
circular

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1. Disclaimer

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Software version: 1.0 (05/2025)

2. Welcome to Circular

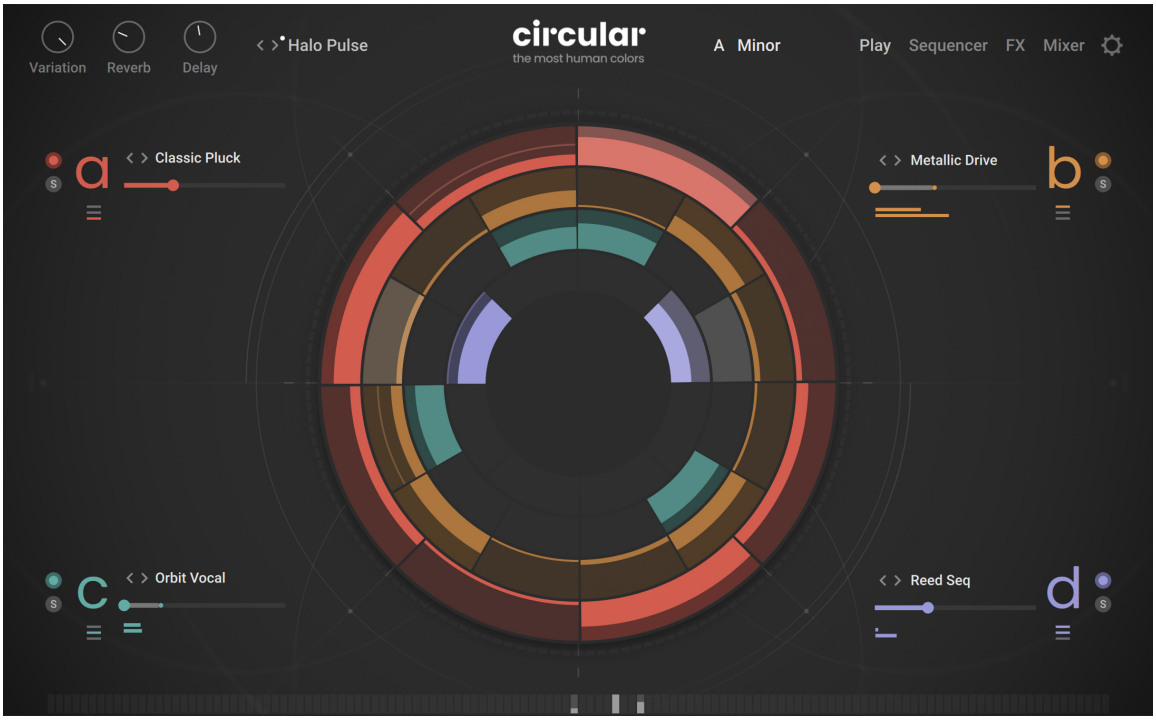
Circular begins with a single note, but it never stays there. It moves, shifts, and evolves into a living, cinematic sequence. With four fully independent layers, each with its own sequences, effects, and modulation, each step becomes a canvas, modulating pitch, filter, and effects in real time.

Circular's polyphonic sequencer transforms static notes into evolving patterns, with per-step control over all synthesis parameters – even the sample. Each layer runs independently, letting you craft dynamic polyrhythms and richly textured performances in seconds, transforming static notes into dynamic, musical patterns shaped by polyphonic aftertouch.

Featuring a comprehensive library of 168 sound sources, there is room to explore everything from delicate acoustic sequences to contemporary sound design performance. Circular is ideal for complex polyrhythmic layering, improvising with live performances, and intuitively shaping sounds while inspiring new ideas.

This document shows you how to install and setup Circular and describes all features in detail, starting with the overview.

We hope you enjoy Circular!



Document conventions

In this document the following formatting is used to highlight useful information:

Italics	Indicates paths to locations on your hard disk or other storage devices.
Bold	Highlights important names, concepts, and software interface elements.
[Brackets]	References keys on the computer keyboard.
►	Denotes a single step instruction.
→	Denotes the expected result when following instructions.

The following three icons denote special types of information:

The **light bulb** icon indicates a useful tip, suggestion, or interesting fact.

The **information** icon highlights essential information in a given context.

The **warning** icon alerts you of potential risks and serious issues.

3. Installation and setup

Before making music with Circular, you must install and set up the necessary software. Follow these instructions to get started.

Installing Circular using Native Access

Native Access is your go-to app for downloading, activating, and updating all your NI music creation tools including Circular. If you are new to Native Instruments, you will first have to create your Native ID user account. To learn more about Native Access, visit our support page.

1. Download and install Native Access here.
2. Open the Native Access application.
3. Create a Native ID, if you do not have one already.
4. Login to Native Access using your Native ID.
5. Click **Library** on the left side of Native Access.
6. Click **Available** at the top of Native Access.
7. Click the **Kontakt** category to only show products related to Kontakt.
8. Click **Install** for the following products:
   - Circular
   - Kontakt of Kontakt Player

→ The software is installed automatically.

> ⓘ If the software is already installed, click the **Updates** tab and install the available updates before proceeding.

Loading Circular in Kontakt

Once installed, you can start using Circular in Kontakt. Circular is not an independent plug-in, so you first need to open an instance of Kontakt or Kontakt Player.

Kontakt offers two ways to load an instrument, the Library browser and the side pane browser.

To load an instrument using the Library browser:

1. Open Kontakt as a plug-in in your host software (DAW) or as a stand-alone application.
2. By default, Kontakt opens the Library browser on first launch. If you have turned this off, click **Library** in Kontakt's header to open the Library browser.
3. In the Library browser, make sure that the **Instruments** category is selected at the top (this should be the case by default), otherwise click **Instruments** to select that category.
4. Locate Circular in the Library browser. You can use the search bar at the top to quickly find it.
5. Click on the arrow icon (**>**) in the top right corner of the instrument's artwork to load the instrument and its first preset.
6. Alternatively, you can click the instrument's artwork to display its presets in the list on the right of the browser window.

7. Double click any preset to load it. The first entry, identified by a keyboard icon, loads the instrument with its default preset.

To load an instrument using the side pane browser:

1. Open Kontakt as a plug-in in your host software (DAW) or as a stand-alone application.
2. In the side pane on the left, make sure that the **Instruments** category is selected (this should be the case by default), otherwise click **Instruments** to select that category.
3. Locate Circular's artwork tile below.
4. Click on the arrow icon (**>**) in the top right corner of the instrument's artwork to load the instrument and its first preset.
5. Alternatively, you can click the instrument's artwork to display the list of its presets.
6. Double click any preset to load it. The first entry, identified by a keyboard icon, loads the instrument with its default preset.

If you are new to Kontakt and want more information, visit Kontakt Player and Kontakt.

4. Circular overview

This chapter introduces the main controls and areas of Circular.

When you first open Circular, you see the Play page along with a set of global controls. These global controls are always visible at the top and bottom of the instrument window:

1. **Macro knobs**: The three Macro knobs (**Variation**, **Reverb**, and **Delay**) can be freely assigned to any number of parameters in Circular. This lets you modulate whole sets of parameters spread across the instrument using a single knob. Assigning parameters to the Macro knobs is done using the **Mod Assign** section (refer to Assigning and editing modulations). You can [option]/[Alt] + click either Macro knob to show all its current assignments. By default, the **Variation** knob is assigned to MIDI CC1 (Modulation Wheel) and CC11 (Expression). You can edit the MIDI assignments of the Macro knobs using the common procedures in Kontakt (refer to the Kontakt user guide for more information).

   ⓘ The labels of the three Macro knobs (**Variation**, **Reverb**, and **Delay**) only refer to their usual assignments in many factory presets. They do not limit by any means the type of parameter that can be assigned to their knob.

2. **Instrument Preset selector**: Shows the name of the loaded instrument preset. Instrument presets contain values for all the parameters of the instrument. They correspond to Kontakt Snapshots. You can click the preset name to open the Preset Browser and choose another preset from the factory library, or click the left and right arrows to cycle through the presets in the current Result list of the Preset Browser. A little white dot next to the left/right arrows indicates that some tags are selected in the Browser, that is, the Result list does not currently include all the instrument presets available. For more information on the Preset Browser, refer to Browsers.

3. **Instrument name**: Clicking the instrument name opens the Play page, which is the default page of the instrument. This is equivalent to clicking the **Play** button on the right.
4. **Scale selector**: Shows the selected scale. The notes that you play will be automatically mapped to the closest notes in that scale. In the Parameter Lane of the Sequencer page, this note mapping also applies to the notes generated by the Note sequence, and by the Step effects from the following categories: Arp, Ornaments, Grace Notes, and some Grain effects. You can select another scale by clicking the displayed scale and choosing a root note (left column) and a scale mode (right column) from the menu. You can deactivate this note mapping by selecting the **Chromatic** scale mode from the right column of the menu: This ensures that all 12 semitones of the chromatic scale will used by the instrument.
5. **Page buttons**: Clicking either button opens the corresponding page of the instrument.
   - **Play**: Opens the Play page (the instrument's default page, depicted above). The Play page contains a set of basic controls for each of the four layers, the real-time visualization of your running sequences, as well as additional panels to quickly generate a regular or a random sequence in either layer, and to export MIDI sequences to your DAW. Refer to Play page.
   - **Sequencer**: Opens the Sequencer page, which lets you precisely configure the various sequences used in each layer. Refer to Sequencer page.
   - **FX**: Opens the FX page, where you can set up effects or effect chains for each of the four layers A–D, for the additional Grain FX bus, for the Send channels, and for the main output of the instrument. Refer to FX page.
   - **Mixer**: Opens the Mixer page, which lets you mix the four layers A–D and the additional effect channels. Refer to Mixer page.
   - **Settings (cog wheel icon)**: Opens the Settings page, which contains settings for MIDI control and user samples. Refer to Settings page.
6. **Central area**: This is the biggest part of the instrument and it shows the various pages and Browsers.
7. **Input Note indicator**: At the bottom of the instrument, each little cell in the row represents a key. The cells light up to indicate incoming notes. As you hold notes on your keyboard, the brighter vertical bars in the lit cells indicate by default the notes' Aftertouch values. You can switch these bars to show instead the MPE Slide values in the Settings page. On the Sequencer, FX, and Mixer pages, the colored cell indicates the key whose modulation value (Aftertouch or Slide) is used in the modulation meters available on the page.

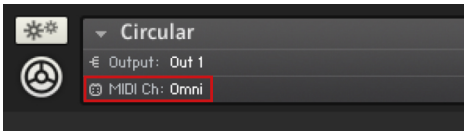
When you hover over specific controls of Circular with your mouse, info texts appear over the Input Note Indicator at the bottom of the instrument, providing useful information like the keyboard modifiers used for the control's secondary functions. You can deactivate these info texts in the Settings page.

Circular, MPE, and polyphonic aftertouch

Circular, as an instrument supporting MPE (MIDI Polyphonic Expression), structures its MIDI channels by assigning each played note to a separate channel, allowing for independent control of pitch, aftertouch, and slide (MIDI controller 72) per note. Channel 1 acts as the main channel used for global messages, while channels 2–16 handle individual note data.

When Circular receives MIDI data exclusively on channel 1, it behaves like a standard, non-MPE instrument. This setup enables Circular to adapt seamlessly between expressive MPE control and conventional MIDI input.

To ensure Circular's basic functionality, the default MIDI input channel setting **Omni**, in the Info view of its Instrument header, must be left unchanged:



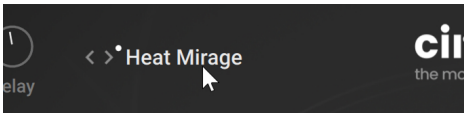
This means that Circular cannot be used alongside other instruments in the rack that share the same Kontakt MIDI input port.

The Kontrol S-Series MK3 keyboards have no MPE functionality (distributing pressed notes to different MIDI channels) but do send MIDI polyphonic aftertouch data on channel 1. Polyphonic aftertouch gives you the same outcome as MPE aftertouch in Circular without restrictions. When using a MPE controller or keyboard, you gain pitch and slide modulation per key.

5. Browsers

Browsers are available in many places in Circular. Each Browser is dedicated to a particular object type (layers, sounds, samples, etc.) and lets you search and load **presets** for that object type from the Circular factory library. Each preset contains values for all the object parameters: Loading the preset will recall all its values.

Most Browsers can be opened by clicking the **preset name** in a Preset selector. For example, in the following picture showing the Instrument Preset selector at the top of the instrument, clicking the preset name opens the Preset Browser, which lets you browse presets for the entire instrument.



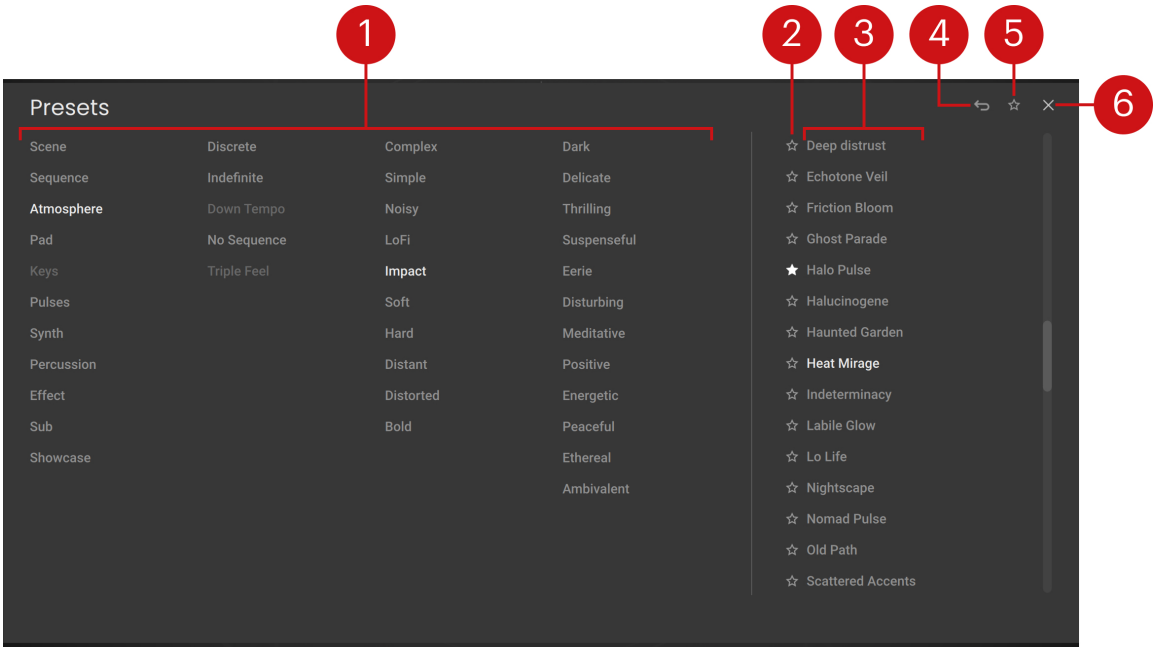
Circular provides Browsers for the following object types:

- The Preset Browser lets you load presets for the entire instrument. You can open it from the Instrument Preset selector at the top of the instrument (refer to Circular overview).
- The Layer Browser lets you load presets for either of the four layers a–d. You can open it from the Layer Preset selectors available for each layer on every page of the instrument (except for the Settings page).
- The Sound Browser lets you load presets for the sounds triggered on individual steps. You can open it from the Sound Preset selector in the **Sound** pane of the Sequencer page (refer to Sequencer page).
- The Sample Browser lets you load samples for use in the sounds. You can open it from the Sample selector in the **Sound** pane of the Sequencer page (refer to Sequencer page).
- The FX Browser lets you load presets for the effect slots. You can open it from the Effect Preset selectors available on various channels and busses of the FX page. Refer to FX page.
- The Step FX Browser lets you load presets for the Step effects. You can open it by clicking the Step FX slots in the **Parameter Lane** of the Sequencer page (refer to Sequencer page)..

