# Xequence

## MIDI Workstation

MIDI meets Mobile.

## Quickstart Guide

# Contents

# Introduction

## Welcome to Xequence!

Xequence is a highly professional, fast & stable MIDI sequencer, arranger & controller for iPhone & iPad. It can be used to record, edit and arrange notes and controller movements, both using **other apps** that support **Virtual MIDI / CoreMIDI** (in effect, all of them), or **external MIDI hardware** like **synthesizers**, control surfaces etc.

It can also sync with other apps and devices using **Ableton Link** and can act as a **MIDI Sync** master, so that other apps or hardware can slave to Xequence, meaning that they run in perfect sync with it (they start when you press play in Xequence, they stop when you press stop, they move their song position if you move it in Xequence, etc.).

Xequence has **full** and **rock-solid Audiobus support** for **all** applicable Audiobus features.

This guide only gives you an **overview over important concepts and features** in the app so that you can use it effectively and to its full potential. It **does not document all available features**.

For the rest, Xequence contains extensive in-app "hints" that pop up whenever you touch a button or area for the first time.

# Features at a glance

## HIGHLIGHTS:

- Efficient User Interface for an amazing mobile editing workflow
- Full support for scales and scale-based editing throughout the app (keyboard, pianoroll, etc.)
- Over 70 scales in 10 categories included
- Full Audiobus support
- Ableton Link (tempo and phase only - use Audiobus for start/stop sync)
- MIDI File Import & Export (notes, controllers, program changes, track names, etc.)
- Best-in-class MIDI timing and clock output
- MIDI In & Thru with rechannelization & rerouting to current track
- MIDI Sync Master (Clock/Start/Stop/Continue/SPP) - other DAWs & sequencers can run in sync with Xequence, e.g. to use audio tracks, or external drum machines. Several modes for full compatibility
- Works perfectly with e.g. AUM / Gadget as hosts / sound generators, drum sequencers like Ruismaker, or BM2 for synced audio tracks

## ARRANGER:

- Unlimited Parts
- Up to 4 tracks (Unlimited Tracks via In-App Purchase)
- 64 Undo/Redo steps
- Per-track non-destructive Swing & Delay +/- 200 ms
- Multiple tracks per instrument
- Parts can be independent or linked (editing the original modifies all copies)
- Part-based looping
- Program changes
- Selection tools: Marquee/Rectangle, Same Track, Same Instrument, Linked Parts, Invert, etc.
- Editing tools: Create Copy, Create Linked Copy, Unlink, Split, Join, Convert loops to parts, etc.
- All edits can be performed across multiple tracks and parts
- Global clipboard, even across projects
- Position/Length Handles at screen edges for efficient editing

## PIANOROLL EDITOR:

- 256 Undo/Redo steps
- Fully scale-aware
- Relative or absolute grid: Snap Events to nearest grid line, or move by grid increments
- Live Auditioning of all note edits and mini keyboard on the left
- Selection tools: Box, Same Note, Same Key, Same Beat Position, Invert, etc.
- Editing tools: Copy, Legato, Quantize, Quantize Ends, Octave +/-, Flip H/V (mirror), Fill part with selection
- Smart Draw mode: Touch to create, touch again to delete, drag up/down to transpose, drag left/right to change length
- Global clipboard, even across projects
- Note velocities can be edited just like controllers, see below:

## CONTROLLER EDITOR:

- 256 Undo/Redo steps
- Selection tools: Box, Same Beat Position, Invert
- Selection modes: Add & Replace
- Editing tools: Copy, Reduce, Quantize, Compress/Expand, Flip H/V (mirror), Ramp (various curves), Fill part with selection
- Smart Draw mode
- Note Velocities can be shown as controllers and edited with the same tools

## KEYBOARD / CONTROLLER:

- Fully scale-aware, very playable single or dual keyboards
- Glide support
- Freely adjustable key width
- Velocity emulation (via vertical position on key)
- Drum maps and pads, highly customizable (In-App Purchase)
- CCs (controllers) can be shown as touch ribbons next to the keyboard
- All CCs can be controlled by sliding (ribbon), device rotation (up to three axes simultaneously), played like a button (sustain pedal, "trance gates"), or by touching the keys at different vertical positions. All highly configurable.

## INSTRUMENTS:

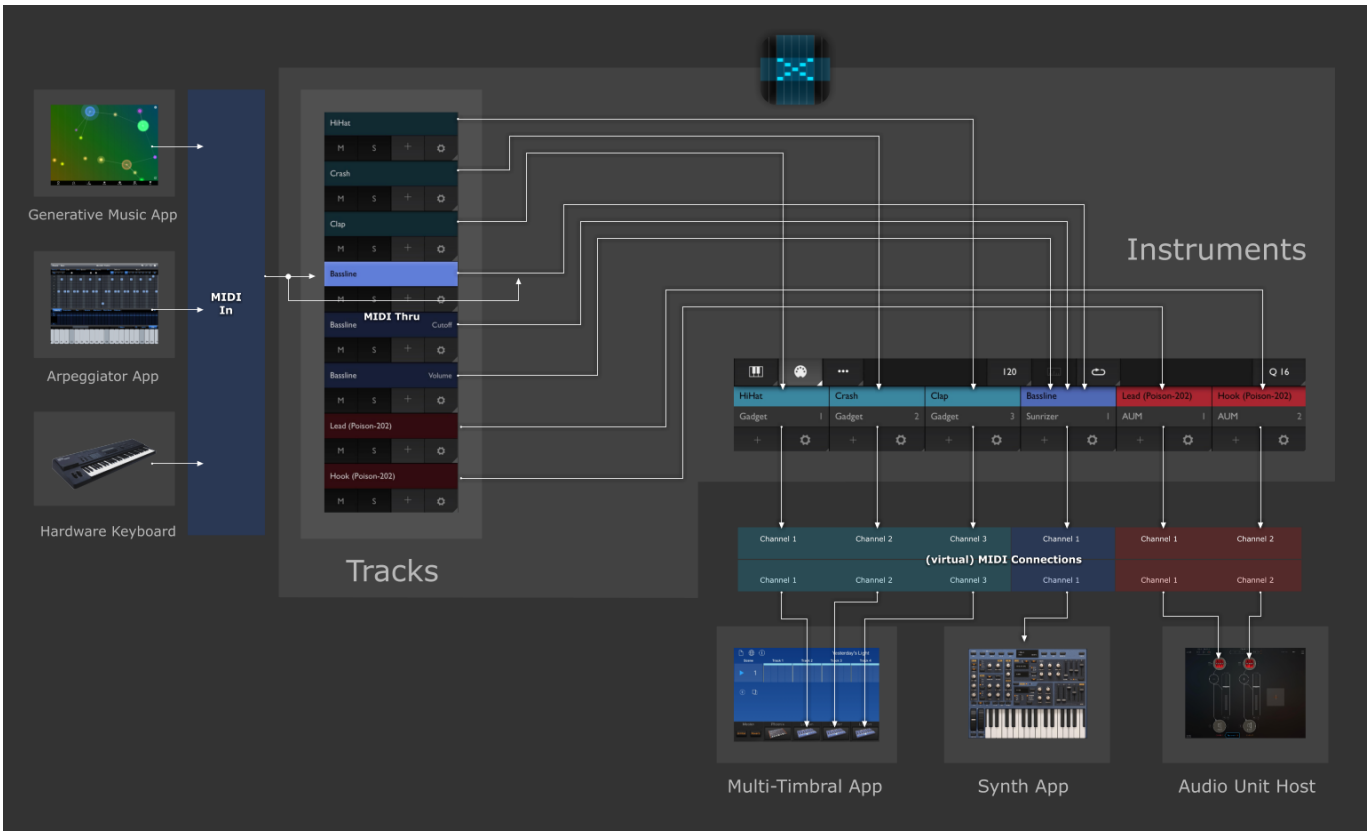
- Unlimited Instruments (an Instrument is a MIDI destination & channel)
- 3 definable CCs (Controllers) per Instrument (up to 12 via In-App Purchase)
- Compatible with virtually ALL synths and hosts

## VARIOUS:

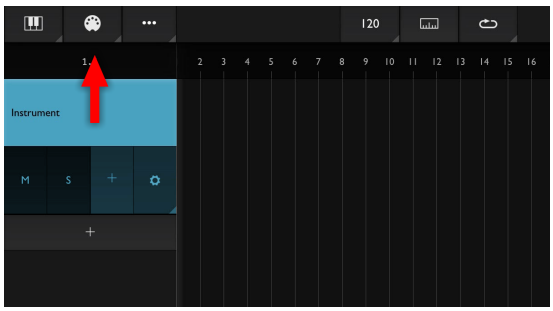
- Audio & MIDI Metronome
- Note chasing (notes play even when playback starts in the middle)
- Robust controller (CC) handling with backchasing
- Perfect song looping, no dropouts/jitter at loop points
- Supports any time signature/BPM (fixed per song)
- Generative music with PolyHymnia (In-App Purchase)
- Files app support
- Ruler (can be set to auto-hide to preserve screen space)
- Bright or dark color scheme

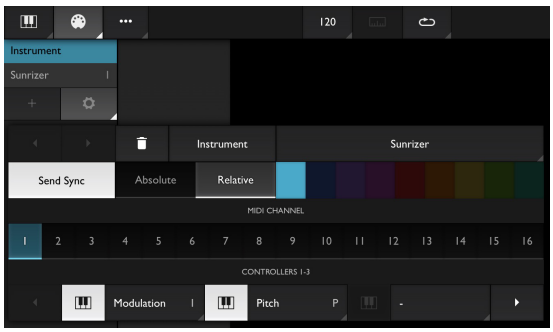
# Overview

The following diagram gives you an overview about how MIDI routing between MIDI Input apps / controllers, tracks, instruments, and MIDI-capable instrument apps / hardware works.



# Instruments




An *instrument* in Xequence represents a connection to something that actually produces sound, for example:

- a standalone **synthesizer app** like Poison-202, Animoog, or Gadget
- an **external MIDI synth** connected via any class-compliant MIDI interface
- an AUv3 synth hosted in a third-party Audio Unit host like **Audiobus**, **AUM**, or even **AUM hosted in Audiobus**.

Any time you want to add a new sound (timbre) to your project, you would create a new instrument.

Instruments have the following main settings:

## MIDI Destination

Here you can select the app (or MIDI output) whose sounds you want to use for this instrument. This is saved with the project and when you reload it, all connections will **automatically and reliably be remade**, either at load or when the corresponding app is launched.

If you use **Audiobus**, it appears as a destination here, too. See the separate "**Audiobus**" chapter for more information.

## MIDI Channel (1-16)

For multi-timbral synths (apps or hardware that can produce multiple different sounds at once), each sound is assigned one of 16 *channels*. Select the same channel in your synth and in this menu. If you only use one sound in the synth app or it doesn't support multiple sounds, just leave both at **1** or set the synth to *Omni*.

Another use case for channels is **AUv3 hosts like *AUM***: As AUM only appears as a single app in Xequence, but can host multiple instruments, you would use **channels** to separately connect to them: In *AUM*, enable the "AUM Destination" MIDI Source for the plugin, and in "Channel Filter", enable just **one** of the channels, for example, 3. Then in Xequence, select *AUM* as the MIDI destination, and channel 3. This way, you can host up to 16 separate instruments in AUM and create corresponding instruments in Xequence.

For the **Audiobus** destination, the channel selector is replaced by a **port selector** for selecting one of Xequence's 16 Audiobus MIDI Outs.

## Send Sync

Turn this on if (and only if) you want the timeline of an external DAW (for example, BeatMaker 2 — this is most useful if you want to use audio tracks in your project) or an external pattern sequencer / drum machine (for example, Ruismaker) to run in sync with Xequence.

Xequence sends the following sync information:

- Start
- Stop
- Continue
- Song Position Pointer
- Clock

Note that if you want an external app to sync to Xequence, you have to create a "dummy" instrument for it (with the "Send Sync" option enabled) even if you do not use any of its sounds (if you do use some of its sounds, just turn "Send Sync" on in one of the instruments. Sync is not channelized, so if you use the same app for several instruments on different channels, if you turn on "Send Sync" for one of them, it will turn on for all of them.)

There are **two modes**:

- **Absolute**: This is most compatible with DAWs or sequencers that have a real timeline. It will try to synchronize the absolute time of the destination app / device with Xequence, so both run exactly in parallel. This mode **may not be compatible with loop-based apps or devices**. For those, use "Relative".
- **Relative**: This starts the destination app / device on the nearest whole bar position, and does not care about absolute timeline position. This mode is most useful and compatible with loop-based apps or devices, like Ruismaker.

## Controllers

Each instrument can have up to 3 *controllers*, also known as *CCs* (up to 12 via In-App Purchase). These can be used to modulate parameters like filter cutoff, pitch, etc. in apps or synths that support it (i.e., nearly all).

To switch to the next page of controllers, tap on the right arrow button.

As you will probably only use a very small subset of all available CCs for each instrument, you can set them up once here, and only those will be shown in the Keyboard and Controller editor views, so you don't have to scroll through a mile long list of all controllers (more than 100) each time. The little "Keyboard" button decides if the corresponding controller will be available on the Keyboard screen when tapping the "CC" button there.

Many apps use the same controllers for similar things (e.g., CC 74 for "Filter cutoff"), so we have included a selection of "standard" controllers in the menu which work with many apps. However, please check in your corresponding app or synth what CCs it uses for what parameter.

If the CC you want to control from Xequence is not included in the menu (say, you use a drum synth which uses CC 88 for the "Pan" knob of the HiHat), you can tap the "#" button and enter the controller number (in this case, 88) manually.

Each controller has further options:

- **Name**: Especially for non-standard controllers ("#"), you can enter a name of your own here (for example, "Kick Drum Pan"). This name will be used in all menus, buttons etc. that deal with that controller.
- **Centered**: Enable this to have the controller centered around 0. Useful for Pitch Bend, Pan, etc.
- **Return**: Enable this to have the controller automatically "bounce" back to zero after releasing it with your finger. This is most useful for the Pitch Bend controller.

## Automatic detection of controllers

If Xequence detects controllers during recording that are not yet configured on the target instrument of the track being recorded to, a dialog will appear offering to add those controllers automatically.

## Use of colors throughout Xequence

In Xequence, "**colors belong to instruments**", i.e., you can assign a color to each instrument, and that color will then be used for **all user interface elements** (tracks, pianoroll notes, keyboard keys, etc.) that **affect that instrument**.

