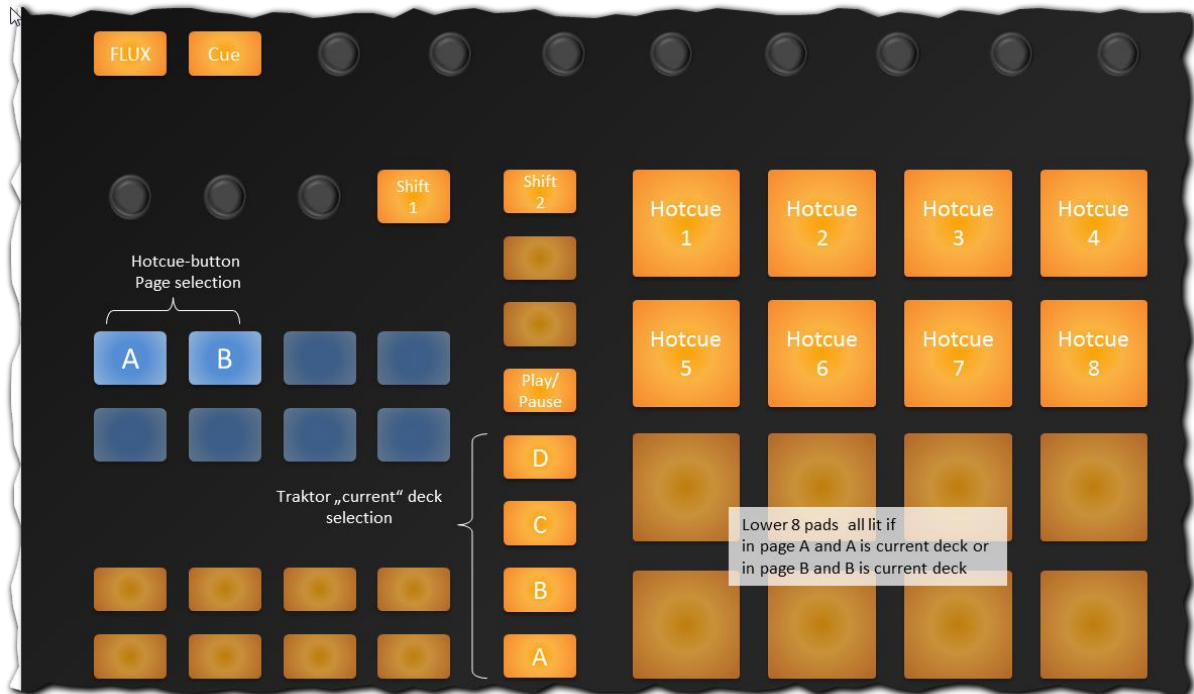
The loop control works almost as in the original DJTT mapping. Encoder **Position** controls the movement of loops **in step length** defined by the knob **Size**. Dropping and **resizing** a loop is done pushing/twisting the encoder **Size**. Toggling activation is done with button **Active**.

*Note: With the FLUX mode it is very easy to create drum rolls on the fly by holding and twisting **Size** with FLUX mode engaged: After releasing the **Size** button, the track will jump back to a position as if the whole drum roll wouldn't have been engaged.*

Visual feedback: When the SLICER in the performance section is active, the **8 performance buttons** will get lit according to the step size selected. This will allow adjustment of the most commonly used loop sizes without gazing at the monitor...

HOTCUES

Direct hotcues for deck A and B (MASCHINE)



On the MASCHINE controller, the pad **pages A and B** contain direct control for the **8 hotcues** for the decks A and B as long as the TRAKTOR “current deck” is set to either deck A or B. In case the **current deck** is set to **C or D** the hotcue buttons will still operate as described below, but refer to decks C and D instead.

Visual feedback: The lower 8 pads of pad pages A will only light up, when deck A is also TRAKTOR’s current deck. Likewise the 8 buttons will only light up in pad page B, when deck B is also TRAKTOR’s current deck.

Note: This extra obvious visual feedback is provided to differentiate the default case (Pad pages A/B dedicated to decks A/B) from a “special situation”, where the pads work for decks C and D instead. To avoid confusion the TRAKTOR current deck is also automatically changed to deck A, when in pad page A, but deck B is TRAKTOR’s current deck and a hotcue is pressed. The same is true when in pad page B and deck A is current deck (will be automatically switched to deck A upon activation of a hotcue). All this is done to always make sure that when a hotcue is pressed and then kept pressed in order to continue play by pressing the play/pause button for the current deck, that the play/pause button on MASCHINE is actually referring to the same deck as the operated hotcues.

Operation of hotcue buttons:

If no hotcue was set for a track, pressing one of the **Hotcue** buttons will **set and store** the respective hotcue at the current track position of the associated deck and track and light up the LED feedback for that button/hotcue. Pressing **shift-2**. In combination with a **Hotcue** button where a hotcue is already stored, will erase that hotcue and unlit the button. When the deck is stopped, Cue/playing a hotcue is done by pressing and holding the respective **Hotcue** button. In order to change the deck

status into “playing”, the **play/pause** for the deck must be pressed on MASCHINE (or on the VCI) before the **Hotcue** button is released. When the deck is playing, jumping to a hotcue is done by just hitting the assigned hotcue button. To control

*Note: When **Shift2** is pressed while a hotcue is cue/playing on a stopped deck with a pressed hotcue button, the deck will continue to cue/play (blue Cue button in TRAKTOR lit but green play button unlit) when **the Hotcue button is released, before the shift2 button is released.***

Hotcues in transport section and performance section (VCI)

The operation of the HOTCUES section is quite similar to the way it was organized in the original DJTT mapping with the exception of the functionality of the hot cues in the transport section (see below):



The **HOTCUES** button will **enable** operation of hotcues in the performance section, pressing one of the buttons **1...8** will **drop and set** a particular cue point if it hasn't been set before or **jump** to the cue if it already exists. Existing cues will shine in red colors.

Pressing **shift** with **buttons 1..8** will **erase** the targeted hot cue.

Note: Working with hotcues in combination with the Flux mode of TP v2.6 will jump and play the hotcue only as long as the button is pressed. On release the track will resume to the position as if no hotcue was used.

An alternative way to reach the hot cues is to utilize the 4 left buttons of the transport section, for instance when the performance section is occupied by another function. To prepare this the small switch on the front of the VCI has to be set to left to enable operating the hot cues in the transport section.

Unlike the original DJTT mapping a combination of **Main Shift** and one of the 4 buttons will now jump/set to **hotcues 5..8** instead of erasing the hotcues 1..4.

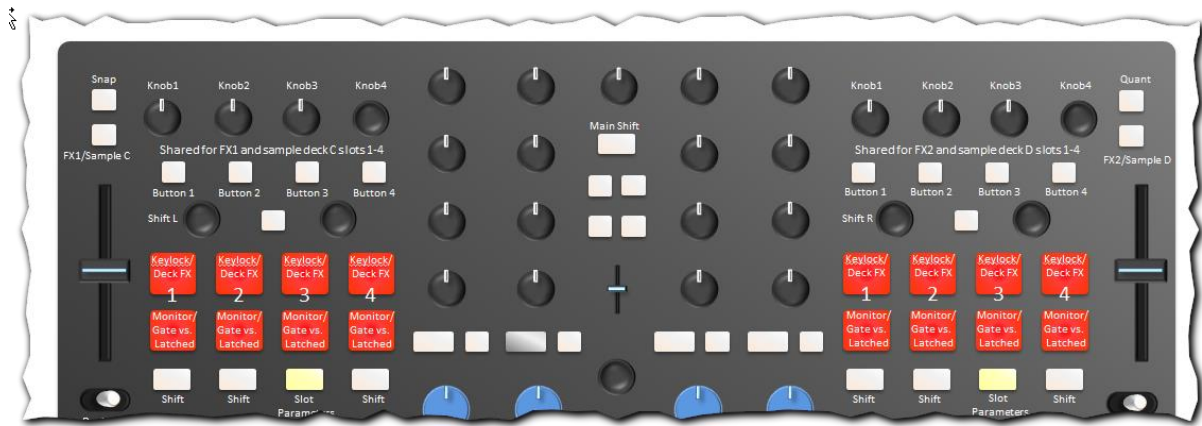
Note: Operating the hot cues for decks C and D with the buttons 1..4 of the transport section may unfortunately cause side effects with the operation of the remix decks C and D, even when the deck flavors of C deck C and D are actually not set to be a “remix deck”. For instance warning messages will appear that loading from an empty loop recorder is not possible. I am afraid we have to accept this for the time being but most fortunately these glitches are inaudible.

Sample decks

Note: NI has introduced the concept of “remix decks” for TP, offering 4 slots with 16 samples as a optional substitute for a classical track deck. Even though the functionality of all 16 samples per slot can now even be controlled via MIDI, The ELEPHANT mapping is still restricted to control just 1 sample per slot to reduce complexity of operation.

Furthermore, in this mapping, the philosophy of remix deck usage is also limited to sample deck functionality for decks C and D in order to focus on spicing up the mix of the main tracks on decks A and B with samples collected “on the fly” in the sample decks C and D.

The reason for these limitations is therefore simply related to my style of mixing and to the fact that I own a “Kontrol F1” that I can always use as a dedicated controller for extended control of remix decks if necessary.



This mapping features sample deck support on the VCI in the upper FX section, in the Hotcue section of the performance section (that would otherwise be void) and the same area of the transport section at the bottom of the controller.

Controlling samples from the shared FX/ sample decks buttons

To use the buttons/knobs of the FX section for sample control, make sure **F1/Sample C** for control on the left side of deck C or **FX2/Sample D** for the right side for deck D is lit and make sure the respective deck is in deck flavor “remix deck”.



Pressing a **button 1...4** in the FX section will then:

- if the slot is empty: **load** a sample from the track deck above (=A for deck C and =B for deck D) from the current position with the currently established loop length of the source deck. If

no shift is active, the sample will be loaded for **latched** playback (i.e. the sample will continue to loop once it is triggered). If **shift** was pressed the sample will be loaded for **gated** playback (i.e. the sample will play only as long as the button is pressed). If the **Shift-L** (or **Shift-R** for the right side) was pressed the loop will be loaded for gated playback from the **opposite side's** above located track deck in the currently established loop length over there. Note that all this so far just loads the sample - playback is not triggered yet.

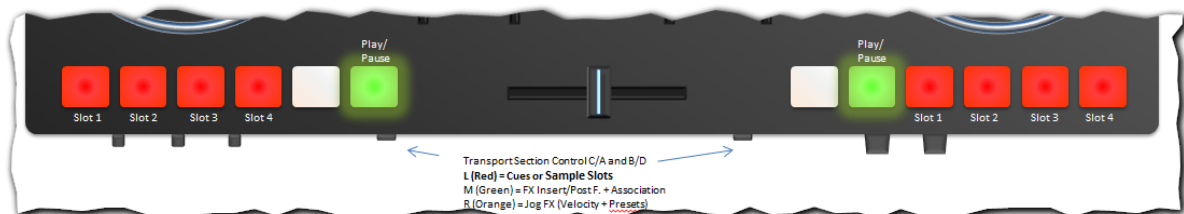
- if the slot is loaded and/or playing and shift is off: **start/re-trigger** looped playback of the sample from the beginning. Depending on the active mode upon loading the sample it will continue to play/loop when the FX button 1..4 is released (latched mode) and play only as long as pressed when loaded in gated mode.
- if the slot is playing and shift is on: stop playback
- if the slot is stopped and shift is on: delete the sample

If a slot is operated in gated mode, but you wish to continue looping without keeping the FX button 1..4 pressed, just press and hold **Main Shift** before you release the button 1..4, then release shift – the loop will continue to play.

Meanwhile, **FX knobs 1..4** will control the **slot-volume** for playback.

Controlling sample decks from the transport section

To switch the controller in sample mode for usage of the buttons of the transport section for sample control, switch the tiny jumper on the front side of the VCI to the left in the “cue” position when the target deck is in flavor “remix deck”.



The buttons **Slot 1...4** will

- if slot is empty and no shift pressed: load the content of the **loop recorder**
- if slot is empty with shift pressed: load a sample or track from the currently active **playlist**
- if slot is loaded and no shift pressed: **retrigger play** from beginning (then playback depends on gated or latched mode of slot)
- if slot is playing and no shift pressed: **stop** playing
- (only) if slot is playing and shift is on: **toggle muting** deck with continued playback.

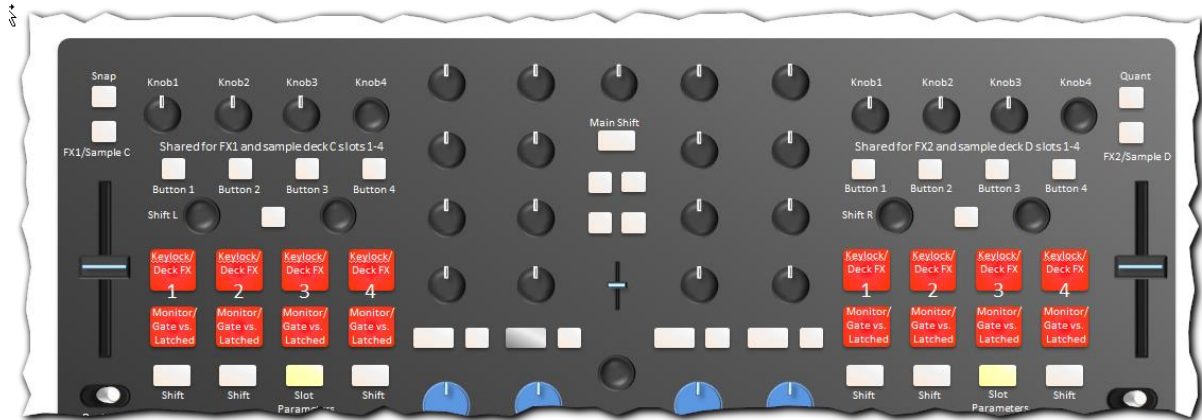
A muted deck will automatically un-mute when stopped.

No matter if the transport section is in the “cue” position, the **Play/Pause** button will always **toggle** play/stop of all loaded slots of the loop deck.

Example: If all slots are in latched mode, slot 1 and 3 are loaded but stopped and slot 2 is playing, pushing **Play/Pause** will stop slot 2 and retrigger play for slots 1 and 3.

Adjusting sample deck options from the performance section

Note: The GRID and GRATIFY functionality of the performance section are also available for the loop decks. SLICER and HOTCUES would be void for sample decks. Therefore the HOTCUES area can now be used to control a few more features in relation to the sample decks.



The following modes can be toggled (incl. visual feedback) when **“Slot parameters”** was activated (i.e. when the performance section is in hotcue mode):

- **Upper 4 slot buttons:** Keylock for sample slot on/off
- **Lower 4 slot buttons:** Deck FX linked to sample slot on/off

The following modes can be toggled (incl. visual feedback) when **Main Shift** is pressed or the **“slot parameters”** button is kept pressed:

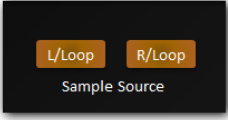
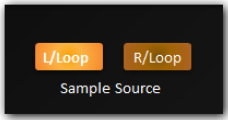
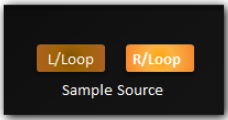
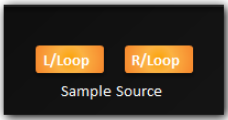
- **Upper 4 slot buttons:** Cue-monitor of sample deck on/off
- **Lower 4 slot buttons:** slot operating in **Gated or Latched** trigger mode (gated = lit)

Sample deck control (MASCHINE)

A simplified remix deck control for the currently active slots of remix deck D and C is alternatively available on MASCHINE on knob page 01.




Buttons **L/Loop** and **R/Loop** control the source of sampling. Samples can either be grabbed from the current track position of decks A or B or from the loop recorder. The sample length is given by the loop length of either deck or by the size of the captured loop in the loop recorder.

Button pressed	Setting for slot buttons C1, C2, C3, C4	Setting for slot buttons D1, D2, D3, D4
	Will capture from current track position and loop size of deck A	Will capture from current track position and loop size of deck B
	Will capture from current track position and loop size of deck A	Will capture from current track position and loop size of deck A
	Will capture from current track position and loop size of deck B	Will capture from current track position and loop size of deck B
	Will capture with given loop size from loop recorder	Will capture with given loop size from loop recorder


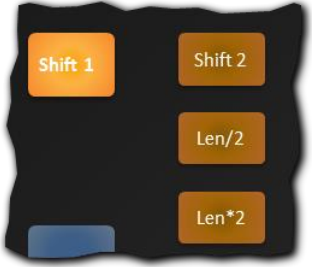
The page buttons C1, ..., C4 for deck A and D1, ..., D4 are called **slot buttons** and then used to actually capture the sample, when pressed w.o. shift.

Note that for playing any sample on a sample deck the entire deck must be in **play mode** (to be engaged with deck play/pause button on VCI or MASCHINE).

Button pressed	Slot status	Sot action when pressing slot buttons C1, ..C4, or D1,..., D4
	Sample deck slot is empty (indicated by a dark slot button)	Will capture sample as defined by L/Loop and R/Loop buttons and start playing sample if kept held. Slot button will be lit as slot is now loaded.
	Slot stopped	Will play sample from beginning as long as button is pressed. When Shift 1 is pressed before slot button is released, slot will continue to play and loop .
	Slot is playing	Slot will pause playing.
 <p>Shift 1 held</p>	Slot stopped or playing	Will toggle muting deck on/off.
 <p>Shift 2 held</p>	Slot stopped or playing	Will toggle the filter of the slot on/off.

Button pressed	Slot status	Sot action when pressing slot buttons C1, ..C4, or D1,..., D4
 <p>Len/2 pressed and released (→ shift 1 and Len/2 remain lit as long as Shift 1 is not pressed)</p>	Slot stopped or playing	Will divide the slot loop length by 2 and (during play out) retrigger the slot to play from the start.
 <p>Shift 2 held, while in Len/2 mode</p>	Slot stopped or playing	Will reset the slot length to initial length and reset track position to start (even if deck is playing)
 <p>Len*2 pressed and released (→ shift 1 and Len*2 remain lit as long as Shift 1 is not pressed)</p>	Slot stopped or playing	Will double the slot length w.o. retriggering the track
 <p>Shift 1 and shift 2 both pressed and held</p>	Slot stopped or playing	Will unload the slot

The **page knobs** work as filter or volume control for their respective slots, depending on the shift 1 button is pressed or not.

Button pressed	Slot status	Sot action when twisting knobs Filter/Vol C1, ..C4, or D1,..., D4
	Slot stopped or playing	Will control the slot filter level (soft takeover)
 <p>Shift 1 pressed and held</p>	Slot stopped or playing	Will control the slot volume level (soft takeover)

Effects control: Assignment to decks and operation modes

Assigning FX units to decks, controlling insert vs post fader FX



To associate FX unit 1 with decks A,B,C,D the buttons **FX1/3** in the decks section can be used without shift engaged. With **shift** pressed assignments are made for FX unit 3 instead. The visual feedback of the button will indicate existence/absence of the assignment in accordance with shift states. The assignment of FX 2 or FX 4 for Decks A,B,C,D works accordingly with buttons **FX 2/4**.

Recall of FX1 and FX2 assignment upon selection of deck A/C or B/D

Switching the VCI between TRAKTOR decks on the left from A to C will first store deck A's FX environment (i.e. the assignment of FX 1 to decks A, B, C, D) and then recall the last assignment of FX1 for decks A,B,C,D when deck C was selected (deck C's FX environment). Likewise, switching back to deck A will reverse the process and switching between decks B and D will store/recall the last assignments of FX2 to decks A,B,C,D.

Note: The background of this feature is the ability of the GRATIFY functionality in the performance section to recall the entire environment (FX preset used, superknob-settings and FX assignment to decks) when a switch between decks A/C or B/D is made. For more details please refer to "GRATIFY" in the chapter dedicated to the explanation of effects.

Switching FX units between Insert and post fader operation



An alternative way to control the assignment of FX is possible by jiggling the **small switch in the front of the VCI** in the middle position.

With shift un-pressed, all buttons **FX1..FX4** should be either dark or green indicating whether FX units 1..4 are operated in insert mode (dark) or in post fader mode (green). This functionality works unchanged regardless for which deck / transport section this mode was activated.

To change a FX unit from post fader mode to **insert** mode just press its (lit) green button and the button will turn dark.

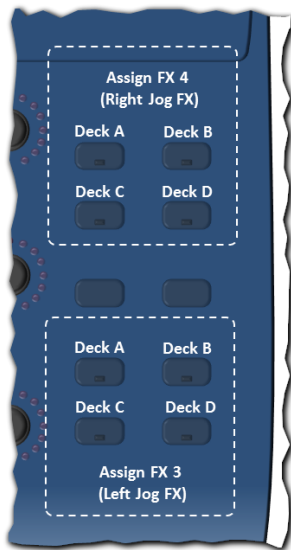
To change an FX unit from insert mode to **post fader** mode, press and hold **Main Shift** and then the respective FX button.

Assigning FX 1-4 units to decks via transport section

Assigning a particular FX to a deck is also possible when the transport section is in “FX insert/post-fader” mode. When either **Shift-L** or **Shift-R** is kept depressed linking/ disconnecting an FX unit from a particular deck works by toggling the respective FX button – the visual feedback of the buttons will follow accordingly (as long as the Shift-L or Shift-R is kept pressed)

Note: Actually I think operating the tiny switch at the front is quite un-ergonomic in particular to manage getting it into the middle position because the switch is so small, black on a black surface and uneasy to reach. Therefore I assigned seldom used functions to this mode of the transport section: Besides FX4, which I often use for delay, all FX are most often operated in insert mode, and for the assignments of FX to decks I always use the dedicated section on the VCI and/or for FX3&4, the dedicated buttons on the BCR.

Assigning FX units 3&4 to decks (BCR 2000)



FX units 3&4 are used for Jog-FX control. Assignment on the VCI (using the dedicated buttons) would always require using **Main Shift** (two step operation) and is therefore not as ergonomic as for FX1&2. However, quick assignment of FX3&4 to decks is alternatively possible using the BCR 2000.

The indicated buttons for assignments on the left all come with LED feedback support and will indicate which decks are assigned to FX3 (left jog wheel, when in Jog-FX mode) or FX4 (right jog wheel, when in Jog-FX mode).

Effects control: manual adjustments of FX knobs and buttons

Manual FX control in VCI FX mode



Toggleing between control of sample decks C or D (=remix decks or loop decks) and the FX controls is done on the left side of the VCI with **button FX1/Sample C** and on its right side with button **FX2/Sample D**.

Status	Left upper VCI buttons/knobs	Status	Right upper VCI buttons/knobs
	Buttons and knobs on the VCI's top left control FX unit 1		Buttons and knobs on the VCI's top right control FX unit 2
	Buttons and knobs on the VCI's top left control sample deck C		Buttons and knobs on the VCI's top right control sample deck D

When in FX mode, pressing **Main Shift** and encoder **Knob 4** toggles between group and single effect mode. Turning **Knob 4** when shift is pressed allows manual selection of effects to be loaded in the FX unit when in single effect mode. When in group effects mode, pressing **Shift + twisting Knob 1, 2 or 3** will load different effects in chained effects groups 1, 2 and 3 respectively.

Encoder **Knob 4** controls dry/wet of the effects unit in either mode. If encoder **Knob 4** is pressed **Knobs 1..3** control the parameters of the FX unit.

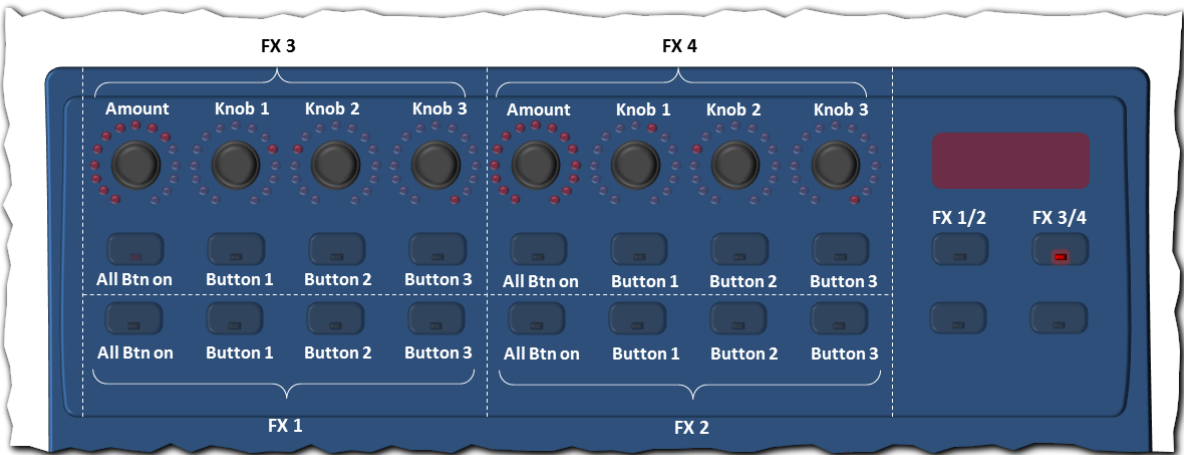
Note: It may appear odd that FX parameters are only to be controlled with encoder knob 4 depressed and hold, but this is due to the fact that the knobs 1..3 on the VCI will mainly be used as “superknobs”, whereas plain FX parameter control due to the availability of multiple controllers here is mainly done on the BCR 2000 and/or MASCHINE.

Manual FX control on the BCR 2000



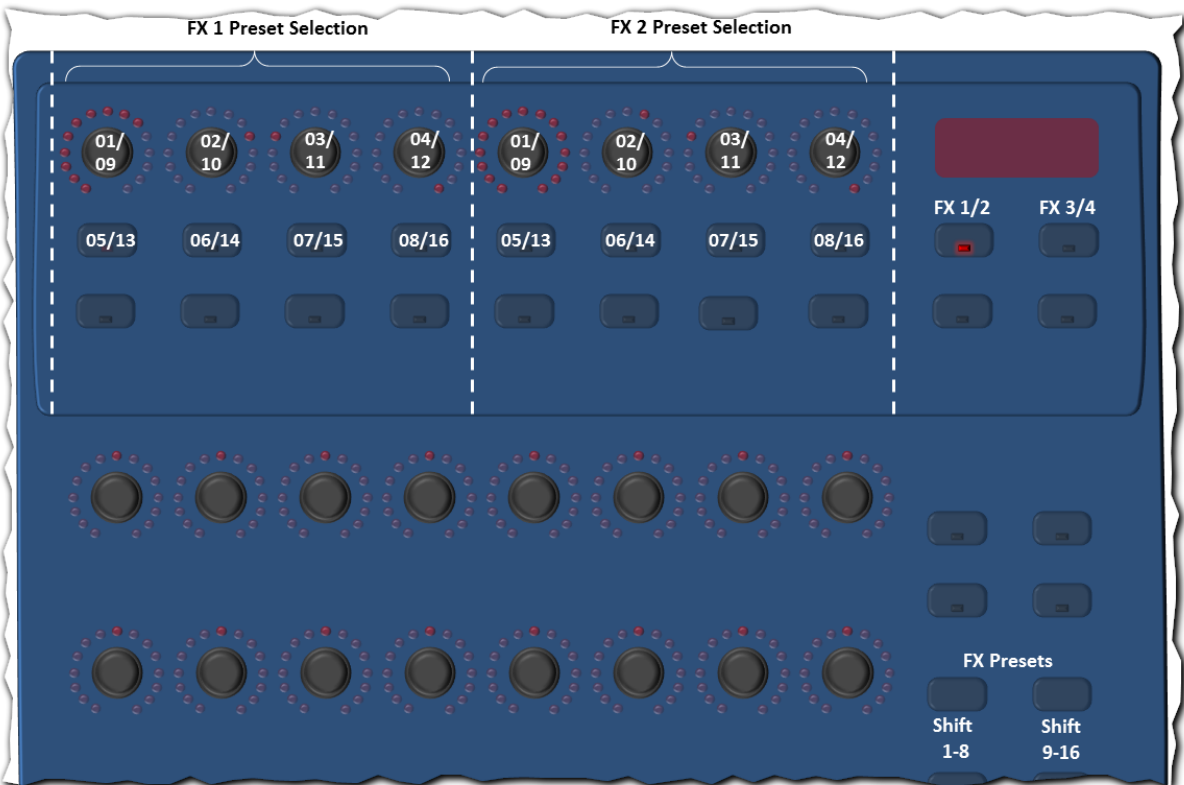
On the BCR all FX parameters and buttons can be controlled using above shown controls, when the mode button **FX1/2** is activated. Note that buttons 1, 2 and 3 for effect units 3 and 4 are still available, even though all knobs are dedicated to FX units 1+2. Upon touching the **FX3/4** button, the assignments instantly switches as shown below to put control of FX3/4 in focus.

The nice thing about the BCR is its visual feedback. Note that toggling between FX1/2 and FX3/4 will as well instantly change the LED feedback on the BCR to match the associated FX parameter values. Even if effects are controlled elsewhere, the LED feedback remains always up-to date. Therefore – at least for me – The BCR is still the tool of choice for direct FX parameter control.



The **buttons** on the BCR are programmed to be active on “hold” only, i.e. they will disengage on release. However pressing the encoders for **Knob 1..3** will toggle the status of FX buttons. Pressing encoder **Amount** in group effects mode will toggle all chained FX on/off. In single effects mode it will activate/deactivate the effect.

Preset selection for FX units 1..4 on the BCR 2000



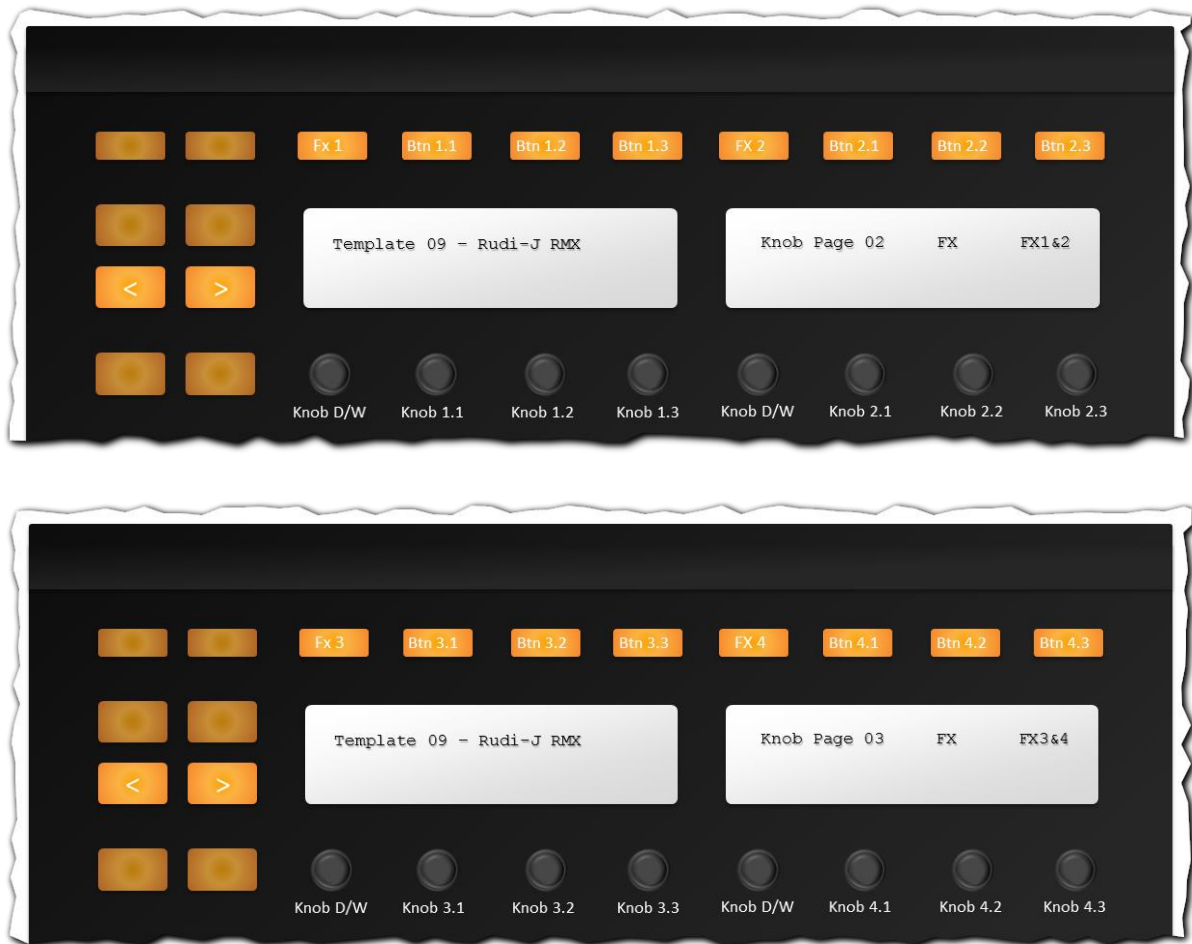
When the **FX 1/2** Button is lit, 1 out of 16 presets can be assigned to FX unit 1 or 2 by pressing **Shift 1-8** or **Shift 9-16** in combination with one of the above shown buttons. Likewise preset selections can be made for FX units 3 and 4, when the **FX 3/4** button is lit.

Shift	BCR Buttons	Group FX1	Group FX2	Group FX3
Shift 1-8	01/09	(Single effects mode) Transpose Stretch		
Shift 1-8	02/10	(Single effects mode) Mulholland Drive		
Shift 1-8	03/11	(Single effects mode) Flanger		
Shift 1-8	04/12	(Single effects mode) Phaser Pulse		
Shift 1-8	05/13	Phaser Pulse	Granu Phase	Dark Matter
Shift 1-8	06/14	Delay	Filter Pulse	Flanger
Shift 1-8	07/15	Flanger	Turntable FX	Ringmodulator
Shift 1-8	08/16	Filter:92	Phaser	Ramp Delay
Shift 9-16	01/09	(Single effects mode) Filter LFO		
Shift 9-16	02/10	(Single effects mode) Filter Pulse		
Shift 9-16	03/11	(Single effects mode) Filter		
Shift 9-16	04/12	(Single effects mode) Turntable FX		
Shift 9-16	05/13	Filter:92 LFO	Reverb	Iceverb
Shift 9-16	06/14	Digital Lofi	Delay	Filter
Shift 9-16	07/15	Beatmasher2	Filter	Reverb
Shift 9-16	08/16	Reverb	Flanger	Reverb

Manual FX selection for FX units 1..4 on the BCR 2000

When the two shift buttons on the BCR are pressed simultaneously, the controller will enter manual FX selection mode (All Buttons labeled “**All Btn on**” are lit). In this mode twisting any encoder in the FX section causes manual selection of the respective effect unit / slot. To leave manual selection mode, just hit shift-1 or shift-2 again. The “**All Btn on**” LEDs should go off accordingly.

Manual FX control on MASCHINE



On the MASCHINE MK1 the < > buttons can be used to switch between knob pages in midi mode. The controls to manipulate FX 1&2 and FX 3&4 directly are located in template 09 “Rudi-RMX” on knob page 02 and 03 respectively.

Unlike the BCR all **buttons** work like state toggles. The buttons **FX1, 2, 3** and **4** will activate/deactivate the FX if in single mode. In group effects mode these buttons will toggle the state of all related group FX slots.

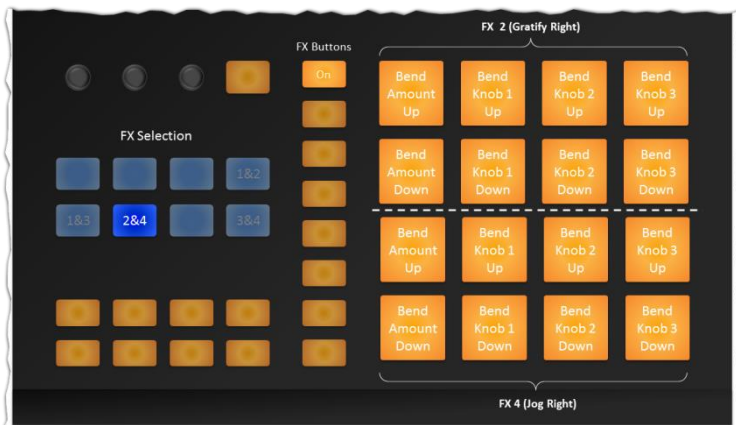
Tip: Setting the BCR to FX 1&2 and MASCHINE to knob page FX 3&4 (or vice versa) allow full VCI-independent direct access to all FX parameters without the need to toggle between pages on the BCR or MASCHINE.

Effects control: using MASCHINE's velocity sensitive pads



An additional option to control the effects of TRAKTOR is available via the touch sensitive pads. In total 4 pad pages are dedicated to this purpose.

The upper row of buttons will **bend** the amount/knob value **up** when pressed and when released return the settings (close) to the respective starting value. The lower row of buttons will do the opposite and **bend** the values **down**.



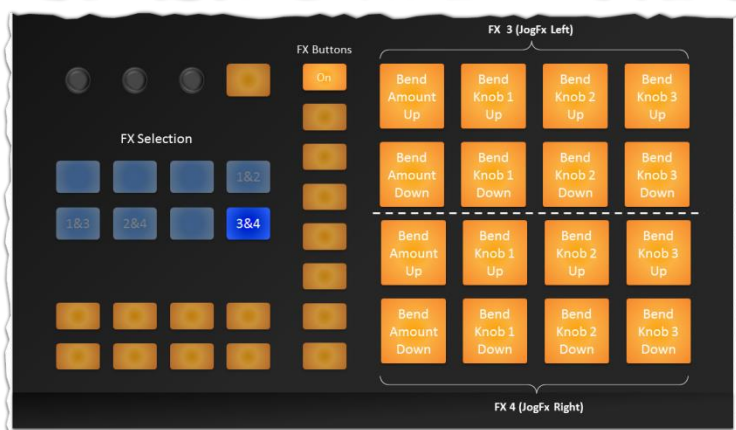
By touching both pads for one parameter, with two fingers, a particular parameter can be gently adjusted by pressing and "balancing" values up and down.

Or, by touching 4 pads with 4 fingers simultaneously, **all 3 FX-knobs** and the **amount** of a FX unit can be adjusted simultaneously.