No matter which object type they are browsing, all the Browsers follow this typical workflow:

- On the left, you click the properties (called **tags**) describing the type of sound that you are looking for.
- On the right, the Result list shows the presets matching the tags that you have selected. You can audition each preset in context, choose one, and close the Browser.

All the Browsers contain the following elements (Preset Browser depicted):

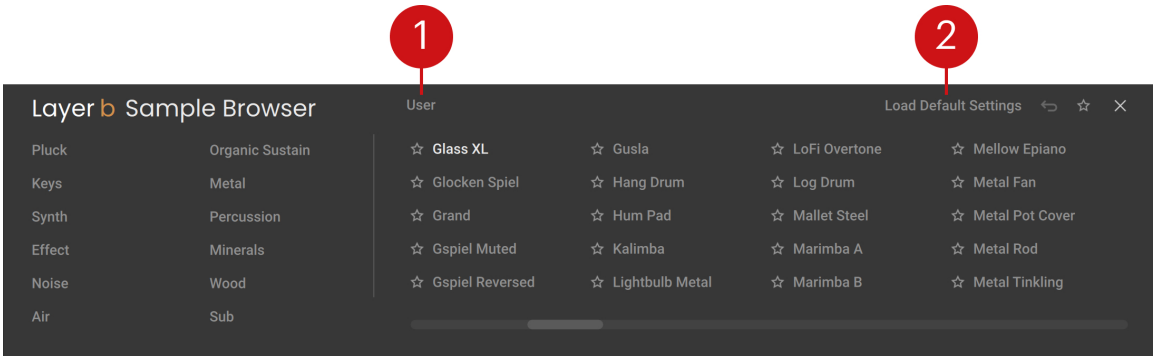


1. **Tag Filter**: You can click the tags describing the sound that you are looking for. The Result list on the right is updated accordingly. As you select the tags, the color of the remaining tags indicates whether or not some presets are available:
   - Highlighted tags are selected. You can click them to deselect them and widen the scope of your search.
   - Tags with the default color are not selected but do have matching presets in the current Result list. You can select them to further narrow your search.
   - Faded tags are not selected and do not have any matching presets in the current Result list. Selecting them would lead to an empty Result list.

   You can also [command]/[Ctrl] + click tags to exclude them from the search results. Excluded tags are indicated with a "**Not**" in front.
2. **Set as Favorite**: You can click the star icons to add or remove presets to/from your Favorites. The star icons are lit for the presets set as Favorites. This way, you can quickly create a custom collection of your most beloved presets. You can then display only your Favorites by clicking the Favorites button in the top right corner of the Browser.
3. **Result list**: Shows the presets matching the tags selected in the Tag Filter on the left. You can click a preset to load it and try it directly on your keyboard or in your DAW. The current preset is highlighted in the list. When you have found a preset that you like, you can double-click it to load it and close the Browser.
4. **Reset** (returning arrow icon): Clears the current tag selection (and exclusions) from the Tag Filter to start with a new search, the Result list showing all the available presets.
5. **Favorites** (star icon): Displays only your Favorites in the Result list. Click this star icon again to display also non-Favorite presets.
6. **Close** ("**x**"): Closes the Browser.

ⓘ In the Preset Browser, Layer Browser, Sound Browser, and Sample Browser, you can select multiple tags from the Tag Filter. In the FX Browser and Step FX Browser, the tags describe effect categories and only one category can be selected at a time: Selecting another tag will automatically deselect the current tag.

The Sample Browser includes two extra features:



1. **User**: Narrows down the Result list to user samples only. When **User** is off, both factory and user samples are shown.
2. **Load Default Settings**: Loads the default settings of the sound preset corresponding to the sample being loaded. This can help you get a good starting point with velocity dynamics already set up for that sample.

6. Snapshots

Snapshots are Kontakt's underlying file format for instrument presets. They offer a quick and convenient way of browsing for new sounds and saving custom presets. When a User Snapshot is saved, all parameter adjustments and instrument settings are stored within the preset. Using Snapshots, you can create your own preset sounds, save them in the .nksn file format and use them in other projects, across computers or even share them with other users.

Snapshots overview

Snapshots contain the parameters and controls:

1. **Load Snapshot**: Opens the Snapshot menu where you can load a Snapshot from the **Factory** or **User** library. For more information, refer to Loading a Snapshot.
2. **Snapshot Name**: Displays the name of the currently selected Snapshot.
3. **Snapshot Previous/Next** (<> icons): Allows you to quickly browse and load Snapshots. Pressing an arrow icon will load the previous or next Snapshot in the selected category. If no Snapshot is active, the first Snapshot on the list will be loaded. For more information, refer to Loading a Snapshot.
4. **Save Snapshot** (floppy disk icon): Allows you to save changes made to a sound. When a User Snapshot is saved, the macros settings, parameter controls, and sequence are stored within it and can be accessed at any time via the **User** library. For more information, refer to Saving a User Snapshot.
5. **Delete Snapshot** (bin icon): Deletes the currently selected Snapshot from the **User** library. You can only delete **User** Snapshots and not **Factory** Snapshots. For more information, refer to Deleting a User Snapshot.
6. **Snapshot View** (camera icon): Provides access to the Snapshot features described above; saving, loading, browsing, and deleting. When **Snapshot View** is selected, configuration settings and features relating to the **Info View** are replaced in the display.

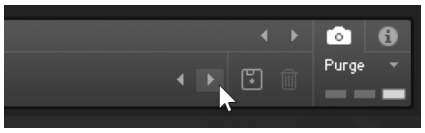
Loading a Snapshot

Snapshots are loaded from the drop-down menu in the top header of the instrument. You can also use the arrows to the left of the floppy disk icon to load the previous or next preset.

To load and browse Snapshots using the arrow icons:

1. Click the Snapshot View (camera icon) to open Snapshot view.

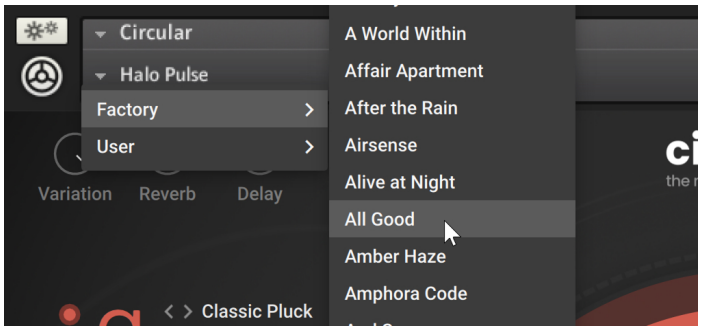
2. Click the arrow icons (<>) in the Snapshot header to browse through the Snapshots list.



→ The previous or next Snapshot will load immediately each time an arrow icon is clicked.

To load a Snapshot from the library:

1. Click the Snapshot View (camera icon) to open Snapshot view.
2. Click the arrow icon next to the Snapshot name field to open the Snapshot menu.
3. Select the **Factory** category to load a Factory preset, or select the **User** category to load one of your own Snapshots.
4. Select an instrument category, if available.
5. Select a Snapshot to load it.



→ The loaded Snapshot is displayed in the instrument header.

> The **User** category will not appear until you have first saved a Snapshot.

Saving a User Snapshot

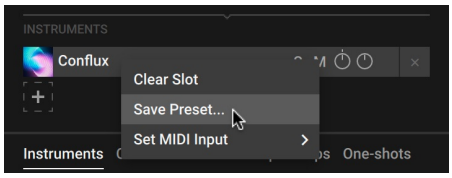
You can save User Snapshots to recall your favorite sounds and settings at any time, share them with others, or create backups.

Saving a User Snapshot using the Navigator

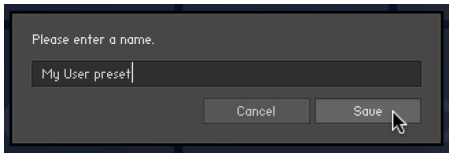
When using Kontakt's Default view, you can save User Snapshots using the Navigator in the side pane.

1. Right-click the slot in the Navigator you want to save a User Snapshot for.

2. Click **Save Preset...** in the context menu to open the Save dialog.



3. Enter a name for your new User Snapshot and click **Save**. If you enter the same of an existing User Snapshot, you will be given the option to replace it by clicking **Overwrite**.



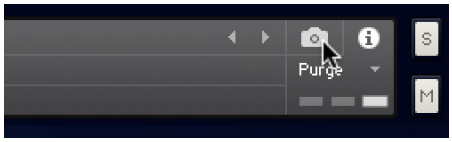
→ The User Snapshot is saved and added to the user content in the Browser.

Saving a User Snapshot using the Instrument Header

User Snapshots can be saved using the Instrument Header. When a sound parameter has been adjusted, that Save button (disk icon) becomes active.

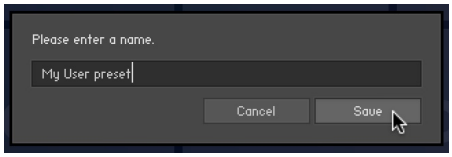
> If you are using Kontakt's Default view, the Instrument Header can be shown or hidden from the **View** menu in the Kontakt Header.

1. Click the Snapshot view button (camera icon) in the Instrument Header.



2. Click the Save button (floppy disk icon) to open the Save dialog.

3. Enter a name for your new User Snapshot and click **Save**. If you enter the same of an existing User Snapshot, you will be given the option to replace it by clicking **Overwrite**.



→ The User Snapshot is saved and added to the user content in the Browser.

User Content Folder

All User Snapshots are automatically stored in the default User Content folder. You can transfer any of your Snapshots to another computer by copying the respective Snapshot files.

The default User Content folders are:

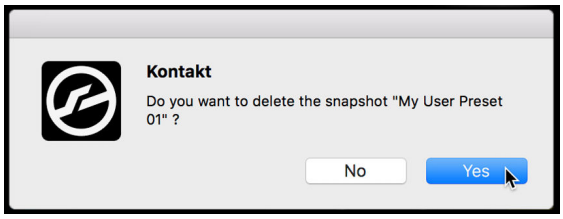
Mac OS X:	*Macintosh HD/Users/<User Name>/Documents/Native Instruments/User Content/*
Windows:	*C:\Users\<User Name>\My Documents\Native Instruments\User Content*

Please make sure you include your *Documents / My Documents* folder in your regular data backups.

Deleting a User Snapshot

Snapshots can be deleted using the bin icon in the instrument header. To delete a User Snapshot:

1. Click the Snapshot view (camera icon) to open Snapshot view.
2. Load the User Snapshot you wish to delete.
3. Click the **Delete** button (bin icon).
4. Confirm deletion of the Snapshot by selecting **Yes** in the dialog box.

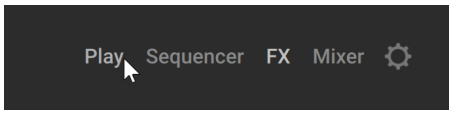


→ The User Snapshot .nksn file is deleted from the User Snapshot Library.

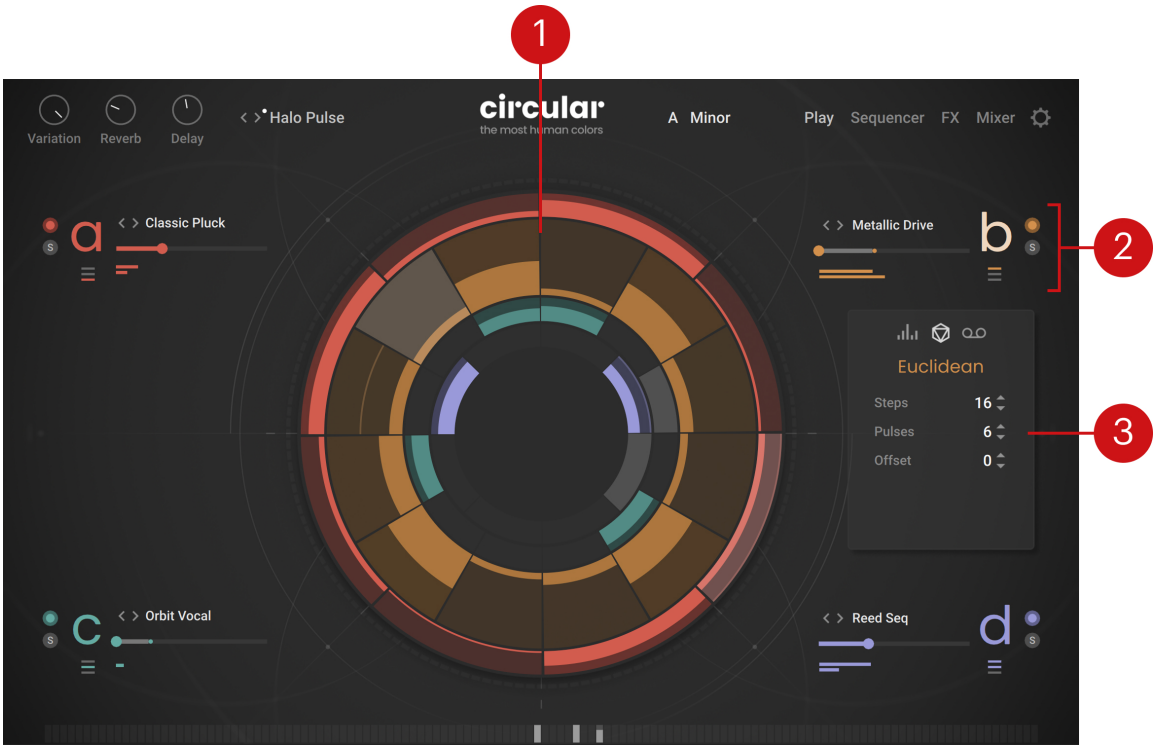
7. Play page

The Play page is the default page of Circular. It lets you adjust the main parameters of the four layers A–D and shows a real-time circular animation of the playing sequences. This visualization also acts as a basic sequencer in which you can quickly activate steps and adjust their velocities. The Play page also provides a set of panels with additional features for each layer.

▶ To open the Play page, click the **Play** button in the top right corner of the instrument:



The Play page contains the following elements:

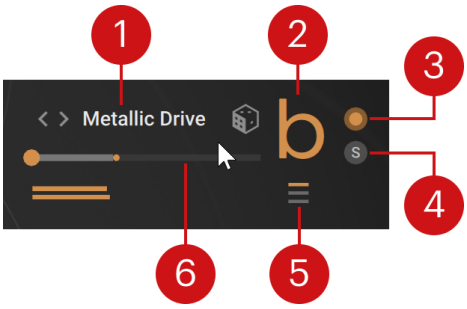


1. **Circular display**: Visually represents the sequences of the layers A–D as four circles mirroring the layer colors. The sequences start at the top and run clockwise. Each circle shows a certain number of steps. On each step, the brighter bar indicates the note velocity. If a step has no bar (velocity is null), the step is darker and will not trigger any note. As you hold some keys on your keyboard, the playing steps are highlighted. Since the sequences in the four layers are independent from each other, they can have different lengths, rates, playback directions, step lengths, etc. This makes Circular a true polyrhythmic instrument: On the Circular display, you can visualize it with the various playback positions getting out of sync. Clicking a step widens its circle and selects that layer. You can also quickly edit the sequences on-the-fly on the Circular display: Clicking any step and dragging your mouse away from, or toward the center will adjust the note velocity on this step. As you click and hold a step, its velocity value appears in the center. Setting a velocity to zero makes the corresponding step silent.
2. **Layer basic controls**: Each of the four layers A–D provides a set of basic controls mirroring the layer color. Refer to Layer basic controls.

