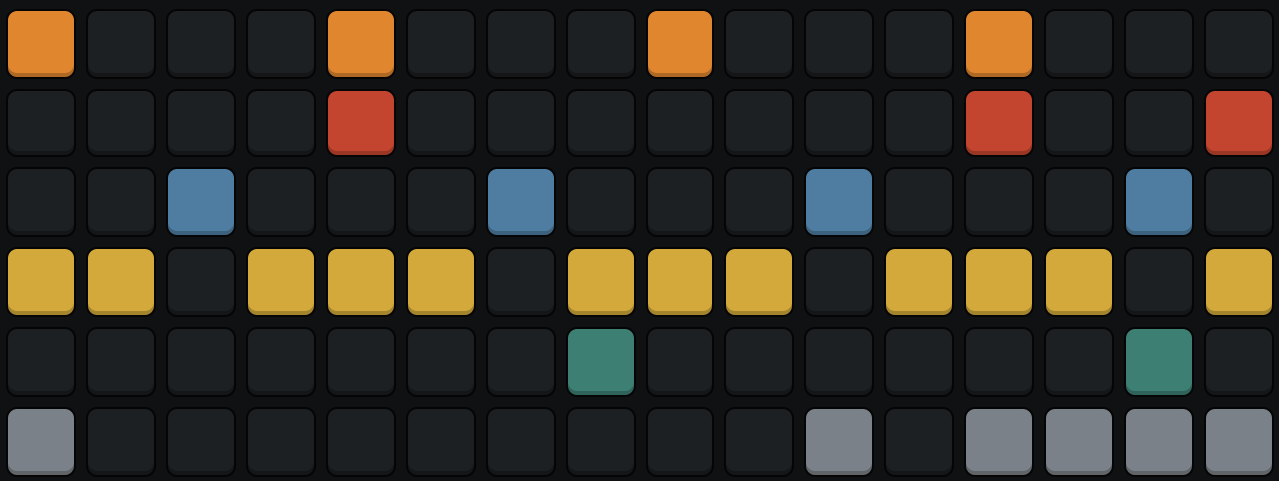
SUPER 909

DRUM MACHINE

USER MANUAL

Everything you need to program beats, bend the drums to your will, wire up MIDI and get it all into your DAW. No lab coat required.



FOR
iPhone, iPad and Mac

RUNS AS
a standalone app and an AUv3 plug-in

WEB
audiokitpro.com/super909

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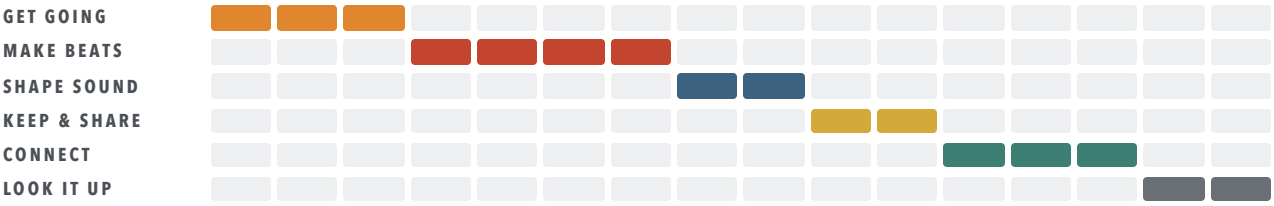

Sixteen chapters, sixteen steps. Each chapter lights its own step, in the colour of its part.

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GET GOING CHAPTER 1

WELCOME

What Super 909 is, what is in the box, and how to get the most out of this manual in the least time.

Hello, and welcome to Super 909: a drum machine that fits in a pocket, sits happily on a desk, and loads into a DAW when it is time to finish the track. It is synth based, it is built to be played, and it is free.

You do not need to read this manual front to back. Nobody does. Take the tour in the next chapter, make some noise in the one after, and come back when a button makes you curious. Everything here is written so you can dip in, find the answer, and get back to the beat.

What is in the box

- **Eleven drums.** Kick, snare, three toms, rim shot, clap, closed and open hats, crash and ride, with alternate models for the kick, snare, clap and toms.
- **A step sequencer.** Sixteen patterns per sequence, accents and ghost notes, flams, ratchets, triplets, swing, and a separate length for every drum.
- **Drum pads.** Tap a beat in by hand, with roll buttons.
- **Effects.** Heat, a filter, Super Crush, a tempo-synced delay, a big reverb and a one-knob compressor.
- **Magic buttons.** One tap writes a pattern, a fill, or a whole new kit.
- **One-tap export.** Loops, stems and MIDI files, plus drag and drop.
- **MIDI everything.** MIDI Learn, saved controller maps, MIDI out, clock and Ableton Link.
- **A plug-in.** The AUv3 version runs inside your host with eleven individual drum outputs.

Three ways to run it

Super 909 is one download with two personalities. The best trick uses both: write a beat on your phone, then load it in your DAW on the Mac.

YOU ARE USING	WHO KEEPS TIME	BEST FOR
The app on iPhone or iPad	Super 909, or an outside clock if you connect one	Sketching beats anywhere, playing live, jamming with other gear
The AUv3 plug-in in a host or DAW	The host: its Play button and its tempo	Finishing tracks: in iPhone and iPad hosts, and in Ableton Live, Logic Pro or GarageBand on a Mac
The app on Mac	Super 909, or an outside clock	Syncing presets from your phone for the plug-in

Super 909 speaks fourteen languages and supports VoiceOver in every one of them. Switching language takes a couple of taps in Options and no restart: see chapter 15. If you use VoiceOver, appendix A collects everything that works differently.

The screen, the sounds and the sequencer are the same in all three. Where something only applies to one of them, this manual marks it with a small tag like STANDALONE or IPAD AND MAC. The plug-in has a chapter of its own: chapter 14.

The big idea in thirty seconds

Four words come up on every page of this manual. Learn them now and the rest is easy.

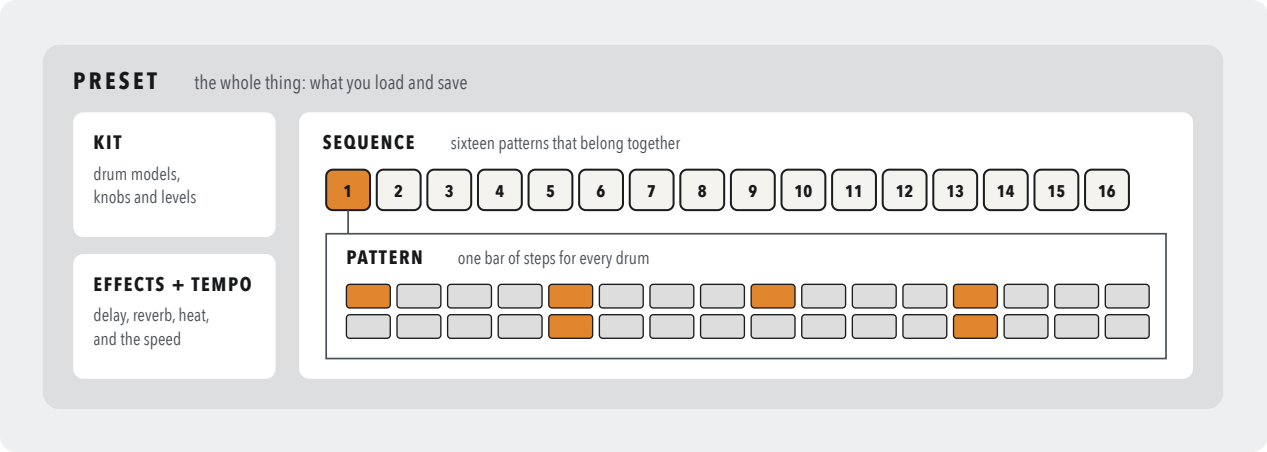

FIG. 1 Steps live in patterns, patterns live in a sequence, and a preset wraps a sequence together with the sound.

STEP	One box in the grid. Light it and that drum plays at that moment.
PATTERN	One bar of steps for all eleven drums. This is your loop.
SEQUENCE	Sixteen patterns that belong together: a verse, a chorus, a fill, and thirteen more ideas.
PRESET	The whole package: the kit, the effects, the tempo, and a sequence to play. Presets are what you load from the display at the top of the screen.

Sequences can also be saved, browsed and swapped on their own, so one beat can try on many kits and one kit can play many beats. That trick is covered in chapter 10.

Find your way around this manual

The manual has six parts. Each has a color, and you will see it on the chapter openers and, in the printed version, on a tab at the edge of the page.

PART	CHAPTERS	READ IT WHEN YOU WANT TO
Get going	1 to 3	Learn the screen and make your first beat
Make beats	4 to 7	Program patterns, play the pads, and let the magic buttons surprise you
Shape sound	8 and 9	Tune the drums, mix them, and add effects
Keep & share	10 and 11	Save your work and get it out as audio or MIDI
Connect	12 to 14	Use MIDI controllers, sync to other gear, and run the plug-in
Look it up	15, 16 and the appendices	Check a setting, fix a problem, or find a MIDI number

In a hurry?

- **"I just want to make a beat."** Go to chapter 3. Five minutes, start to finish.
- **"I want my knobs to control it."** MIDI Learn and mapping are in chapter 13.
- **"I want this beat in my DAW."** Loops, stems and MIDI export are in chapter 11.
- **"I want each drum on its own channel."** Multi-out is in chapter 14.

- **"Something is not working."** Try chapter 16.

How to read the pages

A few conventions keep things quick.

LABEL	Words in a box like this are printed on the screen exactly as shown: LAST STEP, MIDI LEARN, EXPORT STEMS.
MESSAGE	Words on a dark chip are messages from the display at the top of the app, such as `Pattern Copied`.
	Small icons show the button to look for. This one is the gear that opens Options.
STANDALONE	A tag like this means the feature belongs to one version of the app or one kind of device.

Boxes in the margin of the story come in four kinds:

TIP

A faster or smarter way to do something. Skippable, but you will be glad you did not.

GOOD TO KNOW

Background that explains why the app behaves the way it does.

HEADS UP

Something that can overwrite work or surprise you. Worth the three seconds.

TRY THIS

A small experiment. These are the fun ones, and the quickest way to learn a feature is to do it once.

Ready? Turn the page for a quick look around, then go make something loud.

GET GOING CHAPTER 2

THE GRAND TOUR

Where everything lives, how to get around, and how the knobs, faders and display behave. Five minutes here saves an hour of poking.

Super 909 is laid out like a piece of hardware: a strip of buttons along the top, a strip of patterns along the bottom, and panels of controls in between. Once you know the map, everything is one or two taps away.

The map



FIG. 2 The main screen on iPad and Mac, with the Sequencer in the top panel and the Drum Pads in the bottom panel. The numbers match the list below.

#	WHAT	WHAT IT DOES
1	**Panel buttons**	Five icons that choose what the top panel shows: Sequencer, Tuner, Mixer, Drum Pads, and Sound and effects.
2	**Play**	Starts and stops the sequencer. STANDALONE
3	**Display**	Shows the preset name and messages. Tap it to open the preset browser. The arrows step to the previous and next preset.
4	**Save**	Saves the preset.
5	**Play Through**	Loop one pattern, or play through all of them in order.
6	**Export**	Opens the Export panel: loops, MIDI and stems.
7	**Options**	Settings, MIDI setup and app info. This manual calls it the gear button.
8	**Lower panel buttons**	The same five icons as number 1, for the bottom panel.
9	**Pattern tools**	Undo, Generate pattern, Generate fill, Copy, Paste, Clear and Full screen. They appear while the Sequencer is showing.
10	**Pattern buttons**	Choose one of the sixteen patterns. The arrow at the end shows the other eight.
11	**Sequence name**	Tap to open the sequence browser. The arrows step through sequences.
12	**Sequence lock**	Keeps the current sequence when you change presets.
13	**Record**	Records the audio output to a file. STANDALONE
14	**Tempo**	Arrows, a draggable readout, and a tap-to-type box. STANDALONE
15	**Tempo lock**	Keeps the current tempo when you change presets. STANDALONE

The five panels

Most of your time is spent in five panels. Each has an icon in the header.

PANEL	ICON	WHAT YOU DO THERE	CHAPTER
Sequencer		Program patterns step by step.	4
Tuner		Shape each drum: tune, decay, pan and the special knobs. Switch drum models.	8
Mixer		Set levels, mute and solo.	9

PANEL	ICON	WHAT YOU DO THERE	CHAPTER
Drum Pads		Play the kit by hand, do rolls, record what you play.	6
Sound and effects		Main volume, swing, and all the effects.	9

Three more screens slide in when you need them: the **preset browser** (tap the display), the **sequence browser** (tap the sequence name), and **Options** (tap the gear). Tap the same thing again to close each one. On iPad the preset browser opens in the top panel and the sequence browser in the bottom one.

iPad and Mac: two panels at once

On the big screens you see two panels stacked. The first time the app opens, the Sequencer is on top and the Drum Pads are underneath. Change the top panel with the header icons and the bottom panel with the matching icons in the middle bar. The app remembers your bottom panel for next time.

- A panel can only be in one place. If you ask for the mixer on top while it is already on the bottom, the bottom panel politely moves on to something else.
- Want more rows of steps? While the Sequencer is showing, tap **Full screen** in the pattern tools. The Sequencer stretches over the bottom panel. Tap it again to shrink it back.
- When the Sequencer is not showing, the middle bar gets a second gear button that opens Options in the bottom panel instead of the top.
- Open the preset browser while the Sequencer is on top and the Sequencer moves down to the bottom panel, so the grid stays in view while you try presets.

iPhone: one panel at a time

On iPhone there is room for a single panel, so the header icons simply swap it. The pattern tools appear in a bar under the grid whenever the Sequencer is showing. Everything else works the same, and the app always runs in landscape. The screenshots in this manual were taken on an iPad, so on a phone you will see one of the two panels at a time, with the same controls inside it.

The display

The display in the header is small but chatty. Normally it shows the name of the current preset. Whenever you do something, it tells you what just happened:

- **Move a control** and it shows the name and value, such as `Verb Size: 62%`. This is the way to read exact values.
- **Use a button** and it confirms: `Pattern Copied`, `Play thru Mode`, `Switch Queued`.
- **Run an export** and it shows progress: `Rendering stems...`

Messages clear themselves after a moment and the preset name returns.

How the controls behave

Knobs

- **Drag up or right** to turn a knob up. **Drag down or left** to turn it down. You do not have to trace a circle.
- **Double-tap** to reset. On the Tuner panel, a double-tap sends a knob to its center position. On the Sound and effects panel, a double-tap sends a knob back to the value stored in the preset.

Faders

- **Touch anywhere on a fader** and it jumps there. Then drag up or down.
- **Double-tap** to return it to the preset's value.

Number boxes

Boxes that show a number, such as the tempo and Last Step, can be dragged like a knob: up or right to raise, down or left to lower. Most also have arrows beside them for single steps.

Switches and locks

Square switches light up orange when they are on. The padlocks show open or closed. Both respond the instant you touch them.

ON THE MAC

Hover the pointer over any control and a tooltip appears with its name and current value. Buttons that are only icons show what they do. It is the fastest way to learn the screen.

Two layout options worth knowing now

Both are switches in the Options panel, and both change how the whole app is arranged.

909 DRUM ORDER

Changes the order of the drums everywhere: sequencer rows, pads, mixer and tuner.

- **Off** (the default): Kick, Snare, Clap, Closed Hat, Open Hat, Low Tom, Mid Tom, High Tom, Rim Shot, Crash, Ride. Related drums sit together.
- **On**: Kick, Snare, Low Tom, Mid Tom, High Tom, Rim Shot, Clap, Closed Hat, Open Hat, Crash, Ride. This is the left-to-right order of the classic hardware.

With the option on, the kick's `THUD` knob is also labeled `ATTACK`.

ACCENT ROW ON TOP

Moves the sequencer's Accent row from the bottom of the grid to the top.

This manual describes the default arrangement. The full list of options is in chapter 15.

That is the map. Next, you put it to work: chapter 3 is your first beat.



GET GOING CHAPTER 3

YOUR FIRST BEAT

Five minutes from a quiet screen to a loop you made yourself, saved, and exported. No theory, no menus, no reading ahead.

The fastest way to learn a drum machine is to make it go boom. Follow these ten steps in the standalone app and you will have touched almost every part of Super 909 by the end.

GOOD TO KNOW

These steps are written for the app on iPhone, iPad or Mac. In the AUv3 plug-in everything works the same, except that your host's Play button and tempo are in charge. See chapter 14.

1. Press Play

Tap the **Play button** ▶ at the top of the screen. The preset that is loaded starts playing. Tap the arrows on either side of the display to step through more presets. Each one brings its own kit, its own tempo and its own patterns.

Enjoy that for a minute. Then let us make one from scratch.

2. Start fresh

1. Tap the **display** at the top of the screen. The preset browser opens.
2. Tap NEW PRESET. A box asks you to CHOOSE A DRUM KIT:
3. Tap DEFAULT for the standard kit, or BR-9 to start with the R9 kick, snare and clap.
4. Tap the display again to close the browser.

You now have a preset called `Init Preset` with sixteen empty patterns, and nothing you do next can hurt the factory presets.

3. Four on the floor

Look at the Sequencer: a grid with one row per drum and sixteen steps across. Find the `BD` row (that is the bass drum, also known as the kick) and tap steps **1, 5, 9 and 13**. Press Play if it is not already running.

That steady thump is the heartbeat of half the dance music ever made. Not bad for four taps.

4. Add a backbeat

On the `SN` row, tap steps **5 and 13**. The snare now answers the kick on beats two and four. If you prefer a clap, use the clap row instead. If you cannot decide, use both. Nobody is watching.

5. Hats

1. Put a finger on the first step of the `CH` row (closed hat) and **swipe all the way across**. Sixteen hats in one move.
2. On that same row, tap steps **3, 7, 11 and 15** to switch them back off.
3. On the `OH` row (open hat), switch on steps **3, 7, 11 and 15**.

You have just built the classic off-beat open hat. Step two matters because a closed hat cuts off an open hat, exactly as a real hi-hat pedal does, so they should not share a step.

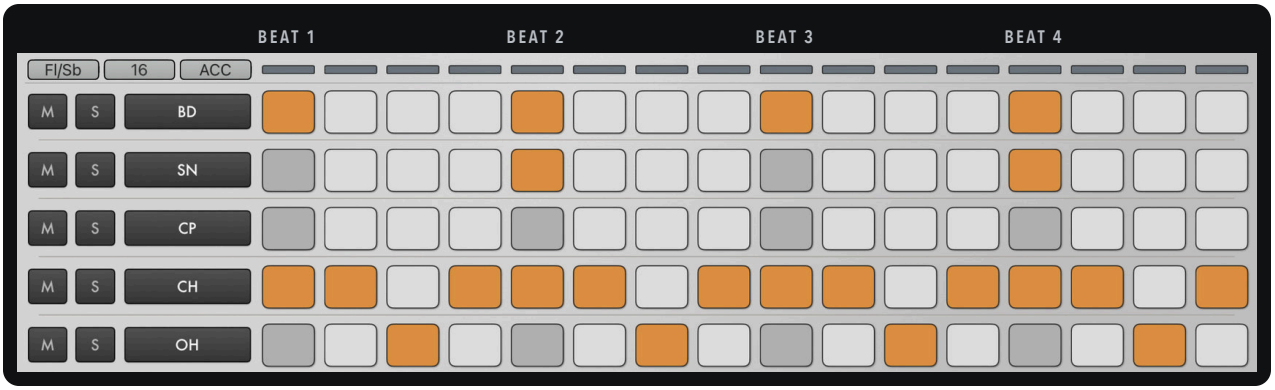

FIG. 3 What your grid should look like after step 5. The labels along the top mark the four beats of the bar. The darker empty steps mark the same beats inside the grid.

Made a mistake? Tap the step again to remove it, or tap **Undo** in the pattern tools.

6. Give it some swing

Tap the knob icon to open the Sound and effects panel. Find the `SWING` knob and drag it up slowly while the beat plays. Watch the display: at `58% (Half Swing)` the hats start to shuffle, and at `66% (Triplet)` the whole thing leans back like it owns the place.

Set it wherever it feels good. Double-tap the knob to snap back to the value the preset came with.

7. Set the tempo

The tempo sits in the bottom right corner. Tap the arrows to nudge it, drag on the number, or tap the number and type a value. Not sure where to start? The app's own pattern generator files classic house at 120 to 126 BPM, hip-hop from 80 to 112, and drum and bass up at 168 to 176.

8. Try your beat on another kit

Here is a trick that never gets old.

1. Tap the two **padlocks** at the bottom of the screen: the one beside the sequence name and the one beside the tempo. They close.
2. Tap the display to open the preset browser. Pick a bank, then tap different presets while your beat plays.

Your pattern and tempo stay exactly where they are while the drums change underneath them. Stop on a kit you like and close the browser.

9. Add a second pattern and a fill

1. Back in the Sequencer, tap **Copy** in the pattern tools.
2. Tap pattern button `2` at the bottom left, then tap **Paste**.
3. Tap **Generate fill**. The first time, the app checks that you mean it. Then the end of pattern 2 turns into a fill that suits your beat. Not feeling it? Tap Undo and roll again.
4. Tap the **Play Through button** in the header. The app now plays pattern 1, then pattern 2, and round again.

A groove and a fill, taking turns. That is an arrangement.

10. Save it and take it with you

Save

1. Tap **Save** next to the display.
2. Type a name. If the preset already had a name of its own, `SAVE AS NEW COPY` switches itself on as you type, so the original stays as it was.
3. Tap `SAVE`. Your kit, your tempo and both patterns are stored together.

Export

1. Tap pattern `1`, then tap **Export** in the header.

2 Under **EXPORT LOOPS**, tap **PATTERN**.

3 Choose where the file goes. You now have a WAV loop that drops straight into any DAW or sampler.

You did it. Now what?

That was the whole journey: sounds, steps, groove, arrangement, save, export. Everything else in this manual is a deeper look at one of those stops.

