



StepPolyArp

Midi Step Polyphonic Arpeggiator
iPad

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Presentation

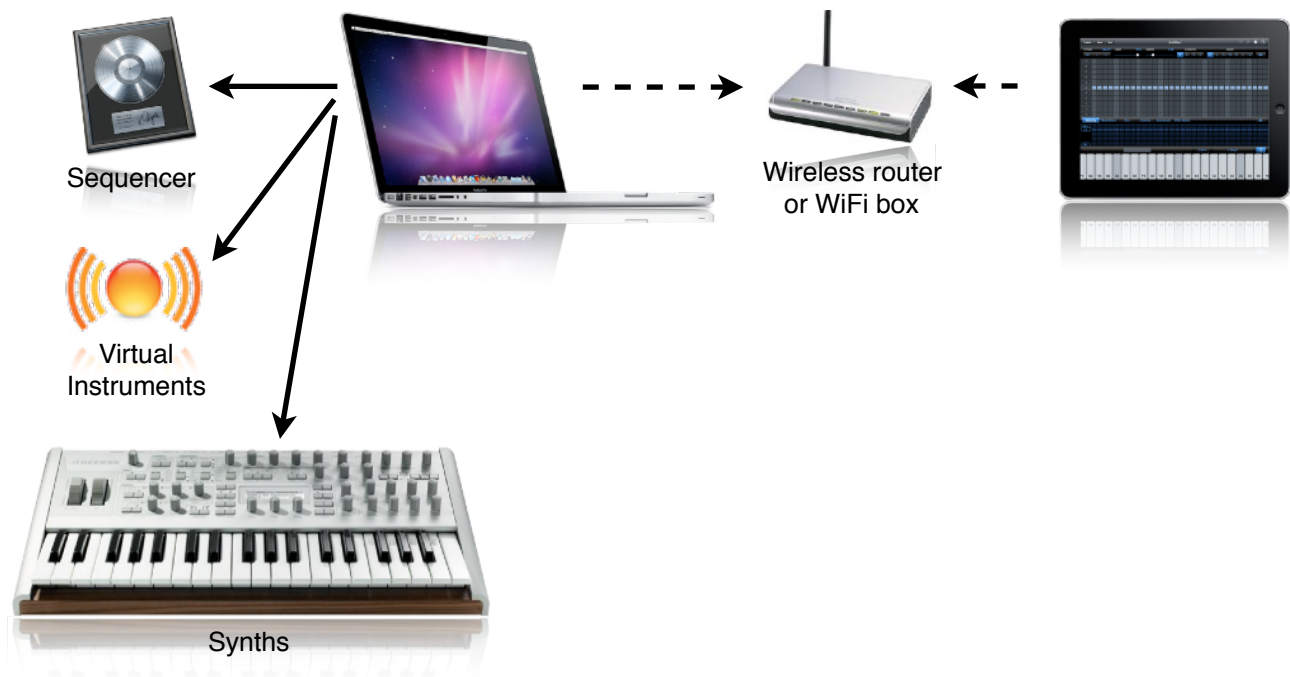
StepPolyArp is a real-time Midi arpeggiator to control Midi instruments, sequencers like Logic, Cubase, Live, and all other midi sequencers, or even other virtual instruments installed on the same iPad. The arpeggiator can automatically generate melodic patterns from notes or chords played in real time.

Although, StepPolyArp is specially designed to operate in Midi, it has own internal sounds bank to use it independently.


