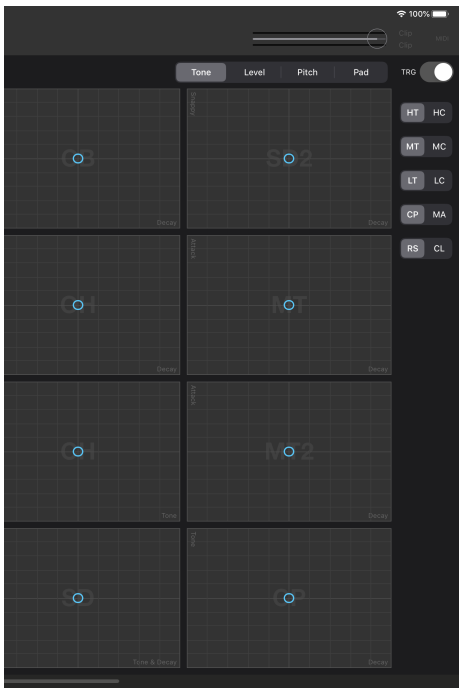
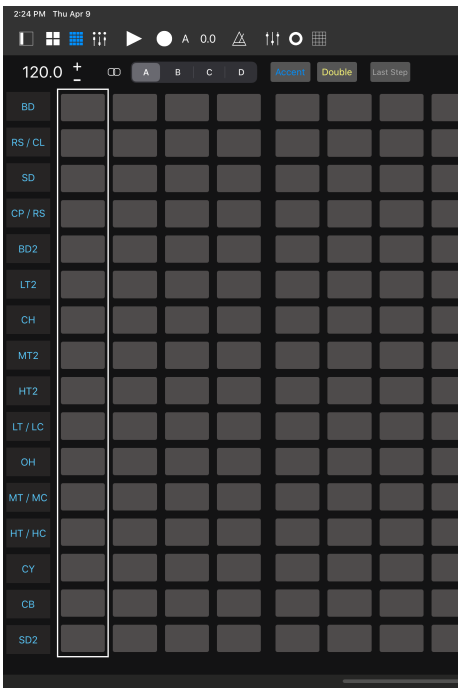
VADrumSM

Virtual Analog Drum Machine





User Guide

Version 1.9.10

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Introduction

Thank you for purchasing VADrumSM. To help you get the most out of this product, please read this manual carefully.

Virtual Analog Drum Machine

VADrumSM is a standalone mobile drum machine featuring a virtual analog drum synthesizer and a step sequencer. The virtual analog drum synthesizer supports AUv3 Audio Unit extensions, which allows users to use the drum synthesizer inside of AUv3 hosts, such as Apple's GarageBand®[1]. The step sequencer supports Ableton Link[2] which allows users to synchronize the sequencer to Link-enabled apps and devices[3]. VADrumSM supports Audiobus[4] to work with other music apps on user's iOS device.

Features

Drum Synthesizer

- 21 analog modeling drum synthesizers, including 2 bass drums, 2 snare drums, 2 sets of low, mid and high toms, low, mid and high congas, rim shot, claves, hand clap, maracas, closed and open hi-hats, cymbal and cowbell.
- 3 Layers of 16 XY pad controls (Tone, Level, Pitch)
- Drum pad mode (Pad)
- Trigger Mode (On / Off)
- MIDI input (mid note events only)
- Output mix signal and all instruments signal
- Support Audio Unit Extensions (AUv3)

Step Sequencer

- Variable Pattern Length
- Parameter Automation
- Swing: 6 variations
- Accent: 3 level
- Double hit: on / off
- Patterns: 4 patterns
- Pattern Length: 1 bar
- Loop length: 1 bar or 4 bar
- Steps: 16 Steps
- Note length: 16th or 32nd
- Record quantization: 16th
- Tempo: 20 BPM - 999 BPM
- Chain mode: on / off
- Support Ableton Link

Mixer

- 17 input channels, 4 aux channels and a main channel.
- Support AUv3 Effect Plugins
- Support Audiobus (main output and aux output)

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[1] Apple, Mac and GarageBand are trademarks of Apple Inc., registered in the U.S. and other countries.

[2] Ableton and Link are trademarks of Ableton AG.

[3] Requires Wi-Fi connections to use Ableton Link.

[4] All products, companies and standard names are trademarks or registered trademarks of their respective holders.

User Interface

Top Panel

1. Side Panel Button

Tap the side panel button to open and close the side panel table view.

2. Pads / Sequencer Button

Tap pads / sequencer button to switch between XY pads view and sequencer view.

3. Mixer Button

Tap this button to open mixer view.

4. Play / Stop Button

Tap play / stop button to start / stop playback of the sequence.

5. Record Button

Tap record button to enable / disable recording. When a sequence is not playing, tap this button will start playback of the sequence.

6. Step Counter

This counter shows position of the sequence as pattern Beat.Sixteenth.

7. Metronome Button

Tap Metronome button to turn the metronome sound on and off.

8. Parameter Automation

Tap this button to enable / disable parameter automation. This button also enable / disable parameter override.

9. Parameter Recording

Tap this button to arm / disarm parameter recording.

10. Parameter Automation Editor

Tap this button to open parameter automation editor.

11. Level Meter

Level Meter displays peak level of mixed signal from -70 dB to 0 dB. If the mixed signal is clipped (signal level goes over 0 dB), clip indicators are turned on to indicate that the signal is clipped. You can clear clip indicators by tapping on them.

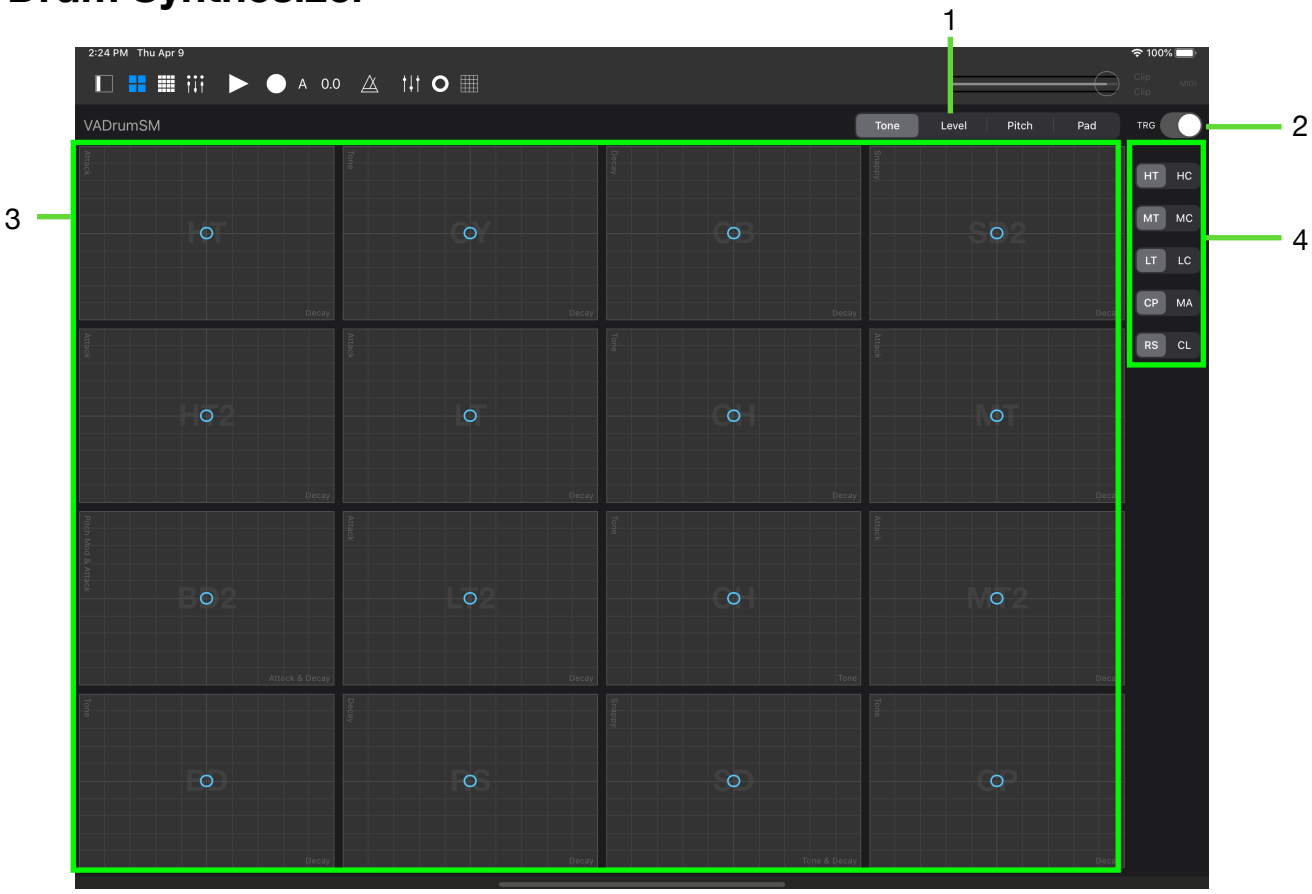
12. Master Volume

You can adjust level of the mixed signal by using this master volume slider.

13. MIDI Indicator

MIDI indicator indicates MIDI input is active or not. If MIDI indicator is turned off, tapping the indicator makes the app to re-establish the MIDI connections.

Drum Synthesizer



1. Control Layer Selector

Select set of parameters to control by XY pads. When Pad is selected, XY pads act as drum pads.

2. Trigger Mode

When trigger mode is on, you can trigger the voice by tapping the XY pads. When VADramSM is used as AUv3 plugins, it also send midi note events to AUv3 host application[5].
When trigger mode is off, XY pad only controls parameters selected by control layer selector and tapping XY pads will not trigger the voice.

3. XY pad

XY pads controls parameters selected by control layer selector.

Tone	XY pads control parameters to change tonality of the voice.
Level	XY pads act as two dimensional volume slider and control level and gain.
Pitch	XY pads control parameters related to pitch of the voice.
Pad	XY pads don’t change parameters of the voice.

* Pitch of Hand Clap / Maracas can’t be changed. XY pad is grayed out to indicate this.