3. **Additional panels**: These panels are visible only if a layer is selected and provide additional features for that layer. With the **Random Rhythm** panel and the **Euclidean** panel you can quickly generate a random or a regular sequence, respectively. The **MIDI Recorder** panel lets you export your sequences as MIDI patterns for further use in your DAW. Refer to Additional panels.

Layer basic controls

The Play page provides a set of basic controls for each of the four layers a–d:



1. **Layer Preset selector**: Shows the name of the loaded layer preset. Layer presets contain values for all the parameters of a layer. You can click the preset name to open the Layer Browser and choose another preset from the factory library. You can also click the left and right arrows to quickly cycle through the presets in the current Result list of the Layer Browser, or click the dice icon (showing up when hovering over the layer controls) to load a random preset from the current Result list. On all these controls (preset name, left/right arrows, and dice icon), you can use [option]+click (Mac) or [Alt]+click (Windows) to pre-select the tags of the current layer preset, which narrows down the Result list to similar-sounding presets, or [Shift]+click to clear any selected tags and use a Result list including the entire preset library. For more information on the Layer Browser and the Result list, refer to Browsers.
2. **Layer letter a–d**: Selects or deselects the layer. The selected layer is indicated by a brighter letter and a wider circle in the Circular display. The selected layer's additional panels are visible.
3. **Layer on/off**: Activates or deactivates the layer. If you deactivate the layer, it will not trigger any new notes, but the previous notes that are still sounding will stay audible. The on/off switch also lets you copy and paste the layer: You can [option]+click (Mac) or [Alt]+click (Windows) the on/off switch to copy the layer, then [option]+[shift]+click (Mac) or [Alt]+[Shift] +click (Windows) the on/off switch of the target layer to paste this layer there.
4. **Solo** (**S**): Deactivates all the other layers. Soloing a layer can be useful to focus on that layer when designing your sound, or as a performance tool when playing live.
5. **Input Note Filter**: Selects which of the incoming notes (the keys you are holding) should be used in that layer. You can set the layer to use all the notes, only the lowest note, only the highest note, all but the lowest note, all but the highest note, or neither the lowest nor the highest note (that is, only the notes in between). Limiting a layer to specific incoming notes can be useful to assign different roles to your layers, for example, focusing one layer on the bass line and the remaining layers on other parts of the sound. The 3-bar icon of the Input Note Filter indicates you the current filtering: The lower bar represents the lowest note, the upper bar the highest note, and the middle bar the notes in between. A colored bar means that the corresponding note(s) will be used by that layer, whereas a dark bar means that these notes will be ignored.
6. **Layer Level slider**: Adjusts the volume level of the layer.

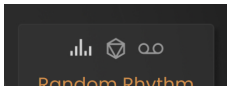
7. **Layer Level meter**: Shows the current level of the layer's signal.

Additional panels

The additional panels provide extra features for the selected layer. They appear on the left or right side of the Circular display, depending on the selected layer. If no layer is selected, the additional panels are not visible.

> ⓘ You can select the desired layer by clicking its colored letter **a**–**d** in the layer's basic controls, or by clicking its colored circle in the Circular display.

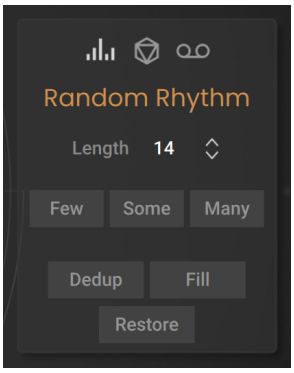
▶ To switch between the panels, click the icons at the top:



From left to right, the three icons open the Random Rhythm panel, the Euclidean panel, and the MIDI Recorder panel, respectively.

Random Rhythm panel

The **Random Rhythm** panel lets you quickly generate a random sequence of note velocities that will replace the current sequence in the selected layer. It contains the following controls:



- **Length**: Adjusts the number of steps in the random sequence to be generated.
- **Few**/**Some**/**Many**: Click either button to respectively generate a few, some, or many velocities randomly distributed through the sequence. You can click the buttons repeatedly to create various random sequences until you find one that you like.
- **Dedup** (Deduplicate): Removes notes from the random sequence at the times where another layer already plays a note. This prevents layers from playing simultaneously and it is an easy way to thin out the arrangement of multiple layers.
- **Fill**: Removes notes from the random sequence at the play times where another layer already plays a note (like **Dedup**), and also insert extra notes where no other layer plays. This can help you distribute notes harmoniously among multiple layers.
- **Restore**: Cancels your actions in the panel and recalls the original sequence. Clicking [option] + **Restore** (Mac) / [Alt] + **Restore** (Windows) lets you define the current state as the new restore state: From now on, clicking **Restore** will return to the current sequence.

This **Random Rhythm** panel is strictly equivalent to the Random Rhythm panel available in the Parameter Lane of the Sequencer page.

Euclidean panel

The **Euclidean** panel lets you quickly generate a regular sequence of notes at full velocity (or "pulses") that will replace the current sequence in the selected layer. It contains the following controls:

Adjusting any parameter in the panel will automatically create the corresponding sequence.

- **Steps**: Adjusts the number of steps in the sequence.
- **Pulses**: Adjusts the number of notes in the sequence. The notes will be distributed as evenly as possible through the sequence using the Euclidean algorithm.
- **Offset**: Specifies a backward or forward shift applied to the whole sequence.
- **Restore**: Cancels your actions in the panel and recalls the original sequence. Clicking [option] + **Restore** (Mac) / [Alt] + **Restore** (Windows) lets you define the current state as the new restore state: From now on, clicking **Restore** will return to the current sequence.

The **Euclidean** panel is also available in the Sequencer settings of the Sequencer page.

MIDI Recorder panel

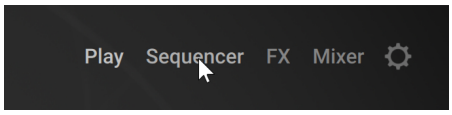
The **MIDI Recorder** panel lets you record the active layers and export their sequences as MIDI patterns for further use in your DAW. It contains the following controls:

- **ON/OFF switch**: Arms or disarms the MIDI recorder. By default the switch is set to **OFF** and the recorder status below reads **Recorder inactive**. Clicking **ON** will arm the recorder and the status will read **Ready to record**. The recording will start when you play the first key, and stop when you release the last key. Only the active layer will be recorded. After the recording, the status below will read **Ready to drag**.
- **a, b, c, d drag handles**: The four drag handles at the bottom correspond to the four layers a–d. If a layer is deactivated, its handle is grayed out and inactive. Once a recording has been done, you can drag the handle of any active layer onto your DAW to export the recording of this layer as a MIDI pattern.

8. Sequencer page

The Sequencer page lets you precisely configure the sequences used in each of the four layers a–d. Each layer of Circular uses its own sequencing facilities independently from the other layers. Inside each layer, the generated sequence of notes results from a combination of several sequences running in parallel, each of them controlling a rhythmic, melodic, or sonic aspect of the layer.

▶ To open the Sequencer page, click the **Sequencer** button in the top right corner of the instrument:



The Sequencer page provides four tabs, each tab containing the sequencing details for a particular layer. The Sequencer page contains the following areas:

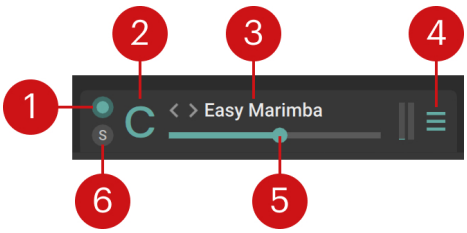
1. **Tab headers**: Each header lets you switch to the sequencing details for one layer, while providing a set of basic layer controls. All the areas below are specific to the layer selected here. Refer to Tab headers.
2. **Sequencer settings**: Global settings affecting all the sequences in the layer. Refer to Sequencer settings.
3. **Step Duration Lane**: Defines a sequence controlling the duration of each individual step. Refer to Step Duration Lane.
4. **Parameter Lane**: Defines sequences controlling various parameters of the triggered notes: velocity, probability, transposition, length, and Step FX. Refer to Parameter Lane.
5. **Sound Lane**: Lets you select specific steps for further editing, load sounds onto steps, and define sequences for the desired parameters in the **Sound** panel below. Refer to Sound Lane.

6. **Sound** / **Modulate**: Switches between the panels displayed below. By default the **Sound** panel is displayed. Clicking **Modulate** switches to the **Modulate** panel, where you can configure the internal modulators available in Circular. For more information on the **Modulate** panel, refer to Adjusting the internal modulators.
7. **Sound panel**: Adjusts the parameters of the sound loaded on the selected step(s). Most of these parameters can be controlled using dedicated sequences (configured in the **Sound Lane**) and modulation sources (assigned in the **Mod Assign** section). Refer to Sound panel.
8. **Mod Assign section**: Lets you choose and configure up to two modulation sources for nearly any parameter in the page. The **Mod Assign** section is available in the Sequencer, FX, and Mixer pages. Refer to Assigning and editing modulations.

Tab headers

At the top of the Sequencer page, the tab headers let you switch between the tabs and provide a set of basic controls for the layers, similar to those on the Play page:

Each tab header contains the following controls:

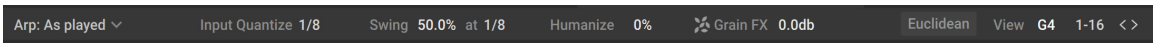


1. **Layer on/off**: Activates or deactivates the layer. If you deactivate the layer, it will not trigger any new notes, but the previous notes that are still sounding will stay audible. The on/off switch also lets you copy and paste the layer: You can [option]+click (Mac) or [Alt]+click (Windows) the on/off switch to copy the layer, then [option]+[shift]+click (Mac) or [Alt]+[Shift] +click (Windows) the on/off switch of the target layer to paste this layer there.
2. **Layer letter a–d**: Opens the tab containing the sequencer parameters for that layer. All the controls in the tab below will affect only that layer.
3. **Layer Preset selector**: Shows the name of the loaded layer preset. Layer presets contain values for all the parameters of a layer. You can click the preset name to open the Layer Browser and choose another preset from the factory library. You can also click the left and right arrows to quickly cycle through the presets in the current Result list of the Layer Browser. On these controls (preset name and left/right arrows) you can also use [option]+click (Mac) or [Alt]+click (Windows) to pre-select the tags of the current layer preset, which narrows down the Result list to similar-sounding presets, or use [Shift]+click to clear any selected tags and extend the Result list to the entire preset library. For more information on the Layer Browser and the Result list, refer to Browsers.

4. **Input Note Filter**: Selects which of the incoming notes (the keys you are holding) should be used in that layer. You can set the layer to use all the notes, only the lowest note, only the highest note, all but the lowest note, all but the highest note, or neither the lowest nor the highest note (that is, only the notes in between). Limiting a layer to specific incoming notes can be useful to assign different roles to your layers, for example, focusing one layer on the bass line and the remaining layers on other parts of the sound. The 3-bar icon of the Input Note Filter indicates you the current filtering: The lower bar represents the lowest note, the upper bar the highest note, and the middle bar the notes in between. A colored bar means that the corresponding note(s) will be used by that layer, whereas a dark bar means that these notes will be ignored.
5. **Layer Level meter**: Shows the current level of the layer's signal.
6. **Layer Level slider**: Adjusts the volume level of the layer.
7. **Solo** (**S**): Deactivates all the other layers. Soloing a layer can be useful to focus on that layer when designing your sound, or as a performance tool when playing live.

Sequencer settings

At the top of the Sequencer page, just below the tab headers, the Sequencer settings define essential sequencing parameters that globally affect all the sequences in the layer. They include the following controls, from left to right:

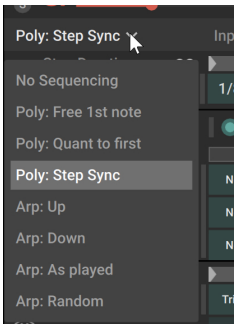


- **Sequencing Mode menu**: Selects how the played notes will be sequenced. Refer to Sequencing Mode menu.
- **Input Quantize**: Adjusts the step size used for the quantization of the played keys.
- **Swing**: Adjusts the swing amount relative to the base timing value defined by **at**.
- **Humanize**: Adjusts the amount of imprecision in the note timings.
- **Grain FX**: Adjusts the level at which the output of the granular Step effects used in this layer is sent to the Grain FX bus. For more information, refer to FX page.
- **Euclidean**: Opens the **Euclidean** panel, which lets you quickly generate a regular sequence of notes. Refer to Euclidean panel.
- **View**: Indicates the particular key (among the held keys) whose Aftertouch or Slide value is shown in the modulation meters available on the page.
- **Step Display selector**: Switches the display to another group of 16 steps. You sequences can have up to 64 steps. You can click the displayed value or the left/right arrows next to it to show the steps **1–16**, **17–32**, **33–48**, or **49–64**.

ⓘ The Sequencer settings also host the Playback and Loop settings when you are adjusting the Play or Loop Range of a particular lane.

Sequencing Mode menu

The Sequencing Mode menu is the first element from the left in the Sequencing settings. The menu lets you select how the played notes will be sequenced.

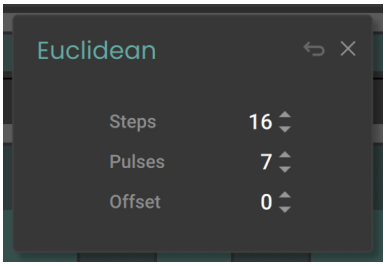


You can choose from the following modes:

- **No Sequencing**: The played keys are not sequenced. The notes are triggered as you play them, like on a real instrument. This mode can also be useful in combination with the **Advance on Key** playback mode available in the various Lanes below. For example, if you set the Sound Lane's playback mode to **Advance on Key** and load a different sound onto each step, playing legato will trigger a different sound on each key. For more information on the playback mode, refer for example to Sound Lane.
- **Poly: Free 1st note**: This mode is similar to the **Poly: Quant to first** mode, except that for each pressed key the first note of the sequence is not quantized but played as you press the key. This lets you have a sequence looping while playing a free melody on top simultaneously.
- **Poly: Quant to first**: Each held key runs its own sequence, and the following sequences start on the closest quantization step relative to the first sequence. If the Input Quantize value is equal to the step size of the sequences (which is the case by default), this results in all the sequenced notes playing tight but with shifted starts.
- **Poly: Step Sync**: Each held key runs its own sequence, and the following sequences are synchronized to the first sequence. This results in all the notes playing the same sequence together. This is the standard "chord mode" available on many sequencers.
- **Arp: Up**: All the held keys are combined into one sequence starting from the lowest key up to the highest key.
- **Arp: Down**: All the held keys are combined into one sequence starting from the highest key down to the lowest key.
- **Arp: As played**: All the held keys are combined into one sequence that follows the order in which you played them.
- **Arp: Random**: All the held keys are combined into one sequence in random order.