In **single effects** mode the FX will be activated upon touch of any of the assigned pads. In **group effects** mode, only the assigned group effect will be activated.

If the pads for knobs 1, 2 and 3 are operated while the button "**FX buttons**" is pressed, the FX buttons will simultaneously be engaged / released.



The layout of the pad-pages allows control over 2 effect units at the same time. These are selected in accordance with the utilization of FX units for GRATIFY or Jog-FX. Either GRATIFY & Jog for the left or right, or GRATIFY for L+R or Jog-FX for L+R can be controlled at the same time as shown to the left.

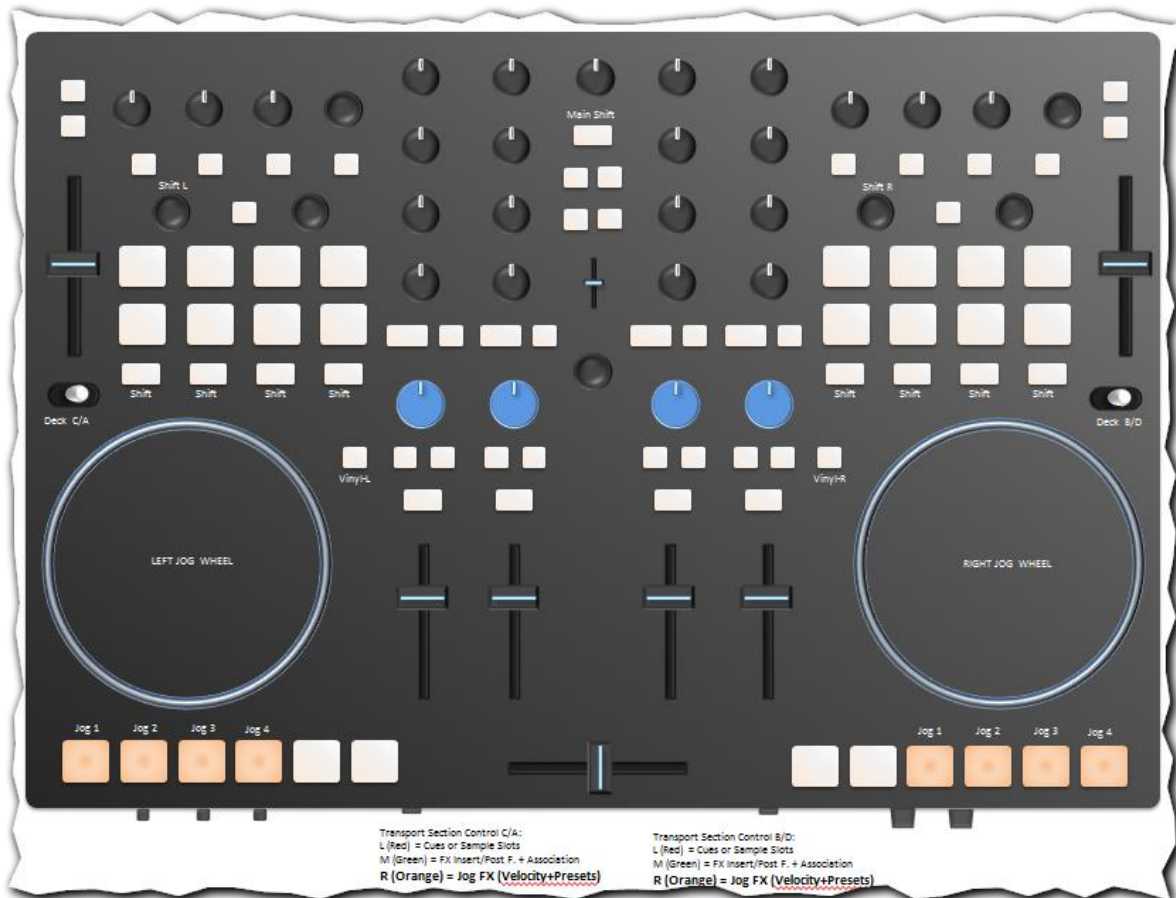
Note: The real fun starts when these pas are used simultaneously with GRATIFY or Jog-FX control.

Effects control: Jog-FX on VCI and MASCHINE

This mapping includes a **new concept** of a Jog-FX functionality incorporating more than the conventional 4 selectable presets for Jog-FX with fixed velocity control for parameters (FX-knobs) and static FX-button activation upon touching the wheels, it now comes with:

- **24 FX presets** for selection of different FX into Jog FX units 3 or 4 in single or group mode. (plus ability to copy/inherit FX presets for Jog FX units 3+4 from GRATIFY units 1 or 2)
- **20 presets** for **FX parameter velocity** control (plus ability to bend selective FX parameters up/down during usage of Jog-FX)
- **Adjustable threshold and sensitivity** for Jog-FX **button control** featuring **6 threshold presets**.
- 6 adjustable **dry/wet auto-decay settings** upon release of the jog wheels.
- **4 multi-unit activation modes** for triggering up to 3 FX units simultaneously.
- **Switchable starting modes** for initial FX parameter values upon touching the jogs: either load default values or use the most recently used (current) settings.

Note: Because of the large amount of controls and modes that would not easily fit all to be mapped on the VCI-400SE, MIDI mapping control extends from the VCI onto the MASCHINE controller. Actually this is the main reason why the ELEPHANT mapping only makes sense at least as a combined controller combo VCI+MASCHINE.



To start working with Jog-FX on the left/right, switch the respective tiny mode selector on the front of the VCI-400 to the right.

Using the jogs for tempo bend, moving the position in the track or scratching

If – in jog mode – none of the buttons Jog 1..4 are lit the Jog wheel is in normal jog mode. Now it depends on the status of the vinyl button how the jog-wheel affects will affect playback when touched:

Deck stopped, Vinyl button off:

- If jog turned (pressed or not) **w.o. Shift**, wheel will **fine adjust** track position (audible)
- If jog turned (pressed or not) **+ Shift**, wheel will **coarsely** adjust track position (**not audible**)

Deck playing, Vinyl button off:

- If jog turned (pressed or not) **w.o Shift**, wheel will **fine bend tempo up/down** (depending on key lock status also affects the audible key of the track)
- If jog turned (pressed or not) **+ Shift**, wheel will **coarsely** adjust track position (audible)

Deck playing, Vinyl button ON:

- If jog **just turned w.o Shift**, wheel will **fine bend tempo up/down** (depending on Key lock status also affect the audible key of the track), playback continues.
- If jog **just turned + Shift**, wheel will **coarsely** adjust track position (audible), playback continues.
- If **jog pressed and turned w.o. Shift**, wheel will stop the deck and **start scratching** the track in normal velocity (emulating scratching on a turntable)
- If **jog pressed and turned + Shift**, wheel will stop the deck and **start scratching** the track with very **high velocity**

Loading Jog FX presets (VCI)

The utilisation of FX units for Jog FX is always like this: For the left wheel FX unit 3 is used and FX unit 4 is always used for the right wheel. In order to load a preset into FX units 3 or 4 the following options / presets are available on the VCI:

Shift	VCI Jog-FX Buttons	Group FX1	Group FX2	Group FX3
(main) Shift	Jog 1	Single mode FX: Delay		
Shift-L	Jog 1	Single mode FX: Flanger		
Shift-R	Jog 1	Single mode FX: Phaser		
(main) Shift	Jog 2	Beatslicer	Gater	LaserSlicer
Shift-L	Jog 2	Gater	Beatlicer	ZZurp
Shift-R	Jog 2	Reverb	Gater	Wormhole
(main) Shift	Jog 3	Gater	Beatmasher2	Beatslicer
Shift-L	Jog 3	Gater	Beatmasher2	Delay
Shift-R	Jog 3	Gater	Beatmasher2	Srrrettch Slow
(main) Shift	Jog 4	Gater	Ramp Delay	Iceverb
Shift-L	Jog 4	Gater	Tape Delay	Reverb
Shift-R	Jog 4	Beatmasher2	Ramp Delay	Polar Wind

Note that unlike as in the last version of this mapping loading a preset does not change any established link between decks and FX units 3 and 4.

Assigning the decks to Jog FX units 3 and 4 (VCI)

Normally the assignment between decks and FX units 3 or 4 remains unchanged when a new preset is loaded on the VCI. However, in order to quickly associate just one deck to either of the Jog FX units **push the dry/wet encoder in any of the FX units** together with one of the jog buttons:

VCI dec selector	VCI Jog-FX Buttons	Exclusive FX assignment
A	Jog 1, 2, 3 or 4 (left side)	Deck A assigned to FX unit 3
C	Jog 1, 2, 3 or 4 (left side)	Deck C assigned to FX unit 3
B	Jog 1, 2, 3 or 4 (right side)	Deck B assigned to FX unit 4
D	Jog 1, 2, 3 or 4 (right side)	Deck D assigned to FX unit 4

Loading Jog FX parameter velocity presets (VCI)

Upon loading a Jog FX preset on the VCI a specific preset for the velocity of the FX-Knobs 1, 2 and 3 is always loaded simultaneously. In the following table the notation 1: 1 means, that a full spin of the jog wheel will affect the knob from 0% to 100%. Likewise 1:5 has the meaning that the wheel needs to be turned five complete revolutions in order to change the parameter from 0 to 100% - thus has a low velocity. For ease of understand red yellow and red colour codes indicate slow and very slow velocities, whereas green indicated high velocities.

VCI Jog-FX Buttons	D/W	Knob1	Knob 2	Knob 3
Jog 1	1 : 1	100 : 1	100 : 1	5 : 1
Jog 2	1 : 1	1 : 9	1.7 : 1	2.3 : 1
Jog 3	1 : 1	1 : 1.2	1 : 1	1 : 1
Jog 4	1 : 1	2.3 : 1	1 : 18	1.2 : 1

Visual feedback: Once a preset has been loaded or (independent from that) a different velocity preset has been selected (i.e. pressing a jog button on the VCI with or w.o. Shift) the respective LED will be lit.

Changing Jog FX parameter velocity during Jog FX operation (VCI)

When the Jog FX is in use (i.e. the wheel is kept depressed) it is still possible to change the velocity settings i.e. it is possible temporary or permanently switch to another velocity preset by simultaneously pressing two or more Jog FX buttons. In practice this means that for each of the "initial" 4 velocity modes there are further 4 velocity modes as indicated in the 4 tables following:

When in **initial velocity mode 1** (Jog 1 is lit), jog wheel pressed and additionally pressed:

VCI Jog-FX Buttons	D/W	Knob1	Knob 2	Knob 3
Jog 2+3	1 : 1	1 : 1.2	5 : 1	5 : 1
Jog 3+4	1 : 1	100 : 1	5 : 1	1 : 1.2
Jog 2+4	1 : 1	100 : 1	5 : 1	5 : 1
Jog 2+3+4	1 : 1	100 : 1	1 : 1.2	5 : 1

When in **initial velocity mode 2** (Jog 2 is lit), jog wheel pressed and additionally pressed:

VCI Jog-FX Buttons	D/W	Knob1	Knob 2	Knob 3
Jog 2+3	1 : 1	5 : 1	1.2 : 1	5 : 1 (reverse)
Jog 3+4	1 : 1	2.2 : 1	1 : 1.5	1 : 9
Jog 2+4	1 : 1	1 : 9	1 : 1.5	1 : 9
Jog 2+3+4	1 : 1	1 : 1.5	1 : 9	1 : 1.5

When in **initial velocity mode 3** (Jog 3 is lit), jog wheel pressed and additionally pressed:

VCI Jog-FX Buttons	D/W	Knob1	Knob 2	Knob 3
Jog 2+3	1 : 1	1 : 1	1 : 1 (reverse)	1 : 1
Jog 3+4	1 : 1	3 : 1	1 : 1	1 : 2.2
Jog 2+4	1 : 1	1 : 1	1 : 4	1 : 1
Jog 2+3+4	1 : 1	1 : 1	1 : 3	1 : 1

When in **initial velocity mode 4** (Jog 4 is lit), jog wheel pressed and additionally pressed:

VCI Jog-FX Buttons	D/W	Knob1	Knob 2	Knob 3
Jog 2+3	1 : 1	2.2 : 1	19 : 1 (reverse)	1.2 : 1
Jog 3+4	1 : 1	5 : 1	19 : 1	1 : 1
Jog 2+4	1 : 1	1 : 1	19 : 1	1 : 1
Jog 2+3+4	1 : 1	5 : 1	1.2 : 1	5 : 1

Bending/Decrementing Jog FX parameter values during Jog FX operation (VCI)

It is also possible during Jog FX to change the absolute values of parameters by simultaneously tapping or pressing and hold just one of the Jog FX buttons. This behavior is available regardless of chosen velocity mode:

To change a FX parameter value on the fly:

VCI Jog-FX Buttons	D/W	Knob 1	Knob 2	Knob 3
Tapping Jog 1	Decrement one step			
Holding Jog 1	Increase continuously			
Tapping Jog 2		Decrement one step		
Holding Jog 2		Increase continuously		
Tapping Jog 3			Decrement one step	
Holding Jog 3			Increase continuously	
Tapping Jog 4				Decrement one step
Holding Jog 4				Increase continuously

Initialization of FX parameter values

When vinyl mode is on (button **Vinyl** lit) activating the Jog FX by pressing down the wheel will automatically load the default values for D/W and FX parameter knobs 1, 2 and 3. The values actually loaded will depend on the currently active basic velocity mode, indicated by the LED that is lit:

VCI Jog-FX Buttons	D/W	Knob1	Knob 2	Knob 3
Jog 1	(not affected)	60%	50%	1/4
Jog 2	80%	50%	25%	50%
Jog 3	60%	40%	25%	0%
Jog 4	60%	40%	50%	25%



To switch that behavior off in order to let the jog wheel resume to manipulate parameters when it was last released, just switch the **vinyl** mode off for the jog wheel.

Temporary using scratch during Jog FX mode

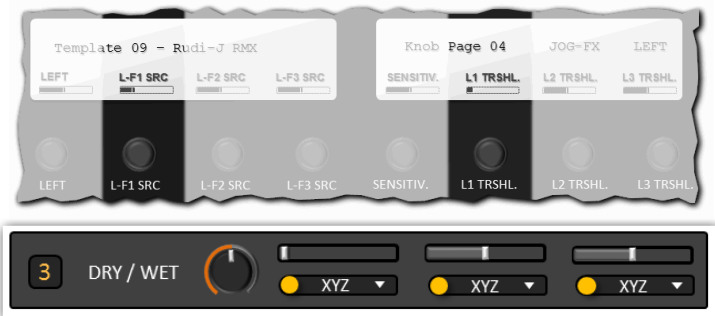



When in Jog-FX mode, pressing **Main Shift** will allow to temporary suspend Jog-FX mode in order to scratch (vinyl button must be on and lit). Releasing the **Main Shift** button will return to Jog FX mode. To permanently leave Jog-FX mode, just re-tap the currently lit Jog FX mutton 1, 2, 3 or 4 once.



Adjusting FX button thresholds and sensitivity

A special feature of the ELEPHANT mapping is the ability to customize the threshold and sensitivity of FX button activation in group or single FX mode. For control two knob pages on MASCHINE are available: Page 04 “JOG-FX LEFT” for control of the left jog wheel, when in Jog-FX mode and page 05 “JOG-FX RIGHT” for control of the right Jog-FX. In below example the **8 different options** for controlling the activation of FX unit 3, group FX1 button 1 are shown. The 8 rows of the following table correspond to the 8 options and also show the visual feedback on the MASCHINE display and on TRAKTOR’s screen when the knob “L-F1 SRC” is turned all the way from the left to the right:

MASCHINE interface / TRAKTOR screen	FX button source and sensitivity
	<p>Group effect button 1 is linked to D/W level and off by default. It will get activated when D/W reaches the threshold as adjusted by L1 TRSHL.</p>
	<p>Group effect button 1 is linked to D/W level and ON by default. It will get de-activated when D/W reaches the threshold as adjusted by L1 TRSHL.</p>

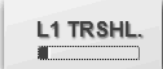







Even though the changes in the feedback of the L-F1-SRC level (on the MASCHINE interface) might be very subtle when moving from state to state, the changes of L1-TRSHL. and on TRAKTOR’s screen will be obvious and easy to detect.

MASCHINE interface / TRAKTOR screen	FX button source and sensitivity
 <p>The screenshot shows the MASCHINE interface with the 'L1 TRSHL' knob highlighted in black. The interface includes a top bar with 'Template 09 - Rudi-J RMX', 'Knob Page 04', and 'JOG-FX LEFT'. Below this are several knobs and buttons labeled 'LEFT', 'L-F1 SRC', 'L-F2 SRC', 'L-F3 SRC', 'SENSITIV.', 'L1 TRSHL', 'L2 TRSHL', and 'L3 TRSHL'. At the bottom, there is a '3 DRY / WET' knob and three 'XYZ' buttons.</p>	<p>Group effect button 1 is linked to knob 1 level and off by default. It will get activated when knob 1 reaches the threshold as adjusted by L1 TRSHL.</p>
 <p>The screenshot shows the MASCHINE interface with the 'L1 TRSHL' knob highlighted in black. The interface includes a top bar with 'Template 09 - Rudi-J RMX', 'Knob Page 04', and 'JOG-FX LEFT'. Below this are several knobs and buttons labeled 'LEFT', 'L-F1 SRC', 'L-F2 SRC', 'L-F3 SRC', 'SENSITIV.', 'L1 TRSHL', 'L2 TRSHL', and 'L3 TRSHL'. At the bottom, there is a '3 DRY / WET' knob and three 'XYZ' buttons.</p>	<p>Group effect button 1 is linked to knob 1 level and ON by default. It will get de-activated when knob 1 reaches the threshold as adjusted by L1 TRSHL.</p>
 <p>The screenshot shows the MASCHINE interface with the 'L2 TRSHL' knob highlighted in black. The interface includes a top bar with 'Template 09 - Rudi-J RMX', 'Knob Page 04', and 'JOG-FX LEFT'. Below this are several knobs and buttons labeled 'LEFT', 'L-F1 SRC', 'L-F2 SRC', 'L-F3 SRC', 'SENSITIV.', 'L1 TRSHL', 'L2 TRSHL', and 'L3 TRSHL'. At the bottom, there is a '3 DRY / WET' knob and three 'XYZ' buttons.</p>	<p>Group effect button 1 is linked to knob 2 level and off by default. It will get activated when knob 2 reaches the threshold as adjusted by L1 TRSHL.</p>
 <p>The screenshot shows the MASCHINE interface with the 'L2 TRSHL' knob highlighted in black. The interface includes a top bar with 'Template 09 - Rudi-J RMX', 'Knob Page 04', and 'JOG-FX LEFT'. Below this are several knobs and buttons labeled 'LEFT', 'L-F1 SRC', 'L-F2 SRC', 'L-F3 SRC', 'SENSITIV.', 'L1 TRSHL', 'L2 TRSHL', and 'L3 TRSHL'. At the bottom, there is a '3 DRY / WET' knob and three 'XYZ' buttons.</p>	<p>Group effect button 1 is linked to knob 2 level and ON by default. It will get de-activated when knob 2 reaches the threshold as adjusted by L1 TRSHL.</p>

MASCHINE interface / TRAKTOR screen	FX button source and sensitivity
	<p>Group effect button 1 is linked to knob 3 level and off by default. It will get activated when knob 3 reaches the threshold as adjusted by L1 TRSHL.</p>
	<p>Group effect button 1 is linked to knob 3 level and ON by default. It will get de-activated when knob 3 reaches the threshold as adjusted by L1 TRSHL.</p>

In summary with the 8 options to control activation of button 1 shown above, it is possible to activate the button depending on the dynamic level of D/W, Knob 1, 2 or 3 by triggering the threshold level for turning it on or off.

Once one of the 8 mode has been selected, the knob **L1 TRSHL**. can be used to set the actual sensitivity for the triggering of the button. The following table shows the available percentage levels to be adjusted by **L1 TRSHL**. for triggering of button 1 by twisting L1 TRSHL all the way from the left to the right:

MASCHINE interface	Triggering on/off when source level has reached	MASCHINE interface	Triggering on/off when source level has reached
	0%		65%
	15%		80%
	30%		95%
	50%		No triggering

In case “No triggering” is selected, the button will never trigger, even if the source level reaches 100%. This option comes in handy, if a group effect needs to be completely muted.

Note: Although it probably makes no sense to adjust the “Source” settings during usage of a Jog-FX, the “threshold” setting **TRSHL.** can also be adjusted when the Jog-FX is actually in use: Depending on the currently established level of the source (by pressing and twisting the Jog-wheel) twisting the **TRSHL.** control on **MASCHINE** may switch a FX button on or off.

In below table the available controls for customization of button activation during usage of Jog-FX are summarized.

MASCHINE controls			Affected FX units and buttons in TRAKTOR		
Knob Page	Source selection	Threshold sensitivity selection	Controls FX unit	Triggers in in Group Effects mode	Triggers in in Single Effects mode
4	L-F1 SRC	L1 TRSHL.	3	Button 1	FX-activation*
4	L-F2 SRC	L2 TRSHL.	3	Button 2	Button 2
4	L-F3 SRC	L3 TRSHL.	3	Button 3	Button 3
5	R-F1 SRC	R1 TRSHL.	4	Button 1	FX -activation*
5	R-F2 SRC	R2 TRSHL.	4	Button 2	Button 2
5	R-F3 SRC	R3 TRSHL.	4	Button 3	Button 3









*Note that in single effects mode the activation logic for button 1 are replaced by control of the entire FX unit activation.

Please also note that this table shows the activations of FX buttons in **Jog-FX multi-unit activation modes 0** for the left and right side. Jog-FX multi-unit activation modes are discussed in the next paragraph.



Jog-FX multi-unit activation modes

The controls “L-F1..F3 SRC” and “L1..3 TRSHL.” for Jog FX button activation and threshold are also used to trigger some FX buttons of other FX units during Jog FX operation in master slave mode, depending on which of the 4 available modes is active. These modes can be selected by the knob “LEFT” (or knob “RIGHT” on the knob page for the right Jog-FX). In default multi-unit activation mode 0 (knob twisted fully to the left) only the FX buttons of the associated FX unit will be controlled. However in the three other modes, the FX buttons of the Jog FX unit act as masters and control some of the buttons of other FX units as slaves:

Knob status		Affected FX units and buttons in TRAKTOR		Knob status		Affected FX units and buttons in TRAKTOR	
Knob Page	Knob	Master FX unit/btn	Slave FX unit/btn	Knob Page	Knob	Master FX unit/btn	Slave FX unit/btn
4		none	none	5		none	none
4		3/1	1/1	5		4/1	1/1
4		3/3	4/3*	5		4/2	2/2
4		3/1	1/1	5		4/1	1/1
		3/3	4/3			4/2	2/2

* in case the right Jog-FX is not pressed dry/wet of FX unit 4 is simultaneously set to 80% and auto decremented with the auto decay given for FX unit 4 as long as FX unit 3, button 3 is active.

Examples: In the third multi-unit activation mode of the left Jog FX, any FX unit 3 / button 3 activation, causes activation of button 3 of FX unit 4 accordingly. Because dry/wet of FX unit 4 will be usually 0 when the Jog FX is not in use, this mode will as well temporary set D/W for FX unit 4 to 80%. Unlike as it is configured for the left side, in the third multi-unit activation mode of the right Jog FX, (master)button 2 of FX unit 4 will be linked to (slave)button 2 of FX unit 2.

Note that if any of the affected slave FX units is in single effect mode instead of the listed FX button, the entire unit is activated/deactivated.

Jog-FX auto-decay control

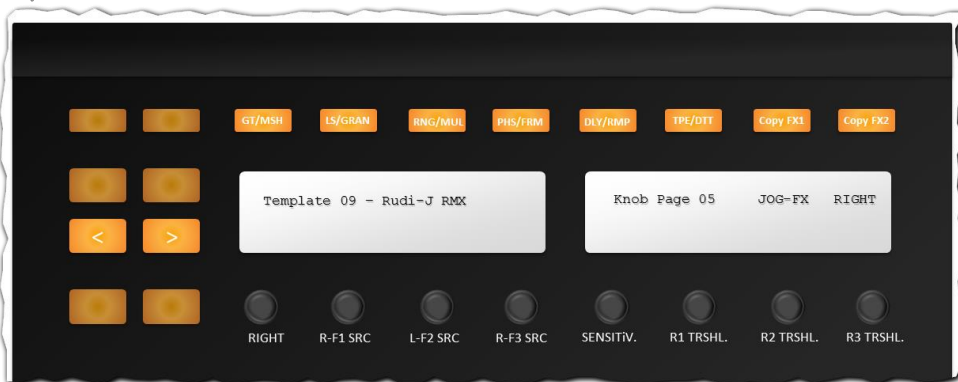
When releasing a jog wheel in Jog FX mode, the associated FX is of course supposed to be switched off. The default operation mode for this deactivation is instant deactivation. However, this mapping also allows smoothly fading out the FX by auto decrementing the dry/wet parameter at various speed levels while maintaining all currently pressed FX slot buttons ON as long as the dry/wet parameter has not yet reached a zero value. 6 modes of FX-decay, from instant to very slow, are available, and can be selected by the knob “**SENSITIV.**” on MASCHINE’s knob pages for Jog-FX control:

“**SENSITIV.**” controls how fast the Dry/Wet parameter for the respective FX unit will be decremented until it will reaches the value 0 and turn off any active FX button of the FX unit. If twisted all to the left the decay of the FX will be instant. If turned all to the right the decay will be the slowest.

Presets for Jog-FX button triggering

A couple of presets are available that allow the selection of source and threshold sensitivity preset values for all three FX buttons with just a press of a button. These presets can be activated a by

pushing the top rows buttons on MASCHINE's knob pages that are dedicated to Jog_FX Left and Right.



The table below shows which presets are available and how their settings will affect button activation. Settings for the left and right Jog-FX are of course identical, therefore only the left side is explained:

Preset button	L-F1 SRC	L-F2 SRC	L-F3 SRC	L1 TRSHL	L2 TRSHL	L3 TRSHL	Description (for Group effects mode)*
GT/MSH	D/W ON	D/W ON	D/W ON	0%	0%	0%	All FX buttons will get activated, when the jog is pressed and moved
LS/GRAN	D/W ON	K1 ON	K2 ON	15%	80%	95%	Bt1 will get activated, when D/W reaches 15%; Bt2 will get activated, when K1 reaches 80%; Bt3 will get activated, when K2 reaches 95%
RNG/MUL	K1 off	K1 ON	K2 ON	65%	50%	80%	Bt1 will be ON, if K1 is below 65%. Bt1 will get deactivated if K1 is above 65%; Bt2 will get activated, when K1 reaches 50%; Bt3 will get activated, when K2 reaches 80%
PHS/FRM	K1 off	K2 ON	K2 ON	65%	50%	65%	Bt1 will get activated, when K1 reaches 15%; Bt2 will get activated, when K2 reaches 50%; Bt3 will get activated, when K2 reaches 65%
DLY/RMP**	D/W ON	D/W ON	D/W ON	0%	95%	0%	Bt1 will get activated, when Jog touched; Bt2 will get activated, when D/W reaches 95%; Bt3 will get activated, when Jog touched
TPE/DTT**	D/W Off	D/W ON	D/W ON	30%	30%	30%	Bt1 will be ON, if D/W is below 30%. Bt1 will get deactivated if D/W is above 30%; Bt2 will get activated, when D/W reaches 30%; Bt3 will get activated, when D/W reaches 30%

*in Single effects mode, instead of triggering FX button 1, the entire FX unit is activated/deactivated.

** These two presets work best in single effects mode with delay effects loaded. In particular the

TPE/DTT buttons with the given button triggering setup can be used to emulate the so called “Richie Hawtin” effects modes with TRAKTOR as discussed in various threads on the DJTT forums.

Note that exclusively in single effects mode, the “vinyl” button on the VCI plays a special role: if “vinyl” is lit, the FX button 2 will always be activated, when the jog wheel is pressed. This – in combination with a **Delay** effect loaded in single effects mode and the DLY/RMP preset as described below - allows for swift switching between usage of the delay with or without feedback freeze.

The visual feedback (one of the buttons is lit) will indicate which of the presets is active. Note that the visual feedback for settings of L-F1/2/3 SCR and L1/2/3 TRSHL will always match the above mentioned presets upon activation.

Calling FX presets in combination with presets for Jog FX button triggering



The above listed series of buttons can as well load **12 additional presets** in combination with a preset for Fog-FX knob triggering, if pressed together with the **two shift buttons** on MASCHINE as illustrated on the left.

The following presets are available:

Preset selection		Group effect		
Preset button	Shift pressed	FX 1	FX 2	FX 3
GT/MSH	Shift 1	Gater	Beatmasher 2	Beatslicer
GT/MSH	Shift 2	Beatmasher 2	Gater	Beatslicer
LS/GRAN	Shift 1	Transpose Stretch	LaserSlicer	GranuPhase
LS/GRAN	Shift 2	Flight Test	Bass-O-matic	GranuPhase
RNG/MUL	Shift 1	Ringmodulator	Beatmasher 2	Bass-O-matic
RNG/MUL	Shift 2	Mulholland Drive	Beatmasher 2	Digital Lofi
PHS/FRM	Shift 1	Phaser	Formant Filter	Filter92:LFO
PHS/FRM	Shift 2	Mulholland Drive	Peak Filter	Delay
DLY/RMP	Shift 1	Delay in single effects mode		
DLY/RMP	Shift 2	Ramp Delay in single effects mode		
TPE/DTT	Shift 1	Tape Delay in single effects mode		
TPE/DTT	Shift 2	Delay T3 in single effects mode		

Note: as already mentioned, The Jog FX functionality can at any times be combined with other MIDI controls to manipulate the involved effects units 3 and 4, such as direct FX parameter control (available on BCR or VCI) and MASCHINE pad sensitive activation – also described earlier. Using combined methods of FX MIDI control will allow countless variations.

Copying Jog-FX settings from FX unit 1 and 2



The Jog-FX units 3 and 4 can be operated in a way that at any time, when a preset is loaded into FX units 1 or 2 (which are the units used for the GRATIFY effects) these presets will simultaneously be loaded into the respective FX units for Jog FX: If **Copy FX1** is lit, any preset loaded in FX unit 1 will also be loaded in the Jog FX related FX unit. Copy FX2 will do the same for FX unit 2.

Note: This feature allows you for instance to tweak effects first in the GRATIFY section and then – almost instantly to re-use them for Jog FX. Besides that it increases the number of available FX presets for Jog-FX again by the number of available presets for GRATIFY.

Effects control: GRATIFY



The GRATIFY performance section is divided into 7+1 main banks where bank 8 is in fact consisting of $4 \times 5 = 20$ sub-banks summing up to a total of **27 banks with single and/or group FX presets**. To activate one of these banks **press and hold GRATIFY** in the performance section of the associated deck (managed by switches **Deck C/A** on the left and **Deck B/D** on the right side) together with the desired bank button.

If GRATIFY is pressed alone, it will **recall** the last preset that was chosen for that particular deck section.

The numerous tables in the following chapters will illustrate the functionality and concept of each bank.

Linking GRATIFY functionality to decks

In the original DJTT mapping decks A and C (normally) share the same button grid on the left side of the controller, whereas decks B/D (normally) share the buttons of the right performance section, but unlike in the original mapping - where GRATIFY required exclusive access to FX1+2 at the same time (making it impossible to use GRATIFY with decks A and B simultaneously and independently) - in this mapping **one instance of GRATIFY will occupy just one FX unit at a time**. A common using scenario would be to use FX unit 1 (FX1) linked to deck A or C and FX unit 2 (FX2) linked to decks B or D. This would allow to use GRATIFY functionality either really simultaneously and independently on a left sided deck and right sided deck, but it also means that both instances of GRATIFY can be associated with the same deck (or more than one deck) in order to combine the effects rendered by both FX



units under control of buttons and knobs of GRATIFY(left) and GRATIFY(right).

To control FX association to decks just use the standard functionality of the VCI as discussed before and shown again above.

Recalling GRATIFY association when decks are switched on the VCI

Any switching back and forth between decks C/A or B/D will remember and restore deck FX association for FX1 and FX2 respectively:

Example:

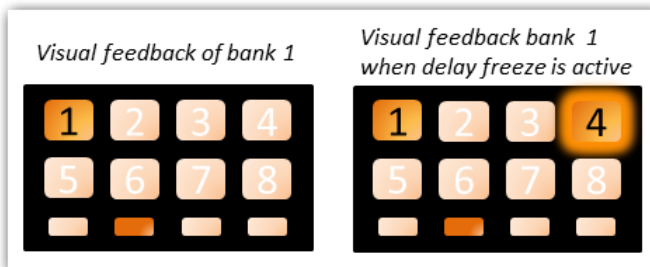
Switch to deck A and assign FX1 to deck A exclusively. Now switch to deck C and assign FX1 to deck C exclusively. Note that when switching the deck back to deck A the mapping will “recall” and restore the last assignment for FX1, when you were using deck A. The same is of course true if you now once again switch to deck C.

In conclusion this means if you are just aiming at the “standard use case”, where FX1 is assigned to deck A (when active) and FX2 is assigned to deck C (when active), you just need to control your assignments once – at the beginning of your set. On the other hand, if you are using FX assignments in combination with GRATIFY more customized you may “program and store” your custom assignments with each deck and then rely on the mapping to instantly recall the assignments when you need them again.

Description of GRATIFY banks

In the following sections the concept and functionality of each FX bank is explained with a table that outlines what happens if one, two or more buttons are pressed simultaneously while the bank is active.

GRATIFY bank 1 “Gate and Mash”:



Note: In below table the columns refer to the number of button pressed, and the rows refer to the count of buttons held down simultaneously. Example: the element in column 2, row 3 show what happens if button 2 is pressed as the third button simultaneously held down.

Btms down	1	2	3	4*	5	6	7	8
1	Masher 0,2; amount 100%	Masher 0,4; amount 100%	Masher 0,9; amount 100%	Delay Freeze 4/4	Gater 0,25; amount 100%	Gater 0,5; amount 100%	Filter LFO 0,5; dec. amount and knob 3 on hold; amount 100% on release	Filter LFO 0,9; dec. amount and knob 3 on hold; amount 100% on release
2	Masher 0,6	Masher 0,8	Masher 0,9		Gater 0,7	Gater 0,85		
3	Masher 0,7	Masher 1,0	Masher 1,0					

Pressing **GRATIFY + 1** activates bank 1 with a group effect **Gater/Beatmasher2/Filter LFO**. Buttons 1, 2 and 3 change the loop size of the **beatmasher2** effect. For instance a drum roll with a 5-fold stepwise decreased loop length can be achieved like this with just 3 buttons...

Example usage scenario:

Btms down	1	2	3
1	Masher 0,2; amount 100%	Masher 0,4; amount 100%	Masher 0,9; amount 100%
2	Masher 0,6	Masher 0,8	Masher 0,9
3	Masher 0,7	Masher 1,0	Masher 1,0

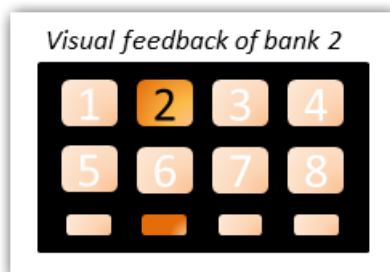
Play a track with a drum sound. Press + hold **2** (=masher 0.4), then additionally **1** (=masher 0.6), then release **2** and instantly re-type **2** (=masher 0.8), then release **2** and press **3** instead (=masher 0.9), finally press **2** as well (=masher 1.0) ending up with depressed buttons 1, 2 and 3.

*On pressing **button 4** the FX unit will switch into single effects mode and load the delay effect. Note that the **activation of the freeze delay effect will only start upon release of the button 4**. To underline that the effect is active, **button 4 will blink** in bpm frequency. To **stop** the delay freeze press the **button 4** again. Note that for instant activation of a follow up delay freeze, button 4 will need to be released once in-between. In order to **return** to bank 1 in **group effects** mode just press **GRATIFY** again.

Buttons 5 and 6 control the **Gater** effect. Pressing buttons 5, 6 (or any other button except 4) simultaneously allows similar versatility of activation as just described in the example for the Beatmasher2 effect.

Buttons 7 and 8 control a **FilterLFO** with decreasing filter frequency and/or amount, which works independent of sequence and count of other simultaneously pressed buttons of the bank.

GRATIFY bank 2 "Hawtin Delay":



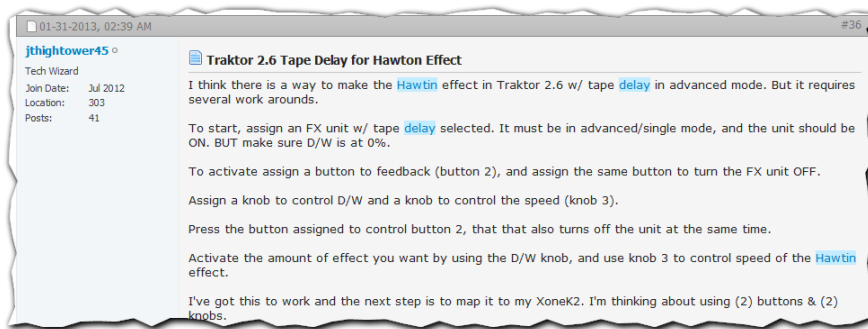
To activate bank 2 press **GRATIFY + 2**.

The initial effects mode will be **group effects mode** and the combination **ReverseGrain /Gater/ Filter LFO** are assigned to group-FX slots 1/2/3 respectively. These effects will also be re-loaded on recall of bank 2 group effects by just pressing **GRATIFY** alone when in bank 2.

Pressing **Button 3** will activate the **Rev. Grain**, **Button 7** and **8** activate the **FilterLFO**.

Btms down	1	2	3	4	5	6	7	8
1	Switch to singleMode; Ramp Delay selected & on; amount 0%	Hold: dec. amount &	Rev.Grain 0,2; amount 100%	Gater 0.5; amount 100%	Switch to singleMode; Tape Delay selected & on; amount 0%	Hold: dec. amount &	Filter LFO 0,4; amount 100%	Filter LFO 0,9 amount 100%
2	Coarse-inc. amount & inc. gater	inc. filterLFO			Inc. amount & fine-inc. filterLFO	dec. filterLFO		

Buttons 6 and 2 can be used to change the amount/parameters for these effects. If another button is already pressed **Buttons 1 and 5** can as well be used to manipulate the amount/parameters of the Gater and FilterLFO effects as shown above.