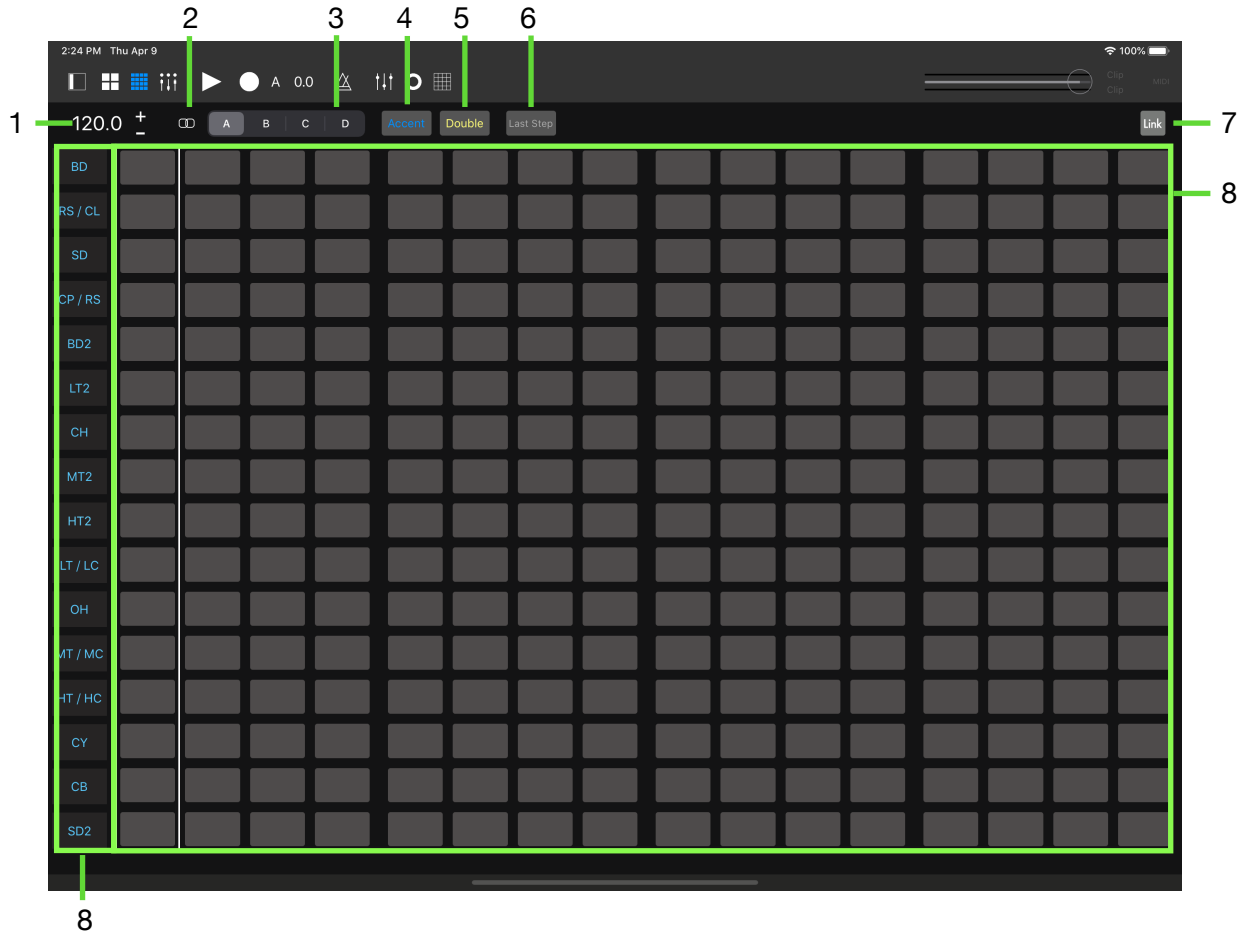
[5] MIDI velocity of Note On events send to AUv3 host is fixed value of 127.

Specific parameters controlled by XY pads in each control layer mode are depend on the selected voice. Please refer to the section “Drum Voice Parameter Mapping” in this manual for the detail.

4. Voice Selector

Drum voice of the five XY pads can be selected by using voice selector.
The selectable voices are High Tom / High Conga, Mid Tom / Mid Conga, Low Tom / Low Conga, Hand Clap / Maracas and Rim Shot / Claves.

Step Sequencer



1. Tempo

Use + / - buttons to adjust BPM[6]. Range of the bpm is from 20 to 999.

2. Chain Button

Tap chain button to toggle chain mode on and off.

3. Pattern Selector

Use this selector to select a pattern to play. When a sequence is playing, selected pattern will be played from the beginning of the next bar.

[6] Beat Per Minutes

4. Accent Button

Tap accent button to select accent level from low, mid and high. You can program three level of accented notes.

5. Double Button

Tap double button to turn on double hit mode. When double hit mode is on, you can program double hit notes with selected accent level.

6. Last Step Button

Tap this button and tap a step button to set pattern length of the track.

7. Ableton Link Settings

Tap this button to open an Ableton Link Settings window.

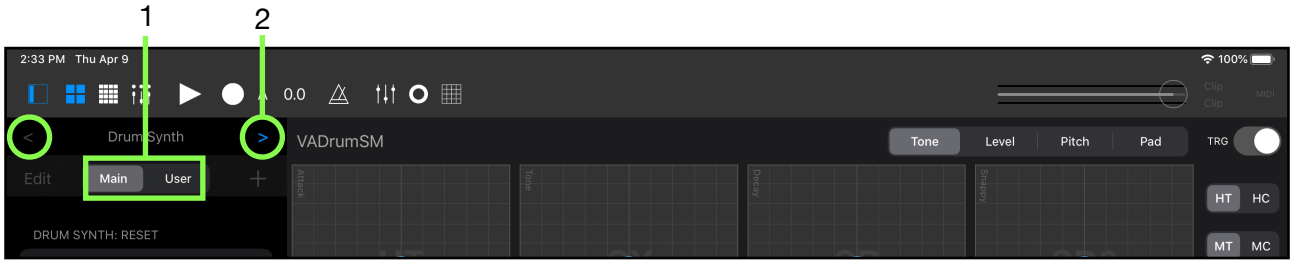
8. Step Buttons

Tap step buttons to program sequence. 16 step buttons represent 16th notes.

9. Track Mute Buttons

Tap track mute buttons to mute or to unmute the selected voice.

Side Panel



1 Main / User Selector [7]

Use this selector to show main table or user preset table.

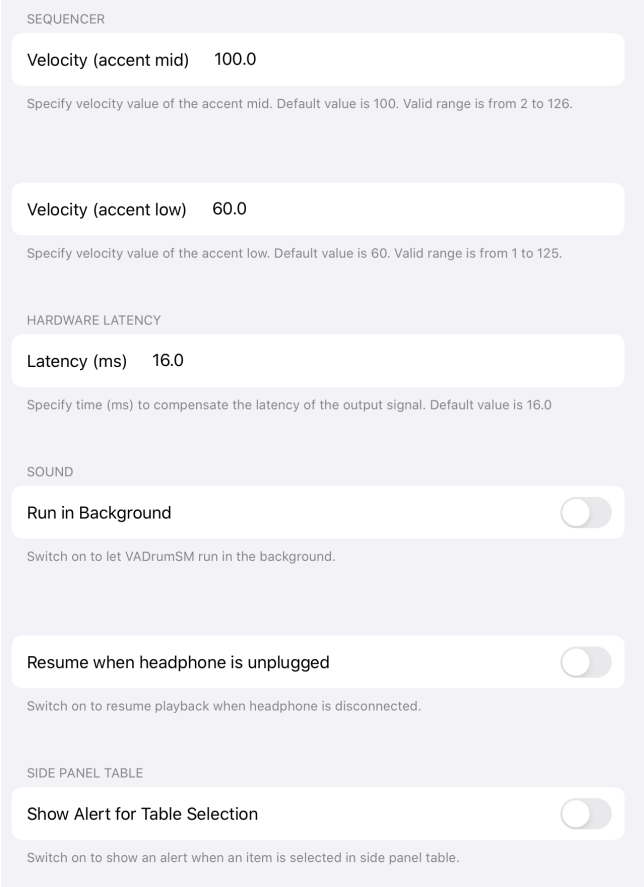
2 Navigation Button

Use the navigation buttons to navigate table to show contents for Drum Synth, Sequencer, Parameters and VADrumSM.

[7] Main / User Selector for Drum Synth is disabled on iOS12 or older.

Setting App

Adjust behavior of VADrumSM in the Setting App.



Velocity (accent mid)
Set velocity value for the Accent Mid.
Default value is 100.0
Valid range is from 2 to126

Velocity (accent low)
Set velocity value for the Accent Low.
Default value is 60.0
Valid range is from 1 to 125

Hardware Latency
Specify time in milliseconds to compensate the latency of the signal output. Default value is 16.0 ms.

Run in Background
Switch on to let VADrumSM to play in the background. Default value is off.[8]

Resume when headphone is unplugged
Switch on to continue playback when headphone is disconnected. Default value is off.

Show Alert for Table Selection
Switch on to show an alert when an item is selected in side panel table.

[8] When Run in Background is turn on, playback continues if your device's screen is locked.

Drum Synthesizer

Use as touch instrument

1. Turn trigger mode on.
2. Tap XY pads to play the drum sound.

Control Layer	Tapped location inside of the XY pad
Tone	Tonality of the voice changes.
Level	Level of the voice changes.
Pitch	Pitch of the voice changes.
Pad	Sound of the voice doesn't change.

Tip for finger drummer
If you use more than four fingers, you may accidentally send this app to the home screen or the app switcher. To prevent this, open the Setting app, tap on Home Screen & Dock, then Multitasking. Turn the Gestures switch to off.

Use as drum modules

Working with a DAW on your Mac

How to setup MIDI / Audio connection

You can use one of the following methods to receive MIDI from DAW on your Mac. Before taking following steps, please make sure that VADrumSm app is closed.

Use IDAM (Inter Device Audio and MIDI)

You can receive MIDI from Mac and send Audio to Mac by using a cable that came with your device.

1. Connect the iOS device to your Mac with the cable.
2. Open Audio MIDI Setup on Mac.
3. On the left side of the Audio MIDI Setup window, click Enable button which is located under the name of your iOS device.
4. Launch VADrumSM on iOS device and make sure MIDI indicator is turned on.

In DAW, select the iOS device as an audio input source and select the iOS device as a destination of MIDI output. Make sure that note events can be sent to the iOS device in MIDI configuration.

*Please refer to user manual of your DAW for how to configure audio input and MIDI output.

To disable the connection, on the left side of the Audio MIDI Setup window, click Disable button which is located under the name of your iOS device.

Use networked MIDI connections

You can receive MIDI over Wi-Fi, if your iOS device and your Mac are on the same network.

1. Open Audio MIDI Setup on your Mac.
2. Choose Window > Show MIDI Studio to open MIDI Studio.
3. Choose MIDI Studio > Open MIDI Network Setup to open MIDI Network Setup window.
4. In MIDI Network Setup window, If session box is empty, click + and create a session (default name is Session1).
5. On the right side of the MIDI Network setup window, set Port to 5006.
6. Launch VADrumSM on iOS device and make sure MIDI indicator is turned on.
7. On the left side of the MIDI Network setup window under Directory, select name of your iOS device, then click Connect.

In DAW, select the network port (session name) as a destination of MIDI outputs and make sure that note events can be sent to the network port in MIDI configuration.

*Please refer to user manual of your DAW for how to configure MIDI output.

To disconnect, on the right side of the MIDI Network setup window next to Participants, select the name of your iOS device, then click Disconnect.

To send audio output of your device to audio input of your DAW, use Inter Device Audio and MIDI or use your audio interface. If you are connecting headphone output of your device to audio input of your audio interface, make sure that your device is not connecting to Mac by a cable that came with you device.[9]

Play MIDI sequence on DAW

Please refer to the section “Play drum sound with keyboard” in this manual and learn how the drum sounds are mapped to MIDI keyboard.

1. Turn Trigger Mode off.
2. Create MIDI sequence on your DAW and play the sequence.
3. VADrumSM receives the MIDI note events and play the drum sound.

* MIDI Velocity of the note will affect the sound of the drum voice.

Control sound of the drum Instruments

1. Turn Trigger Mode off.
2. Choose XY pad mode from tone, level or pitch by using the control layer selector.
3. Use the XY Pad of the each instruments to adjust the sound.

Note:
- VADrumSm doesn’t support MIDI over Bluetooth LE.
- VADrumSM doesn’t send MIDI events to your DAW.
- VADrumSM only receives MIDI note events such as “note on” and “note off”.