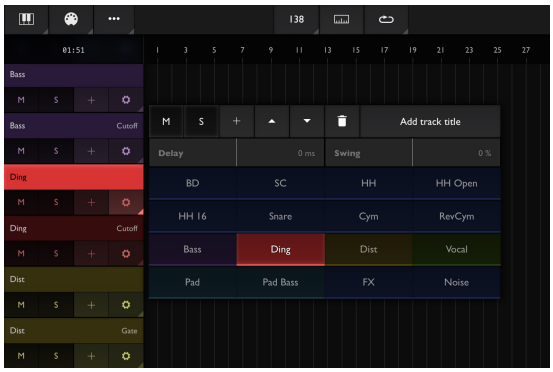
For example, if you create an instrument for your bassline synth, and assign it the color "Blue":

- All tracks that play that instrument will be blue
- All parts on those tracks will be blue
- Notes and controllers in the editors are shown in blue
- If you call up the keyboard, keys will be in blue
- The "Record" button will be blue as well if you have a track selected that is assigned to that instrument.

This always gives you a sense of context.

# Arranger

## Tracks




The Arranger uses *tracks* to separate the *parts* (some call them *clips* or *patterns*) for the different instruments.

For each instrument you create, you need at least one *track* to contain the parts that have the notes and controllers that make up the song.

You can also **create multiple tracks for the same instrument**. This is very useful if you want to record both **notes and controllers**, as this way, you can keep them neatly separated: create one track for the notes, then create another track below it (the "+" button) for the first controller, another one for the second, etc.

**Note**: You *can* record both notes and controllers on the same track into the same parts and then switch between them in the Pianoroll / Controller editor, but this is not recommended as it is much easier to work with separate tracks.

## Track settings

- **Title**: On the left, tracks display the name of the target instrument. An additional title that is displayed to the right can be entered here. Useful, for example, if you want to use a track for controller data that controls filter cutoff in the target synth. You could set its title to "Cutoff" then.
- **Delay**: If set, all notes and controllers on this track are shifted by this many milliseconds during playback. Useful for shifting claps or basslines slightly backwards in time, for example, or to adjust for latency of the synth / app on this track. **Note**: This setting does **not modify the actual data**, it just affects playback!
- **Swing**: Performs swing quantization. **Note**: This setting does **not modify the actual notes in the parts on the track**, it just affects playback! You can change it as often as desired.
- **Destination instrument**: Select one of the buttons below to choose which instrument (which you previously configured in the "Instruments" screen) should be played by the data on this track. Multiple tracks can target the same instrument (for example, to keep notes and controllers for the same instrument neatly separated).
- **Multitrack recording source**: Xequence can record from multiple sources (apps, hardware controllers etc.) and/or channels simultaneously onto separate tracks (requires one-time In-App Purchase). You can set any track to always record from one specific source and channel here. Please see the "**Multitrack Recording**" chapter for more details.

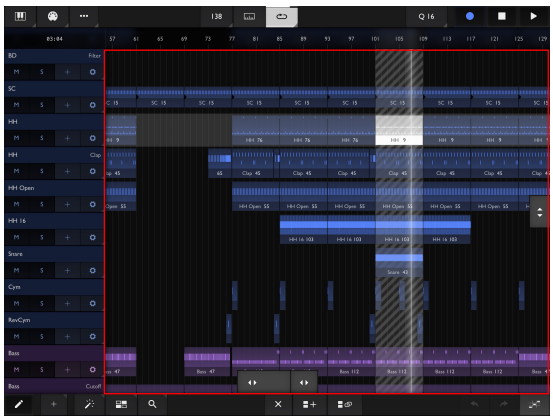
## Mute / Solo

The "M" button mutes a track, i.e., its events won't be played back anymore. If the "S" button is active on one or more tracks, those tracks are *solo*ed: only events on those tracks will be played back.

## Scrolling the tracklist

We designed the Arranger so that you can only scroll vertically by swiping in the *editor* area on the right, **not** on the tracklist. This is on purpose: We wanted the "M" and "S" buttons to react instantly when tapped, however, in order to detect if a touch is meant to be a swipe (scroll) or a tap, Xequence would first have to wait until the finger is lifted or moved.

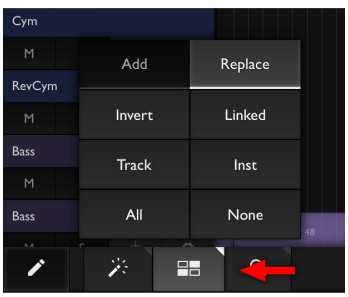
## Editor



The editing area to the right of the tracklist contains your **arrangement**, i.e. all the *parts* (also called *patterns* or *clips*) that make up the complete song. It is played from left to right.

- **Slide** your finger across the editor to **scroll**.
- **Pinch** with two fingers to zoom in or out.
- **Tap and hold** to start *rectangle / marquee select*. This will select all parts touched by a rectangle drawn with your finger. But see "Selection mode", below.
- **Double-tap** in an empty area to select or deselect **all** parts (this can be changed to single-tap in Xequence's settings, but we chose double tap so that you don't accidentally erase your whole selection while adding multiple parts to the current selection in Selection "Add" mode).
- **Tap a part** to select or deselect it (the exact behavior depends on the Selection mode, see below).
- **Double-tap a part** to open up the **Pianoroll editor** to edit its notes or controllers. You can also tap the toolbar button in the lower right corner instead.

## Selection mode

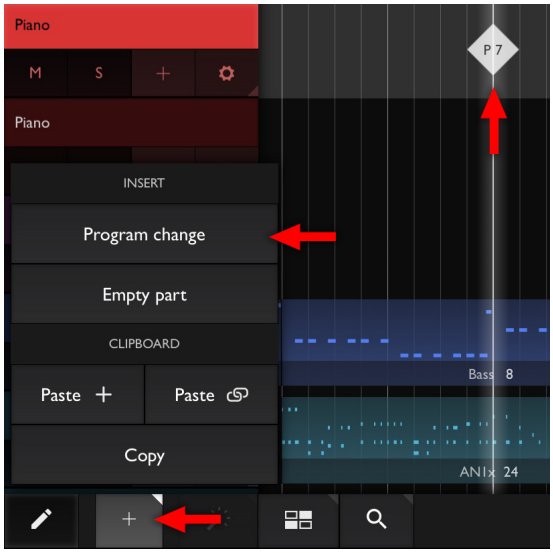



There are two modes for selecting parts, using either tap or rectangle selection:

- **Add**: Use for selecting multiple parts by tapping them in succession, or drawing multiple rectangles. Tapping an already selected part deselects it.
- **Replace**: When selecting parts either by tapping or drawing a rectangle, all previously selected parts are always deselected first. This is the mode that is probably more practical for most situations.

## Program Change and Bank Select

Any number of program changes (instruction to another synth which preset to use) can be inserted per track. Xequence also has robust support for **Bank Select**.



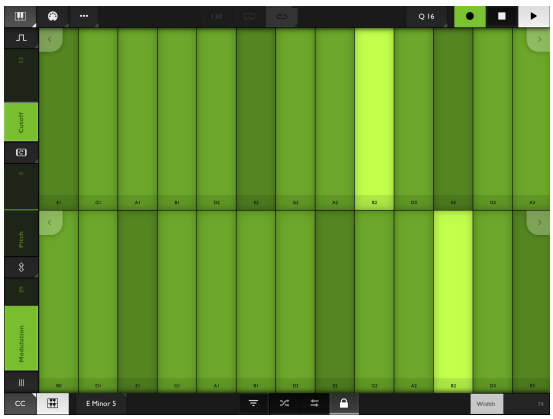

To insert a program change:

- **Select a track** by tapping its name in the track list.
- **Move the song position pointer** to the position where you would like the program change to occur.
- **Tap the "+" button** at the bottom left to open the "Insert" menu.
- Tap "**Program change**".
- In the dialog, enter the **program number**, and the **bank number**. You can either enter the **full bank number** (MSB and LSB combined), **or** MSB and LSB **separately**. Xequence will automatically fill the other fields as appropriate.

To **edit** an already existing program change, just **double-tap it** as you would a regular part, or with the program change selected, tap the bottom-right "Edit" button.

Program changes use **backtracing** just like controllers, i.e. when the song position changes, Xequence automatically searches for the nearest previous program change and sends it to the instrument.

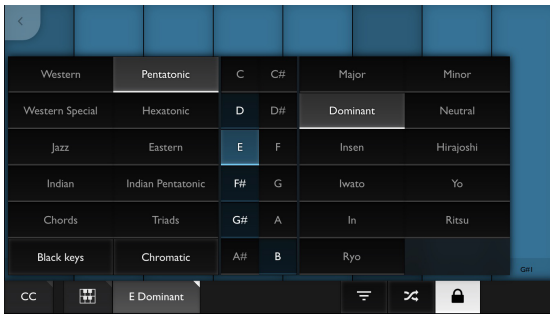
# Keyboard and Controllers



Xequence's keyboard controller is absolute top-class and offers a highly configurable, scale-aware keyboard with over 70 included scales selectable from almost a dozen categories (a chromatic scale (all notes) and "normal" mode with black keys are also included). It can be either single or dual and can be "velocity sensitive" (tap a key's bottom for full velocity, or the top for nearly no velocity). Two velocity curves are available on the Settings screen. The key size is freely adjustable using the "Width" slider.

The keyboard always controls **the instrument of the currently selected Arranger track**, or, if launched while in the Pianoroll / Controller editor, **the instrument of the track whose part is being edited**.

## Scales

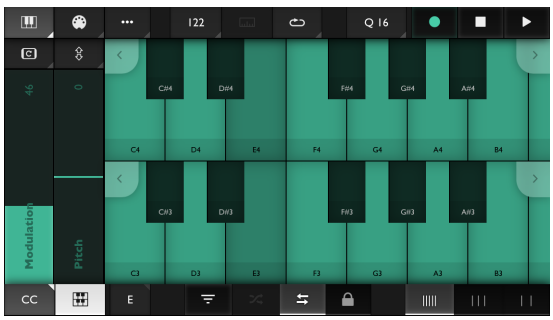



In music theory, **scales** are selections of notes that work well together and give off a certain "mood".

A full octave contains 12 semitones. Most scales, like the *Major* or *Minor* scales, contain only 7 of those, which work well together. There's also scales with less notes, like the *Pentatonic* scales, which contain only 5 notes.

There's 2 special options in the Scales menu:

- **Black keys**: Disable scales altogether and display black and white keys instead (like on a traditional hardware keyboard or piano)
- **Chromatic**: Also effectively disables scales, as the *chromatic* scale is the scale which simply contains **all** notes (12 semitones).




## Playing and editing drums

Xequence has sophisticated support for fully customizable drum pads and editing. You can try all editing features for free; however, to actually play the drum pads, a one-time In-App Purchase is required. Please see the dedicated "Drum Maps" chapter for more details.

We also include a **large selection of factory drum maps** for all kinds of apps and gear so you can start drumming right away.

Alternatively, if you would like to use and edit drums without drum maps, use the *Chromatic* scale, as it contains all notes and you're guaranteed not to "miss" any drum sounds your destination instrument / app might play on some note.

## Glide, Scroll, and Lock


Two toggles in the bottom toolbar of the keyboard screen control the scrolling / gliding behavior of the keys:

- **Glide**: When this button is enabled, sliding across the keyboard will play each key as soon as your finger slides over it, and releases it when your finger leaves it. **Note**: This mode is currently only available when there's a scale selected, i.e. it won't work with black keys. If it is not enabled, then sliding your finger across the keyboard will instead scroll it horizontally.
- **Lock**: Enable this to prevent horizontal scrolling of the keyboard.

## Controllers

All controllers of the current instrument that have the "Keyboard" toggle enabled can be shown to the left by tapping the "CC" button.

On iPad, you can choose to either display them vertically stacked (uses less screen space and you can "twitch" them more easily), or next to each other (the "|||" button). Choose whichever mode is more usable in your situation. This setting is saved per instrument.

To move a controller, just touch it and then slide up or down (it will start from the current value, not the value where you first touched it). You can reset a controller to zero by double-tapping it. Controllers that have the "Return" option enabled will return to zero once you lift your finger.

## Enhanced control modes

Xequence offers an unrivaled palette of advanced ways to use controllers while playing live, outlined below.

## Device Motion Control

All controllers can also be moved by rotating your device. Enable this option by tapping on the menu button above the slider, and then tap the "Landscape Phone" icon.

The first controller will be moved by rotating your device towards or away from you. If you enable Motion Control for more than one controller, the next axis that will be used is the "around the device itself" axis, and the next one would be the "tilt the device around its vertical center line" (if that makes any sense!).

## Gate mode

A controller can also act like a button and thus be "played" like a keyboard key. Enable this mode by tapping the menu button above the slider, and then the "Pulse" icon.


In this mode, when tapping the slider anywhere, the controller will immediately jump to the value at that position (for example, if you tap it right at the top, it will jump to 127), and when you release your finger, it will jump back to the position it was at before activating Gate mode.

There's at least two use cases for this mode:

- For emulating a **Sustain pedal** (set the controller to 0 in normal "Slide" mode, then switch to "Gate" mode and tap near the top to simulate the sustain pedal.)
- For creating the proverbial "**trance gates**" (by using CC 7 / Volume).

Note that when **recording** in this mode, **controller data is quantized** according to the "Q" setting at the top (including the "Ends" toggle there), just like keyboard keys. Of course, you can turn "Q" to "Off" if you do not want quantization in this mode.

## Key position mode

In this mode, touching a key will set the corresponding controller depending on the vertical position where you touched the key (or keys). This is done before playing the actual note, so the target synth has time to adjust the controller's value before playing the sound. This mode is very useful for synths that do not support mapping velocity to controllers, etc.

## Key slide mode

In this mode, the controller can be moved by sliding your finger up and down on a key (or keys) *after* touching the key.

## Key slide + position mode

This mode combines the previously mentioned two modes.

## A general note on recording controller data

Currently, if you record controller movements live, **existing controller data on the track / in parts is not automatically erased**, but only new events are added instead. So, if you want to "overwrite" controller data you recorded previously, it is best to **delete the corresponding parts (or events, if you record into the Controller Editor) first**.

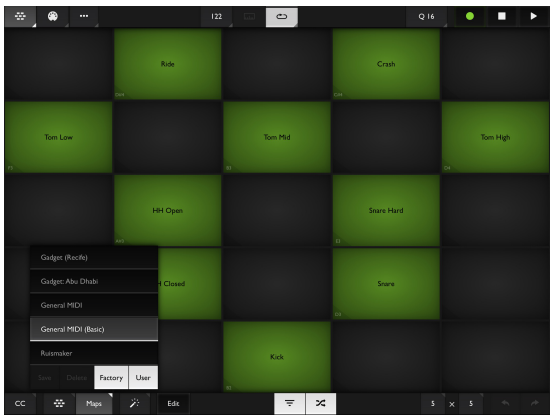
We plan to add a "Replace" recording mode in the future, which will automatically erase existing controller data as soon as you touch the controller slider or enable motion control.