Euclidean panel

The **Euclidean** panel lets you quickly generate a regular sequence of notes at full velocity (or "pulses") that will replace the current sequence in the selected layer. It contains the following controls:



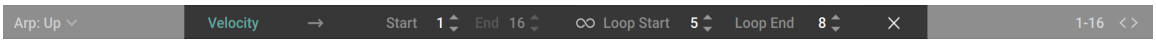
Adjusting any parameter in the panel will automatically create the corresponding sequence.

- **Steps**: Adjusts the number of steps in the sequence.
- **Pulses**: Adjusts the number of notes in the sequence. The notes will be distributed as evenly as possible through the sequence using the Euclidean algorithm.
- **Offset**: Specifies a backward or forward shift applied to the whole sequence.
- **Restore** (returning arrow icon): Cancels your actions in the panel and recalls the original sequence. Clicking [option] + Restore (Mac) / [Alt] + Restore (Windows) lets you define the current state as the new restore state: From now on, clicking Restore will return to the current sequence.
- **Close** ("**x**"): Closes the panel.

The **Euclidean** panel is also available in the Play page.

Playback and Loop settings

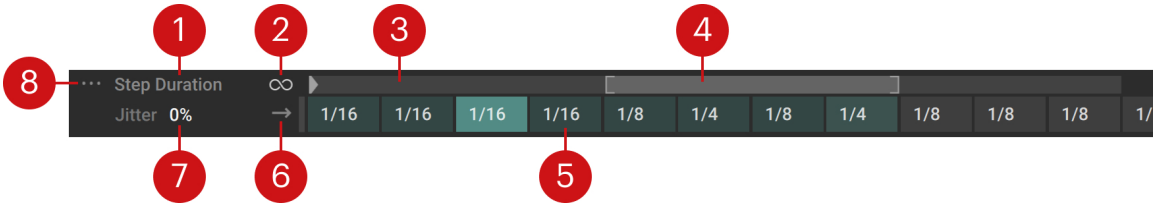
When you click in the timeline in the Step Duration Lane, Parameter Lane, or Sound Lane, the middle part of the Sequencer settings is temporarily replaced with the Playback and Loop settings for that lane:



On the left, the colored label reminds you which lane is being edited. On the right, the Close button ("**x**") closes the Playback and Loop settings and returns to the usual Sequencer settings. In between, the controls of the Playback and Loop settings mirror the equivalent controls available in the lane being edited, from left to right: Playback Mode menu, Play Range **Start** and **End**, Loop on/off switch, **Loop Start**, and **Loop End**. You can adjust the controls either here or in the respective lane, both methods are strictly equivalent. For more information on these controls, refer to Step Duration Lane, Parameter Lane, or Sound Lane, depending on the lane that you are currently adjusting.

Step Duration Lane

The Step Duration Lane lets you set up a sequence that defines the length of each single step. It contains the following controls:

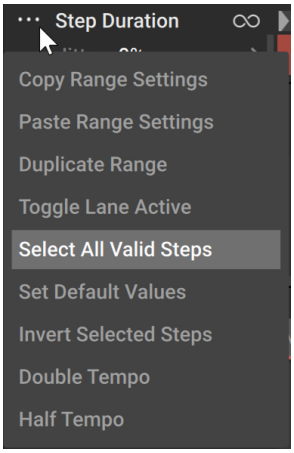


1. **Step Duration label**: Clicking the lane label puts this lane under focus in the **Mod Assign** section, so that you can configure the modulation for the lane. The modulation can halve or double the step durations. For more information on how to set up modulation, refer to Modulating your sound.

2. **Loop on/off**: Activates or deactivates the looped playback. When the loop is on, the Loop Range appears as a bright gray overlay on the timeline on the right.
3. **Play Range**: Represents the portion of the sequence that is played when you press and hold some keys. The Play Range starts at the little triangle and spans the gray region on the timeline. You can adjust the Play Range's start point by dragging the triangle horizontally. When the loop is off, you can adjust the Play Range's end point by dragging the closing bracket. You can also move the whole Play Range by clicking inside the range (but not inside the Loop Range, if active) and dragging it horizontally. Whenever you click on the timeline, the Playback and Loop settings open up in the Sequencer settings and let you adjust the Play Range using the **Start** and **End** parameters.
4. **Loop Range**: Represents the portion of the sequence that is looped when you press and hold some keys. It is visible only when the Loop on/off switch is turned on. The Loop Range is indicated by the brighter region between brackets on the timeline. You can adjust the Loop Range's start and end points by dragging the opening and closing brackets horizontally, respectively. You can also move the whole Loop Range by clicking within the range and dragging it horizontally. Whenever you click on the timeline, the Playback and Loop settings open up in the Sequencer settings and let you adjust the Loop Range using the **Loop Start** and **Loop End** parameters.
5. **Step durations**: Each step shows its current duration. To change the duration of a step, click its value and select another value from the menu. You can also change the duration of multiple steps at once by selecting them in the Sound Lane and changing the duration of any of them.
6. **Playback Mode menu**: Specifies the order in which the steps will be played back. In **Forward** mode the playback runs from left to right, in **Bounce** mode it runs back and forth, in **Random** mode it randomly jumps between steps, in **Forward Random Start** mode it starts on a random step and runs from left to right, in **Advance on Key** mode it goes to the next step each time you press another key.
7. **Jitter**: Adjusts the probability that the duration of a step gets halved or doubled.
8. **Duration Lane Edit menu** (**...**): Provides various editing functions for the lane. Refer to Duration Lane Edit menu.

Duration Lane Edit menu

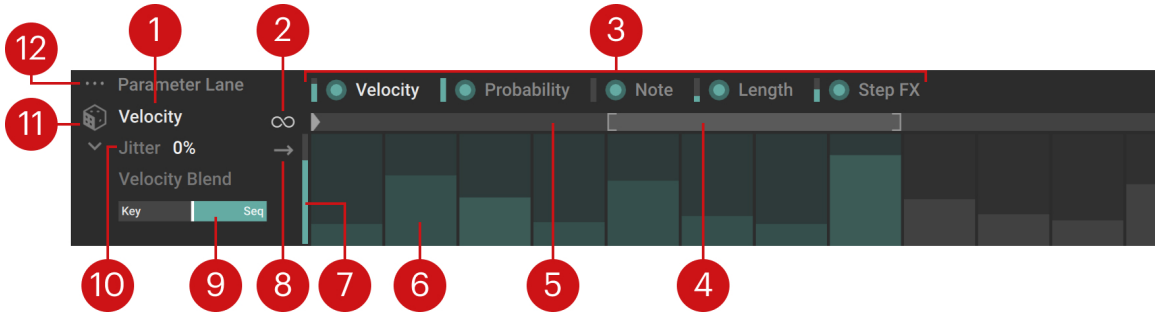
In the top left corner of the Step Duration Lane, the Lane Edit menu (**...**) provides the following commands:



- **Copy Range Settings**: Stores the range settings to the clipboard. The copied settings include the Loop on/off state, the selected entry from the Playback Mode menu, the Play Range, and the Loop Range.
- **Paste Range Settings**: Replaces the current range settings with the settings stored in the clipboard. Copying/pasting the range settings let you easily port them between the Step Duration Lane, the Parameter Lane, and the Sound Lane.
- **Duplicate Range**: If the loop is on, this command doubles the Loop Range and duplicates its steps. If the loop is off, the command doubles the Play Range and duplicates its steps.
- **Toggle Lane Activity**: Activates or deactivates the Step Duration Lane. When the lane is deactivated, all the steps are played with the default duration.
- **Select All Valid Steps**: Selects all the steps.
- **Set Default Values**: Resets all the steps to their default value.
- **Invert Selected Steps**: Inverts the current selection of steps.
- **Double Tempo**: Halves all the step values, which doubles the tempo of the sequence.
- **Half Tempo**: Doubles all the step values, which halves the tempo of the sequence.

Parameter Lane

The Parameter Lane lets you set up sequences controlling five parameters of the triggered notes: their velocity, probability, transposition, length, and Step FX. It contains the following controls:

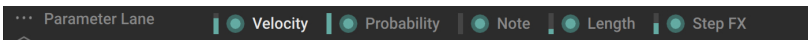


1. **Parameter name**: Shows the parameter being edited. Clicking the label puts that parameter under focus in the **Mod Assign** section, so that you can configure its modulation. For more information on how to set up modulation, refer to Modulating your sound. You can [option] +click (Mac) or [Alt]+click (Windows) the parameter label to activate or deactivate the lane, [command]+click (Mac) or [Ctrl]+click (Windows) the label to reset all the steps to their default value, or double click the label to select all the valid steps. These commands are also available from the Lane Edit menu showing the three dots (**...**) in the top left corner.
2. **Loop on/off**: Activates or deactivates the looped playback. When the loop is on, the Loop Range appears as a bright gray overlay on the timeline on the right.
3. **Parameter selector**: Clicking either parameter name selects this parameter for display. All the remaining controls in the Parameter Lane affect the parameter selected here. Left of each parameter name, a colored **Sequence on/off switch** lets you activate or deactivate the lane for this parameter, and a little vertical bar shows you the current parameter value resulting from the combination of the step values (if the sequence is active) and the active modulation for this parameter. Clicking a parameter name also puts its lane under focus in the **Mod Assign** section. You can prevent this by [Shift] + clicking the parameter name instead. For a description of the available parameters, refer to Available parameters in the Parameter Lane.

4. **Play Range**: Represents the portion of the sequence that is played when you press and hold some keys. The Play Range starts at the little triangle and spans the gray region on the timeline. You can adjust the Play Range's start point by dragging the triangle horizontally. When the loop is off, you can adjust the Play Range's end point by dragging the closing bracket. You can also move the whole Play Range by clicking inside the range (but not inside the Loop Range, if active) and dragging it horizontally. Whenever you click on the timeline, the Playback and Loop settings open up in the Sequencer settings and let you adjust the Play Range using the **Start** and **End** parameters.
5. **Loop Range**: Represents the portion of the sequence that is looped when you press and hold some keys. It is visible only when the Loop on/off switch is turned on. The Loop Range is indicated by the brighter region between brackets on the timeline. You can adjust the Loop Range's start and end points by dragging the opening and closing brackets horizontally, respectively. You can also move the whole Loop Range by clicking within the range and dragging it horizontally. Whenever you click on the timeline, the Playback and Loop settings open up in the Sequencer settings and let you adjust the Loop Range using the **Loop Start** and **Loop End** parameters.
6. **Step area**: Shows and lets you modify the values of the selected parameter for each step. The look and handling of the steps depend on the selected parameter. For more information, refer to Using the Step area in the Parameter Lane. Note that the actual value of the parameter can also depend on modulation.
7. **Output value indicator**: When the sequencer is running, this vertical bar shows the current parameter value resulting from the combination of the step value and any active modulation for this parameter. For the **Note** lane, the indicator shows the actual note sent to the **Sound** panel before the Key Transpose value is applied. For more information, refer to Sound Preset section: main controls.
8. **Playback Mode menu**: Specifies the order in which the steps will be played back. In **Forward** mode the playback runs from left to right, in **Bounce** mode it runs back and forth, in **Random** mode it randomly jumps between steps, in **Forward Random Start** mode it starts from a random step and runs from left to right, in **Advance on Key** mode it goes to the next step each time you press another key. In **Link to Sound Lane** mode, the Loop on/off switch, the Play Range, and the Loop Range are deactivated and the playback follows the Sound Lane's playback. This mode can help quickly set up a simple instrument preset.
9. **Velocity Blend** (Velocity Lane only): Adjusts the relative influence of the key velocities and sequencer velocities on the resulting note velocities. At full left (**Key**), the generated notes will use only the velocity of the played keys. At full right (**Seq**), the generated notes will use only the velocities defined in the sequence shown on the right. In the center position (default setting), the played keys and the sequence will equally affect the generated notes' velocity.
10. **Jitter**: Adjusts an amount of random but musically meaningful value variation applied to each note individually. For example, this will apply random octave shifts in the **Note** lane.
11. **Variation** (dice icon): Opens the variation panel for the selected parameter. The variation panel lets you generate random variations of the parameter on the selected steps. Refer to Variation panels in the Parameter Lane.
12. **Parameter Lane Edit menu** (**...**): Provides various editing functions for the lane. Refer to Parameter Lane Edit menu.

Available parameters in the Parameter Lane

The Parameter Lane can display the following parameters, which you can select from the Parameter selector at the top of the Parameter Lane:



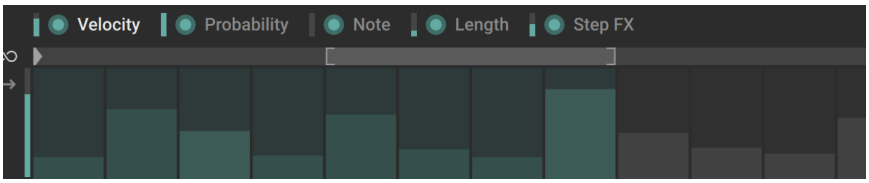
- **Velocity**: Velocity of the generated note. By default the velocity of the steps is set to 35, which leaves enough headroom, for example, to also control the velocity dynamically using the aftertouch modulation. Setting the velocity to zero on a step will mute this step (the note will not be triggered). Setting the velocity to 128 will force the note to use the velocity of the played key.
- **Probability**: Probability that the note will be triggered. By default the probability is set to 100 %, which makes sure that the note will be triggered. Reducing the probability on a step will mute this step from time to time. Setting the probability to zero will mute the step entirely.
- **Note**: Transposition of the original key. This parameter is bipolar. Its default value is zero (no transposition) and its available values range from -48 to +48 semitones (-4 octaves to +4 octaves).
- **Length**: Length of the generated note, measured as a percentage of the step duration. By default the length is set to 100 % and its available values range from 0 to 400 % (four times the step duration).
- **Step FX**: You can insert up to three dedicated Step effects on each single step. The step will apply either Step effect according to the current value of the modulation assigned to it. For more information, refer to Using the Step area in the Parameter Lane.

Using the Step area in the Parameter Lane

The Step area of the Parameter Lane looks and behaves differently depending on whether the Step FX Lane or any other lane (Velocity, Probability, Note, or Length) is selected.

Adjusting the step values in the Velocity, Probability, Note, and Length lanes

In the Step area of the **Velocity**, **Probability**, **Note**, and **Length** lanes, each cell represents a step. The colored steps are the steps that will be played given the current Play Range and Loop Range configuration, the remaining steps are gray. The brighter vertical bar on each step indicates the parameter value.



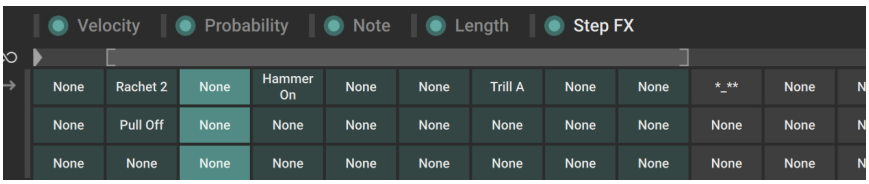
As you hover over the Step area with your mouse, the numerical values of the parameter appear at the top of the steps. You can change the parameter values using the following methods:

- You can click at the desired position in a cell to set the height of the brighter bar.
- You can drag the bar vertically with your mouse to adjust its height. Holding [Shift] while dragging your mouse lets you adjust the value in finer steps. In the Note lane, dragging a bar adjusts the transposition in octaves, whereas [Shift]+dragging the bar adjusts it in semitones.
- You can change the values on multiple steps at once by selecting them in the Sound Lane, and holding [option] (Mac) or [Alt] (Windows) as you drag the mouse on any of them: all the step values will follow your mouse while keeping their respective gaps.
- You can hold [command] (Mac) or [Ctrl] (Windows), click one position in a step and drag your mouse to another position in another step to draw a line and create a linear progression across multiple steps.