IF YOU LIKED	GO DEEPER IN
Tapping in steps	Chapter 4: accents, ghost notes, flams, ratchets, triplets and odd-length lanes
The fill button	Chapter 7: pattern, fill and kit generators
Changing kits	Chapter 8: drum models and every knob on the Tuner
The Swing knob	Chapter 9: the mixer and the effects
Exporting	Chapter 11: stems, MIDI files and drag and drop

TRY THIS

Before you move on, open the Drum Pads panel and play along with your beat by hand. It costs nothing, it sounds great, and it is the best possible way to find out which drum the pattern is missing.

MAKE BEATS CHAPTER 4

THE SEQUENCER

Tap steps, shape dynamics, add flams and ratchets, and bend time with swing and odd-length lanes. This is where beats are born.

The sequencer is a grid. Each row is a drum, each box is a moment in time, and a lit box means "hit it here". That is the whole idea, and you can make a great beat knowing nothing more. The rest of this chapter is what turns a good beat into one with attitude.

Reading the grid

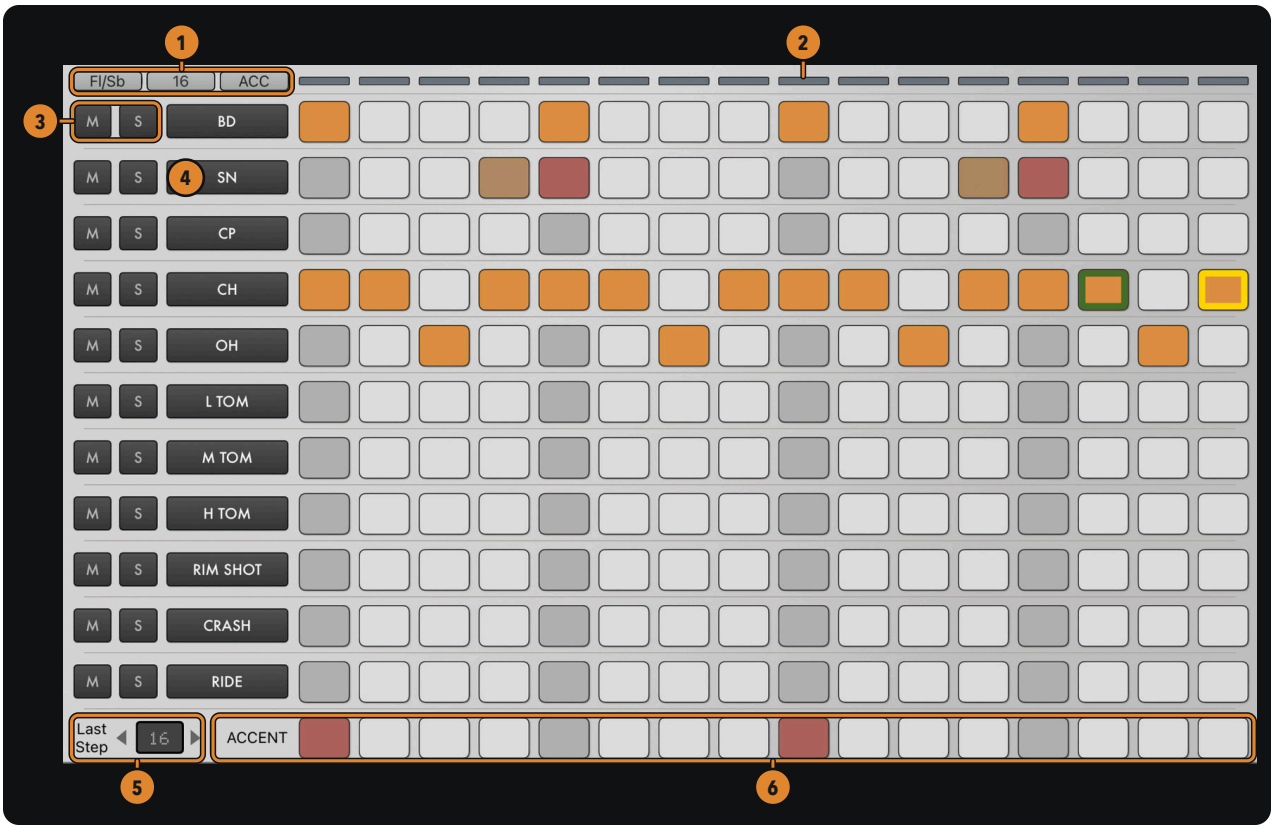

FIG. 4 The sequencer in full screen. **1** Entry mode and grid buttons. **2** Chase lights. **3** Mute and Solo. **4** A track button. **5** The sequence's Last Step. **6** The Accent row.

- **Rows.** Eleven drums: kick, snare, clap, closed hat, open hat, three toms, rim shot, crash and ride. The row list scrolls up and down. One more row, `ACCENT`, sits at the bottom.
- **Steps.** Each row shows 16 or 32 steps across, depending on the grid. Shaded steps mark the beats so you can find your way: in the 16 grid, steps 1, 5, 9 and 13 are darker.
- **Track button.** The name at the start of each row (`BD`, `SN`, `CH` and friends). Tap it to open that drum's own timing options.
- **M and S.** Mute and Solo for the row. They are the same switches as the ones on the mixer.
- **Chase lights.** The thin row of lights above the grid. The lit one is the step that is playing.

GOOD TO KNOW

The track button shows the drum model you have chosen, so the kick row might read `BD`, `BD '84`, `BD R9` or `BD XR9`. Models are covered in chapter 8.

Entering steps

Tap an empty step to switch it on. Tap it again to switch it off. That is 90% of drum programming.

The other 10% is speed: **drag across a row to paint.** Whatever your first touch does, the rest of the drag repeats. Start on an empty step and you paint hits. Start on a lit step and you erase. Sixteen hi-hats take one swipe.

TRY THIS

Clear a pattern, then tap steps 1, 5, 9 and 13 on the `BD` row. Add steps 5 and 13 on `SN`. Swipe across the whole `CH` row. Press Play. Congratulations, you are now legally allowed to wear headphones around your neck.

Dynamics: Normal, Accent and Dull

A drummer never hits every note the same. Neither should your pattern. Every step can be one of three strengths:

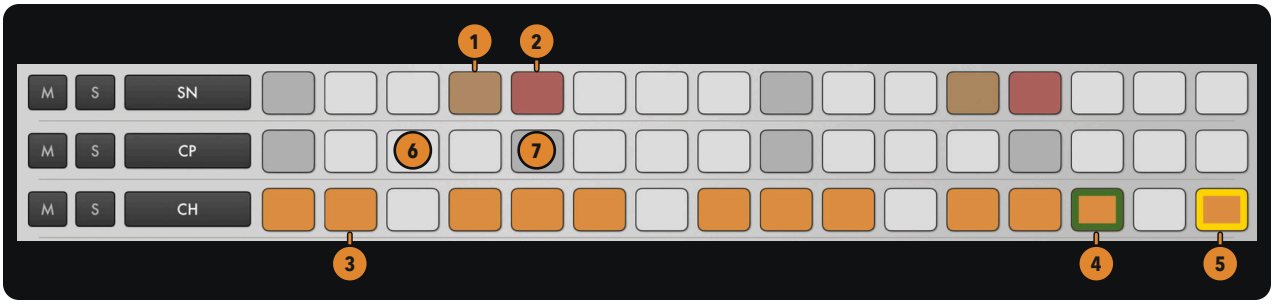

FIG. 5 Step colors on the real grid. **1** Dull, a quiet hit. **2** Accent, a loud hit. **3** Normal. **4** A substep (green border). **5** A flam (yellow border). **6** Off. **7** Off, on a beat.

To use them, tap `ACC` in the top left corner of the sequencer. The button changes to `ACC+` and the display confirms `Accent Step Entry: On`. The first couple of times, a short note titled `VELOCITY ENTRY` explains the idea; tap `OK` to close it. Now each tap on a step moves it one stop along this loop:

Off → Normal → Accent → Dull → Off

Tap `ACC+` again to go back to simple on and off entry. Your accents and dull hits stay where you put them.

> **TIP**
>
> Dull hits are the secret to hi-hats and snares that sound played instead of typed. Try a snare on 5 and 13 with a Dull "ghost" hit just before each one.

The Accent row

The `ACCENT` row is the classic drum machine way to add emphasis. It has no sound of its own. Instead, switch on a step in the Accent row and *every drum that plays on that step* gets louder. It is one switch for the whole kit, which makes it perfect for pushing the downbeats or building a simple groove fast.

The two kinds of accent stack:

THE STEP IS…	ACCENT ROW OFF	ACCENT ROW ON
Normal	Regular hit	Accented
Accent	Accented	Accented twice: the loudest hit there is
Dull	Quiet hit	Quiet hit, lifted a little

How much louder is "accented"? You decide. The ACCENT level control sets the size of the boost for both kinds of accent. Out of the box it lives on the mixer on iPad and Mac, and on the Sound and effects panel on iPhone (the ACCENT VOL ON MIXER option moves it). Turn it all the way down and accents sound the same as normal hits.

If you would rather have the Accent row at the top of the grid, turn on ACCENT ROW ON TOP in the Options panel.

Flams and substeps

These two turn one step into more than one hit.

- A **flam** is two hits so close together they sound like one fat, slightly smeared hit. Drummers do it with two sticks landing a hair apart.
- A **substep**, also called a **ratchet**, divides a single step into two, three or four quick, evenly spaced hits. Instant snare rolls and stuttering hats.

Putting them on steps

1. Tap FL/SB in the top left corner. The FLAM & SUBSTEP window opens.
2. Choose how flams and substeps should sound in this pattern (see below), then tap OKAY. The display shows `Flam/Sub Entry: On`.
3. Now tap steps. Each tap moves a step along a new loop: **Off → On → Flam → Substep → Off**. A flam step gets a yellow border and a substep gets a green one.
4. Tap FL/SB again when you are done.

A step keeps its strength while you do this, so an Accent step can also be a flam.

Choosing the flavor

The settings in the FLAM & SUBSTEP window belong to the pattern. Every flam in the pattern uses the same flam type and every substep the same division, so changing one setting retunes the whole pattern at once. You hear changes live while the window is open. CANCEL puts everything back.

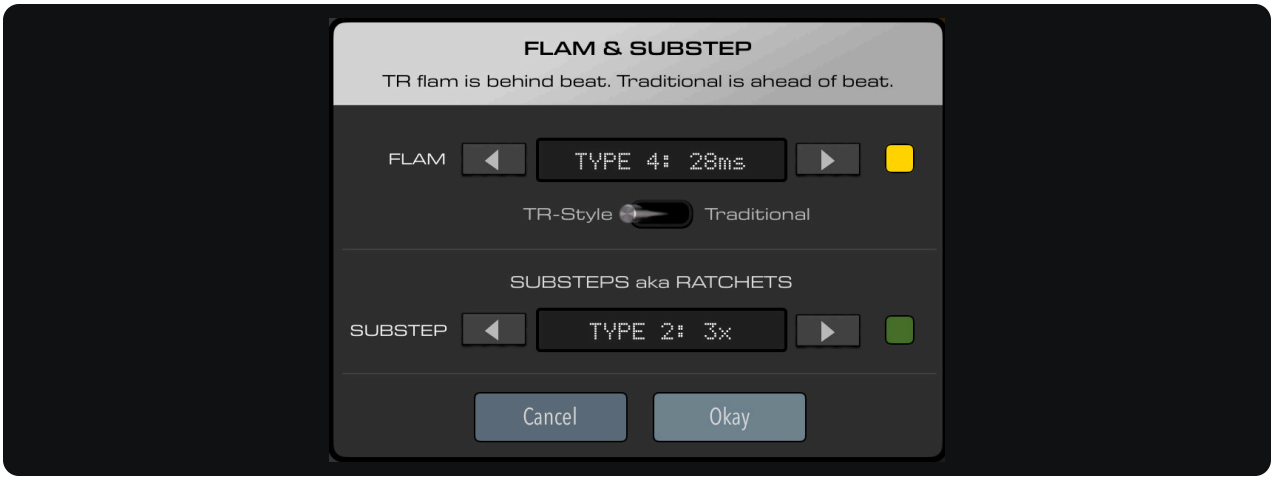

FIG. 6 The Flam & Substep window. The yellow and green squares match the borders that flam and substep steps get in the grid.

FLAM

Nine types, from tight to wide. `TYPE 1` is 0 ms, which means no flam at all. Types 2 to 9 open the gap from 20 ms to 48 ms in 4 ms steps. The default is `TYPE 4: 28MS`.

TR-STYLE OR TRADITIONAL

Where the extra hit goes. **TR-Style** puts the main hit on the beat and the second hit just *after* it, at the same strength. **Traditional** puts a softer grace note just *before* the beat, the way a drummer plays a flam. The window sums it up as "TR flam is behind beat. Traditional is ahead of beat."

SUBSTEP

`TYPE 1: 2X`, `TYPE 2: 3X` or `TYPE 3: 4X`. That is two, three or four hits inside the step. The default is 3x.

FLAM TYPES

TYPE	1	2	3	4	5	6	7	8	9
Gap	0 ms	20	24	28	32	36	40	44	48 ms

The grid: 16ths, 32nds and triplets

The button between `FL/SB` and `ACC` shows the current grid: `16`, `32`, `8T` or `16T`. Tap it to choose another.

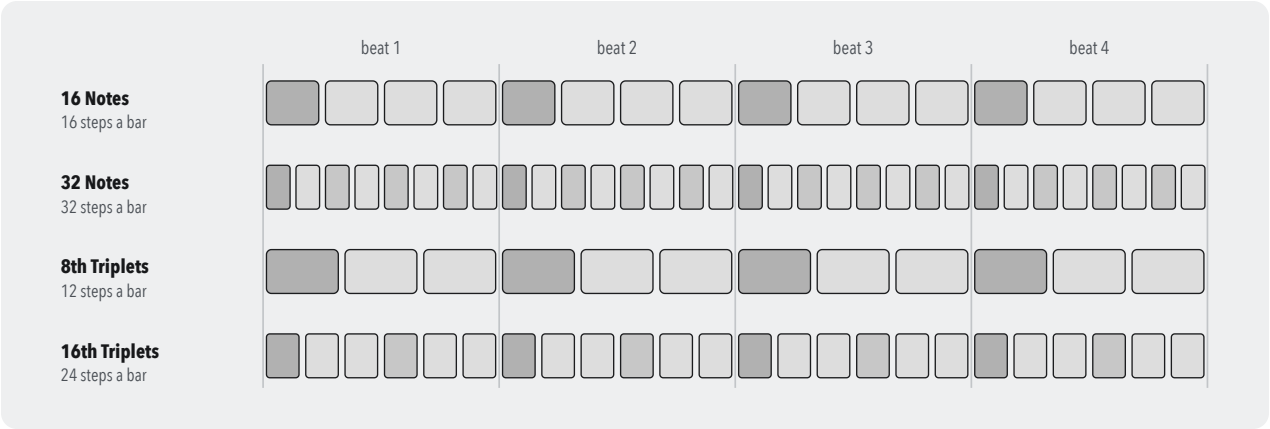

FIG. 7 One bar of 4/4 in each grid. The triplet grids fit three (or six) steps into every beat.

GRID	BUTTON	EACH STEP IS	STEPS ON SCREEN	STEPS IN ONE 4/4 BAR
16 Notes	16	a 16th note	16	16
32 Notes	32	a 32nd note	32	32
8th Triplets	8T	an 8th-note triplet	16	12
16th Triplets	16T	a 16th-note triplet	32	24

TIP

Notice the last column. In the triplet grids, one bar is 12 or 24 steps, but the screen shows 16 or 32. For a one-bar shuffle or 6/8 feel, set LAST STEP to 12 (in 8T) or 24 (in 16T). Leave it longer and you get a pattern that runs past the bar line, which is a fun trick of its own.

The grid belongs to the whole sequence, so all sixteen patterns share it. Changing the grid never deletes notes. Each pattern always keeps 32 positions per drum behind the scenes; the grid only decides which ones you see and edit.

16ths and 32nds on the same screen

You do not have to switch the whole grid to 32 just because the hi-hat wants a fast roll. Any single row can show finer steps than its neighbors.

1. Tap the row's track button, for example CH.
2. Under STEPS, choose 32.

3 Tap **CLOSE**. That row now shows 32 narrow steps while the others keep their 16 wide ones. Each wide step lines up with two narrow ones.

If a row is showing 16 steps but has notes hiding on the in-between 32nds (after a roll recorded from the pads, say), the step before the hidden note gets a small diagonal corner. Switch that row to 32 to see and edit the hidden notes.

Pattern length: Last Step

A pattern does not have to be 16 steps long. **LAST STEP** sets where the sequence loops back to the start. You will find it at the left end of the Accent row: use the arrows, or drag on the number.

- Set it to 12 in the 16 grid and you have a bar of 3/4. That is the classic way to make a waltz on a drum machine.
- Steps after the Last Step are drawn faded. You can still edit them; they just do not play.
- Last Step belongs to the sequence, so all sixteen patterns share it.

A different length for every drum

Here is where it gets interesting. Each drum can have its *own* Last Step, shorter than the sequence. That drum loops early while the others carry on, so the parts drift against each other and line up again later. This is a **polyrhythm**, and it makes a simple pattern sound like it is evolving on its own.

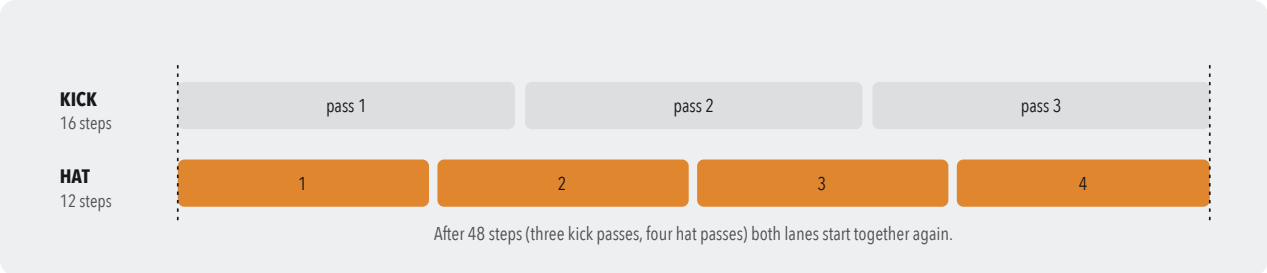

FIG. 8 A 12-step hat lane against a 16-step kick. The hat restarts early every time, so the pattern shifts for three bars before it comes home.

1 Tap the drum's track button.

2 Use the **LAST STEP** arrows to shorten that drum. The display shows something like `CH Last Step: 12`.

3 Tap CLOSE, press Play and listen to it wander.

A drum's own Last Step can never be longer than the sequence's. Drums you have not shortened simply follow the sequence, so changing the sequence Last Step moves them all together. The Accent row always follows the sequence length.

Swing

Swing is the difference between a machine and a groove. It delays every second 16th note a little, so the beat goes from a stiff "tick tick tick tick" to a rolling "tick…tick tick…tick".

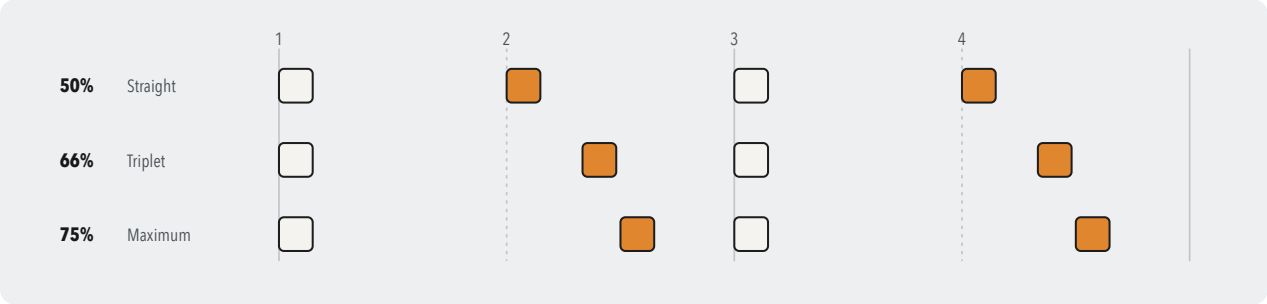

FIG. 9 Four 16th notes at three swing settings. The orange steps are the ones swing moves. The dotted lines show where they would sit with no swing.

The SWING knob is on the Sound and effects panel. It reads from 50% to 75%, the same scale used on classic sampling drum machines. The number says how far through each pair of 16ths the second one lands:

READING	THE DISPLAY CALLS IT	FEELS LIKE
50%	**Straight**	No swing. Perfectly even.
54%	**Subtle**	You feel it more than you hear it.
58%	**Half Swing**	A relaxed lean. Lovely on house hats.
62%	**Relaxed**	Clearly swung.
66%	**Triplet**	Full shuffle: the second note lands on the triplet.
75%	**Maximum**	The second note arrives a whole 32nd late.

- In the 32 grid, swing still moves the off-beat 16ths. The 32nd notes in between stay where they are.

- Swing works on the straight grids. The triplet grids already have their own lilt, and swing leaves them alone.

Swing per drum

Sometimes you want the hats loose and the kick dead straight. Every drum can ignore the main swing and use its own.

1. Tap the drum's track button.
2. Turn the **SWING** knob in the window. The moment you move it, **USE MAIN** switches off and that drum has its own swing. The display shows, for example, `CH Swing: 58% (Half Swing)`.
3. To hand the drum back to the main knob, tap **USE MAIN**. The display confirms `CH Swing: Follows Main`.

A drum's own swing replaces the main swing for that drum; the two are not added together. Per-drum swing belongs to the sequence and applies to all sixteen patterns.

The track window in one place

You have now met everything behind a track button. Here it is as a cheat sheet. Changes apply the moment you make them; tap **CLOSE** or tap outside the window when you are done.



FIG. 10 A track window, opened by tapping a track button. This one belongs to the closed hat.