Midi Connections

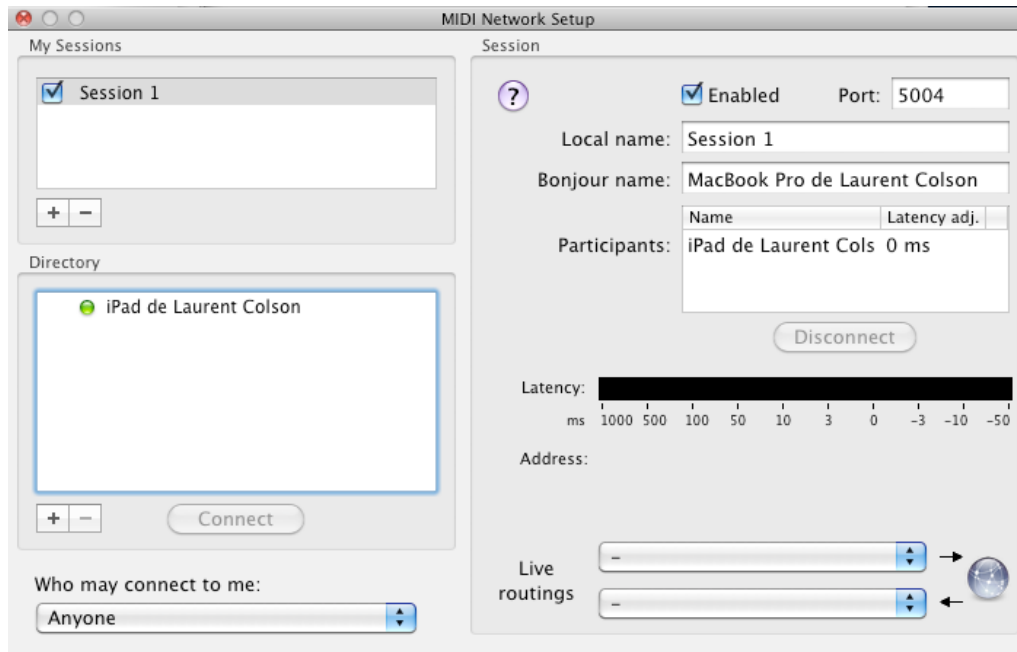
There are different ways to use the iPad with a Midi connection, via a MIDI interface to synthesizers and other devices with a Midi connection, or a wireless connection to a WiFi computer, or using a virtual Midi port to other applications running on the same iPad. To select the connection mode, press the Midi icon  on the top right application toolbar.

Midi over WiFi connection to a computer (Network Session)



Installation on macOS

1. On the iPad, open the Midi menu  on the top right application toolbar and select the Midi Out "Network Session".
2. On the Mac, go to the Applications folder, then "Utilities" folder and open the application "Audio Midi Setup".
3. In Audio Midi Setup, choose Window > Show Midi Window, then double-click the network icon in the window Midi Studio.
4. On the left side of the Midi Network Setup window, click the Add button (+) button below the "My Sessions" to create a Session.
5. At the bottom of the window, under "Who may connect to me" select "Anyone".
6. Below "Directory", you should see the name of your iPad. Select it and click "Connect". If your iPad does not appear, make sure it is connected to the same WiFi network as your computer.



Your iPad is now connected, Midi In/Out are visible on your computer under the name of the session you just created, the default name is "Session 1". As long as you do not change the Bonjour name from the session, StepPolyArp will automatically reconnect to your computer. When using multiple computers, the application retains the last used connection and attempts to find those that are available to reconnect automatically.

StepPolyArp manages the latency compensation in WiFi, so you can connect through a router without having to make the connection from computer to computer (ad hoc).

Installation on Windows and Linux

To use the wireless Midi connection (Network Session) on Windows or Linux, you must install a RTP Midi compatible driver. For more information on this protocol, please visit the following page: <http://www.cs.berkeley.edu/~lazzaro/rtpmidi/>

The installation should be similar to that described for macOS above.

IMPORTANT: When using RTP Midi on Windows or Linux, please disable "Midi Network auto connect" in the "Setup" Midi menu that is not compatible with some drivers (notes not played, loss of sync, ...).


Virtual Midi connection with another application

StepPolyArp automatically creates a virtual Midi port to be used by another application as a Midi port named "StepPolyArp". The arpeggiator can for example receives Midi from a virtual synth running on the same iPad rather than an external instrument or host computer. The application sending the Midi must however be multitasking and Core Midi compatible.

To send Midi datas from an application to StepPolyArp:


1. You need to send Midi datas from the application to the port named "StepPolyArp" that will automatically receive datas.

To send Midi datas to an application from StepPolyArp:

1. On the iPad, open the Midi menu  on the top right application toolbar and select the Midi application out port you want to send Midi.


USB connection with the Apple Camera Connection Kit

The USB Camera Connection Kit lets you connect an USB Midi interface directly to the iPad. The USB Midi interface must be "class compliant". It may be also necessary to use a self powered USB hub to run the interface if the iPad has not enough power. USB Midi keyboards with Midi ports can also be used as Midi interface.

1. Connect the MIDI interface to the iPad.
2. On the iPad, open the Midi menu  on the top right application toolbar and select the Midi Out port for your Midi interface.

Connection with a Core Midi compatible interface

Any Midi interface for iPad / iPhone / iPod compatible Core Midi is automatically recognized.

1. Connect the MIDI interface to the iPad.
2. On the iPad, open the Midi menu  on the top right application toolbar and select the Midi Out port for your Midi interface.