However, if buttons 1 or 5 are pressed “solo”, they will switch the FX unit to **single effects mode** and load the **RampDelay** (button 1) or **TapeDelay** (button 5).

In particular the TapeDelay was discussed in the DJ Techtools forums (besides DelayT3) to allow emulation of the so called Richie Hawtin effect: A kind of subtle delay with growing energy (originally obviously implemented with a plug in in Ableton) that can be (almost) emulated in TRAKTOR by first activating TapeDelay with next to zero amount, and then switching the FX off whilst simultaneously switching feedback ON and increasing the audible amount.

The following chart outlines the activation options of these effects once loaded in bank 2 by pressing button 2.

Btms down	1	2	3	4	5	6	7	8
Up	Ramp Delay FX ON; btn. 2 off; btn. 3 off; amount: 0%; duration: 1/4; rate: 3/8;			Knob2: 50% button2 off (feedback/duration)	Tape Delay FX ON; btn. 2 off; btn. 3 off; amount: 0%			
1 down	FX off; Btn. 2 ON; Btn. 3 ON; coarse-inc. amount; inc knob2 (duration)	Decrement amount; inc. knob 3 (rate)	Reset single effect; Hold: if RampDelay active will cause 2 beat echo	Amount 100% Button 2 hold (feedback/duration)	FX off; btn. 2 ON; btn. 3 ON; fine inc. amount fine inc. knob3 (speed/rate)		Knob 3 0,4 (speed/rate); btn. 2 ON; (hold) amount 100%	Knob 3 0,9 (speed/rate); btn. 3 ON; (hold) amount 100%
2+ down	Coarse-inc. amount; inc knob2 (duration)	Dec. amount; inc. knob 3 (rate)	Reset single effect;		Fine inc. amount; fine-inc.knob3 (speed/rate)	Decrement amount; dec. knob 3 (speed/rate)	Knob 3 0,4 (speed/rate); btn. 2 ON; (hold)	Knob 3 0,9 (speed/rate); btn. 3 ON; (hold)

If the **TapeDelay** was loaded, releasing button 5 will turn the effect on, but sets the amount to 0% (completely dry). On pressing the button 5 again the effect will be turned off first, and then the amount will increase slowly to 100%. At the same time the speed/rate parameter is fine-increased constantly causing the audible energy and “tape delayed echo” to become more audible and faster looping over time. By pressing buttons 2 or 6 the amount/speed can be further increased/ decreased as shown.

Note that the combination of auto increment and auto decrement commands - if simultaneously active – result in the “stronger” command to overrule the other. Example: Button 5 (auto fine

increment amount) together with button 6 (auto decrement amount) results in auto decrementing the amount.

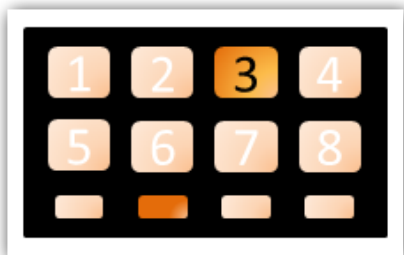
Working with the **RampDelay** via button 1 is working out in a comparable way causing a specific delay sound, however unlike as with Tape Delay where knob 3 (speed/rate) is most important, here it rather is knob 2 (feedback duration).

When RampDelay is loaded, **pressing and holding button 3** will generate a nice **two bar echo**, that swiftly fades out when the button is released or when the FX unit is switched off manually. If button 4 is pressed alongside, the **delay will freeze**.

Note that adjusting knob1 (frequency filter) as well as the other two knobs manually (using BCR's or MASCHINE's FX sections) before using Tape- or Ramp delay is advised in order to select the best frequency band and parameter set for the effect.

For **returning to bank 2 group effects mode**, just press **GRATIFY** again. This also kills any ongoing Tape- or Ramp delay effect.

GRATIFY bank 3 "LFO FX":



Bank 3 can be reached by pressing **GRATIFY + 3** and is mainly intended to feature a kind of "do it yourself low frequency oscillator (LFO) or sidechained" FX control for group effect slot 3. Upon initial call the effects combo **Beatmasher2/ ReverseGrain/ PolarWind** is loaded into the FX unit, so pressing **button 4** will activate the **PolarWind** effect, however the very special feature of this bank is that the **effect parameter (knob**

3) is continuously altered in the rhythm of the master track bpm as long as the button 4 is kept pressed.

The velocity - thus **the range of back and forth movement** of FX knob 3 in this mode - depends on how many buttons of this bank were pressed simultaneously. **Main Shift +GRATIFY** or **FX encoder push +GRATIFY** (use the left encoder for the left and right for the right side) act as a reset for these mode settings and always returns to mode "1":

- 1 Button pressed (mode 1): small movements.
- 2 Buttons pressed (mode 2) : larger movements
- 3 buttons pressed (mode 3): largest movements
- 4 buttons pressed (mode 4): level will raise FX knob 3 slowly in small bpm driven steps.

Note that these 4 modes are actually the same 4 modes discussed later as "Superknob modes" and please note that this LFO effect only works if there is one deck playing out as TRAKTOR master deck (but not necessarily the same deck where the FX is used on).

Button 8 allows decreasing the level of knob 3 whilst "pumping" thus allows moving the min max alterations into a lower range and at the same time decreases amount - perfect for fading out the effect. Pressing other buttons in this bank (on initial touch) will load other effects in group FX slot 3

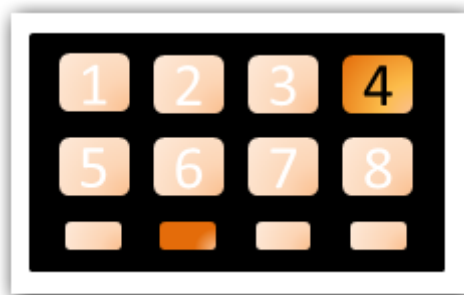
such as Bass-O-Matic, LaserSlicer. Stretch(slow), Reverb, Zzurp or Bounce. They all can be manipulated in the same way as described for the PolarWind.

Btms down	1	2	3	4	5	6	7	8
1	Assign FX3 BassOmatic; FX1 ON; Masher 0,2; amount 100%	Assign FX3 LaserSlicer; FX1 ON; Masher 0,4; amount 100%	Assign FX3 Strech(slow); FX1 ON; Masher 0,9; amount 100%	Activate FX3; Bpm of master deck controls group FX 3 knob	Assign FX3 Reverb; FX2 ON; Rev.Grain 0,1; amount 100%	Assign FX3 Zzurp; FX2 ON; Rev.Grain 0,6; amount 100%	Assign FX3 Bounce; FX2 ON; Rev.Grain 1,0; amount 100%	Activate FX3; amount 100%; dec. amount
2	FX1 ON; Masher 0,6	FX1 ON; Masher 0,8	FX1 ON; Masher 0,9		FX2 ON; Rev. Grain 0,1	FX2 ON; Rev. Grain 0,6	FX2 ON; Rev. Grain 1,0	
3	FX1 ON; Masher 0,7	FX1 ON; Masher 1,0	FX1 ON; Masher 1,0					

Other than that **Buttons 1, 2 and 3** are working like in the bank 1 controlling the beatmasher2 effect in FX slot 1. Buttons 5, 6 and 7 will invoke the ReverseGrain FX in group FX slot 2.

Note than manually controlling FX knob 3 (on BCR or MASCHINE) can as well aid quite nicely in finding the best “spectrum” for the FX slot 3 as the alterations of knob 3 level are done in relative – not absolute mode. Please also not that the LFO mechanism still works if you manually assign a different effect of your choice to FX slot 3.

GRATIFY bank 4 “T3Delay”:



The concept of Bank 4 – activated by **GRATIFY + 4** – is basically to feature the abilities of the **T3Delay** effect in combination with the masher and the standard delay. The FX unit is loaded with group effects **Beatmasher2/DelayT3/Delay** upon initialization

To get the best out of this bank is absolutely necessary to understand what will happen, when simultaneous buttons

are pressed together:

Btns	1	2	3	4	5	6	7	8
Any of 5,6,7 up					Fx2 =noEffect; Fx2=T3Delay (reset)	Fx2 =noEffect; Fx2=T3Delay (reset)	Fx2 =noEffect; Fx2=T3Delay (reset)	
1 down	Masher 0,2; amount 100%	Masher 0,4; amount 100%	Masher 0,9; amount 100%	FX3: Delay on; Delay 0,2; amount 100%; decrement Delay (knob3)	T3Delay 0,1; T3Delay on; amount 100%;		T3Delay 0,9; T3Delay on; amount 100%;	FX3: Delay on; Delay 0,2; amount 100%; fine-dec delay
2 down	Masher 0,6	Masher 0,8	Masher 0,9		Fine-inc. T3Delay (knob2)	T3Delay 0,5; T3Delay on; amount 100%;	T3Delay 1,0; Decrement T3Delay (knob2)	FX3: Delay on; Delay 0,2; amount 100%; fine-dec delay
3 down	Masher 0,7	Masher 1,0	Masher 1,0				Decrement T3Delay (knob2)	fine-dec amount
4 down						Fine-dec. T3Delay (knob2)		FX3: Delay on; Delay 0,2; amount 100%;

Button **5, 6 and 7** control the **DelayT3** loaded in slot FX2 by launching the effect if pressed solo with 0.1, 0.5 and 0.9 parameter settings respectively. If pressed along with other buttons the buttons will **auto increment/decrement knob 2** at various speeds depending on what buttons are pressed:

- Holding Btn. **7** almost instantly followed by Btn. **5** will cause the DelayT3 to first load with 0.9 and then 0.2, swiftly auto decrementing to 0.0 (because the auto fine inc of Btn. 5 together with the auto decrement of button 7 will add up and result into an auto decrement). The resulting effect is that the incoming sound is **echoed at an interval of 4 beats** - perfect for acapella music for the emulation of a canon.
- Adding Btn. **8** will additionally launch the delay in FX slot 3 and then smoothly auto decrement the amount (fade out).
- Holding Btn. **6**, followed by Btn. **5** will auto increment the DelayT3 resulting in a complex echo.

As you can imagine, many other combinations are possible resulting in many other flavors of how the DelayT3 will build up energy. In that respect it is also of interest to bring in the buttons 1, 2 and 3 that again inherit the functionality of bank 1 (allowing instant drum rolls using the beatmasher2 effect.) If pressed and combined in this bank along with the T3Delay buttons **sampling, echoing and fading out of micro loops** can be achieved on the fly. Try out also to activate the T3Delay first and then to press the masher buttons shortly simultaneously with the T3, then releasing the T3Delay followed by the masher buttons: This will cause an interesting faded out delay in the most recent frequency of the masher.

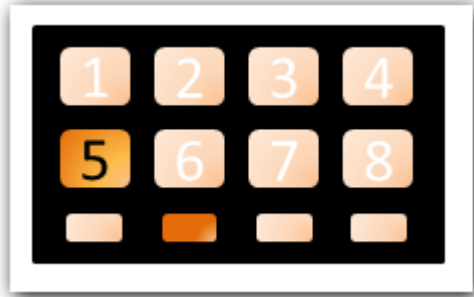
Finally, if any of a button **5, 6 or 7** is released as the last button, it will cause an instant kill and reset of the DelayT3 effect by first unloading the slot 2 and then reloading the DelayT3 effect with its default setting inactivated. This was implemented, because the DelayT3 would otherwise continue to audible operate (even if not pressed) as long as the amount is > 0%.

Please note In case you intend to utilize the DelayT3 in the standard way (so that it will actually continue to operate if off with engaged amount) it is of course always possible to simply use the

dedicated FX slot On/off button on the VCI, on the BCR or MASCHINE in order to accomplish that while operating in bank 4.

GRATIFY bank 5 “Phaser”:

Bank5 (activated by **GRATIFY + 5**) is dedicated to the **Phaser in single effects mode**.



Btns down	1	2	3	4	5	6	7	8
1	Phaser 8 beats; amount 100%; LFO reset	Phaser 4 beats amount 100%; LFO reset	Phaser 2 beats amount 100%; LFO reset	Phaser 1 beats amount 100%; LFO reset	Phaser 2/4 beats amount 100%; LFO reset	Phaser 3/8 beats amount 100%; LFO reset	Phaser 1/4 beats amount 100%; LFO reset	Phaser 1/8 beats amount 100%; LFO reset

Effect setting: Single effect: **Phaser**

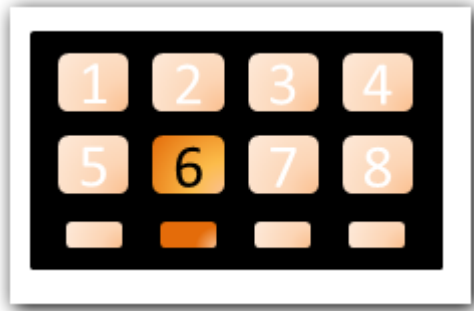
Buttons 1..8 change the rate of the phaser effect in bars: 8 – 4 – 2 – 1 - 2/4 - 3/8 - 1/4 - 1/8 .

Pressing multiple buttons in this bank has no additional effect on the FX parameters, but it will allow switching from one parameter setting for the Phaser “beats” parameter to another one w.o. deactivating the effect, but pressing another button will always include performing a LFO reset.

*Note: In this bank each press of a button 1..8 is also associated with an **LFO reset** for a cleaner switch between the different rates. It can nicely be used to augment the drama in an already existing build-up.*

GRATIFY bank 6 “Transpose Stretch”:

Pressing GRAIFY plus button 6 activates bank 6 where the **Transpose Stretch** can be activated with multiple presets.



Effect setting: Single effect: **Transpose Stretch**

Buttons 1..8 when pressed alone or in combinations will activate different settings of the **stretch and key parameters** of the transpose effect as shown:

Btns down	1	2	3	4	5	6	7	8
1	Amount100%; stretch: 0,4; grnsz: 0,5; key: 0,5	Amount100%; stretch: 0,5; grnsz: 0,5; key: 0,5;	Amount100%; stretch: 0,8; grnsz: 0,5; key: 0,5;	Amount100%; grnsz: 0,5; key: 0,5; increment key	Amount100%; stretch: 0,6; grnsz: 0,5; key: 0,7; fine-decr. stretch	Amount100%; stretch: 0,7; grnsz: 0,5; key: 0,7	Amount100%; stretch: 0,8; grnsz: 0,5; key: 0,9	Amount100%; stretch: 0,9; grnsz: 0,5; key: 0,8
2	Amount100%; stretch: 0,6; grnsz: 0,5; key: 0,5	Amount100%; stretch: 0,7; grnsz: 0,5; key: 0,5;	Amount100%; stretch: 0,8; grnsz: 0,5; key: 0,5;	Amount100%; grnsz: 0,5; key: 0,5; dec. key	Amount100%; stretch: 0,6; grnsz: 0,5; inc. stretch	Amount100%; stretch: 0,7; grnsz: 0,5; key: 0,1	Amount100%; stretch: 0,8; grnsz: 0,5; key: 0,3	Amount100%; stretch: 0,9; grnsz: 0,5; key: 0,3
3	Amount100%; stretch: 0,6; grnsz: 0,5; key: 0,5	Amount100%; stretch: 0,6; grnsz: 0,5; key: 0,5	Amount100%; stretch: 0,9; grnsz: 0,5; key: 0,5	Amount100%; stretch: 0,6; key: 0,5; dec. key	Amount100%; stretch: 0,6; grnsz: 0,5; inc. stretch	Amount100%; stretch: 0,7; grnsz: 0,5; key: 0,1	Amount100%; stretch: 0,8; grnsz: 0,5; key: 0,3	Amount100%; stretch: 0,9; grnsz: 0,5; key: 0,3

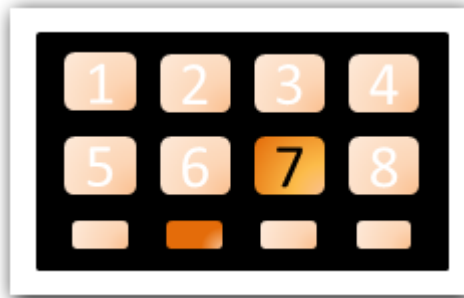
As in the other banks, any auto increment or decrement command (buttons 4 and 5) will be engaged when one of the relevant buttons is involved in activation (no matter when pressed in the sequence)

Tip:

- Try those settings with Transpose Stretch based on a Kick Drum or Bass Sound – probably followed by further FX gratification through other FX units (i.e. a masher)
- The parameter settings will as well work as described, when a different effect is manually loaded into the FX units

GRATIFY bank 7 “Autobounce”:

GRATIFY + button 7 activates the bank 7 solely dedicated to the Autobounce effect, that goes best with Dubsetp and DnB and contains 5*8=40 parameter presets.



Effect setting: Single effect: **Autobounce**

Buttons 1..8 will activate different settings of the three parameters of the Autobounce. Due to functionality coming out of the box pressing a button B1..8 will activate the Autobounce for 4 bars, pressing it for longer than 4 bars will activate the effect for 8 bars.


Btms down	1	2	3	4	5	6	7	8
UP	Fx1 =noEffect; Fx1=Auto Bounce (reset)	Fx1 =noEffect; Fx1=Auto Bounce (reset)	Fx1 =noEffect; Fx1=Auto Bounce (reset)	Fx1 =noEffect; Fx1=Auto Bounce (reset)	Fx1 =noEffect; Fx1=Auto Bounce (reset)	Fx1 =noEffect; Fx1=Auto Bounce (reset)	Fx1 =noEffect; Fx1=Auto Bounce (reset)	Fx1 =noEffect; Fx1=Auto Bounce (reset)
1	Amount100%; Trans: 0.1; Bend: 0.2; Pattern: 0	Amount100%; Trans: 0.5; Bend: 0.8; Pattern: 1	Amount100%; Trans: 0.8; Bend: 0.4; Pattern: 2	Amount100%; Trans: 0.9; Bend: 0.9; Pattern: 3	Amount100%; Trans: 0.9; Bend: 0.2; Pattern: 4	Amount100%; Trans: 0.1; Bend: 0.9; Pattern: 0	Amount100%; Trans: 0.0; Bend: 0.5; Pattern: 1	Amount100%; Trans: 0.5; Bend: 0.1; Pattern: 2
2	Amount100%; Trans: 0.1; Bend: 0.2; Pattern: 1	Amount100%; Trans: 0.5; Bend: 0.8; Pattern: 2	Amount100%; Trans: 0.8; Bend: 0.4; Pattern: 3	Amount100%; Trans: 0.9; Bend: 0.9; Pattern: 4	Amount100%; Trans: 0.9; Bend: 0.2; Pattern: 0	Amount100%; Trans: 0.1; Bend: 0.9; Pattern: 1	Amount100%; Trans: 0.0; Bend: 0.5; Pattern: 2	Amount100%; Trans: 0.5; Bend: 0.1; Pattern: 3
3	Amount100%; Trans: 0.1; Bend: 0.2; Pattern: 2	Amount100%; Trans: 0.5; Bend: 0.8; Pattern: 3	Amount100%; Trans: 0.8; Bend: 0.4; Pattern: 4	Amount100%; Trans: 0.9; Bend: 0.9; Pattern: 0	Amount100%; Trans: 0.9; Bend: 0.2; Pattern: 1	Amount100%; Trans: 0.1; Bend: 0.9; Pattern: 2	Amount100%; Trans: 0.0; Bend: 0.5; Pattern: 3	Amount100%; Trans: 0.5; Bend: 0.1; Pattern: 4
4	Amount100%; Trans: 0.1; Bend: 0.2; Pattern: 3	Amount100%; Trans: 0.5; Bend: 0.8; Pattern: 4	Amount100%; Trans: 0.8; Bend: 0.4; Pattern: 0	Amount100%; Trans: 0.9; Bend: 0.9; Pattern: 1	Amount100%; Trans: 0.9; Bend: 0.2; Pattern: 2	Amount100%; Trans: 0.1; Bend: 0.9; Pattern: 3	Amount100%; Trans: 0.0; Bend: 0.5; Pattern: 4	Amount100%; Trans: 0.5; Bend: 0.1; Pattern: 0
5	Amount100%; Trans: 0.1; Bend: 0.2; Pattern: 4	Amount100%; Trans: 0.5; Bend: 0.8; Pattern: 0	Amount100%; Trans: 0.8; Bend: 0.4; Pattern: 1	Amount100%; Trans: 0.9; Bend: 0.9; Pattern: 2	Amount100%; Trans: 0.9; Bend: 0.2; Pattern: 3	Amount100%; Trans: 0.1; Bend: 0.9; Pattern: 4	Amount100%; Trans: 0.0; Bend: 0.5; Pattern: 0	Amount100%; Trans: 0.5; Bend: 0.1; Pattern: 1

The unpleasant downside of the Autobounce is upon normal activation, that it won't stop when the effect is released. This is why in this mapping on **release of the last performance button pressed** a forced kill of the effect is generated by unloading/reloading the FX.

Note that the 40 preset combinations in this bank are built in a systematic way, offering preset patterns 0-4 for 8 different combinations of the transpose and stretch parameters.

GRATIFY bank 8 (“Macro effects”)

Gratify Bank 8 (**GRATIFY + Button 8**) is actually a collection of $4 \times 5 = 20$ **sub-banks** mainly to feature TRAKTOR’s **Macro effects** in combination with **Superknob functionality** assigned to the VCIs **FX knobs**. Before we discuss how the various banks are loaded, let’s first see how the **superknobs** are working. The visual feedback upon initial loading of bank 8 (after pressing GRATIFY + 8) is shown below:

	Bank	FX-1	FX-2	FX-3
	8.4.0	LaserSlicer	GranuPhase	Dark Matter



Buttons 5, 6, 7 will be lit (to differentiate this bank from the banks 1..7) and **button 8 will blink**.

Actually we are now already in bank 8.4.0, where the macro effects LaserSlicer, the GranuPhase and DarkMatter are loaded into the 3 slots of the effect unit in group FX mode.

Note that the 3 FX knobs of the associated FX unit will now work as superknobs, because upon twisting, they will control various other knobs and/or buttons.

Actually the superknob functionality has **4 different modes** that are entered by simultaneously pressing performance buttons. Once a superknob mode is entered, it will persist being active (even if performance knobs are

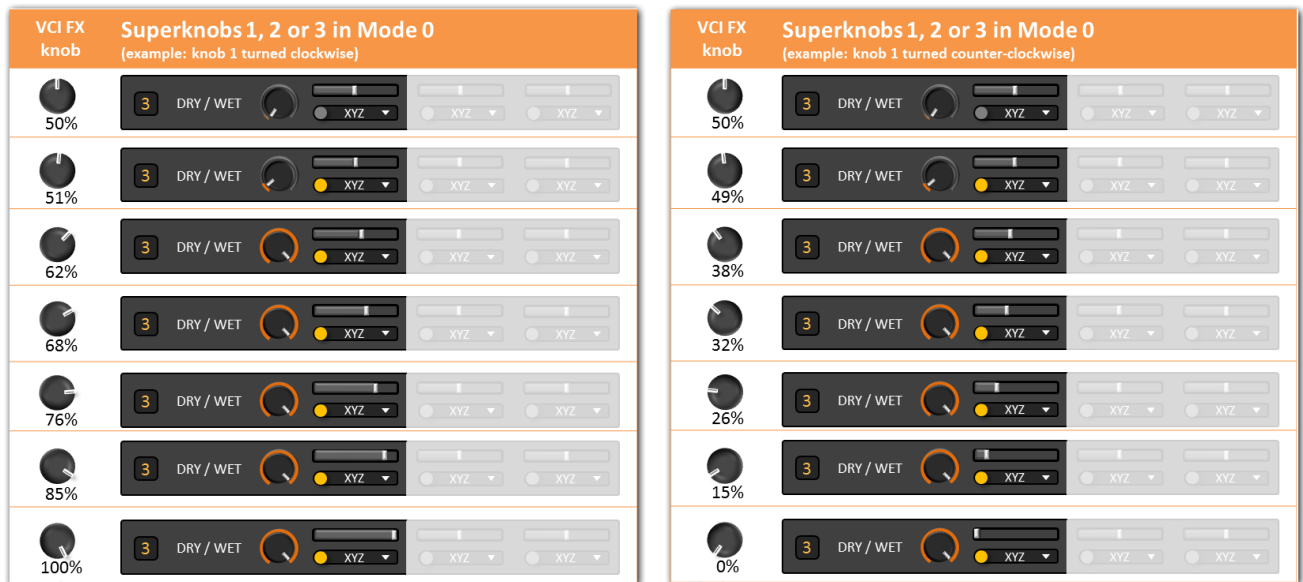
released) as long as the **Main Shift +GRATIFY or Super/Normal (Left side) + GRATIFY** (or for the right side involving the right FX encoder instead) have not been pressed. Such a reset will always return to Superknob mode 0. The following table summarizes how to switch between the various superknob modes:

User action	Superknob mode entered
#1 performance button pressed	1
#2 performance buttons pressed simultaneously	2
#3 performance buttons pressed simultaneously	3
#4 performance buttons pressed simultaneously	4
Main Shift +GRATIFY or Left side: Super/Normal (L) +GRATIFY Right side: Super/Normal (R) +GRATIFY	0
Left side: Press and hold “Super/Normal (L)” Right side: Press and hold “Super/Normal (R)”	Temporary disable Superknob behaviour (as long as encoder is pressed)

Now the only thing that's missing here is to understand what the knobs will actually do in the various Superknob modes. This is explained in the following tables.

Superknob mode 0

In Superknob mode 0, twisting any of the Superknobs from the center position will immediately turn its effect slot on and swiftly raise the dry/wet amount to 100%. On the other hand, the slot knob itself is modified in direct mode 1:1 according to the twist of the Superknob.



This behavior will fade in/out the effect and allow control of slot parameter, knob and FX unit amount via a single knob.

*Note that any of the changes of FX knobs and amount are all executed in **direct mode** (not relative). i.e. if knob 1 was twisted partly to the right causing amount to reach 100%, and then knob 2 is twisted to the center position, for instance the control of the FX amount will immediately re-adjust the direct value as requested by the knob that was touched last (in this example will reset amount to 0%). If then knob 1 is twisted again, the amount will likewise immediately jump back to 100% again. This behavior is due to the fact that all Superknob-activities are coming out of direct MIDI-CC commands that are generated by MIDIOX i.e. when a FX knob is twisted. Twisting knob 1 will therefore not only result in one MIDI CC to control FX slot 1 parameter, but automatically invoke additional CC commands that have direct control over the dry/wet and/or other FX knobs as discussed next referring to modes 1, 2, 3 and 4.*

Superknob mode 1

In this mode the slot-parameter and dry/wet amount are controlled exactly as in the mode 0, however, the levels of the other two parameter slots are controlled as well including their activation buttons.

The following 6 tables will show what happens, when knob 1, 2 or 3 are turned clockwise and counterclockwise in this mode: The two other slots will be activated one after the other so that finally all reach 100% or 0% when the knob was twisted fully clockwise or counterclockwise respectively.

Superknob mode 1 activation patters:

VCI FX knob 1		Superknob 1 in Mode 1 (knob 1 turned clockwise)	
50%		3 DRY / WET	
51%		3 DRY / WET	
62%		3 DRY / WET	
68%		3 DRY / WET	
76%		3 DRY / WET	
85%		3 DRY / WET	
100%		3 DRY / WET	

VCI FX knob 1		Superknob 1 in Mode 1 (knob 1 turned counter-clockwise)	
50%		3 DRY / WET	
49%		3 DRY / WET	
38%		3 DRY / WET	
32%		3 DRY / WET	
26%		3 DRY / WET	
15%		3 DRY / WET	
0%		3 DRY / WET	

VCI FX knob 2		Superknob 2 in Mode 1 (knob 2 turned clockwise)	
50%		3 DRY / WET	
51%		3 DRY / WET	
62%		3 DRY / WET	
68%		3 DRY / WET	
76%		3 DRY / WET	
85%		3 DRY / WET	
100%		3 DRY / WET	

VCI FX knob 2		Superknob 2 in Mode 1 (knob 2 turned counter-clockwise)	
50%		3 DRY / WET	
49%		3 DRY / WET	
38%		3 DRY / WET	
32%		3 DRY / WET	
26%		3 DRY / WET	
15%		3 DRY / WET	
0%		3 DRY / WET	

VCI FX knob 3		Superknob 3 in Mode 1 (knob 3 turned clockwise)	
50%		3 DRY / WET	
51%		3 DRY / WET	
62%		3 DRY / WET	
68%		3 DRY / WET	
76%		3 DRY / WET	
85%		3 DRY / WET	
100%		3 DRY / WET	

VCI FX knob 3		Superknob 3 in Mode 1 (knob 3 turned counter-clockwise)	
50%		3 DRY / WET	
49%		3 DRY / WET	
38%		3 DRY / WET	
32%		3 DRY / WET	
26%		3 DRY / WET	
15%		3 DRY / WET	
0%		3 DRY / WET	

Superknob mode 2 has a slightly different activation pattern:

Superknob mode 2

In this mode the **secondly** affected effect is adjusted in **reverse direction** i.e. when the knob is turned clockwise, will decrease and vice versa:

VCI FX knob 1	Superknob 1 in Mode 2 (knob 1 turned clockwise)	VCI FX knob 1	Superknob 1 in Mode 2 (knob 1 turned counter-clockwise)
50%		50%	
51%		49%	
62%		38%	
68%		32%	
76%		26%	
85%		15%	
100%		0%	
VCI FX knob 2	Superknob 2 in Mode 2 (knob 2 turned clockwise)	VCI FX knob 2	Superknob 2 in Mode 2 (knob 2 turned counter-clockwise)
50%		50%	
51%		49%	
62%		38%	
68%		32%	
76%		26%	
85%		15%	
100%		0%	
VCI FX knob 3	Superknob 3 in Mode 2 (knob 3 turned clockwise)	VCI FX knob 3	Superknob 3 in Mode 2 (knob 3 turned counter-clockwise)
50%		50%	
51%		49%	
62%		38%	
68%		32%	
76%		26%	
85%		15%	
100%		0%	

Superknob mode 3

This mode acts like mode 2, but the activation in inverse direction is done to the **third** effect.

VCI FX knob 1		Superknob 1 in Mode 3 (knob 1 turned clockwise)	
50%		3 DRY / WET	
51%		3 DRY / WET	
62%		3 DRY / WET	
68%		3 DRY / WET	
76%		3 DRY / WET	
85%		3 DRY / WET	
100%		3 DRY / WET	

VCI FX knob 1		Superknob 1 in Mode 3 (knob 1 turned counter-clockwise)	
50%		3 DRY / WET	
49%		3 DRY / WET	
38%		3 DRY / WET	
32%		3 DRY / WET	
26%		3 DRY / WET	
15%		3 DRY / WET	
0%		3 DRY / WET	

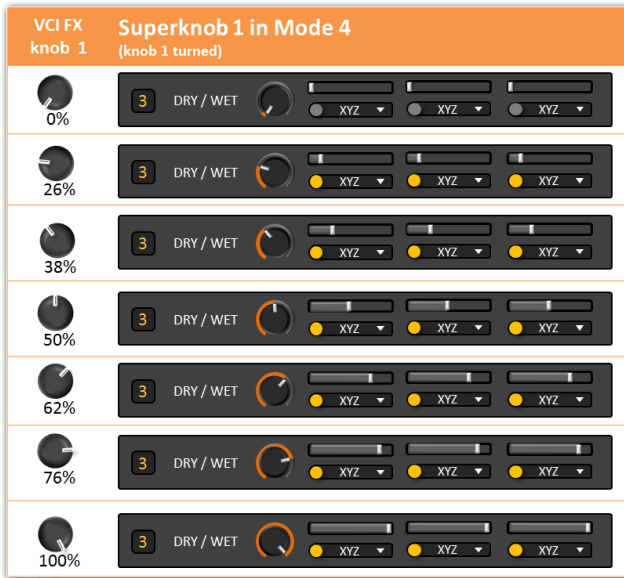
VCI FX knob 2		Superknob 2 in Mode 3 (knob 2 turned clockwise)	
50%		3 DRY / WET	
51%		3 DRY / WET	
62%		3 DRY / WET	
68%		3 DRY / WET	
76%		3 DRY / WET	
85%		3 DRY / WET	
100%		3 DRY / WET	

VCI FX knob 2		Superknob 2 in Mode 3 (knob 2 turned counter-clockwise)	
50%		3 DRY / WET	
49%		3 DRY / WET	
38%		3 DRY / WET	
32%		3 DRY / WET	
26%		3 DRY / WET	
15%		3 DRY / WET	
0%		3 DRY / WET	

VCI FX knob 3		Superknob 3 in Mode 3 (knob 3 turned clockwise)	
50%		3 DRY / WET	
51%		3 DRY / WET	
62%		3 DRY / WET	
68%		3 DRY / WET	
76%		3 DRY / WET	
85%		3 DRY / WET	
100%		3 DRY / WET	

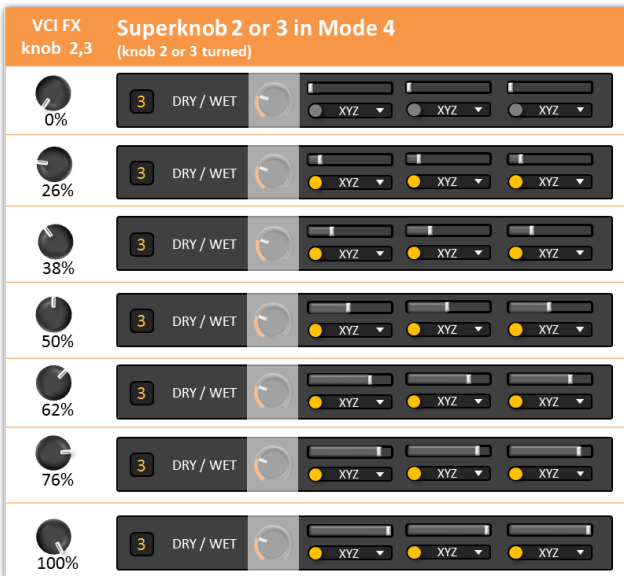
VCI FX knob 3		Superknob 3 in Mode 3 (knob 3 turned counter-clockwise)	
50%		3 DRY / WET	
49%		3 DRY / WET	
38%		3 DRY / WET	
32%		3 DRY / WET	
26%		3 DRY / WET	
15%		3 DRY / WET	
0%		3 DRY / WET	

Superknob Mode 4



In Superknob mode 4 a twist of **knob 1** will cause the dry/wet and all of the slot FX knobs 1, 2 and 3 to move in 1:1 relation.

All effects will become active as soon as the Dry/wet amount is > 0%.



When **knob 2 or knob 3** is twisted, again the parameter for all slot effects changes 1:1 accordingly, however the setting of the dry/wet amount remains unaffected.

This will allow to rise (fade in) the combined FX with knob 1 to the desired level first and then to alter the parameters with one of the other knobs.

Temporary cancellation of Superknob modes

Remember that during operation of Superknobs when in any of the modes 1, 2, 3 or 4 pushing and holding the “FX amount Super/Normal” encoder will temporary switch off Superknob behavior of



the 3 FX knobs, so that the individual parameters can be adjusted as well “the classical way”. Upon release of the encoder, the last active mode will be recalled.

To permanently **return** from a supermode other than 0 to **supermode 0** just press

GRATIFY with **Main-Shift** or the **FX Amount Super/Normal** of the corresponding side of the controller alongside with **GRATIFY**.

Note that in above example illustrations the FX unit is always “3”. Actually this might be misleading, as GRATIFY effects only apply to FX units 1 (left side) and 2 (right side). Therefore keep in mind that graphics were just provided to illustrate what happens to the FX parameters, regardless of the FX unit shown.






Activation of other sub-banks:

Once bank 8 is activated by pressing **GRATIFY + Button 8** switching back and forth between the 4 sub-banks and - in each of the sub-banks – back and forth between one of the 5 associated sub-sub-banks can be managed by just hitting one of the respective buttons **5, 6, 7 or 8 to enter a sub bank (8.x)**, and then to hit one of the **buttons 1, 2, 3 or 4 to enter one of the sub-sub banks (8.x.x)**. The notation in below tables show which effects will be loaded and the resulting visual feedback, once a buttons was pressed. Notation:

- 8.1.x, 8.2.x, 8.3.x and 8.4.x are called **sub** banks and
- 8.x.0, 8.x.1, 8.x.2, 8.x.3, 8,x.4 are called the **sub-sub** banks.

A glowing button in below illustrations indicates a blinking button. The default sub-bank when switching to bank 8 is bank 8.4.0. To activate its sub-sub banks press buttons 1, 2 3,4 respectively.






Bank 8.4

	Bank	FX-1	FX-2	FX-3
	8.4.0	LaserSlicer	GranuPhase	Dark Matter
	Bank	FX-1	FX-2	FX-3
	8.4.1	GranuPhase	FlangeFlux	LaserSlicer
	Bank	FX-1	FX-2	FX-3
	8.4.2	LaserSlicer	FlangeFlux	GranuPhase
	Bank	FX-1	FX-2	FX-3
	8.4.3	LaserSlicer	Zzurp	Stretch(Slow)
	Bank	FX-1	FX-2	FX-3
	8.4.4	LaserSlicer	Zzurp	Stretch(Fast)

Note that not just macro effects are listed, but as well “standard” effects such as the FlangerFlux. Actually – due to the described Superknob activation patterns - any of TRAKTOR’s effects can now be operated like a macro effect: it will get switched off when at 50% and swiftly fading in when >50% or <50%. This allows for interesting combinations of macro- and standard effects in various presets.

Bank 8.3






To activate bank 8.3.0 just hit **button 7** when in any sub-bank of bank 8 of GRATIFY.

	Bank	FX-1	FX-2	FX-3
	8.3.0	BassOMatic	Zzurp	FlangeFlux
	Bank	FX-1	FX-2	FX-3
	8.3.1	LaserSlicer	GranuPhase	BassOMatic
	Bank	FX-1	FX-2	FX-3
	8.3.2	WormHole	BassOMatic	FlightTest
	Bank	FX-1	FX-2	FX-3
	8.3.3	BassOMatic	EventHorizon	Stretch(Slow)
	Bank	FX-1	FX-2	FX-3
	8.3.4	BassOMatic	DarkMatter	Stretch(Fast)

This one – like bank 8.4 comes as a bank featuring solely macro effect presets.