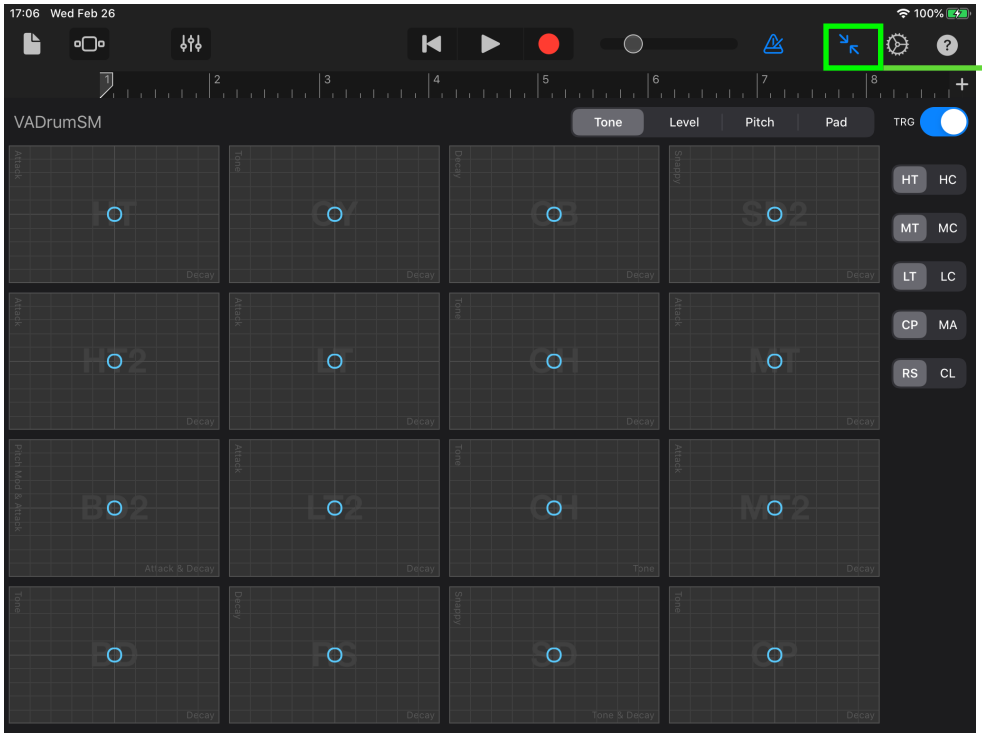
[9] It may cause ground loop and your device may output unwanted noise from headphone output.

Use as an AUv3 plugin

Working with GarageBand

VADrumSM AUv3 plugin can send and receive MIDI note events. You can play drum sound by keyboard or XY pads. You can record MIDI sequence while you are playing. You can play MIDI sequence and adjust tone, level or pitch by XY pads.

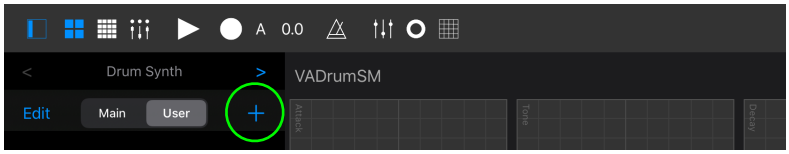
1. Launch GarageBand
2. In the Sound browser, swipe to find External, then tap Audio Unit Extensions.
3. Tap an icon of VADrumSM.



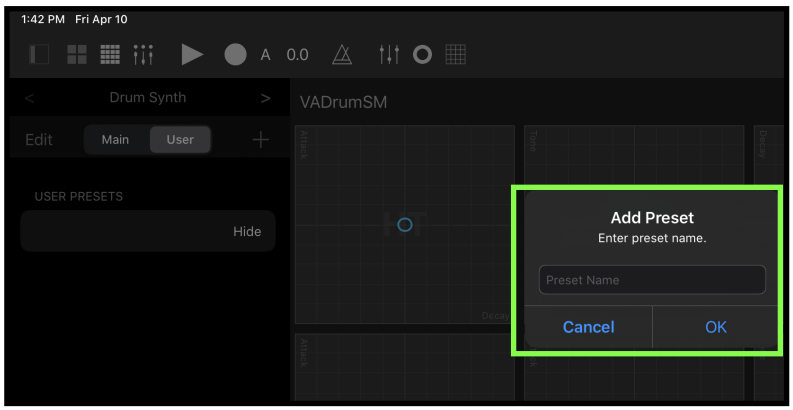
User Preset [10]

Tap Side Panel button to show drum synth table. When “User” is selected, edit button and add button become active.

1. Add a user preset



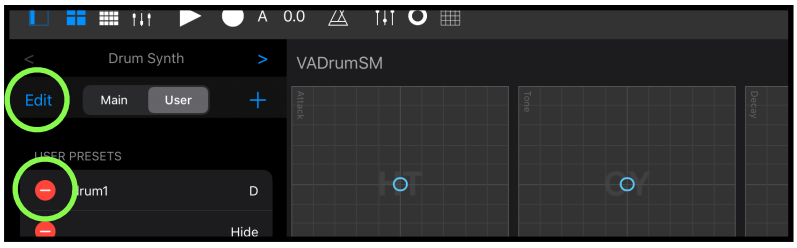
Tap + (add) button
An alert window will open.



Type preset name and tap “OK” to save the preset. The window will be closed automatically.

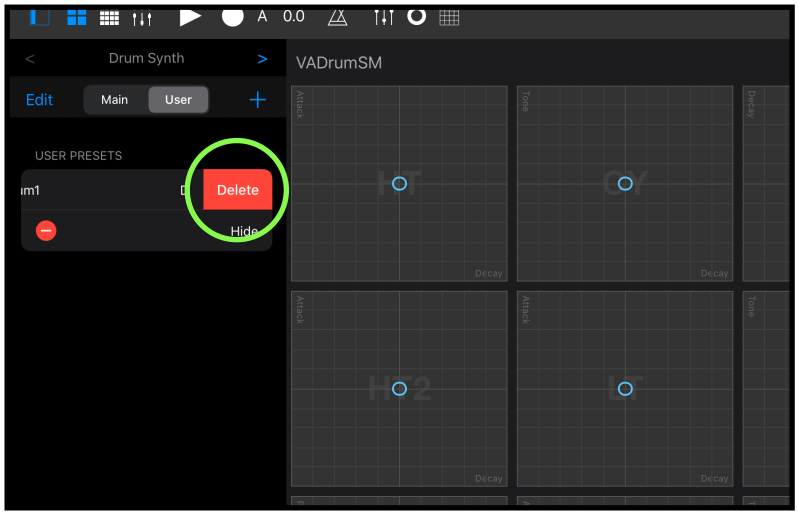
If you don’t want to save, tap “Cancel” to close the window.

2. Delete a user preset



1. Tap “Edit” button

2. Tap red icon on the left of the preset name



The row slides to the left and Delete button appears

3. Tap “Delete” to delete the preset.

Tap “Edit” button to exit from the edit mode.

[10] User preset is only available on iOS13 / iPadOS or later.

Play drum sound with keyboard

Drum voices are mapped to MIDI keyboard as shown below.

C1	Bass Drum
C#1 / Db1	Rim Shot / Claves
D1	Snare Drum
D#1 / Eb1	Hand Clap / Maracas
E1	Bass Drum 2
F1	Low Tom 2
F#1 / Gb1	Closed HiHat
G1	Mid Tom 2
G#1 / Ab1	High Tom 2
A1	Low Tom / Low Conga
A#1 / Bb1	Open HiHat
B1	Mid Tom / Mid Conga
C2	High Tom / High Conga
C#2 / Db2	Cymbal
D2	Cowbell
D#2 / Eb2	Snare Drum 2

Drum Voice Parameter Mapping

Voice	Tone	Level	Pitch
Bass Drum	X: Decay Y: Tone	X: Gain Y: Level	XY: Oscillator Pitch
Rim Shot / Claves	XY: Decay	X: Gain Y: Level	XY: Oscillator Pitch
Snare Drum	X: Tone, Decay Y: Snappy Level	X: Gain Y: Level	X: OSC (High) Pitch Y: OSC (Low) Pitch
Hand Clap / Maracas	X: Decay Y: Tone (CP) / Attack (MA)	X: Gain Y: Level	NA
Bass Drum 2	X: Decay Y: Pitch Modulation XY: Attack Level	X: Gain Y: Level	XY: Oscillator Pitch
Low Tom 2	X: Decay Y: Attack Level	X: Gain Y: Level	X: Pitch (Tune) Y: OSC (1,2,3) Pitch
Closed HiHat	XY: Tone	X: Gain Y: Level	X: OSC (4,5,6) Pitch Y: OSC (1,2,3) Pitch
Mid Tom 2	X: Decay Y: Attack Level	X: Gain Y: Level	X: Pitch (Tune) Y: OSC (1,2,3) Pitch
High Tom 2	X: Decay Y: Attack Level	X: Gain Y: Level	X: Pitch (Tune) Y: OSC (1,2,3) Pitch
Low Tom / Low Conga	X: Decay Y: Attack Level (Tom)	X: Gain Y: Level	XY: Oscillator Pitch
Open HiHat	X: Decay Y: Tone	X: Gain Y: Level	X: OSC (4,5,6) Pitch Y: OSC (1,2,3) Pitch
Mid Tom / Mid Conga	X: Decay Y: Attack Level (Tom)	X: Gain Y: Level	XY: Oscillator Pitch
High Tom / High Conga	X: Decay Y: Attack Level (Tom)	X: Gain Y: Level	XY: Oscillator Pitch
Cymbal	X: Decay Y: Tone	X: Gain Y: Level	X: OSC (4,5,6) Pitch Y: OSC (1,2,3) Pitch
Cowbell	XY: Decay	X: Gain Y: Level	X: OSC (Low) Pitch Y: OSC (High) Pitch
Snare Drum 2	X: Decay Y: Snappy Level	X: Gain Y: Level	X: Pitch (Tune) Y: OSC (1,2) Pitch

*XY : Value of (X + Y) / 2 is used to control the parameter.

Step Sequencer

Program sequences

16 step buttons represent 16th notes. Each pattern is length of 1 bar.

1. Set desired tempo.

2. Select a pattern.

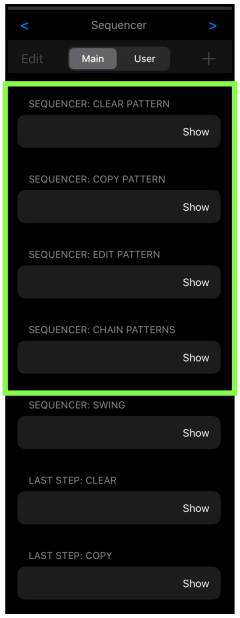
3. Select accent level and set double hit mode using Accent button and Double button.

Accent	Double	Type
low	off	de-emphasized note, velocity is 60 (velocity value is adjustable)
mid	off	Regular note, velocity is 100 (velocity value is adjustable)
high	off	Accented note, velocity is 127
any	on	double hit notes with selected accent level

4. Tap a step button of the desired note. Tap the same step button turns off the step.
You may need to scroll up and down when using device with small screen size. Table height is adjusted for the size of iPad Pro (12.9 inch).

Use Editing Commands

Tap side panel button and select Main to show a list of editing commands. Tap any commands to execute.



Clear All	clear all patterns
Clear A	clear pattern A
Clear B	clear pattern B
Clear C	clear pattern C
Clear D	clear pattern D
Copy A to All	copy pattern A to the reset of the patterns
Copy A to B	copy pattern A to pattern B
Copy A to C	copy pattern A to pattern C
Copy A to D	copy pattern A to pattern D
Edit A	select pattern A without triggering for editing
Edit B	select pattern B without triggering for editing
Edit C	select pattern C without triggering for editing
Edit D	select pattern D without triggering for editing
Chain All Patterns	chain all patterns and create 4 bar loop

Play sequence

Play 1 bar loop

Tap play/stop button to start playback. Tap play/stop button again to stop playback.
Select a pattern in the pattern selector. The selected pattern will be played from the beginning of the next bar.

Play 4 bar loop

Tap the Chain button or tap Chain All Patterns in sequencer's main table, the pattern selector starts blinking slowly to indicate that chain mode is enabled.

If playback is stopped, tap play/stop button will start playback 4 bar loop from pattern A. Tap play/stop button again to stop. Playback is always start form pattern A.

If tap Chain All Patterns while playing 1 bar loop, it continues to play and pattern is progressed from the current pattern to a new pattern which is synchronized with internal beat clock.

Tap unselected pattern in the pattern selector or the Chain button to disable the chain mode.