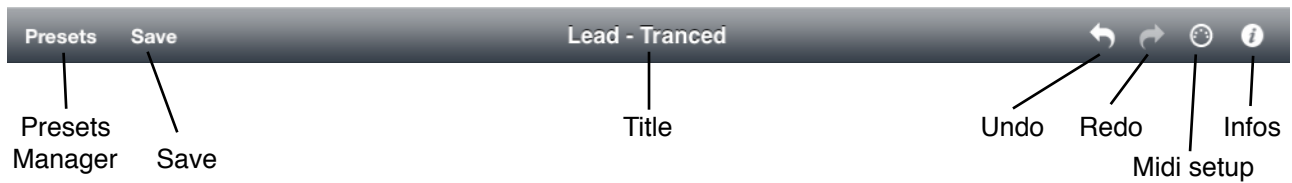
Multitasking

Since version 1.4, iOS multitasking is fully managed. Thus, if the arpeggiator is playing when the application goes to background, music will continue to be played and other applications can be launched. The arpeggiator having a virtual Midi port, it becomes possible to control other musical applications from StepPolyArp on the same iPad if they are themselves multitasking and Core Midi compatible. The arpeggiator can also receive Midi sync from another application.

However, beware that if another application is running in the foreground or in the background and uses a lot of CPU resources, this can cause Midi timing problems.

StepPolyArp will automatically stop working in background mode after 30 minutes of inactivity. It will not stop if it is playing, connected to an Audiobus port, or is used as an Inter-App Audio node.

Toolbar



Presets

The "Presets" button displays the list of presets available. You can load or create a new preset from this menu.

The list is divided in two groups, Factory Presets and User Presets. The first list includes all the presets originally installed, and can not be changed. The user group, empty at startup, contains your own presets.

You can delete presets that you created in this group by pressing the trash icon on top of the list and then selecting the preset to delete. Confirm by pressing the "Delete" button that appears.

Tip: You can delete a preset by making a finger horizontal sliding on the preset to erase without having to press the trash first. As before, confirm the deletion by pressing the "Delete" button that appears.

Save

Use the "Save" button to save your own presets. Enter the name you want to save the preset, select whether you want to save the tempo, scale, and Midi out with this preset. By recording the tempo, the scale or the Midi out, these will be recalled when loading the preset.

With the files sharing available in iTunes 9.1, you can copy presets created on the iPad to your computer. You can also copy presets from your computer to the iPad.

Undo / Redo

Press "Undo" to cancel previous changes you made. Press "Redo" to restore the changes.

Informations

Information box indicating the version number and other details about the software.

Midi

Change Midi settings from this menu.

▶ **Midi Out**

Select output port and Midi channel of the arpeggiator.

▶ **Sound**

Select the internal sound of the iPad.

▶ **Midi In**

StepPolyArp can receive Midi datas, indicate the Midi ports that the arpeggiator will respond. You can also filter the Midi channels that you do not want the arpeggiator answer.

▶ **Sync**

Select the ports to which the Midi arpeggiator will receive a synchronization. Although it is possible to select multiple sources, the application will synchronize only one at a time. For more information about syncing Midi, please refer to "External Midi Sync" section in this manual.

▶ **Setup**

Midi Network auto connect: WiFi Midi automatic connection, the iPad will attempt to reuse connections intelligently used before. Preferably, enable this option if the host computer is running macOS, turn it off if the host is Windows or Linux, some drivers are not compatible with this feature.

Program change: Select if Midi program change command is loading a preset or switching a pattern.

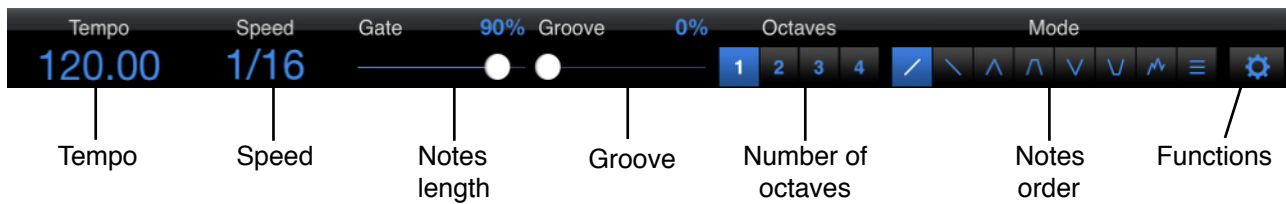
Midi Instantaneous pattern change: this setting allows a program change (if the previous setting is selected on pattern) or the equal Midi control (#21) to change the pattern instantly without waiting for the end of the loop.

Receive Midi controls messages: enables or disables the reception of Midi controls recognized by the arpeggiator.

Middle C: Select if middle C is labeled C3 or C4.

Midi over Bluetooth: connect to a Midi bluetooth device or make device detectable from other.

