

Blackbox 3.0

User Manual



1010music

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WELCOME

Welcome to the blackbox user manual. Thanks for taking the time to read this. If you want to get a quick overview of the basic features of blackbox, please check out the Quick Start Guide. You can find it in the box with your blackbox, or on the blackbox support page at:

<https://1010music.com/blackboxdocs>

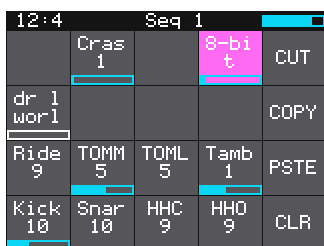
If you are ready to get more detail about a specific feature or learn more of the capabilities of this portable sampling studio, then this is the document for you. We will get into more detail about setup options, explain the features in each of the screens, get your MIDI connections working, move files around, and cover some tips to get the most out of your blackbox.

If you still have questions after reading this manual, join our forum at forum.1010music.com. You can specifically get blackbox support at:

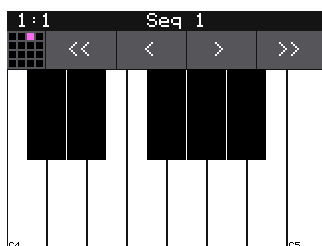
<https://forum.1010music.com/forum/products/blackbox/support-blackbox>

Our support team and other users are out there to help you and to exchange ideas about how to get the most out of blackbox. Registered forum users can also get the latest firmware with new features and bug fixes in the downloads section of the forum. Registration is free, but you will need to provide an email address.

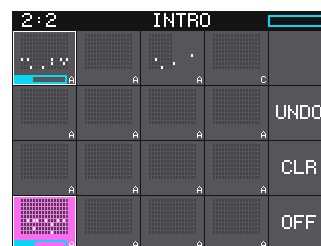
Before you get started, you may want to check for firmware updates for your blackbox. Learn how to do that in [Update Firmware, Audio Files and Presets](#) section near the end of this document, or in the [YouTube video](#) at <https://youtu.be/jiu5tJFYiVE>. This document covers version 3.0 firmware.



Pads



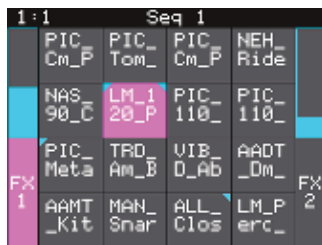
Keys



Sequences



Song Scenes



FX



Mixer

SET UP BLACKBOX

You have probably already plugged in your blackbox and started to play with it. Let's make sure you have everything set up properly so you can follow along with the manual.

The blackbox stores all of the samples and presets on the microSD card. Before you can use the blackbox, you will need to insert the microSD card, connect to power and connect to one or more outputs. You can then also connect an audio input for recording.

MicroSD Card for Storage

Take the microSD card out of the plastic case, **A** in the figure to the right. Insert the microSD card, with the text facing up and the notched edge to the right, into the MICRO SD slot, **S**, on the front panel. The card reader is spring loaded. Push the card in to remove it when needed later. Leave it in for now.



MicroSD Slot

Power

The blackbox needs to be connected to a 2 amp power source, using a USB cable designed to carry power. You can plug it into a standard power outlet or a USB power supply. Either way, you will insert the square end of the USB Power cord, **B**, into the POWER connection on the back panel. The connection is snug to ensure that the device stays plugged in during use.



Standard Power Outlet

If you are plugging directly into a standard power outlet, slide the appropriate two or three prong connector, onto the USB power supply, **C**. Then connect the flatter end of the USB power cord, **B**, into the USB connection on the power supply. Blackbox will turn on as soon as the power is connected.



What Comes in the Box

USB Power Outlet

If you are using your own USB power supply, plug the flatter end of the USB power cord into a 2 amp USB power supply, such as a USB outlet or a USB battery.

NOTE:

- ▶ Not all USB power supplies are created equal. Make sure your power supply can provide 2 amps of power. The USB power supply included with blackbox will do this.
- ▶ Not all USB Type B cables are the same. Some are made only for data, while others are designed to carry power. The blackbox comes with a USB Type B power cable. If you want to replace it with a longer cable, be sure it is rated to carry power.
- ▶ You can take the microSD card out and reinsert it while blackbox is powered up.
- ▶ When you plug blackbox into a USB power bank, keep in mind that these power banks do not send information to blackbox about how much power is remaining. There may be a low power indicator light on the power bank itself. The blackbox will not give you a warning when power is low, so be sure to save your presets before the power bank runs out.
- ▶ Some batteries may not be sufficient to support a USB MIDI device in addition to blackbox. See Powering MIDI Devices below for more information.

Output Connections

Connect speakers or headphones to the 3.5 mm stereo audio outputs on the back panel. To start, we recommend connecting external speakers or headphones to the PHONES jack, since all outputs are routed to the PHONES jack and you can control volume from blackbox. All of the audio jacks are stereo 3.5mm connectors. This makes for a total of 6 audio outputs (3 Audio Out jacks x2), stereo headphones, and a stereo input. The audio output will be at Eurorack levels which is +/- 5 volts. This is louder than a consumer electronics line level, so you may need to turn down the output of blackbox to avoid distortion.



Back Panel

Control the Volume

To control the volume of the output:

1. Press the **TOOLS** button and then touch the Main tab.
2. Turn the top knob to select the Headphone parameter or the Vol parameter of another output, then turn the bottom to adjust the level.

1:1	Seq 1
9GB	3.0.7S
Headphone:	100.0%
Out 1 Vol:	82.8%
Out 2 Vol:	80.0%
Out 3 Vol:	80.0%
Brightness:	100.0%
Main	Rec MIDI Clock

Tools Screen

Test Your Setup

Let's make sure you are getting some sound out of your blackbox before we continue.

1. Press the **PADS** button. You will see a grid of samples that have been assigned to the current preset.
2. Touch one of the pads on the touchscreen to trigger playback of the pad. If you see a white bar across the bottom of the pad, push the **PLAY** button to start the clock and enable playback of the Clip pad. You should hear the sample playing out through the connected audio output.

2:1		Seq 4		
SY C LFO	SY C LFO	PC 0 Blip	SN 0 Drop	
SY Chor	SY Chor	SY Chor	SY Chor	
BA B D#	BA B G#	BA B C#	BA B D# 2	
KI 0 Hard	SN 0 Drop	SN 0 Hard	HH 0 Nois	VEL

Pads Screen

If you don't hear anything, try a different pad. Some pads may be assigned to different outputs, but all pads will play out through the PHONES output.

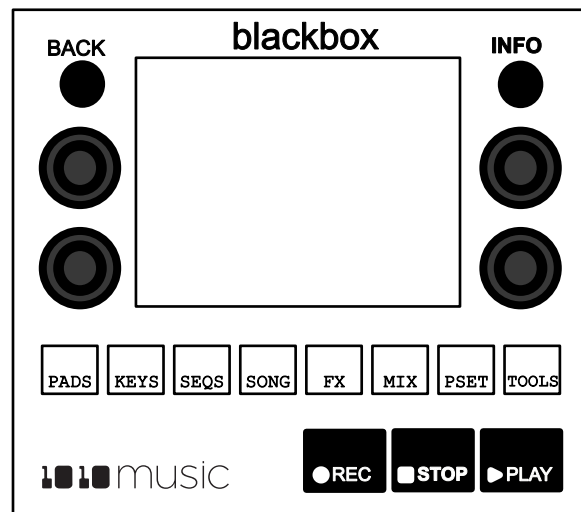
Connect an Audio Input for Sampling

The blackbox assumes Eurorack level audio is coming in to the AUDIO IN jack at +/-5V. If you are using a line level signal of +/- 1V, you may need to adjust the input gain on the recording screen. You could also use a mixer or preamp with your microphone or other input to adjust the level of the incoming signal. See the section [Record a New Wave File](#) for more information about working with inputs.

Your blackbox should be setup and working now. Next we will cover the basic controls and workflow of blackbox.

OVERVIEW

The blackbox is a compact sampling studio. With blackbox, you can record and play samples, sequence those samples into patterns and riffs, and then record those sequences into scenes, which together can form a song. Use blackbox to record complete compositions from the comfort of your studio or, with the help of a USB power block, from the seat of your train or the park bench. You can also use blackbox to create materials to play in the background while you sing or perform with other instruments. We can't wait to see what you create with it!