LAST STEP	This drum's own loop length. From 1 up to the sequence Last Step.
STEPS	`16` or `32`: how finely this row is drawn. Display only; no notes are changed.
SWING	This drum's own swing, 50% to 75%.
USE MAIN	On: the drum follows the main Swing knob. Off: it uses its own.

Mute and Solo

`M` silences a row. `S` silences every row that is *not* soloed, and you can solo several at once. Both light up orange when on. They are saved with the preset, and they also decide what ends up in loop and stem exports, so check them before you bounce.

Undo

The **Undo button** (the curved arrow, first in the row of pattern tools) steps back through your sequence edits, one at a time, up to 64 steps deep. The display tells you what it just undid, for example `Undo: Step Edit (3)`, where the number is the pattern. When there is nothing left it says `Nothing to Undo`.

Undo covers anything that changes the sequence: step edits (a whole painted swipe counts as one), pasting and clearing, generated patterns and fills, pad recording, MIDI imports, and changes to Last Step, grid and per-drum swing. It does not cover knobs, the mixer, Mute and Solo, or the tempo. There is no redo, and the history starts fresh when you load a different sequence or preset.

What is saved where

It helps to know which part of your work lives at which level:

LEVEL	HOLDS
Step	Off, Normal, Accent or Dull, plus an optional flam or substep

LEVEL	HOLDS
Pattern	All the steps for eleven drums and the Accent row, plus the flam type, flam style and substep division
Sequence	Sixteen patterns, the grid, the Last Step, and every drum's own Last Step, 16 or 32 view and swing
Preset	The sound: every knob, the mixer, effects, the main Swing, the Accent level, Mute and Solo, the tempo. It also carries a copy of its sequence.

Presets and sequences have a chapter of their own: chapter 10.

MAKE BEATS CHAPTER 5

PATTERNS, TEMPO & PLAYBACK

Sixteen patterns per sequence, a strip of buttons to switch between them, and a few simple tools that turn loops into songs.

One pattern is a loop. Sixteen patterns are a song waiting to happen: an intro, a verse, a busier chorus, a fill, a breakdown. This chapter is about moving between them and keeping time.

Sixteen patterns, one sequence

The pattern buttons run along the bottom left of the screen, numbered 1 to 16. Together, the sixteen patterns make up a **sequence**. Tap a button and the grid shows that pattern.



FIG. 11 The pattern strip tells you what is where. **1** A light button holds steps. **2** The orange bar marks the pattern you are on. **3** Dark buttons are empty. **4** The arrow shows patterns 9 to 16.

- The strip shows eight patterns at a time. Tap the **arrow at the end** to open it up to all sixteen, and again to fold it back.
- When it is folded, the strip automatically shows whichever half contains the pattern that is playing.
- A blinking button is a pattern that is **queued**: it has been chosen and is waiting for its turn.

Switching patterns while it plays

Tap a pattern while the sequencer is running and one of two things happens, depending on a switch in the Options panel called **PATTERN SWITCH INSTANT**.

PATTERN SWITCH INSTANT	WHAT A TAP DOES	GOOD FOR
Off DEFAULT	The new pattern is queued. Its button blinks, the current pattern finishes, and the change lands exactly on the downbeat.	Clean, musical transitions. This is how most drum machines behave.
On	The new pattern takes over immediately, carrying on from the same step position.	Mashing between patterns mid-bar for live variations.

The display confirms the setting with `Switch Queued` or `Switch Instant`. When the sequencer is stopped, a tap always switches straight away.

Play Through: from loop to song

The **Play Through button** in the header decides what happens when a pattern reaches its end.

OFF	The current pattern loops forever. The display says `Loop Current Pattern`.
ON	When a pattern ends, the next one starts. The display says `Play thru Mode` and the button shows an arrow.

Play Through has good manners:

- **It skips empty patterns.** If patterns 1, 2, 3 and 5 have steps, it plays 1, 2, 3, 5, then wraps around to 1 again. You never sit through a bar of silence.
- **You can still take the wheel.** Tap any pattern while it is running and that one plays next. Play Through then carries on from there.
- **Play always starts from your pattern.** Press Stop and Play again, and playback begins from the pattern you last chose, not from wherever Play Through had wandered to.

The Play Through setting is saved with each preset, so a preset built as a four-pattern song comes back as a four-pattern song.

TRY THIS

Build a basic beat in pattern 1. Tap **Copy**, tap pattern 2, tap **Paste**, and add an extra kick. Copy again, paste into 3, add open hats. Paste once more into 4 and tap **Generate fill**. Now switch Play Through on. You just arranged a four-bar phrase in about fifteen seconds.

GOOD TO KNOW

There is no separate song mode. For a full arrangement with repeats, such as intro, verse, verse, chorus, send pattern-select notes from a DAW. One MIDI note per section is all it takes. See chapter 12.

Pattern tools

While the Sequencer is showing, a row of tools appears in the bar right next to it. Here they are from left to right.

TOOL	WHAT IT DOES
Undo	Steps back through your edits. See chapter 4.
Generate pattern	Writes a brand new pattern for you. See chapter 7.
Generate fill	Turns the end of the pattern into a fill that suits it. See chapter 7.
Copy	Copies the current pattern. The display says `Pattern Copied`.
Paste	Replaces the current pattern with the copied one. No questions asked, but Undo has your back.
Clear	Empties the current pattern. The first time in a session it asks if you are sure.
Full screen	Stretches the Sequencer over the bottom panel. IPAD AND MAC

Things to know about copy and paste:

- A copied pattern stays on the clipboard while you change patterns, sequences and even presets. Copy a groove you like from one kit and paste it into another.
- Paste brings the pattern's flam and substep settings along. Clear resets them to their defaults.
- With Play Through on, "the current pattern" means the one playing at that moment. If you want to be sure which pattern you are editing, turn Play Through off first.

Play and Stop

STANDALONE The **Play button** ▶ in the header starts the sequencer from the top of your chosen pattern. While it is running the button shows a stop square; tap it to stop. When you stop, reverb and delay are allowed to ring out naturally.

In the plug-in there is no Play button. The host's transport starts and stops the sequencer.

Tempo

STANDALONE The tempo lives at the bottom right, and there are three ways to set it. The range is 10 to 240 BPM.

ARROWS	Tap for one BPM up or down. Hold an arrow and it keeps going, then shifts into steps of five once it gets rolling.
DRAG	Put a finger on the number and drag up or right to go faster, down or left to go slower.
TYPE	Tap the number. A box titled NEW TEMPO (BPM) opens. Type a value and tap OKAY. Decimals are welcome: type 127.5 and the display shows the extra half beat as a small digit.

That same box holds the switch for MIDI clock: ALLOW TEMPO TO BE SET BY MIDI CLOCK IN. When an outside clock is in control, the tempo readout turns green and ignores your edits. The clock story is in chapter 12.

Tempo and presets

Every preset stores a tempo, and loading a preset normally sets it. If you are auditioning kits over a beat you are happy with, that is annoying. Tap the **tempo lock**, the padlock beside the tempo. While it is locked, presets come and go and the tempo stays put.

The first time you lock it in a session, a note pops up to confirm that the tempo is now locked. Both locks, tempo and sequence, start out unlocked each time you open the app.

The two locks, side by side

LOCK	WHERE	WHEN LOCKED, LOADING A PRESET KEEPS…
Sequence lock	Beside the sequence name	Your current sequence: all sixteen patterns, grid and lengths
Tempo lock	Beside the tempo	Your current tempo

Lock them both and the preset browser becomes a sound selector: flip through kits while your beat keeps playing, unchanged, at the same speed. It is the best way to find the right drums for a groove.

MAKE BEATS CHAPTER 6

DRUM PADS

Play the kit with your fingers, roll like a marching band, and record what you play straight into a pattern.

Step grids are precise. Fingers are fun. The Drum Pads panel gives you sixteen pads, two roll buttons and a record button, which is everything you need to tap out a beat the way it sounds in your head.

Open the panel with the button. On iPad and Mac it likes to sit in the bottom panel, right under the sequencer, so you can watch your playing land in the grid.

The layout



FIG. 12 The Drum Pads panel in the default drum order. **1** A main pad. **2** Its B pad. **3** A name with a round arrow is a button that changes the drum's model. **4** Pattern record. **5** The roll buttons. **6** The Accent switch.

The pads come in eight pairs. Two kinds of pair are worth telling apart:

KICK, SNARE, TOMS	Both pads play the *same drum*. The left one is the main pad. The right one is the **B pad**, which plays a quieter, Dull hit. Two pads for one drum means you can play it with two fingers, the way a drummer uses two hands, with natural light and shade.
RIM AND CLAP, HATS, CYMBALS	Each pad is a *different drum*: rim shot and clap, closed hat and open hat, crash and ride.

Pads light up orange when you hit them. A closed hat hit cuts off a ringing open hat, exactly like a real hi-hat pedal closing.

GOOD TO KNOW

Pads do not sense how hard you tap. How loud a hit is depends on which pad you use and on the ACCENT switch. That is by design: it keeps your playing consistent with the Normal, Accent and Dull steps of the sequencer.

The Accent switch

The ACCENT switch on the right flips the job of every B pad.

ACCENT SWITCH	MAIN PADS PLAY	B PADS PLAY
Off	Normal hits	Dull hits (quieter)
On	Normal hits	Accent hits (louder)

So with Accent off, the pair gives you "regular and soft". With Accent on, it gives you "regular and loud". The other pads (rim, clap, hats, cymbals) are not affected. The switch always starts in the off position; it is not saved with presets.

Changing drum models from the pads

The names above the kick, snare, tom and clap pads are buttons. Tap one to step that drum to its next model: KICK to KICK '84 to KICK R9 and so on. It is the same switch as the one on the Tuner panel, put here so you can audition models while you

play. Chapter 8 describes the models.

Rolls

Hold a roll button, hold a pad, and the drum repeats for as long as both are down. Either order works.

16	A sixteenth-note roll.
32	A thirty-second-note roll. Twice as fast.

Rolls are smarter than they look:

- **They stay in time.** While the sequencer is playing, a roll locks to the beat and follows the tempo and the main swing. When it is stopped, the roll starts the instant you touch the pad.
- **They get out of the way.** While you roll a drum, the steps already programmed for that drum hold their fire, so the roll never doubles up with the pattern.
- **They follow the grid.** In the triplet grids, the two buttons give you triplet rolls instead.
- **Two pads make it breathe.** Hold a drum's main pad *and* its B pad during a roll and the hits alternate between the two strengths. A snare roll that goes loud, soft, loud, soft sounds far more human than a machine-gun roll.

> **TRY THIS**
>
> Start a beat. Near the end of the bar, hold `32` and press both snare pads together. Let go on the downbeat. That is a fill, and you played it.

Recording your playing

The big red `PATTERN` button turns your taps into steps.

1. Tap `PATTERN`. It starts pulsing in time with the beat. In the standalone app, the sequencer starts by itself if it was not already running.
2. Play the pads. Each hit is written into the pattern on the nearest step.

3 Tap PATTERN again to stop recording. The beat keeps playing so you can hear what you made.

How recording behaves:

- **It overdubs.** The pattern keeps looping and every pass adds to what is there. Build a beat one drum at a time: kick on the first pass, snare on the second, hats on the third.
- **It tidies your timing.** Hits snap to the nearest step of that drum's grid. If your tap was a little early, the app holds the sound back until the step arrives, so what you hear is what got recorded.
- **It records strength.** Main pads record Normal steps. B pads record Dull steps, or Accent steps when the ACCENT switch is on.
- **It records rolls.** A roll writes every one of its hits. A 32 roll writes 32nd notes, even on a row that is showing 16 steps. The grid marks those hidden notes with a small corner; see chapter 4 for how to view them.
- **It can be undone.** Each pass of the loop is one step of Undo, shown as `Undo: Live Record`. The Undo button is with the pattern tools, so on iPhone you need to switch to the Sequencer to reach it.
- **It works with MIDI too.** Notes from a connected keyboard or pad controller are recorded the same way.

Loading a preset switches recording off. In the plug-in, PATTERN does not start playback; it records while the host is playing.

The metronome

STANDALONE Recording a kick onto an empty pattern is hard when there is nothing to play along with. Switch on a click: tap the gear button, then DRUMPAD METRONOME under STANDALONE OPTIONS.

TIMING	OFF, 1/4 (a click on every beat) or 1/8 (clicks on the beat plus quieter ones in between).
SOUND	CLASSIC, SHAKER or RIM.

The click only sounds while PATTERN record is on and the sequencer is running, so it never gets in the way otherwise. It is never part of your audio recordings.

Pads and MIDI

- **Out:** pads send MIDI notes while you hold them, unless MIDI output is switched off. Main pads and B pads send different notes, so a DAW can record your playing with its dynamics.
- **In:** incoming MIDI notes play the drums and light up the matching pads.

The note numbers are in chapter 12.

Watching a pattern play

When recording is off and a pattern is running, the pads flash along with it. Dull steps flash the B pad and everything else flashes the main pad. It is a nice way to see how a factory pattern is put together, and a decent light show.

With VoiceOver

Holding two things at once is awkward with VoiceOver, so the pads have helpers. Double-tap a pad to play one hit. Use the Actions rotor on a pad to choose **Hold pad** or **Release pad**, and on a roll button to choose **Hold roll rate** or **Release roll rate**. Hold a roll rate, hold a pad, and you have a roll without any finger gymnastics.

Steps, knobs, MIDI Learn and the rest are covered in appendix A.

MAKE BEATS CHAPTER 7

THE MAGIC BUTTONS

Three buttons that write a pattern, a fill or a whole new kit for you. No prompts, no internet, no waiting.

Every producer knows the blank-grid stare. Super 909 has three cures for it. Each one is a single tap, each gives a different result every time, and all of it happens on your device. Nothing is sent anywhere.

BUTTON	WHERE	WHAT IT MAKES	WHAT IT REPLACES
Generate pattern	Pattern tools, beside the Sequencer	One complete pattern in a named style	The current pattern
Generate fill	Pattern tools, beside the Sequencer	A fill at the end of your pattern	Part of the current pattern
Generate drum kit	The preset browser	A new kit with four matching patterns	Nothing, until you tap Keep

Generate pattern

Tap the wand in the pattern tools and the current pattern is replaced with a brand new one. The display tells you what you got:

```
Created: Deep House · High
```

The first part is the **style**. The second is the **energy**: Low, Medium or High, which is roughly how busy the pattern is. Tap again and you get a different style. You never get the same style twice in a row.

What it respects

- **Your grid.** The pattern is written for the grid you are in, triplets included.
- **Your lengths.** The sequence's Last Step and each drum's own Last Step stay as they are.
- **Your flam and substep settings** for that pattern.

- **Your tempo and swing.** The generator writes notes and leaves the feel to you.

What it overwrites

Everything in the current pattern: all eleven drums and the Accent row. The other fifteen patterns are not touched. The first time you tap the wand in a session, the app asks before it goes ahead. After that it trusts you.

If you change your mind, tap **Undo**. The display confirms with `Undo: Random Pattern (3)`, where the number is the pattern that was put back.

> **TIP**
>
> With Play Through on, "the current pattern" is whichever one is playing at that moment. To aim the wand at a particular slot, turn Play Through off and tap the pattern button first.

The styles

There are twenty-nine, and house and techno come up most often.

- **House:** Classic House, Deep House, Jacking House, Percussive House, Acid House, Ghetto House
- **Techno:** Detroit Techno, Warehouse Techno, Minimal Techno, Rolling Tom Techno, Hard Techno, Dub Techno, Industrial Techno, Tribal Techno
- **Dance:** Eurodance, Trance, Big Room, Hard Dance
- **Crossover:** UK Garage, Electro Crossover, 909 Hip-Hop, 909 Boom Bap, 909 Miami Bass, 909 Trap
- **Breaks:** Breakbeat, Drum & Bass, Jungle, Liquid D&B, Halftime D&B

> **TRY THIS**
>
> Lock the tempo, then tap the wand ten times in a row with the beat playing. It is a tour of thirty years of dance music in about twenty seconds. When one makes you nod, stop and start editing. A generated pattern is a starting point, not a verdict.

Generate fill

A fill is the little flourish at the end of a phrase that says "something is about to happen". The fill button reads the pattern you already have and rewrites the end of it so the fill belongs to your beat.

Depending on the roll of the dice, it changes the **last beat**, the **last half of the bar**, or puts a **variation across the whole bar**. The display names what it did:

```
New Fill: Snare Roll
```

The twelve kinds of fill are Dropout Pickup, Kick Turnaround, Snare Roll, Speed-Up Roll, Build & Pause, Tom Phrase, Rim Run, Clap Build, Hat Ratchet, Tom Cascade, Break Chop and Kick Roll. You never get the same kind twice in a row.

Keep your groove safe

The fill is written *into the current pattern*, so your original ending is replaced. The app says so the first time, and offers good advice: copy the pattern somewhere else first. Here is the routine.

1. Build your groove in pattern 1.
2. Tap **Copy**, tap an empty pattern such as 4, and tap **Paste**.
3. Tap **Generate fill**. Pattern 4 is now your groove with a fill at the end.
4. Not the right one? Tap **Undo** and try again. The display reads `Undo: Fill (4)`.

Now pattern 1 is the groove and pattern 4 is the turnaround. Switch between them by hand, or copy the groove into 2 and 3 as well and let Play Through run all four.

When it says no

`No musical fill fit the current pattern`

The generator tried a few ideas and none of them suited what is there. Tap again, or change the pattern a little and try once more.

`No full-length lane is editable in this loop`

Fills leave alone any drum that runs at its own shorter Last Step, so your polyrhythms survive. If every drum has a shortened lane, there is nowhere left to write.

Generate drum kit

This is the big one. Open the preset browser (tap the display) and tap the wand with the sparkles . In a moment you are listening to a kit nobody has heard before, playing a beat written for it.

What you get

- **A new kit** with its own tunings, decays, panning and effects, built around one of fourteen characters.
- **A new sequence** with related patterns in slots 1 to 4, in a style that suits the kit.
- **Play Through switched on**, so the four patterns play in turn.
- **A tempo and swing to match.** The tempo is left alone if the tempo lock is closed, if the app is following MIDI clock, or if you are in the plug-in, where the host sets it.
- **A name.** The app invents one that is not already in your library.

STANDALONE Playback starts by itself so you hear the result straight away.

The preview

A small window appears with the kit's name and a line that sums it up, something like:

`Dubwise · Deep House · 121 bpm`

That is the kit's character, the pattern style and the tempo. Then it is decision time.

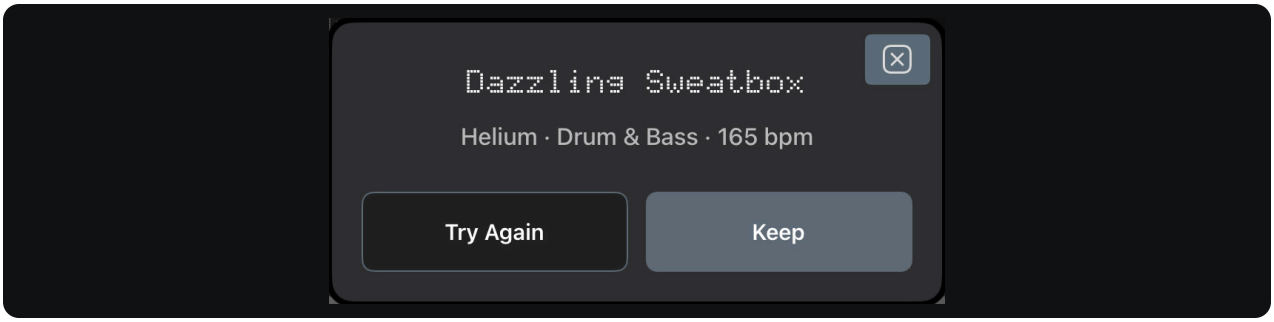

FIG. 13 The preview window. The line under the name gives the kit character, the style of the beat and the tempo.

TRY AGAIN	Throws this one away and rolls a new kit with new patterns. Tap it as often as you like.
KEEP	Saves the kit as a new preset in **USER BANK**, together with its sequence. No naming, no extra steps.
CLOSE (X)	Puts everything back exactly as it was before you tapped the wand: your old kit, your old patterns, your old tempo. Tapping outside the window does the same. Playback is not stopped for you, so if the beat is still running, tap the Play button.

Because of that safety net, the wand is free to use any time. You lose nothing by looking.

The fourteen characters

Tight & Dry, Deep & Boomy, Wide & Airy, Crunchy, Dubwise, Vintage Lo-Fi, Big Room, Warehouse, Helium, Screwed, Industrial, Disco Toms, Micro and Bounce. The app deals them like a deck of cards: you see every character once before any of them comes round again.

GOOD TO KNOW

- A generated kit never switches on more than two effects at once, so it stays usable in a mix.
- If your toms are set to the T1K models, the new kit keeps them that way.
- Mute and Solo are cleared, so you always hear the whole kit.
- Some kits give one or two drums a shorter Last Step of their own. If a lane seems to drift against the others, that is deliberate. See chapter 4.
- The sequencer's Undo button does not bring back your old kit. The Close button on the preview does.

Make it yours

The generators are at their best as collaborators. A few ways to use them:

- **Kit first, beat second.** Keep a generated kit, then clear its patterns and program your own on sounds you would never have dialed in yourself.
- **Beat first, kit second.** Close both padlocks at the bottom of the screen, then browse presets. Your patterns and tempo stay put while the kits change. See chapter 5.
- **Fill in the blanks.** Write a verse and a chorus yourself and let the fill button handle the transitions.

SHAPE SOUND CHAPTER 8

THE DRUMS

Eleven drums, extra models for the ones that matter most, and a panel of knobs that turns a factory kit into your kit.

A beat is only as good as its sounds. This chapter is about the Tuner panel, where every drum gets its own set of knobs, and about the drum models that let you swap the character of the kick, snare, clap and toms with a single tap.

The Tuner panel

Tap the tuning fork  to open the Tuner. Each drum is a column. Its name is at the top, and underneath are three knobs that every drum has:

TUNE	Pitch, lower to the left and higher to the right. The kick is the exception, and it gets its own section below.
DECAY	How long the drum rings. Short for tight and punchy, long for boom and wash.
PAN	Where the drum sits between the left and right speakers.