Bank 8.2






To activate bank 8.2.0 just hit **button 6** when in any sub-bank of bank 8 of GRATIFY.

	Bank	FX-1	FX-2	FX-3
	8.2.0	WormHole	FlightTest	Stretch(Slow)
	Bank	FX-1	FX-2	FX-3
	8.2.1	WormHole	GranuPhase	Zzurb
	Bank	FX-1	FX-2	FX-3
	8.2.2	DigiLofi	Formant	Beatmasher
	Bank	FX-1	FX-2	FX-3
	8.2.3	RverseGrain	PeakFiler	Iceverb
	Bank	FX-1	FX-2	FX-3
	8.2.4	Mulholland	Transpose	PeakFiler

This sub-bank as well as the following bank 8.1 harbors a lot of non-macro effects providing interesting alterations of sound in combinations with macro effects in Superknob mode.

Bank 8.1

To activate bank 8.1.0 just hit **button 5** when in any sub-bank of bank 8 of GRATIFY.

	Bank	FX-1	FX-2	FX-3
	8.1.0	PolarWind	EventHorizon	FlangeFlux
	Bank	FX-1	FX-2	FX-3
	8.1.1	Gater	Mulholland	PeakFilter
	Bank	FX-1	FX-2	FX-3
	8.1.2	Zzulp	PolarWind	FlangerFlux
	Bank	FX-1	FX-2	FX-3
	8.1.3	FlangeFlux	PeakFiler	Reverb
	Bank	FX-1	FX-2	FX-3
	8.1.4	Iceverb	PeakFilter	Reverb

Some of these effects when assigned to an empty deck can generate nice white noise patterns (i.e. sub-sub bank 8.1.1)

Scope of Superknobs and total recall of banks and modes when switching decks

The probably most interesting aspect of the Superknobs is, that they are not just restricted to bank 8 of GRATIFY, but **they are in fact available in all other GRATIFY banks, furthermore being available when using the GRID** (using the FX unit in beatslicer single effects mode). However, there is one difference between using Superknobs in GRATIFY compared to their usage in the GRID: Pressing buttons in any of GRATIFY banks has the potential to change the superknob mode status, whereas in the GRID Superknobs are active, but the mode status is always frozen even though **Main Shift** or pushing the FX encoder will still temporary disable the current Superknob mode.

In practice this means that changing between various banks in GRATIFY or switching between GRATIFY and GRID will **preserve the currently active Superknob mode**. Superknob modes will even

be preserved/recalled in conjunction with the last active GRATIFY-Bank (or the GRID mode) when switching to the other deck on the VCI (left side: A/C; right side B/D)

Example: Practically speaking when in deck A with bank 3 in Superknob-mode 2 and a deck association of FX unit 1 to deck A, switching to deck C will restore the most recently used deck association there, including the most recently used effect: either GRID ore a specific GRATIFY Sub-Bank including the last used Superknob status in this environment.

Likewise, upon switching back to the deck A, GRATIFY sub bank 3 will be restored, as well as the association of FX unit 1 to deck A and the Superknob mode 2 that was last active here.

Effects control: The GRID



Even though the basic functionality of the GRID is a lot like in the original first DJTT mapping, the way of activation did change: On hitting the **GRID** button the grid is enabled, a 8 bar loop is set, the effect unit is loaded with the **beatslicer** effect, however the FX unit nor the loop are activated yet. All performance buttons 1..8 will remain dimmed. Until here the GRID is just in “stand by” mode.

If now any of the performance buttons 1..8 are pressed, the **8-bar loop will be dropped and activated** (if not yet active) and the slicer **effect is turned on**. Swift switching between buttons 1..8 can be used now to gratify the operation of the slicer effect. Encoders **Loop Pos** and **Loop Size** can be used to **re-position/re-size** the loop on the fly. The table below shows the 32 settings of the beatslicer FX parameters that can be loaded as presets, when multiple buttons are pressed. **On release** of all performance buttons the loop is deactivated and the Grid **returns to stand-by mode**.

Buttons pressed / Visual Feedback	1	2	3	4	5	6	7	8
One button pressed 	Bt.2=off Bt.3=off Buzz=0 Style=S1 Pat = P2	Bt.2=off Bt.3=ON Buzz=0 Style=S4 Pat = P3	Bt.2=off Bt.3=ON Buzz=0 Style=S1 Pat = P4	Bt.2=off Bt.3=ON Buzz=0 Style=S1 Pat = P5	Bt.2=off Bt.3=off (release ON)	Bt.2=ON Bt.3=off (release ON) Buzz = 8 Style=S4 Pat = P3	Bt.2=ON Bt.3=off (release ON) Buzz = 19.3 Style=S2 Pat = P4	Bt.2=ON Bt.3=off (release ON) Buzz = 35.3 Style=S3 Pat = P2
Two buttons pressed 	Bt.2=off Bt.3=off Buzz=0 Style=S1 Pat = P3 Buzz inc.*	Bt.2=off Bt.3=ON Buzz=0 Style=S4 Pat = P3	Bt.2=off Bt.3=ON Buzz=0 Style=S1 Pat = P4	Bt.2=off Bt.3=ON Buzz=0 Style=S1 Pat = P5	Bt.2=off Bt.3=off (release ON) Buzz inc.*	Bt.2=ON Bt.3=off (release ON) Buzz = 8 Style=S4 Pat = P3	Bt.2=ON Bt.3=off (release ON) Buzz = 19.3 Style=S2 Pat = P4	Bt.2=ON Bt.3=off (release ON) Buzz = 35.3 Style=S3 Pat = P2
Three buttons pressed 	Bt.2=off Bt.3=off Buzz=4.9 Style=S1 Pat = P1 Buzz inc coarse*	Bt.2=ON Bt.3=ON Buzz=0 Style=S4 Pat = P3	Bt.2=ON Bt.3=ON Buzz=0 Style=S1 Pat = P4	Bt.2=ON Bt.3=ON Buzz=0 Style=S1 Pat = P5	Bt.2=off Bt.3=off (release ON) Pat = P2 Buzz = 4.14 Buzz inc.*	Bt.2=ON Bt.3=off (release ON) Buzz = 8 Style=S4 Pat = P4	Bt.2=ON Bt.3=off (release ON) Buzz = 19.3 Style=S2 Pat = P2	Bt.2=ON Bt.3=off (release ON) Buzz = 35.3 Style=S3 Pat = P3
Four buttons pressed 	Bt.2=off Bt.3=off Buzz=13.9 Style=S1 Pat = P1 Buzz dec. coarse*	Bt.2=ON Bt.3=ON Buzz=0 Style=S4 Pat = P3	Bt.2=ON Bt.3=ON Buzz=0 Style=S1 Pat = P4	Bt.2=ON Bt.3=ON Buzz=0 Style=S1 Pat = P5	Bt.2=off Bt.3=off (release ON) Pat = P3 Buzz = 16.14 Buzz dec coarse.*	Bt.2=ON Bt.3=off (release ON) Buzz = 8 Style=S4 Pat = P5	Bt.2=ON Bt.3=off (release ON) Buzz = 19.3 Style=S2 Pat = P5	Bt.2=ON Bt.3=off (release ON) Buzz = 35.3 Style=S3 Pat = P5

*inc and dec commands for Buzz will also execute when button 1 and/or 5 are not pressed as the last button

Example: When **button 3** is pressed Buzz=0, **Style=S1** and **Pat.=P4**.

If Btn. 3 is kept depressed and **Btn. 4** is also pressed, Style remains S1, but **Pat. Becomes P5**.

If, as a third button, **Btn. 5** is pressed, Style still remains and **Pattern becomes P2**, **Buzz** will become **4.14**, and then amount will **auto-increase** from there.

The SLICER



This mapping has a SLICER functionality that is coming in **two modes**, both activated by pressing **SLICER** in the performance section of its associated deck:

1. “Static” mode

When a track is loaded in a deck and **stopped**, the slicer allows to start **cue/play** from the **current cue** in a distance of +0, +1, +2, ...+8 beats by hitting one of the 8 performance buttons as shown below. This is practically like having an additional set of 8 “sub-cues” for each existing hotcue or floating cue point.

Example for Cue/Play in static mode:



Note, that pressing **SLICER** will automatically set a **floating cue-point** at the current track position.

2. “Dynamic “ mode

When the target deck is loaded and **playing**, the SLICER will operate in dynamic mode: Much like in a step sequencer, the LED feedback of the 8 performance buttons will now “chase” through 8 beats in bpm frequency, then jumping back to start all over from button 1. As in static mode hitting **SLICER** will set a **floating cue**, but at the same time also **reset the chasing lights** to beat 1 (you may want to use this feature to mark the downbeat).

Jumping to a **hotcue** on the same deck will as well – as an additional side effect - reset the chasing lights to beat #1.

When in dynamic mode pressing and holding one of the performance buttons 1..8, will jump to the closest jump target that is a multiple of 8 beats plus the selected beat distance (+0, ..,+8 beats) away from the last cue, then engage FLUX mode, and then start to loop with current loop length. On release of the button, the FLUX mode causes the track to jump back to a position as if the looping hadn't happened. Next FLUX is automatically suspended and the mapping will recall the original jump and move forward/backward to the closest position to compensate for the initial beat jump. Practically speaking the SLICER – in dynamic mode – allows you to seek a specific beat of the playing track, loop it, and then to return to the “normal” track position as if nothing happened.

Example:

1. A track is playing, the SLICER button was pressed (a floating cue was established) and the track continues to play for 5 beats.
2. During beat 5 button 2 is pressed. The SLICER will initiate a beat jump -3 beats to jump to a position that is +2 beats away from the floating cue in order to jump to “beat #2” as requested.
3. FLUX is engaged (by the SLICER)
4. Let's assume the current loop size is ½ beats, now the track should start to loop accordingly.
5. In our example let's say looping shall continue 4 times for 2 beats.
6. Now the button is released, due to FLUX, the playout is resumed at a position $CUE+2+2=CUE+4$ beats.
7. FLUX is disengaged (by the SLICER)
8. The slicer reverses the initial beat jump and jumps +3 beats. Landing point is at a position $CUE +4+3 = CUE+7$ beats, what is exactly the position, as without interruption.

Note that steps 1...5 and 6..8 in this example happen almost instantly, so that the single jumps involved, shouldn't be noticeable as individual jumps. As **FLUX mode** is as part of the sequence turned on and off, its **current status is memorized** before the sequence starts so that the FLUX mode status **can be automatically recalled by the SLICER** once the jump sequence is completed.

Pressing additional buttons in dynamic mode

Once the SLICER is used in dynamic mode and a button was pressed, the deck should be looping with the current loop size. Now, as extra option to further spice up the mix, the remaining performance buttons can be used (repeatedly) to initiate a change in the loop size:

- Buttons 2 or 6 will change the loop size to 1/2 beats
- Buttons 3 or 7 will change the loop size to 1/4 beats
- Button 4 or 8 will change the loop size to 1/8 beats

When the buttons 1 or 5 are pressed, the initially used loop size will be restored.

How to adjust the initial loop size

During or before usage of the SLICER the initial or “TRAKTOR current” loop length can be adjusted as already explained before by means of a standard functionality of this mapping (simply use knob “**Loop Size**” for adjustment). Note, that even though the SLICER's “chaser” will constantly modify the illumination status of the 8 performance buttons, whenever the **Loop Size** knob is used, the LED chase will be interrupted shortly and the visual feedback will indicate the selected loop size between

1/8, and 8 bars as illustrated by the small labels in the given graphic showing the performance section.

Note that adjusting the **Loop position** is also possible by using the “Loop Position” knob on the VCI, however the SLICER cannot reverse any change done here so as a result the track might resume off beat.

Limitations (Caveat)

This implementation of the SLICER **requires having a MASTER** deck. If there is no MASTER the SLICER does not work, as it will always sync to the MASTER bpm. On the other hand the SLICER can run in parallel on all four decks with different tracks if required.

The implementation is currently based on counting 1/16 bars of the master deck with modifiers. Therefore **loop sizes down to 1/8 beat can be managed** (i.e. a correct return jump can be issued at the end of a sequence), If the loop size is smaller than 1/8 beat, the SLICER will not be able to resume the track correctly.

On my PC he slicer proved to work at 174 bpm when used for **random jumps/resumes**. Using the SLICER by rapidly firing buttons (issuing new jump targets) may cause it to overload. As a result the resuming jump may end off beat and the SLICER may even “hang” in a loop that will need manual release.

It is recommended to have **SNAP** and **QUANT** on, when using the slicer, However, they are not switched on automatically when the SLICER is used.

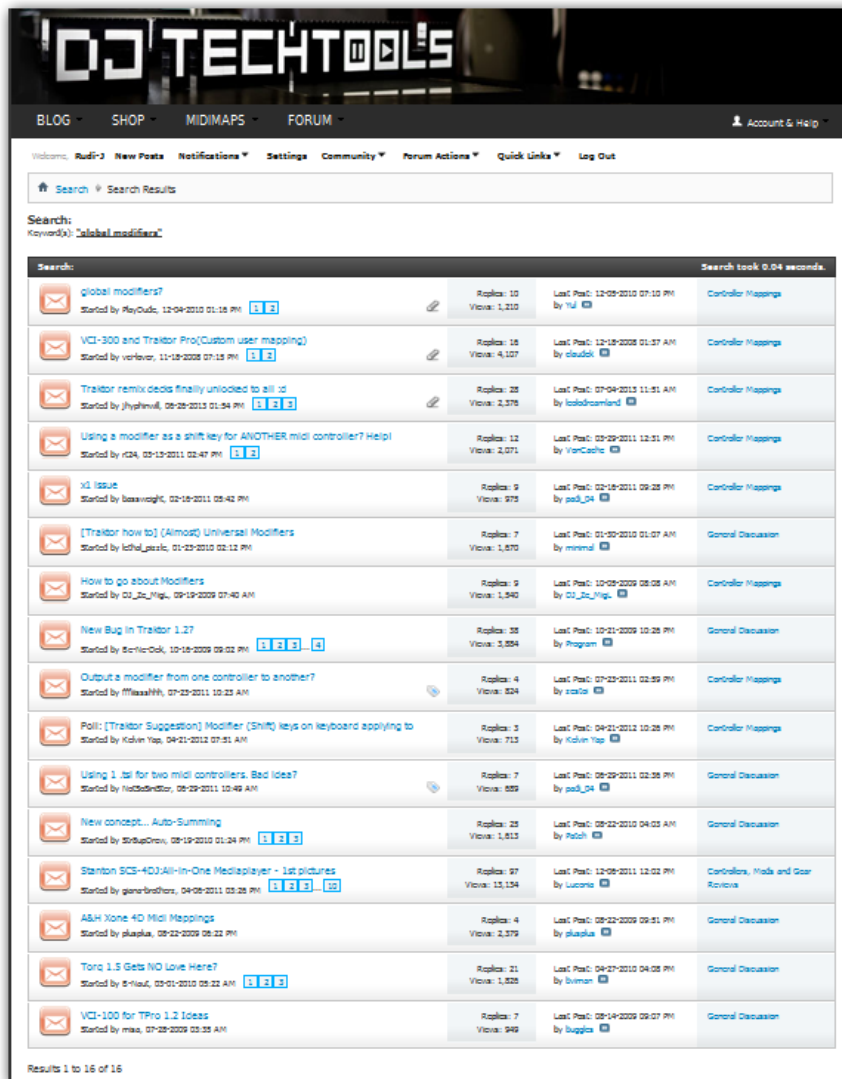
When working with FX-EQ isolation (one track running in Sync on two decks) it is recommended to select the deck that is not to be used with SLICER to become **the master deck**. For additional safety, it is further recommended to choose in TRAKTOR’s options the **beat sync mode**, rather than the tempo sync mode to assure the “resuming” deck will after SLICER was used, really resume in Sync.

Changing the TSI

Note: With 40 device files MIDIOX middleware involved and so many command lines this TSI has become fairly complex. It is quite obvious that going for “quick and dirty” changes in the TSI might cause unwanted side effects.

On the other hand looking out for different effects and effects settings in particular for the GRATIFY and Jog-FX sections should be feasible and safe for anybody who has a basic understanding about how a TSI file is working. I kept the comments for all lines of the original TSI as they were and all my newly or altered lines start with a dot. To change effects setting I recommend to start by sorting the device file by commands and then to lookout for the commands loading the effects and manipulating the effect parameters. Finally seek and identify the correct line(s) by the comment on the right side. Remember you can now resize the TRAKTOR’s controller-editor window to make life easier.

Implementation notes



This paragraph is provided to introduce you to a concept that I call “**Midi Linked Modifiers**” (MLM) throughout the remainder of this manual. There is likelihood that some of the ideas presented aren’t really new to you, as I saw several forum threads on the DJTT forum discussing the multitude of possibilities that open up once MIDI middleware like MIDIOX, Midipipe, Bome’s Midi translator, etc. is layered in-between the MIDI hardware and TRAKTOR. However, so far, at least I haven’t found a blog or post focusing on the three basic theoretical advantages that would emerge from such a setup.

Using MIDIOX for Midi Linked Modifiers (MLMs)

MIDIOX allows defining a routing relationship between MIDI ports regardless whether these ports are belonging to existing MIDI controller hardware or to virtual ports created by the LoopBe utility. This feature gave rise to the concept of so called “Midi Linked Modifiers” (MLMs) where the MIDI

Advantages of MLMs (Midi Linked Modifiers)

- Global modifiers**
 - Communicate value of modifiers from one device assignment table to another in realtime
- TRAKTOR event to modifier**
 - Capture any of TRAKTORs MIDI OUT information into modifiers for further processing
- Sequential processing**
 - Control the sequence of processing of your mapping

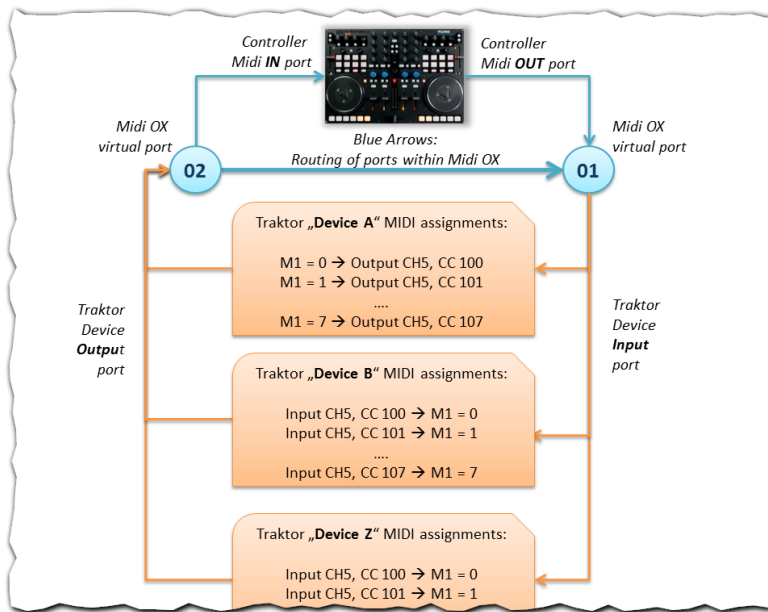
output of any TRAKTOR device MIDI assignment table is rerouted to another (or even the same) MIDI assignment table, enabling three quite fundamental mapping coding options that are not available as native functionality of TRAKTOR coming out of the box.

The following examples will explain these concepts in detail starting out with the global modifiers concept.

Concept of MLMs for implementation of global modifiers

Many TRAKTOR mappers have asked to increase the count of modifiers as the current limitation (just 8 modifiers per device assignment table) is widely regarded as insufficient for implementation of more complex and advanced mapping functionality. MLMs can help you to overcome this limitation, and even help you to achieve a more modular (thus easier to organize and to maintain) design of your TSI file.

To understand the concept, consider below illustration:



The blue arrows indicate, that MIDIOX was used to route the output of the MIDI hardware controller to virtual port 01 and likewise the controllers is expecting input through MIDI port 02. Within TRAKTOR (orange labels and arrows), a generic midi device “device A” exists, that has routed its input to MIDI port 01 and its output to port 02.

Note that any MIDI command issued by the controller will find its way to “Device A” within

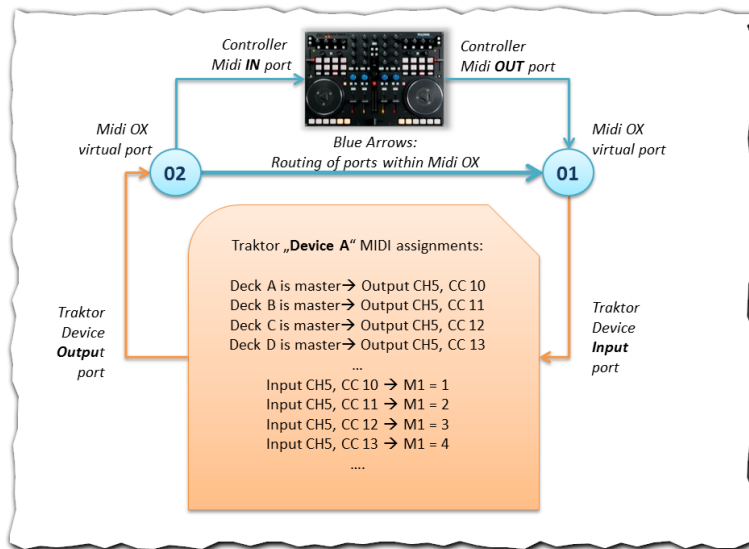
TRAKTOR through the virtual port 01 and also all MIDI output will reach the controller through MIDI port 02. **The interesting aspect here is that any MIDI output being communicated to port 02 will also be echoed to virtual port 01 by MIDIOX** - thus other TRAKTOR devices “listening” to port 01 will also “see” the MIDI output of “Device A”. Let’s assume that within the “Device A” assignment table complex processing is taking place rendering different values in modifier M1. Then, upon each change of M1 a dedicated MIDI control message is sent (in this example Channel 5, CCs 100 ...107 as illustrated above). The only thing that needs to be done in another device assignment table that also scans port 01 is to include MIDI input assignments for CH5, CC 100...107 in order to inherit the current value of M1 from “Device A”. In this example “Device B” as well as “Device C” will share the value of “Device A” modifier M1 in real time using their “private” modifier M1. Thus for these three generic devices M1 has become a global modifier using MLMs.

*Note that this can of course only work out, if the MIDI commands that are planned to be used for inter-device communication are **unused by the involved controller**. Otherwise unintended operation of the controller will occur.*

Concept of MLMs to capture any event into a modifiers

TRAKTOR already supports some conditional processing that is not just based on the values of two modifiers, but allows to include queries on the status of decks or loops etc. However the amount of available logical conditions is very limited. Wouldn’t it be great to allow any of TRAKTOR’s self-

generated events into a MIDI modifier for further enhanced processing? This is what can also be achieved with MLMs as described in this example:



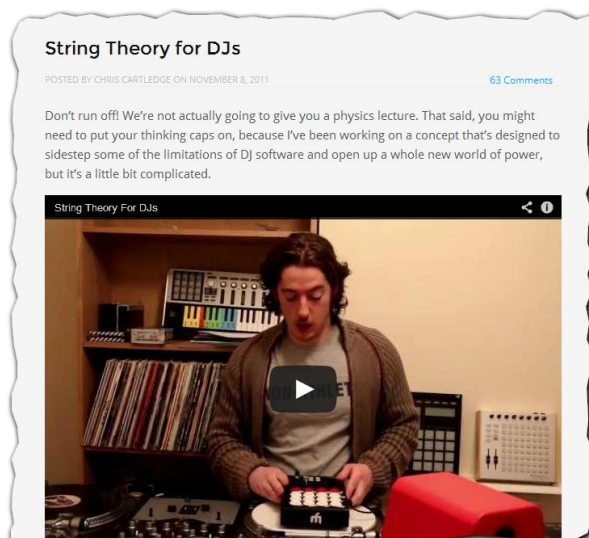
Let's assume you have a plan to create functionality dependent on which deck is currently assigned to be TRAKTOR's "master" deck (as I did in the implementation of the "SLICER" where all processing of any deck is synced to the bpm of the current master no matter which deck it actually is).

To achieve this similar routing as described in the first example is employed. Some MIDI assignments are included in the device

assignment table, that will produce MIDI messages CH5, CC 10..13 depending on which deck is currently the master deck (using syntax as if LEDs would need to be switched on/off). Now - as the output of the device file is rerouted to its input by MIDIOX - the device file just has to read out the MIDI messages into a modifier, which can further on be processed with standard TRAKTOR conditional assignments. In above example, M1 will have the values 1, 2, 3 or 4 depending on whether TRAKTOR's master deck is A, B, C or D respectively.

Concept of MLMs to control the sequence of processing

A fundamental issue and limitation of many complex mappings is the lack of execution sequence control within TRAKTOR. As we still lack a real scripting language for TRAKTOR to overcome this, the only workaround I have seen so far is the string processing workaround or so called "string theory for DJs" published by Chris Cartledge on DJTT in November 2011.

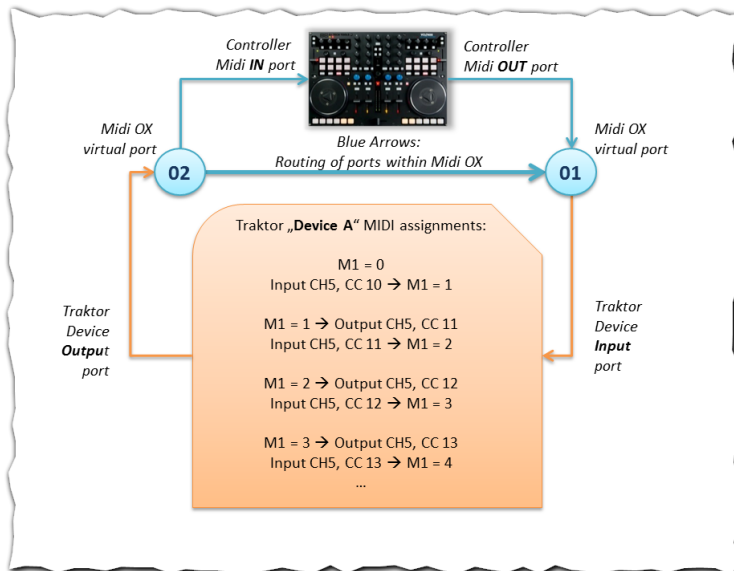


The basic concept here is to use middle ware (like MidiPipe, Bome's Midi Translator Pro edition or MidiOX) in order to issue a pre-defined sequence of MIDI commands with a fixed delay interval from the middle ware to TRAKTOR once a single triggering MIDI command has been received from the controller (i.e receive MIDI CH05, CC 09 in the middleware, then send

- CH05 CC 10,
- CH05 CC 11,
- CH05 CC 12,
- CH 05 CC 13,...

all CCs being sent out with a small delay, so that TRAKTOR can adjust its timing and get ready to process CC 10 after CC 09 is done and so forth.

Even though I also use the string concept in my mapping (for instance for the installation of presets for the JOG-FX functionality) I noticed that for the implementation of the “SLICER” it became too difficult to come up with “as short as possible” delays between the commands so I turned to MLMs instead following below illustrated concept:



Let’s assume a tight sequence of commands needs to be executed in a defined order (i.e. in the SLICER to manage beat jumps at arbitrary length). Imagine the sequence of commands should start once the controller sends a CH 5, CC 10 MIDI command. In this mapping this would cause M1 to be set to 1 and instantly causing a MIDI out CH5 CC 11. As this in turn is echoed back to the devices MIDI input, it will trigger M1 to be set to 2, which causes CH5 CC 12 to be emitted and so forth.

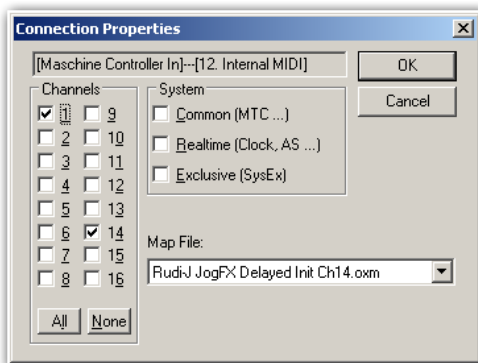
Basically what happens is that the modifier will rapidly change its value from 1 to 2 to 3 and so forth, with just the maximum speed your TRAKTOR implementation on your computer can possibly achieve. Thus the delay between receiving the sequence of the commands CH05 CC 10, CH05 CC 11, CH05 CC 12, CH05 CC 13... will hence automatically be the smallest possible on your given machine. The trick to sequence the targeted commands is like in the string theory: issue the first beat jump on CH5 CC10, the second on CH5 CC11 etc., the difference is though that the delay time is “self-adjusted” by TRAKTOR and therefore a bit safer than the “static” delays of the string approach - at least in my experience.

Understanding the capabilities of MIDIOX mapping

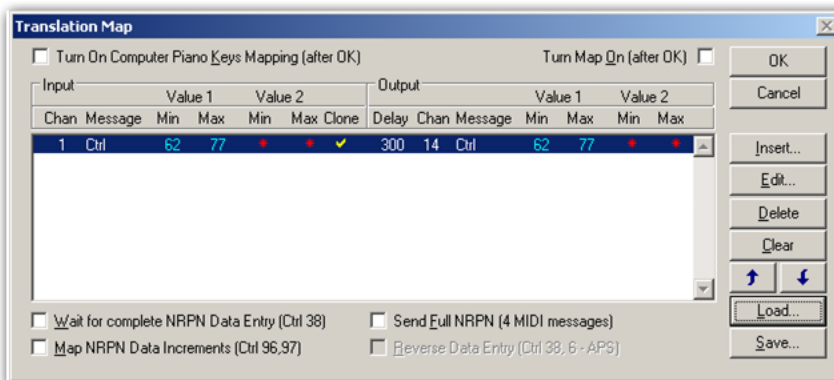


To achieve MLM functionality for a couple of TRAKTOR devices a fairly complex routing of real and virtual MIDI ports has been generated with MIDIOX. Within this concept, the 16 virtual MIDI ports provided by LoopBe32 are used partly as inputs and outputs.

What makes things even more complex (but powerful) is that apart from just routing MIDI ports, MIDIOX can also perform **filtering** and **processing** of MIDI commands on CH and parameter level. In the shown illustration, directly captured from MIDIOX, the port connections include small boxes, which do sometimes show small green dots.



When present, these do indicate that the MIDI traffic along the particular route is filtered and processed. To see the individual setting for a particular connection, just right click the connection and choose “properties” in the context menu. Then a dialog box will appear showing which MIDI channels and MIDI System commands are actually transferred (checked) on this connection – in this example the connection between MASCHINE’s controller and virtual Midi port 12.

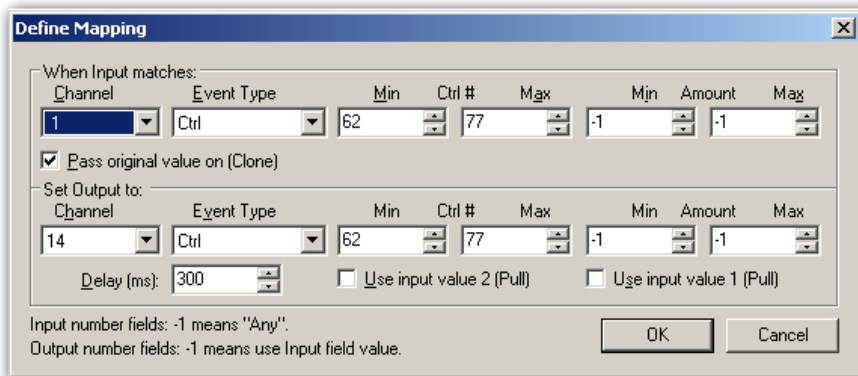


In the given example the MIDIOX translation map file “Rudi-J JogFX Delayed Init Ch14.oxm” is exclusively only active on this connection. Of course this map file can be edited and the graphic below, shows what’s inside. Obviously this map

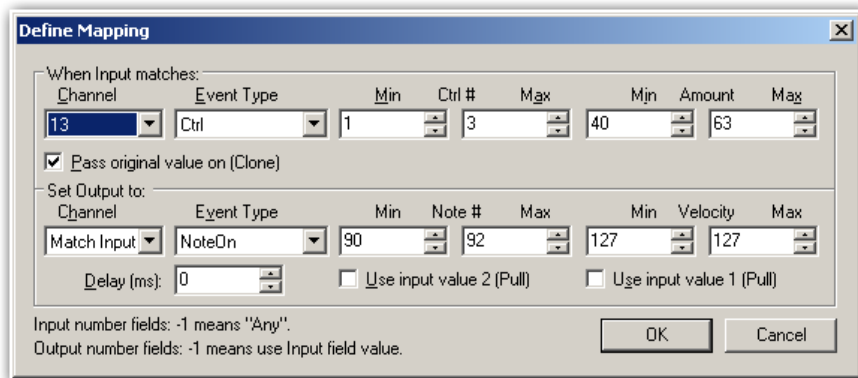
contains just one command line.

Let’s have a closer look and click on “Edit” to see the definition of this command line:

When the input on MIDI channel 1 happens to be a CC command between 62 and 77 with any secondary value, the command is cloned (=routed through), and 300ms later MIDIOX will issue an identical CC on channel 14.

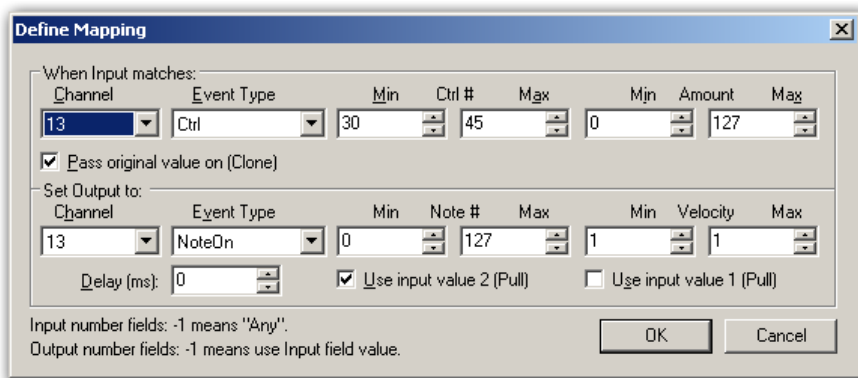


Another example of what can be achieved within MIDIOX shows the following example:



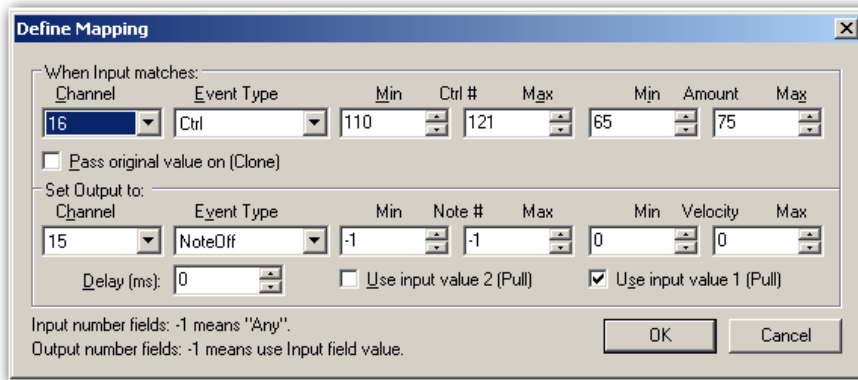
Here incoming CC MIDI on channel 13 between CC 1 and CC 3 will generate a NoteOn command on channels 90 to 92 respectively, but only if the parameter of the CC commands is between 40 and 63. Actually this command is part of the Superknob implementation in order to switch on a FX when the value of the FX knob is in a particular range.

The next example shows how incoming MIDI CC between CC 30 and CC 45 on channel 13 is turned into a NoteOn command on channel 13 for a note parameter actually being retrieved by the incoming CC parameter 2 (=“Pull” in MIDIOX terminology).



For example, this would mean if a **CH 13 CC 32-105** is coming in, MIDIOX will clone that command and additionally issue a **CH 13 NoteOn 105** command, which in traditional notation is actually identical to **CH 13 NoteOn “A7”**

Likewise incoming parameter 1 may also be used for MIDI transformations as the next example shows:



Here the incoming CC commands 110-121 on channel 16 with parameter values between 65 and 75 are replaced by a NoteOff command on channel 15 for a note that is retrieved from parameter 2 of the

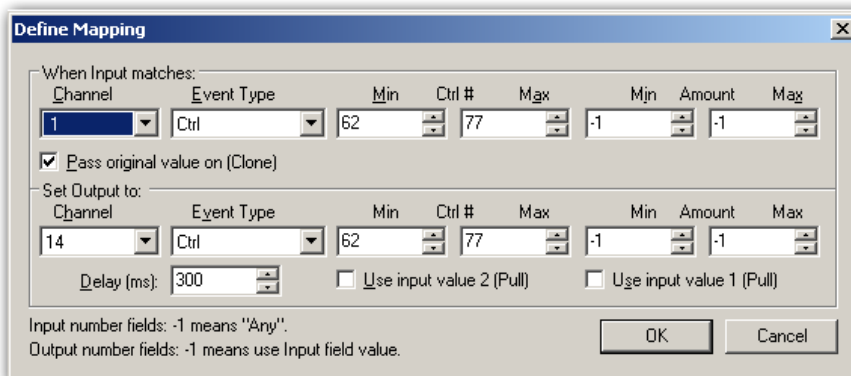
incoming CC.

In fact a whole lot of transformations are possible and the nice thing about MIDIOX is that it almost involves no latency. For documentation of the specific transformations included in the MIDIOX transformation map files used in this mapping, the following syntax is used.

Example:

Rudi-J JogFX Delayed Init Ch14 (Ascii)

INPUT							OUTPUT							
Chan	Message	Value 1		Value 2		Clone	Delay	Chan	Message	Value 1		Value 2		
		Min	Max	Min	Max					Min	Max	Min	Max	
1	Ctrl	62	77	*	*	Y	300	14	Ctrl	62	77	*	*	



The table above summarizes the translations settings of our first example. This file has just one line, others have more.