The blackbox has a fairly simple set of input controls. You choose which functional area you are controlling by pushing the white navigation buttons. You control playback and recording of clips, sequences and songs using the black **REC**, **STOP** and **PLAY** buttons. You select and trigger sound elements and configure parameters using the touch screen and the knobs. The **INFO** button allows you to drill into an item selected on the screen to edit more details. Push it again to access more detailed information about the item. The **BACK** button takes you to the previous screen.

Navigation Highlights

To build your song with blackbox, start by working through the navigation buttons from left to right. You can certainly jump around and do things in any order, but the general flow is to start on the left and move to the right.

- | | |
|--------------|---|
| PADS | Play, record, and organize a bank of samples. The blackbox comes with hundreds of samples and allows you to record or transfer over your own WAV files. |
| KEYS | Play samples chromatically using a piano keyboard style input or a grid input. |
| SEQS | Record sequences as you play pads or keys. Each sequence can record any one or more of the pads. Toggle sequences on and off over time. |
| SONG | Assemble Sequences in desired order as Scenes in a Song. Each Scene can be played a set number of times or looped, and can be toggled manually. |
| FX | Apply effects to individual pads. Adjust the parameters for the delay and reverb effects. Apply EQ to the mix. |
| MIX | Adjust the volume and pan of each pad. Mute pads. |
| PSET | Save your work and start a new creation. |
| TOOLS | Configure settings that persist across presets. |



Pads Screen

Display Highlights

The black bar along the top of the screen displays the blackbox playback state and recording context. The number pair on the left displays the overall playback time in measures and beats. The text in the middle displays the recording context. In Song Mode, this will display the name of the scene that you are recording into. When not in Song Mode, this displays the number of the sequence that will be recorded. You can toggle the state of Song Mode by pushing the **SONG** button, then touching the on-screen Song button. Song Mode is active when the on-screen button is blue. In the top right-hand corner, a progress bar displays the current playback progress of the sequence or scene that has recording context.

QUICK START

The blackbox comes with a number of presets on the included microSD card. Let's explore one to see how blackbox works. We will dive into more detail later. We will start by loading a preset:

1. Push the white **PSET** button to see the preset loader screen.
2. Turn any knob to scroll through the list of presets until you have SL BASS MUSIC KIT highlighted in blue.
3. Touch the Load button at the top of the screen to load the preset and go to the **PADS** screen. If this preset is already loaded, the Load button will be disabled.

Explore PADS

Touch the **PADS** button to go to the Pads screen with a grid of 16 WAV files. Touch a pad to trigger it. Depending on how the pad is configured, the sample might play all the way through each time you press it, it might play only while you are touching the pad, or it might play until you touch it again. A blue progress bar appears at the bottom of the pad while it is playing. If you toggle off a pad, but it is still playing due to quantization settings, the blue progress bar is replaced with a black bar. You can trigger multiple sample pads at once.

The pink box indicates which pad is currently selected. Use the touch screen or a knob to select a pad. Push **INFO** once to display the WAV screen and a second time to see the parameters screens for the selected pad. Touch the page names at the bottom of the parameters screen to access additional parameter pages. Touch the name of the WAV file at the top of the waveform screen to select a different WAV file for this pad. Touch the grid icon in the top left corner to select a different pad to edit. The colored square in the grid indicates the selected pad.

2:1		Seq 4		
SY C LFO	SY C LFO	PC 0 Blip	SN 0 Drop	
SY Chor	SY Chor	SY Chor	SY Chor	
BA B D#	BA B G#	BA B C#	BA B D# 2	
KI 0 Hard	SN 0 Drop	SN 0 Hard	HH 0 Nois	VEL

Pads With Velocity Slider

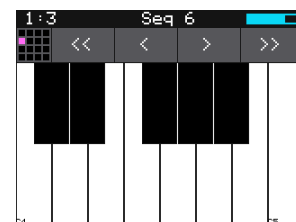
1:1		Seq 1		
AMB_Tech	LASR anal	1 Mass	1 Mk Mell	CUT
Synt hBla	P1 3	P2 3	P3 3	COPY
Cras 3	Ride 3	Wood	TOMM 3	PSTE
Kick 3	Snar 3	HHC 3	HHO 3	CLR

Pads With Clipboard Menu

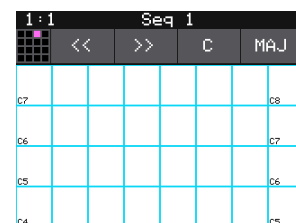
While on the Pads screen, turn the lower right knob to access the Clipboard menu, where you can cut, copy, paste and clear pads. Turn the knob the other way to bring back the Velocity slider.

Explore KEYS

Let's find some new ways to play with our samples on the Keys screen. To start, please select one of the pads labeled SY Chor and push the **KEYS** button. The blackbox displays a keyboard on the screen. Touch some of the keys on the keyboard to hear the selected pad play pitch shifted by key. You can adjust which octave is playing by touching the arrow buttons above the keyboard or by turning a knob. The C keys are numbered so you can quickly identify which octave will be playing.



Keys Screen



Grid Keyboard

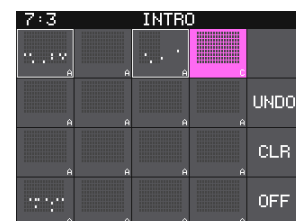
Push **INFO** to access the Grid Based keyboard. Use the two buttons at the top right of the screen to select the Key and Scale that will be used by the grid keyboard. Now you can play without worrying about hitting an off-key note.

If you have a slicer pad selected when you are on the Keys screen, the keys and grid squares will trigger different slices. The first slice plays with C2. We will go into more detail about slicer pads later.

Explore Sequences

Now that we know how to trigger the pads, let's play some sequences. Before we do that, let's take a minute to turn off Song Mode. Push the white **SONG** button. You will see a list of scenes that have been created for this song. Touch the on-screen Song button to toggle the state of Song Mode. The on-screen Song button is blue when Song Mode is active, but for now let's make it gray for inactive so we can focus on sequences.

Push **SEQS** to go to the Sequences screen with a grid of 16 sequence cells. The cells that have sequences have dots in the mini-piano roll icon on the cell. Touch one or more filled cells to make them active. A white box appears around the active sequences. Push the black **PLAY** button to play the active sequences. Touch sequences to turn them on and off. There may be a delay in response as the blackbox waits for the next quantization point before triggering the sequence. Playing sequences have a blue progress bar at the bottom of the cell. Sequences that are queued and waiting for a quantization break to play have a white box in place of the blue progress bar. Push **STOP** when you are done. Push **STOP** a second time to interrupt any pads that continue to play out after the sequence ended.



Sequences

Select a sequence by touching the cell or turning a knob. The currently selected sequence is highlighted pink. The number of this sequence is displayed in the context bar above the grid. This is visible on all of the top-level screens. This is the sequence that will capture the notes and pad triggers you play while recording. Push the **INFO** button to access the piano roll for the sequence. Push **INFO** again to access parameter pages for the sequence.

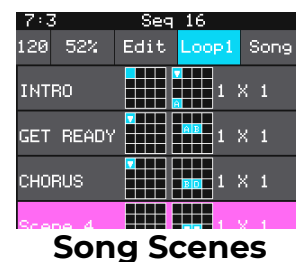
Select an empty sequence cell and we will record into it. Push **PADS** to go to the Pads screen. Hold down the **REC** button and push **PLAY** to start recording a sequence. After the 4 beat count down, tap some pads to create a sequence. By default, the sequence is one bar long. The blackbox will play the sequence in a loop as soon as you record it. If you tap some more pads, you will add more pad triggers to the sequence. Push **REC** to stop recording while the sequence still plays. You can choose different sequences to record into while the other sequences are playing. Press **STOP** when you want the sequences to stop.

Note that each cell has a letter in the bottom right corner, from A through D. These are four different Patterns, unique sequences that are stored in the same cell, for a total of 64 sequences. Any one pattern in a cell can play back at a time.

Before we move on to song scenes, go back to the **SEQS** screen and touch OFF on the right. This will deactivate all sequences.