The kick, snare and clap have more to say, so they get extra knobs in a second column of their own.

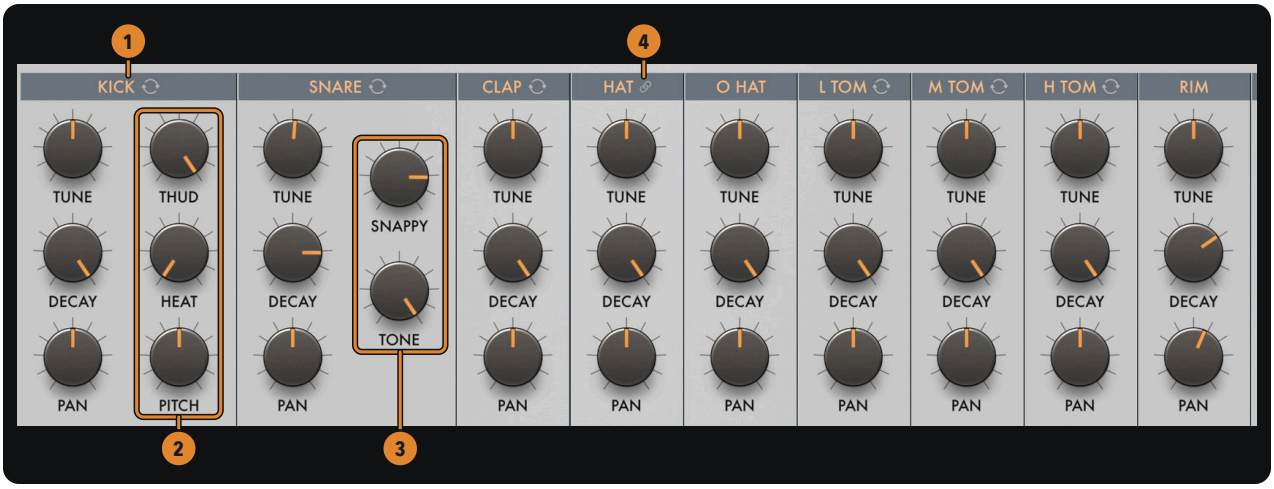

FIG. 14 The first page of the Tuner. **1** A name with a round arrow is a button: tap it to change that drum's model. **2** The kick's extra knobs. **3** The snare's extra knobs. **4** The link icon of the hats.

Getting around

- **Two pages.** When all eleven drums do not fit, the Tuner shows them in two halves. Swipe left or right anywhere on the panel to flip between them.
- **Or one page.** Turn on `FIT TUNER TRACKS` in the Options panel and every drum is squeezed onto one screen with smaller knobs. The display confirms with `Tuner: Fit All Columns`.
- **Double-tap to center.** Double-tap a knob on the Tuner and it returns to its center position.
- **Watch the display.** As you turn a knob, the display at the top of the screen shows the exact value.

Drum models

Six of the drums come in more than one flavor. A model is a different voice for the same drum: same row in the sequencer, same pad, same MIDI note, different sound.

DRUM	MODELS	NOTES
Kick	`KICK` `KICK '84` `KICK R9` `KICK XR9`	Four kicks. XR9 swaps two knobs for pitch-sweep controls.
Snare	`SNARE` `SNARE R9` `SNARE XL`	Each has its own tuning range. XL reaches an octave each way.
Clap	`CLAP` `CLAP R9` `CLAP T8`	Three claps, with optional extra knobs.

DRUM	MODELS	NOTES
Low, Mid and High Tom	`L TOM` / `LT T1K`, `M TOM` / `MT T1K`, `H TOM` / `HT T1K`	Each tom switches on its own, so you can mix the two families.

How to switch

Tap the drum's name at the top of its Tuner column. Each tap moves to the next model, and after the last one it wraps around to the first. The same names sit above the pads on the Drum Pads panel, so you can audition models while you play. A name with a small round arrow beside it is one you can tap.

The sequencer rows follow along with short versions of the names, such as `BD R9`, `SN XL` and `CP T8`, so you can always see which voices a pattern is using.

GOOD TO KNOW

The R9 models take their character from an RD-9, one of the analog hardware units Super 909 was modeled on. The T1K toms, new in version 1.1, are analog toms inspired by the TR-1000. The model you choose for each drum is saved with the preset.

The kick

The kick has six knobs, and one of them does not do what you would guess.

TUNE

On a 909-style kick, Tune does not set the pitch. It sets how fast the pitch drops at the start of the hit. That drop is the "pew" inside every kick drum. Turn it down for a fast, clicky drop, and up for a longer, more obvious sweep. The display reads `0% (Fast)` at one end, `50% (Center)` in the middle and `100% (Full)` at the other.

PITCH

The knob in the lower right is the one that actually tunes the kick. It is a bonus: the original hardware has nothing like it. On the standard kick the display shows the note and the frequency, so you can tune the kick to the key of your track. The ear test works too: loop the kick against your bass line and turn Pitch until the two stop arguing.

DECAY	From a short thump to a long boom. On `KICK '84`, turn Decay all the way up and the tail starts to rumble like an 808.
THUD	The level of the click at the very front of the kick. More Thud cuts through a busy mix. Less gives you a round, soft kick.
HEAT	The kick's own dose of Heat, the app's overdrive. A little adds weight. A lot adds attitude.
PAN	Left to right. Most people leave the kick dead center, and most people are right.

Kick XR9: the pitch-dive kick

Switch the kick to `KICK XR9` and two knobs change their jobs:

- `PAN` becomes `P DEPTH`, the depth of the pitch sweep.
- `PITCH` becomes `X-PITCH`, which reads in percent and semitones, with `50% (Normal)` in the middle.

Between them, these two take the kick from a polite thud to a laser zap. Switch to another kick model and Pan and Pitch come back.

> **TIP**
>
> The first few times you turn the kick's Tune knob, the app pops up a short reminder that Pitch is the knob for tuning. If you turn on `909 DRUM ORDER` in Options, the kick's knobs also rearrange into the classic hardware layout, and Thud is labeled `ATTACK`.

The snare

TUNE	The pitch of the drum's body. The range depends on the model: `SNARE` and `SNARE R9` each have their own range, modeled on the real thing, and the display shows the offset in semitones. `SNARE XL` stretches a full octave up and down, and the display shows the note you are tuned to.

SNAPPY	The amount of noise in the snare: the sizzle of the wires under the drum. Down for a tom-like thwack, up for a bright crack.
TONE	A filter on the snare. Turn it down to darken the drum. At the top the filter steps out of the way completely. The display shows the setting in percent and hertz.
DECAY, PAN	As on every drum.

The clap

All three clap models share Tune, Decay and Pan. For the sound designers, there is more under the hood: turn on **SHOW CLAP KNOBS** in the Options panel and three more knobs appear next to the clap.

NOISE	The level of the clap's noise layer.
LENGTH CLAP AND CLAP T8	The length of the clap.
OFFSET CLAP R9	Takes the place of Length on the R9 clap. It sets the level of the clap's main body.
SPREAD	The timing of the bursts that make up a clap. A clap is really several quick hits in a row. Spread pulls them tighter together or further apart, from one sharp snap to a small crowd.

For all of these, the center position is the clap as it was designed. Double-tap to get back there.

The toms

Three toms, each with Tune, Decay and Pan. As you turn a tom's Tune knob, the display shows the note, how many cents sharp or flat you are, and the frequency, for example `A2 110.0 Hz`. Tuning three toms to notes that fit your track is the quickest way to make a fill sound written.

Tap a tom's name to switch it to its **T1K** model. A few things to know:

- Each tom switches separately. Low T1K with regular mid and high toms is perfectly allowed.
- Each model remembers its own Tune and Decay. Flip back and forth and both sets of knob positions are waiting for you.
- Turn a T1K tom's Decay all the way up and let it ring. That is what it is for.

The hats

The closed hat (`HAT`) and open hat (`O HAT`) each have Tune, Decay and Pan. Two things make them special.

They choke

A closed hat cuts off an open hat that is still ringing, exactly as a real pair of hi-hats does when the pedal comes down. This is why the classic pattern, open hat on the off-beat and closed hat right after, sounds so tight.

They can be linked

Tap the `HAT` or `O HAT` name. The two columns merge into one called `HATS` , and the open hat now follows the closed hat's **Tune, Decay, Pan and volume**. One set of knobs for both, which keeps them sounding like one instrument. Tap the name again to unlink them. The link works the same way on the Mixer, and it is saved with the preset.

Rim shot, crash and ride

Tune, Decay and Pan each. These three are easy to forget and well worth a visit: try the rim shot tuned well away from center, or the crash with its Decay pulled right down.

Reading the display

Different knobs speak different languages on the display. Here is the phrasebook.

KNOB	THE DISPLAY SHOWS	EXAMPLE
Kick Tune	Percent, with a word at the ends and the middle	`50% (Center)`
Kick Pitch, standard kick	Note, cents and frequency	`G1 +12c 49.3 Hz`
Kick Pitch, '84 and R9	Note and the offset in semitones	`A1 +2.00 st`
Kick X-Pitch, XR9	Percent and semitones	`50% (Normal)`
Snare Tune, Snare and R9	Percent and semitones	`50% (Normal)`
Snare Tune, XL	Note and octaves	`(Normal)` at center
Tom Tune	Note, cents and frequency	`A2 110.0 Hz`
Tune on other drums	Octaves up or down	`Normal` at center
Decay	Percent	`75%`
Pan	Position and side	`0.00 Center`

Where the rest lives

- **Levels, Mute and Solo** are on the Mixer: chapter 9.
- **The Analog knob**, which makes every hit slightly different from the last, is on the Sound and effects panel: chapter 9.
- **Any knob on the Tuner can be controlled over MIDI**, and the drum models can be switched that way too: chapter 13.

TRY THIS

Load any preset, press Play, and change only the models: tap through the four kicks, then the three snares, then the claps. Same pattern, same knob positions, and you will hear a dozen different drum machines go past.

SHAPE SOUND CHAPTER 9

MIXER & EFFECTS

Balance the kit, glue it together, then add heat, grit, echoes and space until it sounds like a record.

Two panels turn a pattern into a mix. The Mixer sets how loud each drum is. The Sound and effects panel handles everything that happens to the kit as a whole: volume, swing, a compressor, and five effects that range from "a little warmth" to "what have I done".

The Mixer

Tap the faders icon . Each drum gets a channel with three controls.

FADER	The drum's level. Touch anywhere on the fader and it jumps there, then drag. Double-tap to return to the level stored in the preset.
M	Mute. Silences the drum without touching its steps.
S	Solo. You hear only the soloed drums.

The same Mute and Solo buttons appear at the start of every row in the Sequencer, so you can drop drums in and out from either place.



FIG. 15 The Mixer. Every drum has a fader, M for mute and S for solo. **1** The link icon of the hats. **2** The Accent level.

The Accent fader

On iPad and Mac the Mixer has one extra channel for **ACCENT**. It sets how much louder an accented hit is than a normal one. All the way down, accents sound the same as normal hits. On iPhone this control starts out as a knob on the Sound and effects panel instead. The **ACCENT VOL ON MIXER** switch in Options moves it from one place to the other. Accents themselves are explained in chapter 4.

Linked hats

Tap the **HAT** or **O HAT** name and the two channels merge into one called **HATS**. One fader now sets the level of both. Tap again to separate them. It is the same link as on the Tuner: see chapter 8.

GOOD TO KNOW

There is no pan on the Mixer. Each drum's Pan knob lives on the Tuner. In the plug-in, every drum can also have its own channel in your host's mixer: see chapter 14.

The Sound and effects panel

Tap the knob icon . This panel is organized in labeled groups.



FIG. 16 The Sound and effects panel. **1** The scope, which also shows the preset's notes. **2** The routing buttons of the delay and the reverb.

Before the tour, here is how the sound travels through them, because the order explains a lot of what you hear.

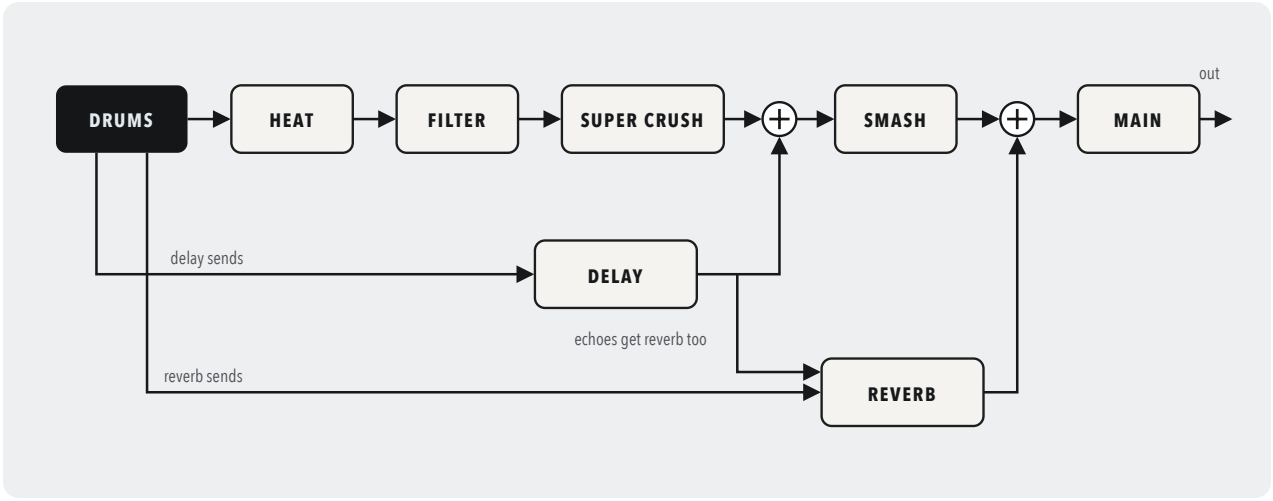

FIG. 17 How the sound flows. The delay joins the mix before Smash and the reverb joins after it. The sends pick up Heat, the Filter and Super Crush on their way to the delay and the reverb.

Three things follow from that picture:

- **Smash squeezes the echoes but not the reverb.** The delay is part of the mix when it reaches the compressor. The reverb is added afterwards, so a hard-working Smash does not make the reverb tail pump.

- **Close the filter and the effects go dark too.** The sends pass through Heat, the Filter and Super Crush before they reach the delay and the reverb, so the echoes always match the drums.
- **Echoes get reverb.** The delay's output also feeds the reverb. That is why a delayed snare sits in the same room as everything else.

Volume

MAIN	The overall output level. It is the last thing in the chain.
ACCENT	How much louder accented hits are. You see this knob here when the Accent fader is not on the Mixer.
SMASH	A one-knob compressor on the whole mix. As you turn it up, the threshold comes down and the make-up gain goes up, so quiet details rise and loud hits are held back. The display shows the amount and the threshold in decibels. At the very bottom it reads `Off ⚡` and steps out of the signal path entirely.

Analog Feel

SWING	The main swing amount, from `50% (Straight)` to `75% (Maximum)`, with `66% (Triplet)` on the way. The full story, including a separate swing for each drum, is in chapter 4.
ANALOG	Makes every hit a little different from the one before, the way analog circuits do. Turn it up and each drum drifts slightly in pitch, level and stereo position from hit to hit. A small amount makes a pattern breathe. A large amount sounds like a machine that needs servicing, in a good way.

In the middle of the panel a small scope draws the sound as it leaves the app. Tap it to change the look of the app's side panels. That one is purely for your eyes.

Heat

Overdrive, tuned for drums.

ON	Switches Heat in and out.

DRIVE	How hard the drums are pushed. Above about two thirds the display adds `Careful ⚡`, which is the app's polite way of saying you are now in distortion territory.

Heat leaves the **closed hat, open hat, crash and ride** alone. Overdriven cymbals turn to fizz very quickly, so they pass around Heat and stay clean while the kick, snare, toms, rim and clap get the treatment.

Filter

A Moog-inspired low-pass filter over the whole kit.

CUTOFF	Turn it down to roll off the highs, all the way to a muffled thump. The display shows the frequency.
REZ	Resonance: a peak right at the cutoff point. It adds a vocal, whistling edge to filter sweeps. Near the top the display warns `Careful ⚡`.

> **TRY THIS**
>
> The oldest trick in dance music: with the beat playing, pull Cutoff down slowly over eight bars, add a little Rez, then open it all at once on the downbeat. Map Cutoff to a hardware knob (chapter 13) and you can do it with one hand while the other reaches for the reverb.

Super Crush

A digital crusher with a clever twist: it leaves the low end alone.

ON	Switches Super Crush in and out.
MANGLE	Roughens the shape of the sound by rounding it off in coarse steps. More is nastier.
CRUSH	Lowers the sample rate, for the gritty, ringing tone of an early sampler. It starts at zero.

LOCUT	Everything below this frequency skips the crusher and stays clean. It starts at 111 Hz, which keeps the weight of the kick intact while the top of the kit gets chewed up. Raise it to protect more of the low end, up to 800 Hz.
MIX	Blends the crushed sound with the clean one.

Delay

A stereo ping-pong delay, locked to the tempo. Each repeat lands on the opposite side from the last.

ON	Switches the delay in and out.
TIME	The gap between repeats, as a note value. There are fifteen settings, from `1/128 T` to `1 Bar`, including triplets (the ones marked T). `1/8` and `1/8 T` are the classics. Change the tempo and the delay follows.
TAPS	Feedback: how many repeats you hear before the echo dies away.
LEVEL	How loud the echoes are.

Reverb

Space, from a small room to somewhere much larger and stranger.

ON	Switches the reverb in and out.
SIZE	How big the space is and how long it rings. At the very top the display stops showing a number and simply says `Blackhole`. It means it.
LOCUT	Removes low frequencies from what goes into the reverb. Turn it up to stop the reverb from getting muddy.
LEVEL	How loud the reverb is.

Who gets delay and reverb

The delay and the reverb each have a small **routing button** in the heading of their group. Tap it and a list titled DELAY ROUTING or REVERB ROUTING opens, with one row per drum. Tap a drum to switch its send on or off. It is that simple: a drum either feeds the effect or it does not.



FIG. 18 The routing list of the delay, as it starts out. A check mark means the drum feeds the effect.

IN A NEW PRESET	DELAY	REVERB
Snare, Low Tom, Mid Tom, High Tom, Rim Shot, Clap	On	On
Kick, Closed Hat, Open Hat, Crash, Ride	Off	Off

That starting point is the classic mixing advice built in: keep the kick dry so the low end stays tight, and keep the hats and cymbals out so the top end stays clear. Break the rule whenever it sounds good.

TRY THIS

Open DELAY ROUTING and switch everything off except the rim shot. Set Time to 1/8 T and Taps to about half. Now put two or three rim shots in an otherwise simple pattern. One drum, one effect, and suddenly the beat has a melody.

Good habits

- **Everything on both panels is saved in the preset**: levels, mutes and solos, every effect setting, and the routing lists.
- **Double-tap goes home.** On the Mixer and on the Sound and effects panel, a double-tap returns a control to the value stored in the preset. It is a quick way to compare your tweak with the original.
- **Read the display.** It shows the exact value of whatever you are moving.
- **Stems are dry.** When you export stems, each drum is rendered without the effects on this panel, so you can mix them in your DAW. Loop exports include everything. See chapter 11.
- **It all responds to MIDI.** Any knob, fader or switch here can be mapped to a controller: chapter 13.

KEEP & SHARE CHAPTER 10

PRESETS & SEQUENCES

Save your kits and your beats, keep them organized, swap one without losing the other, and never lose anything by accident.

Super 909 keeps two libraries. One holds **presets**: complete setups with a kit, effects, a tempo and a beat. The other holds **sequences**: just the beats. Keeping them apart is what lets you play one beat on many kits, or try many beats on one kit.

What is in a preset, what is in a sequence

	A PRESET HOLDS	A SEQUENCE HOLDS
Sound	Drum models, every Tuner knob, the Mixer, all effects and routing	Nothing
Time	The tempo, the main Swing	Each drum's own swing
Notes	Its own copy of a sequence, and which pattern was selected	All sixteen patterns, the grid, the Last Step and each drum's Last Step
Extras	Play Through, the MIDI Out mode, your written notes	

The important line is the third one. **A preset always carries its own copy of its beat.** Load a preset and the beat is there, even if you have never opened the sequence library. The sequence library is the place to keep beats you want to reuse somewhere else.

Loading presets

The quickest way is the pair of **arrows beside the display**: previous and next preset. For everything else, tap the **display** itself. The preset browser opens. Tap the display again to close it.

The browser has a list of collections and, next to it, the presets in the collection you picked. Tap a preset to load it.

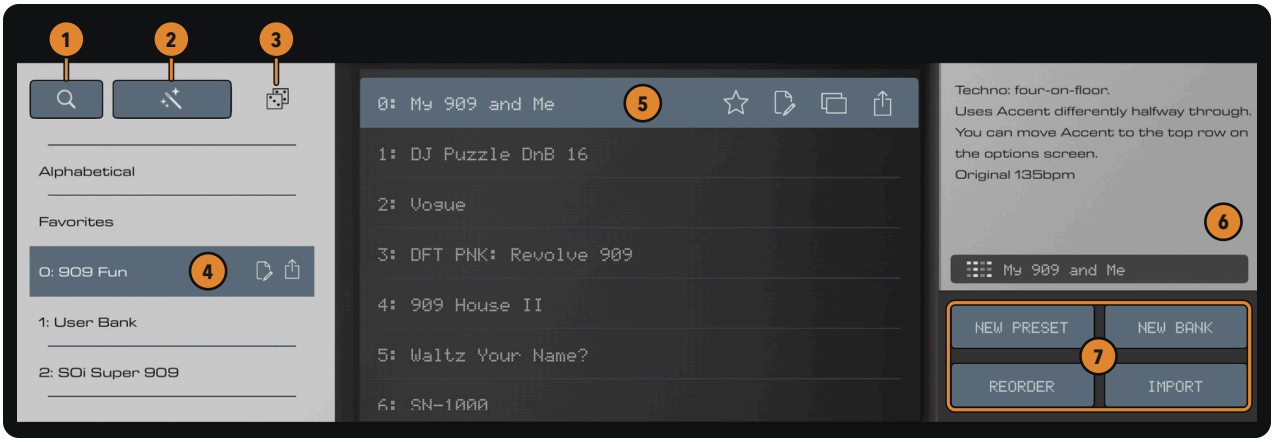

FIG. 19 The preset browser. **1** Search. **2** Generate drum kit. **3** The dice. **4** Collections and banks. **5** The selected preset and its four buttons. **6** Notes, and the name of the preset's sequence. **7** The bigger jobs.