While playing, you can
- adjust tempo
- edit a pattern
- switch to XY pads view and adjust sound of the voices

When Edit [Pattern] command is executed, you can edit the selected pattern while playback continues in background. For example, you can edit pattern B by selecting Edit B in edit menu while playing pattern A. When you are editing, a button "Editing B -> Done" (in this case) is displayed instead of the pattern selector. When you finish editing, tap this button to exit from the edit mode.

Record sequence

You can record sequence by tapping XY pads or external MIDI devices.

1. Play Metronome sound

If you like to play metronome, tap Metronome button to turn it on.

2. Tap record button

If playback is not started, tap record button to start playback and recording. If tap record button while playing, playback continues and recording is enabled.

When the chain mode is disabled, it plays 1 bar loop of the selected pattern. When chain mode is enabled, it plays 4 bar loop.

When Edit [Pattern] command is executed, recording occurs to the selected pattern while playback continues in background. For example, you can record pattern B by selecting Edit B in the edit menu while playing pattern A. When you are editing, a button "Editing B -> Done" (in this case) is displayed instead of the pattern selector. When you finish recording, tap this button to exit from the edit mode.

3. Select accent level and set double hit mode using Accent button and Double button.

Select desired accent level and double hit mode.

4. Play XY pads or external MIDI devices

Switch to XY pads view and play XY pads, or play external MIDI devices. Played notes are quantized to 16th notes and recorded to the currently displayed pattern with selected accent level and selected double hit mode. Notes played by MIDI devices when accent level is set to mid are recorded as low, mid, or high accented level depend on the velocity of the MIDI notes.

5. Stop recording

Tap record button again to stop recording, in this case, playback continues.
Tap start/stop button to stop recording and playback.

If app goes background, recording will be stopped.

Interruptions

It is important to aware that system may interrupt playback in the following situations. Please make sure to test and make a plan to handle the situations.

1. Incoming calls or activating Siri

When receiving an incoming call or when activating Siri, it interrupts playback and send App to background. In order to avoid it occurs, turn off the followings in the Setting App.

- Do Not Disturb -> Do Not Disturb -> turn on.
- Siri & Search -> Listen for “Hey Siri” -> turn off.
- Siri & Search -> Press Home for “Siri” -> turn off.

2. Connecting or disconnecting a headphone

Headphone output has own DAC[11] and own sample rate. The sample rate may be different form the sample rate of the audio engine. What will happens when connecting or disconnecting a headphone depends on the difference of the sample rates.

If the sample rates are same, playback continues when headphone is connected. When headphone is unplugged, playback will continues but main volume is set to zero and showing an alert asking to restore the volume. You can change this behavior by turn Resume when headphone is unplugged on in VADrumSM section of the Setting App.

If sample rates are different, when connecting headphone or when disconnecting headphone stops playback and system will re-configure audio engine for the new sample rate.

The sample rate of the audio engine is set by an application or an audio interface.
For example, when connecting an iOS device to Mac using a cable that came with your device, Inter Device Audio and MIDI on macOS uses 44.1KHz but Quicktime player app on macOS uses 48KHz.

If you are planning to connecting or disconnecting headphone for monitoring during playback, please make sure to test and learn what will occurs.

[11] Digital to Analog Converter

3. Changing sample rate setting

As described above, if sample rate of the audio engine is changed for any reasons, playback stops.

4. Media Reset

Under rare circumstances, the system terminates and restarts its media services daemon. When it occurs playback stops.

5. Pressing the Home button or sending App to background

When app is sent to background by pressing home button, showing notification center or any other reasons, playback stops. You can change this behavior by turn Run in Background on in VADrumSM section of the Setting App.

Additional Settings

Followings are other settings in the Settings App which you may want to adjusted.

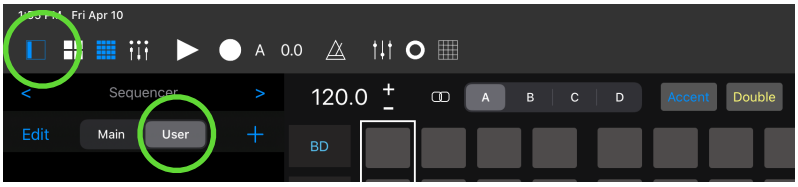
- Display & Brightness -> Auto-Lock -> set to Never
- Sounds -> turn off all system sound
- Notifications -> Show Previews -> set to Never
- Home Screen & Dock -> Multitasking -> Gestures -> turn off

If you are using Ableton Link, make sure that Wi-Fi is turned on. If Airplane Mode is on, it may turned off WI-FI. You can turn on Wi-Fi, even if Airplane Mode is turned on.

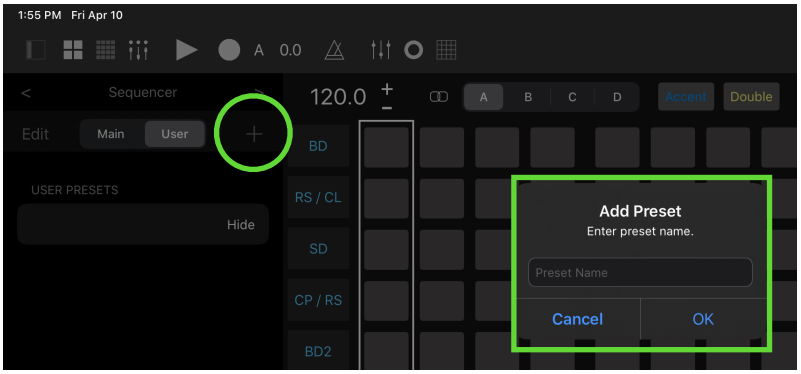
If you have installed apps that may send you a notifications or may interrupt playback, make sure to adjust settings of the apps to disable the functions.

Manage User Presets

Add User Preset



Tap Side Panel Button and select User to show the list of the user presets.

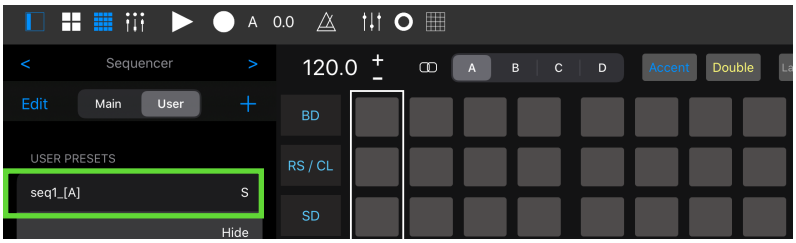


Tap + (add) button shows alert windows.

Type name of the preset and tap OK to save the preset.

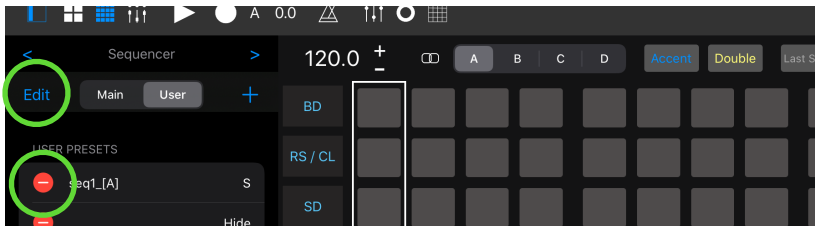
Tap Cancel to close the window.

If entered name already exists, alert will confirm you to replace the existing file.



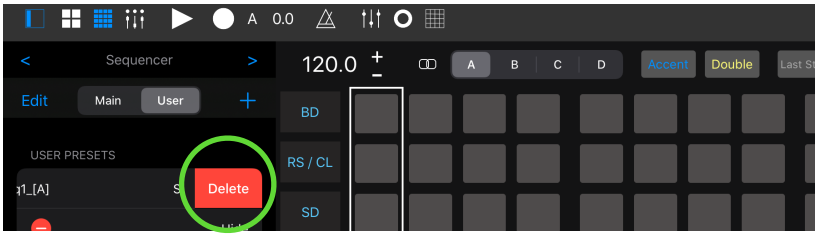
Saved preset is added to the user preset list.

Delete User Preset



Tap Edit to enter edit mode.

Tap red minus icon next to the preset name.



The row will slide to the left and a delete button appears.

Tap Delete to delete the preset.

Tap “Edit” button to exit from the edit mode.

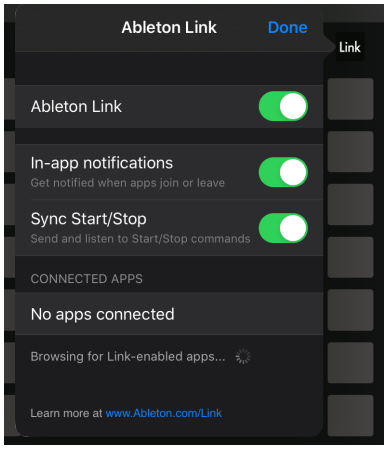
Ableton Link

Ableton Link requires Wi-Fi Connections. Your device and other Link-enable devices must be connected to the same local network via Wi-Fi.

About Ableton Link

Ableton Link is a new technology that synchronizes beat, phase and tempo of Ableton Live and Link-enabled iOS apps over a wireless network. It lets you play devices together with the freedom of a live band. Anyone can start and stop their part while others keep playing, and anyone can adjust the tempo and the rest will follow.
You can use Link to play with several instances of Ableton Live, with Live and iOS apps, or even without Live in your setup: using Link-enabled apps on multiple devices, or multiple apps on the same device.

Ableton Link Settings



Ableton Link
Switch on to enable Ableton Link.

In-app notification
Switch on to displays a message when an Ableton Link enabled app is connected.

Sync Start/Stop
Switch on to synchronize start and stop with connected apps.

Connected Apps
Indicate number of currently connected apps.

How to adjust hardware latency

When Ableton Link is enabled, playback is synchronized to the Link-enabled devices. It depends on audio interface but output signal may have latency and may not align with beginning of the each step.

In order to adjust the latency, set time in milliseconds in Hardware Latency in VADrumSM section of the Setting App. Entered value is used to compensate the latency of the output signal.

The latency varies on audio Interface, for example if you connecting iOS device to mac by a cable that came with your device and using Inter Device Audio and MIDI, the latency is about 16 millisecond when sample rate is 44.1KHz.

Energy Consumption

Ableton Link uses Wi-Fi. Because of high energy consumption of the Wi-Fi components, you can save energy and improve battery performance by disable Ableton Link when you are not using it.

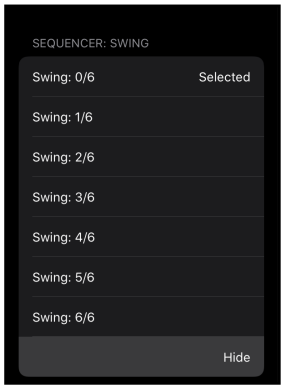
New Features on Version 1.5

New Features below are added to the step sequencer.

Swing

Tap side panel button and select Main.

Tap one of the seven swing types to apply swing to the sequence.



Swing Type	Delay time	Duration (Ratio)	Note
Swing 0/6	0 (no swing)	50%	Straight
Swing 1/6	1/6 of 16th note	54%	Soft swing
Swing 2/6	2/6 of 16th note	58%	Soft swing
Swing 3/6	3/6 of 16th note	62%	Soft swing
Swing 4/6	4/6 of 16th note	66%	Triplet swing
Swing 5/6	5/6 of 16th note	70%	Hard swing
Swing 6/6	16th note	75%	Dotted hard swing

Delay time is an amount of delay applied to the third 16th note when a beat is divided to four 16th notes.

Duration (ratio) is a ratio of duration from the first 16th note to the third 16th note when a beat is divided to four 16th notes.

Amount of delay for the other notes except the first 16th note in a beat changes proportionally.

Preset loading Quantization

Tap side panel button and select Main.

Tap “Quantize preset loading” to toggle the setting.

When Quantize preset loading is turned on, loading of user preset is quantized to 1 bar when sequence is playing.