Arpeggiator settings



Tempo

The tempo can be entered by touching it, it will activate a dedicated keyboard where you will be able to enter directly numbers, or tapping it from the "Tap" button. It can be modified by sliding your finger on it up or down too, touch the numerals or decimals to change them.

Speed

Grid speed. Speed can be selected from a popover menu by touching directly the value.

Gate

Specifies the length of notes played. A length of 100% corresponds to a full step in the grid. A length of 50% is half a step.

Groove

Adding groove to the grid, no groove applied at 0 %.

Number of octaves

Indicate the number of octaves to be generated automatically by the arpeggiator for each note pressed..

Notes order

Play the pressed notes in a definite order.

► Up

The notes are played from the lowest to the highest. For a C-E-G chord, the generated notes will be C-E-G-C-E-G...

► Down

The notes are played from the highest to the lowest. For a C-E-G chord, the generated notes will be G-E-C-G-E-C...

► Up & Down

The notes are played from the lowest to the highest, then, from the highest to the lowest. For a C-E-G chord, the generated notes will be C-E-G-E-C-E-G...

‣ Up & Down 2

Same way as up & down, with the difference that the lowest notes and the highest are re-played. For a C-E-G chord, the generated notes will be C-E-G-G-E-C-C-E-G...

‣ Down & up

The notes are played from the highest to the lowest, then, from lowest to highest. For a C-E-G chord, the generated notes will be G-E-C-E-G-E-C...

‣ Down & Up 2

Same way as down & up, with the difference that the lowest notes and the highest are re-played. For a C-E-G chord, the generated notes will be G-E-C-C-E-G-G-E-C...

‣ Random

The order of notes is played randomly.

‣ Chord

The notes are not arpeggiated, but played as chord.

Functions

‣ Edit

Copy : Copy the viewed grid in the clipboard.

Paste : Replaces the viewed grid by that contained in the clipboard.

‣ Random

Random mono: Generates a random pattern on a single line in the grid.

Random poly: Generates a random pattern over several lines in the grid.

‣ Pattern

All steps: Fills all steps on the center line of the grid.

Every 2: Fills every two steps on the center line of the grid.

Every 4: Fills every four steps on the center line of the grid.

Blank: Create an empty grid.

‣ Move

Left: Moves all grid events to the left.

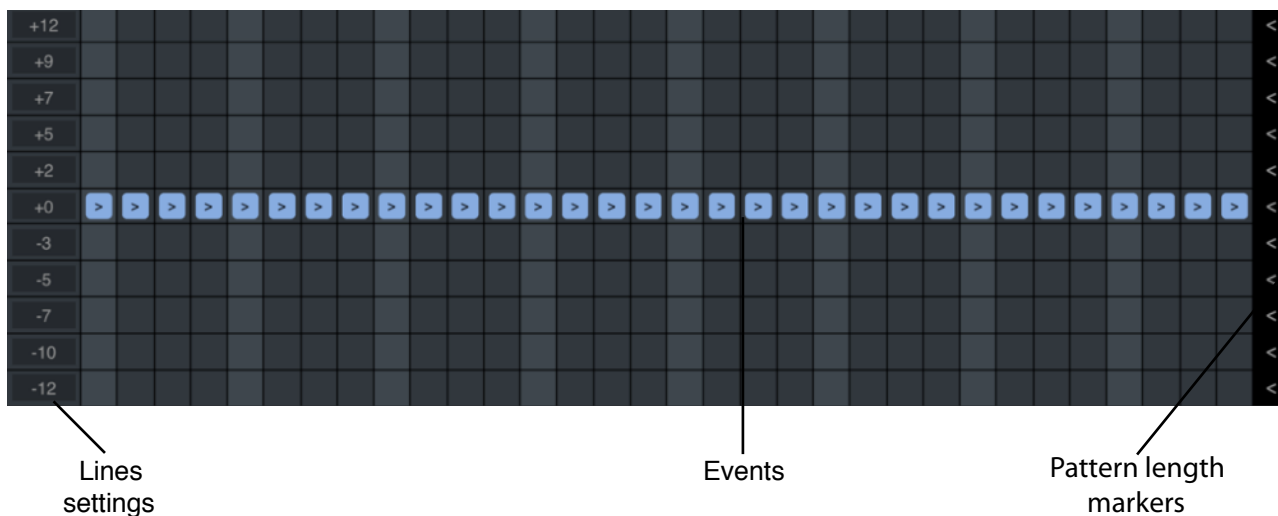
Right: Moves all grid events to the right.

‣ Reverse

Reverse steps: Reverse horizontally all grid events.