ALL	Every preset in the library.
ALPHABETICAL	Every preset from A to Z.
FAVORITES	The presets you have starred.
BANKS	Your folders. Super 909 arrives with 217 presets in six banks: **909 FUN**, **SOI SUPER 909**, **DMT CYMATICS**, **ALI'S BEATS**, **DA FINGAZ** and **USER BANK**, which is where your own presets go unless you say otherwise.

Inside a bank, every preset has a number in front of its name. That is its position in the bank, counted from 0 the way MIDI counts, and it doubles as the Program Change number that loads the preset over MIDI (see chapter 12). The banks are numbered the same way. In All, Alphabetical and Favorites you see the bank's number first, then the position.

Three buttons help you find things, or stop looking:

- **Search** finds a preset by name across the whole library.
- **Dice** loads a random preset. It works through the library without repeats, so keep tapping.

- **Generate drum kit** invents a new preset on the spot. See chapter 7.

> **TIP**
>
> The arrows beside the display move through whichever collection is open in the browser. Open FAVORITES before a gig and the arrows become a set list.

What a preset changes, and how to stop it

Loading a preset normally replaces three things: the sound, the tempo and the sequence. Two padlocks at the bottom of the screen let you hold on to the last two.

CLOSE THIS LOCK	AND A NEW PRESET
Sequence lock, beside the sequence name	Keeps your current patterns and brings only its sound
Tempo lock, beside the tempo STANDALONE	Keeps your current tempo

Saving a preset

Tap **Save** beside the display. The save window has two halves: one for the preset and one for its sequence.

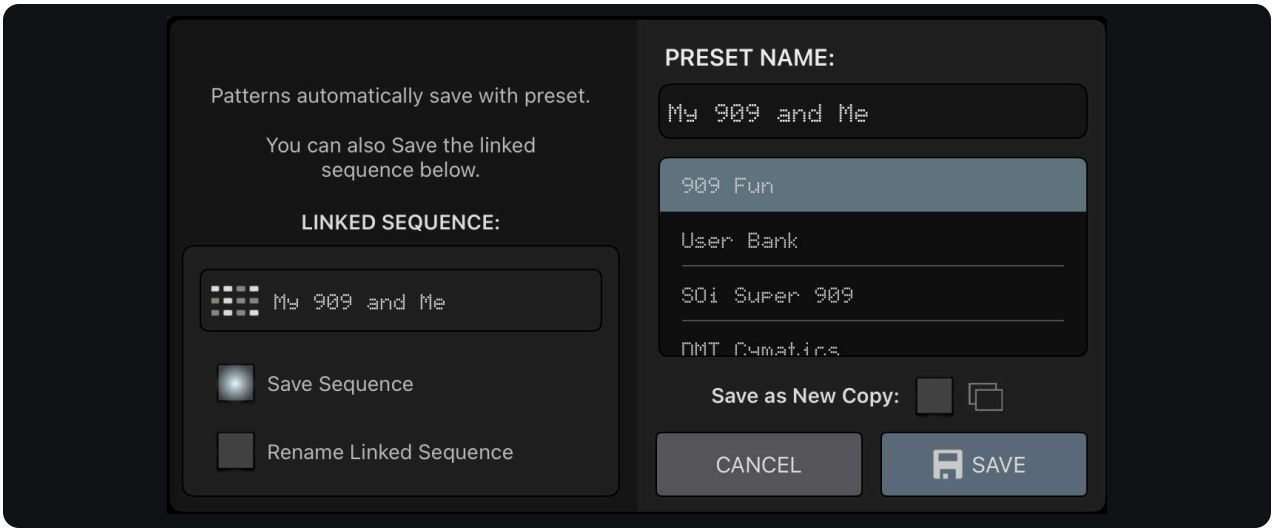

FIG. 20 The save window: the sequence on the left, the preset on the right.

PRESET NAME	Type a name, or leave it to save over the preset you have open.
BANK LIST	Choose the bank to save into.
SAVE AS NEW COPY	On: a new preset is created and the original is left alone. Off: the preset you have open is updated. The switch turns itself on the moment you change the name of an existing preset, because that is almost always what you meant. Switch it back off if you really did want to rename and overwrite.
SAVE SEQUENCE	On, which is how it starts: the beat is also stored in the sequence library, in the bank with the same name as the preset's bank. Off: the beat is stored inside the preset only.
RENAME LINKED SEQUENCE	Gives the sequence the same name as the preset. It switches on by itself when you are saving a new copy.

Tap `SAVE` and you are done. A note in the window sums up the safety net: your patterns are always saved with the preset, whatever you choose for the sequence.

GOOD TO KNOW

Several presets can share one sequence in the library. If you rename a shared sequence while saving, the app quietly makes a new sequence for this preset, so the other presets keep the beat they had.

Managing presets and banks

The selected preset's row has four small buttons.

BUTTON	WHAT IT DOES
Star ★	Adds the preset to Favorites, or takes it out.
Pencil ✎	Opens a short menu: `RENAME`, `MOVE TO BANK` and `DELETE PRESET`.

BUTTON	WHAT IT DOES
Duplicate	Makes a copy in User Bank, with the beat as it is right now, and loads it.
Share	Sends the preset as a file. More below.

A selected bank has a pencil and a share button of its own. The pencil offers `RENAME`, `DELETE BANK` and, for the banks that came with the app, `RESET TO FACTORY...`

The browser also has buttons for bigger jobs:

NEW PRESET	Asks you to choose a drum kit, `DEFAULT` or `BR-9`, then creates an `Init Preset` in User Bank with an empty sequence and loads it. This is your blank page.
NEW BANK	Creates a bank with one init preset inside, ready to fill.
REORDER	Lets you drag presets and banks into a new order. The button turns into `DONE!` while you are at it. It works inside a bank.
IMPORT	Opens the file picker. Choose a preset file, a bank file, or a MIDI file. A single preset lands in the bank you are looking at. If you are looking at All, Alphabetical or Favorites, it goes into a bank called `IMPORT BANK`.

Notes

Every preset has a small text box for notes: what the beat is for, which knob to ride, who it reminds you of. Tap the text in the preset browser to edit it, then tap `SAVE`. The notes also appear on the Sound and effects panel.

Deleting is not forever

Delete a preset or a bank and the app asks you to confirm, then moves it to **Recently Deleted**. Nothing is gone until you remove it from there yourself. To get something back, or to remove it for good:

1. Tap the gear button to open Options.
2. Under `SYNC PRESETS ON DEVICES`, tap `SETTINGS`. A window titled `PRESET SYNC & RECOVERY` opens.

3 Find the item under **RECENTLY DELETED PRESETS** or **RECENTLY DELETED BANKS**, tap it, and choose **RESTORE**.

The same window has two more safety nets:

- **Local Snapshots.** Tap **SAVE A SNAPSHOT** to store a copy of your whole preset library on this device. Tap an older snapshot to restore it. Restoring adds the saved sounds back, and if a preset exists in both places in different versions, you keep both.
- **Factory Banks.** Reset any bundled bank to the way it shipped, even one you deleted. Your favorites and the presets in other banks are not touched, and a snapshot is saved first.

The sequence library

The name of the current sequence sits at the bottom of the screen, between the pattern buttons and the tempo. The arrows beside it step through sequences. Tap the name and the sequence browser opens. Its title bar shows the collection you are looking at.

It mirrors the preset browser: collections named **ALL SEQUENCES** and **FAVORITES**, followed by your sequence banks. The app comes with 87 sequences in a bank called **909 FUN**. Tap a sequence and it loads into the sequencer: all sixteen patterns, with the grid and lengths they were written for. Your kit, your effects and your tempo stay exactly as they are.



FIG. 21 The sequence browser, in the bottom panel on iPad. **1** The collection you are in. **2** Search. **3** The dice. **4** Reorder. **5** Collections and banks. **6** The selected sequence and its three buttons.

BUTTON	WHAT IT DOES
Search	Filters the list by name.
Dice	Loads a random sequence from the collection you are in.
Reorder	Drag sequences and banks into a new order.
+ Bank	Creates a new sequence bank and asks for a name.
Import	Brings in a sequence bank file or a MIDI file.
Close	Closes the browser.

The selected sequence has three buttons of its own: a **star** for Favorites, a **pencil** (`RENAME`, `MOVE TO BANK`, `DELETE SEQUENCE`) and a **disk** that saves your current patterns into that sequence. A selected sequence bank has a pencil for `RENAME` and `DELETE BANK`, and a share button.

The asterisk

When you change anything in the patterns, an asterisk appears after the sequence name, as in `Night Drive*`. It means the sequence has changes that are not in the library yet. Two ways to deal with it:

- Save the preset with `SAVE SEQUENCE` on, or
- Open the sequence browser and tap the **disk** on the sequence. The app answers with a cheerful "saved!"

If you try to load a different sequence while yours has unsaved changes, the app stops and asks `LOAD NEW SEQUENCE?`

Save Sequence

Saves your changes first, then loads the new one.

Load Sequence

Loads the new one and drops your changes.

Keep Editing

Cancels. Nothing changes.

Don't warn me again this session

For when you are auditioning sequences and know what you are doing.

TRY THIS

Load a kit you love and close nothing. Tap the sequence name, pick ALL SEQUENCES, and tap the dice a few times. Eighty-seven different beats on your kit, one tap each. When one fits, save the preset and the pair is yours.

Sharing and importing

Presets, banks and sequence banks travel as small files. Tap a share button and your device asks where to send it: AirDrop, Files, Messages, mail. On the Mac you get a short menu with SAVE FILE... and SHARE...

YOU SHARE	THE FILE ENDS IN	IT CONTAINS
A preset	`.super909.preset.json`	The sound, the tempo and its sixteen patterns
A preset bank	`.super909.bank.json`	Every preset in the bank, patterns included
A sequence bank	`.super909.sequence.bank.json`	Every sequence in the bank

To bring a file in, save it somewhere the Files app can reach, then use IMPORT in the preset browser (for presets and preset banks) or in the sequence browser (for sequence banks). MIDI files can be imported from either place. That story is in chapter 11.

The same presets on every device

If you use Super 909 on more than one device, preset sync keeps your library the same on all of them through iCloud. Start a beat on the phone, finish it in your DAW on the Mac.

1. Open Options and switch on SYNC PRESETS ON DEVICES.

2. Read the summary and tap **ENABLE SYNC**. The app saves a snapshot of your library first.
3. Do the same on each device you want to include.

Things worth knowing:

- **Libraries are combined, not replaced.** Presets, banks and favorites from all your devices are merged.
- **Same name, two devices?** Both are kept, and they get labels such as `(Mac)` so you can tell them apart.
- **Patterns come along.** Presets sync with the beats saved inside them. The separate sequence library does not sync. It stays on each device.
- **Sync Now** in Options checks in with iCloud straight away. **SETTINGS** shows the current status and lets you turn sync off again.
- **The standalone app does the syncing.** The plug-in shares the same library, and anything you save there syncs the next time the app is open. See chapter 14.

KEEP & SHARE CHAPTER 11

EXPORT & RECORDING

Get your beats out of the box as audio loops, separate stems or MIDI files, in one tap. Then drag MIDI in and out like it is nothing.

A beat that never leaves the app is a secret. Super 909 gives you five ways to share it: loops, stems, MIDI files, drag and drop, and a good old record button.

Which one do I want?

I WANT TO...	USE	YOU GET
Drop a finished loop into a DAW or sampler	Export Loops	A WAV of the full mix, cut to loop perfectly
Mix every drum myself	Export Stems	One WAV per drum, dry
Edit the notes or use other drum sounds	Export MIDI	A standard MIDI file
Capture a live performance, knob moves and all	The Record button	A WAV of everything you heard STANDALONE
Move a pattern into another app right now	Drag and drop	A MIDI file, handed over directly

The Export panel

Tap the **Export button** in the header. It is the square with an arrow pointing up. The EXPORT / SHARE panel opens with three columns, and each column has the same two buttons: PATTERN exports the pattern you are on, and ALL PATTERNS exports every pattern in the sequence that has something in it. Empty patterns are skipped.



FIG. 22 The Export panel. Close it with the X or by tapping outside it.

When the export is ready, your device asks where it should go:

- **iPhone and iPad:** the share sheet. Save to Files, AirDrop it, or send it straight to another app.
- **Mac app:** a small menu with `SAVE FILE...` and `SHARE...`.
- **Mac plug-in:** a save dialog.

The display keeps you posted with messages such as `Rendering 1-loop WAV...` and `Creating ZIP...`. In the standalone app, playback stops while audio renders.

Export Loops

A loop export is the full mix, exactly as it sounds: every drum, the mixer, the effects, the swing, at the current tempo. Muted drums stay muted and soloed drums stay soloed, so set the mix up the way you want to hear it first.

PATTERN	One WAV of the current pattern.
ALL PATTERNS	Asks how you want them: • `ONE LONG WAV FILE` plays the patterns back to back in a single file. Reverb and delay ring across the joins, just as they do when Play Through runs live. Great for a quick arrangement bounce. • `FILES FOR EACH PATTERN` gives you a separate WAV for each pattern, packed into one ZIP.

INCLUDE FX TAILS	Decides what happens at the end of the loop. See below.

Tails or no tails?

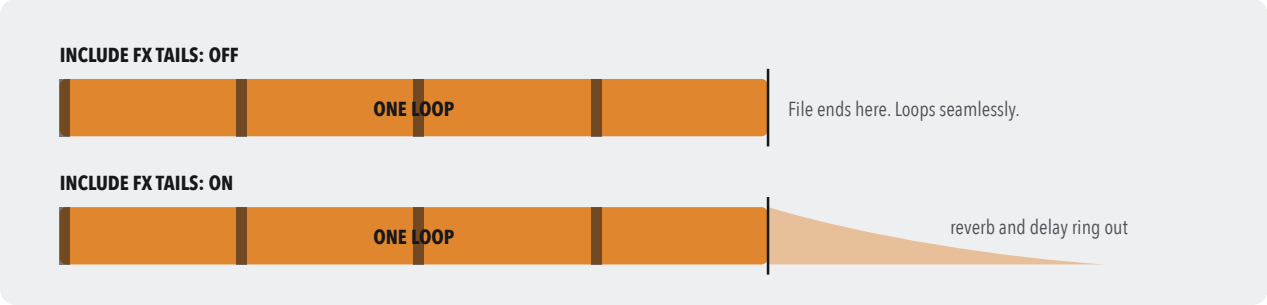

FIG. 23 With tails off, the file is exactly one loop long. With tails on, the file keeps going while the effects fade.

- **Off** gives you a file that is exactly one loop long, cut at the loop point. Use it for anything that will repeat: loopers, samplers, clip launchers.
- **On** lets the delay and reverb fade naturally after the last step. The app keeps rendering for at least four seconds, then stops once the tail has fallen silent (24 seconds at most). Use it for one-shots and endings.

Export MIDI

MIDI export writes the notes, not the sound. Open the file in any DAW and every hit is there to edit, quantize, or play through a completely different kit.

PATTERN	One MIDI file of the current pattern.
ALL PATTERNS	`ONE LONG MIDI FILE` lays the patterns end to end in a single file. `FILES FOR EACH PATTERN` gives you one file per pattern in a ZIP.

What is inside the file:

- **The notes** use the drum note map from chapter 12: 36 for the kick, 38 for the snare, and so on, all on channel 1.
- **Velocity** carries the dynamics: Normal steps are 80, Dull steps are 50, and Accent steps land between 82 and 112 depending on the Accent amount.

- **Flams and substeps** are written out as real notes, so a three-hit ratchet becomes three notes.
- **Tempo** is stored in the file, with a 4/4 time signature.
- **Every drum with steps is included,** even muted ones. Mute and Solo are mixer decisions, and MIDI export ignores them.

GOOD TO KNOW

MIDI files are written on the straight grid. Swing is not baked into the note positions, so add swing or a groove in your DAW if you want it. Audio exports (loops and stems) do include the swing.

Export Stems

Stems are what you send to a mix. Instead of one stereo file, you get a separate WAV for every drum that plays in the pattern, all the same length.

PATTERN	A set of WAVs for the current pattern, one per drum.
ALL PATTERNS	ONE LONG WAV PER STEM renders the whole run of patterns as one continuous file per drum. FILES FOR EACH PATTERN makes a set of stems for each pattern. Either way it arrives as a ZIP.

Three rules decide what lands in a stem:

- **Only drums that actually play get a file.** A drum with no steps is skipped. So is a muted drum, and when anything is soloed, only the soloed drums are exported.
- **Each stem keeps its own drum settings:** model, tune, decay and the rest.
- **The shared effects are left out.** Reverb, crush and the other effects that work on the whole mix are not printed into the stems. That is on purpose: it leaves the mixing decisions to you.

The first time you export stems, the app shows a short note saying the same thing. Tap CONTINUE to carry on.

Odd lengths and polyrhythms

If some drums have their own shorter Last Step (see chapter 4), a single pass of the pattern does not repeat cleanly. Super 909 handles this for you: when you export a single pattern, it renders as many passes as it takes for all the lanes to line up again, so the loop is seamless.

A few combinations take a very long time to come back around. If the result would be longer than ten minutes, the app stops and tells you so instead of writing an enormous file. Pick lane lengths that share a common multiple, such as 12 and 16, and you will be fine.

This applies to single patterns and to each file of a `FILES FOR EACH PATTERN` export. The `ONE LONG` exports work differently: every pattern plays through once, just as it does live with Play Through, so the file has the same length as your arrangement.

How the files are named

Files are named so you can tell them apart in a crowded folder: a `909` prefix, the preset name, the pattern number, and the date and time.

EXPORT	EXAMPLE FILE NAME
Loop	`909_My_Kit_P01_2026-11-23_14-30-05.wav`
Loop with FX tails	`909_My_Kit_P01_plus-tail_2026-11-23_14-30-05.wav`
All patterns, one file	`909_My_Kit_All_2026-11-23_14-30-05.wav`
MIDI	`909_My_Kit_P01_2026-11-23_14-30-05.mid`
Stem	`909_My_Kit_P01_BD_2026-11-23_14-30-05.wav`
Recording	`Super909_2026-11-23_14-30-05.wav`

Stem files carry a two-letter code for the drum: `BD` kick, `SD` snare, `LT`, `MT` and `HT` for the toms, `RS` rim shot, `CP` clap, `CH` closed hat, `OH` open hat, `CR` crash and `RD` ride.

Drag and drop MIDI

Sometimes a panel is one tap too many. On devices that support dragging between apps, you can pull MIDI straight out of Super 909.

DRAG A PATTERN BUTTON	Hands over that one pattern as a MIDI file.
DRAG THE SEQUENCE NAME	Hands over the whole sequence, with all its patterns end to end in one MIDI file.

Drop it on a DAW track, a folder, or anything else that accepts a MIDI file.

Bringing MIDI in

It works in the other direction too. Super 909 reads standard MIDI files and turns them into patterns. There are three doors:

DOOR	WHERE THE MIDI LANDS
Drop a MIDI file onto the Super 909 window	Into the sequence you are working on, starting at the current pattern
Preset browser, IMPORT, then pick a .mid file	
Sequence browser, IMPORT, then pick a .mid file	Into a brand new sequence, which you get to name

The app always asks before it changes anything. For the first two doors the question looks like *"Import 4 bars into patterns 1-4?"*, with a reminder that the existing pattern data in that range will be replaced. Tap IMPORT to go ahead. If the result is not what you hoped for, the sequencer's Undo button takes it back.

How a MIDI file becomes patterns

- **One bar becomes one pattern.** A four-bar clip fills four patterns. Sixteen bars is the limit, because a sequence holds sixteen patterns.
- **A single bar goes into the pattern you are on.** Several bars start at the current pattern if they fit before pattern 16. If they do not fit, they start at pattern 1.

- **Notes are matched with the drum note map,** B pad notes and the alternate closed hat included. Notes that are not in the map are skipped, and the app tells you how many.
- **The grid is chosen for you.** The importer looks at the timing and picks 16ths, 32nds or one of the triplet grids.
- **Dynamics survive.** The importer compares each note with that drum's usual velocity. Clearly louder notes become Accent steps and clearly quieter ones become Dull steps. Tight double hits are recognized as flams, and fast repeats inside a step become substeps.
- **Bars longer than 4/4 cannot be imported,** because they do not fit in one pattern.
- **One file at a time.** Drop a single MIDI file, and close any open pop-up first: the app does not accept a drop while one is showing.
- **Some files hold several sequences.** If you pick a format 2 MIDI file, which contains independent sequences, the app asks which one you want.
- **There has to be a drum in it.** If no note in the file matches the drum note map, the import stops and tells you so.

TIP

MIDI files exported from Super 909 carry a little extra information that only Super 909 reads. It lets a pattern make the round trip, out and back in, with its accents intact. Other apps simply ignore it.

The Record button

STANDALONE The Record button sits in the bottom row, between the sequence lock and the tempo. It records the app's output to a WAV file: everything you hear, effects included, for as long as you like. Use it when the performance *is* the point, with pattern switches, knob rides and pad fills.

1. Tap Record. The display says `Waiting for first hit...`. Nothing is being recorded yet, so take your time.
2. Start playing. Recording begins on the very first drum hit, whether it comes from the sequencer, a pad or a MIDI note. The display switches to `RECORDING...`.