The interpretation and meaning of columns in

the table is straightforward. The "-1" Value is replaced by an asterisk in the table ("*" means "Any")

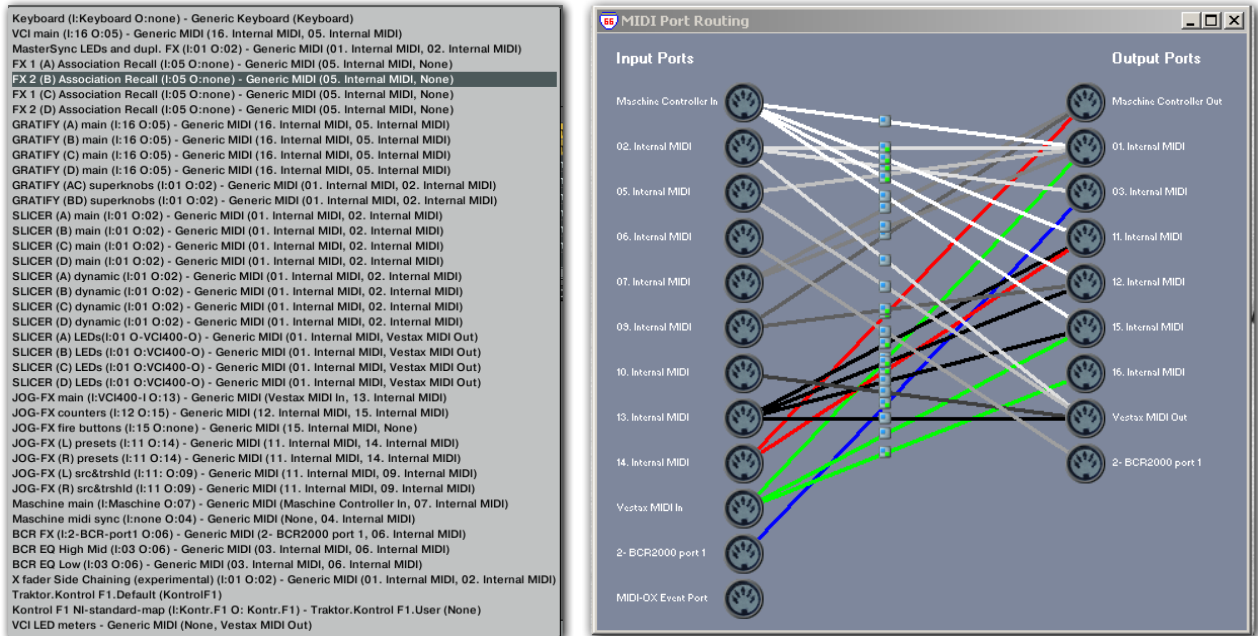
A special character at the end of the line in the tables will indicate if "use input value" 1 or 2 was checked:

- Empty: use input value 1 or 2 not clicked
- ">": use **input value 1** was checked
- "<": use **input value 2** was checked

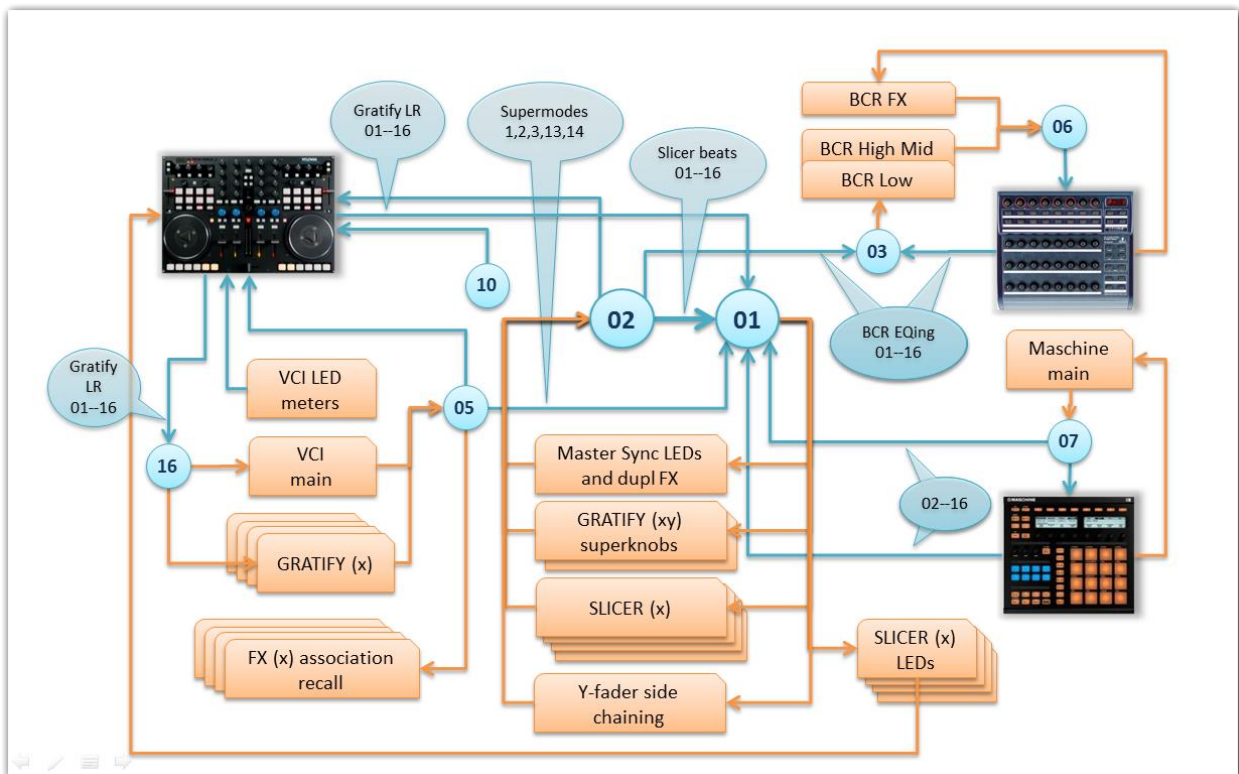
Now that we are ready to understand MIDIOX's mapping routing including it's abilities for filtering and transformation of MIDI traffic, we can have a closer look of how the TRAKTOR device files are actually taking advantage of the intelligent routing provided by MIDIOX.

Routing of ELEPHANT TRAKTOR device files and MIDI ports

As it is quite difficult to really understand the relationship of **TRAKTOR's devices** representing the ELEPHANT mapping and the MIDI port assignments by just studying these two illustrations...



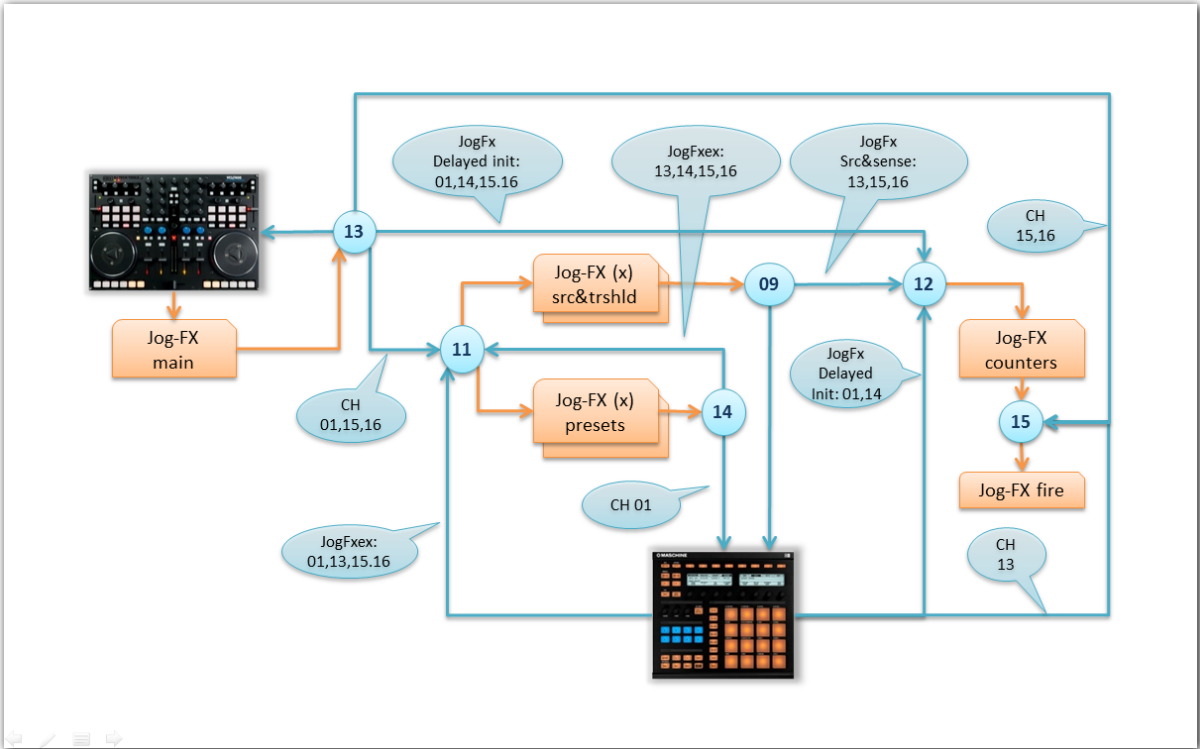
... an alternative representation of what is going on is therefore provided in this documentation:



Comparable to the leading explanation of the MLM functionality, in above illustration all blue objects represent MIDI ports maintained and routed by MIDIOX, whereas the orange boxes represent

TRAKTOR devices and associated MIDI I/O port assignment. The blue callouts indicate which MIDIOX translation map is associated and which MIDI channels are actually used on a particular MIDI connection (a missing callout means: all channels routed through by default). "Supermodes 1, 2, 3, 13, 14" for instance indicates that on the connection between port 05 and 01 all MIDI traffic except channels 1, 2, 3, 13 and 14 is filtered out and that the remaining traffic is processed by the MIDI translation map "Rudi-J Supermodes".

Above illustration is limited to show the MIDI traffic around the two most important MIDI ports 01 and 02 involving the VCI, MASCHINE and the BCR for implementation of the majority of functionality of the ELEPHANT mapping. In addition to that the **JOG-FX functionality** is supported by below illustrated TRAKTOR devices and MIDI routings:



The ELEPHANT TRAKTOR device files and midi assignments

Based on the concepts and illustrations discussed so far we are now ready to look at the individual TRAKTOR devices harboring the MIDI assignment tables that represent the foundation of the ELEPHANT mapping.

Each device file will be discussed outlining its **design concept** and its **use of modifiers**. In case MIDIOX **transformation mappings** are relevant for understanding, these will be listed as well.

However, please understand and accept that in this documentation explanations must remain on a fairly general level in order to allow first of all introducing the general concepts of implementation. To really fully understand the TSI file, of course the individual MIDI assignments have to be reviewed in TRAKTOR “line by line” as usual.

02. VCI main (I: 16; O: 05)

This TRAKTOR device holds the majority of the functionality that is available on the VCI-400SE except of the SLICER, JogFX, and GRATIFY functionality implemented by other TRAKTOR device files.

Input is routed via MIDI port 16 and transformed by “Gratify LR”, but actually only the below shown transformations lines are relevant for the “VCI main” generic device.

Rudi-J Gratify LR (excerpt)

INPUT								OUTPUT					
Chan	Message	Value 1		Value 2		Clone	Delay	Chan	Message	Value 1		Value 2	
		Min	Max	Min	Max					Min	Max	Min	Max
				
2	NoteOn	41	72	127	127	Y	0	*	*	96	127	0	0
2	NoteOn	41	72	0	0	Y	0	*	NoteOn	96	127	127	127
3	NoteOn	41	72	127	127	Y	0	*	*	96	127	0	0
3	NoteOn	41	72	0	0	Y	0	*	NoteOn	96	127	127	127
5	NoteOn	41	72	127	127	Y	0	*	*	96	127	0	0
5	NoteOn	41	72	0	0	Y	0	*	NoteOn	96	127	127	127
6	NoteOn	41	72	127	127	Y	0	*	*	96	127	0	0
6	NoteOn	41	72	0	0	Y	0	*	NoteOn	96	127	127	127
8	NoteOn	41	72	127	127	Y	0	*	*	96	127	0	0
8	NoteOn	41	72	0	0	Y	0	*	NoteOn	96	127	127	127
9	NoteOn	41	72	127	127	Y	0	*	*	96	127	0	0
9	NoteOn	41	72	0	0	Y	0	*	NoteOn	96	127	127	127
11	NoteOn	41	72	127	127	Y	0	*	*	96	127	0	0
11	NoteOn	41	72	0	0	Y	0	*	NoteOn	96	127	127	127
12	NoteOn	41	72	127	127	Y	0	13	*	96	127	0	0
12	NoteOn	41	72	0	0	Y	0	13	NoteOn	96	127	127	127
				

Above syntax is targeting the performance buttons of the VCI, which on the original firmware, will send out 3 consecutive MIDI notes when pressed. By the given map file MIDI OX will duplicate, invert and transform the last two of them on channels 2, 3, 5, 6, 8, 9, 11 and 12 between note F2 (=41) and note C5 (=72) up to a higher range on the same channel (except CH 12) starting at note C7 (=96) and ending at note G9 (=127). The effect of this is that actually all performance buttons of decks A, B, C and D will send two consecutive MIDI notes upon release of the button.

In this map it is illustrated where the original buttons of the performance section are located. Syntax:

- Gt stands for GATER
- Cu stands for HOTCUE
- Gd stands for GRID
- Sl stands for SLICER

Performance buttons are numbered 1, ...,8 and the number after the dot represents the first, second or third consecutive MIDI command that was issued for the deck. Example: “B Cu B3.2” means: HOTCUE button number two of performance section deck B, the second of three consecutive MIDI note commands that are sent out from the VCI-400SE.

Par.2	= Note	Ch 1	Ch 2	Ch 3	Ch 4	Ch 5	Ch 6	Ch 7	Ch 8	Ch 9	Ch 10	Ch 11	Ch 12
42	F# 2	A Gt B1.1	A Gt B1.2	A Gt B1.3	B Gt B1.1	B Gt B1.2	B Gt B1.3	C Gt B1.1	C Gt B1.2	C Gt B1.3	D Gt B1.1	D Gt B1.2	D Gt B1.3
43	G 2	A Cu B1.1	A Cu B1.2	A Cu B1.3	B Cu B1.1	B Cu B1.2	B Cu B1.3	C Cu B1.1	C Cu B1.2	C Cu B1.3	D Cu B1.1	D Cu B1.2	D Cu B1.3
44	G# 2	A Gd B1.1	A Gd B1.2	A Gd B1.3	B Gd B1.1	B Gd B1.2	B Gd B1.3	C Gd B1.1	C Gd B1.2	C Gd B1.3	D Gd B1.1	D Gd B1.2	D Gd B1.3
45	A 2	A Sl B2.1	A Sl B2.2	A Sl B2.3	B Sl B2.1	B Sl B2.2	B Sl B2.3	C Sl B2.1	C Sl B2.2	C Sl B2.3	D Sl B2.1	D Sl B2.2	D Sl B2.3
46	Bb 2	A Gt B2.1	A Gt B2.2	A Gt B2.3	B Gt B2.1	B Gt B2.2	B Gt B2.3	C Gt B2.1	C Gt B2.2	C Gt B2.3	D Gt B2.1	D Gt B2.2	D Gt B2.3
47	B 2	A Cu B2.1	A Cu B2.2	A Cu B2.3	B Cu B2.1	B Cu B2.2	B Cu B2.3	C Cu B2.1	C Cu B2.2	C Cu B2.3	D Cu B2.1	D Cu B2.2	D Cu B2.3
48	C 3	A Gd B2.1	A Gd B2.2	A Gd B2.3	B Gd B2.1	B Gd B2.2	B Gd B2.3	C Gd B2.1	C Gd B2.2	C Gd B2.3	D Gd B2.1	D Gd B2.2	D Gd B2.3
49	C# 3	A Sl B3.1	A Sl B3.2	A Sl B3.3	B Sl B3.1	B Sl B3.2	B Sl B3.3	C Sl B3.1	C Sl B3.2	C Sl B3.3	D Sl B3.1	D Sl B3.2	D Sl B3.3
50	D 3	A Gt B3.1	A Gt B3.2	A Gt B3.3	B Gt B3.1	B Gt B3.2	B Gt B3.3	C Gt B3.1	C Gt B3.2	C Gt B3.3	D Gt B3.1	D Gt B3.2	D Gt B3.3
51	Eb 3	A Cu B3.1	A Cu B3.2	A Cu B3.3	B Cu B3.1	B Cu B3.2	B Cu B3.3	C Cu B3.1	C Cu B3.2	C Cu B3.3	D Cu B3.1	D Cu B3.2	D Cu B3.3
52	E 3	A Gd B3.1	A Gd B3.2	A Gd B3.3	B Gd B3.1	B Gd B3.2	B Gd B3.3	C Gd B3.1	C Gd B3.2	C Gd B3.3	D Gd B3.1	D Gd B3.2	D Gd B3.3
53	F 3	A Sl B4.1	A Sl B4.2	A Sl B4.3	B Sl B4.1	B Sl B4.2	B Sl B4.3	C Sl B4.1	C Sl B4.2	C Sl B4.3	D Sl B4.1	D Sl B4.2	D Sl B4.3
54	F# 3	A Gt B4.1	A Gt B4.2	A Gt B4.3	B Gt B4.1	B Gt B4.2	B Gt B4.3	C Gt B4.1	C Gt B4.2	C Gt B4.3	D Gt B4.1	D Gt B4.2	D Gt B4.3
55	G 3	A Cu B4.1	A Cu B4.2	A Cu B4.3	B Cu B4.1	B Cu B4.2	B Cu B4.3	C Cu B4.1	C Cu B4.2	C Cu B4.3	D Cu B4.1	D Cu B4.2	D Cu B4.3
56	G# 3	A Gd B4.1	A Gd B4.2	A Gd B4.3	B Gd B4.1	B Gd B4.2	B Gd B4.3	C Gd B4.1	C Gd B4.2	C Gd B4.3	D Gd B4.1	D Gd B4.2	D Gd B4.3
57	A 3	A Sl B5.1	A Sl B5.2	A Sl B5.3	B Sl B5.1	B Sl B5.2	B Sl B5.3	C Sl B5.1	C Sl B5.2	C Sl B5.3	D Sl B5.1	D Sl B5.2	D Sl B5.3
58	Bb 3	A Gt B5.1	A Gt B5.2	A Gt B5.3	B Gt B5.1	B Gt B5.2	B Gt B5.3	C Gt B5.1	C Gt B5.2	C Gt B5.3	D Gt B5.1	D Gt B5.2	D Gt B5.3
59	B 3	A Cu B5.1	A Cu B5.2	A Cu B5.3	B Cu B5.1	B Cu B5.2	B Cu B5.3	C Cu B5.1	C Cu B5.2	C Cu B5.3	D Cu B5.1	D Cu B5.2	D Cu B5.3
60	C 4	A Gd B5.1	A Gd B5.2	A Gd B5.3	B Gd B5.1	B Gd B5.2	B Gd B5.3	C Gd B5.1	C Gd B5.2	C Gd B5.3	D Gd B5.1	D Gd B5.2	D Gd B5.3
61	C# 4	A Sl B6.1	A Sl B6.2	A Sl B6.3	B Sl B6.1	B Sl B6.2	B Sl B6.3	C Sl B6.1	C Sl B6.2	C Sl B6.3	D Sl B6.1	D Sl B6.2	D Sl B6.3
62	D 4	A Gt B6.1	A Gt B6.2	A Gt B6.3	B Gt B6.1	B Gt B6.2	B Gt B6.3	C Gt B6.1	C Gt B6.2	C Gt B6.3	D Gt B6.1	D Gt B6.2	D Gt B6.3
63	Eb 4	A Cu B6.1	A Cu B6.2	A Cu B6.3	B Cu B6.1	B Cu B6.2	B Cu B6.3	C Cu B6.1	C Cu B6.2	C Cu B6.3	D Cu B6.1	D Cu B6.2	D Cu B6.3
64	E 4	A Gd B6.1	A Gd B6.2	A Gd B6.3	B Gd B6.1	B Gd B6.2	B Gd B6.3	C Gd B6.1	C Gd B6.2	C Gd B6.3	D Gd B6.1	D Gd B6.2	D Gd B6.3
65	F 4	A Sl B7.1	A Sl B7.2	A Sl B7.3	B Sl B7.1	B Sl B7.2	B Sl B7.3	C Sl B7.1	C Sl B7.2	C Sl B7.3	D Sl B7.1	D Sl B7.2	D Sl B7.3
66	F# 4	A Gt B7.1	A Gt B7.2	A Gt B7.3	B Gt B7.1	B Gt B7.2	B Gt B7.3	C Gt B7.1	C Gt B7.2	C Gt B7.3	D Gt B7.1	D Gt B7.2	D Gt B7.3
67	G 4	A Cu B7.1	A Cu B7.2	A Cu B7.3	B Cu B7.1	B Cu B7.2	B Cu B7.3	C Cu B7.1	C Cu B7.2	C Cu B7.3	D Cu B7.1	D Cu B7.2	D Cu B7.3
68	G# 4	A Gd B7.1	A Gd B7.2	A Gd B7.3	B Gd B7.1	B Gd B7.2	B Gd B7.3	C Gd B7.1	C Gd B7.2	C Gd B7.3	D Gd B7.1	D Gd B7.2	D Gd B7.3
69	A 4	A Sl B8.1	A Sl B8.2	A Sl B8.3	B Sl B8.1	B Sl B8.2	B Sl B8.3	C Sl B8.1	C Sl B8.2	C Sl B8.3	D Sl B8.1	D Sl B8.2	D Sl B8.3
70	Bb 4	A Gt B8.1	A Gt B8.2	A Gt B8.3	B Gt B8.1	B Gt B8.2	B Gt B8.3	C Gt B8.1	C Gt B8.2	C Gt B8.3	D Gt B8.1	D Gt B8.2	D Gt B8.3
71	B 4	A Cu B8.1	A Cu B8.2	A Cu B8.3	B Cu B8.1	B Cu B8.2	B Cu B8.3	C Cu B8.1	C Cu B8.2	C Cu B8.3	D Cu B8.1	D Cu B8.2	D Cu B8.3
72	C 5	A Gd B8.1	A Gd B8.2	A Gd B8.3	B Gd B8.1	B Gd B8.2	B Gd B8.3	C Gd B8.1	C Gd B8.2	C Gd B8.3	D Gd B8.1	D Gd B8.2	D Gd B8.3

As explained before the effect of the transformation by “GRATIFY LR” is that the following additional MIDI notes are sent (using before unused MIDI notes on the VCI400SE) **upon release** of the performance buttons:

Par.2	= Note	Ch 2	Ch 3	Ch 4	Ch 5	Ch 6	Ch 7	Ch 8	Ch 9	Ch 10	Ch 11	Ch 12	Ch 13
96	C 7	A SI B1.1	A SI B1.2		B SI B1.1	B SI B1.2		C SI B1.1	C SI B1.2		D SI B1.1		D SI B1.2
97	C# 7	A Gt B1.1	A Gt B1.2		B Gt B1.1	B Gt B1.2		C Gt B1.1	C Gt B1.2		D Gt B1.1		D Gt B1.2
98	D 7	A Cu B1.1	A Cu B1.2		B Cu B1.1	B Cu B1.2		C Cu B1.1	C Cu B1.2		D Cu B1.1		D Cu B1.2
99	Eb 7	A Gd B1.1	A Gd B1.2		B Gd B1.1	B Gd B1.2		C Gd B1.1	C Gd B1.2		D Gd B1.1		D Gd B1.2
100	E 7	A SI B2.1	A SI B2.2		B SI B2.1	B SI B2.2		C SI B2.1	C SI B2.2		D SI B2.1		D SI B2.2
101	F 7	A Gt B2.1	A Gt B2.2		B Gt B2.1	B Gt B2.2		C Gt B2.1	C Gt B2.2		D Gt B2.1		D Gt B2.2
102	F# 7	A Cu B2.1	A Cu B2.2		B Cu B2.1	B Cu B2.2		C Cu B2.1	C Cu B2.2		D Cu B2.1		D Cu B2.2
103	G 7	A Gd B2.1	A Gd B2.2		B Gd B2.1	B Gd B2.2		C Gd B2.1	C Gd B2.2		D Gd B2.1		D Gd B2.2
104	G# 7	A SI B3.1	A SI B3.2		B SI B3.1	B SI B3.2		C SI B3.1	C SI B3.2		D SI B3.1		D SI B3.2
105	A 7	A Gt B3.1	A Gt B3.2		B Gt B3.1	B Gt B3.2		C Gt B3.1	C Gt B3.2		D Gt B3.1		D Gt B3.2
106	Bb 7	A Cu B3.1	A Cu B3.2		B Cu B3.1	B Cu B3.2		C Cu B3.1	C Cu B3.2		D Cu B3.1		D Cu B3.2
107	B 7	A Gd B3.1	A Gd B3.2		B Gd B3.1	B Gd B3.2		C Gd B3.1	C Gd B3.2		D Gd B3.1		D Gd B3.2
108	C 8	A SI B4.1	A SI B4.2		B SI B4.1	B SI B4.2		C SI B4.1	C SI B4.2		D SI B4.1		D SI B4.2
109	C# 8	A Gt B4.1	A Gt B4.2		B Gt B4.1	B Gt B4.2		C Gt B4.1	C Gt B4.2		D Gt B4.1		D Gt B4.2
110	D 8	A Cu B4.1	A Cu B4.2		B Cu B4.1	B Cu B4.2		C Cu B4.1	C Cu B4.2		D Cu B4.1		D Cu B4.2
111	Eb 8	A Gd B4.1	A Gd B4.2		B Gd B4.1	B Gd B4.2		C Gd B4.1	C Gd B4.2		D Gd B4.1		D Gd B4.2
112	E 8	A SI B5.1	A SI B5.2		B SI B5.1	B SI B5.2		C SI B5.1	C SI B5.2		D SI B5.1		D SI B5.2
113	F 8	A Gt B5.1	A Gt B5.2		B Gt B5.1	B Gt B5.2		C Gt B5.1	C Gt B5.2		D Gt B5.1	Browser	D Gt B5.2
114	F# 8	A Cu B5.1	A Cu B5.2		B Cu B5.1	B Cu B5.2		C Cu B5.1	C Cu B5.2		D Cu B5.1		D Cu B5.2
115	G 8	A Gd B5.1	A Gd B5.2		B Gd B5.1	B Gd B5.2		C Gd B5.1	C Gd B5.2		D Gd B5.1		D Gd B5.2
116	G# 8	A SI B6.1	A SI B6.2		B SI B6.1	B SI B6.2		C SI B6.1	C SI B6.2		D SI B6.1		D SI B6.2
117	A 8	A Gt B6.1	A Gt B6.2		B Gt B6.1	B Gt B6.2		C Gt B6.1	C Gt B6.2		D Gt B6.1		D Gt B6.2
118	Bb 8	A Cu B6.1	A Cu B6.2		B Cu B6.1	B Cu B6.2		C Cu B6.1	C Cu B6.2		D Cu B6.1		D Cu B6.2
119	B 8	A Gd B6.1	A Gd B6.2		B Gd B6.1	B Gd B6.2		C Gd B6.1	C Gd B6.2		D Gd B6.1		D Gd B6.2
120	C 9	A SI B7.1	A SI B7.2		B SI B7.1	B SI B7.2		C SI B7.1	C SI B7.2		D SI B7.1		D SI B7.2
121	C# 9	A Gt B7.1	A Gt B7.2		B Gt B7.1	B Gt B7.2		C Gt B7.1	C Gt B7.2		D Gt B7.1		D Gt B7.2
122	D 9	A Cu B7.1	A Cu B7.2		B Cu B7.1	B Cu B7.2		C Cu B7.1	C Cu B7.2		D Cu B7.1		D Cu B7.2
123	Eb 9	A Gd B7.1	A Gd B7.2		B Gd B7.1	B Gd B7.2		C Gd B7.1	C Gd B7.2		D Gd B7.1		D Gd B7.2
124	E 9	A SI B8.1	A SI B8.2		B SI B8.1	B SI B8.2		C SI B8.1	C SI B8.2		D SI B8.1		D SI B8.2
125	F 9	A Gt B8.1	A Gt B8.2		B Gt B8.1	B Gt B8.2		C Gt B8.1	C Gt B8.2		D Gt B8.1		D Gt B8.2
126	F# 9	A Cu B8.1	A Cu B8.2		B Cu B8.1	B Cu B8.2		C Cu B8.1	C Cu B8.2		D Cu B8.1		D Cu B8.2
127	G 9	A Gd B8.1	A Gd B8.2		B Gd B8.1	B Gd B8.2		C Gd B8.1	C Gd B8.2		D Gd B8.1		D Gd B8.2

The effect and result is that any performance button activity will not only produce 3 consecutive MIDI notes when pressing a button, but also two consecutive commands when buttons are released. This feature is extensively used in the SLICER, the GRID and the GRATIFY section. In the “VCI main” device file it is only the GRID that takes advantage of that ability.

Modifier usage:

Modifier	Value	MLM activity	Description
1	1	to “FX (x) association recall” via CH1 Note D2	Deck A selected on VCI
1	2	to “FX (x) association recall” via CH1 Note D#2	Deck C selected on VCI
2	1	to “FX (x) association recall” via CH2 Note D2	Deck B selected on VCI
2	2	to “FX (x) association recall” via CH2 Note D#2	Deck D selected on VCI
3			Not used
4			Not used
5	0	to “GRATFY (AC) Superknobs” via CH13 CC 88	Left FX area is in FX mode; Right FX area is in FX mode
5	1	to “GRATFY (AC) Superknobs” via CH13 CC 88	Left FX area is in FX mode; Right FX area is in Sample Deck mode
5	2	to “GRATFY (BD) Superknobs” via CH14 CC 88	Left FX area is in Sample Deck mode; Right FX area is in FX mode
5	3	to “GRATFY (BD) Superknobs” via CH14 CC 88	Both FX areas are in Sample Deck mode
6	0..7		Count of buttons pressed when in GRID of deck A or deck C
7	0..7		Count of buttons pressed when in GRID of deck B or deck D
8	0		Main shift released
8	1		Main shift pressed
8	2		Browser button pressed
8	6		Shift-L pressed
8	7		Shift-R pressed

The majority of functionality in “VCI main” – even though it might by a lot - is mapped by straight forward TRAKTOR syntax according to standard concepts and therefore not discussed in more detail here. It includes the EQ, Gains, Volumes, X-Fader, Monitor, Transport, Flux, Deck selection and screen views, FX routing including pre- and post-fader control, sample decks, the loop recorder, browser, deck loading, sync, master, HOTCUES and the GRID. The concept of the GRID implementation is to count depressed buttons in a modifier and then to alter the FX parameter setting of the beatslicer effect accordingly. The static mode of the SLICER is partly also implemented here using TRAKTOR’s legacy “Jump to active cue point (quantized)” command.

03. Master Sync LEDs and Dupl. FX (I: 01; O: 02)

CC	CH 3
52	Master A
53	Master B
54	Master C
55	Master D
56	Sync A
57	Sync B
58	Sync C
59	Sync D

This TRAKTOR device is controlling the **Master/Sync LED feedback** on the VCI using the MLM working principle. It also controls the **duplicate FX functionality** of the Jog-FX presets available on MASCHINE throughout the knob pages for jog control. Incoming MIDI from the VCI-400SE is transformed by the MIDIOX file “GRATIFY LR” on its way to MIDI port 01. Furthermore the device also emits EQ values and EQ kill status via CH 15 and 16 towards devices “**BCR EQ High Mid**” and “**BCR EQ Low**”.

Modifiers 1, 2, 3 and 4 are reflecting the master- and modifiers 5, 6, 7 and 8 the sync status of decks A, B, C and D respectively:

Modifier usage:

Modifier	Value	MLM activity	Description
1	1/0	Echoed from TRAKTOR “Set Tempo Master” command via CH3 CC 52	Deck A is / is not tempo master
2	1/0	Echoed from TRAKTOR “Set Tempo Master” command via CH3 CC 53	Deck B is / is not tempo master
3	1/0	Echoed from TRAKTOR “Set Tempo Master” command via CH3 CC 54	Deck C is / is not tempo master
4	1/0	Echoed from TRAKTOR “Set Tempo Master” command via CH3 CC 55	Deck D is / is not tempo master
5	1/0	Echoed from TRAKTOR “Set Tempo Master” command via CH3 CC 56	Sync deck A is ON / off
6	1/0	Echoed from TRAKTOR “Set Tempo Master” command via CH3 CC 57	Sync deck B is ON / off
7	1/0	Echoed from TRAKTOR “Set Tempo Master” command via CH3 CC 58	Sync deck C is ON / off
8	1/0	Echoed from TRAKTOR “Set Tempo Master” command via CH3 CC 59	Sync deck D is ON / off

Status of deck's master/sync button	Master	Sync
Button is constantly dark	off	off
Button is constantly lit	off	On
Button is blinking acc. to bpm with long dark period	On	off
Button is blinking acc. to bpm with long lit period	On	On

Then three different TRAKTOR “OUT” commands per deck, targeting a decks physical LEDs on the VCI, finally manage the effect previously described: In the following example let’s consider deck A’s master/sync LED:

If M1 = 0, just show the Sync Status via “OUT” command.

If M1 =1, use Beat Phase OUT command to blink with long dark intervals if sync is off (M5 = 0).

If M1 =1, use Beat Phase OUT command to blink with long lit period if sync is ON (M5 = 1).

Another function of this device is to prepare implementing the duplicate FX for the JogFX functionality. To dos so upon any change of the

CC	CH 3	CH 4	CH 5	CH 6
26	FX 1 Mode for FX3			FX 1 Mode for FX4
27	FX 1.1 Sel for FX3			FX 1.1 Sel for FX4
28	FX 1.2 Sel for FX3			FX 1.2 Sel for FX4
29	FX 1.3 Sel for FX3			FX 1.3 Sel for FX4
30	FX 2 Mode for FX3			FX 2 Mode for FX4
31	FX 2.1 Sel for FX3			FX 2.1 Sel for FX4
32	FX 2.2 Sel for FX3			FX 2.2 Sel for FX4
33	FX 2.3 Sel for FX3			FX 2.3 Sel for FX4

CC	Ch 16
110	High Adjust A
111	High Adjust B
112	High Adjust C
113	High Adjust D
114	Mid Adjust A
115	Mid Adjust B
116	Mid Adjust C
117	Mid Adjust D
118	Low Adjust A
119	Low Adjust B
120	Low Adjust C
121	Low Adjust D

selected FX in unit 1 and 2 (including changing of FX modes) MIDI output will be sent to shown CH/CCs. The devices “Jog-FX Presets (x)” will read and use that information if in duplicate FX mode to load FX units 3 or 4 with namely this information.

The table on the left shows the output of “Master Sync LEDs and Dupl. FX” for the current values of the High, Mid and Low adjustments of all decks. This information is used as MLM in the devices “BCR High Mid” and “BCR Low”. For more information on that, see chapter “36. BCR High Mid”.

Note that all these MIDI out commands involved are using “void” MIDI space on the VCI-400SE.

04. FX1 (A) Association Recall (I: 05; O: none)

This device has no MIDI out and only receives preprocessed MIDI information from device “VCI main”. It will manage to memorize the effect association of FX1 for all decks, when the VCI is switched between deck A and C.

Par.2	= Note	Ch 3	Ch 4	Ch 5	Ch 6
3	Eb-1 (D#-1)	A Rt FX1	B Rt FX1	C Rt FX1	D Rt FX1
4	E-1	A Rt FX2	B Rt FX2	C Rt FX2	D Rt Fx2

To accomplish that it uses the MIDI information from “VCI main” that was originally intended to control the LED

feedback on the VCI on CH 3, 4, 5 and 6 for MLM functionality as shown above and below. The modifiers are loaded in real-time alongside the VCIs FX routing LEDs for FX unit 1 as long as the VCI deck selector is in position “Deck A”. When it is switched to “Deck C” the modifiers remain unchanged even if the association of FX unit 1 to decks is changed.

Modifier	Value	MLM activity	Description
1	1/0	from "VCI main" via CH3 Note D#-1	FX unit 1 is / is not assigned to deck A
2	1/0	from "VCI main" via CH4 Note D#-1	FX unit 1 is / is not assigned to deck B
3	1/0	from "VCI main" via CH5 Note D#-1	FX unit is / is not assigned to deck C
4	1/0	from "VCI main" via CH6 Note D#-1	FX unit is / is not assigned to deck D
5	0	from "VCI main" via CH1 Note D2	Deck selection on VCI was set to deck C
5	1	from "VCI main" via CH1 Note D2	Deck selection on VCI was set to deck A

Only upon switching back to deck A on the VCI, the settings from modifiers M1, ..., M4 will be recalled and the same associations when deck A was active the last time become active again.

Device file "**FX1 (C) Association Recall**" works the opposite way, as it uses M1, ...,M4 to store the association of FX unit 1 when deck C is active. Both devices "**FX2 (B) Association Recall**" and "**FX2 (D) Association Recall**" work in a similar way using Note E-1 on CH 3, ...,6 to recall settings of FX unit 2 when the VCI is switched between deck B and D.

08. GRATIFY (A) main (I: 16; O: 05)

This device harbors the main performance button functionality of the GRID for deck A. The input/output regime is the same as for "VCI main" thus it will include processing of the "Gratify LR" MIDIOX translation map. In consequence all performance buttons produce consecutive 3 MIDI notes on press and 2 consecutive MIDI notes on release. Modifier usage:

Modifier	Value	MLM activity	Description
1	0		Bank 8.x.x is NOT active
1	1		Bank 8.1.x is active
1	2		Bank 8.2.x is active
1	3		Bank 8.3.x is active
1	4		Bank 8.4.x is active
2	0		SLICER active
2	1		GRATIFY active
2	2		HOTCUES active
2	3		GRID active
3	0..7	to "GRATIFY (AC) superknobs" via CH3 CC 21 if M6=2 via CH 13 CC 80 if M5 = 1 or 2	Count of performance buttons simultaneously pressed
4			Not used
5	0		Left FX area is in FX mode; Right FX area is in FX mode
5	1		Left FX area is in FX mode; Right FX area is in Sample Deck mode
5	2		Left FX area is in Sample Deck mode; Right FX area is in FX mode
5	3		Both FX areas are in Sample Deck mode
6	0		Bank 1 is active
6	1		Bank 2 is active
6	2		Bank 3 is active

6	3		Bank 4 is active
6	4		Bank 5 is active
6	5		Bank 6 is active
6	6		Bank 7 is active
6	7		Bank 8 is active
7	0		Bank 8.x.0 is active
7	1		Bank 8.x.1 is active
7	2		Bank 8.x.2 is active
7	3		Bank 8.x.3 is active
7	4		Bank 8.x.4 is active
8	0		No Shift
8	1		Main shift or GRATIFY button pressed and held

CC	CH 3
21	GRATIFY A Bank3
22	GRATIFY B Bank3
23	GRATIFY C Bank3
24	GRATIFY D Bank3

To support the LFO controlled parameter change of bank 3 in the “GRATIFY superknobs (AC)” device any button press in bank 3 is communicated via MLMs if in bank 3.