The notes generated by the **Note** lane will be quantized to the scale shown in the Scale selector at the top of the instrument. Refer to Circular overview.

Using Step effects

In the Step area of the **Step FX** lane, each step contains three cells layed out vertically on top of each other. Each cell represents an Step effect slot for that step.



Slots containing a Step effect show its name, empty slots show **None** instead. Each time a step is played back, one of its slots will process the note. The particular slot processing the note will vary with the current value of the modulation assigned to it: Depending on whether the modulation value is in the lower, middle, or upper third of the modulation range, the lower, middle, or upper slot will process the note. For example, by assigning the aftertouch as modulation source for the Step FX Lane in the **Mod Assign** section, you can select the effect applied to the note using your pressure on the key. For more information on assigning modulation, refer to Assigning and editing modulations.

Clicking a slot opens the Step FX Browser and lets you choose a Step effect preset and load it into that slot. For more information on the Browsers, refer to Browsers.

By clicking the desired Step effect preset from the Browser's Result list only once instead of double-clicking it, you can load that preset into the selected slot while keeping the Step FX Browser open. This way you can rapidly load series of Step effect presets onto several slots by alternatively selecting one slot in the Step area, then one preset in the Step FX Browser, and repeat the operation as needed.

The following actions are available on the Step effect slots:

- **Load into multiple steps**: You can load the same effect preset into multiple steps at once by selecting multiple steps in the Selection Lane of the Sound Lane, clicking the lower, middle, or upper slot in any of the selected step, and loading the desired effect preset from the Step FX Browser. The effect preset will be loaded into the corresponding slot in all the selected steps. Clicking a cell in a step that is not selected will select that step only.
- **Copy/paste effect slots**: You can [option]+click (Mac) or [Alt]+click (Windows) a slot to copy its effect preset, then [option]+[shift]+click (Mac) or [Alt]+[Shift]+click (Windows) another slot to paste the copied effect preset into that slot.
- **Randomize in the same category**: You can [shift]+click a slot to replace its effect preset with a random effect preset from the same effect category.
- **Randomize in all the categories**: You can [command]+[shift]+click (Mac) or [Ctrl]+[Shift]+click (Windows) a slot to replace its effect preset with a random effect preset from any category.
- **Clear slot**: You can [command]+click (Mac) or [Ctrl]+click (Windows) a slot to remove its effect preset. The slot will then read **None** to indicate that it is empty.

A Step effect from the **Arpeggio** category will not be triggered if there is already another arpeggio playing on that step. Only one arpeggio effect can be triggered at a time in the instrument in order to avoid colliding or piled up notes.

The Step effects in the **Grain** category have a particularity: You can send their output to a dedicated **Grain FX** channel containing up to four additional effects. You can configure these effects on the **Grain FX** tab of the FX page. In each layer you can adjust the level at which the grain effects' outputs are sent to this additional effect channel, for example using the layer's **Grain FX** control in the Sequencer settings of the Sequencer page.

In some situations you might want to limit the Grain effects to the highest note only. This can be done in the Settings page.

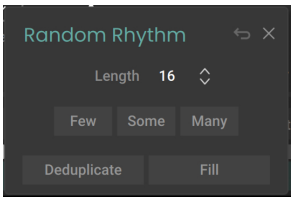
Variation panels in the Parameter Lane

For each parameter available in the Parameter Lane, clicking the dice icon on the left opens a dedicated Variation panel. The Variation panels let you quickly generate random values for the current parameter on the selected steps.

When a Variation panel is open, you can quickly switch to another Variation panel by clicking the desired parameter in the Parameter selector.

Random Rhythm panel

The **Random Rhythm** panel of the Parameter Lane is equivalent to the Random Rhythm panel available on the Play page. It lets you quickly generate a random sequence of note velocities that will replace the current sequence in the selected layer.



- **Length**: Adjusts the number of steps in the random sequence to be generated.
- **Few**/**Some**/**Many**: Click either button to respectively generate a few, some, or many velocities randomly distributed through the sequence. You can click the buttons repeatedly to create various random sequences until you find one that you like.
- **Deduplicate**: Removes notes from the random sequence at the times where another layer already plays a note. This prevents layers from playing simultaneously and it is an easy way to thin out the arrangement of multiple layers.
- **Fill**: Removes notes from the random sequence at the play times where another layer already plays a note (like **Deduplicate**), and also insert extra notes where no other layer plays. This can help you distribute notes harmoniously among multiple layers.

- **Restore** (returning arrow): This button appears only after triggering a randomization. The Restore button recalls the original state of the layer before starting the randomization. Any variations you might have generated in other Variation panels will be canceled as well. Clicking [option] + Restore (Mac) or [Alt] + Restore (Windows) lets you define the current state as the new restore state.
- **Close** ("**x**"): Closes the panel.

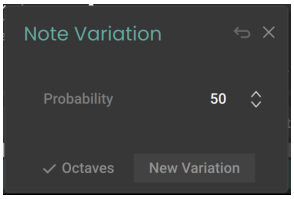
Probability Variation panel

The **Probability Variation** panel lets you quickly generate a random sequence of note probabilities that will replace the current sequence in the **Probability** lane of the Parameter Lane.

- **Amount**: Adjusts the extent of the variations around the original step values.
- **New Variation**: Generates a new set of randomized step values.
- **Restore** (returning arrow): This button appears only after triggering a randomization. The Restore button recalls the original state of the layer before starting the randomization. Any variations you might have generated in other Variation panels will be canceled as well. Clicking [option] + Restore (Mac) or [Alt] + Restore (Windows) lets you define the current state as the new restore state.
- **Close** ("**x**"): Closes the panel.

Note Variation panel

The **Note Variation** panel lets you quickly generate a random sequence of note transpositions that will replace the current sequence in the **Note** lane of the Parameter Lane.



- **Probability**: Adjusts the probability for each step to get a new value.
- **Octaves**: When active, the new values can only be octaves of the original ones. When inactive, the new values can reach any semitones in between.
- **New Variation**: Generates a new set of randomized step values.
- **Restore** (returning arrow): This button appears only after triggering a randomization. The Restore button recalls the original state of the layer before starting the randomization. Any variations you might have generated in other Variation panels will be canceled as well. Clicking [option] + Restore (Mac) or [Alt] + Restore (Windows) lets you define the current state as the new restore state.
- **Close** ("**x**"): Closes the panel.

The note transpositions are randomized in a practical range of +/- 24 semitones.

Length Variation panel

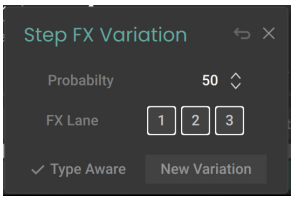
The **Length Variation** panel lets you quickly generate a random sequence of note lengths that will replace the current sequence in the **Length** lane of the Parameter Lane.

- **Amount**: Adjusts the extent of the variations around the original step values.
- **New Variation**: Generates a new set of randomized step values.
- **Restore** (returning arrow): This button appears only after triggering a randomization. The Restore button recalls the original state of the layer before starting the randomization. Any variations you might have generated in other Variation panels will be canceled as well. Clicking [option] + Restore (Mac) or [Alt] + Restore (Windows) lets you define the current state as the new restore state.
- **Close** ("**x**"): Closes the panel.

The note lengths are randomized in a practical range between 20 % and 150 % of the step length.

Step FX Variation panel

The **Step FX Variation** panel lets you quickly generate a random sequence of Step effects for the desired slots within the **Step FX** lane of the Parameter Lane.

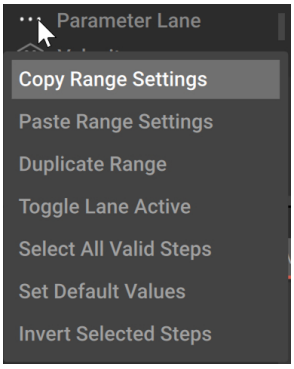


- **Probability**: Adjusts the probability for each step to get a new value.
- **FX Lane**: Selects the lane(s) that should be randomized. You can click the desired numbers to activate or deactivate them. The numbers refer to the rows of Step FX slots: "**1**" refers to the lower slots, "**2**" to the middle slots, and "**3**" to the upper slots.
- **Type Aware**: When activated, the new Step effects are randomly selected in the same effect category as the original effects.
- **New Variation**: Generates a new set of randomized step values.

- **Restore** (returning arrow): This button appears only after triggering a randomization. The Restore button recalls the original state of the layer before starting the randomization. Any variations you might have generated in other Variation panels will be canceled as well. Clicking [option] + Restore (Mac) or [Alt] + Restore (Windows) lets you define the current state as the new restore state.
- **Close** ("**x**"): Closes the panel.

Parameter Lane Edit menu

In the top left corner of the Parameter Lane, the Lane Edit menu (**...**) provides various editing commands affecting the displayed sequence. The following commands are available:



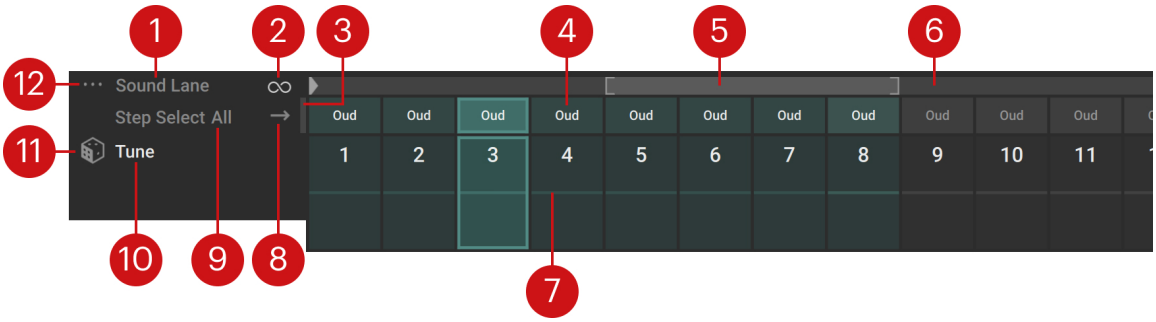
- **Copy Range Settings**: Stores the range settings to the clipboard. The copied settings include the Loop on/off state, the selected entry from the Playback Mode menu, the Play Range, and the Loop Range.
- **Paste Range Settings**: Replaces the current range settings with the settings stored in the clipboard. Copying/pasting the range settings let you easily port them between the Step Duration Lane, the Parameter Lane, and the Sound Lane.
- **Duplicate Range**: If the loop is on, this command doubles the Loop Range and duplicates its steps. If the loop is off, the command doubles the Play Range and duplicates its steps.
- **Toggle Lane Activity**: Activates or deactivates the lane of the selected parameter.
- **Select All Valid Steps**: Selects all the steps that generate a note. For example, steps with a velocity set to zero will not be selected.
- **Set Default Values**: Resets all the steps to their default value.
- **Invert Selected Steps**: Inverts the current selection of steps.

Sound Lane

The Sound Lane has three main purposes:

- **Select steps** to edit them while leaving the remaining steps unaffected.
- **Load your own samples** and use them in your sequences.
- **Set up sequences for the sampler parameters** available in the Sound panel below.

The Sound Lane contains the following controls:

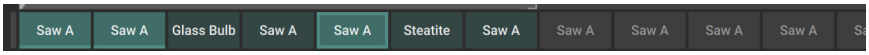


1. **Sound Lane label**: Clicking the lane label puts this lane under focus in the **Mod Assign** section, so that you can configure the modulation for the lane. This modulation will control the starting step of the sequence. For more information on how to set up modulation, refer to Modulating your sound. You can also double-click the **Sound Lane** label to select all the steps.
2. **Loop on/off**: Activates or deactivates the looped playback. When the loop is on, the Loop Range appears as a bright gray overlay on the timeline on the right.
3. **Starting Step indicator**: When the sequencer is running, this vertical bar indicates the current starting step resulting from the combination of the Play Range and any active modulation for this starting step.
4. **Selection Lane**: Lets you select steps, copy/paste sounds between steps, and load your own samples. Refer to Selection Lane.
5. **Loop Range**: Represents the portion of the sequence that is looped when you press and hold some keys. It is visible only when the Loop on/off switch is turned on. The Loop Range is indicated by the brighter region between brackets on the timeline. You can adjust the Loop Range's start and end points by dragging the opening and closing brackets horizontally, respectively. You can also move the whole Loop Range by clicking within the range and dragging it horizontally. Whenever you click on the timeline, the Playback and Loop settings open up in the Sequencer settings and let you adjust the Loop Range using the **Loop Start** and **Loop End** parameters.
6. **Play Range**: Represents the portion of the sequence that is played when you press and hold some keys. The Play Range starts at the little triangle and spans the gray region on the timeline. You can adjust the Play Range's start point by dragging the triangle horizontally. When the loop is off, you can adjust the Play Range's end point by dragging the closing bracket. You can also move the whole Play Range by clicking inside the range (but not inside the Loop Range, if active) and dragging it horizontally. Whenever you click on the timeline, the Playback and Loop settings open up in the Sequencer settings and let you adjust the Play Range using the **Start** and **End** parameters.
7. **Sampler Lane**: Lets you adjust the step values for the parameter currently under focus. To switch the focus to another parameter, simply click its control in the **Sound** panel below. Refer to Sampler Lane.
8. **Playback Mode menu**: Specifies the order in which the steps will be played back. In **Forward** mode the playback runs from left to right, in **Bounce** mode it runs back and forth, in **Random** mode it randomly jumps between steps, in **Forward Random Start** mode it starts on a random step and runs from left to right, in **Advance on Key** mode it goes to the next step each time you press another key.
9. **All**: Selects all the steps.
10. **Parameter name**: Shows which parameter from the Sound panel is under focus. To switch the focus to another parameter, simply click its control in the **Sound** panel below.

11. **Variation** (dice icon): Clicking the dice generates new random values for the selected steps in the Sampler Lane in a range of 20 % around their current values. You can [option]+click (Mac) or [Alt]+click (Windows) the dice to generate random values in the full range instead.
12. **Sound Lane Edit menu** (**...**): Provides various editing functions for the lane. Refer to Sound Lane Edit menu.

Selection Lane

The Selection Lane lets you select the desired steps, copy/paste sounds between steps, and load your own samples onto steps.



Each cell in the lane represents a step. Each step indicates the name of the sample it triggers, or **Free** if the step has no sound loaded.

Selecting steps works as follows: You can click a single step to select it, or use the usual keyboard modifiers of your operating system for multiple selection: [Shift]+clicking two steps will select these two steps and all the steps in between, and [command]+clicking (Mac) or [Ctrl]+clicking (Windows) a step will add or remove it from the current selection. The selected steps are highlighted.

> ⓘ The step selection made here applies to many actions done elsewhere in the Sequencer page: For example, adjusting a parameter in the Sound panel or loading of a Step effect in the Parameter Lane will affect all the selected steps.