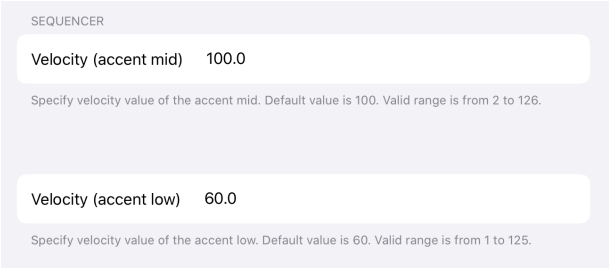
When playing 4 bar loop (patterns are chained), next pattern of the selected preset will be played when the preset is loaded.

Example:
1. Currently playing 4 bar loop
2. While playing pattern A, tap a preset name to load.
3. Preset is loaded and pattern B of the preset will be played in the next bar. (If pattern B of the preset is blank then no notes will be played.)

Accent

Accent level can be selected from low, mid and high.

Velocity for the accent low and the accent mid can be adjusted in the Setting app.



Velocity (accent mid)
Default value is 100.0
Valid range is from 2 to126

Velocity (accent low)
Default value is 60.0
Valid range is from 1 to 125

About MIDI Input timing

Timing of MIDI input is improved in Version 1.5 and jitter are reduced. However there is a noticeable latency. The amount of the latency varies on the performance of the hardware.

When you are sending MIDI notes from external devices and if you want to adjust the latency, please adjust position of the MIDI notes in the sending devices.

New Features on Version 1.7

Parameter Automation

Record parameter automation

1. Tap Parameter Recording Button (2) to arm parameter recording.
2. Tap Play or Record to run the sequencer.
3. Record parameters by adjusting XY pads or voice selector switch.
4. Tap Parameter Recording Button again to disarm parameter recording.

Play parameter automation

1. Tap Parameter Automation Button (1) to enable parameter automation.
2. Tap Play or Record to run the sequencer.
3. Parameters are automated as they are recorded.
4. Tap Parameter Automation Button (1) again to disable parameter automation.

Parameter Automation Override

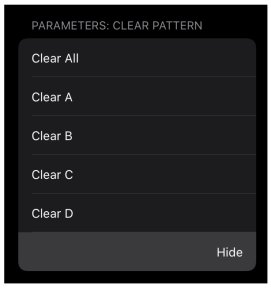
When parameters are automated, adjusting a parameter by XY pads or voice selector switch stops automation of the parameter. Color of the Parameter Automation button changes to orange to indicate Parameter Override is enabled. To disable Parameter Override, tap the Parameter Automation button.

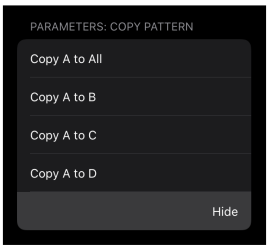
Parameter Automation Overdub

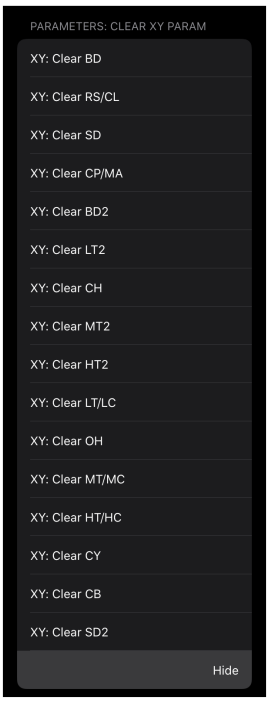
When Parameter Overdub is enabled, you can erase existing automation and record new automation.

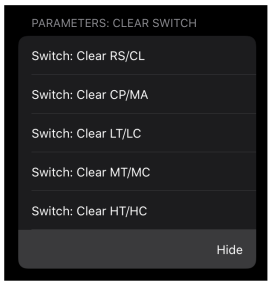
1. Enable Parameter Overdub in main table in the Side Panel.
2. Enable Parameter Override as described above.
3. Tap Parameter Recording Button and record new automation.
4. Tap Parameter Automation Button to stop Parameter Overdub and disable Parameter Override.

Use Editing Commands







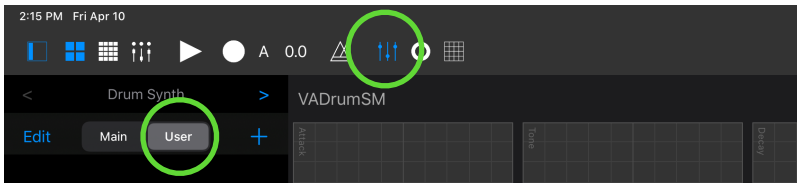


Clear All	Clear all recorded parameter values
Clear A	Clear recorded parameter values of pattern A
Clear B	Clear recorded parameter values of pattern B
Clear C	Clear recorded parameter values of pattern C
Clear D	Clear recorded parameter values of pattern D
Copy A to All	Copy recorded parameter values from pattern A to the reset of patterns
Copy A to B	Copy recorded parameter values from pattern A to the pattern B
Copy A to C	Copy recorded parameter values from pattern A to the pattern C
Copy A to D	Copy recorded parameter values from pattern A to the pattern D
XYPad: Clear BD	Clear recorded all XY parameter values of BD
XYPad: Clear RS/CL	Clear recorded all XY parameter values of RS/CL
XYPad: Clear SD	Clear recorded all XY parameter values of SD
XYPad: Clear CP/MA	Clear recorded all XY parameter values of CP/MA
XYPad: Clear BD2	Clear recorded all XY parameter values of BD2
XYPad: Clear LT2	Clear recorded all XY parameter values of LT2
XYPad: Clear CH	Clear recorded all XY parameter values of CH
XYPad: Clear MT2	Clear recorded all XY parameter values of MT2
XYPad: Clear HT2	Clear recorded all XY parameter values of HT2
XYPad: Clear LT/LC	Clear recorded all XY parameter values of LT/CL
XYPad: Clear OH	Clear recorded all XY parameter values of OH
XYPad: Clear MT/MC	Clear recorded all XY parameter values of MT/MC
XYPad: Clear HT/HC	Clear recorded all XY parameter values of HT/HC
XYPad: Clear CY	Clear recorded all XY parameter values of CY
XYPad: Clear CB	Clear recorded all XY parameter values of CB
XYPad: Clear SD2	Clear recorded all XY parameter values of SD2
Switch: Clear RS/CL	Clear recorded voice switch parameter values of RS/CL
Switch: Clear CP/MA	Clear recorded voice switch parameter values of CP/MA
Switch: Clear LT/LC	Clear recorded voice switch parameter values of LT/LC
Switch: Clear MT/MC	Clear recorded voice switch parameter values of MT/MC
Switch: Clear HT/HC	Clear recorded voice switch parameter values of HT/HC
Overdub enabled: No	Enable / Disable Parameter Automation Overdub

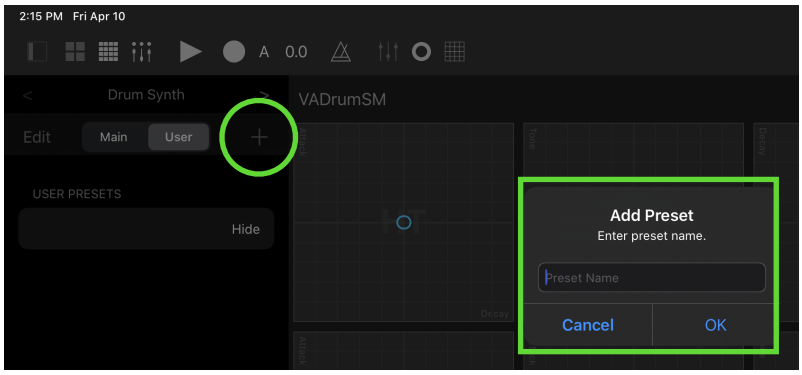
Manage User Presets

Recorded parameter automation can be saved as user presets.

Add User Preset



Tap Parameter Automation button and select User to show the list of the user presets.

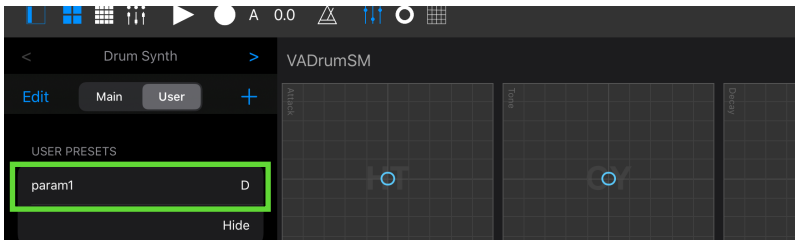


Tap + (add) button shows alert windows.

Type name of the preset and tap OK to save the preset.

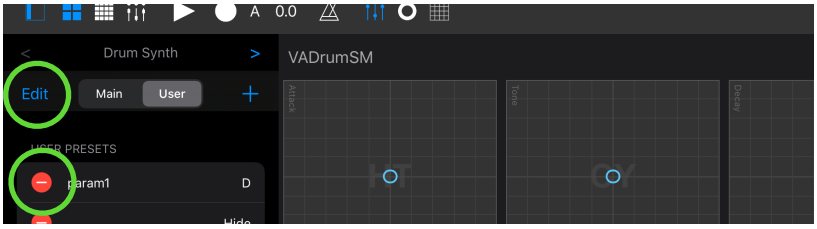
Tap Cancel to close the window.

If entered name already exists, alert will confirm you to replace the existing file.



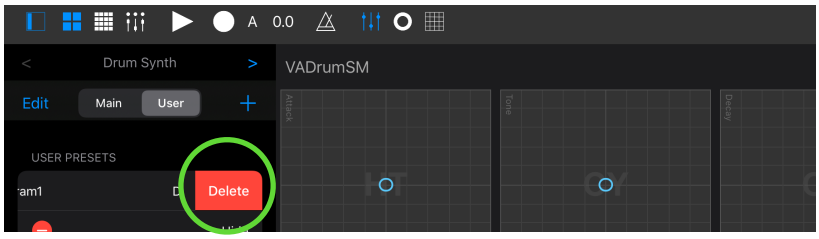
Saved preset is added to the user preset list.

Delete User Preset



Tap Edit to enter edit mode.

Tap red minus icon next to the preset name.



The row will slide to the left and a delete button appears.

Tap Delete to delete the preset.

Tap “Edit” button to exit from the edit mode.

Improvements for Side Panel Table

Page navigation

Use the navigation buttons to navigate table to show contents for Drum Synth, Sequencer, Parameters or VADrumSM.

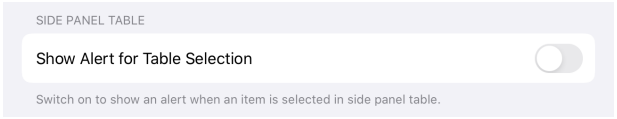
Tap Pads / Sequencer button or Parameter Automation button also navigate table to show content for the selected category.

Confirm Action

Selected command in the table is executed immediately by default. If you wish to show confirmation before executing the selected command, you can change the behavior in the Setting App.

1. Launch Setting App, select VADrumSM.

2. Find Show Alert for Table Selection and turn on the switch.



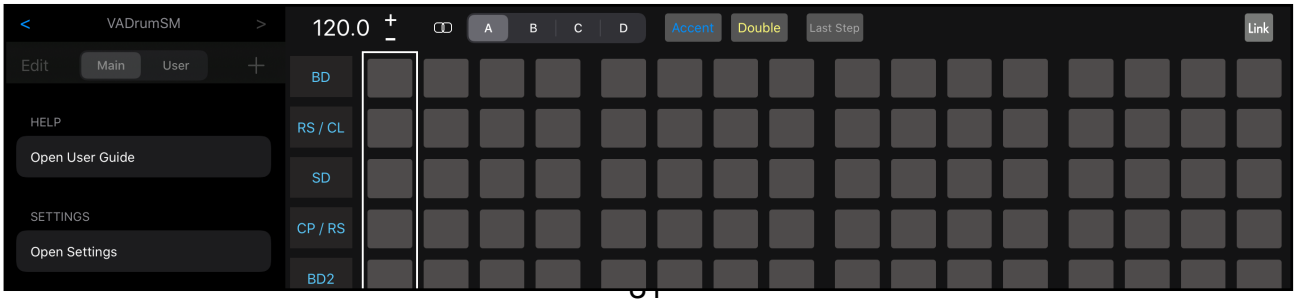
If Show Alert for Table Selection is enabled, an alert window shows up when any command is selected in the table. Tap OK to execute the command or tap Cancel to cancel the execution of the command.