Explore Songs

Push the **SONG** button to go to the Song Screens with its list of song scenes. Touch the on-screen Song button to enable Song Mode (it turns blue). When you do this, the context bar at the top of the screen now lists the selected scene. The top left shows the current bar:beat. Under that are boxes that display tempo and swing amount, controlled by the top left and top right knobs. You can alter them in real time during playback.



Pressing **PLAY** will play the scenes in order, starting with the selected scene (highlighted in pink). Touching any scene during playback will queue it to play next. Scene changes happen on the next quantization bar so they remain in sync.

Each scene has a name (the default is the word Scene followed by a number assigned in order as the scene is created), two grids, and a number M X N, where M is the number of bars in the longest used sequence and N is the Play Count, the number of times the longest sequence is played back during the scene. You set the Play Count for a scene by pushing the **INFO** button. Press **BACK** or **SONG** to return to the song display.

The first grid lets you set pads that fire once at the beginning of a scene, and the second grid shows which sequence patterns will play back in the scene.

The Loop button at the top of the screen has three settings: off (button is gray), Loop1 (blue; loops the current scene), and LoopA (blue; loops all scenes in the song, in order). Push **STOP** to end playback.

During song playback, you can push the **PADS** button or the **SEQS** button to watch pads and sequence patterns get triggered as the song moves from scene to scene.

Song Mode and REC | STOP | PLAY Buttons

The black transport buttons control playback and recording of WAV files, sequences and song scenes. Notice that when Song Mode is off, they affect recording and playback for sequences (with the exception of recording new samples on the Sample Recording screen), and the top line of the display shows the currently playing sequence. When Song Mode is on, they affect playback of selected scenes, and the top line of the display shows the currently playing scene.

Song mode?	Button Pressed	Result
On	PLAY	Play the currently selected scene. The scene will loop the number of times specified, and then the next scene will start. Any active sequences (with a white frame on the SEQ screen) will be deactivated before the scene starts. Any armed clips (white status bar on Pads screen) will also be unarmed before the scene starts.
On	REC + Play	Record a new sequence while playing back a scene. Note that the sequence must be active in the song scene if you want to hear it play after you record it.
On	STOP	Stop playing and recording all scenes and sequences.
Off	PLAY	Play all active sequences and armed clips. You can start and stop sequences while playing. The sequences will play in a loop until you press STOP or deactivate them.
Off	REC + Play	Play any active sequences and record any PADS or KEYS entries into the currently selected sequence. This is recorded as an overlay so you can add to a sequence over time. The sequences will play and record in a loop until you press STOP or deactivate them.
Off	STOP	Stop playing and recording all sequences.

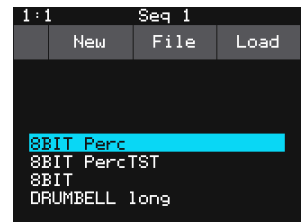
You can use the Grab feature in the Song Edit menu to capture the current playback state into the currently selected scene.

Explore Presets

A Preset is the master file that stores a blackbox composition. It holds the pad assignments, sequences, song scenes, effects settings, Mix settings, and the detailed parameters for each of these.

To Load a Preset

1. Push the **PSET** button to access the Preset Management Screen. It displays a list of the available presets on your microSD card, with the currently selected preset highlighted in blue. There is also a set of three buttons: File, Save, and Load.
2. Turn any knob to scroll up and down the list. When you find the preset you want, touch the Load button and your preset will load. Then press any other button (**PADS**, **KEYS**, etc.) to begin working with it.



**Preset
Management**

Note:

- When blackbox first starts up, it loads the last preset you used on the microSD card in the slot. However, any unsaved edits from your last session will be gone.

To Save a Preset

Push the **PSET** button and press Save. This will save your changes to the current preset.

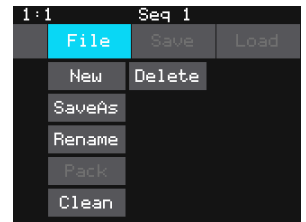
Note:

- Be aware that blackbox does not automatically save your work. If you load a different preset or turn off the blackbox, you will lose any edits you've made to an unsaved preset. So save often!

To Create and Name a Preset:

1. Push the **PSET** button and touch File to open the File menu.
2. Press New. A menu will pop up with the name “New Preset” and a typewriter keyboard with familiar controls like numerics, shift lock, space, and delete. Use the Clear button to remove the default name.
3. Type in a new name for your preset, and finally, touch the Enter button to complete the rename and load your new preset.

The File menu also has a Delete button; you’ll get an “are you sure?” button to confirm. If you change your mind, just push **PSET** again. This operation can’t be undone, so be careful!



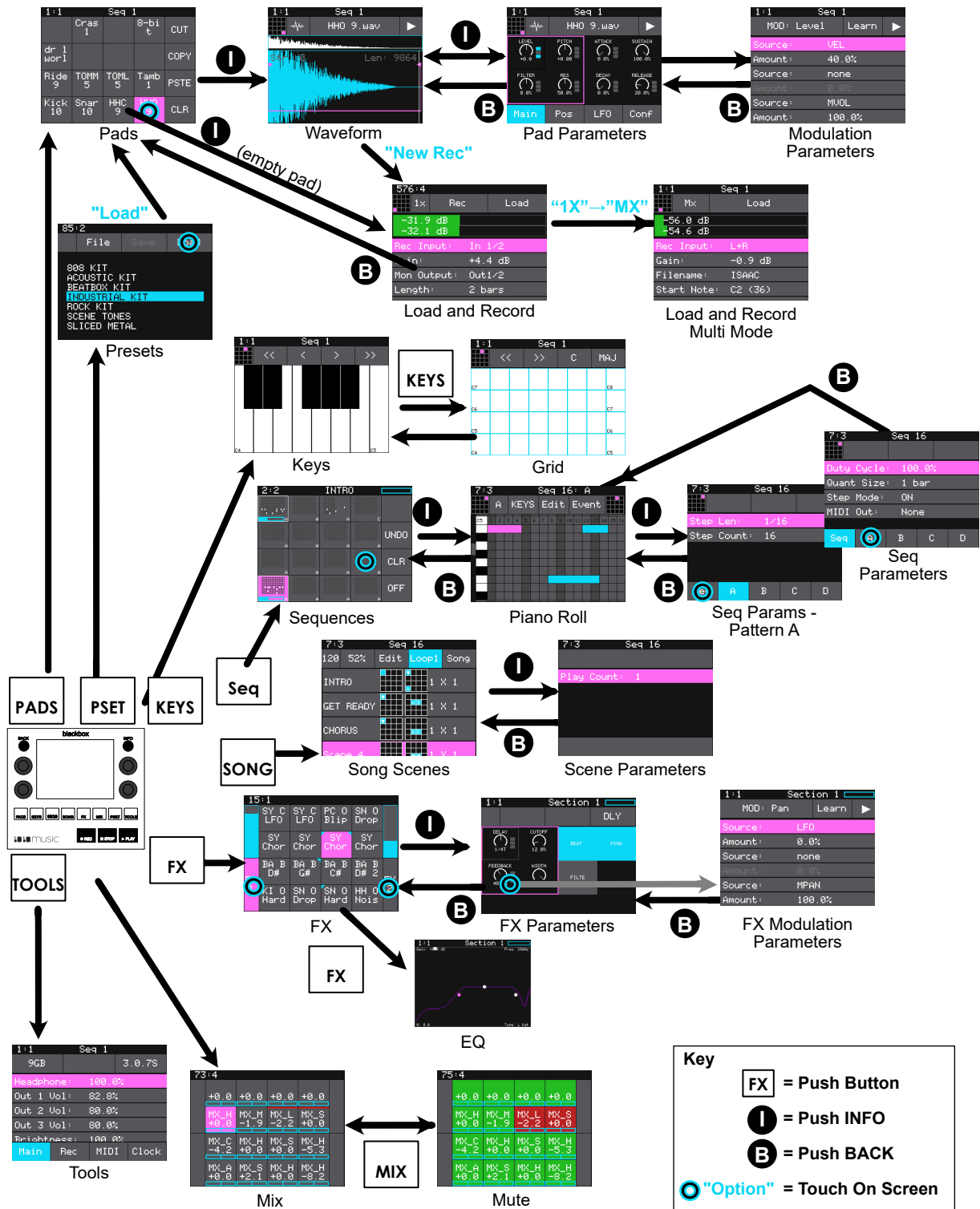
Preset File Menu

Note:

- We'll discuss the other File menu operations (Clear and Pack) later on.