You can also use the Selection Lane to **copy/paste sounds between steps**:

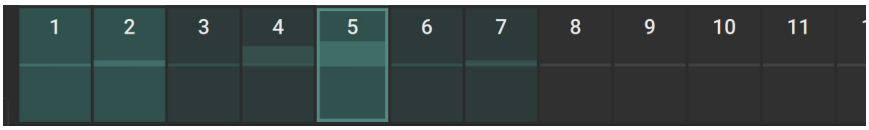
1. [option]+click (Mac) or [Alt]+click (Windows) the source step to copy its sound to the clipboard.
2. [option]+[shift]+click (Mac) or [Alt]+[Shift]+click (Windows) the target step to paste the sound there.

→ The sound of the source step is copied to the target step, including its sample and all its parameter values in the **Sound** panel.

Finally, you can **load your own samples** into the steps by dragging the sample files from your desktop and dropping them onto the desired cells. This allows you to build sequences with your own sounds. When you have loaded a custom sample into a step, the sample will be available in the Sample Browser, appearing as "**User [sample name]**" in one of the 128 user slots available.

Sampler Lane

The Sampler Lane lets you adjust the step values for the sampler parameter under focus (its name appears on the left).

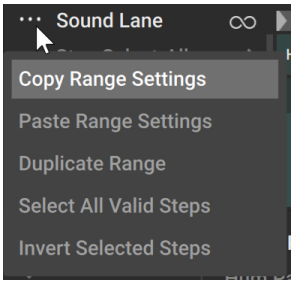


Each cell in the lane represents a step. The colored steps are the steps that will be played given the current Play Range and Loop Range configuration. The brighter vertical bar on each step represents the parameter value. You can change the parameter values using the following methods:

- You can click at the desired position in a cell to set the height of the brighter bar.
- You can drag the bar vertically with your mouse to adjust its height. Holding [Shift] while dragging your mouse lets you adjust the value in finer steps.
- You can adjust the values in multiple steps at once by selecting the steps in the Selection Lane above, and moving the parameter control itself in the Sound panel below: all the step values will follow your mouse while keeping their respective gaps.
- You can hold [command] (Mac) or [Ctrl] (Windows), click one position in a step and drag your mouse to another position in another step to draw a line and create a linear progression across multiple steps.

Sound Lane Edit menu

In the top left corner of the Sound Lane, the Lane Edit menu (**...**) provides various editing commands affecting the displayed sequence. The following commands are available:

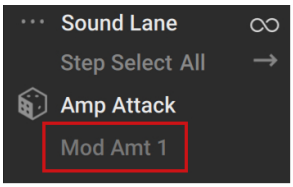


- **Copy Range Settings**: Stores the range settings to the clipboard. The copied settings include the Loop on/off state, the selected entry from the Playback Mode menu, the Play Range, and the Loop Range.
- **Paste Range Settings**: Replaces the current range settings with the settings stored in the clipboard. Copying/pasting the range settings let you easily port them between the Step Duration Lane, the Parameter Lane, and the Sound Lane.
- **Duplicate Range**: If the loop is on, this command doubles the Loop Range and duplicates its steps. If the loop is off, the command doubles the Play Range and duplicates its steps.
- **Select All Valid Steps**: Selects all the steps.
- **Invert Selected Steps**: Inverts the current selection of steps.

Setting up sequences for the parameter modulations

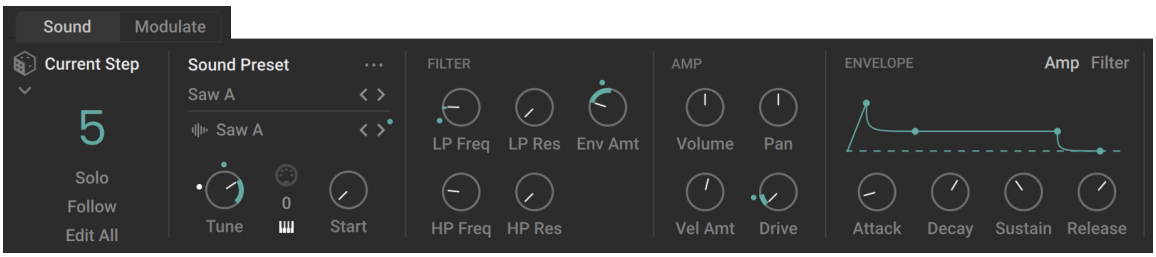
You can configure sequences in the Sampler Lane not only for parameters but also for their modulations: Once you have clicked the target parameter in the **Sound** panel to bring it under focus in the **Mod Assign** section, you can click a Modulation Amount slider in the **Mod Assign** section to bring it under focus in the Sound Lane. You can then create a sequence controlling the slider value, that is, the modulation range for that parameter.

When a Modulation Amount slider is under focus in the Sound Lane it appears as a gray **Mod Amt 1** or **Mod Amt 2** label below the name of the target parameter:



Sound panel

At the bottom of the Sequencer page, the **Sound** panel lets you configure the sound loaded on the selected step(s). Each sound includes a sample along with a set of sampler parameters that specify how the sample will be played back and processed.



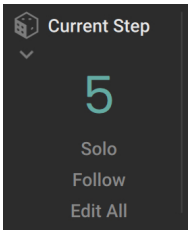
The **Sound** panel contains two sections:

- The **Current Step** section shows you the step whose sound is being displayed, lets you replace the loaded sound with a random sound using the **Sound Variation** panel, and provides a few additional settings. Refer to Current Step section.
- The **Sound Preset** section includes the following areas:
  - In the main and leftmost area of the **Sound Preset** section, you can select a sound preset, select a sample, configure the basics of the sample playback, and access editing commands. Refer to Sound Preset section: main controls.
  - The **Filter** area lets you adjust a low-pass and a high-pass filters. Refer to Filter area.
  - The **Amp area** lets you adjust the amplification settings. Refer to Amp area.
  - The **Envelope** area lets you configure an envelope for the amplification and another for the filtering. Refer to Envelope area.

> The **Mod Assign** section at the far right does not belong to the **Sound** panel: Instead, it lets you configure modulation sources for most parameters in the Sequencer page, FX page, and Mixer page. Nevertheless, the sound presets also include the modulations configured for the parameters in the **Sound** panel. For more information on assigning modulation, refer to Assigning and editing modulations.

Current Step section

The **Current Step** section contains the following elements:

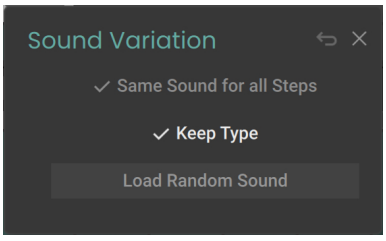


- **Step number**: The big colored number indicates the step from which the sound is displayed in the **Sound** panel.
- **Solo**: Mutes everything except for the current step, in order to focus on its sound: The other layers are deactivated and the playback of the current layer is limited to the current step.
- **Follow**: When this is on, the **Sound** panel follows the play position and always show the sound of the step being played.

- **Edit All**: When this is on, all your actions in the Sound panel will affect all the steps instead of affecting the selected step(s) only.
- **Sound Variation** (dice icon): Opens the **Sound Variation** panel, which lets you replace the sounds of the selected steps with a random sound. Refer to Sound Variation panel.

Sound Variation panel

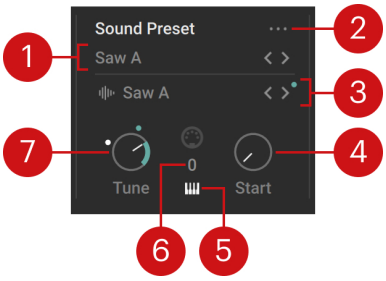
In the **Sound Variation** panel you can replace the sounds of the selected steps with a random sound from the factory library. The panel contains the following controls:



- **Same Sound for all Steps**: When this is on, the same random sound will be loaded into all the selected steps. When off, a different random sound is loaded in each selected step.
- **Keep Type**: When this is on, the new sound will be randomly chosen from all the sounds that have the same tags as the current sound, making sure that the new sound will be similar to the current one.
- **Load Random Sound**: Replaces the current sound with a random sound according to the settings above.
- **Restore** (returning arrow): This button appears only after triggering a randomization. The Restore button recalls the original state of the layer before starting the randomization. Any variations you might have generated in other Variation panels will be canceled as well. Clicking [option] + Restore (Mac) or [Alt] + Restore (Windows) lets you define the current state as the new restore state.
- **Close** ("**x**"): Closes the panel.

Sound Preset section: main controls

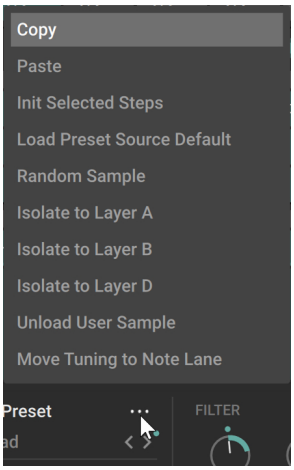
The leftmost area in the **Sound Preset** section contains basic controls for the sound:



1. **Sound Preset selector**: Shows the name of the loaded sound preset. Sound presets contain a sample along with values for all the parameters in the **Sound Preset** section. You can click the preset name to open the Sound Browser and choose another preset from the factory library. You can also click the left and right arrows to quickly cycle through the presets in the current Result list of the Sound Browser, or click the dice icon (showing up when hovering over the preset selector) to load a random preset from the current Result list. On all these controls (preset name, left/right arrows, and dice icon) you can also use [option]+click (Mac) or [Alt]+click (Windows) to pre-select the tags of the current sound preset, which narrows down the Result list to similar-sounding presets, or use [Shift]+click to clear any selected tags and extend the Result list to the entire preset library. A little dot next to the left/right arrows indicates that some tags are selected in the Browser, that is, the Result list does not currently include all the available presets. For more information on the Sound Browser and the Result list, refer to Browsers.
2. **Sound Preset Edit menu** (**...**): Provides various editing functions for the current sound preset. Refer to Sound Preset Edit menu.
3. **Sample selector**: Shows the name of the loaded sample. In the factory library, You can click the preset name to open the Sample Browser and choose another preset from the factory library. You can also click the left and right arrows to quickly cycle through the presets in the current Result list of the Sample Browser, or click the dice icon (showing up when hovering over the preset selector) to load a random preset from the current Result list. On all these controls (preset name, left/right arrows, and dice icon) you can also use [option]+click (Mac) or [Alt]+click (Windows) to pre-select the tags of the current sample, which narrows down the Result list to similar samples, or use [Shift]+click to clear any selected tags and extend the Result list to the entire sample library. A little dot next to the left/right arrows indicates that some tags are selected in the Browser, that is, the Result list does not currently include all the available presets. For more information on the Sample Browser and the Result list, refer to Browsers.
4. **Start**: Adjusts the start position of the playback in the sample within the first 2 seconds of the sample. If the sample is shorter, the range is adjusted accordingly.
5. **Key Tracking switch** (keyboard icon): When this is on (default setting), the sample follows the pitch of the played keys. When it is off, the sample plays at its original pitch no matter which key is pressed. In this case the step triggering is limited to one voice to avoid phasing artifacts.
6. **Key Transpose**: Transposes the triggered key in semitones. The values range from -24 semitones (-2 octaves) to +24 semitones (+2 octaves).
7. **Tune**: Adjusts the pitch of the sample by changing its playback speed, in a range going from -36 semitones (-3 octaves) to +36 semitones (+3 octaves). You can hold [Shift] while you drag the knob to adjust the value in finer increments. In addition to the colored dot appearing on any parameter controlled by a modulation, the **Tune** knob also shows a white dot: Due to its greater sensitivity, the white dot will move even with the tiniest change in the modulation value, whereas the movement of the colored dot would be barely noticeable. This makes the white dot a useful visual indicator for subtle modulations of the **Tune** parameter.

Sound Preset Edit menu

The Sound Preset Edit menu (**...**) provides various editing commands affecting the sound preset. The following commands are available:

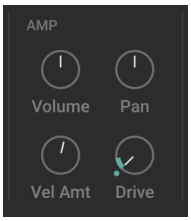


- **Copy**: Copies the displayed sound to the clipboard, including its sample and parameters. This is equivalent to [option]+clicking (Mac) or [Alt]+clicking (Windows) the step in the Selection Lane of the **Sound Lane**.
- **Paste**: Pastes the sound (including its sample and all its parameters) onto the Sound Preset section, replacing the current sample and parameter values. This is equivalent to [option]+[shift] +clicking (Mac) or [Alt]+[Shift]+clicking (Windows) the step in the Selection Lane of the **Sound Lane**. You can also copy/paste sounds between layers.
- **Init Selected Steps**: Resets all the parameters in the **Sound Preset** section to their default values for the selected steps. This also removes the parameter modulations, if any.
- **Load Preset Source Default**: Loads the parameter values from the sound preset corresponding to the current sample (the sound preset with an identical name).
- **Random Sample**: Loads a random sample.
- **Isolate to Layer A**, **B**, **C**, or **D**: Mutes the selected steps in the current layer and moves them to the desired target layer. In that target layer, all other steps are muted and only the transferred steps are audible.
- **Unload User Sample**: Removes any user samples currently loaded. This also clears their user slots in the Sample Browser.
- **Move Tuning to Note Lane**: Converts the **Tune** values for each step to the corresponding values in the **Note** lane of the Parameter Lane. The main purpose of this command is to force the layer to follow the scale quantization defined in the Scale selector at the top of the instrument: The **Note** lane's output is mapped to that scale, contrary to the **Tune** parameter, which is processing the sample's audio at a later stage.

> ⓘ When using the **Move Tuning to Note Lane** command, you might notice that the **Tune** sequence in the Sound Lane is not removed although its values have been transferred to the **Note** lane. This is to preserve the sonic character (formant shift) of the original sequence: Instead of resetting the **Tune** values to zero, the command adds their opposite values to the **Key Transpose** control located on its right, effectively canceling the detuning without losing the formant shift.

Amp area

The **Amp** area lets you adjust the amplification of the sample. The area contains the following controls:



- **Volume**: Adjusts the amplification level.
- **Pan**: Adjusts the panoramic position of the sample in the stereo field.
- **Vel Amt**: Adjusts the influence of the key velocity over the volume level.
- **Drive**: Adjusts a saturation at the amplification stage. This saturation can add grit to the sound. Contrary to the layer effects available on the FX page, which are applied to the overall signal of the layer, this saturation is applied to each note individually.

Filter area

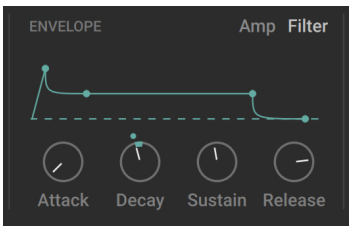
The **Filter** area lets you configure a low-pass filter and a high-pass filter applied to the sample. The low-pass filter can be controlled by the filter envelope defined in the **Envelope** area. The high-pass filter can help you remove, for example, high-frequency rumble.

The area contains the following controls:

- **LP Freq**: Adjusts the cutoff frequency of the low-pass filter.
- **LP Res**: Adjusts the resonance of the low-pass filter.
- **Env Amt**: Adjusts how much the cutoff frequency of the low-pass filter will be influenced by the filter envelope defined in the Envelope area.
- **HP Freq**: Adjusts the cutoff frequency of the high-pass filter.
- **HP Res**: Adjusts the resonance of the high-pass filter.

Envelope area

The **Envelope** area lets you configure an envelope for the amplification and another envelope for the low-pass filter. It contains the following elements:



- **Amp/Filter switch**: Switches between the amplitude envelope (**Amp**) and the filter envelope (**Filter**). The other controls in the **Envelope** area will affect the envelope selected here.