Replace existing preset file

1. Select user preset table.
2. Tap Add.
3. Type preset name to replace.
4. Alert will be displayed to confirm the action.
5. Tap Replace to replace the existing file.

VADrumSM Table

You can access help menu or settings menu in VADrumSM table.



Display User Guide

1. Navigate table to VADrumSM.
2. Tap User Guide in Help section to display User Guide in a new sheet.
3. Tap Done to close the sheet.

Open Settings

1. Navigate table to VADrumSM.
2. Tap Open Settings in Settings section to launch the Settings App and open settings of the VADrumSM in the Settings App.

New features for Step Sequencer

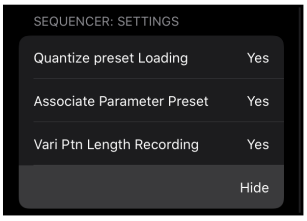
Associate Parameter Preset

Preset files for drum synth, sequencer and parameter are managed independently.

When Associate Parameter Preset is enabled, you can save, load and delete a sequence preset with an associated parameter preset.

* This feature is only available for sequencer preset table.

Enable / Disable Associate Parameter Preset option

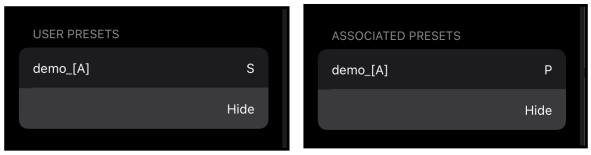


Tap Associate Parameter Preset in Sequencer Main menu.

Add a sequence preset with an associated parameter preset

When Associate Parameter Preset is enabled, sequence preset is saved with suffix “_[A]”. Associated parameter preset is also saved with the same name with suffix “_[A]”.

*If filename already exists, new file with suffix “_[A] will be created.



Load a sequence preset with an associated parameter preset

When Associate Parameter Preset is enabled, selecting a sequence preset with suffix “_[A]” in sequencer preset table loads the sequence preset and the associated parameter preset.

* Loading of the associated parameter preset can’t be quantized.

* When Associate Parameter Preset is disabled, the sequence preset with suffix “_[A]” can be loaded without loading an associated parameter preset.

Delete a sequence preset with an associated parameter preset

When Associate Parameter Preset is enabled, delete a sequence preset with suffix “_[A]” will also delete the associated parameter preset from the parameter preset table.

* When Associate Parameter Preset is disabled, the sequence preset with suffix “_[A]” can be deleted without deleting the associated parameter preset.

Replace a sequence preset with an associated parameter preset

When Associate Parameter Preset is enabled, replace a sequence preset with suffix “_[A]” will also replace the associated parameter preset.

1. Enable Associate Parameter Preset.
2. Tap Add in sequencer preset table.
3. Type preset name to replace with or without suffix “_[A]”.
4. Alert will be displayed to confirm the action.
5. Tap Replace to replace both of the sequence preset and the associated parameter preset.

* When Associate Parameter Preset is disabled, the sequence preset with suffix “_[A]” can be replaced without replacing the associated parameter preset. (The filename need to be typed with suffix “_[A]”.)

New Features on Version 1.8

Parameter Automation Editor

Open Parameter Automation Editor

Tap parameter automation editor button (1) to open the editor.

User Interface

* Appearance in the dark mode

1. Voice Selector
2. Parameter Selector
3. Pattern Selector
4. Editor
5. Commands
6. Mute switch

Select parameters

1. Select a voice by the voice selector.
2. Select a parameter type from X, Y or S (switch).
3. Select a control layer from tone, level or pitch.
4. Select a pattern from A, B, C or D.

* When parameter type S (switch) is selected, voice selector of the voices which don't have voice selector are disabled.
* When pitch is selected, CP / MA voice selector is disabled.

Edit parameters

16 parameters are displayed in the editor. Each parameter for a step has a control point. Drag the control point up or down to edit the parameter.

When editing switch parameters,

- Drag the control point to above the horizontal center (0.5) to turn on the switch.
- Drag the control point to below the horizontal center (0.5) to turn off the switch.

Control points are displayed in two different way.

- Black or White means the parameters are recorded in the sequencer.
- Gray means the parameters are not recorded in the sequencer.

If a parameter for the step is not recorded in the sequencer, a recorded value of previous step continues and played parameter may differ form the value of control point in gray.

Example:
For switch parameter, all control points are displayed at bottom (switch off) in gray. Drag a control point of step 1 to switch on position. The control point is displayed in white / black. If play the sequencer, switch on voice is selected and never change. Drag a control point of step 9 and move it to turn off position, the control point is now displayed in white / black. If play the sequence, voice will change at step 1 and at step 9.

Use commands

Clear	Tap clear to remove displayed parameter values from sequencer.
Copy	Tap copy to copy displayed parameter values into the buffer.
Paste	Tap paste to paste saved parameter values in the buffer to the displayed parameters.
Mute	Tap mute to turn mute mode on and off.

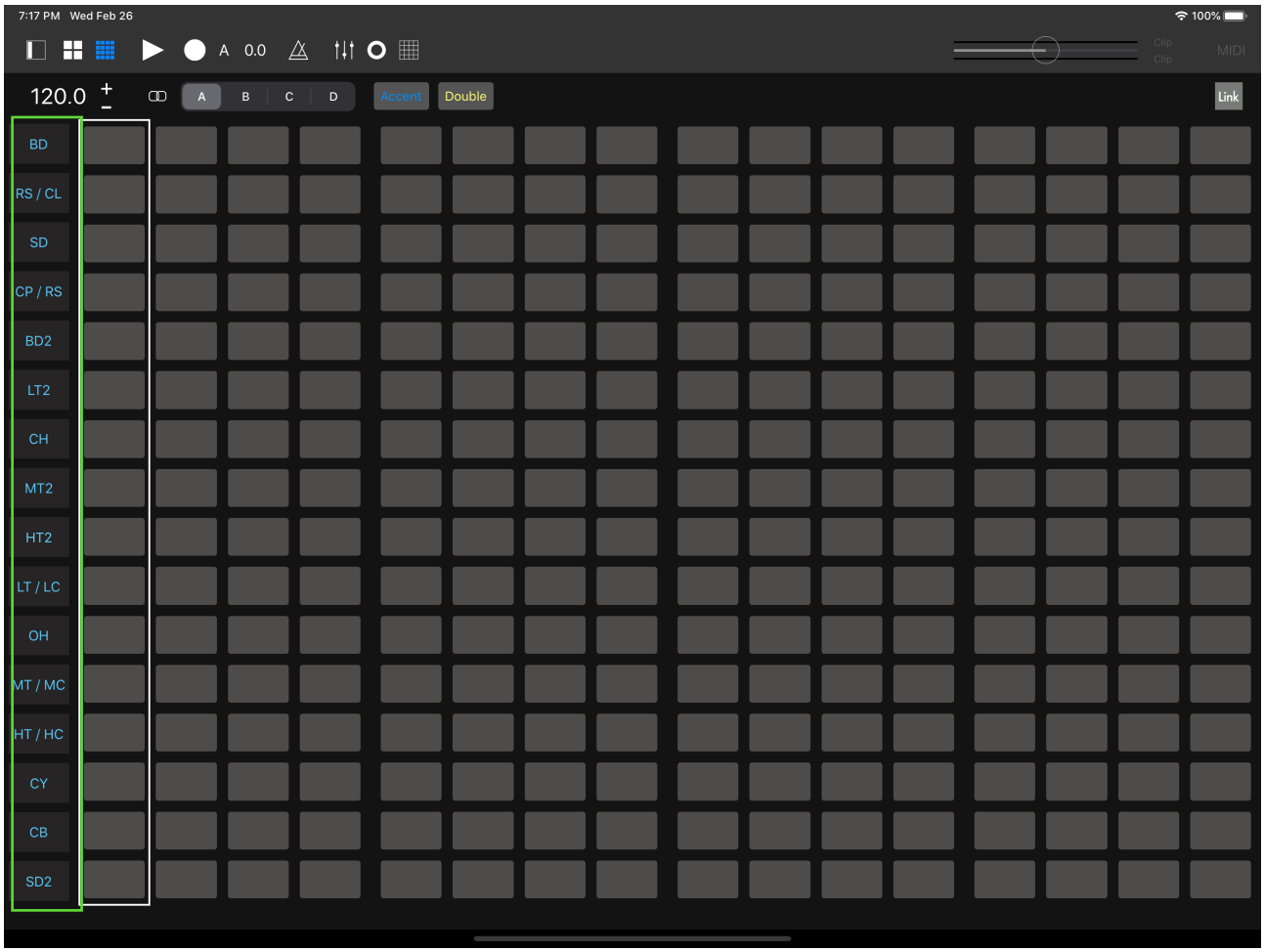
Mute Voices

1. Tap mute to turn mute mode on.
2. Tap voice selectors to mute or to unmute the selected voices.
3. Tap mute again to turn mute mode off.

Close Parameter Automation Editor

Tap Done to close the editor.

New features for Step Sequencer



Track Mute Buttons

Tap track mute buttons to mute or unmute selected voices.

New Features on Version 1.8.1

AUv3 Multi-Out

Drum Synthesizer can output 17 buses when it is use as an Audio Unit Version 3 plugin.

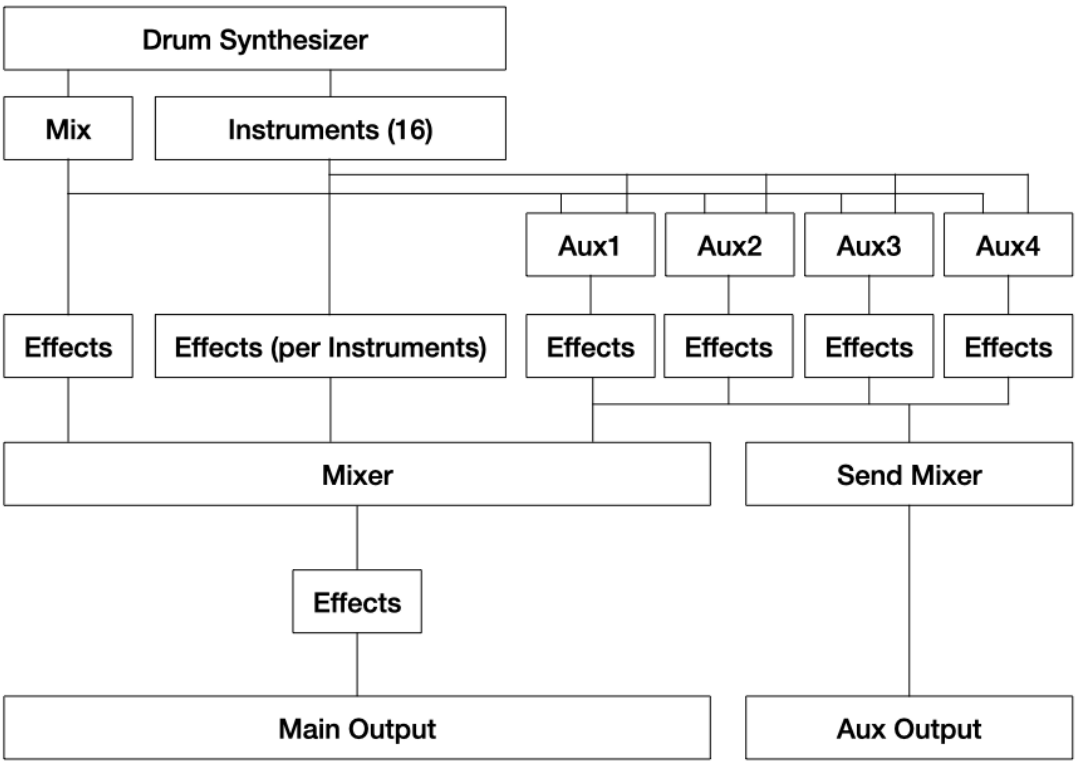
New Features on Version 1.9

Version 1.9 introduces Mixer, Variable Pattern Length for Sequencer and other improvements.