# Event chasing

Xequence automatically finds the nearest previous controller event in the part that is at the current song position, and uses that for displaying the slider and also sends it via MIDI. So, no matter what, when you set the song position, you will always get correct controller values (event chasing only works inside parts for now, so if there is no part at the current song position, the controller value won't change.).

# Drum maps and Editing

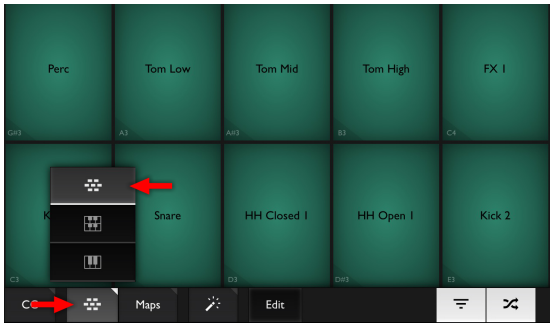
Xequence has a sophisticated drum map and editing system:




- **Up to 64 drum pads**, in any desired layout (4x4, 8x8, 2x6 etc.).
- **Fully customizable layout**, drums can be moved around by drag and drop.
- **Highly configurable velocity sensitivity**, with various modes (maximum velocity at center / top / bottom) and velocity curves (these settings can be found on the "..." (Settings) screen at the top left).
- **Glide mode**.
- **Preset system** with a variety of factory presets for various drum machines and apps (Korg Gadget, Ruismaker, etc.), and an unlimited number of user presets that can be added.
- **Various map processing features** such as **Flip**, **Compact** etc.

## Activating drum maps for an instrument

To switch into drums mode, select a track with an instrument that is assigned to a drum synth, go to the **Keyboard screen**, tap the keyboard selector button in the lower left corner (it will either show a single or dual keyboard icon), and in the dropdown menu, select the top option (drum map icon).




Xequence will load the "**General MIDI**" map by default, which contains the 47 standard GM drums including their names and notes.

## Map size

You can configure any map layout from 1x1 (a single large drum pad) to 8x8 (64 pads) and anything in between by tapping the **number buttons** on the right hand side of the **bottom toolbar**.

When you resize a map that already has drum pads assigned and the new map size is smaller than the previous one, Xequence will try to keep the visual layout and shrink the map size horizontally so that the existing pads stay centered, and vertically so that bottom pads stay at the bottom.

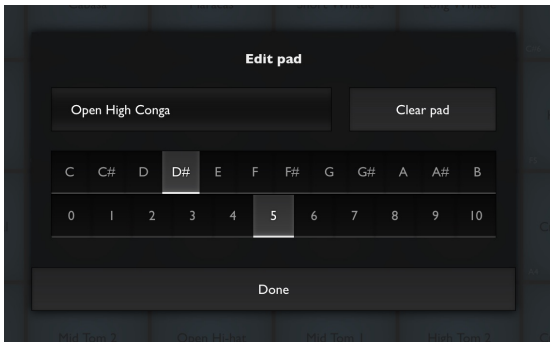
If this is not possible, there can be two scenarios: If in theory, the existing pads would be able to fit the new size (say, you have 35 drum pads and you select 6x6), but not with the current visual layout, then Xequence will offer you to **automatically compact the map** so that all drum pads still exist, but without

their previous layout. Otherwise, say if you have 30 pads assigned, but the new map size is 3x3, then Xequence will ask to discard those drum pads that cannot fit in the new size.

If you select a **larger size**, then existing pads will stay centered at the bottom, and new grid cells will be added at the top and/or to the left/right.

## Editing the map

To start editing a map, activate **Edit mode** by tapping the "Edit" toggle at the bottom.




You can then:

- **Tap any pad or empty cell** to edit or add a pad. Each pad has a **title** and a **note / octave**. When selecting the drum note, Xequence will actually send the selected note via MIDI so you can find the correct drum without reading manuals. You can also **clear** a pad if you do not want anything to trigger at that cell position.
- **Tap and hold a pad** to move it around. If you drop it on an already existing pad, the pads will swap positions.

## Process ("Magic Wand") menu

This menu offers various features that affect the entire drum map:

- **Clear**: Clears all pads, leaving an empty drum map.
- **Compact**: Moves all assigned pads to the bottom, starting from the left and then going up in rows.
- **Fill**: Can be used to automatically generate drum pads with ascending notes, starting from the selected root note (the entire existing drum map will be overwritten).
- **Flip H/V**: Flips (mirrors) the drum map. Useful for changing between right-handed and left-handed use, etc.

## Drum map presets

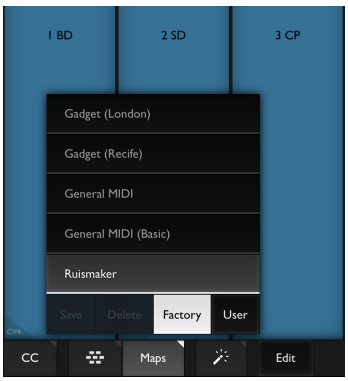
Xequence comes with a selection of preset drum maps that have the corresponding notes, labels and layout for various popular drum machines or synths.

Tap the "**Maps**" button in the lower left corner to choose a preset.

You can also **save your own presets**, which will be available **in all Xequence projects**. Just take an existing drum map, edit it as desired, and then tap "**Save**" in the Maps menu (you will be prompted for a name). You can also delete saved maps, and filter the list of maps.

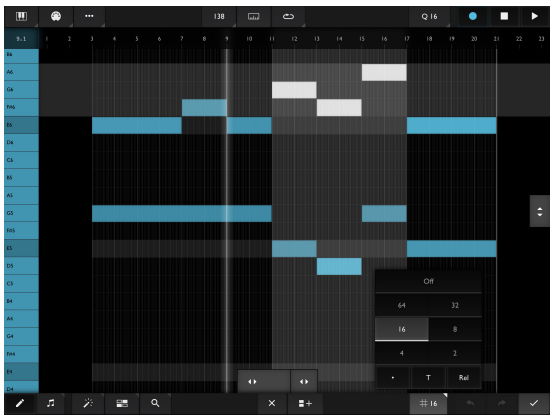
To rename a map, just "Save" it under a new name, and then delete the old map.

# Exchanging drum map presets between devices




Drum maps are stored in Xequence's *Documents* folder in the "**Drum Maps**" subfolder. They have the extension "*.xeqdrums*". These can easily be copied between your various devices using the iOS **Files app** and will be automatically detected and added to the "Maps" menu by Xequence.

# Pianoroll



Double-tap a part to open up the **Pianoroll editor**.

This editor lets you draw or edit **notes** (move, change lengths, transpose, etc.), their **velocities** (loudness), and **controllers** (CCs). Selecting and navigating around the view works the same as in the Arranger.

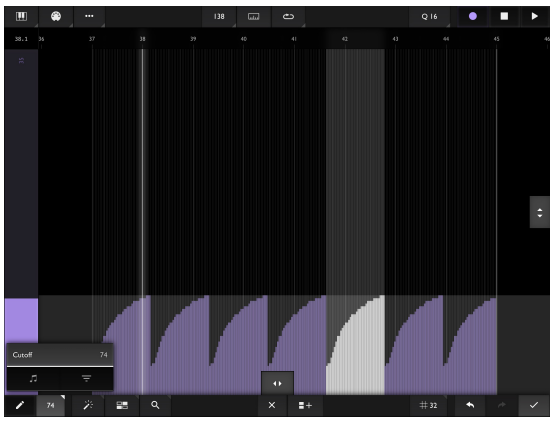
When you're done editing, just tap the checkmark button at the bottom right to exit the editor.

## Grid

The editing grid can be changed by tapping on the button with the grid icon in the bottom toolbar. When moving notes or changing their length, movement will be constrained to this grid (for example, if it is set to "16", notes will move by 16th notes, and the length of notes will change in increments of 16th notes).

The "**Rel**" (relative) toggle changes how notes snap to the grid: normally, Xequence will make sure that all notes always stay on the selected grid no matter what. However, in "Rel" mode, notes will actually **move in grid size increments**, but **not necessarily snap** to the grid. So, for example, if you have a note that starts one 16th note away from the beginning of the part, and you have the grid set to "4", if you now move the note one increment to the right, it will actually end up **one quarter note plus one 16th note** from the beginning, **not** one quarter note.

## Editing velocities and controllers

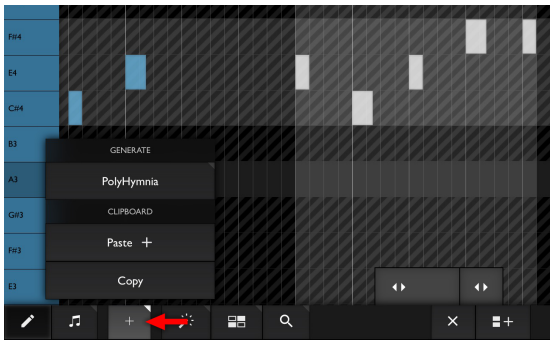


Tap the "note" button at the bottom left. A menu will pop up that shows all data types that can be edited:

- **Notes** (note icon): The most often used mode, for drawing and editing notes themselves.
- **Velocities** (down arrow icon): When tapped, this brings up the velocity editor. All notes that **are currently selected** (or all of them, if none were selected) will be shown as vertical bars. The higher bar, the higher the velocity. The usual editing tools can be used to draw or change velocities. If you have several notes that overlap at the same position (for example, in a chord), and you want to edit the velocity of only one of them (say, the top-most note), then just **select it before entering velocity mode**, and only that note's velocity will be shown.
- **Controllers** (name and number): All controllers (CCs) that have been assigned to the current instrument can be edited here, including drawing, moving, and scaling the curves. Note that the only "real" data is the thin bright lines. The "bar" that follows it is just a visual aid so that it is easier to see

how long the last "real" event affects the controller value (namely, until it is again changed by next event).

## Global clipboard




The **global clipboard** can be accessed by tapping the "+" button at the bottom left to open the **Clipboard and Insert menu**.

This clipboard works inside the same part, across parts or even **across projects** so you can copy and paste notes or controller data from one project into another.

The following options are available:

- **Copy**: Copies all currently selected notes or controller data into the clipboard.
- **Paste ("plus" symbol)**: Pastes all notes or controller data currently on the clipboard. The data is pasted into the bar where the song position pointer currently is **while keeping its relative position from the start of the bar**.

## Notes outside the current scale or drum map

When editing a part, only those notes (and "mini keyboard" keys) which are part of the instrument's scale are shown (for drum instruments, the equivalent applies). If you switch to another scale / drum map after already having recorded or drawn notes and the new scale / map doesn't contain all of the pitches of the existing notes, a warning dialog ("Wrong scale") will pop up, offering you to disable the scale (or you can switch to a different scale that does contain all used pitches).

## Scale / key changes mid-song

You can of course use different keys or scales throughout the song, as the scale and key are merely an "input mode" in the keyboard screen. However, you may encounter the aforementioned "Wrong scale" warning when opening the Pianoroll editor and some of the pitches in the edited part are not contained in the scale that is currently selected in the instrument (the scale selected in the keyboard screen is remembered per instrument).

To avoid having to switch scales and keys all the time for editing, you can just **create one instrument per scale / key**, and **set each of them to the same MIDI destination and channel**, but **choose different scales / keys in the keyboard screen**. For each scale / key you want to use throughout the song, also create a track and assign it to the matching instrument, and then just make sure to use the correct track for each scale / key. You can also name the instruments or tracks accordingly (for example, "Bass E Maj" and "Bass D Maj") so that you see at a glance which track to use for recording.

## Transposition

When transposing selected notes using the vertical handle, transposition is always *scalar*, i.e. all recorded notes always stay inside the current instrument's scale. For example, when you transpose one step

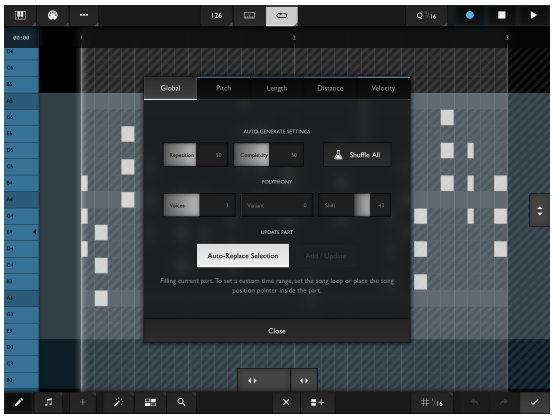
upwards, one note might get transposed 1 semitone, while another might get transposed by 2, always ensuring that all transposed notes are still part of the scale.

## Drum editing

If the instrument played by the part being edited is in "Drum map" mode, the corresponding drum names will be shown on the left instead of the note names.

# PolyHymnia

## Generative Music




**PolyHymnia** is an advanced **generative music** module. It can create complex melodies and chord progressions automatically using tweakable **algorithms**.

The results are mostly very musical, and PolyHymnia includes several "**Auto-Generate Settings**" features that will produce interesting results even if you don't want to learn the individual settings and options it offers yet.

All settings can be changed live while playing and are saved in the corresponding part, so you can always come back later and tweak the algorithm you used to create a part's notes.

**Note**: PolyHymnia comes free with Xequence so you can try all its settings and features. However, the generated sequences are only available while PolyHymnia is open. If you would like to use and edit PolyHymnia's results further, please get the one-time In-App Purchase.

## Opening PolyHymnia

**Note**: It is best to set a **scale** on the instrument you will be using for PolyHymnia so that generated pitches are more predictable and "go along" nicely. For a start, a Hexatonic or even Pentatonic scale will work best (choose the scale as you normally would, in the Keyboard screen).

You can find PolyHymnia in the **Pianoroll editor**. Just create an empty part by using Draw mode (a length of 4 bars is a good start), and tap the edit button in the lower right corner to open the pianoroll editor.