SCREEN NAVIGATION MAP

The diagram below shows the primary navigation paths through blackbox.



WORK WITH PADS

Each pad in blackbox can be assigned a WAV file or a folder of WAV files. You can configure playback options, such as trigger mode and looping, individually for each pad. Once a pad is loaded, you can touch the pad on the main Pads screen to trigger it. If the pad is in Clip mode, it won't trigger unless Play is engaged. You can also use the Keys screen to play the currently selected pad. When you trigger a pad from the Keys screen, a pad with a single WAV file is pitch shifted to correspond to the note played. Multi-sample pads play the WAV file with a root note closest to the played note, with pitch shifting if needed. We'll talk more about multi-samples later. Slicer pads will trigger individual slices starting at note C2.

Steps Common to All Pad Modes

From the Pads screen you will choose WAV files to assign to pads and assign a mode to each pad. The main screen has a 4x4 grid of 16 light gray pads. A WAV file can be assigned to each of these pads, and each pad is assigned a Pad Mode.

The table below can help you choose the correct pad mode for your needs:

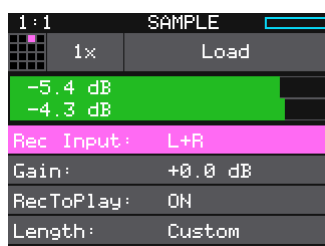
Icon	Pad Mode	Description	Reverse Playback	Beat Sync	Set Loop Points	Play Slices	Poly-phony
	Sample	Use to play single notes or drum hits. You can control start and end points for playback and looping. Supports reverse playback, along with forward and bidirectional looping.	✓		✓		Shares 16 note pool.
	Sample: Multi-Sample Mode	Spread a folder full of WAV files across the keyboard to get more realistic instrument pitch shifting or to map different sounds to each key on the keyboard.					Shares 16 note pool.
	Clip	Use for synchronized loops and quantized playback, e.g. drum loops and guitar tracks between one and eight measures long.		✓			2 Notes. Does not pull from Pool.

Icon	Pad Mode	Description	Reverse Playback	Beat Sync	Set Loop Points	Play Slices	Poly-phony
	Slicer	Use with a WAV file with different sections that you want to trigger independently.				✓	2 Notes. Does not pull from Pool.
	Granular	Generate new sounds from your samples. The sample is played back in small portions about 10 to 200ms in length, called grains.	✓			✓	Mono. Pulls from the 16 note pool.
	New Recording	Use to start recording a new WAV file or clear a WAV from a pad.					
	New Multi	Automate recording of multiple samples across a range of notes triggered via MIDI.					

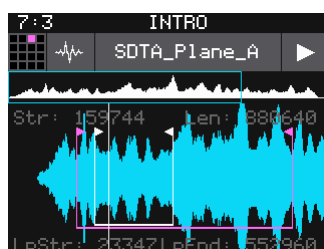
Each pad can have a different Pad Mode. You can use the same WAV file in different pads in different Pad Modes.

To Load a WAV File into a Pad:

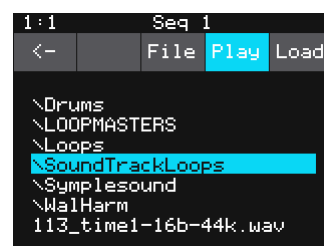
1. Push the **PADS** button to bring up the Pads screen.
2. Select a pad by touching it or using the control knobs to cycle through the pads. The top control knobs move the selection horizontally. The bottom left control knob moves the selection vertically. The selected pad is highlighted pink. Touching a pad that is loaded with a WAV file will also trigger playback of that WAV file.
3. Press the **INFO** button. If the pad was empty, the WAV Load and Record screen will be displayed. If the pad already had a WAV file assigned, the Waveform screen will be displayed.



WAV Load and Record Screen



Waveform Screen



WAV File Selection Screen

4. If you are on the WAV Load and Record screen, touch Load in the top menu bar. If you are on the Waveform screen, touch the name of the WAV file at the top of the screen (SY Chord1 LF in the example). You will now be on the WAV File Selection screen.
5. From the WAV file selection screen, use the control knobs to scroll through the list of files. The blackbox displays the directories at the top of the list followed by the individual files in alphabetical order. The selected file or directory name has a blue highlight. Touch Play to preview the highlighted file. The Play button will turn blue to show that auto-preview is enabled. The blackbox will play each WAV file once when you pause on it while scrolling. If you have a sequence or a MIDI input trigger playing for this pad, blackbox will play the selected WAV file whenever a trigger is received for this pad. Touch the Play button again to disable auto-preview mode. Touch Load to assign the selected WAV file to this pad. When looking at the list of files, list items that start with a slash \ are directories. Load a directory to see its contents. The file path is displayed above the list of files (e.g. SoundtrackLoops\SL Bass Mu in the example above.) Touch the caret ^ to navigate back up the directory tree. Touch the back arrow to go back to the previous screen.

Note:

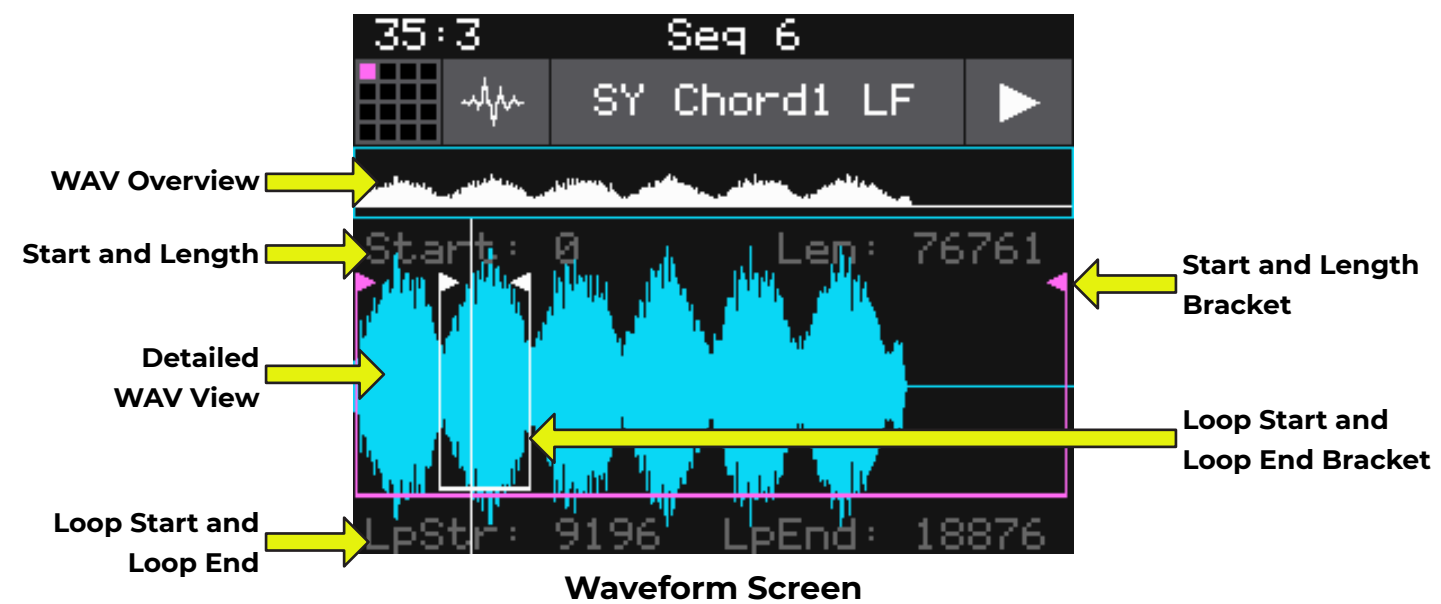
- There may be considerable differences in volume levels of WAV files depending on how they were originally recorded. Be careful when previewing the WAVs on the load screen or you could get a rude surprise if you switch between soft and loud WAV files.