Reverse pitch: Reverse vertically all grid events.

Events grid



Events

An event allocates the notes for the arpeggiator in time, length, and pitch. You can create new events by touching an empty step on the grid. To change the length of an event, hold your finger on it and move to the right to increase the length or to the left to decrease. You can move an event by holding your finger over it for half a second and placing it to the location you want. To delete an event, place your finger on it, then throw it with a quick movement in any direction to make it disappear or just double tap on the event to delete it.

There are several types of events. You can change the type by tapping on an existing event.

► Order

Next > : This event asks the arpeggiator to play the note and then move to the next. This is the normal arpeggiator mode. For a C-E-G chord in "up" mode, if the pattern is "> > > >", the generated notes will be C-E-G-C-E.

Equal = : This event asks the arpeggiator to play the same note as the previous one. For a C-E-G chord in "up" mode, if the pattern is "> = > >", the generated notes will be C-C-E-G-C.

Previous < : This event asks the arpeggiator to play the note and then move to the previous. For a C-E-G chord in "up" mode, if the pattern is "< < < <", the generated notes will be C-G-E-C-G.

Restart |< : This event asks the arpeggiator to reset to the first note. For a C-E-G chord in "up" mode, if the pattern is "> > |< > >", the generated notes will be C-E-C-E-G.

End >| : This event asks the arpeggiator to reset to the last note. For a C-E-G chord in "up" mode, if the pattern is "> >| > > >", the generated notes will be C-G-C-E-G.

Note number : This event indicates directly the note number to play. For a C-E-G chord in "up" mode, if the pattern is "1 3 2 3 1", the generated notes will be C-G-E-G-C.

► Probability to play

Indicates the probability for the event to play. At 100 %, the event will always play.

► Note repeat

Step divided by : Divide an event by the indicated number to make a sequence of repeated notes.

Acceleration : Uses an acceleration curve by increasing (+) or slowing down (-) the repetition rate.

Velocity curve : Creates a repetition with constant, up, or down velocity curve.

► Edit

Delete: Delete the edited event.

You can transpose the notes by placing them vertically on the grid. To the left of each line is indicated the value of transposition in semitones. However, transpositions take in account the selected scale. Any notes not in scale is rounded. The arpeggiator being polyphonic, you can create multiple simultaneous events on a step, this will force the arpeggiator to play chords.

Pattern length markers

You can change the length of each line of the pattern by moving the marker with your finger. The length of each line can be 1 to 32 steps. Using different lengths for different line can be used to create Polyrhythm patterns. If you want to move all steps at the same time, you need to activate "Link Lengths" at the bottom area of the screen.

Moving a line

You can reorder a line by using 2 fingers on it and moving it to the wanted position.

Lines settings

The grid lines are fully configurable. To the left of each line is indicated the value of transposition. You can change this value by dragging your finger on them. Move your finger up to increase or down to decrease the value. To configure a line, do a tap on the transposition value to open the configuration menu.

► Pitch

Sets the transposition value of the line in semitones. The value can be set from -24 semitones (-2 octaves) to +24 semitones (2 octaves) in "Relative transpose" mode, or from note 0 to 127 in "Absolute note" mode.

► Midi Channel

Each line can send Midi notes on a different channel that the channel setting up in the global Midi menu.

▶ Edit

Copy: Copy the line to the clipboard.

Cut: Copy the line to the clipboard and delete it.

Paste: Pastes the line from the clipboard on the current line.

▶ Pattern

All steps: Fills all steps of the line.

Every 2: Fills every two steps of the line.

Every 4: Fills every four steps of the line.

Blank: Empty the line.

▶ Move

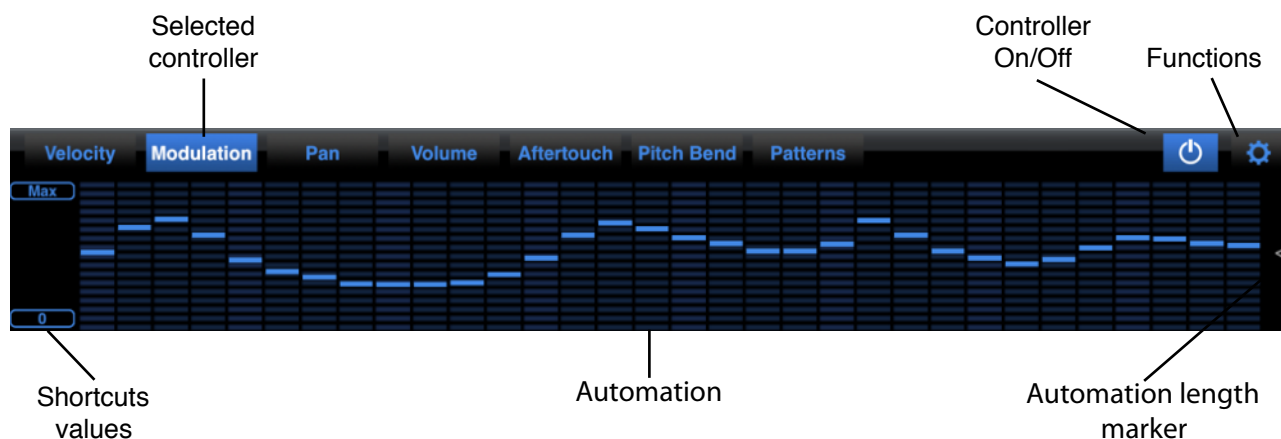
Left: Moves all line events to the left.