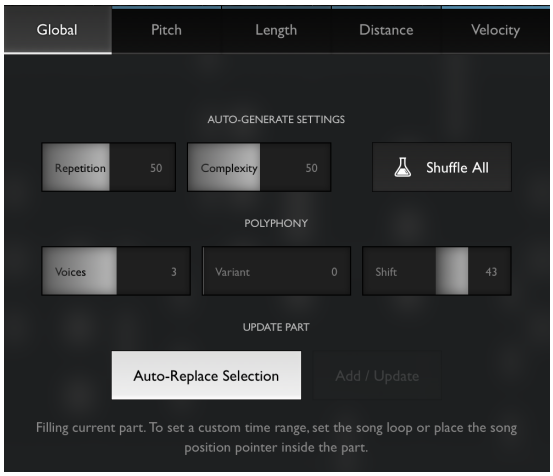
Next, tap the "**+**" button in the lower left corner, and choose "**PolyHymnia**".

You will now see a sequence of notes generated using the default settings (which are actually quite boring). Note that PolyHymnia by default **replaces the currently selected notes**, and keeps doing that each time you change one of its settings, so you can keep tweaking and have the contents of the part update automatically. If you would instead like to **add another set of notes** without overwriting the existing ones, just **deselect all notes** before changing settings or tapping "Add / Update".

## Setting a pitch range

The first thing you'll want to do is set a **reasonable pitch range**. To do that, **go to the "Pitch" tab**, enable "**Sync to view**" if not yet enabled, and then **pinch and scroll** the pianoroll (while keeping PolyHymnia open) so that the **colored area** roughly covers 2 octaves in a useful pitch range.

# The "Global" tab



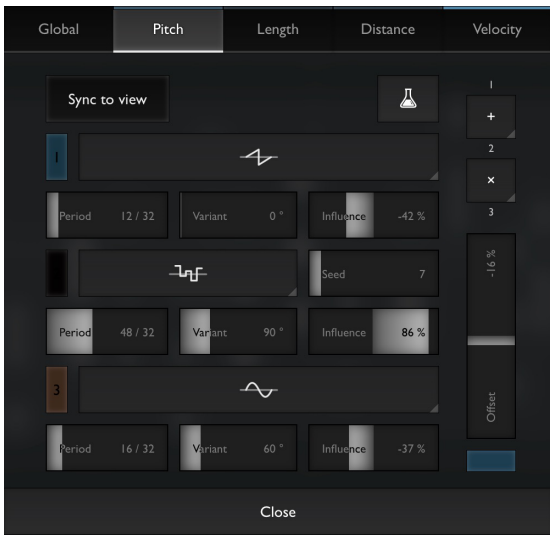

This tab contains the most often used options and actions, so we will discuss this first:

- **Shuffle All**: This is probably the most important and fun button of all: Tap it to **auto-generate interesting settings** for almost all configurable parameters in PolyHymnia, in all 4 tabs (Pitch, Length, Distance, Velocity). You will immediately see the sequence in the background change to something more interesting. **Tip**: Set the part to **loop** (top toolbar, "Loop" icon, tap "Part") and then press **Play** and leave it running in order to hear all changes immediately. A part length of 1 to 4 bars works best for a start, but this is of course up to you.
- **Repetition**: This slider affects the settings generated by the "Shuffle All" button. Higher values generate settings which produce more repetitive melodies. Note that you need to tap "Shuffle All" again after changing this slider.
- **Complexity**: This slider also affects the settings generated when tapping "Shuffle All". Higher values mean more intricate, complex melodies. Lower values give simpler, more predictable sequences.
- **Voices**: PolyHymnia can generate **polyphonic sequences** in a smart manner. Change this slider to choose the polyphony of the generated melodies.
- **Variant**: You'll find "Variant" sliders throughout PolyHymnia. These change the **phase** of the mathematical functions used to generate the sequences. i.e., the "character" of the melodies will basically stay the same, however, you can "shift around" the algorithm in time.
- **Shift**: This adds a constant shift per generated voice. This can be used to generate more predictable chords. For example, if you leave "Variant" at 0° and increase "Shift" instead, you will get predictable chords that are always the same, while doing the opposite will let PolyHymnia vary the generated chords using advanced algorithms.
- **Auto-Replace Selection**: When this is enabled, whenever a setting / slider is changed or one of the "Shuffle" (flask) buttons is pressed, PolyHymnia will automatically delete the current selection and replace it with the new generated sequence, so you can **keep tweaking and shuffling the parameters** while hearing the results in real time (leave the song loop running!).
- **Add / Update**: When "Auto-Replace Selection" is disabled, you can tap this button to add a sequence manually using the current settings. This is useful when you **want to add another sequence with different settings** to the already existing one: Just **deselect all**, change settings, and then tap "Add / Update" to add another sequence on top (you could then re-enable "Auto-Replace Selection" and then further tweak parameters). PolyHymnia will then keep updating the **new** sequence, as it will always first erase the current selection and then replace it with the new sequence.

# The "Pitch", "Length", "Distance" and "Velocity" tabs

PolyHymnia uses advanced mathematical algorithms to generate musical sequences. The algorithms and parameters available are basically the same for all four properties, and they can be edited separately in the corresponding tabs.

Each tab consists of basically **three sections**:




- **Flask (Shuffle)**: This button generates interesting settings **for the current tab only**. Otherwise, it works the same as the "Shuffle All" button in the "Global" tab. This is useful if for example you're satisfied with the **melody** (pitches) you're currently getting, but want to change its **rhythm**: You could then go to the "Length" or "Distance" tabs and tap the "Flask" button there for getting variations.
- **Range**: At the top, each tab contains settings that set the **range** of the generated values, i.e. minimum and maximum pitches, lengths, distances, or velocities. This setting is **not** affected by the "flask" buttons.
- **Operators**: Below, each tab contains three **operators**. These are mathematical or pseudo-random functions that output values which affect the generated notes' pitches, lengths, or distances. The operators are internally **summed** or **multiplied** (see next bullet point) and then **clipped** to the selected **range**, using an algorithm that makes the results exceptionally musical (most of the time). The individual operators are discussed below.
- **Equation**: At the top right, it is possible to configure the way the individual operators are combined. The operators are numbered 1, 2 and 3 (visible in the "equation" and in the respective LED of each operator). Selecting "**+**" adds the outputs. Selecting "**×**" multiplies them, so that (at 100% influence of the second operator) if the second operator is 1, the first operator fully "gets through", while when it is 0, the output is zero as well. This can be used to "gate" or "scale" the preceding operator. **Note** that the normal mathematical precedence (multiplication before addition) is **not applied**, so the order of precedence is always (1...2)...3.
- **Offset**: Further below, the summed output of the operators can be **shifted** up or down (before being clipped) to fine-tune the outcome, or drive the values hard into the clipper (useful, for example, in the "Pitch" tab to drive the notes down to the lowest note, which might be the root note of the current key), so that most of the values are the same. This slider is **not** affected by the "flask" buttons.

## Operators

Each operator has four or more settings:

- **Waveform**: selects the basic waveform: **off**, **Pulse** (with adjustable width), **Sine**, **Triangle**, **Sawtooth**, and **Sample & Hold** (random). All waveforms have several variants, like rectified and positive-cycle-only.
- **Period**: Sets how often the waveform repeats, in 32th notes.
- **Variant**: Shifts the phase of the generated waveform. i.e., the basic character stays the same, but the values are shifted in time.
- **Influence**: Sets how much this operator affects the end result. By setting negative values, the operator's output can be inverted.
- **Width** ("Pulse" waveform only): Sets the pulse width.
- **Seed** ("Sample & Hold" only): Selects one of 77 available pseudo-random sequences. The sequence always stays the same once selected.

The current output value (at the current song position) of each operator is **visualized by a LED** next to it. **Negative** values are shown in **inverted color**.

Likewise, the **summed output value** of all operators of the current tab is **visualized by a LED below the "Offset" slider**, and also at the top of its respective tab button.

## The "Pitch" tab

The "Pitch" tab is special because it offers an interactive way to set the range of generated notes (pitches).

As soon as you open PolyHymnia, you will see a **colored area** in the Pianoroll editor. This area shows the range of pitches that PolyHymnia can generate. If you enable "**Sync to view**" and then **zoom in and out vertically** by pinching in the editor (or just scroll vertically), you can adjust this range freely. The center key will have a little arrow on it.

The **most interesting results** can be achieved by having the **root note** of the current scale either at the **bottom**, **top** or at the **center** of the selected pitch range.

## The "Length" tab

This tab controls the lengths of the generated notes. You can select a **minimum** and **maximum** length at the top, which will be mapped to the values generated by the operators.

## The "Distance" tab

This tab controls the distance (pauses) between generated notes. Sequences generated by PolyHymnia never overlap. If you don't want pauses between notes at all, just set both "Min" and "Max" to "Off".

## PolyHymnia and the editing grid

Regardless of the settings in the "Length" and "Distance" tabs, PolyHymnia always quantizes all generated notes to the editing grid (set in the bottom toolbar of the pianoroll editor).

## The "Velocity" tab

This tab controls the velocities of the generated notes. The values generated by the operators are mapped to the velocity range set by the "Min" and "Max" sliders at the top. If you do not want any velocity variation at all, just set both sliders to the same value (double-tapping a slider will set it to the default velocity configured in settings).

## Re-editing PolyHymnia parts later

All settings are **saved** into the corresponding part once you leave the pianoroll editor. That means that you can come back at any later point and re-open a part that contains a PolyHymnia sequence, and when opening PolyHymnia, all settings will be where you left them. Note though that if you **manually edit** notes after closing, PolyHymnia will **not be able to recognize** the existing notes as a sequence it

generated, and thus will **add a new sequence on top** once you open it. To avoid that, **select all notes** before opening PolyHymnia, as it always replaces the current selection.

## Tips and hints

- **Create an empty part at most a few bars long**, set the song loop to it, hit "Play", and then start tweaking the parameters to hear the outcome live.
- You can use **Undo** and **Redo** (bottom right corner) while in PolyHymnia to go back and forth between all settings and presses of the "flask" buttons to freely experiment.
- **PolyHymnia will never create duplicate or overlapping notes**. So if you open a part that has notes that were previously generated by PolyHymnia and haven't been edited, then opening PolyHymnia will not generate any new notes. Instead it will select all existing notes so you can seamlessly start tweaking the existing sequence.
- **Select a scale** on the keyboard screen, preferably a hexatonic or pentatonic scale. This will limit the possible pitches and yield more melodic results.
- The amount of possible sequences is practically infinite. **Keep tapping the "Shuffle" (flask) buttons** until you find one that is likeable, and then tweak the sliders if necessary, or, if only a certain aspect of the sequence bothers you (melody, rhythm, pauses etc.), try to go to the corresponding tab and just use **that tab's flask button**.

## Demo sequences

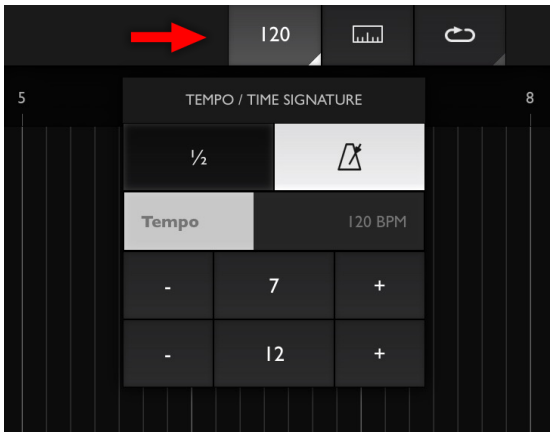
Xequence comes with a **demo project** that contains various interesting melodies created with PolyHymnia, along with their settings so you can tweak them further.

Tap on the **"..." button** at the top left, navigate to the "**Demos**" folder, and then load the "**PolyHymnia Demos**" project. Each track contains a part generated with PolyHymnia. You can assign a sound source on the instruments screen, and then just solo each track in succession to hear the corresponding sequence.

To **edit and tweak**, just double-tap a part, open PolyHymnia, and start modifying settings.

# Metronome, Tempo and Time Signature

## Metronome

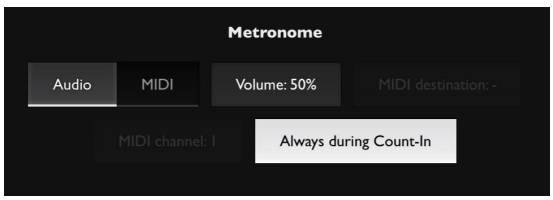



Xequence has a **very flexible Metronome** with two basic modes:

- **Audio**: Audible clicks are generated and routed to the current default output. You can change the volume by tapping on the "Volume: 50%" button.
- **MIDI**: In MIDI mode, the metronome does not produce a sound (click) by itself. Instead, it just sends MIDI notes to a MIDI synth of your choice (you can select the metronome destination and channel in the Settings screen). This gives you maximum flexibility by using another app for generating the metronome sound, which might let you choose different outputs, sounds etc.


Xequence always uses the root key of the current instrument for playing the metronome (if the instrument is in E, it will play E4 for bars and E3 for beats).

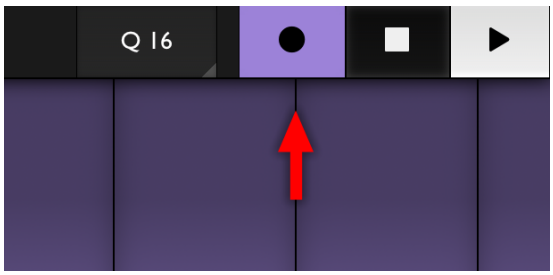
## Tempo and Time Signature




The slider sets the project tempo in BPM. The "½" toggle can be used to temporarily set the tempo to half the displayed value, which can be very useful during recording in fast (e.g., EDM) music.

The next two dials set the time signature (upper dial 3, lower dial 4 = 3/4). All time signatures should work, but if you find a problem using a particular one, please let us know.

# Recording




Press the Record button to start live recording. This will record:

- Keys played on the Keyboard screen
- Controller movements on the Keyboard screen, no matter by which kind of input mode (slider, motion, key position etc.) they might have been generated
- Keys played in or notes sent from other apps if "MIDI In" is enabled in Xequence's Settings, and the source app is enabled in the "Sources" panel, or "Xequence Destination" is enabled and has been selected as the destination in the source app.
- Controllers sent from other apps. If the current Xequence instrument does not yet have a controller's CC number set up, it will be added automatically if "**Auto-add controllers**" is enabled on the Settings screen (a list of detected new controllers will be shown after recording finishes).

## Automatic quantization

Recorded **notes** will be **quantized** automatically according to the settings in the "**Q**" menu in the top toolbar (you can choose the "Off" option if you do not want quantization, or if you want to quantize manually later).

Recorded **controllers** will **not** be quantized, **except if the controller is in "Gate" mode**. You can always quantize controllers after recording them by using the "Magic Wand" menu in the Controller editor.