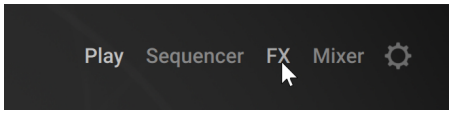
- **Envelope Display**: Shows an overview of the envelope. The four segments of the shape correspond to the four controls below. You can configure the envelope either by dragging the segments on the display or adjusting the controls below.
- **Attack**: Adjusts the time taken for the level to increase from zero to its maximum.
- **Decay**: Adjusts the time taken for the level to decrease from its maximum to the sustain level.
- **Sustain**: Adjusts the level maintained until the key is released.
- **Release**: Adjusts the time taken for the level to decrease to zero once the key has been released.

9. FX page

The FX page lets you configure the effects available in various places in the instrument:

- Each of the four layers a–d can have up to four insert effects.
- On each layer, the Step effects from the Grain category (if any) can use the dedicated Grain FX bus, an additional send effect bus with up to four effects.
- Two send effects can process the audio coming from the four layers a–d and from the Grain FX bus.
- Up to four effects can be applied globally to the output of the instrument.

▶ To open the FX page, click the **FX** button in the top right corner of the instrument.

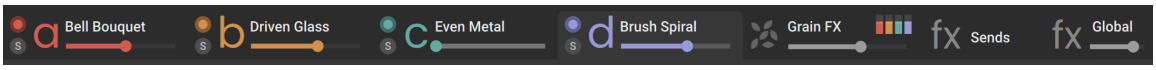


The FX page provides seven tabs, each tab containing the effects for a particular layer or effect channel. The FX page contains the following areas:

1. **Tab headers**: Each header switches to the effects of one particular layer or effect channel, and provides a few basic controls. All the areas below are specific to the layer or effect channel selected here. Refer to Tab headers.
2. **Effect slots**: Each slot can host one effect. Each tab contains four slots, except for the **FX Sends** tab, which contains two slots. Refer to Effect slots.
3. **Mod Assign section**: Lets you choose and configure up to two modulation sources for the main controls of each effect. The **Mod Assign** section is available in the Sequencer, FX, and Mixer pages. Refer to Assigning and editing modulations.
4. **Modulate panel**: Lets you configure the internal modulators available in Circular. For more information, refer to Adjusting the internal modulators.

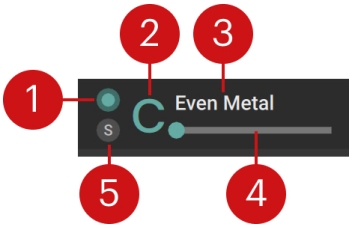
Tab headers

At the top of the FX page, the tab headers let you switch between the tabs and provide a set of basic controls:



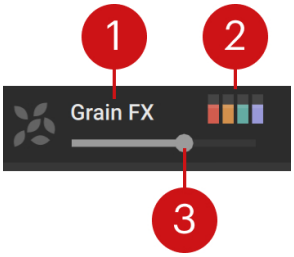
The four tab headers on the left are for the four layers **a**–**d**, and the three remaining tab headers are for the **Grain FX**, **Sends**, and **Global** effect channels.

For the **layer tabs**, the headers contain the following controls:



1. **Layer on/off**: Activates or deactivates the layer. If you deactivate the layer, it will not trigger any new notes, but the previous notes that are still sounding will stay audible. The on/off switch also lets you copy and paste the layer: You can [option]+click (Mac) or [Alt]+click (Windows) the on/off switch to copy the layer, then [option]+[shift]+click (Mac) or [Alt]+[Shift] +click (Windows) the on/off switch of the target layer to paste this layer there.
2. **Layer letter a**–**d**: Opens the tab containing the effects for that layer. All the controls in the tab below will affect only that layer.
3. **Layer Preset selector**: Shows the name of the loaded layer preset. Layer presets contain values for all the parameters of a layer. You can click the preset name to open the Layer Browser and choose another preset from the factory library. You can also use [option]+click (Mac) or [Alt]+click (Windows) to pre-select the tags of the current layer preset, which narrows down the Result list to similar-sounding presets, or [Shift]+click to clear any selected tags and extend the Result list to the entire preset library. For more information on the Layer Browser and the Result list, refer to Browsers.
4. **Layer Level slider**: Adjusts the volume level of the layer.
5. **Solo** (**S**): Deactivates all the other layers. Soloing a layer can be useful to focus on that layer when designing your sound, or as a performance tool when playing live.

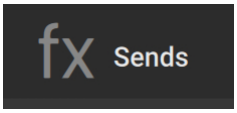
For the **Grain FX tab**, the header contains the following controls:



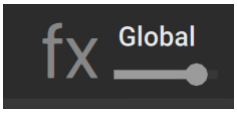
1. **Label and logo**: Clicking the label or the logo opens the Grain FX tab, which contains the effects applied specifically to the granular Step effects.
2. **Grain Levels**: Each colored bar shows the level at which the output of the granular Step effects is sent from the corresponding layer to this bus. The colored bars are equivalent to the **Grain FX** controls located in the Sequencer settings of the Sequencer page for the respective layer. You can click and drag each bar vertically to adjust the corresponding level.

3. **Level slider**: Adjusts the volume level of this effect channel.

For the **Sends tab**, the header only contains the label and the logo. You can click either of them to open the tab below:



For the **Global tab**, the header only contains the label and logo, which you can click to open the tab below, and the **Level slider**, which adjusts the volume level of that channel:



Effect slots

Each effect slot can host one effect. On all the tabs except for the **Sends** tab, the audio goes from left to right through the four effect slots. On the **Sends** tab, the two slots process their audio independently from each other.

Each effect slot includes a header at the top, while its lower part contains the parameters of the loaded effect:

The slot header contains the following controls:

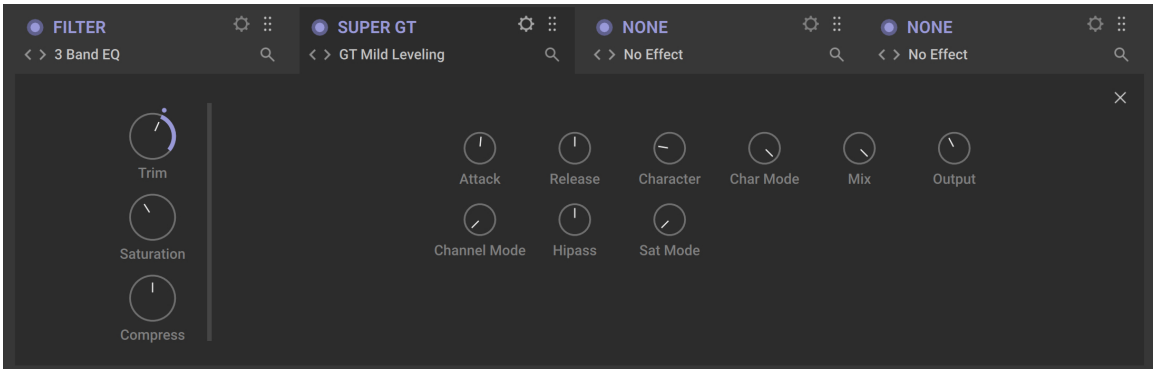
1. **Effect on/off**: Activates or deactivates the effect. If you deactivate the effect, it will not process any audio, and the audio will continue unaffected to the next slot on the right. The on/off switch also lets you copy and paste the effect: You can [option]+click (Mac) or [Alt] +click (Windows) the on/off switch to copy the effect, then [option]+[shift]+click (Mac) or [Alt]+ [Shift]+click (Windows) the on/off switch of another slot to paste this effect there. This also works between different tabs of the FX page.

2. **Effect name**: Shows the name of the original effect. Clicking the name will switch to this slot if the advanced view is active.
3. **Advanced View (cog wheel icon)**: Switches the effect slot between the advanced and compact views.
4. **Slot handle**: Clicking and dragging this handle horizontally lets you move the slot to another position in the effect chain.
5. **Effect preset selector**: Shows the name of the loaded effect preset. effect presets contain values for all the parameters of an effect. You can click the preset name to open the FX Browser and choose another preset from the factory library, or click the left and right arrows to cycle through the presets in the current Result list of the FX Browser. You can also [command] +click (Mac) or [Ctrl]+click (Windows) the preset name to remove the effect. By default the FX Browser navigates in the category of the current effect preset. With both the preset name and the left/right arrows, you can use [Shift]+click to clear the selected category and extend the Result list to the entire preset library. For more information on the FX Browser and the Result list, refer to Browsers.

Advanced view

By default, the effect slot is in compact view and shows up to the main effect controls in its lower part, directly under the slot header:

You can switch to the advanced view by clicking the cog wheel icon in the slot header. In advanced view the slot extends to the whole tab width and shows additional controls for the loaded effect:



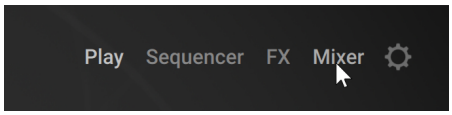
By clicking the effect name in the other slots you can switch to their advanced view. The type and number of the additional controls available in the advanced view vary with each effect.

The additional controls available in the advanced view cannot be modulated, contrary to the effect's main controls also available in the compact view. For more information on modulation, refer to Modulating your sound.

10. Mixer page

The Mixer page lets you mix the four layers a–d and the additional effect channels.

▶ To open the Mixer page, click the **MIXER** button in the top right corner of the instrument.

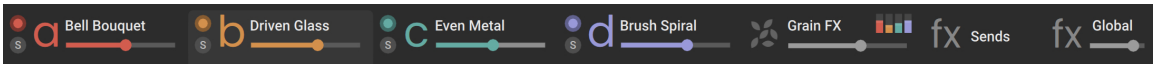


The Mixer page shows seven channels, each channel containing the mix controls for a particular layer or effect channel. The Mixer page contains the following areas:

1. **Channel headers**: Each header contains a few basic controls for one particular layer or effect channel. Refer to Channel headers.
2. **Channel controls**: Each channel provides mix controls depending on the type of channel. Refer to Channel controls.
3. **Mod Assign section**: Lets you choose and configure up to two modulation sources for most controls in this page. The **Mod Assign** section is available in the Sequencer, FX, and Mixer pages. Refer to Assigning and editing modulations.
4. **Modulate panel**: Lets you configure the internal modulators available in Circular. For more information, refer to Adjusting the internal modulators.

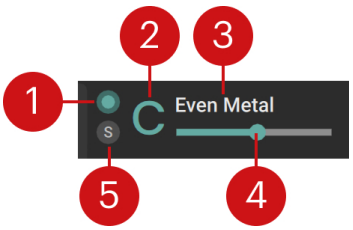
Channel headers

At the top of the Mixer page, the channel headers provide a set of basic controls:



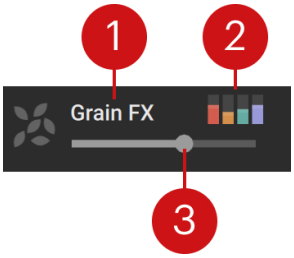
The four channel headers on the left are for the four layers **a**–**d**, and the three remaining channel headers are for the **Grain FX**, **Sends**, and **Global** channels.

For the **layer channels**, the headers contain the following controls:



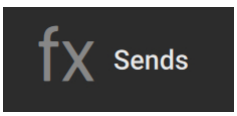
1. **Layer on/off**: Activates or deactivates the layer. If you deactivate the layer, it will not trigger any new notes, but the previous notes that are still sounding will stay audible. The on/off switch also lets you copy and paste the layer: You can [option]+click (Mac) or [Alt]+click (Windows) the on/off switch to copy the layer, then [option]+[shift]+click (Mac) or [Alt]+[Shift] +click (Windows) the on/off switch of the target layer to paste this layer there.
2. **Layer letter a–d**: Switches the **Modulate** panel at the bottom to the internal modulators for that particular layer.
3. **Layer Preset selector**: Shows the name of the loaded layer preset. Layer presets contain values for all the parameters of a layer. You can click the preset name to open the Layer Browser and choose another preset from the factory library. You can also use [option]+click (Mac) or [Alt]+click (Windows) to pre-select the tags of the current layer preset, which narrows down the Result list to similar-sounding presets, or [Shift]+click to clear any selected tags and extend the Result list to the entire preset library. For more information on the Layer Browser and the Result list, refer to Browsers.
4. **Layer Level slider**: Adjusts the volume level of the layer.
5. **Solo** (**S**): Deactivates all the other layers. Soloing a layer can be useful to focus on that layer when designing your sound, or as a performance tool when playing live.

For the **Grain FX channel**, the header contains the following controls:

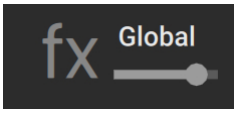


1. **Label and logo**: Clicking the label or the logo switches the **Modulate** panel at the bottom to the internal modulators shared between the Grain FX, Sends, and Global channels.
2. **Grain Levels**: Each colored bar shows the level at which the output of the granular Step effects is sent from the corresponding layer to this bus. The colored bars are equivalent to the **Grain FX** controls located in the Sequencer settings of the Sequencer page for the respective layer. You can click and drag each bar vertically to adjust the corresponding level.
3. **Level slider**: Adjusts the volume level of this effect channel.

For the **Sends channel**, the header only contains the label and the logo. You can click either of them to switch the **Modulate** panel at the bottom to the internal modulators shared between the Grain FX, Sends, and Global channels.

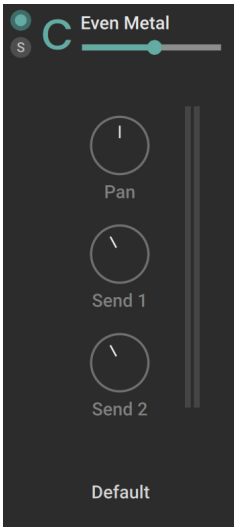


For the **Global channel**, the header only contains the label and logo, which you can click to switch the **Modulate** panel to the internal modulators shared between the Grain FX, Sends, and Global channels, and the **Level slider**, which adjusts the volume level of that channel:



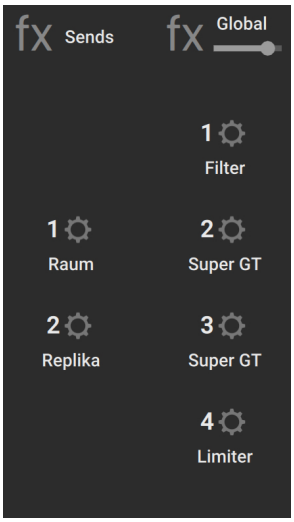
Channel controls

The four layers a–d and the Grain FX channel provide the following channel controls:



- **Pan**: Adjusts the panoramic position of the channel in the stereo field.
- **Send 1**: Adjusts the level at which this channel is sent to the effect in the first slot of the **Sends** tab in the FX page.
- **Send 2**: Adjusts the level at which this channel is sent to the effect in the second slot of the **Sends** tab in the FX page.
- **Output menu**: Selects the output of the channel. The **Default** entry (selected by default) corresponds to the instrument output, as specified in the Instrument Header in Kontakt. The **Bypass Global FX** entry corresponds to the same instrument output but without going through the effects of the **Global** tab in the FX page. The remaining entries correspond to the outputs configured in the Outputs section of Kontakt. For more information on the Instrument Header and on the Outputs section, refer to the Kontakt manual or Kontakt Player manual.
- **Level meters**: The vertical bars on the right show you the current levels of the stereo signal on that channel.