Right: Moves all line events to the right.

▶ Reverse

Reverse steps: Reverse horizontally line events.

The step controller



Automation

The step controller can create velocity, modulation, panning, volume, aftertouch and pitch bend automation. Apart from the velocity automation, other controllers are turned off by default. To turn a controller on, press the on / off button on the top right, or touch the automation area. If one controller is not used, it is better to switch it off to avoid transmitting its data.

To set automation steps, simply drag your finger over the area. You can use multiple fingers to draw lines between multiple points.

To reset a step by default, double-tap on it.

Shortcuts values

The left area has buttons for fast initialization values of each type of controllers. Press the short-cut button to quickly set the values.

Automation length marker

You can change the length of the automation by moving the marker with your finger. The length can be 1 to 32 steps. Using different lengths for different controllers can be used to create Poly-rhythm patterns. If you want to move all steps at the same time, you need to activate "Link Lengths" at the bottom area of the screen.

Functions

► Edit

Copy : Copy the viewed step controller in the clipboard.

Paste : Replaces the viewed step controller by that contained in the clipboard.

► Random

Random steps: Generate a random automation.

▶ Pattern

Every 2: Alternating minimum and maximum every two steps.

Every 4: Alternating minimum and maximum every four steps.

▶ Move

Left: Shifts the automation to the left.

Right: Shifts the automation to the right.

▶ Reverse

Reverse steps: Reverse the automation horizontally.

Reverse values: Reverse the automation vertically.

Customizing controllers

Modulation controllers, Pan, Volume, Aftertouch and Pitch Bend can be customized. To change one type of controller, simply select it and touch it to display its settings.

▶ Name

Changes the name of the controller.

▶ Controllers list

Available Midi controllers.

▶ Display

Max : Displays a grid containing a value from 0 to maximum.

100-Max : Displays a grid from 0 to maximum with an intermediate value of 100.

L-C-E : Displays a grid for pan datas, left, center, right.

Center : Displays a grid containing a minimum value, maximum, and 0 in the center.

▶ Midi Channel

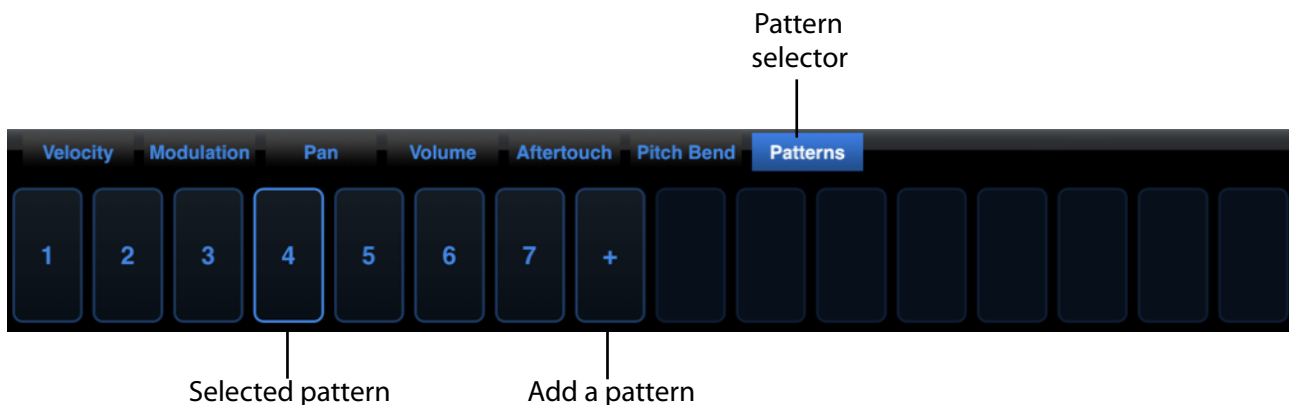
Each controller can send Midi controls on a different channel that the channel setting up in the global Midi menu.