3 Tap Record again to finish. The display says `Exporting the recording...` and then offers you the file.

Because recording waits for the first hit, your file starts right on the beat with no dead air in front. If you stop before anything played, the display says `No recording captured` and no file is made.

GOOD TO KNOW

The Drum Pad metronome is never recorded, so you can leave the click on while you perform. In the plug-in there is no Record button: record the track in your host instead.

CONNECT CHAPTER 12

MIDI & SYNC

Play the drums from a keyboard, let a DAW run the show, send notes out, and keep everything locked to the same clock.

Super 909 is a good bandmate. It listens, it talks, and it keeps time with whoever is in charge. This chapter covers the notes and the clocks. Knob control (CCs) has its own chapter right after this one.

The short version

- Any MIDI keyboard or pad controller can play the drums. Plug it in and hit note 36 for a kick.
- Notes 16 to 31 choose patterns. Notes 32 and 33 are Play and Stop. A DAW can run the whole machine with a handful of notes.
- Super 909 can send MIDI too: either the pattern changes or every single drum hit.
- For tempo, it follows MIDI clock, Ableton Link, or the host when it runs as a plug-in.

Getting MIDI in

Standalone app

There is nothing to switch on. The app listens to every MIDI source your device can see, so a class-compliant USB controller works as soon as it is connected. Other apps on the same device can also send to a virtual port named **Super909 MIDI In**.

BLUETOOTH	Tap the gear button, then `BLUETOOTH MIDI` under `STANDALONE OPTIONS`. Choose your controller in the list that opens.

CHANNEL

The app starts in **MIDI CHANNEL: OMNI**, which means it accepts every channel. To narrow it down, tap that row in the Options panel. A small **MIDI CHANNEL IN** window opens; step through Omni and channels 1 to 16, then tap **DONE**.

AUv3 plug-in

MIDI comes from the host. Point a MIDI track or a controller at the plug-in the way your host normally does it. Everything in the note map below works the same.

The note map

Here is the whole kit on a keyboard. One happy accident makes it easy to remember: the white keys are the kick, snare and toms, and the black keys are everything metallic or clappy.

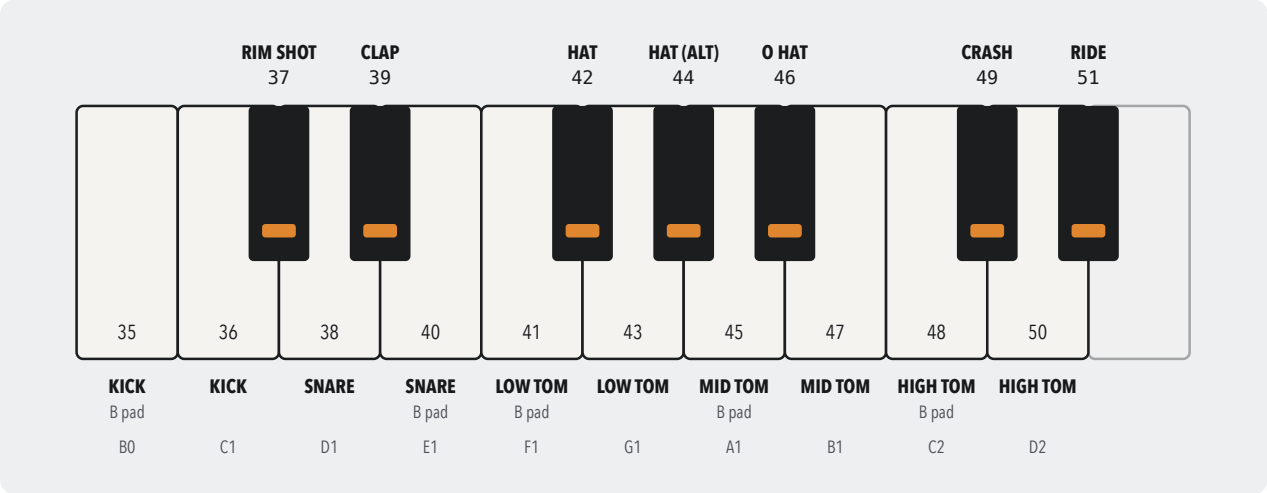

FIG. 24 The drum note map. The numbers are MIDI note numbers. Note names follow the app's own reference list, where note 36 is C1.

DRUM	MAIN NOTE	B PAD NOTE
Kick	36 (C1)	35 (B0)
Snare	38 (D1)	40 (E1)
Low Tom	43 (G1)	41 (F1)
Mid Tom	47 (B1)	45 (A1)
High Tom	50 (D2)	48 (C2)

DRUM	MAIN NOTE	B PAD NOTE
Rim Shot	37 (C#1)	
Clap	39 (D#1)	
Closed Hat	42 (F#1), also 44 (G#1)	
Open Hat	46 (A#1)	
Crash	49 (C#2)	
Ride	51 (D#2)	

A few things worth knowing when you play the kit from MIDI:

- **Velocity matters.** Hit a key harder and the drum plays louder.
- **The pads light up.** Incoming notes flash the matching pad on the Drum Pads panel, and B pad notes flash the B pad.
- **You can record it.** With PATTERN record on and the sequencer running, notes you play are written into the pattern. Main notes record as Normal hits. B pad notes record as Dull hits, or Accent hits when the pad panel's ACCENT switch is on. See chapter 6.
- **Other notes are ignored.** Nothing outside the map makes a sound.

GOOD TO KNOW

Note names are not standardized. One app calls note 36 "C1", another calls the same note "C2". When in doubt, go by the number. The same list is built into the app: open the Options panel and read the MIDI REFERENCE box.

Remote control: patterns, play and stop

Below the drums sit eighteen notes that do not make a sound. They push buttons for you.

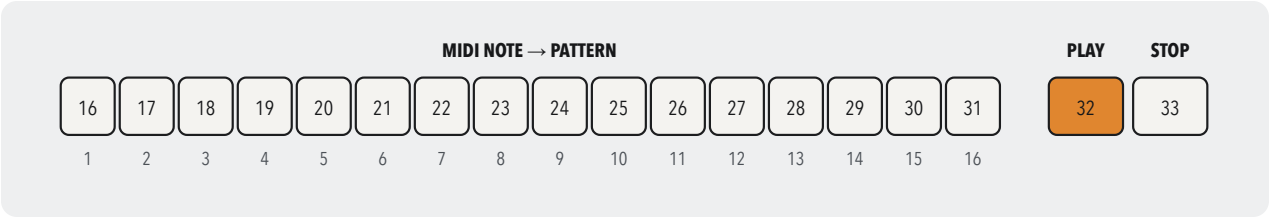

FIG. 25 The remote-control notes. Top row of each key is the MIDI note number; the small number underneath is the pattern it selects.

NOTES	WHAT THEY DO
`16 to 31 (E–1 to G0)`	Select patterns 1 to 16, exactly as if you tapped the pattern button.
`32 (G#0)`	Play.
`33 (A0)`	Stop.

In the plug-in, the host owns the transport, so 32 and 33 work a little differently: they start and stop Super 909's own sequencer *while the host is running*. That is a neat way to drop the drums out for a breakdown from a MIDI clip. The Options panel spells it out as **PLAY (HOST RUNNING)** and **STOP (HOST RUNNING)**.

When a pattern note takes effect

A pattern note does exactly what a tap on the pattern button does, so it obeys the same switch in Options. This matters when you draw the notes into a DAW by hand.

PATTERN SWITCH INSTANT	WHAT A PATTERN NOTE DOES	WHERE TO PUT THE NOTE
Off DEFAULT	Queues the pattern. The change lands when the pattern that is playing reaches its end.	Anywhere in the bar *before* the change. The last beat of that bar is a good habit.
On	Switches at once and carries on from the same step.	Right on the bar line where the new pattern should begin.

While the sequencer is stopped, a pattern note simply selects the pattern, ready for the next Play.

Program Change: presets by number

STANDALONE Program Change messages load presets. Open the preset browser and load any preset from the bank you want to use. From then on, Program Change 0 loads the first preset in that bank, 1 loads the second, and so on. You do not have to

count: inside a bank, the number in front of each preset's name is its Program Change number.

- Some controllers count programs from 1 instead of 0. On those, program 1 is the first preset.
- The padlocks still apply. Close the sequence lock and a Program Change swaps the kit while your beat carries on.
- The plug-in does not respond to Program Change messages. Use your host's preset menu or Super 909's own browser there.

Sending MIDI out

Super 909 can also be the one giving orders. Its MIDI output shows up in two places:

- **Standalone:** a virtual port named **Super909 MIDI Out**. Choose it as a MIDI input in any app that can see virtual ports.
- **AUv3:** the plug-in's own MIDI output, named **Super 909 MIDI Out**. Your host can record it or route it to another instrument.

All output is on MIDI channel 1. What gets sent depends on the **MIDI OUT MODE** section of the Options panel, which has two switches. Turn one on and the other turns off. Turn both off and the output goes quiet.

MODE	WHAT IS SENT	USE IT WHEN
Pattern Changes DEFAULT	A pattern note (16 to 31) when playback starts, whenever you tap a pattern button, and whenever Play Through moves on to the next pattern. Pads you play by hand are sent too.	You want your DAW to remember the arrangement while Super 909's own sequencer plays the grooves.
Drum Notes	Every hit the sequencer plays, as a note from the drum map. Flams and substeps are sent hit by hit. Pads are sent too.	You want the beat as MIDI notes in your DAW, or you want Super 909's sequencer to play another instrument.
Both off	Nothing.	You want silence on the MIDI side.

The display confirms your choice with `MIDI Out: Patterns`, `MIDI Out: Drum Notes` or `MIDI Out: Off`.

Pattern Changes, the clever one

This mode exists for a good reason. Much of Super 909's feel lives inside its own sequencer: the swing, the flams, the accents. If you record plain drum notes into a DAW and play them back, you are now using the DAW's timing. Pattern Changes keeps the feel where it belongs.

1. Record Super 909's MIDI output onto a track in your DAW while you switch patterns. You will end up with a short note at every pattern change.
2. Route that track back to Super 909.
3. Press play in the DAW. The recorded notes switch patterns at the right moments, and Super 909 plays them with its own groove.

Add notes 32 and 33 to the clip by hand if you want the drums to start and stop at exact spots.

GOOD TO KNOW

Each note is recorded at the moment you tapped the pattern button, not at the moment the pattern changed. That is exactly what you want, as long as `PATTERN SWITCH INSTANT` is set the same way on playback as it was when you recorded. Then every tap is replayed just as you made it.

Drum Notes, and the double-hit trap

In Drum Notes mode, velocities tell the story of each step:

STEP	VELOCITY SENT
Normal	`80`
Dull	`50`
Accent	`82 to 112, rising with the Accent amount`
Dull, lifted by the Accent row	`51 to 80, rising with the Accent amount`

HEADS UP

If your DAW plays those notes straight back into Super 909 while its own pattern is still running, every drum fires twice. The app warns you about this the first time you switch Drum Notes on. There are two easy cures: let Super 909 loop an empty pattern, or send note 33 (Stop) before the DAW's notes begin so the internal sequencer stays out of the way.

One more detail. When a closed hat and an open hat land on the same step, only the closed hat note is sent. That matches what you hear, because the closed hat cuts the open hat off.

The lock: keep my MIDI setting

The MIDI Out mode is saved inside every preset. Load a preset and its mode comes along. If you would rather set it once and leave it, tap the lock in the `MIDI OUT MODE` section. Its label changes from `LOAD WITH PRESET` to `SETTINGS LOCKED`, and preset changes stop touching it.

Staying in time

Who is the timekeeper? That depends on where Super 909 is running.

CLOCK SOURCE	HOW TO USE IT	WHERE
Internal	Set the tempo with the tempo controls. This is the default.	Standalone
MIDI clock	Send clock to the app. It locks on after about one beat and follows along.	Standalone
Ableton Link	Turn Link on in the Options panel and join the session.	Standalone
Host	Nothing to do. The plug-in follows the host's tempo and transport.	AUv3

MIDI clock

Clock following is on from the start. When another device sends MIDI clock, Super 909 adopts its tempo and the tempo readout turns **green**. Green means "someone else is driving". While it is green, the tempo arrows and the tempo box are ignored.

- **To switch clock following off,** tap the tempo readout and flip the switch beside `ALLOW TEMPO TO BE SET BY MIDI CLOCK IN`.

- **To obey MIDI Start, Stop and Continue as well,** turn on MIDI START/STOP in the Options panel. It is off by default, so a drum machine or DAW upstream can set the tempo without pressing Play for you.
- Incoming tempo is rounded to the nearest whole BPM.

Super 909 follows MIDI clock. It does not send clock of its own.

Ableton Link

Link keeps apps and devices on the same network in tempo with each other. Tap the gear button, then ABLETON LINK under STANDALONE OPTIONS, and switch Link on in the settings window that opens. The row's light stays on while Link is enabled.

- Tempo is shared both ways. Change it anywhere in the session and everyone follows, Super 909 included.
- If the session uses Link's start and stop sync, a start in the session starts Super 909's sequencer and a stop halts it.
- MIDI clock outranks Link. While the app is following MIDI clock, Link tempo changes are ignored.

Inside a host

The plug-in has no Play button and no tempo of its own. Press play in the host and the sequencer runs, lined up with the host's bars and beats. Jump around the timeline or loop a section and it follows. More on plug-in life in chapter 14.

CONNECT CHAPTER 13

MIDI MAPPING & MIDI LEARN

Put real knobs under your fingers. Map a hardware controller to almost anything in Super 909, then save the setup as a map you can reload.

Touchscreens are great until you want to ride a kick decay with one hand and a reverb send with the other. That is what hardware knobs are for. This chapter shows you how to connect yours.

The 20-second explanation

Every knob, slider and button on a MIDI controller sends a numbered message called a **CC** (short for Control Change). Knob one might send CC 21, the next one CC 22, and so on. Each message carries a value from 0 to 127.

A **MIDI map** is simply a list that says who listens to what: "Kick Decay listens to CC 23", "Verb Level listens to CC 91". Super 909 gives you two ways to build that list:

METHOD	HOW IT FEELS	WHERE IT WORKS
MIDI Learn	Point at a control on screen, wiggle a knob on your controller. Done.	Standalone app
MIDI Mapping panel	A list editor. Pick a destination, type a CC number, tap UPDATE.	Standalone app and AUv3

Both live in the same place. Tap the **gear button** to open the Options panel and look for the MIDI LEARN section on the left. It holds two buttons: MIDI MAPPING and MIDI LEARN.

GOOD TO KNOW

You are not starting from zero. A map called **909 Cloud** is loaded the first time you run the app, so a good chunk of the machine already answers to CCs. The full list is in the MIDI charts at the back.

MIDI Learn: point and wiggle

This is the fast way, and the one to try first. It works in the standalone app.

1. Tap the gear button, then tap **MIDI LEARN**. The Options panel steps out of the way and a strip appears at the bottom of the screen reading `MIDI Learn: Touch a knob, slider, or button to assign`.
2. Every control that can be learned now wears a rounded outline. Touch the one you want. Its outline turns blue and the display says `Move Physical control to assign`.
3. Move a knob, fader or button on your controller. That is the handshake. The control on screen now follows it.
4. Repeat for as many controls as you like. You can switch panels while MIDI Learn is on, so go ahead and visit the mixer.
5. Tap **DONE!** on the strip. The display confirms `MIDI Learn Off` and your work is saved into the current map automatically.

> **TIP**
>
> Changed your mind before wiggling anything? Touch the control again to deselect it. And if you select several controls before moving your hardware knob, they all learn the same CC. One knob, many jobs.

While MIDI Learn is on, the **MIDI LEARN** button in the Options panel turns red. Tapping it again does the same thing as **DONE!**.

The MIDI Mapping panel

The panel is the control room. Use it to see every mapping at a glance, fix one by hand, reach the destinations that have no knob on screen, and manage your saved maps. Open it with the gear button, then **MIDI MAPPING**.

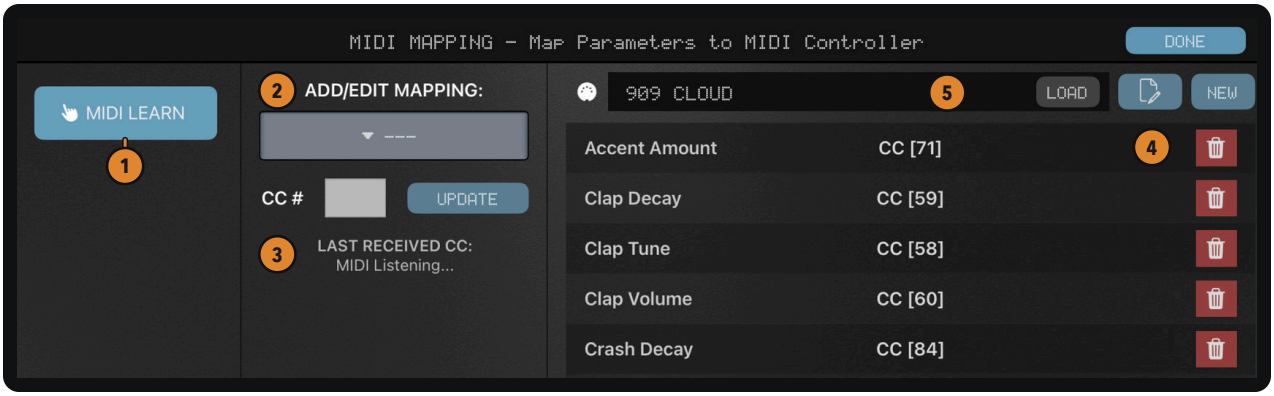

FIG. 26 The MIDI Mapping panel. **1** starts MIDI Learn. **2** is the add and edit area. **3** shows the last CC that arrived. **4** lists every mapping in the current map, each with its own delete button. **5** is the map name with Load, Rename and New.

Add or change a mapping by hand

1. Under `ADD/EDIT MAPPING`, tap the destination button (it shows `---` until you choose something). A grid of every available destination opens. Use the magnifying glass to search it, pick one, then tap `DONE`.
2. Type the CC number, from 0 to 127, into the `CC #` box.
3. Tap `UPDATE`. The mapping appears in the list on the right and is saved straight away.

> **TIP**
>
> No idea which CC your controller sends? Move the knob and read `LAST RECEIVED CC`. It shows the number and the value of the most recent message, for example `CC: 23, Value: 64`. It is a free MIDI monitor, and a quick way to check that your controller is talking to the app at all.

Edit or remove a mapping

- **Edit:** tap a row in the list. Its destination and CC number jump into the edit area. Change the number and tap `UPDATE`.
- **Remove one:** tap the red delete button at the end of its row.
- **Remove everything:** tap `NEW`. You get a clean map named `YOUR MIDI MAP`, and nothing is mapped until you say so.

Maps: save your setups

A map is your whole list of mappings under one name. The current map's name sits above the list. Keep one map per controller and swapping gear takes two taps.

LOAD	Opens `LOAD MIDI MAPPINGS`, a list of every saved map. Tap a map, then `LOAD`. Tapping the map name itself opens the same list. Each map has a trash button here if you want to delete it for good.
RENAME	The pencil button opens `RENAME MAP`. Type a name and tap `SAVE`.
NEW	Starts an empty map called `YOUR MIDI MAP` and clears every mapping.

There is no save button to remember. Every change you make, by hand or with MIDI Learn, is written into the current map as you go. The app also remembers which map you last used and loads it at the next launch.

Maps that come with the app

MAP	WHAT IT COVERS
909 Cloud	The default. Main volume, swing, accent, kick thud and heat, snare snappy and tone, plus tune, decay and level for every drum.
TR-8	Everything in 909 Cloud except main volume, plus snare decay, the delay (level, time, feedback) and the reverb (size, lo cut, level).
TR-6S	A compact set: swing, accent, delay, reverb level, and tune, decay and level for kick, snare, low tom, clap and both hats.
TR-1000	Filter cutoff, drive, delay, reverb size and level, and tune, decay and level for every drum except the mid tom.

The exact CC numbers for all four are listed in the MIDI charts.

What can be mapped?

Nearly everything that makes or shapes sound. The destination list holds around 150 entries. In broad strokes:

- **Every drum:** volume, pan, tune, decay, mute, solo, delay send and reverb send.
- **Drum extras:** kick thud, heat, pitch, pitch depth and kick type; snare tone, snappy and snare type; the clap controls; tom types; hat link.
- **The main panel:** volume, smash, swing, analog vibe, accent amount, drive, filter cutoff and rez, the crush controls, delay and reverb.
- **Sequencer and transport:** last step, play through, and the special destinations below.

Special destinations

Some of the most useful things to control have no knob on screen, so MIDI Learn cannot point at them. Map these by hand in the panel.

DESTINATION	WHAT THE CC DOES
Transport Run/Stop	Any value above 0 starts playback. 0 stops it.
Pattern Select	Sweeps through patterns 1 to 16. Each pattern owns 8 values: 0 to 7 picks pattern 1, 8 to 15 picks pattern 2, and so on up to 120 to 127 for pattern 16.
Pattern Record Enable	Any value above 0 arms pattern recording for the drum pads. 0 disarms it.
Program Change	Loads a preset from the current bank by position. Value 0 is the first preset, 1 the second, and so on.
Tempo	Sweeps the tempo across its full range, 10 to 240 BPM. Ignored while the app is following MIDI clock. STANDALONE
Audio Record	Any value above 0 arms the audio recorder. 0 stops it and exports the take. STANDALONE
Kick Last Step, Snare Last Step ...	Sets the last step of one drum's lane. There is one for each of the eleven drums. Perfect for polyrhythms on a knob.
Kick Swing, Snare Swing ...	Sets the swing of one drum on its own. Moving it also stops that drum from following the main swing.

How controls respond

- **Knobs and sliders** follow the CC across their full range. 0 is fully down, 127 is fully up.
- **Switches** (mutes, solos, effect on/off, hat link, play through) turn on for any value above 0 and off at 0. A button on your controller that sends 127 when pressed and 0 when released works as a momentary switch. Set it to toggle on the controller if you want it to latch.
- **One CC can drive several controls.** Map the same number to the delay level and the reverb level and one knob drowns the whole kit.