Mixer

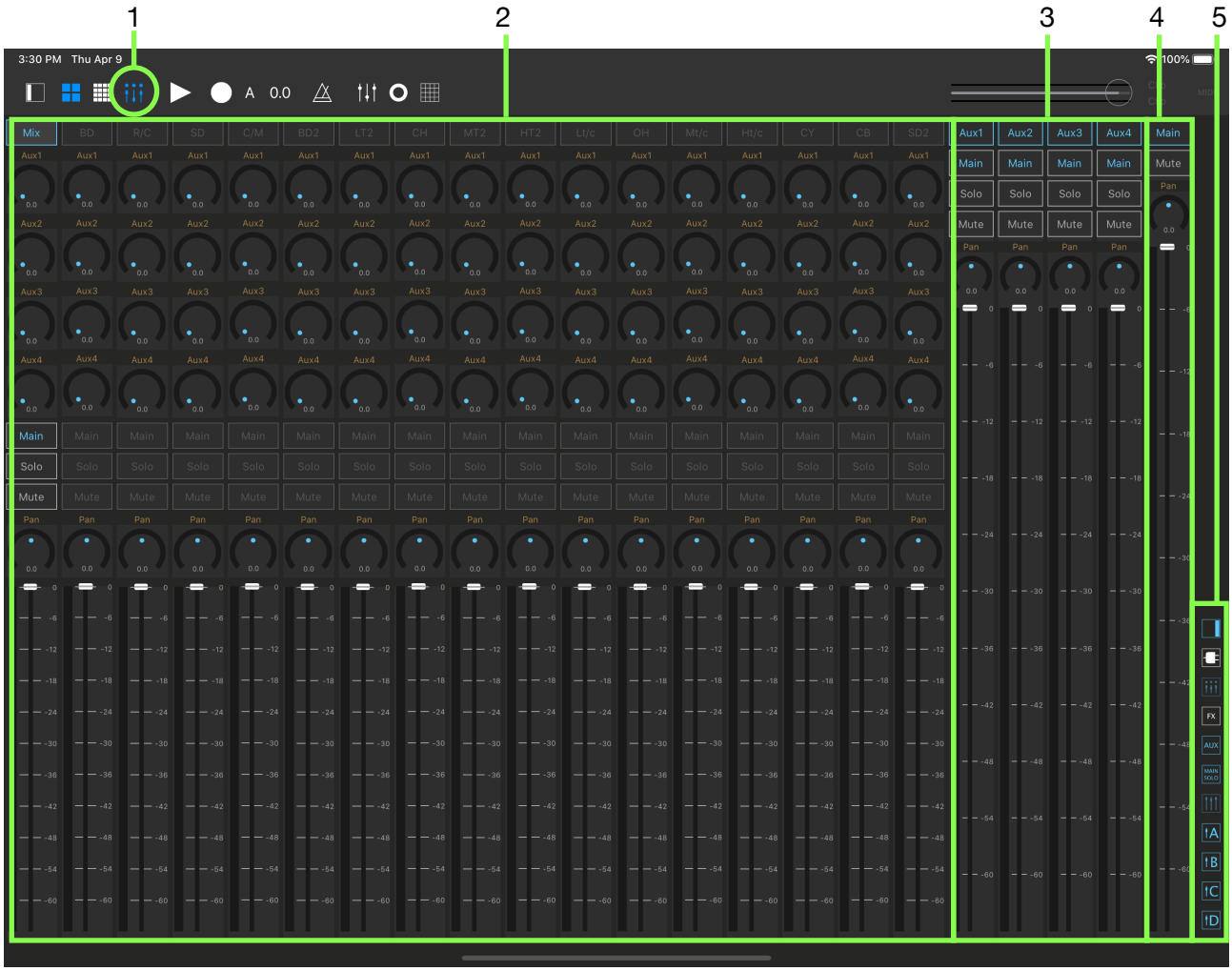
Overview

Drum Synthesizer has 17 output buses, including a mix output and 16 instrument outputs. The output signals can be routed to main mixer and 4 aux mixers. AUv3 effects can be inserted to each output of the drum synthesizer, each output of the aux mixer and an output of the main mixer. Sum of the 4 aux mixers outputs, after effects, can be routed to Audiobus's second output port.



User Interface

Mixer View



1. Mixer Button
Tap this button to open mixer view.

2. Input Channels
Channels for 17 output buses of the drum synthesizer.

3. Aux Channels
Four channels for aux / send.

4. Main Channel
Main output channel.

5. Right Icon Bar
Buttons for show / hide sections.

Input Channel Strip

1.Channel Button

Tap this button to enable / disable instrument input channel. Mix output, Aux and Main output channels are always enabled.

2.Aux / Send Level

Adjust level for Aux / Send. (signal is post volume fader)

3. Main / Solo / Mute Buttons

Main	Turn on to connect input signal to the main channel.
Solo	Output signal is routed to the main channel. Mute signal of the other input channels and aux channels.
Mute	Mute signal for the main channel and aux channels.

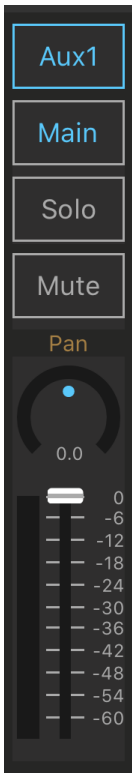
4.Pan

Adjust pan. Double tap on the dial will set the pan to the center position.

5.Volume

Adjust level of input signal to the channel. (pre effects and pre aux / send). Double tap on the fader will set the fader position to 0 dB.

Aux / Send Channel Strip



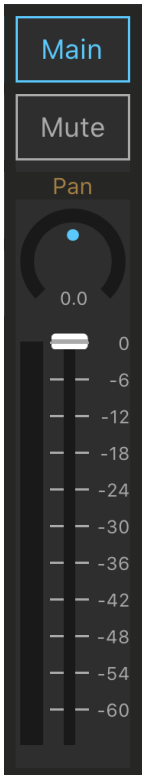
Main / Send Button

Tap this button to toggle destination of the output signal.

Main
Output signal is routed to the main channel.

Send
Output signal is routed to Audiobus second output port.

Main Channel Strip

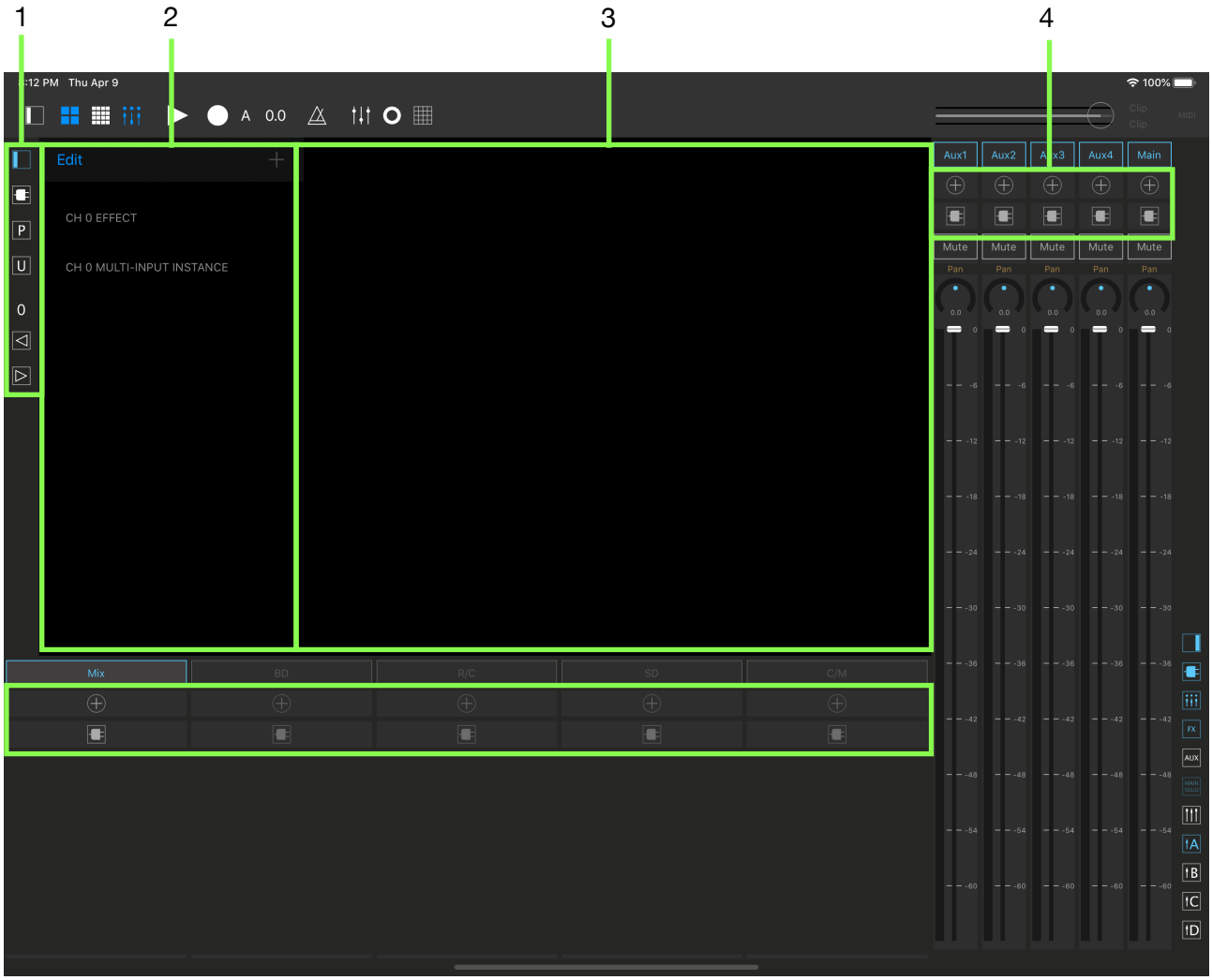


Adjust Mute, Pan and Output Volume of the main output signal.

Right Icon Bar

	Hide / Show a section of aux channels and main channel.
	Hide / show plugin view.
	Hide / show mixer section.
FX	Hide / Show a section of effect buttons
AUX	Hide / Show a section of aux / send dials.
MAIN SOLO	Hide / Show a section of main, solo buttons.
	Hide / Show a section of faders
A	Hide / Show instrument channels (CH1 - CH4)
B	Hide / Show instrument channels (CH5 - CH8)
C	Hide / Show instrument channels (CH9 - CH12)
D	Hide / Show instrument channels (CH13 - CH16)

Plugin View



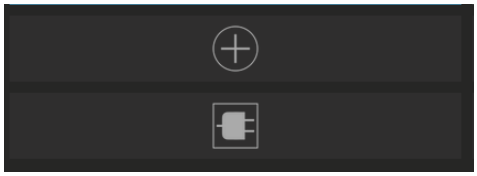
1. Left Icon Bar
Buttons for plugin table and channel navigation.