To Set Pad Mode, Loop and End Points on the WAV Form Screen

Once you have loaded a WAV file, the Waveform screen gives you a visual representation of the audio. You can zoom in and out and set end points and loop points here. There are four controls across the top of this screen and the Pad Parameters Screens:

	Selection Grid	Touch to choose which pad to work with on the pad parameters screen. Pink box shows currently selected.
	Pad Mode Selector	Touch to change the pad mode. Icon represents current mode.
	WAV Selector	Displays name of selected file or bank. Touch to select a different file.
	Trigger Button	Touch to trigger the pad.

On the Waveform Screen, you can control play position and loop points. You can also adjust slices for pads in Slicer mode. We'll cover that later when we talk about slicers.



Element	Description
WAV Overview	Always displays the full waveform in white with a blue rectangle indicating the part of the waveform that is displayed in the bottom Detailed WAV View. When the Detailed WAV View is zoomed in, touch the WAV Overview to jump to that part of the WAV.
Detailed WAV View	Use pinch and stretch touchscreen gestures to zoom in and out of the waveform. Swipe to scroll along the length of the waveform. Keep a finger on the screen to keep it from scrolling away during playback.
Start and Length Numbers	The sample number where playback will begin, and the total length, in samples, that will be played. Turn the top knobs to adjust.
Start and Length Bracket	The pink bracket represents the Start and Length to show which part of the WAV will be played.
Loop Start and Loop End Numbers	If Looping is enabled, the sample numbers where looping will start and end. Turn the bottom knobs to adjust.
Loop Start and Loop End Bracket	The white bracket shows the part of the WAV that will play when looping. The loop points do not have to be contained within the Start and End points.

To Configure Pad Parameters

To access the pad parameters screen, push **PADS**, touch a pad to select it, and then push **INFO** twice. You can press **INFO** again to toggle between the Pad Parameter screen and the Waveform screen.

There are multiple pages of pad parameters. Touch the button bar across the bottom of the screen to access different parameter pages. The current page is highlighted blue.



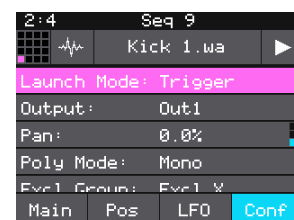
Main Pad Parameters Screen

Upgrade Note:

- The pad specific controls that used to appear at the top of the screen, such as Output, Polyphony and Exclusive grouping, are now on the **Conf** parameters page.

There are two different types of pad parameter pages:

- **Knob Arrays:** These pages display touchable knobs and buttons for up to eight parameters on a page. You can touch and drag a knob up and down, or left and right, to adjust the value. Turn a hardware knob to adjust the value of the corresponding parameter in the focus frame (the pink box). Tap a knob to move the focus frame to include that control. If a parameter supports modulation, a 3 section bar to the right of the knob indicates which of the three modulation slots are in use. Toggle the state of a button by touching it. Blue buttons are in the On state.
- **Parameter lists:** These pages have a scrollable list of parameters. Turn one of the top knobs to select a parameter and one of the bottom knobs to set a value for the selected parameter. You can also touch a parameter in the list to select it. A three section bar on the right edge of the parameter display shows which parameters can be modulated and which modulation slots are in use. Keep scrolling past the bottom to see more parameters.

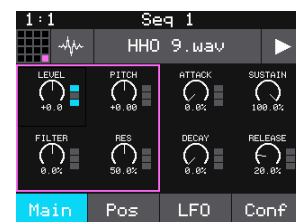


Configuration Pad Parameters Screen

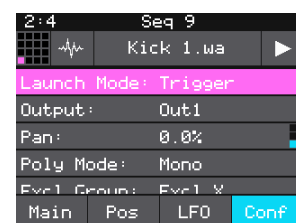
To Add Modulation to a Parameter

The way you manage modulation of parameters looks slightly different now, but it still works the same way. A parameter can be modulated or controlled through MIDI if it has a three section bar to the right of the knob or row. Gray and black bar segments are empty modulation slots, and blue segments are loaded slots. To configure modulation for a parameter:

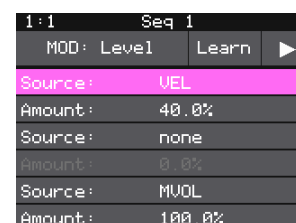
1. Navigate to the screen that contains the parameter to be modulated.
2. Touch the parameter you want to modulate to select it. A thin frame appears around a selected knob. A selected row is pink.
3. Push **INFO** to open the Modulation Parameters screen for the selected parameter. The label at the top of the screen indicates which parameter you are configuring for modulation.
4. The screen contains Source and Amount parameters for each of the three modulation slots.
5. Turn a top knob or touch a row to select a parameter to edit and then turn a bottom knob to select a value.
6. To set a MIDI CC value for a modulation source, select the Source row for the desired modulation slot, then touch the Learn button at the top of the screen. The button is blue when Learn mode is enabled. With Learn mode enabled, move the controller to be used. The blackbox will set the modulation source to be the value for MIDI Channel and MIDI CC number of the MIDI signal received. See [Work with MIDI Inputs](#) on page 96 for more information about MIDI Controllers.
7. Be sure to set an Amount for each modulation source. An Amount of 0.0% means the source does not change the parameter value. An Amount of 100% means the modulator will have the maximum impact in the positive direction, and -100% will have the maximum inverse impact.
8. When done, push the Back button to go back to the Pad Parameters page.



**Knob
Modulation
Targets**



**Parameter List
Modulation
Target**



**Modulation
Parameters
Screen**

Global Pad Parameters

The table below describes the parameters that are used with pads in Sample, Multi-Sample, Clip, Slicer, and Granular Mode. We will cover the mode specific parameters later.

Main Parameters

Parameter	Description	Range of Values	Mod Target?
Level	Adjusts the loudness level of the pad	-96.0 to +12.0 dB	Yes
Pitch	Adjusts the pitch of the pad up or down	-24.0 to +24.0 semitones	Yes
Filter	Applies either a high pass or low pass filter to this pad. This controls the filter cutoff point.	-100% to +100% Negative values apply a low pass filter. Positive values apply a high pass filter.	Yes
Resonance	The amount of boost added to the audio frequencies around the filter cutoff point.		Yes
Attack	The time it takes for the sound to reach its loudest level.	0.0 to 100.0% The attack percentage is a logarithmic scale between 0 and 9 seconds.	Yes
Decay	How long it takes for the sound to go from the initial peak to the sustain level.	0.0 to 100.0% The decay percentage is a logarithmic scale between 0 and 38 seconds.	Yes
Sustain	The volume level that the sound maintains when you hold a note.	0.0 to 100.0%	No
Release	The release specifies how long the note will continue to play and fade out when the note is released. In Gate mode, the release begins when the touch ends, the gate signal goes low, or the MIDI note off event occurs. In Toggle mode, the release begins when the toggle off occurs. In Trigger mode with sample pads the release begins when reaching the Loop End point in loop mode, or the Start + Len point when not looping. In Trigger mode for Clips and Slicers, the release has no effect.	0 to 100% The release percentage is a logarithmic scale between 0 and 38 seconds.	Yes

Conf Parameters

Parameter	Description	Range of Values	Mod Target?
Launch Mode	This controls how a note trigger affects the playback of a pad.	Trigger: Activate the Pad by touching the pad or through MIDI note on. The blackbox will start playback of the WAV file and play through to the end. Gate: Begin the WAV file playback in the same manner as Trigger mode. But in Gate mode, playback will stop when you release the touch or the MIDI note is released. Toggle: Begin the WAV file playback in the same manner as Trigger mode. When another trigger event happens, the playback will stop.	No
Output	Routes the audio signal for this pad to an output jack.	Out 1, 2, or 3: The output of this pad is sent to selected output in stereo. Out1L, 1R, 2L, 2R, 3L, 3R: The output of this pad is sent to the left or right stereo channel of the selected output.	No
Pan	For Pads routed to stereo outputs, this controls the position of the output in the stereo channel.	-100.0% to +100.0%	Yes
Poly Mode	Controls the maximum polyphony for this pad. The note playback across all pads draws from a 16 pad pool. Does not apply to Granular pads.	Mono, Poly 2, Poly 4, Poly 6, Poly 8, Poly X	No
Excl Group	Add a pad to an Exclusion Group to prevent more than one pad in the group from playing at the same time. Any other pad in the same group will stop whenever a pad in the group is triggered.	Excl X, Excl A, Excl B, Excl C, Excl D Choose Excl X for no exclusion grouping.	No

Note:

- ▶ The PHONES output jack will always contain a mix of all of the outputs.
- ▶ You can also control the Pan on the Mixer screen.
- ▶ To optimize the performance of blackbox, use the lowest polyphony required for each pad.