CC	Ch 13	Ch 14
80	Superknob AC	Superknob BD

If the left FX knobs are in FX (and not sample deck) mode, the count of pressed buttons is also communicated via MLMs to the “GRATIFY superknobs (AC)” device on CH 13 to assist in defining the superknob modes. The same is done for “GRATIFY superknob BD” on CH 14 CC80 by the devices “GRATIFY (B) main” and “GRATIFY (D) main”.

Like in the GRID, the FX parameter settings in the various banks are programmed in dependence of the count of buttons pressed. Sensing of button release is used in GRATIFY bank 7 (Autobounce) to reset the effect upon release of buttons.

Each deck has its own GRATIFY device instance. The modifiers M1, M6 and M7, which keep track of what is currently the active bank of each GRATIFY section, are independent for each instance of these GRATIFY devices. Thus it is possible when GRATIFY for a deck is activated, to always recall the last settings from these modifiers. This is why GRATIFY can always “remember” its last settings even when in the meantime FX unit 1 or 2 was used for other purposes.

All “GRATIFY (x) main” are equally designed and structured. They only differ in deck and FX association and of course in their assignment to actual MIDI notes.

12. GRATIFY (AC) Superknobs (I: 01; O: 02)

This device controls the Superknob functionality, when the left FX unit of the VCI is in FX mode. It builds on two MIDIOX transformation maps. The first one, shown below is transforming the count of buttons pressed emitted from “GRATIFY (X) main” on CH 13 (left) or CH 14 (right) CC 80 with 2nd CC parameter value in range 80...87 into NoteOn commands of the same range.

Rudi-J Supermodes

INPUT							OUTPUT							
Chan	Message	Value 1		Value 2		Clone	Delay	Chan	Message	Value 1		Value 2		
		Min	Max	Min	Max					Min	Max	Min	Max	
14	Ctrl	80	80	80	87	N	0	*	NoteOn	*	*	127	127	<
13	Ctrl	80	80	80	87	N	0	*	NoteOn	*	*	127	127	<

Thus the original MIDI CCs issued by “GRATIFY (x) main” (shown left) are transformed by MIDIOX to MIDI Notes like this and picked up in MLM modifier M2.

CC	Ch 13	Ch 14
80	Superknob AC	Superknob BD

Par.2	= Note	Ch 13	Ch 14
80	G# 5	SK AC dwn 0	SK BD dwn 0
81	A 5	SK AC dwn 1	SK BD dwn 1
82	Bb 5	SK AC dwn 2	SK BD dwn 2
83	B 5	SK AC dwn 3	SK BD dwn 3
84	C 6	SK AC dwn 4	SK BD dwn 4
85	C# 6	SK AC dwn 5	SK BD dwn 5
86	D 6	SK AC dwn 6	SK BD dwn 6
87	Eb 6	SK AC dwn 7	SK BD dwn 7

The effect of this processing is that within the “GRATIFY (x) superknob” devices the count of depressed GRATIFY buttons is available as MLM in MIDI notes G#5, ...,Eb6 for adjusting the Superknob modes. The actual generation of “virtual knobs” that control TRAKTOR’s FX knobs with regard to active Superknob mode is provided by the “GRATIFY LR” MIDIOX transformation map. To get our heads around how that works out, let’s first have a look to the command lines that affect twisting the FX 1, 2 and 3 – Parameter knobs on the VCI controller (left side):

Rudi-J Gratify LR (excerpt)

INPUT							OUTPUT						
Chan	Message	Value 1		Value 2		Clone	Delay	Chan	Message	Value 1		Value 2	
		Min	Max	Min	Max					Min	Max	Min	Max
				
13	Ctrl	1	3	0	1	Y	0	*	*	11	13	0	1
13	Ctrl	1	3	2	2	Y	0	*	*	11	13	3	3
13	Ctrl	1	3	3	3	Y	0	*	*	11	13	4	4
13	Ctrl	1	3	4	4	Y	0	*	*	11	13	6	6
13	Ctrl	1	3	5	5	Y	0	*	*	11	13	7	7
13	Ctrl	1	3	6	6	Y	0	*	*	11	13	9	9
13	Ctrl	1	3	7	7	Y	0	*	*	11	13	10	10
13	Ctrl	1	3	8	8	Y	0	*	*	11	13	12	12
13	Ctrl	1	3	9	9	Y	0	*	*	11	13	13	13
..	<i>(range 11 to 34 omitted here for sake of readability)</i>						
13	Ctrl	1	3	35	35	Y	0	*	*	11	13	52	52
13	Ctrl	1	3	36	36	Y	0	*	*	11	13	54	54
13	Ctrl	1	3	37	37	Y	0	*	*	11	13	55	55
13	Ctrl	1	3	38	38	Y	0	*	*	11	13	56	56
13	Ctrl	1	3	39	39	Y	0	*	*	11	13	58	58
13	Ctrl	1	3	40	40	Y	0	*	*	11	13	59	59
13	Ctrl	1	3	41	41	Y	0	*	*	11	13	61	61
13	Ctrl	1	3	42	42	Y	0	*	*	11	13	62	62
13	Ctrl	1	3	43	94	Y	0	*	*	14	16	64	64
13	Ctrl	1	3	96	127	Y	0	*	*	14	16	64	127

The first transformations will work on CH 13 and clone/transform any CC 1, 2 or 3 with a second parameter value in the range between 0 and 42 into a range between 0 and 64 using CC 11, 12 and 13 respectively. The last two commands do the same for range between 43 and 94 (all transformed to 65) and finally a range between 96 and 127 is transformed to 64 and 127 however, now on CC 14, 15, 16 respectively.

CC 1, 2, 3:	0	1	2	3	4	...	40	41	42	43	44	45	...	93	94	95	96	97	98	99	100	...	124	125	126	127
CC 11, 12, 13:	0	1	3	4	6	...	59	61	62																	
CC 14, 15, 16:										64	64	64	...	64	64	64	64	65	67	68	70	...	123	124	126	127

Likewise incoming MIDI from FX knobs 2 and 3 are as well transformed into an auxiliary range where the neutral position (64) is expanded into a larger range.

In order to turn the effects ON/off MIDI Notes are generated by MIDOX out of knobs 1, 2 and 3 incoming CCs. The following table summarizes all of the transformation done by GRATIFY LR for the left FX knobs 1,2 and 3 on CH 13. A similar mapping is provided for the right FX knobs 1, 2 and 3 on CH 14:

INPUT CC 1,2,3	50%	CC 2nd Knob		2nd ON/off	CC 3rd Knob		3rd ON/off	Dry/Wet	
	Note F#6,G6,G#6	CC 11,12,13	CC 14,15,16	Note Bb6,A6,A6	CC 17,18,19	CC 20,21,22	Note B6,B6,Bb6	CC 23	CC 24
0		0		ON		0	ON	127	
1		1		ON		3	ON	127	
2		3		ON		6	ON	127	
3		4		ON		9	ON	127	
4		6		ON		12	ON	127	
5		7		ON		15	ON	127	
6		9		ON		18	ON	127	
19		28		ON		57	ON	127	
20		30		ON		60	ON	127	
21		31		ON		63	ON	127	
22		33		ON	64		off	127	
23		34		ON	64		off	127	
24		35		ON	64		off	127	
50	ON		64	off	64		off	127	
51	ON		64	off	64		off	120	
52	ON		64	off	64		off	110	
53	ON		64	off	64		off	100	
54	ON		64	off	64		off	90	
55	ON		64	off	64		off	80	
56	ON		64	off	64		off	70	
57	ON		64	off	64		off	60	
58	ON		64	off	64		off	50	
59	ON		64	off	64		off	40	
60	ON		64	off	64		off	30	
61	ON		64	off	64		off	20	
62	ON		64	off	64		off	10	
63	ON		64	off	64		off	5	
64	off		64	off	64		off	0	
65	ON		64	off	64		off		0
66	ON		64	off	64		off		9
67	ON		64	off	64		off		18
68	ON		64	off	64		off		27
69	ON		64	off	64		off		36
70	ON		64	off	64		off		46
71	ON		64	off	64		off		55
72	ON		64	off	64		off		64
73	ON		64	off	64		off		73
74	ON		64	off	64		off		82
75	ON		64	off	64		off		91
76	ON		64	off	64		off		100
77	ON		64	off	64		off		109
78	ON		64	off	64		off		118
79	ON		64	off	64		off		127

Continued on next page...

INPUT	50%	CC 2nd Knob		2nd ON/off	CC 3rd Knob		3rd ON/off	Dry/Wet	
	Note F#6,G6,G#6	CC 11,12,13	CC 14,15,16	Note Bb6,A6,A6	CC 17,18,19	CC 20,21,22	Note B6,B6,Bb6	CC 23	CC 24
56	ON		64	off	64		off	70	
57	ON		64	off	64		off	60	
58	ON		64	off	64		off	50	
59	ON		64	off	64		off	40	
60	ON		64	off	64		off	30	
61	ON		64	off	64		off	20	
62	ON		64	off	64		off	10	
63	ON		64	off	64		off	5	
64	off		64	off	64		off	0	
65	ON		64	off	64		off		0
66	ON		64	off	64		off		3
67	ON		64	off	64		off		18
68	ON		64	off	64		off		27
69	ON		64	off	64		off		36
70	ON		64	off	64		off		46
71	ON		64	off	64		off		55
72	ON		64	off	64		off		64
73	ON		64	off	64		off		73
74	ON		64	off	64		off		82
75	ON		64	off	64		off		91
76	ON		64	off	64		off		100
77	ON		64	off	64		off		109
78	ON		64	off	64		off		118
79	ON		64	off	64		off		127
80	ON		64	off	64		off		127
81	ON		64	off	64		off		127
82	ON		64	off	64		off		127
83	ON		64	off	64		off		127
84	ON		64	off	64		off		127
85	ON		64	off	64		off		127
86			66	ON	64		off		127
87			68	ON	64		off		127
88			70	ON	64		off		127
89			72	ON	64		off		127
90			74	ON	64		off		127
99			85	ON	64		off		127
100			87	ON	64		off		127
101			88	ON	64		off		127
102			90	ON	64		off		127
103			91	ON	64		off		127
104			93	ON	64		off		127
105			94	ON	64		off		127
106			96	ON	64		off		127
107			97	ON	65		ON		127
108			99	ON	68		ON		127
109			100	ON	71		ON		127
110			102	ON	74		ON		127
111			103	ON	77		ON		127
112			105	ON	81		ON		127
113			106	ON	84		ON		127
114			108	ON	87		ON		127
115			109	ON	90		ON		127
116			111	ON	93		ON		127
117			112	ON	96		ON		127
118			114	ON	99		ON		127
119			115	ON	102		ON		127
120			117	ON	105		ON		127
121			118	ON	108		ON		127
122			120	ON	112		ON		127
123			121	ON	115		ON		127
124			123	ON	118		ON		127
125			124	ON	121		ON		127
126			126	ON	124		ON		127
127			127	ON	127		ON		127

The “GRATIFY (AC) superknob” device can now make use of these additional CCs and notes by controlling secondary and tertiary “virtual” knobs (using two direct control commands) in relation to the currently active Superknob mode (stored in modifier M2). In below excerpt from the assignment table you can see all FX knob activities for Supermode 1 when knob 1 is twisted. Please note that

actual operation of FX knob 1 is missing here, as it is of course already handled in the device “VCI main” as part of the standard FX control.

The highlighted command CH13.CC011 controls FX knob 2 in **mode 1** and looks like this:

Device Setup

Device: GRATIFY (AC) superknob | In-Port: 01. Interr | Out-Port: 02. Interr

Modifier State: 1 > 0 | 2 > 0 | 3 > 0 | 4 > 0 | 5 > 0 | 6 > 0 | 7 > 0 | 8 > 0

Control	I/O	Assignment	Mode	Mapped to	Cond1	Cond2	Comment
Knob 3	In	FX Unit 1	Direct	Ch13.CC.017	M2=1		Superknob 1 Mode 1
Knob 3	In	FX Unit 1	Direct	Ch13.CC.020	M2=1		Superknob 1 Mode 1
Knob 2	In	FX Unit 1	Direct	Ch13.CC.011	M2=1		Superknob 1 Mode 1
Knob 2	In	FX Unit 1	Direct	Ch13.CC.014	M2=1		Superknob 1 Mode 1
Knob 3	In	FX Unit 1	Direct	Ch13.CC.017	M2=2		Superknob 1 Mode 2
Knob 3	In	FX Unit 1	Direct	Ch13.CC.020	M2=2		Superknob 1 Mode 2
Knob 2	In	FX Unit 1	Direct	Ch13.CC.011	M2=2		Superknob 1 Mode 2
Knob 2	In	FX Unit 1	Direct	Ch13.CC.014	M2=2		Superknob 1 Mode 2
Knob 3	In	FX Unit 1	Direct	Ch13.CC.017	M2=3		Superknob 1 Mode 3
Knob 3	In	FX Unit 1	Direct	Ch13.CC.020	M2=3		Superknob 1 Mode 3
Knob 2	In	FX Unit 1	Direct	Ch13.CC.011	M2=3		Superknob 1 Mode 3
Knob 2	In	FX Unit 1	Direct	Ch13.CC.014	M2=3		Superknob 1 Mode 3
Knob 3	In	FX Unit 1	Direct	Ch13.CC.001	M2=4		Superknob 1 Mode 4
Knob 2	In	FX Unit 1	Direct	Ch13.CC.001	M2=4		Superknob 1 Mode 4

Device Mapping

Learn | Ch13.CC.011 | Reset

Comment: Superknob 1 Mode 1

Modifier	Value	Modifier	Value
M2	1		-

Type of Controller: Fader / Knob

Interaction Mode: Direct | Assignment: FX Unit 1

Fader / Knob

Soft Takeover

Invert

In **mode 2**, the knob rotation needs to be inverted. As an example how simple this is achieved consider the command CH13.CC011 for Knob 2.

Knob 2	In	FX Unit 1	Direct	Ch13.CC.011	M2=2		Superknob 1 Mode 2
--------	----	-----------	--------	-------------	------	--	--------------------

Device Mapping

Learn | Ch13.CC.011 | Reset

Comment: Superknob 1 Mode 2

Modifier	Value	Modifier	Value
M2	2		-

Type of Controller: Fader / Knob

Interaction Mode: Direct | Assignment: FX Unit 1

Fader / Knob

Soft Takeover

Invert

The entire FX Dry/Wet control in Superknob mode is shown here:

The screenshot shows the 'Assignment Table' and 'Device Mapping' sections of a software interface. The 'Assignment Table' lists various controls and their mappings:

Control	I/O	Assignment	Mode	Mapped to	Cond 1	Cond 2	Comment
Button 1	In	FX Unit 1	Hold	Ch13.CC.003	M2=4	FX Pan~	Superknob Buttons Mode 4
Dry/Wet Adjust (FX Unit)	In	FX Unit 1	Direct	Ch13.CC.023	M2=0		Superknob DW Mode 0
Dry/Wet Adjust (FX Unit)	In	FX Unit 1	Direct	Ch13.CC.024	M2=0		Superknob DW Mode 0
Dry/Wet Adjust (FX Unit)	In	FX Unit 1	Direct	Ch13.CC.023	M2=1		Superknob DW Mode 1
Dry/Wet Adjust (FX Unit)	In	FX Unit 1	Direct	Ch13.CC.024	M2=1		Superknob DW Mode 1
Dry/Wet Adjust (FX Unit)	In	FX Unit 1	Direct	Ch13.CC.023	M2=2		Superknob DW Mode 2
Dry/Wet Adjust (FX Unit)	In	FX Unit 1	Direct	Ch13.CC.024	M2=2		Superknob DW Mode 2
Dry/Wet Adjust (FX Unit)	In	FX Unit 1	Direct	Ch13.CC.023	M2=3		Superknob DW Mode 3
Dry/Wet Adjust (FX Unit)	In	FX Unit 1	Direct	Ch13.CC.024	M2=3		Superknob DW Mode 3
Dry/Wet Adjust (FX Unit)	In	FX Unit 1	Direct	Ch13.CC.001	M2=4		Superknob DW Mode 4
Modifier #2	In	Global	Hold	Ch13.Note.G-1			Temporary deactivate superknobs on FX DW enc-
Modifier #2	In	Global	Hold	Ch15.Note.A#7			Temporary deactivate superknobs on shift

The 'Device Mapping' section shows the current mapping for 'Superknob DW Mode 0':

- Learn: Ch13.CC.023
- Reset: [Reset]
- Comment: Superknob DW Mode 0
- Mapping Details:
 - Modifier Conditions: M2, Value: 0
 - Type of Controller: Fader / Knob
 - Interaction Mode: Direct
 - Assignment: FX Unit 1
- Fader / Knob Options:
 - Soft Takeover: [Off]
 - Invert: [Off]

Finally the last excerpt shows how the FX buttons are activated by the MIDI/OX generated note commands. Note that in case the FX unit is in single effects mode instead of group FX button 1 the entire unit is switched ON/off.

The screenshot shows the 'Assignment Table' and 'Device Mapping' sections of a software interface. The 'Assignment Table' lists various controls and their mappings:

Control	I/O	Assignment	Mode	Mapped to	Cond 1	Cond 2	Comment
Knob 1	In	FX Unit 1	Direct	Ch13.CC.003	M2=4		Superknob 3 Mode 4
Unit On	In	FX Unit 1	Hold	Ch13.Note.F#6	M2=0	FX Panel Mode.FX Unit 1=Single	Superknob Buttons Mode 0
Button 3	In	FX Unit 1	Hold	Ch13.Note.G#6	M2=0		Superknob Buttons Mode 0
Button 2	In	FX Unit 1	Hold	Ch13.Note.G6	M2=0		Superknob Buttons Mode 0
Button 1	In	FX Unit 1	Hold	Ch13.Note.F#6	M2=0	FX Panel Mode.FX Unit 1=Group	Superknob Buttons Mode 0-3
Button 1	In	FX Unit 1	Hold	Ch13.Note.F#6	M2=1	FX Panel Mode.FX Unit 1=Group	Superknob Buttons Mode 0-3
Button 1	In	FX Unit 1	Hold	Ch13.Note.F#6	M2=2	FX Panel Mode.FX Unit 1=Group	Superknob Buttons Mode 0-3
Button 1	In	FX Unit 1	Hold	Ch13.Note.F#6	M2=3	FX Panel Mode.FX Unit 1=Group	Superknob Buttons Mode 0-3
Unit On	In	FX Unit 1	Hold	Ch13.Note.F#6	M2=1	FX Panel Mode.FX Unit 1=Single	Superknob Buttons Mode 1
Unit On	In	FX Unit 1	Hold	Ch13.Note.A6	M2=1	FX Panel Mode.FX Unit 1=Single	Superknob Buttons Mode 1
Button 3	In	FX Unit 1	Hold	Ch13.Note.B6	M2=1		Superknob Buttons Mode 1
Button 3	In	FX Unit 1	Hold	Ch13.Note.G#6	M2=1		Superknob Buttons Mode 1
Button 2	In	FX Unit 1	Hold	Ch13.Note.A#6	M2=1		Superknob Buttons Mode 1
Button 2	In	FX Unit 1	Hold	Ch13.Note.G6	M2=1		Superknob Buttons Mode 1
Button 1	In	FX Unit 1	Hold	Ch13.Note.A6	M2=1	FX Panel Mode.FX Unit 1=Group	Superknob Buttons Mode 1
Unit On	In	FX Unit 1	Hold	Ch13.Note.F#6	M2=2	FX Panel Mode.FX Unit 1=Single	Superknob Buttons Mode 2
Unit On	In	FX Unit 1	Hold	Ch13.Note.A6	M2=2	FX Panel Mode.FX Unit 1=Single	Superknob Buttons Mode 2
Button 3	In	FX Unit 1	Hold	Ch13.Note.G#6	M2=2		Superknob Buttons Mode 2
Button 3	In	FX Unit 1	Hold	Ch13.Note.B6	M2=2		Superknob Buttons Mode 2
Button 2	In	FX Unit 1	Hold	Ch13.Note.G6	M2=2		Superknob Buttons Mode 2
Button 2	In	FX Unit 1	Hold	Ch13.Note.A#6	M2=2		Superknob Buttons Mode 2
Button 1	In	FX Unit 1	Hold	Ch13.Note.A6	M2=2	FX Panel Mode.FX Unit 1=Group	Superknob Buttons Mode 2
Button 1	In	FX Unit 1	Hold	Ch13.Note.A6	M2=3	FX Panel Mode.FX Unit 1=Group	Superknob Buttons Mode 2
Unit On	In	FX Unit 1	Hold	Ch13.Note.F#6	M2=3	FX Panel Mode.FX Unit 1=Single	Superknob Buttons Mode 3
Unit On	In	FX Unit 1	Hold	Ch13.Note.A6	M2=3	FX Panel Mode.FX Unit 1=Single	Superknob Buttons Mode 3
Button 3	In	FX Unit 1	Hold	Ch13.Note.G#6	M2=3		Superknob Buttons Mode 3
Button 3	In	FX Unit 1	Hold	Ch13.Note.B6	M2=3		Superknob Buttons Mode 3

The 'Device Mapping' section shows the current mapping for 'Superknob Buttons Mode 0':

- Learn: Ch13.Note.F#6
- Reset: [Reset]
- Comment: Superknob Buttons Mode 0
- Mapping Details:
 - Modifier Conditions: M2, Value: 0
 - Type of Controller: Button
 - Interaction Mode: Hold
 - Assignment: FX Unit 1
- Button Options:
 - Invert: [Off]
 - Resolution: [---]

For complete reference the entire MIDIOX map is included here:

Rudi-J Gratify LR (complete)

INPUT								OUTPUT					
Chan	Message	Value 1		Value 2		Clone	Delay	Chan	Message	Value 1		Value 2	
		Min	Max	Min	Max					Min	Max	Min	Max
1	NoteOn	34	35	*	*	Y	20	*	*	36	37	*	*
2	NoteOn	34	35	*	*	Y	20	*	*	36	37	*	*
1	Ctrl	20	20	0	18	Y	0	16	*	91	91	1	1
1	Ctrl	20	20	19	37	Y	0	16	*	92	92	1	1
1	Ctrl	20	20	38	56	Y	0	16	*	93	93	1	1
1	Ctrl	20	20	57	70	Y	0	16	*	94	94	1	1
1	Ctrl	20	20	71	89	Y	0	16	*	95	95	1	1
1	Ctrl	20	20	90	108	Y	0	16	*	96	96	1	1
1	Ctrl	20	20	109	127	Y	0	16	*	97	97	1	1
2	NoteOn	41	72	127	127	Y	0	*	*	96	127	0	0
2	NoteOn	41	72	0	0	Y	0	*	NoteOn	96	127	127	127
3	NoteOn	41	72	127	127	Y	0	*	*	96	127	0	0
3	NoteOn	41	72	0	0	Y	0	*	NoteOn	96	127	127	127
5	NoteOn	41	72	127	127	Y	0	*	*	96	127	0	0
5	NoteOn	41	72	0	0	Y	0	*	NoteOn	96	127	127	127
6	NoteOn	41	72	127	127	Y	0	*	*	96	127	0	0
6	NoteOn	41	72	0	0	Y	0	*	NoteOn	96	127	127	127
8	NoteOn	41	72	127	127	Y	0	*	*	96	127	0	0
8	NoteOn	41	72	0	0	Y	0	*	NoteOn	96	127	127	127
9	NoteOn	41	72	127	127	Y	0	*	*	96	127	0	0
9	NoteOn	41	72	0	0	Y	0	*	NoteOn	96	127	127	127
11	NoteOn	41	72	127	127	Y	0	*	*	96	127	0	0
11	NoteOn	41	72	0	0	Y	0	*	NoteOn	96	127	127	127
12	NoteOn	41	72	127	127	Y	0	13	*	96	127	0	0
12	NoteOn	41	72	0	0	Y	0	13	NoteOn	96	127	127	127
13	Ctrl	1	3	43	94	Y	0	*	*	14	16	64	64
13	Ctrl	1	3	96	127	Y	0	*	*	14	16	64	127
13	Ctrl	1	3	40	63	Y	0	*	NoteOn	90	92	127	127
13	Ctrl	1	3	64	64	Y	0	*	NoteOff	90	92	0	0
13	Ctrl	1	3	65	85	Y	0	*	NoteOn	90	92	127	127
13	Ctrl	1	1	0	42	Y	0	*	NoteOn	94	94	127	127
13	Ctrl	1	1	43	85	Y	0	*	NoteOff	94	94	0	0
13	Ctrl	1	1	86	127	Y	0	*	NoteOn	94	94	127	127
13	Ctrl	1	2	0	21	Y	0	*	NoteOn	95	95	127	127
13	Ctrl	1	2	22	106	Y	0	*	NoteOff	95	95	0	0
13	Ctrl	1	2	107	127	Y	0	*	NoteOn	95	95	127	127
13	Ctrl	2	2	0	42	Y	0	*	NoteOn	93	93	127	127
13	Ctrl	2	2	43	85	Y	0	*	NoteOff	93	93	0	0
13	Ctrl	2	2	86	127	Y	0	*	NoteOn	93	93	127	127

INPUT								OUTPUT					
Chan	Message	Value 1		Value 2		Clone	Delay	Chan	Message	Value 1		Value 2	
		Min	Max	Min	Max					Min	Max	Min	Max
13	Ctrl	3	3	0	42	Y	0	*	NoteOn	93	93	127	127
13	Ctrl	3	3	43	85	Y	0	*	NoteOff	93	93	0	0
13	Ctrl	3	3	86	127	Y	0	*	NoteOn	93	93	127	127
13	Ctrl	3	3	0	21	Y	0	*	NoteOn	94	94	127	127
13	Ctrl	3	3	22	106	Y	0	*	NoteOff	94	94	0	0
13	Ctrl	3	3	107	127	Y	0	*	NoteOn	94	94	127	127
13	Ctrl	1	3	0	1	Y	0	*	*	11	13	0	1
13	Ctrl	1	3	2	2	Y	0	*	*	11	13	3	3
13	Ctrl	1	3	3	3	Y	0	*	*	11	13	4	4
13	Ctrl	1	3	4	4	Y	0	*	*	11	13	6	6
13	Ctrl	1	3	5	5	Y	0	*	*	11	13	7	7
13	Ctrl	1	3	6	6	Y	0	*	*	11	13	9	9
13	Ctrl	1	3	7	7	Y	0	*	*	11	13	10	10
13	Ctrl	1	3	8	8	Y	0	*	*	11	13	12	12
13	Ctrl	1	3	9	9	Y	0	*	*	11	13	13	13
13	Ctrl	1	3	10	10	Y	0	*	*	11	13	15	15
13	Ctrl	1	3	11	11	Y	0	*	*	11	13	16	16
13	Ctrl	1	3	12	12	Y	0	*	*	11	13	18	18
13	Ctrl	1	3	13	13	Y	0	*	*	11	13	19	19
13	Ctrl	1	3	14	14	Y	0	*	*	11	13	21	21
13	Ctrl	1	3	15	15	Y	0	*	*	11	13	22	22
13	Ctrl	1	3	16	16	Y	0	*	*	11	13	24	24
13	Ctrl	1	3	17	17	Y	0	*	*	11	13	25	25
13	Ctrl	1	3	18	18	Y	0	*	*	11	13	27	27
13	Ctrl	1	3	19	19	Y	0	*	*	11	13	28	28
13	Ctrl	1	3	20	20	Y	0	*	*	11	13	30	30
13	Ctrl	1	3	21	21	Y	0	*	*	11	13	31	31
13	Ctrl	1	3	22	22	Y	0	*	*	11	13	33	33
13	Ctrl	1	3	23	23	Y	0	*	*	11	13	34	34
13	Ctrl	1	3	24	24	Y	0	*	*	11	13	36	36
13	Ctrl	1	3	25	25	Y	0	*	*	11	13	37	37
13	Ctrl	1	3	26	26	Y	0	*	*	11	13	39	39
13	Ctrl	1	3	27	27	Y	0	*	*	11	13	40	40
13	Ctrl	1	3	28	28	Y	0	*	*	11	13	42	42
13	Ctrl	1	3	29	29	Y	0	*	*	11	13	43	43
13	Ctrl	1	3	30	30	Y	0	*	*	11	13	45	45
13	Ctrl	1	3	31	31	Y	0	*	*	11	13	46	46
13	Ctrl	1	3	32	32	Y	0	*	*	11	13	48	48
13	Ctrl	1	3	33	33	Y	0	*	*	11	13	49	49
13	Ctrl	1	3	34	34	Y	0	*	*	11	13	51	51
13	Ctrl	1	3	35	35	Y	0	*	*	11	13	52	52
13	Ctrl	1	3	36	36	Y	0	*	*	11	13	54	54

INPUT								OUTPUT					
Chan	Message	Value 1		Value 2		Clone	Delay	Chan	Message	Value 1		Value 2	
		Min	Max	Min	Max					Min	Max	Min	Max
13	Ctrl	1	3	37	37	Y	0	*	*	11	13	55	55
13	Ctrl	1	3	38	38	Y	0	*	*	11	13	56	56
13	Ctrl	1	3	39	39	Y	0	*	*	11	13	58	58
13	Ctrl	1	3	40	40	Y	0	*	*	11	13	59	59
13	Ctrl	1	3	41	41	Y	0	*	*	11	13	61	61
13	Ctrl	1	3	42	42	Y	0	*	*	11	13	62	62
13	Ctrl	1	3	107	127	Y	0	*	*	17	19	65	127
13	Ctrl	1	3	22	106	Y	0	*	*	17	19	64	64
13	Ctrl	1	3	0	0	Y	0	*	*	20	22	0	0
13	Ctrl	1	3	1	1	Y	0	*	*	20	22	3	3
13	Ctrl	1	3	2	2	Y	0	*	*	20	22	6	6
13	Ctrl	1	3	3	3	Y	0	*	*	20	22	9	9
13	Ctrl	1	3	4	4	Y	0	*	*	20	22	12	12
13	Ctrl	1	3	5	5	Y	0	*	*	20	22	15	15
13	Ctrl	1	3	6	6	Y	0	*	*	20	22	18	18
13	Ctrl	1	3	7	7	Y	0	*	*	20	22	21	21
13	Ctrl	1	3	8	8	Y	0	*	*	20	22	24	24
13	Ctrl	1	3	9	9	Y	0	*	*	20	22	27	27
13	Ctrl	1	3	10	10	Y	0	*	*	20	22	30	30
13	Ctrl	1	3	11	11	Y	0	*	*	20	22	33	33
13	Ctrl	1	3	12	12	Y	0	*	*	20	22	36	36
13	Ctrl	1	3	13	13	Y	0	*	*	20	22	39	39
13	Ctrl	1	3	14	14	Y	0	*	*	20	22	42	42
13	Ctrl	1	3	15	15	Y	0	*	*	20	22	45	45
13	Ctrl	1	3	16	16	Y	0	*	*	20	22	48	48
13	Ctrl	1	3	17	17	Y	0	*	*	20	22	51	51
13	Ctrl	1	3	18	18	Y	0	*	*	20	22	54	54
13	Ctrl	1	3	19	19	Y	0	*	*	20	22	57	57
13	Ctrl	1	3	20	20	Y	0	*	*	20	22	60	60
13	Ctrl	1	3	21	21	Y	0	*	*	20	22	63	63
13	Ctrl	1	3	64	64	Y	0	*	*	23	23	0	0
13	Ctrl	1	3	63	63	Y	0	*	*	23	23	5	5
13	Ctrl	1	3	62	62	Y	0	*	*	23	23	10	10
13	Ctrl	1	3	61	61	Y	0	*	*	23	23	20	20
13	Ctrl	1	3	60	60	Y	0	*	*	23	23	30	30
13	Ctrl	1	3	59	59	Y	0	*	*	23	23	40	40
13	Ctrl	1	3	58	58	Y	0	*	*	23	23	50	50
13	Ctrl	1	3	57	57	Y	0	*	*	23	23	60	60
13	Ctrl	1	3	56	56	Y	0	*	*	23	23	70	70
13	Ctrl	1	3	55	55	Y	0	*	*	23	23	80	80
13	Ctrl	1	3	54	54	Y	0	*	*	23	23	90	90
13	Ctrl	1	3	53	53	Y	0	*	*	23	23	100	100

INPUT								OUTPUT					
Chan	Message	Value 1		Value 2		Clone	Delay	Chan	Message	Value 1		Value 2	
		Min	Max	Min	Max					Min	Max	Min	Max
13	Ctrl	1	3	52	52	Y	0	*	*	23	23	110	110
13	Ctrl	1	3	51	51	Y	0	*	*	23	23	120	120
13	Ctrl	1	3	0	50	Y	0	*	*	23	23	127	127
13	Ctrl	1	3	65	79	Y	0	*	*	24	24	0	127
13	Ctrl	1	3	80	127	Y	0	*	*	24	24	127	127
14	Ctrl	1	3	43	94	Y	0	*	*	14	16	64	64
14	Ctrl	1	3	96	127	Y	0	*	*	14	16	64	127
14	Ctrl	1	3	40	63	Y	0	*	NoteOn	90	92	127	127
14	Ctrl	1	3	64	64	Y	0	*	NoteOff	90	92	0	0
14	Ctrl	1	3	65	85	Y	0	*	NoteOn	90	92	127	127
14	Ctrl	1	1	0	42	Y	0	*	NoteOn	94	94	127	127
14	Ctrl	1	1	43	85	Y	0	*	NoteOff	94	94	0	0
14	Ctrl	1	1	86	127	Y	0	*	NoteOn	94	94	127	127
14	Ctrl	1	2	0	21	Y	0	*	NoteOn	95	95	127	127
14	Ctrl	1	2	22	106	Y	0	*	NoteOff	95	95	0	0
14	Ctrl	1	2	107	127	Y	0	*	NoteOn	95	95	127	127
14	Ctrl	2	2	0	42	Y	0	*	NoteOn	93	93	127	127
14	Ctrl	2	2	43	85	Y	0	*	NoteOff	93	93	0	0
14	Ctrl	2	2	86	127	Y	0	*	NoteOn	93	93	127	127
14	Ctrl	3	3	0	42	Y	0	*	NoteOn	93	93	127	127
14	Ctrl	3	3	43	85	Y	0	*	NoteOff	93	93	0	0
14	Ctrl	3	3	86	127	Y	0	*	NoteOn	93	93	127	127
14	Ctrl	3	3	0	21	Y	0	*	NoteOn	94	94	127	127
14	Ctrl	3	3	22	106	Y	0	*	NoteOff	94	94	0	0
14	Ctrl	3	3	107	127	Y	0	*	NoteOn	94	94	127	127
14	Ctrl	1	3	0	1	Y	0	*	*	11	13	0	1
14	Ctrl	1	3	2	2	Y	0	*	*	11	13	3	3
14	Ctrl	1	3	3	3	Y	0	*	*	11	13	4	4
14	Ctrl	1	3	4	4	Y	0	*	*	11	13	6	6
14	Ctrl	1	3	5	5	Y	0	*	*	11	13	7	7
14	Ctrl	1	3	6	6	Y	0	*	*	11	13	9	9
14	Ctrl	1	3	7	7	Y	0	*	*	11	13	10	10
14	Ctrl	1	3	8	8	Y	0	*	*	11	13	12	12
14	Ctrl	1	3	9	9	Y	0	*	*	11	13	13	13
14	Ctrl	1	3	10	10	Y	0	*	*	11	13	15	15
14	Ctrl	1	3	11	11	Y	0	*	*	11	13	16	16
14	Ctrl	1	3	12	12	Y	0	*	*	11	13	18	18
14	Ctrl	1	3	13	13	Y	0	*	*	11	13	19	19
14	Ctrl	1	3	14	14	Y	0	*	*	11	13	21	21
14	Ctrl	1	3	15	15	Y	0	*	*	11	13	22	22
14	Ctrl	1	3	16	16	Y	0	*	*	11	13	24	24
14	Ctrl	1	3	17	17	Y	0	*	*	11	13	25	25