▶ Actions

Apply to all patterns : Applies the current setting of the selected controller to all patters.

Reset to default : Reset the selected controller to its default settings.

The pattern selector



Patterns list

Each preset can contain up to 16 patterns. To select a pattern, press it. If the arpeggiator is playing, the pattern chosen will be activated only when the playhead reaches the end of the current pattern. Pressing a second time, the pattern will be activated immediately. To delete a pattern, move it outside the selector pattern. You can change the order of patterns by moving them to the desired position.

Add a pattern

By pressing the "+" button, you will add a pattern to the list. The pattern creates a copy of the current active pattern. You can create up to 16 patterns by preset.

Editing a pattern

To edit a pattern, just do a tap on the selected one.

► Edit

Copy : Copy the pattern in the clipboard.

Paste : Replaces the selected pattern by that contained in the clipboard.

Delete: Delete the pattern

► Retrig position when launching

If activated, the playing position will be reseted from beginning when the pattern is launched.

► Save the scale inside this pattern

If activated, the selected scale will be recalled with the pattern.

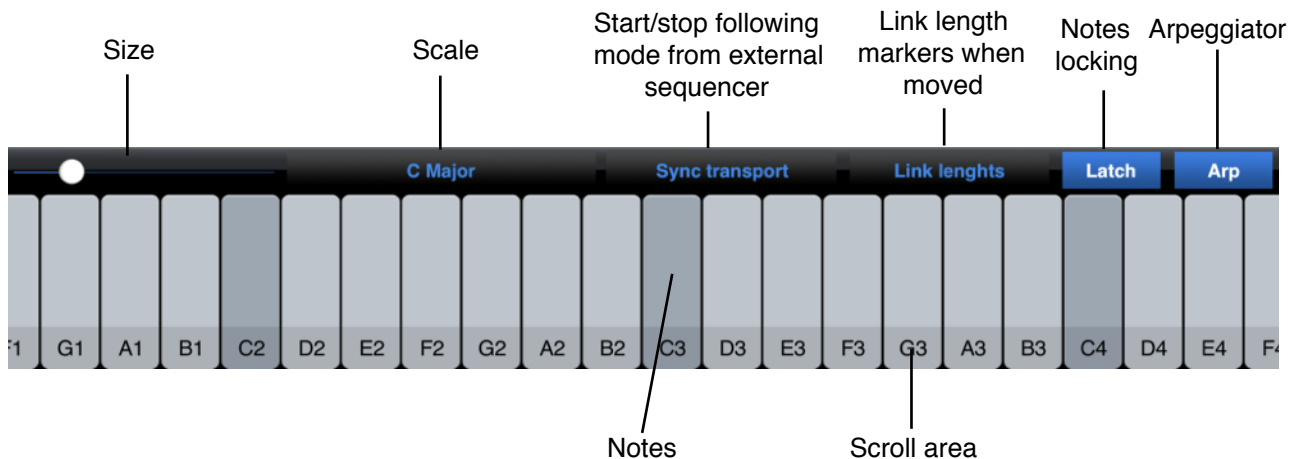
► Auto play

Patterns can chain automatically when playing. For a pattern automatically chains to the next, simply activate the "Next play" button. It is possible to specify the number of times the pattern will play before moving to the next one.

Automatic chaining patterns

The sequence "Auto play" can be activated individually for each pattern. When it is enabled, after playing the pattern by specified number of times, it is automatically chaining on the following pattern. It is possible to temporarily block the sequence by pressing the played pattern, a small padlock will flash to indicate that the tracking pattern is temporarily blocked. To resume the sequence, just touch the waiting pattern once again to release it, or another pattern if you want to play a different one than that expected in the sequence.

Keyboard



Size

Change the size of the keyboard.

Scale

The scale determines the notes playable on the keyboard and the arpeggiator. The keyboard only displays the notes available in the selected scale. To use the 12 semitones, simply select the "chromatic" scale.

Sync transport

By activating this mode, the arpeggiator will only work when the master sequencer is playing, otherwise the arpeggiator will be stopped even if the notes on the keyboard are pressed.

Link lengths

By activating this button, when moving a length markers, all other markers will get the same length.

Notes locking

When the "Latch" button is on, the notes you play are maintained even when you release them. Touching other notes automatically release those locked. To release all the notes, press again those currently locked, or turn off the mode "Latch".

Arpeggiator

The "Arp" button, when on, sends all notes to the arpeggiator. When off, the notes plays like on a standard keyboard.