GOOD TO KNOW

Mappings listen on the app's MIDI input channel. That is `MIDI CHANNEL: OMNI` (all channels) unless you change it in the Options panel. If a controller is being ignored, check that channel first. See chapter 12.

In the AUv3 plug-in

Inside a host, the `MIDI LEARN` button is replaced by a note headed `AUV3 MODE`. The short version of what it says: your host is usually the better place to map CCs, because host mappings are saved with your project and can be automated. Every Super 909 parameter is published to the host for exactly that reason.

You still have choices:

- **Use Super 909's own maps.** The panel still lets you load a map and add or edit mappings by hand. Maps are shared between the standalone app and the plug-in.
- **Use only your host.** Tap `CLEAR MAP`. That empties the current map so the plug-in stops responding to CCs on its own and leaves the job to the host.

How you map in the host depends on the host. In AUM, for example, the plug-in window's title bar has a button that looks like four sliders. Tap it to see every Super 909 parameter and assign a MIDI control to any of them.

Two special destinations, **Tempo** and **Audio Record**, are not offered in the plug-in. The host owns the tempo and the recording there.

HEADS UP

If one knob seems to move two things in your host, the cause is usually a double mapping: the host has mapped the CC, and Super 909's own map is listening to the same number. Tap CLEAR MAP in the plug-in, or remove that row from the list.

When it does not work

NOTHING MOVES	Open the MIDI Mapping panel and watch LAST RECEIVED CC while you move the knob. If nothing appears, the message is not reaching the app: check the cable or Bluetooth connection and the MIDI channel. If a number appears, check that the same number is in the list.
THE WRONG THING MOVES	Another row is using that CC. Scroll the list, find it and delete it.
A SWITCH WILL NOT STAY ON	Your controller's button is sending 0 on release. Set the button to toggle (latch) mode on the controller.
MY MAPPINGS VANISHED	You probably loaded a different map, or tapped NEW. Tap LOAD and pick your map again.

CONNECT CHAPTER 14

THE AUV3 PLUG-IN & MULTI-OUT

Run Super 909 inside your favorite host, give every drum its own mixer channel, and let the project remember all of it.

Super 909 comes in two flavors in one download: the standalone app, and an AUv3 instrument that loads inside hosts and DAWs. On iPhone and iPad that means hosts such as AUM. On a Mac it means DAWs such as Ableton Live, Logic Pro and GarageBand, which is where most people use Super 909 on a Mac. Same engine, same sounds, same sequencer. This chapter covers what changes when a host is in charge, and how to use the eleven individual drum outputs.

What is different in a host

The plug-in looks almost identical to the app. The differences all come from one idea: **the host is the boss now**.

THING	STANDALONE APP	AUV3 PLUG-IN
Play and Stop	The Play button	The host's transport. The Play button is hidden.
Tempo	Tempo controls, MIDI clock or Link	The host's tempo. The tempo controls are hidden.
Recording audio	The Record button	Record in the host. The Record button is hidden.
MIDI in	Every connected MIDI source	Whatever the host sends to the plug-in
Audio out	One stereo mix	A stereo Main Mix plus eleven individual drum outputs
Saving your work	Presets and sequences	Presets and sequences, and the host project stores the complete state too
MIDI Learn	Point and wiggle	Use the host's mapping, or the MIDI Mapping list (see chapter 13)

THING	STANDALONE APP	AUV3 PLUG-IN
Standalone Options	All available	Dimmed: Bluetooth MIDI, Ableton Link, MIDI Start/Stop, DrumPad Metronome, Background Audio, Don't Sleep, MIDI Channel and Buffer Size belong to the app

Everything else is the same: the sequencer, the pads, the drums, the effects, the magic buttons, the preset and sequence browsers, and the export panel.

Loading it

In your host, add an instrument and look for **Super 909** under **AudioKit** (on a Mac it is listed under **AudioKit Pro**). It is an instrument, so it goes on an instrument or MIDI track, not in an effect slot.

A fresh plug-in opens with an empty sequence and no preset selected, so the display reads `Super 909`. Tap the display to open the preset browser and pick a kit, or just start tapping steps.

GOOD TO KNOW

The plug-in and the app share one library on your device. Presets, sequences and MIDI maps you save in one show up in the other.

From your phone to your DAW

A drum machine in your pocket is for catching ideas. A DAW is for finishing them. With preset sync, a beat you save on your iPhone or iPad is waiting in the plug-in on your Mac.

1. **Switch on sync, once.** In the Super 909 app on your phone, open Options, switch on `SYNC PRESETS ON DEVICES` and tap `ENABLE SYNC`. Do the same in the Super 909 app on your Mac. Both devices need to be signed in to the same iCloud account.
2. **Make the beat and save it.** Tap Save on the phone. The patterns travel inside the preset.

3 **Open the Super 909 app on the Mac for a moment.** The app is the part that talks to iCloud, so this is when your new preset arrives. `SYNC NOW` in Options hurries it along.

4 **Load it in the DAW.** Put Super 909 on an instrument track, click the display and pick your preset. Press Play in the DAW and your beat plays.

GOOD TO KNOW

In the plug-in the host sets the tempo, not the preset. Set the project to the speed you wrote the beat at, or enjoy finding out what it sounds like 20 BPM faster.

No iCloud? Two other roads lead to the same place.

- **Send the preset as a file.** Share it from the phone, with AirDrop for example, and import it in the Super 909 app on the Mac. The plug-in uses the same library, so it shows up there too. See chapter 10.
- **Send the result.** Export a loop, stems or a MIDI file on the phone and drop them into your project. See chapter 11.

Playing along with the host

Press play in the host and the sequencer starts with it. Stop the host and it stops.

- **It follows the host's tempo,** including tempo changes during the song.
- **It follows the host's position.** Start from the middle of a bar, jump around the timeline or loop a section, and the pattern lines itself up with the host's beat.
- **Effect tails ring out.** When the host stops, delays and reverbs are allowed to finish instead of being chopped off.

Arranging from the host

You have three ways to tell the plug-in what to play and when. Mix and match.

PATTERN NOTES	Send notes 16 to 31 to choose patterns 1 to 16. One note per section of your song and the arrangement is done. A pattern note behaves like a tap on the pattern button: with the default queued switching it takes effect at the end of the bar, so put each note in the bar *before* the change. If you would rather put the notes right on the bar lines, turn on **PATTERN SWITCH INSTANT** in Options. Notes 32 and 33 start and stop the drum sequencer while the host keeps running, which is handy for breakdowns.
DRUM NOTES	Skip the internal sequencer and play the drums from a MIDI clip using the note map (36 is the kick, 38 the snare, and so on). The full map is in chapter 12.
PLAY THROUGH	Turn on Play Through and let Super 909 walk through its own patterns in order.

TIP

The fastest way to get pattern notes into your host: leave **MIDI OUT MODE** on **PATTERN CHANGES**, record the plug-in's MIDI output while you tap pattern buttons, then play that recording back into the plug-in. Chapter 12 walks through it.

Multi-out: every drum on its own channel

This is the feature mix engineers ask about first. The plug-in has **twelve stereo outputs**. The first is the finished mix. The other eleven carry one drum each, so you can give the kick its own compressor, send the snare to your favorite reverb, and pan the toms from the host's mixer.

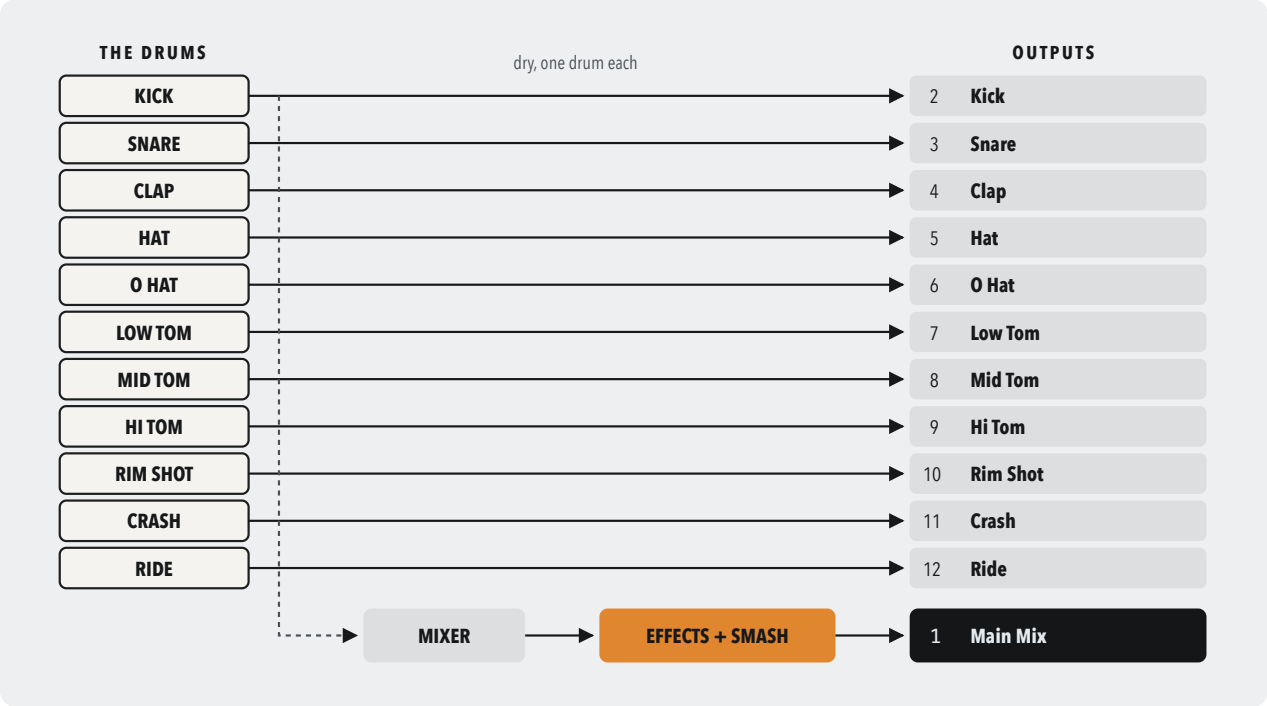

FIG. 27 Where the twelve outputs come from. Each drum is tapped before the effects for its own output. The Main Mix is the whole kit after the mixer and effects.

OUTPUT	NAME IN THE HOST	WHAT YOU GET
1	**Main Mix**	The full kit with all of Super 909's effects
2	**Kick**	That drum only, dry
3	**Snare**	
4	**Clap**	
5	**Hat**	
6	**O Hat**	
7	**Low Tom**	
8	**Mid Tom**	
9	**Hi Tom**	
10	**Rim Shot**	
11	**Crash**	
12	**Ride**	

Hosts count outputs in different ways. Some show twelve stereo pairs, some show channels 1 to 24, and some call the extra ones "aux" or "bus" outputs. The names above are what the plug-in reports, and the order never changes. It stays the same even if you switch on **909 DRUM ORDER** inside the plug-in.

What is on an individual output

- **The drum itself, fully shaped.** Its model, tune, decay and the other per-drum controls from the Tuner panel, plus its level and pan.
- **No shared effects.** Heat, Filter, Super Crush, Delay, Reverb and Smash live on the Main Mix only. The individual outputs are dry so you can process them your own way.
- **Mute and Solo still work.** Mute a drum in Super 909 and its individual output goes silent too.

Setting it up

The exact clicks depend on the host, but the recipe is always the same.

1. Load Super 909 as an instrument. Out of the box you hear output 1, the Main Mix.
2. Find your host's multi-output option for the instrument. It may be a multi-output version of the plug-in, a button on the channel strip, or extra inputs you can pick on audio or aux tracks.
3. Create a channel for each drum you want to treat separately and set its input to that Super 909 output.
4. Decide what to do with the Main Mix channel. See the warning below.

Worked example: AUM

AUM is a mixer and plug-in host for iPhone and iPad, and it handles multi-output instruments neatly. These steps follow AUM's own user guide (kymatica.com/aum/help).

1. Tap the big square plus button and choose **AUDIO**. Tap the plus sign in the new channel's input slot and load Super 909. This channel plays the Main Mix.
2. Create a second audio channel the same way. This time tap its empty input slot and choose **MULTI-BUS AUDIO UNIT INSTANCES**. AUM lists the plug-ins that are already loaded and have extra outputs. Pick your Super 909.

3. Tap the I/O graphic to the left of the new node. Under **PLUGIN BUS TO OUTPUT**, choose the drum you want on this channel: the snare, say.
4. Repeat steps 2 and 3 for every drum you want to treat on its own, and add effects in each channel's slots as usual.
5. Pull the first channel's fader down, or mute it, so those drums are not heard twice.

You still have a single Super 909 running. The extra channels are taps on its outputs, so one set of patterns drives them all.

HEADS UP

The Main Mix always contains *every* drum, including the ones you have also routed to their own channels. If you leave it up, those drums play twice and get louder and a bit hollow. When you mix from the individual outputs, pull the Main Mix channel down or mute it in the host.

Two ways to work

KEEP IT SIMPLE	Use only the Main Mix. You get Super 909's own effects and one fader. Hosts without multi-output support work this way automatically.
MIX IT YOURSELF	Mute the Main Mix and bring up the individual outputs. You lose the built-in effects and gain total control: your own compression on the kick, your own reverb on the snare, your own everything.

TIP

Want separate files instead of live channels? The export panel can render stems, one audio file per drum, without any routing at all. See chapter 11.

MIDI out to the host

The plug-in has a MIDI output named **Super 909 MIDI Out**. Depending on the **MIDI OUT MODE** in the Options panel, it sends pattern changes or every drum hit, plus any pads you play. Record it on a host track, or route it to another instrument and let

Super 909's sequencer play a different drum plug-in. Details are in chapter 12.

Automation

Every sound-shaping control is published to the host as an automatable parameter: all the Tuner knobs, mixer levels, pans, mutes and solos, the effect controls and their on/off switches, swing, accent amount, drum model switches, the sequence Last Step and Play Through. Use your host's automation lanes or its own MIDI learn to move them.

Drums with more than one model share a lane where it makes sense. Automating a tom's tune, for example, moves whichever tom model is currently selected.

What the project remembers

Save the host project and the plug-in's whole state is stored inside it: every knob, all sixteen patterns, the selected preset and the bank you were browsing. Reopen the project a year from now and it comes back exactly as you left it, even if you have since changed or deleted the preset it started from.

Presets in the host's menu

Super 909 also hands its preset list to the host, so hosts with a preset menu can load kits directly. Two details to know:

- The list is read once, when a plug-in instance is created. Presets you save later appear in the host's menu the next time you add a new instance. Super 909's own browser is always up to date.
- To keep a kit, save it with Super 909's own save button. The plug-in does not use the host's "save user preset" feature.

Preset sync in the plug-in

iCloud preset sync is handled by the standalone app. From the plug-in you can switch sync off, but switching it on or tapping `SYNC NOW` shows a message asking you to open the app. With sync on, presets you save in the plug-in still reach your other devices: the app sends them along the next time it is open.

Exporting from the plug-in

The export button works here too. You can export loops, MIDI and stems straight from the plug-in window, just as in the app. While an audio export renders, the plug-in is silent for a moment, then picks up again in time with the host.

LOOK IT UP CHAPTER 15

OPTIONS

Every switch behind the gear button, what it does, and how it starts out. The chapter to keep a thumb in.

Tap the **gear button** in the header and the Options panel opens. Tap it again to close. Everything that shapes how the app behaves, rather than how a preset sounds, lives here.



FIG. 28 The Options panel on iPad, in the top panel. Squares are switches that light up orange when they are on.

When you flip a switch, the display at the top of the screen confirms it, for example `Switch Queued` or `909 Drum Order: On`.

MIDI Learn column

MIDI MAPPING

Opens the MIDI Mapping panel: the full list of controller assignments, and where you load and save maps. See chapter 13.

MIDI LEARN STANDALONE

Starts MIDI Learn: touch a control on the screen, wiggle a knob on your controller, done. The button turns red while it is on. See chapter 13.

MIDI REFERENCE	A built-in cheat sheet: the note number for every drum, the B pads, the pattern-select notes and the Play and Stop notes. The same numbers are in appendix B.
LANGUAGE	Shows the current language. Tap it to choose from fourteen: English, Español, 日本語, Deutsch, Français, Italiano, Português (Brasil), 简体中文, 繁體中文, Türkçe, Polski, Čeština, 한국어 and Magyar. The whole app switches on the spot. No restart, and it does not change the language of your device. The app and the plug-in share this setting.

MIDI Out Mode column

PATTERN CHANGES	Sends a MIDI note whenever the pattern changes, so a DAW can record your arrangement. This is the mode the app starts in.
DRUM NOTES	Sends a MIDI note for every drum hit. Turning one mode on turns the other off. With both off, nothing is sent.
THE LOCK	The MIDI Out mode is saved in every preset. Close the lock and its label changes from **LOAD WITH PRESET** to **SETTINGS LOCKED**: now presets leave your choice alone.

The first time you switch on either mode in a session, the app shows a short explanation. All of it is covered in chapter 12.

The rest of this column is about the app itself:

MORE APPS	A look at the other instruments from AudioKit.
PICK APP ICON (IPHONE AND IPAD)	Choose one of three icons for your home screen: the default, a black and white one, and a color one. This only works in the standalone app.

DRUM DSP CODE MAC	Opens the AudioKit source code page on the web.
APP WEBSITE	Opens audiokitpro.com/super909, where the videos live.

Version column

The heading of this column shows the version of the app you are running. Below it are the switches that rearrange the app.

SWITCH	WHEN IT IS ON	STARTS OUT
Pattern Switch Instant	Tapping a pattern while the sequencer runs switches immediately, mid-bar. When off, the new pattern waits for the current one to finish. See chapter 5.	Off
909 Drum Order	The drums appear in the left-to-right order of the classic hardware everywhere: sequencer, pads, mixer and tuner. The kick's Thud knob is labeled Attack. See chapter 3.	Off
Accent Row on Top	The sequencer's Accent row moves from the bottom of the grid to the top.	Off
Accent Vol on Mixer	The Accent level is a fader on the Mixer. When off, it is a knob on the Sound and effects panel.	On for iPad and Mac, off for iPhone
Show Clap Knobs	Three extra clap knobs appear on the Tuner: Noise, Length (or Offset) and Spread. See chapter 8.	Off
Fit Tuner Tracks	All eleven drums fit on one Tuner screen with smaller knobs, instead of two pages that you swipe between.	Off in the app

Preset sync

SYNC PRESETS ON DEVICES	Keeps your preset library the same on every device where you switch this on. The first time, the app explains what will happen and asks you to confirm.
SETTINGS	Opens PRESET SYNC & RECOVERY: sync status, Recently Deleted presets and banks, local snapshots, and factory bank resets.

SYNC NOW	Checks in with iCloud straight away instead of waiting.

The details are in chapter 10.

Standalone Options column

These belong to the standalone app. In the plug-in the column is dimmed, because the host looks after audio, MIDI connections and timing.

OPTION	WHAT IT DOES	STARTS OUT
Bluetooth MIDI	Opens the list of Bluetooth MIDI devices so you can connect one. The light is on while one is connected.	
Ableton Link	Opens the Link settings, where you switch Link on and off. The light is on while Link is enabled.	Off
MIDI Start/Stop	When on, MIDI Start, Stop and Continue messages from other gear start and stop the sequencer. Following the *tempo* of MIDI clock is a separate switch: tap the tempo readout to find it.	Off
DrumPad Metronome	Opens the metronome settings for pad recording: off, quarter notes or eighth notes, with a choice of three click sounds. See chapter 6.	
Background Audio	Keeps the sound running when you switch to another app or lock the screen. It uses more battery, so switch it off when you are done.	Off
Don't Sleep	Stops the screen from dimming and locking while the app is open. Made for playing live. It also uses more battery, and it switches itself back off each time the app is launched.	Off
MIDI Channel	The channel the app listens on: Omni (all of them) or a single channel from 1 to 16.	Omni
Buffer Size	How much audio the device prepares at a time: 32, 64, 128, 256, 512 or 1024 samples. Smaller means the pads respond faster. Larger means less work for the device. The app's own advice is the right advice: raise the buffer if you are hearing crackles.	512 on iPad, 1024 on iPhone

In the plug-in

The Options panel looks the same inside a host, with a few differences:

- The Standalone Options column is dimmed.
- There is no MIDI Learn button. Map controllers from the MIDI Mapping panel instead, or use your host's own automation. See chapter 13.
- The MIDI Reference shows `Play (Host Running)` and `Stop (Host Running)` for notes 32 and 33. See chapter 12.
- On iPhone and iPad, buttons that open web pages first take you to the standalone app.
- Preset sync is switched on in the standalone app. The plug-in shares the same library.

Switches that live elsewhere

A few settings are not on the Options panel because they sit right next to the thing they control.

SETTING	WHERE TO FIND IT
Follow MIDI clock tempo	Tap the tempo readout: ALLOW TEMPO TO BE SET BY MIDI CLOCK IN
Tempo lock and sequence lock	The padlocks at the bottom of the screen
Play Through	The button in the header
Accent step entry, flams and substeps, grid	The buttons at the top left of the Sequencer
Delay and reverb routing	The routing buttons on the Sound and effects panel
Hat link	Tap the Hat or O Hat name on the Tuner or Mixer
Include FX Tails	The Export panel

LOOK IT UP CHAPTER 16

TROUBLESHOOTING & FAQ

When something is silent, stuck or surprising, the answer is probably on these pages. Start with the symptom and follow the fix.

Nearly every "it is broken" moment with a drum machine turns out to be a switch doing exactly what it was told. This chapter is a list of those switches, sorted by what you are hearing, or not hearing.

No sound, or not enough of it

I press Play and hear nothing

- Look at the pattern buttons. A dark button is an empty pattern. Tap one that is light.
- Check the MAIN knob on the Sound and effects panel.
- Open the Mixer and look for lit M or S buttons. One forgotten Solo silences ten drums.
- In the plug-in there is no Play button. Start your host's transport.