## Recording into the Arranger

If you start recording while in the Arranger, or in the Keyboard screen and you previously had the Arranger open, then **a new part will be created on the currently selected track**, and all events will be recorded into it. The part will be automatically trimmed, or deleted on stop if no events were recorded.

## Recording into the Pianoroll

If you start recording while editing a part in the Pianoroll editor or had the Pianoroll editor open before switching to the Keyboard, then **everything will be recorded into the currently open part**. No new part will be created.

## Recording from multiple MIDI sources simultaneously

Normally, Xequence will merge all MIDI from all sources onto the current track. However, it is also possible to record **from multiple sources simultaneously onto separate tracks** (requires a one-time In-App Purchase). Please see the "**Multitrack Recording**" chapter for more details.

## Count-In and Metronome

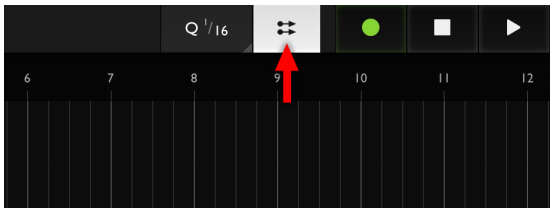
If you press Record while Xequence is stopped, the song position will be **moved backwards** by one or more bars (configurable in the Settings screen) so you have time to prepare. Any events (notes, controller movements) that arrive while in count-in will only be recorded if you are **recording into the Arranger**. If you're recording into the Pianoroll, events during count-in will be dropped.

If you enable the "Always during Count-In" option in the "Metronome" section under "MIDI / Recording" in Settings, then the metronome will automatically be enabled during count-in so that you can "get into the rhythm" even if there isn't anything recorded yet to guide you.

# Multitrack Recording

Xequence has **advanced, fully automatic multi-track MIDI recording** available as an optional In-App Purchase. If you are interested in this functionality, please go to the **Settings** screen by tapping "**...**" in the top left, then in the "**Shop**" tab, tap on "**Multitrack Recording**".

## Enabling Multitrack Recording



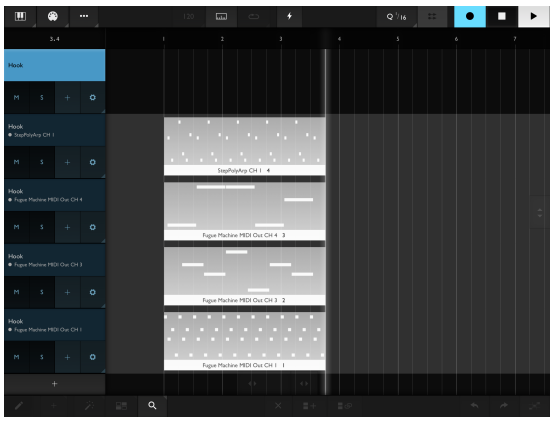
**Important**: Multitrack recording is **only available on the Arranger** screen, **not** in the pianoroll or controller editors!

To enable, tap the "**Two arrows**" icon in the top right corner. Also, be sure to **enable all MIDI sources that you would like to record from**. Go into **Settings** ("..." at the top left), and then in the "**MIDI / Recording**" tab, tap on "**Sources**" and enable all desired sources.

For multitrack recording, it is good practice to configure your source apps (or hardware MIDI ports) to **present themselves as a MIDI source** rather than having them send to "Xequence Destination". This is to ensure that Xequence can see them all separately including their names, which is helpful in auto-naming recorded parts (see below), and to avoid having to use separate channels.

You can see that you configured your sources correctly if they appear as separate, named buttons in the "**Sources**" panel, and the **MIDI In** LED flashes **even if "Xequence Destination" is disabled** in the "Sources" panel.

## Recording and automatic detection of sources



Multitrack recording in Xequence is **fully automatic** and "**just works**".

After enabling the multitrack recording toggle, **just hit the Record button** and send MIDI from multiple sources.

You should see Xequence **automatically add a new track for each combination of a source and MIDI channel** as soon as data from the various sources arrives, including **live previews** of the recorded data.

The newly created tracks **remember their source and channel**, and on the next recording, **the tracks will be re-used** (no redundant tracks will be created). The track settings (target instrument, swing, etc.) are copied from the currently selected track and can be changed as desired after recording.

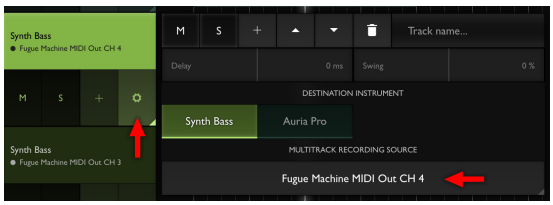
The **parts** that are created during multitrack recording are **automatically named according to the source and channel**. You can remove or change the name by selecting them, tapping on the "Magic Wand" menu, then on "Name", and then just leave the name empty and tap "OK".

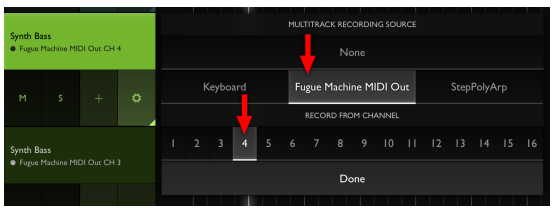
**Note**: tracks that are automatically created during multitrack recording have an **explicit recording source set** (see below). These tracks will **always** be "armed" for recording, even while they're not selected.

## Multitrack recording from Audiobus

For multitrack recording to work with Audiobus inputs, a **separate MIDI lane** must be created in Audiobus for **each input** (source) you would like to record. Each lane must contain your corresponding source app (and appropriate sub-output, if any) as its input, and Xequence with a **separate MIDI In** selected as its output.

## Manually configuring or changing sources



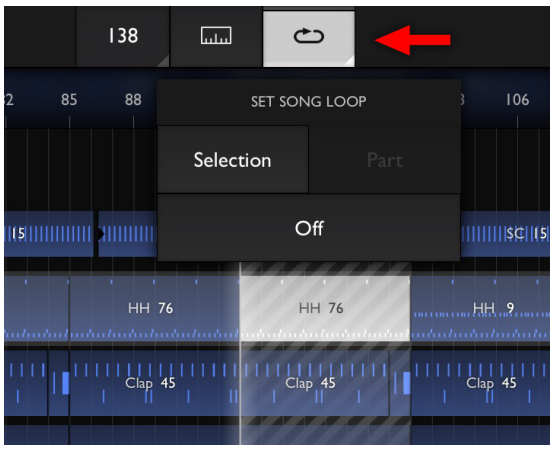




Although Xequence adds and configures the sources of tracks as needed automatically during recording, you can also configure sources manually:

- Tap on the **cogwheel** of a track to open its settings
- Tap the button below "**Multitrack recording source**"
- All available (i.e. enabled) MIDI sources are listed at the top. **Choose one of them** by tapping on it, or tap "**None**" to **disable** multitrack recording on this track. The "**Keyboard**" source represents Xequence's internal keyboard controller.
- Tap the desired **channel** (or for Audiobus, the desired MIDI In) to record from (this setting is not available for the "Keyboard" source).
- Tap "Done" when you're finished.

**Note** that any track that has a multitrack recording source selected will **always be "armed" for recording**, even when it is not the selected track. This is different to single-track recording, where only the **selected track** records.

# Song loop




The Song Loop feature can be used to play a certain part of the arrangement over and over again. As soon as the loop's endpoint is reached, tt simply rewinds the song position to the loop's beginning. The looping is "perfect", i.e., no timing offset or jitter when wrapping around.

The loop can be set in various ways:

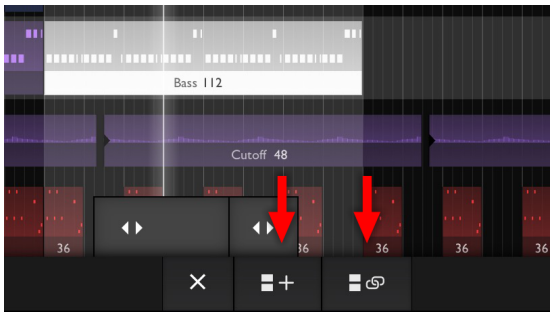
- **Selection**: If you are in the **Arranger**, this sets the loop points so that they encompass the currently selected parts. Probably the most used (and useful) option. If you are in the **Pianoroll**, this sets the loop points so that all currently selected notes or controllers are inside the loop. Very useful for quickly concentrating on a small part of the notes.
- **Part**: If you're editing a part in the Pianoroll, this will set the loop points to encompass that part. Very handy if you just opened a part and decide to work on it more closely, as you don't have to exit, loop, and open it again.
- **Off**: Clears the loop.

## Notes about song looping

- The loop points are always rounded to the nearest bar, so the length of the loop is always a whole number of bars.
- Even if you change the selection later on, the loop points stay the same, i.e., they don't follow the selection.
- If you want to loop an **arbitrary part of the song** (where there are no parts or not exactly where you want the loop), just **use the Draw tool** to quickly draw an empty part where you want the loop to be, then set the loop to "Selection", then delete the part again.

# Copying, linking, and looping parts

## Copying and linking parts




**Please read this section carefully**, as it is central to the way arranging in Xequence works:

- **Copy**: The **Copy parts** button ("Plus" symbol) creates an **independent copy** of all currently selected parts, and places it at the end so that the beginning of the first copied part is at the end of the last selected part. You can keep tapping this button to make various copies, one after another, but **see below**:
- **Copy and link**: If you use the right button ("Chain" symbol), parts are copied just as well, but **the notes and controllers inside them are *linked* to the original**. That means that if you edit any of the copies in the Pianoroll or Controller editor, **the original and all copies are also modified**, and vice versa. This is probably the more useful option in most cases, as often, when you have a central hook or melody, you want to repeat it throughout the song in various places, but if you later decide to make a modification, it is **enough to change one of the linked parts** and you do not have to delete all the copies and copy them all over again.

All parts in the arrangement show a **number** on them, which is like a "group number" in that all *linked* parts show the **same** number. This lets you easily see at a glance which parts are linked to others.

Also, whenever you open a linked part in the Editor, a brief message "*xx linked*" will pop up, informing you of the fact that the edits you're about to do will affect several other parts as well.

## Copying several linked parts

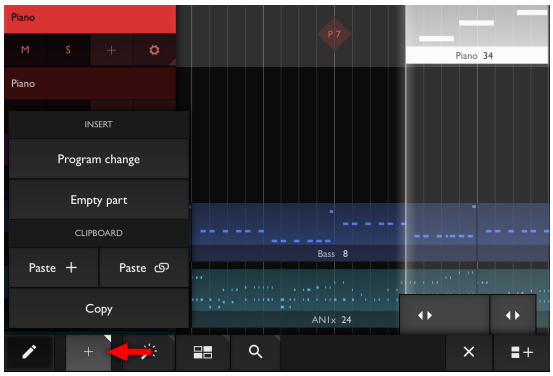
If you have several parts selected that share the same data (for example, three parts with number 77), and you use the "Copy" (**not** "Copy and link") button, then the new parts **will** be independent of the originals, **however**, they **do still maintain their "linkedness" between each other**. So, the three copied parts might then, for example, all have the number 78.

If you would like **all** of the copies be independent of **all** the others, see below.

## Unlinking parts

If you later on decide that you **do** want to independently edit a linked part, you can select it and then choose "**Unlink**" from the "Magic Wand" menu. This will make **all** selected parts independent of **all the others**. For example, if you have three parts selected that all have the number *152*, after using "Unlink", they might have the numbers 153, 154 and 155, so they are all independent.

# Global clipboard



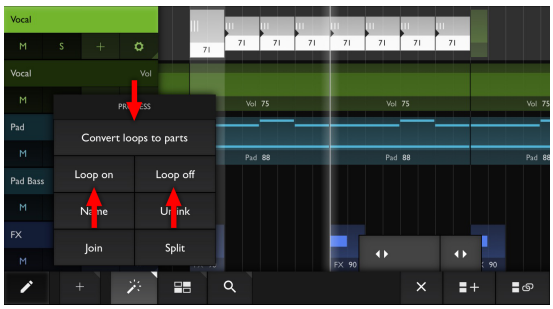

The **global clipboard** can be accessed by tapping the "+" button at the bottom left to open the **Clipboard and Insert menu**.

This clipboard works even **across projects** so you can copy and paste parts from one project into another.

The following options are available:

- **Copy**: Copies all currently selected parts into the clipboard. The selection can span multiple tracks.
- **Paste ("plus" symbol)**: Pastes all parts on the clipboard at the current song position (nearest bar). The new parts are **independent copies** of the original parts and do not change when the originals change. If the parts on the clipboard are from the **same project**, they will be pasted **to the same tracks** they came from. If they are from a **different project**, they will be pasted **onto the currently selected track and below**. If not enough tracks are available, they will be created.
- **Paste ("chain" symbol)**: Same as above, however, if the parts on the clipboard are from the same project, **the pasted parts will be linked to the original parts** so modifying the originals will also change the new copies.

# Looping parts




Parts in Xequence each have an invisible "Loop" switch which can be turned on or off for one or more parts by selecting them and then choosing "Loop on" or "Loop off" from the "Magic Wand" menu.

When a part's "Loop" switch is on:

- The part repeats itself as if you had used the "Copy and link parts" feature on it various times.
- It stops repeating either **where it bumps into another part on the same track**, or **at the end of the song** (which Xequence considers to be the end of the last part plus 64 bars). If it encounters another part midway through itself, it will be cut off.
- The looped copies **can't be selected** (they're not "real"), however, they **can** be edited in the Pianoroll by double-tapping them (note however that all repetitions are still linked to the original: making changes to the notes or controllers in one of them will change all the others).

# Usage examples

Looping parts is a very powerful feature, for example:

- If you have a hihat line that continues the same through the entire song anyway. Just place one part at the beginning, select it, and tap "Loop on". No need to copy.

- If you have a very short segment (i.e., 1 bar) of notes or controllers that you want to repeat many times, but don't want to keep tapping the "Copy parts" function till hell freezes over.
- If you want to make changes to the rest of the arrangement later, but do not want to keep deleting and cloning repetitive parts in the process. Looped parts automatically adapt to the arrangement.
- If you later on decide you want only a shorter segment of your idea to loop, you can just shorten the "source" (original) part, and all the repetitions will also shorten (but still stay adjacent to each other).
- If you want to try various ideas while recording, but do not want to "overwrite" your ideas on each Song Loop iteration: Instead of using the Song Loop, just select those parts that you want to hear during recording, set them to "Loop on", and then keep recording linearly.