Parameter	Description	Range of Values	Mod Target?
MIDI In	Specifies a MIDI channel to be used to play this pad chromatically or sliced across keys. This channel is also used for MIDI modulation of some parameters. More than one pad can be assigned to the same MIDI channel. In this case, all assigned pads will be triggered. Any MIDI channel that is mapped to a pad using this parameter no longer triggers any events for MIDI parameters set to OMNI. Modulation sources PTCH (pitch bend), MODW (Modulation Wheel), MVOL (Volume control), and MPAN (Pan control) follow this channel assignment. See the section Use MIDI Devices with Blackbox below for more information.	None, Ch1 through Ch16 .	No
Pad Note	Controls which MIDI note on the MIDI Pads channel will trigger playback of this pad.	Default, C#-1 through G9 . C#-1 maps to MIDI Note Number 1.	No

LFO Parameters

Each pad has one Low Frequency Oscillator (LFO) running for use in modulating parameters for that pad. Each time you trigger a note for a polyphonic pad, a new LFO is started for that note. Set the Trig parameter of the LFO to On to restart the oscillator each time a note is triggered. Otherwise, the new oscillator will start in sync with LFOs used for other notes for this pad. Configure the LFO using the following parameters on the LFO page:



**LFO Pad
Parameters
Page**

Parameter	Description	Range of Values	Mod Target?
Waveform	Sets the shape of the wave used by the low frequency oscillator for this pad.	Saw, Reverse Saw, Triangle, Positive Triangle, Sine, Positive Sine, Square, Positive Square, Random	No
Rate	The frequency of the LFO from about 0.1Hz to 12 Hz. When Beat Sync is On, this specifies the rate in beats and measures.	0.0% to 100.0% When Beat is on: 8, 4, 2, 1, ½, ½ T, ¼, ¼ T, 1/8, 1/8 T, 1/16, 1/16 T, 1/32, 1/32 T, 1/64 bars	Yes
Depth	The amplitude of the oscillating wave.	When Beat is off: 0.0% to 100.0%	Yes
Beat	Controls the operation of the rate parameter. When this is active, the wave cycle is synchronized with the clock.	On, Off	No
Trig	When active, the LFO will restart each time the pad is triggered.	On, Off	No

Note:

- ▶ To use the LFO to modulate other parameters of this pad, select LFO as the modulation source for that parameter.
- ▶ The remaining parameters are specific to each Pad Mode (sample, multi-sample, clip, slicer or granular). We will discuss each Pad Mode individually in the next sections.

Set Up a Sample Pad

Use a sample pad when you only want to play or loop through a WAV file with no slicing and no beat synchronization within the playback. This can be useful for playing one-shots like drum sounds, or playing melodies using samples for the notes. You can also use this mode when you have a bank of samples that you want to map across the keyboard. This can be used to map different sounds to different note triggers, or to map the same instrument recorded at different pitches across the notes on the keyboard to get improved pitch shifting across a broader range of notes. We will first discuss Sample mode pads loaded with a single sample, and then explain the special case of multi-samples.

Single Sample Pads

A sample pad loaded with a single sample supports reverse playback, along with forward and bidirectional looping. You can also use the Start and Len parameters to play a portion of the WAV file.

Follow the steps in the previous section to create a sample pad. An example of a good WAV file to use for a sample pad is \drums\Kick 1.wav. Press the **INFO** button to toggle between the Waveform screen and the Pad Parameters screen. Touch the buttons across the bottom of the parameters screen to access the various parameter pages for this pad. Use the control knob closest to the parameter name to change the value of a parameter.

Pos Parameters Specific to Sample Pads

Parameter	Description	Range of Values	Mod Target?
Loop Mode	Controls whether the WAV file plays in a loop, and the direction of the loop. When looping is enabled (Forward or Bidirect), if you have the Launch Mode set to Trigger, looping will happen for the duration of the Release phase of the note. If you have the Launch Mode set to Gate, looping plays through the gate pulse and the release time. If you have the Launch Mode set to Toggle, looping starts to play when the initial pulse is received and continues until the terminating toggle pulse is received. If Loop Mode is Bidirect, and Rev is ON, playback will start from the end of the sample, and then loop as described, but starting with the Loop End to Loop Start pass.	None: Plays once from the value assigned to the Start parameter through the value assigned to the Length parameter. Forward: Plays from the value assigned to the Start parameter through the value assigned to the Loop End Parameter, then jumps back to the value of the Loop Start parameter. Play continues to loop between Loop Start and Loop End for the duration of the note. Bidirect: Works similarly to forward, but loop playback proceeds from Loop Start to Loop End then backwards to Loop Start. It then repeats the looping back and forth.	No

Parameter	Description	Range of Values	Mod Target?
Loop Fade	The amount of cross-fading that will be applied when transitioning from the end to the beginning of the loop. This parameter is only active when Loop Mode is Forward. This is a percentage of the loop length. The Loop Start point must be greater than zero for this to work. The blackbox will use a copy of the WAV signal from just before the Loop Start point that is of a length of the loop fade of the loop length. It will then fade in that signal so that it ends just at the Loop End point. In this way, you can smooth out the transition at the loop point.	0 to 100%	No
Reverse	When Reverse is ON, the WAV file will play in reverse.	ON, OFF	No
Start	Point where playback will begin when playing forward or ends when playing in reverse. Expressed as the number of the sample to be played first.	0 to number of samples in the file	Yes
Length	When Loop Mode is None, how long the sample will play past the value of the Start parameter. Expressed in number of samples.	0 to number of samples in the file	Yes
Loop Start	Point where the looping will begin when playing forward, or looping will end when playing in reverse. Expressed as a sample number. Must be before or equal to LpEnd. LpStr is read from the WAV file when sample is loaded, and saved to the WAV file when the WAV is saved.	0 to number of samples in the file	Yes
Loop End	Point where the looping will end when playing forward, or looping will begin when playing in reverse. Expressed as a sample number. Must be after or equal to LpStr. LpEnd is read from the WAV file when a sample is loaded, and saved to the WAV file when the WAV is saved.	Loop Start to number of samples in the file	Yes



**Pos Pad
Parameters
Page for Sample
Mode**

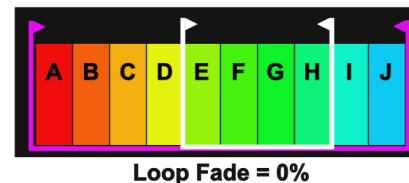
Conf Parameters Specific to Sample Pads

Parameter	Description	Range of Values	Mod Target?
Interp	The interpolation algorithm used when pitch shifting pads. In Normal mode, blackbox may introduce some aliasing with some WAV files when pitch shifting notes to play sample, multi-sample and granular pads chromatically. The High Quality (High Q) algorithm reduces the aliasing, but requires more processing power, leaving less room to do other things.	Normal, High Q. Set to Normal mode unless you experience aliasing for the WAV file for this pad.	No
Root Note	The base sample will play for the note specified here. The sample will be pitch shifted up or down one semi-tone for each note away from the root note. This will load from the WAV file if available when you add the WAV to the preset. You can specify a different value here to be used for this WAV on this pad in this preset. When None is specified, the sample is assumed to have a root note of middle C. If you save the WAV file from this pad, the Root Note value will be saved with it.	None, C#-1 through G9	No

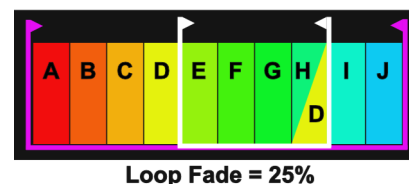
Loop Fading

Let's talk a little more about loop fading. Loop Fading is a good way to smooth the transition when looping a sample. The diagram to the right shows how the loop cross-fading is applied at three different settings for the Loop Fade parameter. The colored bars in the diagram represent different equal length sections of the WAV file. The loop points for this example have been configured so that sections E, F, G and H of the WAV file are looped.