Notes

The keyboard shows the notes available for the selected scale.

Scroll area

Slide your finger on this area to scroll the keyboard at the wanted position.

External Midi sync


When StepPolyArp is receiving external Midi sync, the tempo and the play position of the arpeggiator is generated by Midi input. It is necessary that your sequencer or Midi device sends a "Midi clock" synchronization code to the iPad. Please refer to your software or your Midi device documentation to know how to send "Midi clock" to the iPad.

External synchronization works with any Midi interface and Midi Network Connection without latency, except for the first note played that may be delayed by a few milliseconds in WiFi. A latency compensation is applied to cancel the delay between the computer, router, and the iPad.

Although it is possible to combine different Midi sync sources to different output ports, it is advisable to use the same interface as the sync source port and output port. For example, it is preferable to avoid using a wireless synchronization source combined with a USB output. If your source is WiFi, favor sending Midi over WiFi, if your source is from the USB port or Core Midi compatible interface, prefer sending to an USB port or Core Midi interface.

When StepPolyArp is receiving a start command followed by clock codes, the tempo view color become orange and the arpeggiator can follow any tempo variation. If "Follow song position" is checked in the Midi setup sync, the pattern will not start on the first note played, but at the host relative position.

Ableton Link

StepPolyArp supports Ableton Link synchronization. To activate Ableton Link, open the Midi menu  at the top right into the toolbar, and press the "Ableton Link" button to open the settings window.

Once activated, StepPolyArp will automatically join the session available, and will be synchronized with the other participants. In a Link session, each participant can start or stop playing independently, while remaining synchronized.

When Link is activated, the external Midi sync is automatically disabled.

Ableton Link is not available when StepPolyArp is used as an Inter-App Audio node, in this case, it is the host application that will need to be synchronized to the Ableton Link session.

If "Follow song position" is selected in the Midi sync settings, the pattern no longer starts on the first note, but on the relative position of the Link session.

Inter-App Audio

StepPolyArp is fully compatible with Inter-App Audio host connections. When a host is connected, it will appear on the tool bar; with a transport bar control.

A sync is automatically locked, and StepPolyArp is responding to Midi sent from the host.

If "Follow song position" is checked in the Midi setup sync, the pattern will not start on the first note played, but at the host relative position.

While activated as a node, StepPolyArp will not respond from external Midi sync messages.

You can control the host transport directly from StepPolyArp, and go to the host by touching its icon.

iCloud and iCloud Drive

You can activate iCloud storage for the presets you create. In this case, your presets will be available and synchronized on all your devices. StepPolyArp will ask you if you want to use iCloud on the first use.

If you want to activate or deactivate it later, you can do it from the iOS setup panel. in the StepPolyArp preferences.

If you are using iCloud Drive (iOS 8 or later) and Mac OS (Yosemite or later), you can share your presets directly from the drive, you will find them in the "StepPolyArp" folder.

External Midi commands

External Midi keyboard

The arpeggiator can be triggered and played from an external keyboard plugged into a Midi input of the iPad. The reception works with any Midi interface and the Midi Network Connection. The notes received from an external Midi device that are not part of the selected scale will be automatically rounded to the higher value.

External Midi controller

Some arpeggiator settings can be controlled by Midi commands from an external controller. You will find the complete Midi implementation chart in the "Midi Implementation" chapter of this manual.

Midi Program Change

The presets can be recalled by a Program Change command by inserting the program number as "#nnn" at the beginning of the preset name.

The number "nnn" is from 1 to 128.

For example, if you want to recall the preset "My Preset" by a Midi Program Change number 10, you need to name it "#010 My Preset".

Some softwares or hardwares are using a number from 0 to 127, where StepPolyArp is using a number from 1 to 128, in this case, to recall a preset called "#010 My Preset" on StepPolyArp, you need to use the program change number 9 from this software or hardware (the StepPolyArp number minus 1).

Midi implementation

Functions	Transmitted	Recognized
Basic Channel	1 - 16	1 - 16
Note Number	0 - 127	12 - 107
Velocity Note On Note Off	O X	X X
After Touch	O	X
Pitch Bend	O	X
Control Change 16 Gate 17 Speed 18 Groove 19 Octaves 20 Mode 21 Pattern change 22 Latch	0 - 127	0 - 127 0 - 127 0 - 127 0 - 3 0 - 7 0 - 15 0 - 1
Program Change Pattern change Preset Change	X X	0 - 15 O
System Exclusive	X	X
Common Song Position	X	O
System Real Time Midi Clock Start Stop Continue	X X X X	O O O O