## Ending the loop

As mentioned, looped parts **stop looping** when they **hit another part on the same track**. So, if your hihat line is supposed to end at some point, just **draw a short empty part there**, and you're done (see the red part in the image).

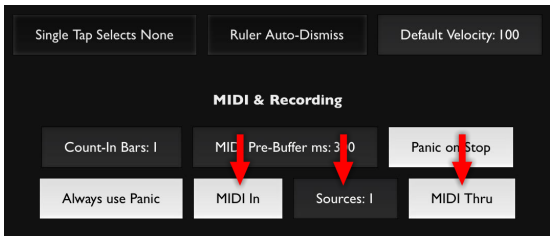
## Converting loops to parts

If you decide you want to make changes to the repeated parts (delete some of them, move them, or edit the notes only in *some* of the parts), then you can use "**Convert loops to parts**". This will convert the loop into actual (but still **linked** to the original) copies. You can now move them around, delete some of them, etc.

**Note**, however, that these parts are **still linked to the original**, so editing the notes inside them will **modify all converted parts and the original**. If you want to change the data of **only one single part** of them, select it and then choose "**Unlink**" from the "Magic Wand" menu, which will make it a truly independent copy (it will also get assigned a new number, visible on the part).

# MIDI Input and Thru

## MIDI In




Xequence can **receive MIDI data from other apps or hardware keyboards / controllers**. This means that you can, for example:

- **Use a hardware keyboard** instead of the integrated on-screen keyboard
- Record notes from an **Arpeggieator app** like *StepPolyArp*, or generative music tools like *NodeBeat*, into Xequence's Pianoroll
- Record from **Audiobus apps** when Xequence is loaded in a MIDI Output slot
- ...and many other uses

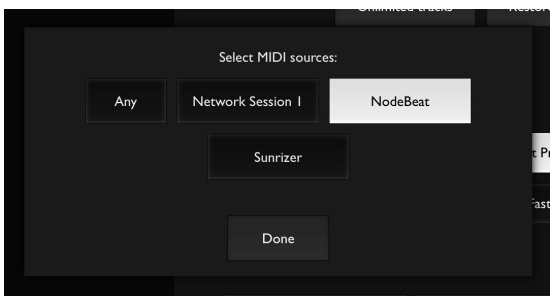
For this to work, you would first need to enable **MIDI Out** in the other app, and, depending on the app, choose **Xequence Destination** as the destination for MIDI Output. You might also need to enable "**Background audio**", again depending on the app, so that it stays active in the background when you switch back to Xequence. If you use a class-compliant external keyboard or controller, it also depends on the particular device, but many work out of the box.

In Xequence, go to the **Settings** screen ("..." at the top left), and in "MIDI / Recording", enable "**MIDI In**". Then tap on "**Sources**", and enable "**Xequence Destination**" if not yet enabled.

Now try sending notes or controllers from the other app or device. The "MIDI In" button should flash when you press keys or move controllers in the other app or device. You can also try to record notes or controllers into the Arrangement or Pianoroll, and check if they have been recorded correctly.

If you don't get any blinking or notes / controllers being recorded, try selecting the MIDI Source explicitly:

## Explicitly setting the MIDI In Source




Some apps or devices need a different approach and you have to enable them explicitly as inputs in Xequence.

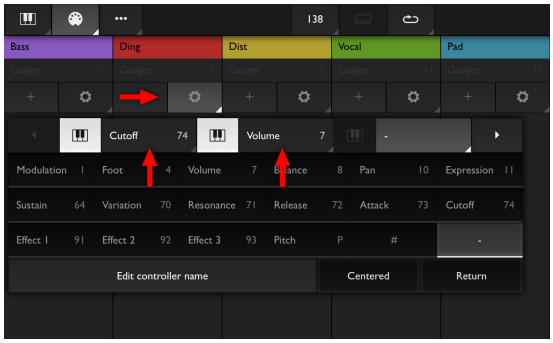
To do that, go to the **Settings** screen again, and tap on "Sources". In the popup, your other app or device should have a button (which is deactivated). Activate it, and now again try sending notes from the other app or device and see if the MIDI In button blinks and events get recorded.

If this doesn't work either or your other app or device doesn't appear in the "Select MIDI sources" popup, **please drop us a mail** so we can investigate further!

# Recording controllers (CCs) from external sources

Xequence can also record controller (knob, etc.) movements from external apps or devices. Controllers whose CC number has not yet been set up on the instrument of the track being recorded to will be added automatically to the instrument if "**Auto-add controllers**" is enabled on the Settings screen.

If that doesn't make any sense just yet, read on:




The screenshot shows an instrument that has controllers (CCs) 74 and 7 set up. As far as Xequence is concerned, **only those controllers exist which are actually set up in an instrument**. However, as long as "**Auto-add controllers**" is enabled on the Settings screen, Xequence will detect each new incoming controller that has not yet been set up on the instrument of the track being recorded to, and add it automatically.

A list of all newly detected controllers will be shown after recording finishes.

If you disable "Auto-add controllers", then "unknown" incoming controller data will simply be discarded.

# MIDI Thru

MIDI Thru is a feature that lets you use Xequence as a central "hub" for your MIDI setup.

If you enable MIDI Thru, all MIDI notes and controllers that are received by Xequence **are immediately forwarded to the instrument on the selected track, and thusly, to the MIDI destination configured in that instrument**.

This means that if you setup your MIDI source (hardware MIDI keyboard, Arpeggiator app, etc.) to **only** send MIDI to **Xequence** and **not** to the actual synth apps or external synths, while enabling **MIDI Thru** in Xequence, you will **never have to change any MIDI connection again**, because your keyboard, Arpeggiator etc. **will always automatically play the instrument on Xequence's selected track**.

Needless to say, Xequence will of course also record the notes received as well.

So, to recap:

- Setup your MIDI source (hardware keyboard, Arpeggiator app, generative music tool etc.) to **only** send its MIDI Out to **Xequence**.
- Enable MIDI In in Xequence, and either enable "**Xequence Destination**" in the "**Sources**" panel, or disable it and select your MIDI source explicitly, whichever works.
- Enable MIDI Thru

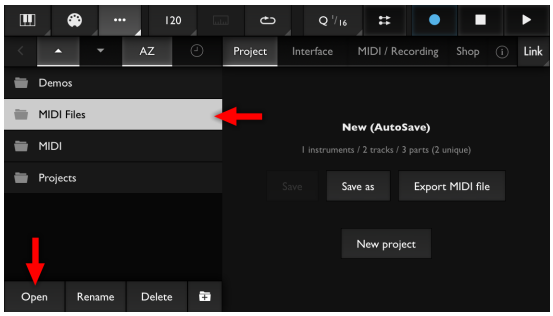
Now, your external keyboard or app acts as the "Master controller" for all of the other synths/instruments configured in Xequence. Select a different track, and your keyboard plays that track's instrument. Boom!

# MIDI File Import and Export

Xequence can import and export standard MIDI files (.mid), including notes, controllers, track names, program changes and information like BPM and time signature.

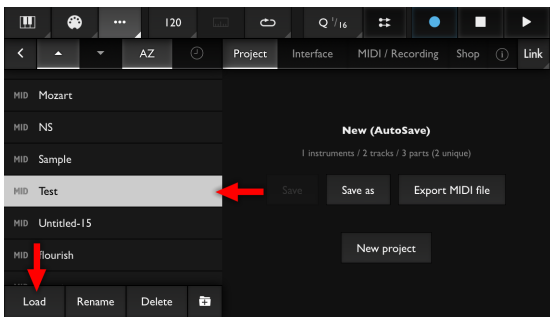
## Importing a MIDI file

To import a MIDI file:

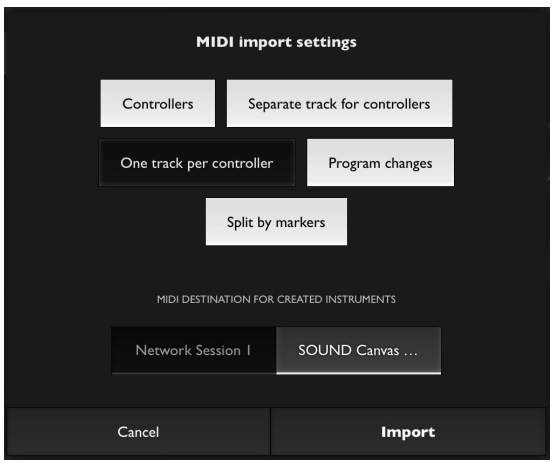



- Put it into **Xequence's Documents folder** by using the **Files app** to copy it to "**On my iPhone/iPad**" -> "**Xequence**" > "**MIDI Files**".
- Go to the **Settings screen** ("..." button at the top left) and navigate to the "**MIDI Files**" folder.
- Select the file and tap "Load".

You can change various options for the import:




- **Controllers**: If enabled, import controllers like Volume, Pitch, Modulation, etc.
- **Separate track for controllers**: If enabled, Xequence will import the notes from each track in the MIDI file onto one arranger track, and all controllers onto a separate arranger track. So, if the MIDI file has 8 tracks, 16 tracks will be created in Xequence. If you would like **all** data from each MIDI file track to be in a single part on a single track in Xequence, disable this option.




- **One track per controller**: Xequence can also import **each controller onto its separate arranger track**, so that for example, Volume, Modulation and Pitch would each get their separate arranger track (in addition to notes). This can quickly yield a huge number of tracks as many MIDI files use a large amount of separate control change numbers. For example, when importing a MIDI file with 10 tracks, each with automation for Volume, Pan, Pitch, Effect 1 and Sustain, 60 tracks would be created in Xequence (one for notes and 5 for controllers, for each MIDI file track).
- **Program changes**: Import **Program Change** and **Bank Select** events as well. These are often a vital part of the data in MIDI files as most files are tailored towards **General MIDI** synths (like, for example, Roland Sound Canvas), with each of the program numbers calling up a standardized sound (for example, program 0 is always "Piano").

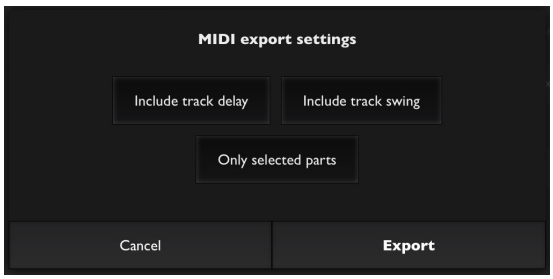
- **Split by markers**: Many MIDI files contain markers that separate the song into different parts (like verse, chorus etc.). Xequence can use these markers to split the parts it creates during import (note that MIDI files do not contain any other kind of information for splitting up the data into parts, so you may end up with one very long part for each track. This is a limitation in the MIDI format and not in Xequence).
- **MIDI Destination for created instruments**: Xequence automatically creates one instrument per MIDI file track. It can automatically assign each of those to the destination you select here, which could for example be an app that is **General MIDI capable** (one example is Roland Sound Canvas). Channels are also assigned automatically based on the information in the MIDI file.

When you tap "**Import**", Xequence loads the MIDI file **as a new project** (it does **not** append it to the currently open song). This way, you can first **clean up the imported data** as necessary, and then use Xequence's **Global Clipboard** (described earlier in this manual) to copy and paste any number of parts from any number of tracks into another project, as desired.

## Separation into parts

Note that the MIDI file format **does not support splitting the data into parts**, so most of the time, you will end up with **one long part per track** after import. Xequence tries its best to trim the created parts at the beginning and end and also split it according to "Markers" potentially stored in the MIDI file. However, some manual cleanup will be required.

## Exporting a project as a MIDI file




The currently open project can be exported as a MIDI file. For each of the project's instruments, one MIDI file track will be created. Only instruments which actually get used in the project (i.e., which have corresponding tracks with events on them) will be exported.

The following options are available when exporting:

- **Include track delay**: When enabled, the "Delay" setting of each arranger track will be honored when exporting. Otherwise, the exported events will have the exact times as they appear in the pianoroll or controller editor.
- **Include track swing**: Same as above, but applies to the "Swing" setting.
- **Only selected parts**: When enabled, only the currently selected parts will be considered. Parts on all other tracks (and their corresponding instruments) will be skipped, and the resulting MIDI file will only contain the time range encompassed by the selection.

After export, the file will be placed in Xequence's "Documents" (in the subfolder you exported it to) and can be accessed through the iOS Files app for use in other apps.

**Important notice**: Please note that Xequence only exports separate tracks **per instrument** and **not** per arranger track! So if you have multiple arranger tracks pointing to the same instrument, **they will be merged to a single track** in the MIDI file! This is a common pitfall especially after doing a Multitrack Recording, where immediately after the recording, all automatically added tracks will initially point to the same instrument.

So for each arranger track that you want to be exported to a separate track in the MIDI file, please make sure that it points to its own separate instrument.

# Audiobus


Xequence supports full integration with Audiobus including:

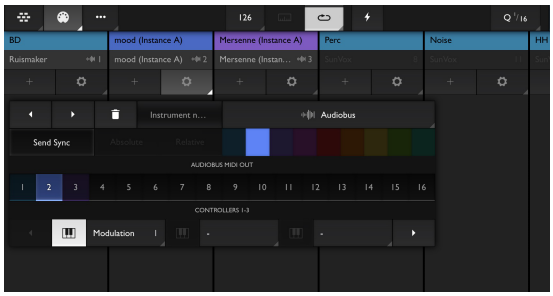
- Audiobus **sidebar**
- Sidebar **transport** and **remote controls**
- Audiobus **State / Preset saving**
- MIDI input as a **MIDI destination** in Audiobus MIDI lanes
- Up to 16 independant Xequence **MIDI sources** in Audiobus MIDI lanes
- Full **synchronization** (start, stop, phase / beat, tempo (no tempo ramps)) with Audiobus apps (Ableton Link must be enabled globally)

## Getting started

To use Xequence along with Audiobus:

- Open Audiobus.
- Tap on "**MIDI**" to go to the MIDI screen.
- Tap on the left (or top) "**+**" button to add a MIDI source.
- In the following dialog, tap on "**Xequence**".
- Xequence offers 16 separate Audiobus MIDI outs. Select "**MIDI Out 1**" for now.
- Add a destination app by tapping on the other "**+**" button.

## Xequence Instruments and Audiobus




To use a Xequence instrument with your newly created Audiobus MIDI lane:

- Switch to Xequence by tapping on its icon in Audiobus.
- Go to the instruments screen by tapping the **MIDI button** at the top left.
- Tap the **cogwheel** button to open an instrument's settings.
- Tap "**Select MIDI Destination**" or the name of an already selected destination.