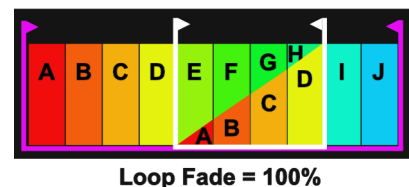
When Loop Fade is zero, blackbox does not overlay any extra content on top of the looped sections.



When Loop Fade is 25%, section D, which is a section of WAV that is 25% of the length of the loop from immediately before the loop start point, would be gradually faded in over the last 25% of the looped section. So as section H starts, section D fades in and section H is gradually faded out until on D is left as we reach the loop point.



When Loop Fade is 100%, sections A, B, C and D are faded in on top of sections E, F, G and H.



Note:

- ▶ In order for the Loop Fade to work to the full extent, there must be enough audio signal before the Loop Start point to draw from. For example, if your WAV file is 1000 samples long, and your Loop Start is at 250 samples, you only have 250 samples, or 33% of the loop length, before the Loop Start point to use for Loop Fading. You can set the Loop Fade to a higher number, but it won't be able to add additional improvement because there's no signal available to use.
- ▶ To minimize the impact of Loop Fading on CPU usage, use the smallest value for Loop Fade that gets the sound quality you need. This will vary based on the sample.

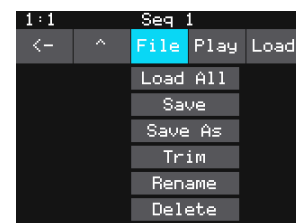
Multi-Sample Pads

When you pitch shift a single sample across the entire range of the keyboard you may get less than stellar results. A better approach is to record multiple samples across the range of the keyboard and let the sampler interpolate the sounds between the available notes. The more samples you use, the less stretching the sampler has to do, and the better the resulting sound.

Multi-sample pads are mapped to multiple WAV files. If the WAV files contain root notes embedded in them, blackbox will play the corresponding WAV file when that note is played, and use pitch shifting to create the notes in between. If there are no root notes defined, blackbox will load the files in alphabetical order and map one file to each successive note, starting at C2. You can also use this approach to map a list of different sounds across the keys of the keyboard, for example if you want to map different drum sounds to different notes.

To Load a Sample Bank into a Multi-Sample Pad:

1. Put the files you want to use in one multi-sample pad into a single directory by themselves. There are several folders of samples like this in the \SympleSound folder included with the 1.3 firmware update. If you are registered for our forum, you can download this content at <https://forum.1010music.com/forum/product-downloads/sampler-content-bundles>.
2. Push the **PADS** button to bring up the Pads screen.
3. Select a pad by touching it or using the control knobs to cycle through the pads.
4. Press the **INFO** button. If the pad was empty, the Load and Record screen will be displayed. If the pad already had a WAV file assigned, the Waveform screen will be displayed.
5. If you are on the Load and Record screen, touch Load in the top menu bar. If you are on the Waveform screen, touch the name of the WAV file at the top of the screen. You will now be on the WAV file selection screen.
6. From the WAV file selection screen, use the control knobs to scroll through the list of files and directories. The selected file name has a blue highlight. When looking at the list of files, list items that start with a slash \ are directories. Load a directory to see its contents. The file path is displayed above the list of files. Touch the caret ^ to go back to the previous directory. Highlight one of the files in the directory of samples that you want to load into the pad.



**WAV Selection
File Menu**

A good example of a directory to use with multi-samples is \Symplesound\Housepiano. You can select any file within that directory.

7. Touch File and then Load All.

The blackbox will now load all of the files in the current directory into this pad and map the files to notes across the keyboard based on the root notes defined in the WAV files. Now, use the **KEYS** screen or an external MIDI controller to play notes for that pad. The blackbox will play the sample with the root note that is closest to the note played, and pitch shift as needed to achieve the necessary tone.

You can also use multi-sampling to map multiple waves across the keyboard. This can be useful if you have a folder full of drum sounds that you want to trigger with a keyboard. If you follow the steps above and load a folder where the files do not have root note mappings, it will load the files in alphabetical order, map the first file to note C2, and then each subsequent file to the next note above that. If you load the folder \SoundtrackLoops\SL Acoustic kit, you can see this in action. This folder has 16 drum samples which get mapped to notes C2 through D#3. Notes below C2 will play the first WAV file pitch shifted down the appropriate number of half steps.

You can use blackbox to map the files to specific notes if you want. Open the files as individual samples on blackbox and edit the Root Note on the Misc tab of the Parameters screen. Save the WAV file with the root note information. To save the WAV file, push Info on this pad to display the waveform screen. Touch the WAV file name at the top of the screen, then touch File and Save. After you have done this for all of the files in the folder, use File-> Load All to load them all into a pad. Now when you play the pad chromatically you will hear this root note mapping in use.

Because a multi-sample pad uses multiple WAV files, it is not possible to set start, length, loop start or loop end points for these pads. Therefore, it doesn't make sense to enable looping for these pads either. As a result, the POS and MISC tabs of the parameter page are not used when multiple samples are loaded in a pad. Only the standard Main, LFO and Conf parameter pages are supported for Multi-samples. The following parameter is also used on the Conf parameter page:

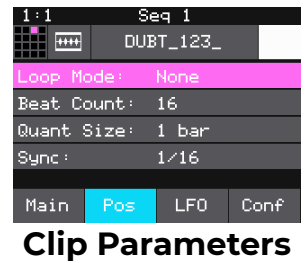
Parameter	Description	Range of Values	Mod Target?
Interp	The interpolation algorithm used when pitch shifting pads. In Normal mode, blackbox may introduce some aliasing with some WAV files when pitch shifting notes to play sample, multi-sample and granular pads chromatically. The High Quality (High Q) algorithm reduces the aliasing, but requires more processing power, leaving less room to do other things.	Normal, High Q. Set to Normal mode unless you experience aliasing for the WAV file for this pad.	No

Note:

- ▶ Multi-sampling can quickly use a lot of samples. In order to prevent potential issues, blackbox limits you to loading **80 WAV files at a time**. If you hit that limit, it won't load any more wav files until you free up some slots by clearing out a pad. There is also a limit of **64 WAV files per pad**.
- ▶ If you change the pad mode of a multi-sample pad to something other than sample, it will load only the first sample in the folder and work with that. You will need to reload the files to change back to multi-sample mode.
- ▶ Anytime you use **File -> Load All** to load a directory of samples into a pad the pad mode will automatically be changed to Sample.
- ▶ The blackbox helps you automatically record a multi-sample bank of an instrument that can be triggered via MIDI or CV. See [Recording New WAV Files](#) below to learn how to do this.

Work with a Clip Pad

Use Clip Mode for WAV files where you want to use synchronized loops and quantized playback for the entire WAV file. Clip Mode works well with drum loops between one and eight measures long, but there is no hard limit to the length. This is the only Pad Mode that supports beat synchronization. An example of a file that works well with Clip Mode is \SoundtrackLoops\SL LoFi Hip Hop2\SY L Pad14 A Melody2 08. This clip is used in the preset SL LOFI HIP HOP KIT 2.



Note:

- ▶ In order to synchronize the clips, there has to be an available clock. The blackbox only uses the clock when in Play mode. Therefore, you must push **PLAY** before playback of a clip pad will begin. If you trigger a clip pad before you push **PLAY**, a white bar will appear below the pad to show that it is queued up and ready to start. The name of the pad in the top right corner of the parameters screen will be replaced with a white square until you push **PLAY**.
- ▶ After a clip pad has been toggled off, but is still playing through to the quant break, a black bar replaces the blue progress bar across the bottom of the pad on the Pads Home screen.