2. Plugin Table
Table for plugin and preset.

3. Plugin View
Plugin's user interface view.

4. Effect Buttons
Buttons for add plugin and show plugin list.

Effect Buttons



Tap this button to show a list of available AUv3 effect plugins

Tap this button to show a list of loaded plugins for the channel.

Left Icon Bar

Show / Hide plugin table
Show loaded plugin list.
Show factory presets
Show user presets

Selected channel number
Navigate channel to the left on the current channel.
Navigate channel to the right on the current channel.

Signal routing

Enable / Disable channel

Tap channel button to enable / disable channel. Mix output of the drum synthesizer, aux channels and main channels are enabled in default. Adding enabled channel will cost on CPU, disabling unused channel save the CPU cost.

Rout signal to Main channel

Tap main button to rout signal of the channel to the main channel.
For aux channels, main button toggles destination of the signal to the main channel or to audiobus second output port.

Solo

Tap solo button to rout signal of the channel to the main channel and mute output of the other input channels and aux channels.

Mute

Tap mute button to mute signal of the channel. For input channels, signal to main channel and to aux channel are muted.

Volume fader

For input channels, volume fader adjust level of mix or instruments output signal to the channel. Signal to the main channel, aux send dials and effects are taken after the volume fader.

For aux channels, volume fader adjust level of the summed signal of aux input. Signal to effect, main channel and send output are taken after the volume fader.

For a main channel, volume fader adjust level of the main output signal.

Send signal to Audiobus second output port

1. Rout signal to any aux channel.
2. Tap main button of the aux channel, title of the button changes to “Send”. The output signal of the aux channel is routed to audiobus second output port.

Using AUv3 Effect Plugins

Add Plugins

1. Tap FX button in the right icon bar to show add plugin button.
2. Tap add plugin button to show a list of available plugins in the plugin table.
3. Tap name of the plugin in the list to load the plugin.

Show / Hide Plugin View

Tap plugin icon in the right icon bar to show / hide plugin view.

Show / Hide Plugin Table View

Tap show / hide table icon in the left icon bar next to the plugin table to show / hide plugin table.

Select loaded Plugin

1. Tap FX button in the right icon bar to show plugin icon in the channel.
2. Tap the plugin icon in the channel to show a list of loaded plugin for the channel in plugin table.

When plugin view is already visible, tap plugin icon in the left icon bar to show a list of loaded plugins in the plugin table.

Select Factory Preset

1. Tap factory preset button in the left icon bar to show a list of factory presets in the plugin table.
2. Tap name of the preset in the list to load the preset.

Select User Preset

1. Tap user preset button in the left icon bar to show a list of user presets in the plugin table.
2. Tap name of the preset in the list to load the preset.

Remove plugin from the channel

1. Tap plugin icon in the left icon bar to show a list of loaded plugins in the plugin table.
2. Tap Edit button
3. Tap red minus icon next to the plugin name.
4. Tap delete to remove the plugin from the channel.

Navigate Channels

Tap left or right buttons in the left icon bar to navigate channels.

Multi-Input Plugin

1. Load plugin. If the plugin has second input, name of the plugin is included in a section of multi-input instance in available plugin list.
2. Tap add plugin button in the channel which you want to connect to the second input of the plugin.
3. Tap name of the plugin in the list of the multi-input instance.

Limitation:
- Any inputs of plugin, first input or second input, can have single input source.
- Can’t have same input source to the first input and the second input.
- Can’t connect multiple multi-input effects in the same channel form single input source.
- Can’t connect output of main channel to any input of the other channels.
- Can’t connect to multi-input effect, if the output of the multi-input effect is connected to the other multi-input effect.

Variable Pattern Length for the sequencer

Pattern length of each track for the pattern can be adjusted.

Set Pattern Length

1. Tap Last Step button
2. Tap step button to set pattern length.

Edit Menu and Settings

Clear last step

Clear All	Clear all last step
Clear A	Clear last step of the pattern A
Clear B	Clear last step of the pattern B
Clear C	Clear last step of the pattern C
Clear D	Clear last step of the pattern D

Copy last Step

Copy A to All	Copy last step of pattern A to the rest of the patterns.
Copy A to B	Copy last step of pattern A to pattern B
Copy A to C	Copy last step of pattern A to pattern C
Copy A to D	Copy last step of pattern A to pattern D

Sequencer Setting

Vari Ptn Length Recording	Enable / Disable Variable Pattern Length Recording

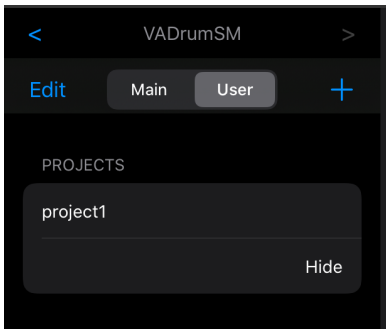
Parameter Setting

Vari Ptn Length Mode	Enable / Disable Variable Pattern Length for parameter automation.

New Features on Version 1.9.3

Version 1.9.3 introduces a functionality to load / save projects and a bypass switch.

Load / Save Project



Save project

1. Open side panel
2. Navigate table to VADrumSM
3. Tap User button
4. Tap Add (+) button
5. Type in project name and tap OK

Load Project

1. Open side panel
2. Navigate table to VADrumSM
3. Tap User button to show a list of saved projects
4. Tap project name in Projects list

Delete Project

1. Open side panel
2. Navigate table to VADrumSM
3. Tap User button to show a list of saved projects
4. Tap Edit
5. Tap red minus button on the left of the project name which you want to delete
6. Tap Delete

Bypass AUv3 effect

Tap Bypass button to bypass currently selected AUv3 effect unit. Bypass button may not have any effect, if the AUv3 effect unit doesn't support audio unit bypass function.

Channel Selection Mode

Tap channel selection mode button to toggle channel selection mode.

When channel selection mode is enabled, tapping on channel title button will select the channel. If the channel is not enabled, it will enable and select the channel.

To disable a channel, turn off channel selection mode and tap the channel title button.

Specifications

Sound Engine	Analog Modeling Synthesizer
Instrument Voices	21 total
Sequencer	16 steps, 4 patterns, loop length: 1 bar or 4 bar
MIDI	Standalone: MIDI note events input (Note on and Note off) AUv3: MIDI note events input and output (Note on and Note off)
Others	Support AUv3 Audio Unit Extension, Ableton Link

*Appearance and specification of products are subject to change without notice.

Support

FAQ

Q : I hear glitches. How to fix it?

A : This application requires high computing power of CPU on your iOS device. Please try the followings to see the performance improve.

- Reduce number of voices playing simultaneously.
- Close all other apps in the background.

If your are using IDAM (Inter Device Audio and MIDI) and hear zipping noise, disable IDAM and enable IDAM again may fix the problem.

Q : Why main / user selector for drum synth in the side panel is displayed in gray?

A : The main / user selector for drum synth is disabled on iOS12 or earlier. Because the user preset function for drum synth is only available on iOS13 or newer.

Q : Why user preset for drum synth can’t be used on my iOS device?

A : The user preset for drum synth is implemented by using user preset function of Audio Unit Extensions and the function is introduced in iOS13. Because of that this functionality is unavailable on iOS12 or earlier.

Q: Why UI looks different on my iOS device?

A: Some of the UI elements are changed on iOS13 and it is not possible to give the same look on iOS12 or earlier.

Q: Does it work on old iOS devices?

A: VADrumSM is compatible with iOS 12.2 or later. However because of the need of the high computing power of CPU, we recommend to use it on the device with the A10 Fusion or newer CPU.

What's new in version 1.1

- Support iOS13 / iPadOS
- Added preset feature
- Support user preset feature of AUv3 (only for iOS13 / iPadOS)
- Added "Lock mode" to control layer

What's new in version 1.2

- New Design and improved user interface
- Background color of XY pads change to indicate whether trigger mode is on or off.
- Background color of XY pads changes when receiving MIDI note events. (only on VADrumSM App)[12]

What's new in version 1.3

- Added 16 step sequencer
- Support Ableton Link

What's new in version 1.4

- Performance improvements and bug fixes
- Improved timing of the sequencer

What's new in version 1.5

- Performance improvements and bug fixes
- Added swing settings to the sequencer.
- Accent mode has changed. Now you can choose three level of the accent.
- You can set accent mode and double mode for recording.
- Loading user preset can be quantized.
- Improved timing of MIDI input and output
- Overall bug fixes including bug fixes on iPhone and bug fixes on iOS12.

What's new in version 1.6

- User Interface improvements
- Performance improvements and bug fixes

What's new in version 1.6.1

- Fix a bug for crash at launch reported by crash log

[12] Background color of XY pads don't change when VADrumSM is used as an AUv3 plugin in AUv3 host application.

What's new in version 1.7

- Added parameter automation
- Improved usability of the side panel table
- User Guide is included and can be viewed within the App.
- Performance improvements and bug fixes

What's new in version 1.8

- New design for the drum synthesizer and the step sequencer.
- Added a Parameter Automation Editor.
- Fixed audio issues when parameters are automated.
- Added track mute buttons in sequencer.
- Support Audiobus

What's new in version 1.8.1

- AUv3 Multi-Out
- Improved visibility of the parameter labels

What's new in version 1.9

- Added mixer
- Added variable pattern length to the sequencer

- Added Audiobus second output port
- Support AUv3 Effects Plugin
- Support AUv3 Effect Multi Input Plugin

- Fixed problem of MIDI when using multiple output buses of drum synthesizer.
- Autofill textfield with selected preset name when adding a new preset.
- Change default settings of the sequencer and parameter settings
- - Quantize preset Loading: Yes
- - Associate Parameter Preset: Yes
- Overdub enabled: Yes
- Loading of the associated parameter preset can be quantized.
- Recording from MIDI device, if velocity is less than 127, velocity will override accent settings.
- Display a parameter label in Automation Editor.
- Improved timber of hi-hats, cymbal and cowbell. Range of the pitch parameters for these voices are adjusted.
- Improved design and usability of the side panel table.
- Associated Parameter Presets are hidden in default.
- App is always in dark mode.
- Default value of main volume is changed to 0 dB.
- Sequencer View on iPad has changed and showing all instruments without scrolling.

What's new in version 1.9.1

- Fixed a problem that parameters of drum synth reset when connecting / disconnecting audio node by mixer.

What's new in version 1.9.2

- Fixed a MIDI processing problem when drum synth is used as an AUv3 device in AUv3 host.

What's new in version 1.9.3

- Added functions to save / load projects which includes mixer and plugin settings.
- Added a bypass button in Mixer.
- Added channel selection mode button in Mixer.
- Behavior of side panel, pads / sequencer buttons have changed.
- Fixed a bug that sync of AUv3 doesn't work properly if other AUv3 is added to the same channel.
- Fixed a problem of adding a AUv3 to the channel which contains multi-input AUv3 and the second input is connected.

What's new in version 1.9.4

- Fixed a bug that AUv3 effect plugins in drum buses loses connection to obtain tempo information when AUv3 effects are added or removed in master channel.
- Improve UI of the AudioUnit Extension to indicate note-on and note-off events.

What's new in version 1.9.5

- Updated Ableton Link Framework to the latest version.
- Updated Audiobus Framework to the latest version.
- Change pad color to indicate MIDI note-off events instead of indicating duration of the audio signal.

What's new in version 1.9.6

- Support iOS 14.2 / iPadOS 14.2
- Fixed a problem that user preset can't be listed or saved in stand alone mode.
- Fixed a problem that not able to find Ableton Link enabled devices on iOS 14.

What's new in version 1.9.7

- Support iOS 15 / iPadOS 15

What's new in version 1.9.8

- Fixed bugs that crash AudioUnit Extension when tapping on channel button in mixer.

What's new in version 1.9.9

- Support iOS 16 / iPadOS 16

What's new in version 1.9.10

- Support iOS 17 / iPadOS 17