- In the dropdown menu, "**Audiobus**" should appear as an option. Tap it.
- The **channel selector** for this instrument is now being replaced by an **Audiobus MIDI Out** selector, as Audiobus uses separate ports instead of channels. Select the port (in our example, MIDI Out 1) you just assigned to your MIDI lane in Audiobus.

You can now set up an arranger track and point it to your Audiobus instrument, and use it like any other MIDI instrument.

Xequence will also **display the name(s) of the destination app(s) connected to the instrument's Audiobus MIDI lane**, so you can immediately see on Xequence's instruments screen (and in the arranger!) what you are sending to. Of course, you can still assign your own instrument and/or track names, if desired.

## Using multi-timbral destination apps / hosts that only have a single Audiobus MIDI input

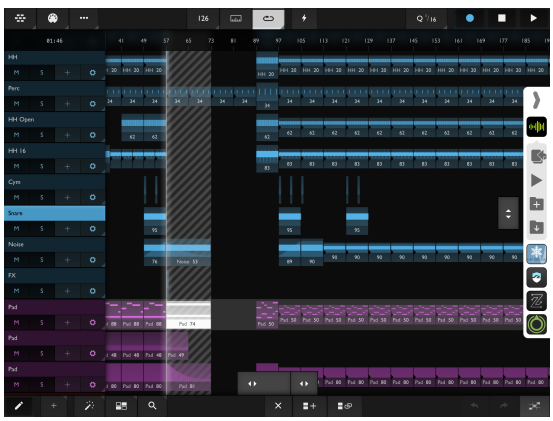
Some apps, for example **apeMatrix**, are Audiobus-capable and can host multiple other apps, but **only expose a single Audiobus MIDI input port**. As Audiobus does not use MIDI channels, it might seem impossible to use more than one sound / destination app through such an app through Audiobus (Xequence -> Audiobus -> apeMatrix -> [Multiple Hosted Apps].

**However, this is very easy to do** by just routing the MIDI **directly to the multi-timbral app**, bypassing Audiobus:

- Load the multi-timbral app (for example, apeMatrix) as a **source** on the **left / top side of the AUDIO screen** (**not** as a destination on the MIDI screen!).
- If necessary, setup your multi-timbral app to listen on its normal MIDI inputs.
- In Xequence, the app should now appear normally as a MIDI destination in your instrument's settings (cogwheel button). Do **not** choose "Audiobus" as the destination. Instead, tap on the app's name.
- Now, use MIDI channels as you would normally with a non-Audiobus app (if necessary, setup filtering by MIDI channel in the app to route the correct MIDI channel to the correct sound).

## Sidebar

The Audiobus sidebar can be used to switch quickly between all connected apps. It also exposes **transport controls** (Play, Stop, Rewind, Record, etc.) for all apps that support them (Xequence included).



To show or hide controls for a particular app, tap its icon.

Xequence is the first Audiobus-enabled app that can automatically detect the sidebar and move its own control widgets / handles out of the way if necessary.

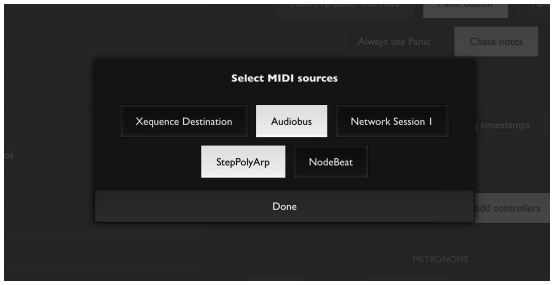
## Audiobus Presets / State Saving

Xequence has full support for Audiobus Presets. When saving a preset in Audiobus, the **entire current state of the Xequence project**, including its filename and any changes made since the last save, is stored.

You can thus share your entire setup and Xequence project easily via Audiobus. There's no additional setup or steps required. The device on which the preset is opened does not even need access to the project file.

**Note**: Should you encounter a situation where loading an Audiobus preset does not restore the corresponding Xequence project correctly (nothing seems to happen in Xequence), please just try loading the preset again. If this doesn't help, please **send us the preset** and we will take a look at it and if the problem is in Xequence, fix it in an update.

## MIDI input via Audiobus




Xequence can be loaded into the **destination / receiver** slot (on the right / bottom side) of **up to 8 Audiobus MIDI lanes** as well, thus receiving any MIDI data that might be sent / filtered by other apps on those lanes.

To receive MIDI from an Audiobus MIDI lane:

- Insert Xequence as a receiver by going to the Audiobus "MIDI" screen and tapping the "**+**" button on the right / bottom. Then select one of the 8 MIDI Input ports.
- In Xequence, go to the settings screen ("**...**" button at the top left), then to "**MIDI / Recording**".
- Make sure that "**MIDI In**" is enabled.
- Tap on "**Sources**" and enable "**Audiobus**".

Any MIDI data arriving via an Audiobus MIDI lane should now be recognized by Xequence in the usual manner, including the ability to **record it**. Of course, if **MIDI Thru** is enabled, Xequence will also pass along this data to the target instrument of the currently selected track.

If any of the other sources in the "Sources" panel is also enabled, Xequence will **merge** all events automatically.

## Synchronisation (start, stop, phase / beat, tempo)

Xequence supports full synchronisation with all other Audiobus-enabled apps. This should normally work automatically without you doing anything special.

To globally start or stop the transport, tap the "Play" button in the Audiobus sidebar under the Audiobus icon, or while in the Audiobus app, use the corresponding in-app "Play" button. The other transport controls work in a similar fashion.

Should this not work as expected, try the following:

- Load Xequence on the Audiobus MIDI screen as a source, if not already loaded.

- Go to Xequence's settings ("**...**" button at the top left), tap on "**Link**" at the top right, and make sure Ableton Link is enabled.
- In Audiobus, tap the **cogwheel** button to open the settings, then tap on "**Sync Settings**", and make sure Ableton Link is enabled there as well.
- Repeat the same for all apps loaded in Audiobus.

# Managing files

## Using the iOS Files app

You can access and manage all of Xequence's files with the **Files** app from your home screen.

After launching the Files app, tap on "**On My iPhone**" or "**On My iPad**", and then on "**Xequence**". You can freely move, copy and rename files / projects locally or between your devices.

# Demo project

Xequence includes a Demo project with the fitting name "Alpha" (we actually used it during alpha testing!) which you can load from the "Project" tab in the Settings screen ("..." at the top left) so that you can quickly get a feel for the possibilities and handling in Xequence.

Of course, if you hit play, you won't hear anything or not what we intended, as Xequence doesn't have built-in synths.

However, the entire project was produced using sounds from **Korg Gadget**, and we have put the corresponding **Gadget project** online, which you can download, load into Gadget, and then actually fully work with the demo project.

The Gadget project is at:

http://seven.systems/xequence/downloads/KorgGadgetDemoProject.zip

## Loading the demo project into Gadget

Unfortunately, this is slightly complicated, however, it works!

- Download the ZIP file
- Extract the ZIP file, it will contain a single folder named "Alpha (Demo Edit).gdproj2"
- Launch iTunes
- Connect your iPhone / iPad
- Click on the device icon in iTunes
- Click on "File Sharing" in the sidebar (you first may have to unhide the sidebar)
- Select Gadget
- Click "Add..." in the bottom right corner (you may first have to use one of several scrollbars in order to see the "Add..." button)
- Navigate to where you extracted the ZIP file, single-click on "Alpha (Demo Edit).gdproj2", and then click "Add" (do **not** enter the folder! Add the **entire** folder by just clicking on the folder, and then on "Add")
- Launch Gadget on your iPhone / iPad
- Tap on the little document icon in the upper left corner and then "Open"
- "Alpha (Demo Edit)" should appear in the list. Tap it
- Launch Xequence
- Load "Alpha (Demo Edit)"
- Press Play.

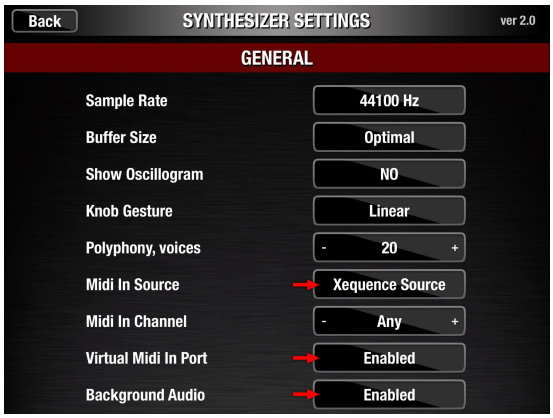
You should now actually hear the project as it was intended to sound.

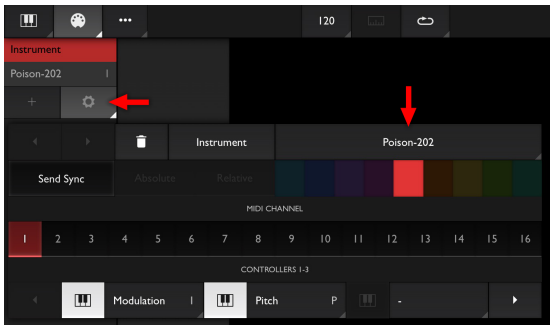
**Note**: The Gadget project uses some synths which are **In-App Purchases**, so if you haven't bought those, you might have a few drums / sounds missing.

# Example setups

## Using just a single synth app: Poison-202

- Launch Poison-202, and in its "Settings" menu:
  - Set "Virtual Midi In Port" to "Enabled".
  - Set "Background Audio" to "Enabled".
- In Xequence, create a new instrument.
- Tap "Select MIDI Destination", and then "Poison-202".
- Create a track and assign it to the instrument, as described in the "Arranger" chapter.



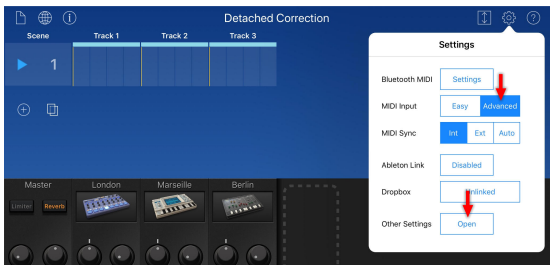



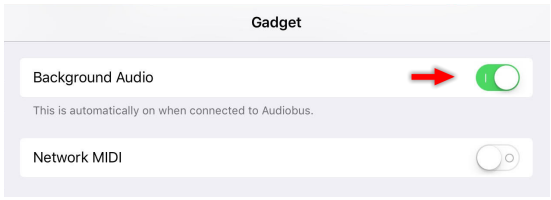

## Using a multi-timbral app with multiple MIDI channels and sounds: Korg Gadget

Let's say you want to use three instruments from Gadget in Xequence, on three separate tracks:

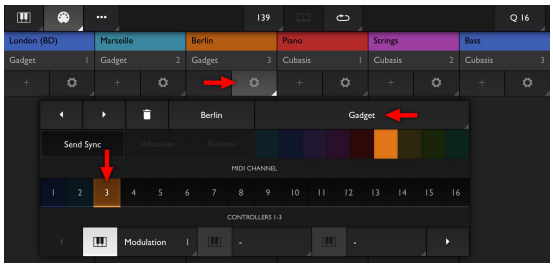
- Launch Gadget, and then:
  - In its settings menu (cogwheel), set "MIDI Input" to "Advanced"
  - Open "Other settings", you will be dropped into the system "Settings" app
  - Enable "Background Audio" there, and return to Gadget
  - Create three instruments, and for each, tap on the "All" button at the bottom left, and then in the "MIDI Input" menu, choose "Gadget (Virtual Port)" as the Source
  - In "Ch. 1", assign each instrument its own separate channel, i.e., 1 to 3.
- Back in Xequence, create three instruments

- Set each instruments' MIDI Destination ("Select MIDI Destination") to "Gadget"
- The channels should be assigned automatically, but if not, assign the same channels you have assigned in Gadget (1 to 3).
- Create tracks and assign them to the instruments, as described in the "Arranger" chapter.





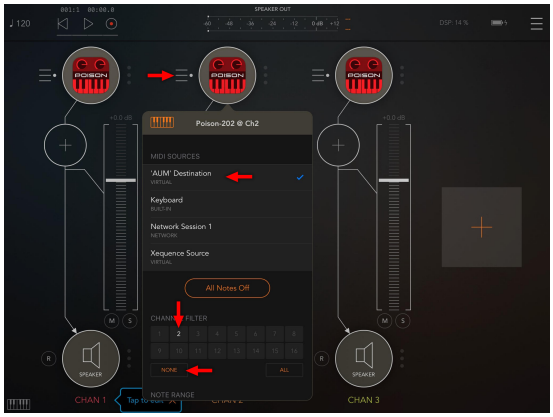


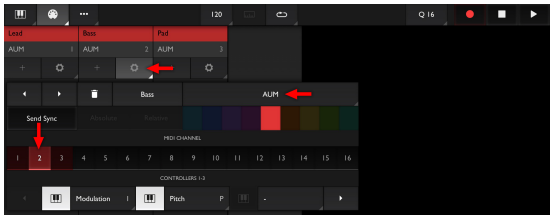

## Using an Audio Unit Host to control multiple AU plugins: AUM

Let's say you want to use three separate instances of Poison-202 in AUM, on three separate tracks:

- Launch AUM, and then:
  - Create three AUM channels
  - Tap the menu button at the upper left (=)
  - Under MIDI SOURCES, select "'AUM' Destination".
  - Below the "CHANNEL FILTER" menu, tap "NONE".
  - Now under "CHANNEL FILTER", select the MIDI channel you want to use (1 for the first AUM channel you created, 2 for the second, 3 for the third).
- Back in Xequence, create three instruments
- Set each instruments' MIDI Destination ("Select MIDI Destination") to "AUM"

- The channels should be assigned automatically, but if not, assign the same channels you have assigned in AUM (1 to 3).
- Create tracks and assign them to the instruments, as described in the "Arranger" chapter.

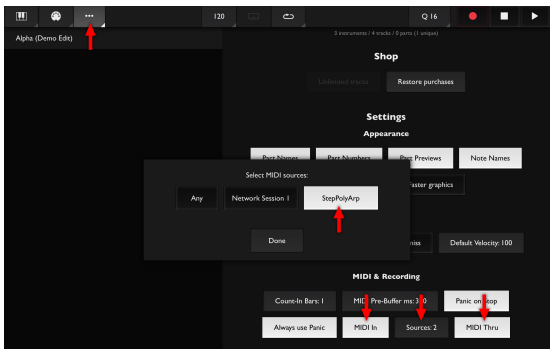



## Using an Arpeggiator app: StepPolyArp

This will let you use StepPolyArp to play and record any Xequence instrument, including recording the arpeggiated notes:

- Launch StepPolyArp, tap its settings menu (the MIDI Icon at the top right), and under "Midi out", select "StepPolyArp Midi out" (**not** "Xequence Destination"! Yes, we know (as always)).
- Back in Xequence, go its settings menu (the "..." icon at the top left)
- Switch to the "MIDI & Recording" tab and enable both "MIDI In" and "MIDI Thru"
- Tap "Sources", disable "Xequence Destination" (if enabled), and enable "StepPolyArp".