The Sends and Global channels on the right show the effects currently loaded on either channel:

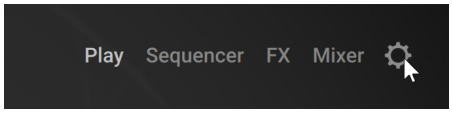


On these channels you can click the desired cog wheel to jump to the advanced view of the corresponding effect in the FX page.

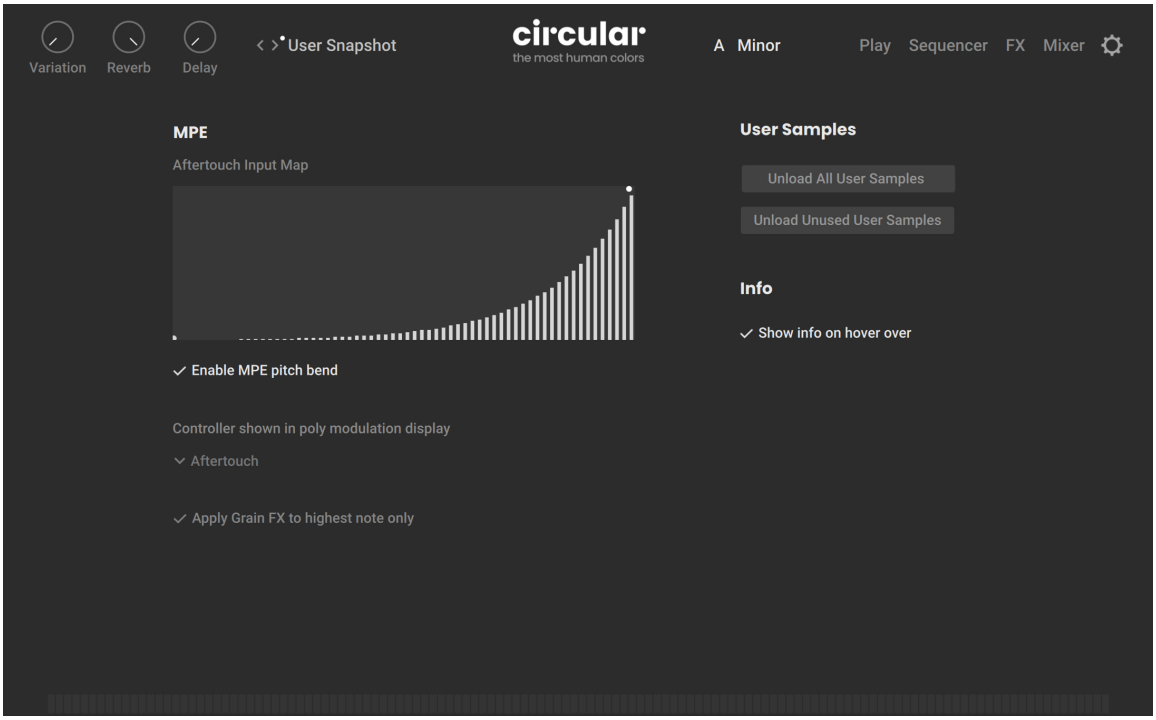
11. Settings page

The Settings page provides a few global settings for your instrument.

▶ To open the Settings page, click the cog wheel icon in the top right corner of the instrument:



The Settings page contains the following controls:



- **MPE section**:
  - **Aftertouch Input Map**: Adjusts the response curve for the aftertouch. The horizontal axis represents the incoming aftertouch and the vertical axis the aftertouch used in the instrument. You can adjust the response curve directly on the display:
    - You can create a point by clicking in the display.
    - You can delete a point by clicking it.
    - You can move a point by dragging it.
    - You can modify the curve of a segment by [option]+dragging (Mac) or [Alt]+dragging (Windows) the segment.
    - You can move two adjacent points vertically by [command]+[option]+dragging (Mac) or [Ctrl]+[Alt]+dragging (Windows) the segment in between.
  - **Enable MPE pitch bend**: When active (default setting), the instrument reacts to pitch bend data on all the MIDI channels 1–16. If you deactivate it, the instrument will only process pitch bend data on channel 1 (standard MIDI input) and ignore pitch bend data on channels 2–16 (MPE channels).
  - **Controller shown in poly modulation display**: Lets you show the **Aftertouch** values or the **Slide** values as vertical bars in the Input Note Indicator at the bottom of the instrument.
  - **Apply Grain FX to highest note only**: When active, the Step effects of the Grain category are applied only to the highest note. This can be very useful if your keyboard provides only monophonic aftertouch: On such a keyboard all the held keys would trigger the same Step effect, which could generate too many grains. If this happens, you can activate this option to reduce the number of grains.
- **User Samples section**:
  - **Unload All User Samples**: Unloads all the user samples currently loaded in the instrument.
  - **Unload Unused User Samples**: Unloads all the unused user samples currently loaded in the instrument.
- **Info section**:
  - **Show info on hover over**: Displays useful information at the bottom of the instrument when you hover over specific control elements with the mouse.

12. Modulating your sound

Circular makes an extensive use of parameter modulation. It lets you build advanced modulating schemes in an intuitive way and generate sounds that are continuously evolving and can be played dynamically.

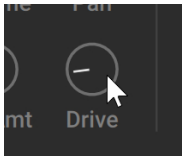
Assigning and editing modulations

In Circular you can use the same simple workflow to modulate most continuous parameter in the form of a rotary knob or a slider in the Sequencer, FX, or Mixer page, as well as specific sequence controls in the Sequencer page.

> In the FX page, only the main parameters of the effects can be modulated. The effects' advanced parameters (visible when expanding the effect slots) cannot be modulated.

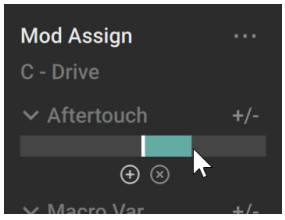
To create or edit a modulation:

1. Navigate to the page and tab containing the control that you want to modulate.
2. Make sure that the desired steps are selected.
3. Click that control.

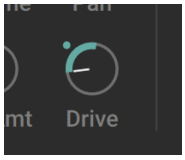


→ The control appears in the **Mod Assign** section in the bottom right corner of the instrument.

4. Select a modulation source for this control and adjust its amount, polarity, and combination with the other modulation source (if any).

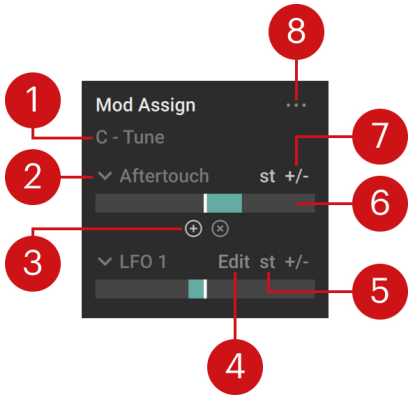


→ The parameter is now modulated. On the control element, the thicker segment indicates the modulation range, and the little dot indicates the current parameter value..



> When a rotary knob or a slider is modulated, you can use [option]+drag (Mac) or [Alt]+drag (Windows) when adjusting the control to simultaneously compensate both modulation amounts so that the maximum of the modulation range stays unchanged.

The **Mod Assign** section provides two sets of controls, one for each modulation source. The section contains the following elements:



The descriptions below equally apply to both modulation sources.

1. **Parameter name**: Displays the parameter currently in focus. The modulations will apply to that parameter. You can click another control in the Sequencer, FX, or Mixer page to bring it under focus.
2. **Modulation Source menu**: Selects the modulation source. For more information on the various modulation sources, refer to Available modulation sources.
3. **Combination switch**: This control is shared between both modulation sources. It defines how the two sources will combine. When "**+**" is active (Add mode, default setting), the two modulation values will be added to generate the resulting modulation value. When "**x**" is active (Multiply mode), the two modulation values will be multiplied to generate the resulting value. The Add mode feels more natural for modulation sources that are independent from each other. The Multiply mode can be useful in various situations, notably, it can help you scale a modulation source. For example, you could use it to create a vibrato controlled from the modulation wheel: By assigning both a LFO and the **Variation** Macro knob (itself assigned by default to the modulation wheel) to the **Tune** parameter of a sound, and activating the Multiply mode, you can use the modulation wheel to control the extent of the vibrato applied to the sound.
4. **Edit button** (LFO 1/2 and Shaper 1/2 sources only): Opens the **Modulate** panel on the left if it was not visible, so that you can configure the four internal modulators (LFO 1/2 and Shaper 1/2). For more information, refer to Adjusting the internal modulators.
5. **St button** (Semitone, only for the **Tune** control): Reduces the maximum range set by the Amount slider to one semitone, allowing for much finer pitch control and progressions.
6. **Modulation Amount slider**: Adjusts how much the modulation source will affect the parameter. This defines the range of the modulation values. With the slider in the center, the modulation source has no influence over the parameter. The further you drag the slider to the left or to the right, the stronger the modulation will be. With the slider on the right side, increasing the modulation value will increase the parameter value (direct ratio). With the slider on the left side, increasing the modulation value will decrease the parameter value (inverse ratio). You can reset the slider and remove the modulation by [command]+clicking (Mac) or [Ctrl]+clicking (Windows) the slider. If you simply click the slider, it gets under focus in the Sound Lane and you can create a sequence controlling the slider value.

7. **Bipolar switch**: When this is off, the modulation range extends on one side of the parameter value (the particular side depending on the side of the Amount slider). When the Bipolar switch is on, the modulation range extends on both sides of the parameter value.
8. **Modulation Usage menu** (**...**): Lets you choose a modulation source from the menu and opens a list of all its target parameters in the current layer, or in any effect tab (Grain FX, Sends, and Global).

ⓘ In the Sequencer page, like the parameters in the **Sound** panel, the parameters in the **Mod Assign** section are defined for each step individually, and your changes apply to the selected steps only. If you want to define a modulation that applies to a parameter at any time, you first need to select all steps by clicking the **All** button in the Sound Lane before setting up your modulation.

ⓘ In the FX and Mixer pages, the modulation targets are monophonic. For these target parameters, the maximum modulation value among all voices will be taken into account.

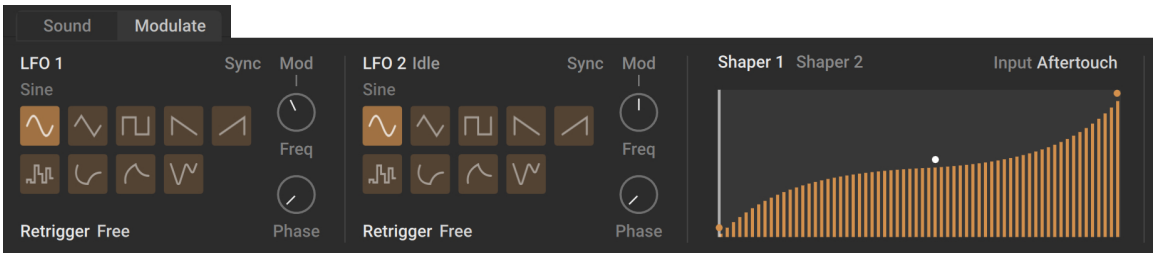
Available modulation sources

The following modulation sources are available:

- Macro knobs (**Variation**, **Reverb**, and **Delay**): Located in the top left corner of the instrument, these three knobs respectively appear as **Macro Var**, **Macro RV**, and **Macro DL** in the menus.
- Aftertouch (polyphonic if available on the keyboard)
- MPE Slide (if available on the keyboard)
- Shaper 1 and Shaper 2 (internal modulators, refer to Adjusting the internal modulators)
- LFO 1 and LFO 2 (internal modulators, refer to Adjusting the internal modulators)
- Key Velocity (how hard you hit the keys)
- Key Tracking (the pitch of the played keys)
- Sequence Velocity (as defined in the **Velocity** lane, refer to Parameter Lane)
- Step Random (a new random value on each step)
- Constant: This source shifts the target value by a positive or negative fixed amount. This can be useful, for example, to prevent Step effects from being triggered until you accentuate the pressure on the key.

Adjusting the internal modulators

The four internal modulation sources can be configured in the Modulate panel. This panel is always visible at the bottom of the FX and Mixer pages. In the Sequencer page you can show the Modulate panel by clicking **Modulate** in the top left corner of the Sound panel, at the bottom of the page:



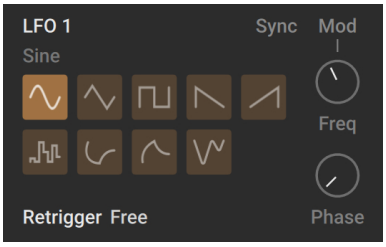
The Modulate panel contains three sections:

- The two LFO sections let you configure the two available LFOs.
- The Shaper section lets you configure the two available Shapers.

> The parameters of the LFOs and Shapers are defined per layer.

LFO sections

Each LFO section contains the following elements:

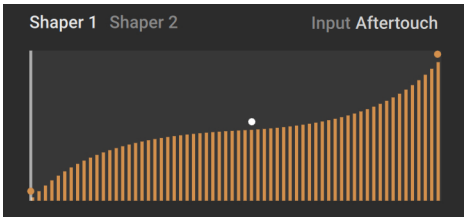


- **Waveform Type**: Selects from various waveform types (Sine, Triangle, Square, Ramp down, Ramp up, Random, Seek A, Seek B, Drift). Seek A and Seek B provide smooth, random LFOs.
- **Retrigger**: Selects the retrigger behavior of the LFO. **Free** mode provides polyphonic modulation with a random start phase. **First Key** mode restarts the LFO with the first note only. In **Every Key** mode, the LFO restarts for each key pressed. **One Cycle** mode triggers only one LFO cycle. **1st 1x** triggers one LFO cycle for the first note only. In all modes, excluding Free, the Start phase setting is taken into account.
- **Phase**: Sets the starting point for the LFO in degrees, ranging from 0° to 360°. This setting has no affect when the LFO is in **Free** mode, or when the **Random**, **Seek A**, or **Seek B** waveform is selected.
- **Freq**: Sets the oscillation frequency of the LFO. This parameter can be synchronized to the global tempo.
- **Mod**: Explicitly set the **Freq** control under focus in the **Mod Assign** section, so that you can assign or edit its modulation sources. This is not the case by default, since most of the time one would like the **Mod Assign** section to keep its current parameter in focus while configuring the LFO modulation source for this parameter.
- **Sync**: Determines if the LFO speed is set in Hertz (button off) or as a note value in relation to the global tempo (button on).

Shaper section

The two Shapers can be used to define a new output value for every input value. For example, by using an LFO as the input of the Shaper and painting in the desired curve, you can generate many different types of waveforms. This allows you to create more interesting and elaborate modulation sources to achieve targeted results.

The Shaper section contains the following elements:



- **Shaper 1** / **Shaper 2**: Toggles between the two available Shapers.
- **Input**: Selects the modulation source used as input. The usual modulation sources are available (except for the Shaper itself).
- **Shaper Display**: Displays the response curve of the Shaper. The horizontal axis represents its input and the vertical axis its output. You can adjust the response curve directly on the display:
  - You can create a point by clicking in the display.
  - You can delete a point by clicking it.
  - You can move a point by dragging it.
  - You can modify the curve of a segment by [option]+dragging (Mac) or [Alt]+dragging (Windows) the segment.
  - You can move two adjacent points vertically by [command]+[option]+dragging (Mac) or [Ctrl]+[Alt]+dragging (Windows) the segment in between.

13. Credits

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