INPUT								OUTPUT					
Chan	Message	Value 1		Value 2		Clone	Delay	Chan	Message	Value 1		Value 2	
		Min	Max	Min	Max					Min	Max	Min	Max
14	Ctrl	1	3	18	18	Y	0	*	*	11	13	27	27
14	Ctrl	1	3	19	19	Y	0	*	*	11	13	28	28
14	Ctrl	1	3	20	20	Y	0	*	*	11	13	30	30
14	Ctrl	1	3	21	21	Y	0	*	*	11	13	31	31
14	Ctrl	1	3	22	22	Y	0	*	*	11	13	33	33
14	Ctrl	1	3	23	23	Y	0	*	*	11	13	34	34
14	Ctrl	1	3	24	24	Y	0	*	*	11	13	36	36
14	Ctrl	1	3	25	25	Y	0	*	*	11	13	37	37
14	Ctrl	1	3	26	26	Y	0	*	*	11	13	39	39
14	Ctrl	1	3	27	27	Y	0	*	*	11	13	40	40
14	Ctrl	1	3	28	28	Y	0	*	*	11	13	42	42
14	Ctrl	1	3	29	29	Y	0	*	*	11	13	43	43
14	Ctrl	1	3	30	30	Y	0	*	*	11	13	45	45
14	Ctrl	1	3	31	31	Y	0	*	*	11	13	46	46
14	Ctrl	1	3	32	32	Y	0	*	*	11	13	48	48
14	Ctrl	1	3	33	33	Y	0	*	*	11	13	49	49
14	Ctrl	1	3	34	34	Y	0	*	*	11	13	51	51
14	Ctrl	1	3	35	35	Y	0	*	*	11	13	52	52
14	Ctrl	1	3	36	36	Y	0	*	*	11	13	54	54
14	Ctrl	1	3	37	37	Y	0	*	*	11	13	55	55
14	Ctrl	1	3	38	38	Y	0	*	*	11	13	56	56
14	Ctrl	1	3	39	39	Y	0	*	*	11	13	58	58
14	Ctrl	1	3	40	40	Y	0	*	*	11	13	59	59
14	Ctrl	1	3	41	41	Y	0	*	*	11	13	61	61
14	Ctrl	1	3	42	42	Y	0	*	*	11	13	62	62
14	Ctrl	1	3	107	127	Y	0	*	*	17	19	65	127
14	Ctrl	1	3	22	106	Y	0	*	*	17	19	64	64
14	Ctrl	1	3	0	0	Y	0	*	*	20	22	0	0
14	Ctrl	1	3	1	1	Y	0	*	*	20	22	3	3
14	Ctrl	1	3	2	2	Y	0	*	*	20	22	6	6
14	Ctrl	1	3	3	3	Y	0	*	*	20	22	9	9
14	Ctrl	1	3	4	4	Y	0	*	*	20	22	12	12
14	Ctrl	1	3	5	5	Y	0	*	*	20	22	15	15
14	Ctrl	1	3	6	6	Y	0	*	*	20	22	18	18
14	Ctrl	1	3	7	7	Y	0	*	*	20	22	21	21
14	Ctrl	1	3	8	8	Y	0	*	*	20	22	24	24
14	Ctrl	1	3	9	9	Y	0	*	*	20	22	27	27
14	Ctrl	1	3	10	10	Y	0	*	*	20	22	30	30
14	Ctrl	1	3	11	11	Y	0	*	*	20	22	33	33
14	Ctrl	1	3	12	12	Y	0	*	*	20	22	36	36
14	Ctrl	1	3	13	13	Y	0	*	*	20	22	39	39
14	Ctrl	1	3	14	14	Y	0	*	*	20	22	42	42

INPUT								OUTPUT					
Chan	Message	Value 1		Value 2		Clone	Delay	Chan	Message	Value 1		Value 2	
		Min	Max	Min	Max					Min	Max	Min	Max
14	Ctrl	1	3	15	15	Y	0	*	*	20	22	45	45
14	Ctrl	1	3	16	16	Y	0	*	*	20	22	48	48
14	Ctrl	1	3	17	17	Y	0	*	*	20	22	51	51
14	Ctrl	1	3	18	18	Y	0	*	*	20	22	54	54
14	Ctrl	1	3	19	19	Y	0	*	*	20	22	57	57
14	Ctrl	1	3	20	20	Y	0	*	*	20	22	60	60
14	Ctrl	1	3	21	21	Y	0	*	*	20	22	63	63
14	Ctrl	1	3	64	64	Y	0	*	*	23	23	0	0
14	Ctrl	1	3	63	63	Y	0	*	*	23	23	5	5
14	Ctrl	1	3	62	62	Y	0	*	*	23	23	10	10
14	Ctrl	1	3	61	61	Y	0	*	*	23	23	20	20
14	Ctrl	1	3	60	60	Y	0	*	*	23	23	30	30
14	Ctrl	1	3	59	59	Y	0	*	*	23	23	40	40
14	Ctrl	1	3	58	58	Y	0	*	*	23	23	50	50
14	Ctrl	1	3	57	57	Y	0	*	*	23	23	60	60
14	Ctrl	1	3	56	56	Y	0	*	*	23	23	70	70
14	Ctrl	1	3	55	55	Y	0	*	*	23	23	80	80
14	Ctrl	1	3	54	54	Y	0	*	*	23	23	90	90
14	Ctrl	1	3	53	53	Y	0	*	*	23	23	100	100
14	Ctrl	1	3	52	52	Y	0	*	*	23	23	110	110
14	Ctrl	1	3	51	51	Y	0	*	*	23	23	120	120
14	Ctrl	1	3	0	50	Y	0	*	*	23	23	127	127
14	Ctrl	1	3	65	79	Y	0	*	*	24	24	0	127
14	Ctrl	1	3	80	127	Y	0	*	*	24	24	127	127

Modifiers are used as follows in the “GRATIFY (AC) superknobs” device

Modifier	Value	MLM activity	Description
1	0	from VCI-400SE switching A/C delayed 20ms via CH1 Note C#2	Deck A is selected on VCI
1	1	from VCI-400SE switching A/C delayed 20ms via CH1 Note C#2	Deck C is selected on VCI
2	0	From VCI-400SE encoder “Loop Move Left (Shift-L)” pressed via CH13 note F0	Superknob mode 0 is active
2	1	from “GRATIFY (A) main” or “GRATIFY (C) main” via CH13 note A5	Superknob mode 1 is active
2	2	from “GRATIFY (A) main” or “GRATIFY (C) main” via CH13 note Bb5 (A#5)	Superknob mode 2 is active
2	3	from “GRATIFY (A) main” or “GRATIFY (C) main” via CH13 note B5	Superknob mode 3 is active
2	4	from “GRATIFY (A) main” or “GRATIFY (C) main” via CH13 note C6	Superknob mode 4 is active
2	5	from “GRATIFY (A) main” or “GRATIFY (C) main” via CH13 note C#6	Superknob mode 5 (not existing yet) is active

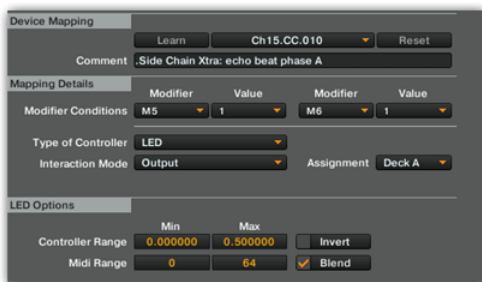
Modifier	Value	MLM activity	Description
3	0	from "VCI main" via CH13 CC88	Left FX section in FX mode
3	7	from VCI-400SE Left FX section in Loop mode switch via CH13 Note A-1	Left FX section in Loop deck
4			Not used
5	0	from "GRATIFY (A) main" via CH03 CC 21 from "GRATIFY (C) main" via CH03 CC 23	GRATIFY A or C, bank 3 is NOT active or performance buttons of this bank are NOT pressed (→ enable LFO FX knob 3)
5	1	from "GRATIFY (A) main" via CH03 CC 21 from "GRATIFY (C) main" via CH03 CC 23	GRATIFY A or C, bank 3 is active and performance buttons are pressed (→ enable LFO FX knob 3)
6	1	from "Master Sync LED and Dupl. FX" via CH03 CC52	Read TRAKTOR master deck = A
6	2	from "Master Sync LED and Dupl. FX" via CH03 CC53	Read TRAKTOR master deck = B
6	3	from "Master Sync LED and Dupl. FX" via CH03 CC53	Read TRAKTOR master deck = C
6	4	from "Master Sync LED and Dupl. FX" via CH03 CC54	Read TRAKTOR master deck = D
7	0	From VCI-400SE encoder "Loop Move Left (Shift-L)" pressed via CH13 note F0	Superknob mode 0 is active in GRATIFY bank C
7	1	from "GRATIFY (A) main" or "GRATIFY (C) main" via CH13 note A5	Superknob mode 1 is active in GRATIFY bank C
2	2	from "GRATIFY (A) main" or "GRATIFY (C) main" via CH13 note Bb5 (A#5)	Superknob mode 2 is active in GRATIFY bank C
7	3	from "GRATIFY (A) main" or "GRATIFY (C) main" via CH13 note B5	Superknob mode 3 is active in GRATIFY bank C
7	4	from "GRATIFY (A) main" or "GRATIFY (C) main" via CH13 note C6	Superknob mode 4 is active in GRATIFY bank C
7	5	from "GRATIFY (A) main" or "GRATIFY (C) main" via CH13 note C#6	Superknob mode 5 (not existing yet) is active in GRATIFY bank C
8	0	From VCI-400SE encoder "Loop Move Left (Shift-L)" pressed via CH13 note F0	Superknob mode 0 is active in GRATIFY bank A
8	1	from "GRATIFY (A) main" or "GRATIFY (C) main" via CH13 note A5	Superknob mode 1 is active in GRATIFY bank A
8	2	from "GRATIFY (A) main" or "GRATIFY (C) main" via CH13 note Bb5 (A#5)	Superknob mode 2 is active in GRATIFY bank A
8	3	from "GRATIFY (A) main" or "GRATIFY (C) main" via CH13 note B5	Superknob mode 3 is active in GRATIFY bank A
8	4	from "GRATIFY (A) main" or "GRATIFY (C) main" via CH13 note C6	Superknob mode 4 is active in GRATIFY bank A
8	5	from "GRATIFY (A) main" or "GRATIFY (C) main" via CH13 note C#6	Superknob mode 5 (not existing yet) is active in GRATIFY bank A

A further additional feature, also implemented in the "GRATIFY (AC) superknobs" assignment table is the "sidechained" or LFO manipulation of FX parameter in slot 3 by the beat phase in bank 3. For that the current master deck is picked up as a MLM in M6 so that the beat phase of the current master

deck is emitted to MIDI CH15 CC010. The entire sequence of assignments to accomplish this in TRAKTOR is given here:

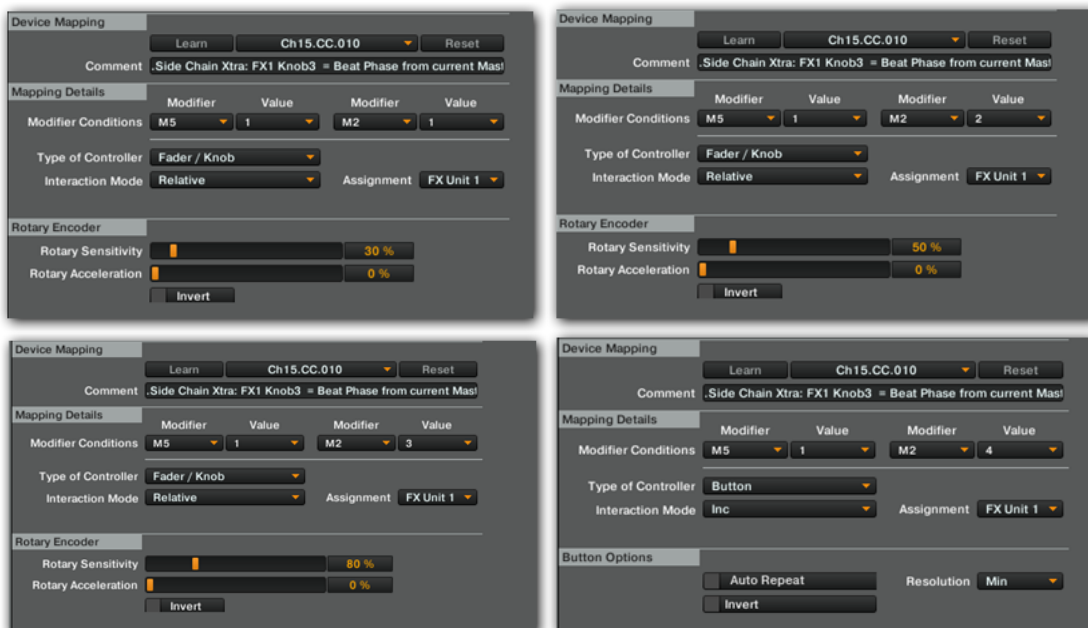
Device Setup							
Device		In-Port		Out-Port			
GRATIFY (AC) superknot		01. Interr		02. Interr			
Add...		Edit...		Device Target		Focus	
Modifier State: 1 0 2 0 3 0 4 0 5 0 6 0 7 0 8 0							
Assignment Table							
Control	I/O	Assignment	Mode	Mapped to	Cond 1	Cond 2	Comment
Beat Phase	Out	Deck A	Output	Ch15.CC.010	M5=1	M6=1	.Side Chain Xtra: echo beat phase A
Beat Phase	Out	Deck B	Output	Ch15.CC.010	M5=1	M6=2	.Side Chain Xtra: echo beat phase B
Beat Phase	Out	Deck C	Output	Ch15.CC.010	M5=1	M6=3	.Side Chain Xtra: echo beat phase C
Beat Phase	Out	Deck D	Output	Ch15.CC.010	M5=1	M6=4	.Side Chain Xtra: echo beat phase D
Knob 3	In	FX Unit 1	Relati~	Ch15.CC.010	M5=1	M2=1	.Side Chain Xtra: FX1 Knob3 = Beat Phase from current Master Deck
Knob 3	In	FX Unit 1	Relati~	Ch15.CC.010	M5=1	M2=2	.Side Chain Xtra: FX1 Knob3 = Beat Phase from current Master Deck
Knob 3	In	FX Unit 1	Relati~	Ch15.CC.010	M5=1	M2=3	.Side Chain Xtra: FX1 Knob3 = Beat Phase from current Master Deck
Knob 3	In	FX Unit 1	Inc	Ch15.CC.010	M5=1	M2=4	.Side Chain Xtra: FX1 Knob3 = Beat Phase from current Master Deck
Modifier #5	In	Global	Hold	Ch03.CC.021			.Side Chain Xtra: Gratify A Bank 2 Bt 7 pressed
Modifier #5	In	Global	Hold	Ch03.CC.023			.Side Chain Xtra: Gratify C Bank 2 Bt 7 pressed
Modifier #6	In	Global	Hold	Ch03.CC.052			.Side Chain Xtra: Read Master Deck A
Modifier #6	In	Global	Hold	Ch03.CC.053			.Side Chain Xtra: Read Master Deck B
Modifier #6	In	Global	Hold	Ch03.CC.054			.Side Chain Xtra: Read Master Deck C
Modifier #6	In	Global	Hold	Ch03.CC.055			.Side Chain Xtra: Read Master Deck D

All four “Beat Phase” commands (of course each one referring to a different deck) look like this:



Finally the 4 different Supermodes come in via M2 and different rotary sensitivities when the knob is “virtually twisted” by the echoed MIDI on CH15 CC010.

Mode 1, 2, 3 and 4:



The “GRATIFY (BD) superknobs” device is working exactly as “GRATIFY (AC) superknobs” except that decks B and D and FX unit 2 is involved here and MIDI activities are on CH 14 (same CCs).

14. SLICER (A) main (I: 01; O: 02)

This TRAKTOR device is the first one of three collaborating devices per deck that enables the SLICER functionality for each deck. The job of “SLICER (A) main” is to sense the first and any additional performance button pressed. In static mode, these will control activation of the adjusted beat jumps. In dynamic mode, the device will pass on these conditions to “SLICER (A) dynamic”, but take over control of the loop size of any involved micro-loop.

Modifiers are used as follows in the “SLICER (A) main” device

Modifier	Value	MLM activity	Description
1	0..7	to “SLICER (A) dynamic” via CH3 CC 90..93	Static mode: Number of last performance button pressed (starting counting at 0) Dynamic mode: Number of first button pressed in range of button 1 to 4 (starting counting at 1 till 4)
2	1..4	to “SLICER (A) dynamic” via CH3 CC 94..97	Dynamic mode: Number of first button pressed in range of buttons 5 to 8 (starting counting at 1 till 4)
3	0..7	If M3>0 to “SLICER (A) dynamic” via CH3 CC 98 If M3=0 to “SLICER (A) dynamic” via CH3 CC 99	Count of buttons pressed; CH3 CC98 is on when any button(s) are pressed; CH 3 CC99 is on when the last button is released.
4	1	echoed from CH3 CC80	Current loop size of deck is 1/8 or less
4	2	echoed from CH3 CC81	Current loop size of deck is 1/4
4	3	echoed from CH3 CC82	Current loop size of deck is 1/2
4	4	echoed from CH3 CC83	Current loop size of deck is 1/1
4	5	echoed from CH3 CC84	Current loop size of deck is 2
4	6	echoed from CH3 CC85	Current loop size of deck is 4
4	7	echoed from CH3 CC86	Current loop size of deck is 8 or more
5	1	From “Master Sync LED and duplicate FX” via CH3 CC 52	Deck A is tempo master
5	2	From “Master Sync LED and duplicate FX” via CH3 CC 53	Deck B is tempo master
5	3	From “Master Sync LED and duplicate FX” via CH3 CC 54	Deck C is tempo master
5	4	From “Master Sync LED and duplicate FX” via CH3 CC 55	Deck D is tempo master
6	1	Sequential control via CH3 CC71	Static mode: M6=1 is triggered by pressing a performance button causing CH3 CC71 to be emitted.
6	2	Sequential control via CH3 CC72	Incoming CH3 CC71 sets M6=2 causing CH3 CC72 to be emitted
6	3	Sequential control via CH3 CC73	Incoming CH3 CC72 sets M6=3 causing CH3 CC73 to be emitted
6	4	Sequential control via CH3 CC74	Incoming CH3 CC73 sets M6=4 causing CH3 CC74 to be emitted
6	5	Sequential control via CH3 CC75	Incoming CH3 CC74 sets M6=5 causing CH3 CC75 to be emitted
6	6	Sequential control via CH3 CC76	Incoming CH3 CC75 sets M6=6 causing CH3 CC76 to be emitted
7	0		Deck is in dynamic mode
7	1		Deck is static mode
8	0		Main shift off
8	1		Main shift ON

In static mode the device relies on the fact that “VCI main” has already issued a beat jump to the current cue point. However “SLICER (A) main” then has to beat jump to targets +1, +2, +3, ..+7 beats

in front of the current cue. For targets +1, +2 and +4 this is no problem as TRAKTOR provides native beatjump commands, but a target +3 has to be emulated by two jumps (+2 followed by +1) as well as +5, +6 and +7. Unfortunately TRAKTOR is buggy in performing consecutive jumps and always needs a little rest in between two beat jump commands to process the commands properly, this is why a command sequence is triggered by MLM6 using CH3 CC71..76 allowing to hook the required beat jumps on these quickly (but strictly consecutive) incoming CCs. The following excerpt sequence is showing the core operation of the SLICER in static mode for better understanding:

Control	I/O	Assignment	Mode	Mapped to	Cond1	Cond2	Comment
Modifier #6	Out	Global	Output	Ch03.CC.071		M7=1	SM Seq 0 Seq 1 o
Beatjump	In	Deck A	Hold	Ch03.CC.071	M1=1		SM Seq 1 Jump +1,0,0
Beatjump	In	Deck A	Hold	Ch03.CC.071	M1=2		SM Seq 1 Jump +2,0,0
Beatjump	In	Deck A	Hold	Ch03.CC.071	M1=3		SM Seq 1 Jump +2,1,0
Beatjump	In	Deck A	Hold	Ch03.CC.071	M1=4		SM Seq 1 Jump +4,0,0
Beatjump	In	Deck A	Hold	Ch03.CC.071	M1=5		SM Seq 1 Jump +4,1,0
Beatjump	In	Deck A	Hold	Ch03.CC.071	M1=6		SM Seq 1 Jump +4,2,0
Beatjump	In	Deck A	Hold	Ch03.CC.071	M1=7		SM Seq 1 Jump +4,2,1
Modifier #6	In	Global	Direct	Ch03.CC.071			SM Seq 1 Seq 2 i
Modifier #6	Out	Global	Output	Ch03.CC.072			SM Seq 1 Seq 2 o
Modifier #6	In	Global	Direct	Ch03.CC.072			SM Seq 2 Seq 3 i
Modifier #6	Out	Global	Output	Ch03.CC.073			SM Seq 2 Seq 3 o
Beatjump	In	Deck A	Hold	Ch03.CC.073	M1=3		SM Seq 3 Jump 2,+1,0
Beatjump	In	Deck A	Hold	Ch03.CC.073	M1=5		SM Seq 3 Jump 4,+1,0
Beatjump	In	Deck A	Hold	Ch03.CC.073	M1=6		SM Seq 3 Jump 4,+2,0
Beatjump	In	Deck A	Hold	Ch03.CC.073	M1=7		SM Seq 3 Jump 4,+2,1
Modifier #6	In	Global	Direct	Ch03.CC.073			SM Seq 3 Seq 4 i
Modifier #6	Out	Global	Output	Ch03.CC.074			SM Seq 3 Seq 4 o
Modifier #6	In	Global	Direct	Ch03.CC.074			SM Seq 4 Seq 5 i
Modifier #6	Out	Global	Output	Ch03.CC.075			SM Seq 4 Seq 5 o
Beatjump	In	Deck A	Hold	Ch03.CC.075	M1=7		SM Seq 5 Jump 4,+2,+1
Modifier #6	In	Global	Direct	Ch03.CC.075			SM Seq 5 Seq 6 i
Modifier #6	Out	Global	Output	Ch03.CC.076			SM Seq 5 Seq 6 o
Play/Pause (Deck Common)	In	Deck A	Hold	Ch03.CC.076			SM Seq 6 Play from Target Slice Position
Play/Pause (Deck Common)	In	Deck A	Direct	Ch01.Note.F2	M7=1		Stop Deck on button press if in single slice mode
Play/Pause (Deck Common)	In	Deck A	Direct	Ch01.Note.A2	M7=1		Stop Deck on button press if in single slice mode

In dynamic mode, the device will control the loop length management as described in the manual before.

The device “SLICER (B) main “,“SLICER (C) main “,“SLICER (D) main “ all operate in a similar way, only for different decks using different controls on the VCI. However “SLICER (A) main” is the only device out of these that outputs the beat phase to CH3 CC100..CC116 in a way that each 1/16 beat tick of the master deck is reflected in its own Midi CC.

Assignment Table

Control	I/O	Assignment	Mode	Mapped to	Cond1	Cond2	Comment
Modifier #3	Out	Global	Output	Ch03.CC.098		M7=0	Any Button Pressed
Modifier #3	Out	Global	Output	Ch03.CC.099		M7=0	Any Button UnPressed
Beat Phase	Out	Deck A	Output	Ch03.CC.100	M5=1		Beat Phase Out Master Deck A
Beat Phase	Out	Deck B	Output	Ch03.CC.100	M5=2		Beat Phase Out Master Deck B
Beat Phase	Out	Deck C	Output	Ch03.CC.100	M5=3		Beat Phase Out Master Deck C
Beat Phase	Out	Deck D	Output	Ch03.CC.100	M5=4		Beat Phase Out Master Deck D
Modifier #3	In	Global	Direct	Ch03.Note.A0			Bt counter init
Loop In/Set Cue	In	Deck A	Trigger	Ch03.Note.A0			set a floating cue on slicer activation
Modifier #6	In	Global	Direct	Ch03.Note.A2		M7=1	SM Seq 0 Seq 1 i

Add In... Add Out... Du

Device Mapping

Learn Ch03.CC.100 Reset

Comment Beat Phase Out Master Deck A

Mapping Details

Modifier Conditions M5 1 -

Type of Controller LED

Interaction Mode Output Assignment Deck A

LED Options

Controller Range Min -0.500000 Max 0.500000 Invert

Midi Range 100 116 Blend

18. SLICER (A) dynamic (I: 01; O: 02)

This TRAKTOR device receives incoming MLMs from “SLICER (A) main” and processes the beat jumping in dynamic mode. LED feedback is generated by passing on MLMs to “SLICER (A) LEDs”. The main job of “SLICER (A) dynamic” is to track where the current play position is (in terms of distance to a multiple of 8 beats away from the current cue), then to jump to an arbitrary target within the scope of 8 beats, and finally, on release of all buttons and any involved micro-loop(s), to return to a playing position as if no buttons were pressed (like in FLUX mode). Modifiers are used as follows in the “SLICER (A) dynamic” device:

Modifier	Value	MLM activity	Description
1	0..7	to “SLICER (A) dynamic” via CH3 CC 90..93	Static mode: Number of last performance button pressed (starting counting at 0) Dynamic mode: Number of first button pressed in range of button 1 to 4 (starting counting at 1 till 4)
1	0		Idle; Beat-jump command sequence un-triggered; activated by incoming CH3 CC066 . (this acts like a semaphore and grants that any ongoing slicer sequence first has to be completed, before the next one can start)
1	1	Sequential control via CH3 CC121	M1=1 is triggered only when M=0 by receiving MLM CH3 CC98 from “SLICER (A) main” (=any button was pressed) this causes CH3 CC121 to be emitted
1	2	Sequential control via CH3 CC122	Incoming CH3 CC121 sets M1=2 causing CH3 CC122 to be emitted
1	3	Sequential control via CH3 CC123	Incoming CH3 CC122 sets M1=3 causing CH3 CC123 to be emitted
1	4	Sequential control via CH3 CC124	Incoming CH3 CC123 sets M1=4 causing CH3 CC124 to be emitted
1	5	Sequential control via CH3 CC125	Incoming CH3 CC124 sets M1=5 causing CH3 CC125 to be emitted
1	6	Sequential control via CH3 CC126	Incoming CH3 CC125 sets M1=6 causing CH3 CC126 to be emitted
2	0		Idle; Beat-return-jump command sequence un-triggered; activated by incoming CH3 CC118.
2	1	Sequential control via CH3 CC61	M2=1 is triggered by receiving MLM CH3 CC99 from “SLICER (A) main” (=last button was released) this causes CH3 CC61 to be emitted
2	2	Sequential control via CH3 CC62	When M2=2 the device waits for the 5/16 beat to trigger CH3 CC62 to be emitted
2	3	Sequential control via CH3 CC63	Incoming CH3 CC62 sets M2=3 causing CH3 CC63 to be emitted
2	4	Sequential control via CH3 CC64	Incoming CH3 CC63 sets M2=4 causing CH3 CC64 to be emitted
2	5	Sequential control via CH3 CC65	Incoming CH3 CC64 sets M2=5 causing CH3 CC65 to be emitted
2	6	Sequential control via CH3 CC66	Incoming CH3 CC65 sets M2=6 causing CH3 CC66 to be emitted
3	0	Read master deck 1/8 tick #0 position from CH3 CC100 if deck playing and SLICER is idle (M1=0)	If M1=6 SLICER is in operation (looping) 1/8 tick counting must continue by incrementing M3 or setting it to 0 when M3 has reached 7.
3	1	Read master deck 1/8 tick #1 position from CH3 CC102 if deck playing and SLICER is idle (M1=0)	If M1=6 SLICER is in operation (looping) 1/8 tick counting must continue by incrementing M3 or setting it to 0 when M3 has reached 7.
3	2	Read master deck 1/8 tick #2 position from CH3 CC104 if deck playing and SLICER is idle (M1=0)	If M1=6 SLICER is in operation (looping) 1/8 tick counting must continue by incrementing M3 or setting it to 0 when M3 has reached 7.
3	3	Read master deck 1/8 tick #3 position from CH3 CC106 if deck playing and SLICER is idle (M1=0)	If M1=6 SLICER is in operation (looping) 1/8 tick counting must continue by incrementing M3 or setting it to 0 when M3 has reached 7.
3	4	Read master deck 1/8 tick #4 position from CH3 CC108 if deck playing and SLICER is idle (M1=0)	If M1=6 SLICER is in operation (looping) 1/8 tick counting must continue by incrementing M3 or setting it to 0 when M3 has reached 7.
3	5	Read master deck 1/8 tick #5 position from CH3 CC110 if deck playing and SLICER is idle (M1=0)	If M1=6 SLICER is in operation (looping) 1/8 tick counting must continue by incrementing M3 or setting it to 0 when M3 has reached 7.

3	6	Read master deck 1/8 tick #6 position from CH3 CC112 if deck playing and SLICER is idle (M1=0)	If M1=6 SLICER is in operation (looping) 1/8 tick counting must continue by incrementing M3 or setting it to 0 when M3 has reached 7.
3	7	Read master deck 1/8 tick #7 position from CH3 CC114 if deck playing and SLICER is idle (M1=0)	If M1=6 SLICER is in operation (looping) 1/8 tick counting must continue by incrementing M3 or setting it to 0 when M3 has reached 7.
4	0..7		Difference between jump target and current playout position within a frame of 8 beats (-3 ..+4)
5	0		Deck Flux status is off (when SLICER is not in use)
5	1		Deck Flux status is On (when SLICER is not in use)
6	0..7	from "SLICER (A) main" via CH3 CC 90..97	Computed jump target for dynamic SLICER at Cue +0, ..., +7 beats
7	0..7	to "SLICER (A) LEDs" via CH3 CC40..47	SLICER beat count determined triggered each time M3=0 is reaching 0 (echoed into CH3 CC88)
8			Not used

Beat counting of 1/16 beats is supported by below MIDI translation map "Rudi-J Slicer Beats" that is active between virtual MIDI ports 01 and 02. It processes the incoming beat phase signal from the master deck (exclusively generated by "Slicer (A) main" on CH3 CC 100) and converts its second parameter value (100...116) into a CC command on the same channel in the range of CC 100 to CC 115. This is why the SLICER can instantly compute its exact position (in terms of 1/16 ticks), when idle. It also explains why the limitation of the SLICER is at 1/8 beat loop length. Decreasing the loop length further down would "cut off" "SLICER (A) dynamic" from detecting 1/8 beats.

Rudi-J Slicer Beats

INPUT							OUTPUT							
Chan	Message	Value 1		Value 2		Clone	Delay	Chan	Message	Value 1		Value 2		
		Min	Max	Min	Max					Min	Max	Min	Max	
3	Ctrl	100	100	100	116	N	0	*	*	*	*	127	127	<

The actual processing strategy of "SLICER (A) dynamic" is outlined here:

1. Count 1/8 beats (using a 1/16 tick information from the master deck) from the starting position and wait for first performance button to be pressed. Store status of Flux mode in a modifier. (when beat #8 is reached, start all over with beat #1)
2. When first performance button is pressed, start computing sequence only if sequence counter (modifier M1) is 0. Compute relative distance for jump to desired position. As current position can be +0, ..., +7 beats from starting position plus multiple of 8 beats and jump target can as well be at +0, ..,+7 away from this position there are 8x8 = 64 different possibilities. (Practically speaking: the chasing LED may be at any of the 8 buttons the moment you press any of the 8 buttons, that's why there are 64 different possibilities)
3. Beat Jump to computed target, eventually in three sub-steps/jumps (only one jump needed if target is -1, -2, -4 beats away)
4. Beat jump second phase (if -3, -5, -7 beats away)
5. Beat jump back third phase (if -7 beats away i.e. causing consecutive jumps -4 , -2 , -1)
6. Compute jump length for jump later on to return to the "normal" beatgrid from that position (either backwards or forwards -3, ..,+4)
7. Turn Flux mode on
8. Drop a floating CUE and turn loop on with current loop length. Meanwhile continue to count 1/8 beats in M3 and full beats in M7, only relying on 1/16 ticks (note that when for

instance an 1/8 micro-loop is active at position n/16, the beat phase will basically remain at n/16 and n+1/16)

9. Allow for “Slicer (A) main” to adjust the loop-length on the fly by pressing further buttons; Meanwhile, wait for “Slicer (A) main” to detect that all buttons were released.
10. When all buttons were released, turn loop off (as we are in Fluxx mode, this will cause an automatic jump to the position before the loop was activated).
11. Wait for the next 5/16 beat to proceed
12. Turn Fluxx mode off
13. Jump backward or forwards according to the previously determined jump length (-3, ..+4) from step 6 (first jump phase)
14. Jump back (second phase, i.e. in case jump target is at -3 or +4)
15. Restore Fluxx mode to status previously stored (Step 1)
16. Reset execution sequence counter (modifier M1) to 0 to allow processing the next SLICER operation sequence.

Note that the SLICER doesn't use a floating CUE point to track and remember its starting point. Everything is computed and stored in modifiers instead.

22. SLICER (A) LEDs (I: 01; O: VCI-400 Out)

This TRAKTOR device is responsible to create the LED chaser feedback of the slicer. It reads the current position of the slicer via MLMs from “SLICER (A) dynamic”.

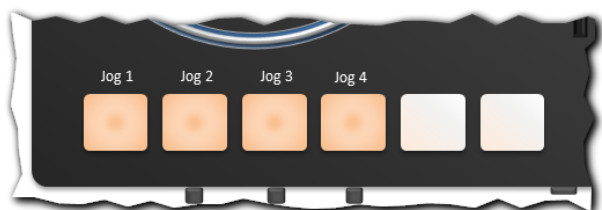
It also reads any change of current loop length from “SLICER (A) main” and temporary shows LED feedback using the same buttons.

Modifier	Value	MLM activity	Description
1	0..7	from “SLICER (A) dynamic” via CH3 CC40..47	Reads the current position of the SLICER and provides LED feedback on the VCI performance buttons when M3=0
2	0..7	from “SLICER (A) main” via CH3 CC80..87	Reads current loop length and provide LED feedback on the VCI performance buttons
3	0..3	Initialized to value 3 by “SLICER (A) main” via CH3 CC80..87 decremented by “SLICER (A) dynamic” via CH3 CC40..47	Each time a new loop size is set M3 = 3, but on each beat count M3 will be decremented. This causes any change in loop length to remain visible for 3 beats, as the chasing light can only overwrite LED feedback if M3=0
4..8			Not used

All other devices “SLICER (x) dynamic” and “SLICER (x) LEDs” are constructed the same way.

26. Jog-FX main (I: VCI-400; O: 13)

The “Jog-FX main” device is in control of the jog wheels in scratch and jog-FX mode. For optimal latency the input port is directly connected to the VCI-400SE whereas the MIDI output is rerouted to port 13 that is in turn connected to the ports 11 and 12 which are inputs for the other devices controlling the Jog-FX functionality allowing MLM connectivity between them.



Modifier	Value	MLM activity	Description
1	0		Left side: No button Jog 2..4 (see above) is pressed while jog-wheel pressed in Jog-FX mode
1	1		Left side: Button Jog 4 pressed while jog-wheel pressed in Jog-FX mode
1	2		Left side: Button Jog 3 pressed while jog-wheel pressed in Jog-FX mode
1	3		Left side: Buttons Jog 3,4 pressed while jog-wheel pressed in Jog-FX mode
1	4		Left side: Button Jog 2 pressed while jog-wheel pressed in Jog-FX mode
1	5		Left side: Buttons Jog 2, 4 pressed while jog-wheel pressed in Jog-FX mode
1	6		Left side: Buttons Jog 2, 3 pressed while jog-wheel pressed in Jog-FX mode
1	7		Left side: Buttons Jog 2,3,4 pressed while jog-wheel pressed in Jog-FX mode
2	0	to “JOG-FX counters” via CH15 Note E-1, F-1, F#-1	Right side: Jog wheel not pressed in either mode, no shift pressed
2	1		Main shift pressed
2	2		Shift-L pressed
2	3		Shift-R pressed
2	4	to “JOG-FX counters” via CH16 Note E-1, F-1, F#-1	Right side: Jog wheel pressed in either mode (but CH16 note E-1, F-1, F#-1 only sent if in Jog-FX mode)
2	5		FX unit dry/wet encoder on left or right side pressed
3	0		Left side: No Jog-FX mode active
3	1	to “JOG-FX fire buttons” via CH16 Note G-1	Left side: Jog-FX preset 1 active (Button Jog 1 lit)
3	3		Left side: Jog-FX preset 2 active (Button Jog 2 lit)
3	5		Left side: Jog-FX preset 3 active (Button Jog 3 lit)
3	7		Left side: Jog-FX preset 4 active (Button Jog 4 lit)
4	0		Right side: No Jog-FX mode active
4	1		Right side: Jog-FX preset 1 active (Button Jog 1 lit)
4	3	to “JOG-FX fire buttons” via CH16 Note G#-1	Right side: Jog-FX preset 2 active (Button Jog 2 lit)
4	5		Right side: Jog-FX preset 3 active (Button Jog 3 lit)
4	7		Right side: Jog-FX preset 4 active (Button Jog 4 lit)
5	0		Right side: No button Jog 2..4 (see above) is pressed while jog-wheel pressed in Jog-FX mode
5	1		Right side: Button Jog 4 pressed while jog-wheel pressed in Jog-FX mode
5	2		Right side: Button Jog 3 pressed while jog-wheel pressed in Jog-FX mode

5	3		Right side: Buttons Jog 3,4 pressed while jog-wheel pressed in Jog-FX mode
5	4		Right side: Button Jog 2 pressed while jog-wheel pressed in Jog-FX mode
5	5		Right side: Buttons Jog 2, 4 pressed while jog-wheel pressed in Jog-FX mode
5	6		Right side: Buttons Jog 2, 3 pressed while jog-wheel pressed in Jog-FX mode
5	7		Right side: Buttons Jog 2,3,4 pressed while jog-wheel pressed in Jog-FX mode
6	0		Right side: no Bank selected
6	1		Right side: Bank 1 selected (with main shift)
6	2		Right side: Bank 2 selected (with left shift)
6	3		Right side: Bank 3 selected (with right shift)
7	0		Left side: no Bank selected
7	1		Left side: Bank 1 selected (with main shift)
7	2		Left side: Bank 2 selected (with left shift)
7	3		Left side: Bank 3 selected (with right shift)
8	0	to "JOG-FX counters" via CH15 Note D-1, D#-1, C#-1	Left side: Jog wheel not pressed in either mode, no shift pressed
8	1		Main shift pressed
8	2		Shift-L pressed
8	3		Shift-R pressed
8	4	to "JOG-FX counters" via CH16 Note D-1, D#-1,C#-1	Left side: Jog wheel pressed in either mode (but CH16 note D-1, D#-1, C#-1 only sent if in Jog-FX mode)
8	5		FX unit dry/wet encoder on left or right side pressed

27. Jog-FX counters (I:12; O:15)

The "JOG-FX counters" device is managing the events that lead to the condition that a group FX slot 1, 2 or 3 is actually switched on or off. In addition to that it partly also contains preset values to be established in relation to MASCHINE's Jog-FX button presets.

For each of the three group FX slot buttons on each side there are two conditions that need to be met, in order to activate an effect slot:

1. The associated jog must be pressed down and hold (triggered from "Jog-FX main" via MLMs)
2. The actual value of the slots FX parameter value must be in the range that is currently defined by the L/R F1/2/3 SRC/TRSHL. controls on MASCHINE (triggered from "Jog-FX src&trhld" via MLMs)



As both events that lead to the condition can happen at the same time it became difficult to trigger this situation with MLMs without suppressing/ignoring either event. The solution for this problem

was to route the conditions via MLMs to modifiers inside “Jog-FX counters”, which are incremented/decremented when either of the condition is met/not met.