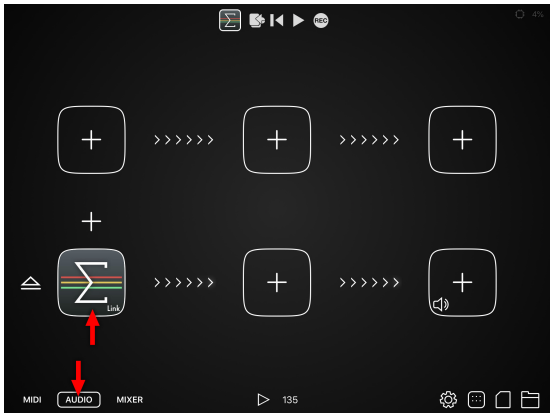

You can now go back to StepPolyArp, and whichever track is currently selected in Xequence, **that track's instrument will automatically be played by StepPolyArp**, and its notes recorded, if you tap the Record button.

## Using Xequence + Audiobus + AUM together

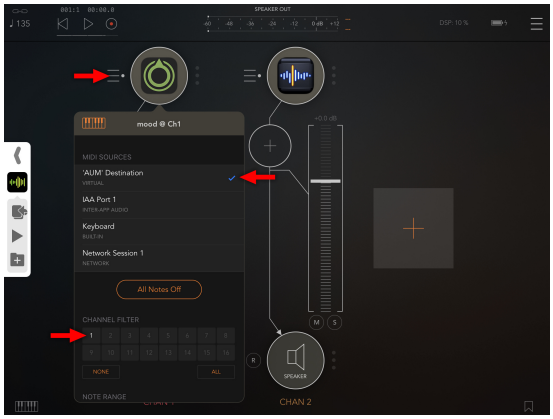
The above combination is very useful to get a complete, integrated control, composition, arrangement & mixing environment:

- **Xequence** is the central control, composition and arrangement hub.
- **Audiobus** is used for fast switching between apps, for central transport control, and storing and recalling the entire project from a single location.
- **AUM** is used for hosting the actual synths and provides a comprehensive mixing environment.

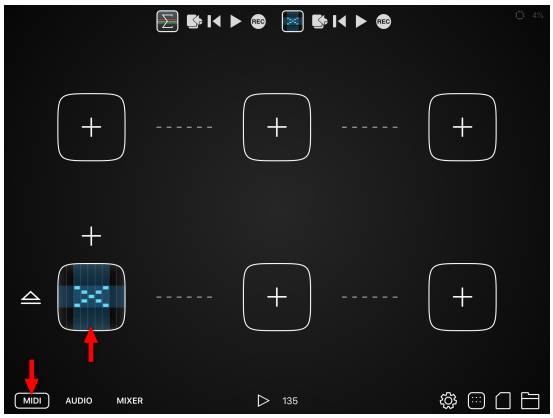
To set this up, we recommend the following steps:




- Start with a blank Audiobus session.
- Go to the **Audio** screen, and load **AUM** into an **Input** (left / top) slot.



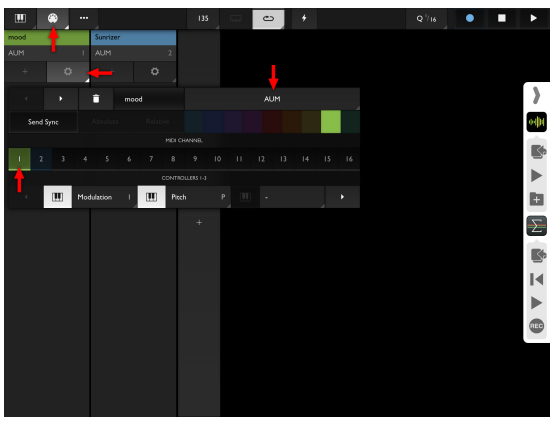

- In AUM, setup a channel for each synth you want to use, go to its menu, enable "**AUM Destination**", tap "**None**" under "**Channel Filter**", and then enable one of the 16 MIDI channels for each synth you load.
- Back in Audiobus, go to the **MIDI** screen, and load a single **Xequence** instance into an **Input** (left / top) slot (it doesn't matter which MIDI Out you select).
- Go to the **Instruments** screen (MIDI icon at the top left), and for each synth you created in AUM, create an **Instrument**.




- For each instrument in Xequence, tap the **cogwheel** to go to its settings, and tap "**Select MIDI destination**". In the dropdown, do **not** select "Audiobus". Instead, route the MIDI to **AUM directly**, and select the same MIDI channels you assigned in AUM.

To **save your project**, all you need to do is **tap the folder icon in the bottom right corner of Audiobus**, and then save a new Preset.

**Everything is saved into this single preset**: All Audiobus settings, the entire Xequence project, all connections between the apps, and the complete AUM setup! This can then even be shared easily using cloud services, and restores on any other device with a single tap. **No saving is required neither in AUM nor Xequence**: the Audiobus preset contains all necessary data.



## Bonus tip: Syncing StepPolyArp to Xequence

You can also use Xequence's MIDI sync feature to have StepPolyArp automatically play in time with Xequence when you press keys in StepPolyArp, so that recordings are always in perfect sync.

To do that:

- Go to the **Instruments** screen (MIDI Icon at the top left), and add a new instrument. Choose **StepPolyArp** as the MIDI destination (it won't be used as a real instrument: you only add it so that Xequence is aware of it and can sync it).
- Enable "**Send Sync**" and choose "**Relative**" mode.
- In StepPolyArp, go to the **MIDI menu** (MIDI icon in top right corner), then to "Sync", and enable "**Follow song position**".

StepPolyArp will now acquire the BPM and relative song position from Xequence whenever you hit play, and play in sync with it.

# Frequently asked questions



## Why am I getting jitter / inaccurate timing, I thought Xequence is rock-solid?

Xequence sends its MIDI data in advance with so-called *timestamps* which are accurate to a few nanoseconds. However, many apps that **receive** MIDI (synths, hosts, etc.) do not utilize these timestamps or discard them. Instead, they try to receive MIDI events in real time, which is less accurate, especially under high system load.

If you notice this problem with an app, please **contact the app developer** and tell them to listen for incoming MIDI events **in advance** and **use their timestamps** to insert the generated audio with sample-accuracy. They're also welcome to contact us directly in order to get further help in implementing these changes.

## Why does MIDI export merge several of my arranger tracks into a single track?

MIDI files exported by Xequence contain one track **per instrument**, **not** per arranger track! So if you have multiple arranger tracks that point to the same instrument, these will be exported to a single track in the MIDI file.

To solve this problem, just create one separate instrument per track you want to export separately, and assign the corresponding tracks to their respective instruments.

## Does Xequence have a marker track?

There is no marker track per-se, but it is quite easy to get very similar functionality:

- Make a new instrument and call it *MARKERS*.
- Insert a new track and point it to the *MARKERS* instrument.
- For each section of the song you want to "mark", draw an empty part on that track, or use any other means of creating parts.
- Optional: With a "marker part" selected, tap on the "Magic Wand" menu, and tap "Name" to name your section.

You now have a labelled overview of the different sections of your song.

You can also loop any of your sections by tapping the corresponding "marker part" and then tapping on the "Loop" menu and then on "Selection".

## Can I insert Program Changes only on whole bar positions?

Yes. However, to give your receiving synths more time to switch to the corresponding preset, you can "pull" the program changes backwards in order to send them early enough:

- Create a separate track for your Program Changes (select the same target instrument).
- If you want to switch programs, say, at bar 5, insert the Program Change at bar 5.
- In the track settings (tap the cogwheel of the track), pull the "Delay" slider to the left far enough so that your receiving synth manages to switch presets in time.
- If the maximum "negative delay" (200 ms) is not enough, then you can insert the Program Change on bar 4, and set the track Delay to 0 again.

## How can I fix overlapping parts?

If you moved parts on top of one another or recorded a new part on top of others, there's several easy ways to untangle them:

- **Add another empty track below** (tap the "+" button on the header of the track with the overlapping parts). The new track will have the same settings as the original one, so it doesn't matter on which of them the parts are placed. Then select the topmost part by tapping it, and move it down one track using the vertical handle on the right. You can repeat these steps for any remaining overlapping parts.
- Or **merge the overlapping parts**: Select all of them by tapping and holding on them until the selection rectangle appears, then move your finger until all overlapping parts are highlighted. Then, in the "Magic Wand" menu, select "Join".

## How can I overdub an existing part without creating a new one?

Just **open the part** by double-tapping it, then start recording. While the Pianoroll or Controller Editor is open, Xequence will record into that part without creating a new one.

## How can I do an audio mixdown of my project?

As Xequence **does not generate the audio itself** (it is generated by the apps that are controlled by Xequence through MIDI), it is not possible to mixdown directly in Xequence.

However, it is quite easy to do a mixdown if you host all your sound generators in an app that can record its master channel.

For example, if you use **AUM** to host your instruments, you can just arm recording on your master channel, and then tap "Play" in Xequence, and wait until the song has played completely.

Back in AUM, you can then find the recorded file under "Recordings" in its "Files" section in the menu, crop it, and you have the mixdown ready.

## Can I control Xequence via MIDI? (MMC etc.)

Transport or other remote control is currently not available. However, you can control Xequence via the **Audiobus sidebar** while Xequence is loaded in an Audiobus MIDI lane, and by extension via the Audiobus Remote app. Also, Xequence is compatible with **Ableton Link**.

## How can I play in Glissando / Glide on the keyboard?

To enable Glissando / Glide, just tap on the "knotted arrows" toggle in the bottom toolbar on the keyboard screen. Note that this mode is currently only available if a scale is selected. When you are in "Black keys" mode, Glissando / Glide is disabled (this may be improved in a future update).

## What's Xequence's MIDI resolution (PPQ)?

Xequence has a MIDI timing resolution of 192 PPQ.

## How can I merge a MIDI file into the current project?

- **Save** your current project.
- **Load** the MIDI file via the "..." screen.
- **Select** those parts that you want to merge into another project, tap the "+" menu at the bottom left of the Arranger, and tap "Copy".
- **Re-load** the project you just saved.
- Position the **song pointer** where you want to insert the copied parts from the MIDI file
- Optionally, **select the track** on which you want the copied parts to appear.
- Tap the **"+" menu** at the bottom left, then tap "**Paste +**".

## Can I control several different instruments with a single Drum Map?

Not directly, but you can use a tool like **MIDIFlow** to re-map the different notes from a drum map to different MIDI destinations. Select **MIDIFlow** (or another app that can process MIDI) as the MIDI destination for your drum instrument, and then configure your MIDI processor to route the MIDI to different destinations depending on note or note range.

## I cannot select Xequence in my synth app, it isn't listed. What am I doing wrong?

It actually works the other way around: For each synth app or other destination that you would like to use in Xequence, you **create an instrument** on the Instruments screen (the MIDI button at the top left).

Then tap on the **instrument's cogwheel**, and on "**Select MIDI Destination**" (or if the instrument already has another MIDI destination assigned, tap on that). Your target app should then be listed there for selection. Just tap it.

If your target app **isn't listed in the menu**, make sure that the app **stays active in the background**. Many apps have a "**Background audio**" or similar toggle which enables this behavior.

If this doesn't help either, then the target app has an **incomplete MIDI implementation** and is unfortunately not compatible with Xequence (or any other app that looks for MIDI destinations). Please **let us know** about such an app so we can contact the developer and help them to correct this problem.

## Can Xequence slave to MIDI sync (clock)?

Xequence can currently only be the **master**, i.e. send MIDI sync (clock, SPP, start, stop, continue) to other devices / apps.

However, if you don't need absolute song position synchronization, then you can **host Xequence inside Audiobus** (insert it as the source on the "MIDI" screen). Enable Ableton Link in Xequence (tap on "..." and then on "Link" to the right), Audiobus and all other relevant apps. This should sync everything (Start, Stop, Phase, Tempo) except absolute song position.

If you don't have Audiobus, you can still use regular Ableton Link sync to get phase and tempo synchronization by enabling Ableton Link in Xequence and all other apps you would like to use.

## Xequence is very slow or crashes when editing a part imported from a MIDI file?

Parts imported from MIDI files often are very long and contain a lot of notes / controllers in a single place, because Xequence has no way of knowing how to structure the imported data. When editing such a part, Xequence has to process a lot of data at once and this may result in slowness or even crashes.

To avoid this problem, please **split very long parts** into smaller pieces before editing. To do that, just place the song position pointer at a spot where a split would make sense, select one or several parts that should be split there, then from the "**Magic Wand**" menu, select "**Split**". Repeat this until you have chopped up the data into small enough parts that can be easily edited.

Some MIDI files also contain **markers**, which Xequence can use to automatically split imported parts. To enable this, enable "**Split by markers**" in the MIDI import settings.

## How can I use different scales / keys for an instrument in different parts of the song?

- For each additional scale / key you would like to use, create a duplicate of the instrument: tap the "+" button on the instrument header, tap the cogwheel, and then assign the same MIDI channel (and if you like, the same color). Tap on the instrument's name (or "Instrument name...") to include the name of the scale / key so that it's easier to find.
- Create an additional arranger track for each of the duplicate instruments, tap on the new track's cogwheel button, and assign the duplicate instrument.
- Open the keyboard screen for each of the newly created tracks, and select the scale / key you would like to use.
- When recording, be sure to select the correct track (scale / key) beforehand so that you won't get the "Wrong scale" dialog when trying to edit the recorded notes.

## Where are the black keys?

On the keyboard screen, tap on the **current scale's name** (for example, "**A Minor**") to open the scales menu, and then select "**Black keys**".

## How can I draw controller ramps?

- In the controller editor, activate **Draw mode** by tapping the pencil icon at the bottom left.
- Tap somewhere to place the beginning of the ramp.
- Tap again at a second point to place the end.
- Tap on the Selection menu (the checker icon in the bottom toolbar), then tap on "All" to select all.

- Tap on the "**Magic Wand**" menu, then on "**Ramp**", then on the desired ramp curve.

Note that the ramp feature uses the current grid setting to define the ramp's resolution. For the highest possible resolution, set the grid to "Off" before using the ramp feature.