One drum is missing

It is muted, another drum is soloed, or its fader is down. If the missing drum is the open hat, check whether a closed hat sits on the same step: the closed hat cuts the open hat off.

Accents do nothing

The Accent level is all the way down. It is a fader on the Mixer on iPad and Mac, and a knob on the Sound and effects panel on iPhone.

The delay or reverb is on but I cannot hear it

Check its LEVEL, then tap its routing button. Only the drums that are switched on in the routing list feed the effect, and the kick, hats and cymbals start out switched off.

Heat does nothing to my hats

That is by design. The hats, crash and ride pass around Heat so they stay clean.

I hear crackles or dropouts

Open Options and raise the BUFFER SIZE. (STANDALONE) In a host, raise the host's buffer instead.

The sound stops when I switch apps or lock the screen

Turn on BACKGROUND AUDIO in Options. (STANDALONE)

The screen dims while I am playing

Turn on DON'T SLEEP in Options. It resets each time the app is launched, so switch it on again at the next gig.

The sequencer is doing something odd

The pattern is shorter than a bar, or one drum repeats early

A Last Step has been shortened. The one on the Accent row sets the length of the whole pattern, and each drum can have its own inside its track window. Set them back to full length. See chapter 4.

I tap a pattern and nothing happens until the bar ends

That is a queued switch, and it is the default. For an immediate change, turn on PATTERN SWITCH INSTANT in Options.

Playback keeps moving to other patterns

PLAY THROUGH is on. Tap the button in the header so the display reads `Loop Current Pattern`.

Play Through skips a pattern

Empty patterns are skipped on purpose.

Some hits are louder or quieter than others

Steps can be Normal, Accent or Dull, and the Accent row lifts every drum on its steps. The colors of the steps show which is which. See chapter 4.

A step plays twice, or stutters

It has a flam or a substep on it. Chapter 4 shows how to add and remove them.

Undo did not bring back my knob setting

Undo covers the sequence: steps, patterns, lengths, grid and per-drum swing. For a knob, double-tap it to return to the preset's value.

The fill button refuses

It could not find a fill that suits the pattern, or every drum is running a shortened lane. See chapter 7.

Recording from the pads writes nothing

Pattern record only writes while the sequencer is running. See chapter 6.

Tempo troubles

The tempo is green and will not change

The app is following MIDI clock from another device. Stop the clock at its source, or tap the tempo readout and switch off `ALLOW TEMPO TO BE SET BY MIDI CLOCK IN`.

Loading a preset keeps changing my tempo

Close the tempo lock, the padlock beside the tempo.

Loading a preset keeps replacing my beat

Close the sequence lock, the padlock beside the sequence name.

There is no tempo control

You are in the plug-in. The host sets the tempo.

The app starts playing when my other gear starts

MIDI START/STOP is on in Options. Switch it off and the app will follow the tempo without following the transport.

Presets and sequences

There is an asterisk after my sequence name

The patterns have changes that are not saved in the sequence library yet. Save the preset with SAVE SEQUENCE on, or tap the disk on the sequence in the sequence browser.

I saved, and now there are two presets

SAVE AS NEW COPY switched itself on when you changed the name. Delete the one you do not need, and next time switch the copy option off before you tap Save.

I deleted a preset or a bank by mistake

Options, then SETTINGS under Sync Presets on Devices. It is waiting under Recently Deleted. Tap it and choose RESTORE.

I wrecked a factory bank

Select the bank in the preset browser, tap its pencil and choose RESET TO FACTORY... A snapshot is saved first.

My presets are not on my other device

Sync has to be switched on in the standalone app on each device. Then tap SYNC NOW. Remember that the separate sequence library does not sync.

I have the same preset twice, one marked (Mac)

Two devices had different presets with the same name when sync combined them. Both were kept. Delete or rename whichever you like.

The Reorder button is dimmed

Reordering works inside a bank. Pick a bank instead of All, Alphabetical or Favorites.

MIDI

My keyboard plays nothing

Only the notes in the drum map make sound. Start with note 36 for the kick. Then check MIDI CHANNEL in Options: Omni accepts everything. For a Bluetooth controller, connect it under BLUETOOTH MIDI first.

Every drum plays twice when my DAW plays the notes back

The DAW is playing notes into Super 909 while its own sequencer runs the same pattern. Loop an empty pattern, or send note 33 to stop the internal sequencer. See chapter 12.

My knob is mapped but nothing moves

Open the MIDI Mapping panel and watch LAST RECEIVED CC while you turn it. The step-by-step is at the end of chapter 13.

One knob moves two things

Two rows in the map share a CC number, or in the plug-in both the host and Super 909's own map are listening. See chapter 13.

My DAW does not receive anything from Super 909

Check the MIDI Out Mode in Options. With both switches off, nothing is sent.

Export and recording

My loop does not loop cleanly

Export it with INCLUDE FX TAILS off. The file is then exactly one loop long.

My loop is cut off at the end

The opposite case: switch INCLUDE FX TAILS on and the reverb and delay are allowed to fade out.

The stems sound dry

They are meant to. Stems leave out the shared effects so you can mix them yourself. For the finished sound, export a loop.

"All Patterns" exported fewer than sixteen files

Empty patterns are skipped.

A drum is missing from my export

Muted drums stay muted in exports, and soloed drums stay soloed. Set the mix the way you want to hear it first.

I cannot find the Record button

It is in the standalone app only. In a host, record the plug-in's output on a track.

The plug-in

I only get one stereo output

The eleven individual outputs have to be enabled in your host. See chapter 14.

Everything got louder and thinner when I added the drum channels

The Main Mix still contains every drum. Mute it in the host when you mix from the individual outputs.

The right-hand column of Options is dimmed

Those are standalone settings. The host handles them.

A new preset is not in my host's preset menu

The host reads the list when a plug-in instance is created. Use Super 909's own browser, which is always up to date.

Quick questions

Is it really free?

Yes. In the app's own words: it was created for musicians and it will always be free. If you enjoy it, a review helps other musicians find it.

Does anything I generate get sent to a server?

No. The pattern, fill and kit generators run on your device.

Can I change the language without changing my whole device?

Yes. Options, then the `LANGUAGE` button.

Can I change the app icon?

On iPhone and iPad, yes: `PICK APP ICON` in Options, in the standalone app. The Mac version does not support it.

Does it work with VoiceOver?

Yes, in all fourteen languages.

Is there a song mode?

Not as a separate screen. Play Through chains the patterns in order, and pattern-select notes from a DAW give you any arrangement you like. See chapter 5 and chapter 12.

Where can I watch it in action?

Right below.

Prefer to watch?

Some things are easier to see than to read. These videos show Super 909 being played.

VIDEO	FROM	FIND IT AT
The Super 909 page	AudioKit Pro	audiokitpro.com/super909, or tap APP WEBSITE in Options
The Best 909 Drum Machine is FREE?	Analog Matthew (Fecher)	youtube.com/watch?v=njAeuVz4Xn0
Walkthru, tutorial, and more	Jade Starr Music	youtube.com/watch?v=Cjy-jDX7I3Q
Super 909 Drums by AudioKit Pro | Free iOS Drum Machine Demo & Walkthrough	Moby Pixel	youtube.com/watch?v=UGF95yeXu2U

LOOK IT UP APPENDIX A

USING VOICEOVER

How to program steps, turn knobs, play rolls and map a controller when VoiceOver is doing the looking.

Super 909 is built to be played with VoiceOver, in every one of its fourteen languages. Controls have spoken names and values, the display's messages are read out, and the moves that normally need two fingers at once have one-finger alternatives. This appendix collects what works differently.

What you will hear

- **Names in your language.** Drum names are spoken in the language you chose in Options. Short labels printed on the panel are followed by what they mean, as in "Rez (Resonance)" or "Verb (Reverb)".
- **Values, not just names.** A knob or fader reads its current value the same way the display shows it, for example "58% (Half Swing)".
- **The display, out loud.** Messages that appear on the display are announced: "Pattern Copied", "Created: Deep House · High", "Undo: Step Edit (3)" and the rest.

Finding your way

ON SCREEN	VOICEOVER CALLS IT
The five panel buttons	Sequencer, Tuner, Mixer, Drum pads, Sound and effects
The second row of panel buttons IPAD AND MAC	The same names, followed by "lower panel"
The Play button	Playback
The gear	Options and about
The sequence name	Sequence browser

ON SCREEN	VOICEOVER CALLS IT
The pattern buttons	Pattern 1 to Pattern 16
The arrow after the pattern buttons	Show all 16 patterns, or Show fewer patterns
The full screen tool IPAD AND MAC	Full Screen, or Close Full Screen

Steps

Move to a step and VoiceOver reads the drum and the position, such as "Kick, step 5 of 16", followed by the step's state.

- **Double-tap a step** to change it, exactly as a tap does.
- **The state** is Off, On, Accent or Dull. A step that plays a flam or a substep adds "Flam" or "Substep".
- **For accents and ghost notes,** turn on the button named Accent step entry. Each double-tap on a step then moves through the levels.
- **For flams and substeps,** use the button named Flam and substep entry in the same way.
- **Past the end.** A step beyond the pattern's Last Step says "Beyond last step".
- **Hidden 32nd notes.** When a row shows 16 steps but holds a hit on the 32nd note in between, the step mentions it: "Paired thirty-second note: On".
- **Per-drum timing.** The drum name at the start of each row is a button. Its hint tells you it opens track length, grid, and swing options.

Knobs and faders

- **Swipe up or down** with a knob or fader selected to change it. Each swipe moves it five percent. Controls with a fixed set of choices move one choice at a time.
- **The Actions rotor** has the precise tools: Fine increase and Fine decrease move a tenth of a percent, Coarse increase and Coarse decrease move ten percent.
- **Reset** is in the Actions rotor too. On the Tuner it is called Reset to center. On most other controls it is Reset to preset value.

Drum pads and rolls

Holding two things at once is awkward with VoiceOver, so the pads have helpers.

- **One hit:** double-tap a pad.
- **Hold a pad:** choose Hold pad in the Actions rotor. Release pad lets go.
- **Hold a roll rate:** double-tap Sixteenth-note roll or Thirty-second-note roll. Double-tap again to release it. The Actions rotor offers the same thing as Hold roll rate and Release roll rate.
- **Play a roll:** hold a roll rate, then hold a pad. Release the pad to stop.
- **Record your playing:** the red button is named Record pattern. See chapter 6.

MIDI Learn

STANDALONE

1. Open Options and about, then activate MIDI Learn. VoiceOver confirms that it is on and reminds you what to do next.
2. Find the control you want. On a knob or fader, choose **Select for MIDI Learn** in the Actions rotor. A button or switch only needs to be activated.
3. Move the knob on your controller. VoiceOver announces the result, for example "MIDI CC 23 assigned to" followed by the control's name.
4. Activate Done! when you are finished.

Changed your mind before moving anything? Choose Deselect for MIDI Learn on the same control. If you already know the CC number, the MIDI Mapping panel lets you type it instead: see chapter 13.

More helpers

- **Drum models.** The name at the top of a Tuner column is a button, and its hint tells you that it changes the voice.
- **Hat link.** The Hat and O Hat names report Linked or Unlinked.
- **Favorites.** In the preset browser, a starred preset is announced with "Favorite" after its name.
- **Reordering sequences.** In the sequence browser, switch on Reorder, then use the actions Move earlier and Move later on a sequence. VoiceOver confirms with the new position, such as "Moved to position 3 of 12".

- **The whole grid.** On iPad and Mac, activate Full Screen in the sequencer tools to give the grid the whole screen, and Close Full Screen to go back.
- **Tempo.** The tempo is read in beats per minute.

LOOK IT UP APPENDIX B

MIDI CHARTS

Every note number, velocity and controller number in one place. The pages to print and tape to the wall.

This appendix collects the numbers from chapters 12 and 13. If you want the story behind them, read those chapters. If you just need to know which key is the clap, you are in the right place.

Drum notes

DRUM	NOTE	B PAD NOTE	NAME IN THE APP'S LIST
Kick	36	35	C1, and B0 for the B pad
Rim Shot	37		C#1
Snare	38	40	D1, and E1 for the B pad
Clap	39		D#1
Low Tom	43	41	G1, and F1 for the B pad
Closed Hat	42 and 44		F#1 and G#1
Open Hat	46		A#1
Mid Tom	47	45	B1, and A1 for the B pad
Crash	49		C#2
High Tom	50	48	D2, and C2 for the B pad
Ride	51		D#2

Note names differ from one program to the next. Some would call note 36 "C2". The numbers are what count.

Remote-control notes

Note	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Selects pattern	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

NOTE	STANDALONE APP	AUV3 PLUG-IN
32 (G#0)	Play	Starts Super 909's sequencer while the host is running
33 (A0)	Stop	Stops Super 909's sequencer while the host is running

A pattern note acts like a tap on the pattern button. With **PATTERN SWITCH INSTANT** off, the change waits for the end of the pattern that is playing. With it on, the change is immediate.

Program Change

STANDALONE Program Change 0 loads the first preset of the bank that holds the current preset, 1 the second, and so on. The number in front of each preset's name in the browser is its Program Change number.

Velocity

Coming in

Harder hits play louder. When you record incoming notes into a pattern, main notes are written as Normal steps. B pad notes are written as Dull steps, or as Accent steps when the Accent switch on the Drum Pads panel is on.

Going out, in Drum Notes mode

STEP	VELOCITY SENT
Normal	80
Dull	50
Accent	82 to 112, rising with the Accent amount
Dull, lifted by the Accent row	51 to 80, rising with the Accent amount

Ports, channels and clock

	STANDALONE APP	AUV3 PLUG-IN
MIDI in	Every MIDI source on the device, plus a virtual port named `SUPER909 MIDI IN`	Whatever the host routes to the plug-in
Input channel	Omni, or one channel from 1 to 16 (Options)	Set by the host's routing
MIDI out	A virtual port named `SUPER909 MIDI OUT`	The plug-in's output, named `SUPER 909 MIDI OUT`
Output channel	1	
What is sent	Pattern Changes mode: a note from 16 to 31 at each pattern change. Drum Notes mode: a drum note for every hit. Pads you play are sent in both.	
Tempo source	Internal, MIDI clock in, or Ableton Link	The host
MIDI Start, Stop, Continue	Followed when `MIDI START/STOP` is on	Not used. The host's transport runs the sequencer.
MIDI clock out	Not sent	

Controller maps that come with the app

Four maps are built in. `909 CLOUD` is loaded the first time you run the app. Each column below is one map and every number is a MIDI CC. A dot means the map does not include that control. To load a map, or to change any of these, see chapter 13.

Drums

Each cell lists three CC numbers in this order: **Tune / Decay / Volume**. For the kick, the first number is Kick Env, which is the kick's Tune knob.

DRUM	909 CLOUD	TR-8	TR-6S	TR-1000
Kick	20 / 23 / 24	20 / 23 / 24	20 / 23 / 24	22 / 23 / 28
Snare	25 / · / 29	25 / 28 / 29	25 / 28 / 29	29 / 30 / 49
Clap	58 / 59 / 60	58 / 59 / 60	58 / 59 / 60	84 / 85 / 87
Closed Hat	61 / 62 / 63	61 / 62 / 63	61 / 62 / 63	102 / 103 / 105

DRUM	909 CLOUD	TR-8	TR-6S	TR-1000
Open Hat	80 / 81 / 82	80 / 81 / 82	80 / 81 / 82	106 / 107 / 109
Low Tom	46 / 47 / 48	46 / 47 / 48	46 / 47 / 48	50 / 51 / 56
Mid Tom	49 / 50 / 51	49 / 50 / 51	·	·
High Tom	52 / 53 / 54	52 / 53 / 54	·	57 / 58 / 63
Rim Shot	55 / 56 / 57	55 / 56 / 57	·	80 / 81 / 83
Crash	83 / 84 / 85	83 / 84 / 85	·	110 / 111 / 113
Ride	86 / 87 / 88	86 / 87 / 88	·	114 / 115 / 117

Mix and effects

Where a row names more than one control, the numbers follow the same order.

DESTINATION	909 CLOUD	TR-8	TR-6S	TR-1000
Volume	7	·	·	·
Swing	9	9	9	·
Accent Amount	71	71	71	·
Kick Thud / Kick Heat	21 / 22	21 / 22	·	·
Snare Snappy / Snare Tone	26 / 28	26 / 27	·	·
Cutoff / Drive	·	·	·	20 / 21
Delay Level / Time / Feedback	·	16 / 17 / 18	16 / 17 / 18	12 / 13 / 14
Verb Size / LoCut / Level	·	89 / 90 / 91	· / · / 91	90 / · / 91

Destinations are named as they appear in the MIDI Mapping panel. **Volume** on a drum is its Mixer fader, and **Verb** is the reverb. The maps hold 39, 45, 24 and 37 assignments.

Everything else you can map

The built-in maps cover the essentials. The destination list in the MIDI Mapping panel goes much further, with around 150 entries in all. Among the ones no built-in map uses:

- **Every drum:** Pan, Mute, Solo, Delay Send, Verb Send
- **Mix:** Smash, Rez, Analog Vibe

- **Kick:** Kick Pitch, Kick Pitch Depth, Kick Type
- **Snare:** Snare Type
- **Clap:** Clap Noise, Clap Spread, Clap Length, Clap Offset, Clap Type
- **Toms:** Low Tom Type, Mid Tom Type, High Tom Type
- **Hats:** Hat Link
- **Effects:** the on and off switches for Heat, Super Crush, Delay and Reverb, plus Mangle, Bit Crush, Crush LoCut and Crush Mix
- **Sequencer:** Last Step, Play Through, and a Last Step and a Swing for each of the eleven drums
- **Special:** Transport Run/Stop, Pattern Select, Pattern Record Enable, Program Change, Tempo, Audio Record

How each special destination responds to a CC is explained in chapter 13.

LOOK IT UP APPENDIX C

SPECS, GLOSSARY & LEGAL

The numbers, the words and the fine print.

Specifications

This manual describes Super 909 version 1.1.

Runs on	iPhone and iPad with iOS or iPadOS 15 or later, and Mac
Runs as	A standalone app and an AUv3 instrument plug-in, in one download
Screen	Landscape
Price	Free
Drums	11: Kick, Snare, Low Tom, Mid Tom, High Tom, Rim Shot, Clap, Closed Hat, Open Hat, Crash, Ride
Drum models	4 kicks, 3 snares, 3 claps, 2 models for each tom
Per-drum controls	Tune, Decay, Pan, level, Mute, Solo, delay send, reverb send. Extra controls for the kick, snare and clap.
Patterns	16 per sequence
Steps	Up to 32 per pattern
Grids	16th notes, 32nd notes, 8th-note triplets, 16th-note triplets
Step levels	Normal, Accent and Dull, plus an Accent row for the whole kit
Flams	9 types, in two styles
Substeps	2x, 3x and 4x
Pattern length	A Last Step for the sequence and one for each drum
Swing	50% to 75%, for the kit and for each drum
Tempo	10 to 240 BPM (STANDALONE)
Undo	64 steps of sequence edits
Effects	Heat, Filter, Super Crush, Delay, Reverb, plus the Smash compressor
Generators	Pattern (29 styles), fill (12 kinds), drum kit (14 characters)
Export	WAV loops, WAV stems, MIDI files, drag and drop MIDI, audio recording in the standalone app
Plug-in outputs	12 stereo: Main Mix and 11 individual drums

Sync	Internal, MIDI clock in, Ableton Link, or the host
MIDI	Notes in and out, pattern select, play and stop, MIDI Learn, controller maps, Bluetooth MIDI
Factory content	217 presets in 6 banks, 87 sequences
Preset sync	Through iCloud, between your iPhone, iPad and Mac
Languages	English, Spanish, Japanese, German, French, Italian, Portuguese (Brazil), Chinese (Simplified), Chinese (Traditional), Turkish, Polish, Czech, Korean, Hungarian
Accessibility	VoiceOver in every language above. See appendix A.

Files

FILE	ENDS IN
Preset	`.super909.preset.json`
Preset bank	`.super909.bank.json`
Sequence bank	`.super909.sequence.bank.json`
Exported audio	`.wav, or a .zip of them`
Exported MIDI	`.mid`

Glossary

ACCENT A louder hit. A step can be an Accent on its own, and the Accent row can lift every drum on a step.

AUV3 Apple's plug-in format. It lets Super 909 run inside a host app as an instrument.

BANK A folder of presets, or a folder of sequences.

B PAD The right-hand pad of the kick, snare and tom pairs. It plays a quieter, Dull hit, or an Accent when the Accent switch is on, and it has its own MIDI note.

CC Control Change: the kind of MIDI message a hardware knob or fader sends.

DECAY How long a drum rings after it is hit.

DULL	A quiet hit. Also called a ghost note.
FLAM	Two hits so close together that they sound like one fat hit.
GRID	How the bar is divided into steps: sixteenths, thirty-seconds or triplets.
HOST	The app a plug-in runs inside: a DAW or a plug-in mixer.
LAST STEP	The step where a pattern, or one drum's lane, ends and starts over.
MAP	A saved set of MIDI controller assignments.
MIDI LEARN	The quick way to make an assignment: touch a control, move a knob on your controller.
MODEL	One of several voices available for the same drum.
MULTI-OUT	Sending each drum to its own channel in the host.
PATTERN	One bar of steps for the whole kit.
PLAY THROUGH	Playing the patterns of a sequence one after another instead of looping one.
PRESET	A kit, its effects, a tempo and a sequence, saved together.
SEQUENCE	Sixteen patterns that belong together.
STEM	An audio file of one drum on its own.
STEP	One box in the grid.
SUBSTEP	A step that fires two, three or four fast hits instead of one. Also called a ratchet.
SWING	Delaying every second step to make a pattern shuffle.
TAIL	The reverb and delay that keep ringing after the last hit.

Legal

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No reverse-engineering was done on any hardware or software.

Names of other products that appear in this manual, including the names of the built-in MIDI controller maps, are used for identification only and do not imply affiliation or endorsement.



That is the whole machine. Close the manual and go make something.