Modifier	Value	MLM activity	Description
1			Not used
2	0	From “Jog-FX main” and “Jog-FX src&trshld” via Dec: CH15, Note C#-1 Inc: CH16, Note C#-1 If =2 to “Jog-FX fire buttons” via CH14, Note C#-1	Left side: FX slot 1: Jog wheel not pressed and FX slot 1 parameter not in active range
2	1		Left side: FX slot 1: Either jog wheel pressed or FX slot 1 parameter in active range
2	2		Left side: FX slot 1: Jog wheel pressed and FX slot 1 parameter both in active range
3	0	From “Jog-FX main” and “Jog-FX src&trshld” via Dec: CH15, Note D-1 Inc: CH16, Note D-1 If =2 to “Jog-FX fire buttons” via CH14, Note D-1	Left side: FX slot 2: Jog wheel not pressed and FX slot 2 parameter not in active range
3	1		Left side: FX slot 2: Either jog wheel pressed or FX slot 2 parameter in active range
3	2		Left side: FX slot 2: Jog wheel pressed and FX slot 2 parameter both in active range
4	0	From “Jog-FX main” and “Jog-FX src&trshld” via Dec: CH15, Note D#-1 Inc: CH16, Note D#-1 If =2 to “Jog-FX fire buttons” via CH14, Note D#-1	Left side: FX slot 3: Jog wheel not pressed and FX slot 3 parameter not in active range
4	1		Left side: FX slot 3: Either jog wheel pressed or FX slot 3 parameter in active range
4	2		Left side: FX slot 3: Jog wheel pressed and FX slot 3 parameter both in active range
5			Not used
6	0	From “Jog-FX main” and “Jog-FX src&trshld” via Dec: CH15, Note E-1 Inc: CH16, Note E-1 If =2 to “Jog-FX fire buttons” via CH14, Note E-1	Right side: FX slot 1: Jog wheel not pressed and FX slot 1 parameter not in active range
6	1		Right side: FX slot 1: Either jog wheel pressed or FX slot 1 parameter in active range
6	2		Right side: FX slot 1: Jog wheel pressed and FX slot 1 parameter both in active range
7	0	From “Jog-FX main” and “Jog-FX src&trshld” via Dec: CH15, Note F-1 Inc: CH16, Note F-1 If =2 to “Jog-FX fire buttons” via CH14, Note F-1	Right side: FX slot 2: Jog wheel not pressed and FX slot 2 parameter not in active range
7	1		Right side: FX slot 2: Either jog wheel pressed or FX slot 2 parameter in active range
7	2		Right side: FX slot 2: Jog wheel pressed and FX slot 2 parameter both in active range
8	0	From “Jog-FX main” and “Jog-FX src&trshld” via Dec: CH15, Note F#-1 Inc: CH16, Note F#-1 If =2 to “Jog-FX fire buttons” via CH14, Note F#-1	Right side: FX slot 3: Jog wheel not pressed and FX slot 3 parameter not in active range
8	1		Right side: FX slot 3: Either jog wheel pressed or FX slot 3 parameter in active range
8	2		Right side: FX slot 3: Jog wheel pressed and FX slot 3 parameter both in active range

As for the initialization of presets modifiers M2, M3, M4 receive their initialization preset values via MLMs triggered by “Jog-FX (L) presets” through MIDI CH14 CC62..67. M6, M7, M8 are likewise initialized by “Jog-FX (R) presets” via MIDI CH14 CC70..75. To allow some rest to establish the majority of preset settings first the signal is delayed by MIDIOX on its way from MASCHINE to port 12 by the map file “JOGFX Delayed Init CH14”.

Rudi-J JogFX Delayed Init Ch14

INPUT							OUTPUT						
Chan	Message	Value 1		Value 2		Clone	Delay	Chan	Message	Value 1		Value 2	
		Min	Max	Min	Max					Min	Max	Min	Max
1	Ctrl	62	77	*	*	Y	300	14	Ctrl	62	77	*	*

Furthermore Jog-FX counters will issue the FX unit dry/wet status on CH1, Note C#-1 and on CH1 Note D-1, when dry/wet has reached 0. Likewise, for FX unit 4, dry wet is sent to CH1, Note E-1, triggering CH1 Note F-1, when at level 0. These MIDI signals will be picked up by the device “Jog-FX fire buttons” to control the attenuation/decay of FX units 3 and to maintain the FX button status.

28. Jog-FX fire buttons (I:15; O:none)

The “Jog-FX fire buttons” device is linked to “Jog-FX counters” and actually activates the FX slots when the corresponding MLM is taking up the right value.

Its design was pretty short, simple and straightforward before the implementation of the auto-decay modes and the multi-unit activation modes was done.

Device Setup

Device: JOG-FX fire buttons (I:1) | In-Port: 15. Interr | Out-Port: None

Buttons: Add... | Edit... | Device Target: Focus

Modifier State: 1 0 | 2 0 | 3 0 | 4 0 | 5 0 | 6 0 | 7 0 | 8 0

Assignment Table

Control	I/O	Assignment	Mode	Mapped to	Cond1	Cond2	Comment
Unit On	In	FX Unit 3	Hold	Ch14.Note.C#-1		FX Panel Mode.FX Unit 3=Single	FX3.1 Activation Action
Button 1	In	FX Unit 3	Hold	Ch14.Note.C#-1		FX Panel Mode.FX Unit 3=Group	FX3.1 Activation Action
Button 2	In	FX Unit 3	Hold	Ch14.Note.D-1			FX3.2 Activation Action
Button 3	In	FX Unit 3	Hold	Ch14.Note.D#-1			FX3.3 Activation Action
Unit On	In	FX Unit 4	Hold	Ch14.Note.E-1		FX Panel Mode.FX Unit 4=Single	FX4.1 Activation Action
Button 1	In	FX Unit 4	Hold	Ch14.Note.E-1		FX Panel Mode.FX Unit 4=Group	FX4.1 Activation Action
Button 2	In	FX Unit 4	Hold	Ch14.Note.F-1			FX4.2 Activation Action
Button 3	In	FX Unit 4	Hold	Ch14.Note.F#-1			FX4.3 Activation Action

Buttons: Add In... | Add Out... | Duplicate | Delete

Device Mapping

Learn | Ch14.Note.C#-1 | Reset

Comment: FX3.1 Activation Action

Mapping Details

Modifier Conditions: [] | Value: - | Modifier: FX Unit M | Value: Single

Type of Controller: Button

Interaction Mode: Hold | Assignment: FX Unit 3

Button Options

Invert | Resolution: ---

The additional functions are implemented using 8 modifiers:

Modifier	Value	MLM activity	Description
1	0..3		Taking up the value of MASCHINE's knob page 4 knob "LEFT"
2	0..6		Taking up the value of MASCHINE's knob page 4 knob "SENSITIV."
3	0	from "JOG-FX main" via CH16 Note G-1	Left wheel not in Jog-FX mode with one of jog 2, 3 or 4 lit.
3	1	from "JOG-FX main" via CH16 Note G-1	Left wheel in Jog-FX mode and either jog 2, 3 or 4 is lit.
4	0	from "JOG-FX main" via CH16 Note G-1	Left wheel not in Jog-FX mode with one of jog 2, 3 or 4 lit.
4	1	from "JOG-FX main" via CH16 Note C#-1	Left wheel in Jog-FX mode , either jog 2, 3 or 4 is lit, and jog is pressed down
4	2	from "JOG-FX main" via CH15 Note C#-1	Left wheel in Jog-FX mode and either jog 2, 3 or 4 is lit, but jog is not pressed
5	0..3		Taking up the value of MASCHINE's knob page 4 knob "LEFT"
6	0..6		Taking up the value of MASCHINE's knob page 4 knob "SENSITIV."
7	0	from "JOG-FX main" via CH16 Note G#-1	Left wheel not in Jog-FX mode with one of jog 2, 3 or 4 lit.
7	1	from "JOG-FX main" via CH16 Note G#-1	Left wheel in Jog-FX mode and either jog 2, 3 or 4 is lit.
8	0	from "JOG-FX main" via CH16 Note G#-1	Left wheel not in Jog-FX mode with one of jog 2, 3 or 4 lit.
8	1	from "JOG-FX main" via CH16 Note E-1	Left wheel in Jog-FX mode , either jog 2, 3 or 4 is lit, and jog is pressed down
8	2	from "JOG-FX main" via CH15 Note E-1	Left wheel in Jog-FX mode and either jog 2, 3 or 4 is lit, but jog is not pressed

Note that due to the routing of MIDIOX, "Jog-FX fire buttons" will just receive data on CH 15 and 16 from "VCI-main" but not from "Jog-FX src&trshld". This ensures that the device is only sensitive to a jog press and release in Jog-FX mode. Unlike "Jog-FX counters" the device will ignore when the FX parameters are entering/leaving their predefined activation ranges.

Auto dry/wet decay is implemented by creating a feedback loop between the MIDI out of dry/wet levels created by device "Jog-FX counters" into various auto-decrement command lines inside of "Jog-FX fire buttons" that are selected for execution by the value of modifiers M2 (left side) and M6 (right side). Once dry/wet has reached the level 0, any active FX button of the FX unit is switched off (in case of single FX mode the FX unit is switched off).

Button activation/deactivation is extended with "Hold" commands in **multi-unit modes** to FX units 1 & 3 (left Jog-FX) and FX units 1 & 2 (right Jog-FX) under control of modifiers M1 and M5 respectively.

29. Jog-FX (L) presets (I:11; O:14)

This device will organize the FX presets and the presets for Jog-FX button triggering by picking up the buttons that are pressed on MASCHINE in knob page 4 (incoming MIDI on CH 01 CH62..67). In case of a FX preset call, each press of a button results in loading the predefined FX into the FX unit and adjusting the start values. In case of a combined FX preset and Jog-FX button triggering preset recall

the corresponding modifiers are loaded with their requested values as required by the “Jog-FX (L) src&trshld” discussed in the next chapter. In below table modifiers M2,3,4 and M6,7,8 are used as MLMs for communication with “Jog-FX (L) src&trshld”.

Modifier usage:

Modifier	Value	MLM activity	Description
1	0..5		For LED feedback on MASCHINE using CH 01 CH62..67
2	0..7	to “JOG-FX (L) src&trshld” via CH13 CC31	Preset value for “L-F1 SRC”
3	0..7	to “JOG-FX (L) src&trshld” via CH13 CC32	Preset value for “L-F2 SRC”
4	0..7	to “JOG-FX (L) src&trshld” via CH13 CC33	Preset value for “L-F3 SRC”
5	0		No shift pressed on MASCHINE
5	1		Shift 1 pressed on MASCHINE
5	2		Shift 2 pressed on MASCHINE
6	0..7	to “JOG-FX (L) src&trshld” via CH13 CC35	Preset value for “L1-TRSHL.”
7	0..7	to “JOG-FX (L) src&trshld” via CH13 CC36	Preset value for “L2-TRSHL.”
8	0..7	to “JOG-FX (L) src&trshld” via CH13 CC37	Preset value for “L3-TRSHL.”

MIDI is sent out to port 14 and rerouted by MIDIOX to MIDI port 11, which acts as an input for “Jog-FX (L) src&trshld” but also again as input to “Jog-FX (L) presets” – thus creating a MIDI feedback loop for “Jog-FX (L) presets”. On its way the MIDI stream is manipulated by MIDIOX map “Jog-FX ex”. The relevant parts in this map are highlighted in bold letters:

Rudi-J JogFX ex

INPUT							OUTPUT							
Chan	Message	Value 1		Value 2		Clone	Delay	Chan	Message	Value 1		Value 2		
		Min	Max	Min	Max					Min	Max	Min	Max	
13	Ctrl	30	45	0	127	Y	0	13	NoteOn	0	127	1	1	<
1	Ctrl	62	77	*	*	Y	80	15	*	*	*	*	*	
1	Ctrl	62	77	*	*	Y	160	16	*	*	*	*	*	

First the incoming MIDI CC on CH 13 is muted and transformed into NoteOn commands for processing in “JOG-FX (L) src&trshld”. Secondly the LED output for MASCHINE (on CH1 CC62..67) is echoed back on CH 15 (with a 15ms delay) and on CH 16 (with a 160 ms delay). This allows sequential processing of the initialisation commands for pre-sets in “Jog-FX (L) presets”.

“Jog-FX (R) presets” does act in the same way with slightly different MIDI ranges:

- **CH1/15/16 CC70..75** (instead of CH1/15/16 with CC62..67)
- **CH13 CC39..45** (instead of CH13 CC31..37)

31. Jog-FX (L) src&trshld (I:11; O:09)

This device does the tricky job of picking up the current setting of “SRC” and “TRSHL.” knobs on MASCHINE and to sense, if the corresponding FX parameter value is currently within the range that was specified by the SRC/TRSHL knobs on MASCHINE. Upon entering/leaving these ranges trigger signals are communicated via MLM to “Jog-FX counters”. Modifiers are used as follows:

Modifier	Value	MLM activity	Description
1			Not used
2	0..7		Preset value for “L-F1 SRC”
3	0..7		Preset value for “L-F2 SRC”
4	0..7		Preset value for “L-F3 SRC”
5			Not used
6	0..7		Preset value for “L1-TRSHL.”
7	0..7		Preset value for “L2-TRSHL.”
8	0..7		Preset value for “L3-TRSHL.”

As MASCHINE (and also “Jog-FX (L) presets”) transmit the required value of “SRC” and “TRSHL.” knobs via CH13 CC31..37) You might wonder, why inside “Jog-FX (L) src&trshld” the values are picked up in a MIDI note range of CH13 Note G#-1..G1. This is actually a workaround I encountered with regards to an issue with the TRAKTOR vs MASCHINE MIDI functionality (at least in a former 2012 version of TRAKTOR/MASCHINE): When a knob was set to arbitrary value (using a MIDI Out CC command in TRAKTOR) and the knob was then twisted, MASCHINE did NOT continue from the last encountered value but took up (spuriously) different values. This did not happen when the incoming CCs were converted to a note command in a way that there was no direct link between the modifier in TRAKTOR and the CC based knob value on MASCHINE. However in the latest version of TRAKTOR (v. 2.6.4) this issue seems to be resolved. Nevertheless the workaround is still active in this mapping. The actual CC to note conversion job is done by this line in the “**Jog-FX ex**” MIDIOX map.

INPUT								OUTPUT						
Chan	Message	Value 1		Value 2		Clone	Delay	Chan	Message	Value 1		Value 2		
		Min	Max	Min	Max					Min	Max	Min	Max	
13	Ctrl	30	45	0	127	Y	0	13	NoteOn	0	127	1	1	<

Triggering the range for each of the knobs and their associated FX parameters is done by a series of OUT commands for FX3 D/W and knob values in TRAKTOR. As an example how this works out consider the statements to manage control of FX button 1 using “L1-TRSHL.” in this excerpt of “Jog-Fx(L) src&trshld”, where modifiers M2 represent the current setting of “L-F1 SRC” and M6 represents “L1-TRSHL.” The highlighted example shows how the knob 2 setting of FX unit 3 will cause TRAKTOR to activate MIDI CH16 CC12, when the value **has reached or exceeds 30%**.

Control	I/O	Assignment	Mode	Mapped to	Cond1	Cond2	Comment
Knob 3	Out	FX Unit 3	Output	Ch16.CC.013	M2=7	M6=0	FX.1 Knob3 0.00
Knob 2	Out	FX Unit 3	Output	Ch16.CC.012	M2=4	M6=6	FX.1 Knob2 0.95
Knob 2	Out	FX Unit 3	Output	Ch16.CC.012	M2=5	M6=6	FX.1 Knob2 0.95
Knob 2	Out	FX Unit 3	Output	Ch16.CC.012	M2=4	M6=5	FX.1 Knob2 0.80
Knob 2	Out	FX Unit 3	Output	Ch16.CC.012	M2=5	M6=5	FX.1 Knob2 0.80
Knob 2	Out	FX Unit 3	Output	Ch16.CC.012	M2=4	M6=4	FX.1 Knob2 0.65
Knob 2	Out	FX Unit 3	Output	Ch16.CC.012	M2=5	M6=4	FX.1 Knob2 0.65
Knob 2	Out	FX Unit 3	Output	Ch16.CC.012	M2=4	M6=3	FX.1 Knob2 0.50
Knob 2	Out	FX Unit 3	Output	Ch16.CC.012	M2=5	M6=3	FX.1 Knob2 0.50
Knob 2	Out	FX Unit 3	Output	Ch16.CC.012	M2=4	M6=2	FX.1 Knob2 0.30
Knob 2	Out	FX Unit 3	Output	Ch16.CC.012	M2=5	M6=2	FX.1 Knob2 0.30
Knob 2	Out	FX Unit 3	Output	Ch16.CC.012	M2=4	M6=1	FX.1 Knob2 0.15
Knob 2	Out	FX Unit 3	Output	Ch16.CC.012	M2=5	M6=1	FX.1 Knob2 0.15
Knob 2	Out	FX Unit 3	Output	Ch16.CC.012	M2=4	M6=0	FX.1 Knob2 0.00
Knob 2	Out	FX Unit 3	Output	Ch16.CC.012	M2=5	M6=0	FX.1 Knob2 0.00
Knob 1	Out	FX Unit 3	Output	Ch16.CC.011	M2=2	M6=6	FX.1 Knob1 0.95

Device Mapping: Learn Ch16.CC.012 Reset

Comment: FX.1 Knob2 0.30

Mapping Details: Modifier Conditions M2=4 M6=2

Type of Controller: LED Interaction Mode: Output Assignment: FX Unit 3

LED Options: Controller Range 0.000000 0.300000 Invert Midi Range 0 1 Blend

The next line, also labeled “FX.1 Knob2 0.30”, is specified to trigger MIDI CH16 CC12 whenever the value of knob 2 **decreases below the level of 30%**:

Control	I/O	Assignment	Mode	Mapped to	Cond1	Cond2	Comment
Knob 3	Out	FX Unit 3	Output	Ch16.CC.013	M2=7	M6=0	FX.1 Knob3 0.00
Knob 2	Out	FX Unit 3	Output	Ch16.CC.012	M2=4	M6=6	FX.1 Knob2 0.95
Knob 2	Out	FX Unit 3	Output	Ch16.CC.012	M2=5	M6=6	FX.1 Knob2 0.95
Knob 2	Out	FX Unit 3	Output	Ch16.CC.012	M2=4	M6=5	FX.1 Knob2 0.80
Knob 2	Out	FX Unit 3	Output	Ch16.CC.012	M2=5	M6=5	FX.1 Knob2 0.80
Knob 2	Out	FX Unit 3	Output	Ch16.CC.012	M2=4	M6=4	FX.1 Knob2 0.65
Knob 2	Out	FX Unit 3	Output	Ch16.CC.012	M2=5	M6=4	FX.1 Knob2 0.65
Knob 2	Out	FX Unit 3	Output	Ch16.CC.012	M2=4	M6=3	FX.1 Knob2 0.50
Knob 2	Out	FX Unit 3	Output	Ch16.CC.012	M2=5	M6=3	FX.1 Knob2 0.50
Knob 2	Out	FX Unit 3	Output	Ch16.CC.012	M2=4	M6=2	FX.1 Knob2 0.30
Knob 2	Out	FX Unit 3	Output	Ch16.CC.012	M2=5	M6=2	FX.1 Knob2 0.30
Knob 2	Out	FX Unit 3	Output	Ch16.CC.012	M2=4	M6=1	FX.1 Knob2 0.15
Knob 2	Out	FX Unit 3	Output	Ch16.CC.012	M2=5	M6=1	FX.1 Knob2 0.15
Knob 2	Out	FX Unit 3	Output	Ch16.CC.012	M2=4	M6=0	FX.1 Knob2 0.00
Knob 2	Out	FX Unit 3	Output	Ch16.CC.012	M2=5	M6=0	FX.1 Knob2 0.00
Knob 1	Out	FX Unit 3	Output	Ch16.CC.011	M2=2	M6=6	FX.1 Knob1 0.95

Device Mapping: Learn Ch16.CC.012 Reset

Comment: FX.1 Knob2 0.30

Mapping Details: Modifier Conditions M2=5 M6=2

Type of Controller: LED Interaction Mode: Output Assignment: FX Unit 3

LED Options: Controller Range 0.300000 1.000000 Invert Midi Range 0 1 Blend

*Note, that above statements only cover control of **FX button 1** based on the current value setting of FX parameter knob 2.*

Similar statements can be found in the mapping that control as well **FX button 2 activation** via altering the value of FX knob 2 (using M3 and M7 i.e. “L-F2 SRC” / “L2-TRSHL.”)

Control	I/O	Assignment	Mode	Mapped to	Cond1	Cond2	Comment
Knob 3	Out	FX Unit 3	Output	Ch16.CC.017	M3=7	M7=0	FX.2 Knob3 0.00
Knob 2	Out	FX Unit 3	Output	Ch16.CC.016	M3=4	M7=6	FX.2 Knob2 0.95
Knob 2	Out	FX Unit 3	Output	Ch16.CC.016	M3=5	M7=6	FX.2 Knob2 0.95
Knob 2	Out	FX Unit 3	Output	Ch16.CC.016	M3=4	M7=5	FX.2 Knob2 0.80
Knob 2	Out	FX Unit 3	Output	Ch16.CC.016	M3=5	M7=5	FX.2 Knob2 0.80
Knob 2	Out	FX Unit 3	Output	Ch16.CC.016	M3=4	M7=4	FX.2 Knob2 0.65
Knob 2	Out	FX Unit 3	Output	Ch16.CC.016	M3=5	M7=4	FX.2 Knob2 0.65
Knob 2	Out	FX Unit 3	Output	Ch16.CC.016	M3=4	M7=3	FX.2 Knob2 0.50
Knob 2	Out	FX Unit 3	Output	Ch16.CC.016	M3=5	M7=3	FX.2 Knob2 0.50
Knob 2	Out	FX Unit 3	Output	Ch16.CC.016	M3=4	M7=2	FX.2 Knob2 0.30
Knob 2	Out	FX Unit 3	Output	Ch16.CC.016	M3=5	M7=2	FX.2 Knob2 0.30
Knob 2	Out	FX Unit 3	Output	Ch16.CC.016	M3=4	M7=1	FX.2 Knob2 0.15
Knob 2	Out	FX Unit 3	Output	Ch16.CC.016	M3=5	M7=1	FX.2 Knob2 0.15
Knob 2	Out	FX Unit 3	Output	Ch16.CC.016	M3=4	M7=0	FX.2 Knob2 0.00
Knob 2	Out	FX Unit 3	Output	Ch16.CC.016	M3=5	M7=0	FX.2 Knob2 0.00
Knob 1	Out	FX Unit 3	Output	Ch16.CC.015	M3=2	M7=6	FX.2 Knob1 0.95

.... and statements that control **FX button 3 activation** via altering the value of FX knob 2 (using M4 and M8 i.e. "L-F3 SRC" / "L3-TRSHL.")

Control	I/O	Assignment	Mode	Mapped to	Cond1	Cond2	Comment
Knob 3	Out	FX Unit 3	Output	Ch16.CC.021	M4=7	M8=0	FX.3 Knob3 0.00
Knob 2	Out	FX Unit 3	Output	Ch16.CC.020	M4=4	M8=6	FX.3 Knob2 0.95
Knob 2	Out	FX Unit 3	Output	Ch16.CC.020	M4=5	M8=6	FX.3 Knob2 0.95
Knob 2	Out	FX Unit 3	Output	Ch16.CC.020	M4=4	M8=5	FX.3 Knob2 0.80
Knob 2	Out	FX Unit 3	Output	Ch16.CC.020	M4=5	M8=5	FX.3 Knob2 0.80
Knob 2	Out	FX Unit 3	Output	Ch16.CC.020	M4=4	M8=4	FX.3 Knob2 0.65
Knob 2	Out	FX Unit 3	Output	Ch16.CC.020	M4=5	M8=4	FX.3 Knob2 0.65
Knob 2	Out	FX Unit 3	Output	Ch16.CC.020	M4=4	M8=3	FX.3 Knob2 0.50
Knob 2	Out	FX Unit 3	Output	Ch16.CC.020	M4=5	M8=3	FX.3 Knob2 0.50
Knob 2	Out	FX Unit 3	Output	Ch16.CC.020	M4=4	M8=2	FX.3 Knob2 0.30
Knob 2	Out	FX Unit 3	Output	Ch16.CC.020	M4=5	M8=2	FX.3 Knob2 0.30
Knob 2	Out	FX Unit 3	Output	Ch16.CC.020	M4=4	M8=1	FX.3 Knob2 0.15
Knob 2	Out	FX Unit 3	Output	Ch16.CC.020	M4=5	M8=1	FX.3 Knob2 0.15
Knob 2	Out	FX Unit 3	Output	Ch16.CC.020	M4=4	M8=0	FX.3 Knob2 0.00
Knob 2	Out	FX Unit 3	Output	Ch16.CC.020	M4=5	M8=0	FX.3 Knob2 0.00
Knob 1	Out	FX Unit 3	Output	Ch16.CC.019	M4=2	M8=6	FX.3 Knob1 0.95

A table summarizing of how the MIDI CCs are used for sensing **FX unit 3, button 1 activation** is given here:

Chan	CC	Value	Interpretation
16	10	1/0	FX3 dry/wet is/isn't in activation range specified by "L-F1-SRC" and "L1-TRSHL."
16	11	1/0	FX3 knob 1 is/isn't in activation range specified by "L-F1-SRC" and "L1-TRSHL."
16	12	1/0	FX3 knob 2 is/isn't in activation range specified by "L-F1-SRC" and "L1-TRSHL."
16	13	1/0	FX3 knob 3 is/isn't in activation range specified by "L-F1-SRC" and "L1-TRSHL."

Note that "L-F1-SRC" (M2) can only take up one value, so just one of above listed entries lines can get relevant at a time.

FX unit 3, button 2 activation:

Chan	CC	Value	Interpretation
16	14	1/0	FX3 dry/wet is/isn't in activation range specified by "L-F2-SRC" and "L2-TRSHL."
16	15	1/0	FX3 knob 1 is/isn't in activation range specified by "L-F2-SRC" and "L2-TRSHL."
16	16	1/0	FX3 knob 2 is/isn't in activation range specified by "L-F2-SRC" and "L2-TRSHL."
16	17	1/0	FX3 knob 3 is/isn't in activation range specified by "L-F2-SRC" and "L2-TRSHL."

FX unit 3, button 3 activation:

Chan	CC	Value	Interpretation
16	18	1/0	FX3 dry/wet is/isn't in activation range specified by "L-F3-SRC" and "L3-TRSHL."
16	19	1/0	FX3 knob 1 is/isn't in activation range specified by "L-F3-SRC" and "L3-TRSHL."
16	20	1/0	FX3 knob 2 is/isn't in activation range specified by "L-F3-SRC" and "L3-TRSHL."
16	21	1/0	FX3 knob 3 is/isn't in activation range specified by "L-F3-SRC" and "L3-TRSHL."

Note that similar MIDI arrangements are valid for the right jog, involving FX 4 and device "Jog-FX (R) src&trshld" as shown here:

Chan	CC	Value	Interpretation
16	30	1/0	FX4 dry/wet is/isn't in activation range specified by "R-F1-SRC" and "R1-TRSHL."
16	31	1/0	FX4 knob 1 is/isn't in activation range specified by "R-F1-SRC" and "R1-TRSHL."
16	32	1/0	FX4 knob 2 is/isn't in activation range specified by "R-F1-SRC" and "R1-TRSHL."
16	33	1/0	FX4 knob 3 is/isn't in activation range specified by "R-F1-SRC" and "R1-TRSHL."
16	34	1/0	FX4 dry/wet is/isn't in activation range specified by "R-F2-SRC" and "R2-TRSHL."
16	35	1/0	FX4 knob 1 is/isn't in activation range specified by "R-F2-SRC" and "R2-TRSHL."
16	36	1/0	FX4 knob 2 is/isn't in activation range specified by "R-F2-SRC" and "R2-TRSHL."
16	37	1/0	FX4 knob 3 is/isn't in activation range specified by "R-F2-SRC" and "R2-TRSHL."
16	38	1/0	FX4 dry/wet is/isn't in activation range specified by "R-F3-SRC" and "R3-TRSHL."
16	39	1/0	FX4 knob 1 is/isn't in activation range specified by "R-F3-SRC" and "R3-TRSHL."
16	40	1/0	FX4 knob 2 is/isn't in activation range specified by "R-F3-SRC" and "R3-TRSHL."
16	41	1/0	FX4 knob 3 is/isn't in activation range specified by "R-F3-SRC" and "R3-TRSHL."

For utilization in "Jog-FX counters" these raw MIDI CCs are processed by MIDIOX with the map "JOGFX Src&Sense" on their way from MIDI port 9 (Output of "Jog-Fx src&trshld") to MIDI port 12 (input of "Jog-FX counters"):

Rudi-J JogFX Src&Sense

INPUT							OUTPUT						
Chan	Message	Value 1		Value 2		Clone	Delay	Chan	Message	Value 1		Value 2	
		Min	Max	Min	Max					Min	Max	Min	Max
16	Ctrl	10	13	1	1	N	0	16	NoteOn	1	1	1	1
16	Ctrl	10	13	0	0	N	0	15	NoteOn	1	1	1	1
16	Ctrl	14	17	1	1	N	0	16	NoteOn	2	2	1	1
16	Ctrl	14	17	0	0	N	0	15	NoteOn	2	2	1	1
16	Ctrl	18	21	1	1	N	0	16	NoteOn	3	3	1	1
16	Ctrl	18	21	0	0	N	0	15	NoteOn	3	3	1	1
16	Ctrl	30	33	1	1	N	0	16	NoteOn	4	4	1	1
16	Ctrl	30	33	0	0	N	0	15	NoteOn	4	4	1	1
16	Ctrl	34	37	1	1	N	0	16	NoteOn	5	5	1	1
16	Ctrl	34	37	0	0	N	0	15	NoteOn	5	5	1	1
16	Ctrl	38	41	1	1	N	0	16	NoteOn	6	6	1	1
16	Ctrl	38	41	0	0	N	0	15	NoteOn	6	6	1	1
13	Ctrl	30	45	0	127	Y	0	13	NoteOn	0	127	1	1

Note that above transformations will mute any CC between 10 and 41 on channel 16 and convert it to the expected MIDI notes on channels 15/16 for processing in "Jog-FX counters" starting with note C#-1, up to F#-1.

33. Maschine main (I:MASCHINE; O:07)

This device holds all mapping statements covering the majority of functionality that is controlled by MASCHINE MIDI. It includes hotcue processing, **FX activation** (on pads and knob pages), **Key shifting**, **Isolate EQ processing** and the **sample deck** functionality. As most of this stuff is to be considered “basic mapping syntax” further explanations are omitted here.

Modifier	Value	MLM activity	Description
1	0		Shift 1 not pressed
1	1		Shift 1 pressed (w.o. shift 2)
1	3		Shift 1+2 pressed simultaneously
1	4		Loop Size /2 mode is active for knob page 1 buttons
1	5		Loop Size *2 mode is active for knob page 1 buttons
2	0		Shift 2 not pressed
2	1		Shift 2 pressed
3	0		Duplicate FX selection feature (from FX unit 1 or 2 to FX4) off
3	1		Duplicate FX selection feature from FX unit 1 to FX4 ON
3	2		Duplicate FX selection feature from FX unit 2 to FX4 ON
4	0		Duplicate FX selection feature (from FX unit 1 or 2 to FX3) off
4	1		Duplicate FX selection feature from FX unit 1 to FX3 ON
4	2		Duplicate FX selection feature from FX unit 2 to FX3 ON
5	0		Current deck is A or B
5	1		Current deck is C or D
6			Not used
7	0		Isolate EQ selection Low = off; Mid = off; High = off
7	1		Isolate EQ selection Low = off; Mid = off; High = ON
7	2		Isolate EQ selection Low = off; Mid = ON; High = off
7	3		Isolate EQ selection Low = off; Mid = ON; High = ON
7	4		Isolate EQ selection Low = ON; Mid = off; High = off
7	5		Isolate EQ selection Low = ON; Mid = off; High = ON
7	6		Isolate EQ selection Low = ON; Mid = ON; High = off
7	7		Isolate EQ selection Low = ON; Mid = ON; High = ON
8	0		Sample from deck A into C and/or B into D
8	1		Sample from deck A into C and/or A into D
8	2		Sample from deck B into C and/or B into D
8	3		Sample from Loop Recorder into deck C or D

However, this device also holds part of the functionality of Jog-FX, namely the **duplicate FX1/2 to FX unit 3 or 4** “send” aspect because in this device all FX selections for FX units 1 and 2 will be sent (depending on settings of modifiers 3 and 4) to MIDI CH 3 and 6 as the following table shows:

CC	CH 3	CH 4	CH 5	CH 6
26	FX 1 Mode for FX3			FX 1 Mode for FX4
27	FX 1.1 Sel for FX3			FX 1.1 Sel for FX4
28	FX 1.2 Sel for FX3			FX 1.2 Sel for FX4
29	FX 1.3 Sel for FX3			FX 1.3 Sel for FX4
30	FX 2 Mode for FX3			FX 2 Mode for FX4
31	FX 2.1 Sel for FX3			FX 2.1 Sel for FX4
32	FX 2.2 Sel for FX3			FX 2.2 Sel for FX4
33	FX 2.3 Sel for FX3			FX 2.3 Sel for FX4

From “Maschine main”’s output port 7 MIDI OUT propagates the MIDI data to port 2 from where it is going to be picked up by device “Master Sync LEDs and dupl FX” ready to be loaded into FX unit 3 or 4.

34. Maschine midi sync (I:none; O: 04)

This device is just a dummy entry allowing synchronizing TRAKTOR with MASCHINE using virtual MIDI port 4 for communication. Note that MIDI port 4 is not touched by MIDIOX, thus the MIDI clock sync traffic is not going through (and increasing workload) of MIDIOX.

Please note as well that in the default TRAKTOR setting MIDI Sync is already switched on. The only thing remaining to be done to mingle with MASCHINE is to configure MASCHINE for MIDI Sync though.

35. BCR FX (I:BCR port 1; O: 06)

This one is a simple device mapping that I basically carried over from the very first implementation of TRAKTOR PRO (the BCR 2000 was actually my first controller I owned). The device controls all functionality to maintain the **FX units 1..4** (including **presets and manual FX selection**) via the BCR and also the **assignments of FX units 3 and 4** to all decks A, B, C and D. Two Buttons allow **manual X-fader assignment** for deck C and D.

Modifier	Value	MLM activity	Description
1			Not used
2			Not used
3	0		Shift not pressed
3	1		Shift 1 pressed solo
3	2		Shift 2 pressed solo
3	3		Shift 1+2 pressed together
4			Not used
5			Not used
6			Not used
7			Not used
8			Not used

The device is also in control of **Autogain** level adjustment, manual **Key** adjustment and **Pan** control.

36. BCR EQ High Mid (I: 03; O: 06)

CC	Ch 16
110	High Adjust A
111	High Adjust B
112	High Adjust C
113	High Adjust D
114	Mid Adjust A
115	Mid Adjust B
116	Mid Adjust C
117	Mid Adjust D
118	Low Adjust A
119	Low Adjust B
120	Low Adjust C
121	Low Adjust D

The device “Master Sync LEDs and dupl FX” is posting the shown MIDI CCs on CH16 to port 02, that is linked to port 03 by MIDIOX using the mapping table “BCR EQing”.

This allows “BCR EQ High Mid” to detect in which range any of TRAKTOR’s EQ controls currently is.

Furthermore “Master Sync LEDs and dupl FX” posts on CH 16, when a EQ has been killed by using TRAKTOR’s “kill” command. And if any of the EQ control reaches zero “BCR EQing” will transform this condition into the same MIDI notes as “Master Sync LEDs and dupl FX” uses. This will allow “BCR EQ High Mid” to detect both conditions with the same command in order to mute the LED feedback on the respective BCR-knob ring: If an EQ has reached zero or if an EQ has been actively killed.

Note that the BCRs LED-rings will get muted regardless which device actually initiated the EQ kill (i.e. the mouse or another controller).

Rudi-J BCR EQing (Ascll)

INPUT							OUTPUT							
Chan	Message	Value 1		Value 2		Clone	Delay	Chan	Message	Value 1		Value 2		
		Min	Max	Min	Max					Min	Max	Min	Max	
16	Ctrl	110	121	1	7	Y	0	16	NoteOff	*	*	0	0	>
16	Ctrl	110	121	0	0	Y	0	16	NoteOn	*	*	1	1	>

These incoming conditions of the EQ controls are captured by “BCR EQ High Mid” in MLMs 1..8

Modifier	Value	MLM activity	Description
1	0..7	from “Master Sync LEDs and dupl FX” via CH16 CC110	Range of High A: 0%=-50%; ...0%=6; >0%=7
2	0..7	from “Master Sync LEDs and dupl FX” via CH16 CC111	Range of High B: 0%=-50%; ...0%=6; >0%=7
3	0..7	from “Master Sync LEDs and dupl FX” via CH16 CC112	Range of High C: 0%=-50%; ...0%=6; >0%=7
4	0..7	from “Master Sync LEDs and dupl FX” via CH16 CC113	Range of High D: 0%=-50%; ...0%=6; >0%=7
5	0..7	from “Master Sync LEDs and dupl FX” via CH16 CC114	Range of Mid A: 0%=-50%; ...0%=6; >0%=7
6	0..7	from “Master Sync LEDs and dupl FX” via CH16 CC115	Range of Mid B: 0%=-50%; ...0%=6; >0%=7
7	0..7	from “Master Sync LEDs and dupl FX” via CH16 CC116	Range of Mid C: 0%=-50%; ...0%=6; >0%=7
8	0..7	from “Master Sync LEDs and dupl FX” via CH16 CC117	Range of Mid D: 0%=-50%; ...0%=6; >0%=7

Note that for the EQ-kill communication on CH 16 (when 0% is reached) the incoming CCs are transformed into MIDI note On commands.

The actual trick to keep the BCR EQs LEDs always in the range of 0%-50% is to reset the corresponding value to 50% any time a CC from the BCR comes in when the MLM value is 6 or 7.

The device “BCR EQ Low” is implemented as a separate device, simply because in total 12 modifiers were needed for this functionality.

40. VCI LED meters (I:none; O: VCI-400 out)

This device is used to bypass the MIDI traffic for LED meter display on the VCI around MIDIOX in order to reduce the workload for the MIDIOX utility and to increase readability of the MIDIOX monitoring screens during debugging.

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