Pos Pad Parameters Specific to Clip Mode

Parameter	Description	Range of Values	Mod Target?
Loop Mode	Controls whether the WAV file plays in a loop. The whole WAV file will be played in the loop for clip pads. Only forward looping is supported with clip pads.	On, Off	No
Beat Count	Enter the number of beats in the clip file to give blackbox more information to work with when synchronizing playback to the current song BPM. If set to Auto, blackbox will attempt to detect the beat count automatically.	Auto, 1 to 512	No
Quant Size	Use Quant Size to quantize when the playback starts and stops. Quantization will cause playback to snap to a musical grid with intervals specified by the Quant Size parameter. When quantization is used, the note trigger will cause playback to start and end on the next Quant Size boundary. For example, if the Quant Size is set to 1-bar and you press the pad, the playback will begin at the start of the next bar.	None - always start and stop immediately 1/16, 1/8, 1/4, 1/2, 1 bar, 2 bars, 4 bars, 8 bars	No
Sync	Sync is only enabled when quantizing is enabled (the Quant Size parameter is not None). The Sync feature prevents timing drift that can occur when the length and BPM of a clip does not align exactly with the tempo of playback. When Sync is used, blackbox will realign the audio to match the clock at the step size specified here. Even slight differences between WAV file BPM and clock tempo can cause significant drift over time. Select a value for Sync that will control the size of the musical unit to which the clip will be synchronized. Choose small settings, like 1/16th, for rhythmic or percussion clips. Choose large settings, like 1-bar, for sustained tones or drones	None – playback will occur at the original rate. Looping will happen as soon as the sample ends. 1/16, 1/8, 1/4, 1/2, 1 bar, Slice (See To Use Slices to Synchronize Playback of Clip Pads on page 44 for more information.)	No

Clip Mode and Quantization

Let's talk some more about Quant Size and Sync. When a Quant Size other than None is selected, the playback of the WAV file will be delayed until the next selected unit of music as specified in Quant Size. This will ensure that your playback "snaps to the grid" of the beats established by your clock.

Sometimes the WAV file you are playing is longer than one beat. For example, the WAV file might contain a 2 bar drum riff. For a clip pad, blackbox will make some assumptions about where the beats in your file occur. In Clip mode, blackbox will play the whole 2 bar riff when the note is triggered. But the beats in the WAV file might not be playing at the same tempo as the clock speed. If you leave Sync set to None, the WAV file will play in its entirety and will get out of sync with your clock. If your WAV file tempo is faster than your clock tempo, it will sound like the beats are running ahead of the rest of the music. If your WAV file tempo is slower than your clock tempo, it will sound like your drums are lagging.

If you want to fix that, then choose the value for Sync that identifies how tightly you want to snap to the clock while the WAV file is playing in response to a single sustained note trigger.

While the note is playing, the sync will cause the playback of the WAV file to jump to the next selected sync increment in the file when the corresponding clock time has passed. So if the WAV was a little faster than your clock, the playback position will jump backwards to move the playback of the WAV to the selected clock increment. If the WAV is slower than your clock, the playback position will jump ahead to the selected clock increment.

This will work well if the difference between the BPM of your WAV file and the BPM of your clock is small. It will sound like a stutter if the difference is large.

Note:

- The blackbox assumes your clips use 4:4 time. If you are using other time signatures or polyrhythms, blackbox will have trouble synchronizing the clip.

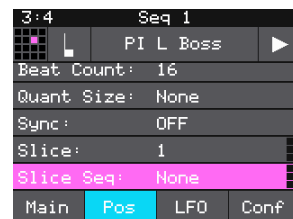
Tips for Synchronizing Clips

- Make sure your WAV file starts at the beginning of a measure and ends at the end of a measure. There should be no blank space at either end and it should loop cleanly at full length.
- Help blackbox determine the beat count. The blackbox will use the following methods in this order to identify the beat count:
 - Look at the BeatCount parameter when it is not Auto
 - Look for a valid ACID Tag in the WAV file that includes the beat count
 - Try to calculate it using the following assumptions:
 - the time signature is 4:4
 - the beat count is a power of two (2, 4, 8, 16, 32, 64, ...)
 - the clip tempo is close to the current clock tempo

Work with Slicer Pads

Slicer mode is useful when a single WAV file has multiple sections that you want to trigger independently. For example, if you have a drum riff, you may want to trigger different drum hits within the drum riff independently. Or if you have a recording of a vocal track, you may get an interesting effect if you skip around to playback different words or phrases over time.

In order to use Slicer mode effectively, you will need to identify slices within the WAV file. The blackbox can automatically detect the slice points within the wave file, and you can manually add or remove slice points. The WAV files in the folder \LOOPMASTERS\01 Loops\Drums and Perc\Full Drum Loops are good examples to try with Slicer mode.



**Slicer Pad
Parameters**

Pos Pad Parameters Specific to Slicer Mode

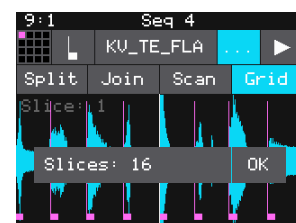
Parameter	Description	Range of Values	Mod Target?
Loop Mode	Controls whether the slice playback is looped. This does not work with Launch Mode of Trigger . Use Launch Mode of Gate or Toggle if you want to loop slices.	ON, OFF	No
PlayThru	Controls whether or not playback continues through the end of the slice.	ON – playback will continue past the end of the slice to the end of the file. OFF – playback will stop at the end of the triggered slice.	No
Beat Count	Enter the number of beats in the clip file to give blackbox more information to work with when synchronizing playback to the current song BPM. If set to Auto, blackbox will attempt to detect the beat count automatically. Only used when Sync is set to ON.	Auto, 1 to 512	No
Quant Size	Use Quant Size to quantize when the playback starts and stops. Quantization will cause playback to snap to a musical grid with intervals specified by the Quant Size parameter. When quantization is used, the note trigger will cause playback to start and end on the next quant size boundary. For example, if the Quant Size is set to 1-bar and you press the pad, the playback will begin at the start of the next bar.	None - always start and stop immediately 1/64, 1/32T, 1/32, 1/16T, 1/16, 1/8T, 1/8, 1/4T, 1/4, 1/2T, 1/2, 1 bar, 2 bars. Assumes 4/4 time.	No
Sync	The Sync feature prevents timing drift that can occur when the length and BPM of a clip does not align exactly with the tempo of playback. When Sync is used, blackbox will realign the audio to match the clock at the step size specified here. Even slight differences between WAV file BPM and clock tempo can cause significant drift over time. Select a value for Sync that will control the size of the musical unit to which the clip will be synchronized. Choose small settings, like 1/16th, for rhythmic or percussion clips. Choose large settings, like 1-bar, for sustained tones or drones.	OFF – playback will occur at the original rate. Looping will happen as soon as the sample ends. ON – blackbox will synchronize the playback of the slice.	No

Parameter	Description	Range of Values	Mod Target?
Slice	Indicates which slice will be played when a note is triggered. You can use modulation to vary this value over time.	1 through the number of slices in the pad.	Yes
Slice Seq	When Slice Seq is set to a value other than None , each new note will advance the selection of the next slice to play. The value of this parameter controls the order in which slice selection is advanced.	None: This parameter will not be used to control the order of playback of slices. Forward: A trigger will cause the playback to move to the next slice. Backwards: A trigger will cause the playback to move to the previous slice Random: A trigger will cause the playback to move to a randomly selected slice Stagger: A trigger will cause the playback to move through the slices in a somewhat random way. It will move forward a few slices, then back a couple of slices, and repeat.	No

In addition to setting parameters for a slicer pad, you also need to create the slices. There are three ways to do this: manually, auto scan, and slice to grid. When you configure slices manually, you use the **Split** and **Join** menu options to add and remove slice points. The manual process may also be used to refine the results after you use auto scan or slice to grid. When you use auto scan, blackbox uses an internal algorithm to decide where to place the splits. You can control the sensitivity of the algorithm. When you use slice to grid, you define a fixed number of slices, and blackbox will create splits that evenly divide the WAV file into the specified number of slices.

To Manually Create or Remove Slices

1. On the Waveform screen for the slicer pad touch the menu item with the three dots "...". This will display the Waveform Slicing menu.
2. Use touch gestures to move the waveform so the fixed cursor position (the vertical white line) is at the position where you want to add another slice point. Touch Split to create a slice point. The slice point is shown as a pink vertical line with a small pink square near the bottom.
3. Use touch gestures to move the waveform so the fixed cursor position (the vertical white line) is on or near a slice point that you want to remove. Touch Join to remove the slice point.

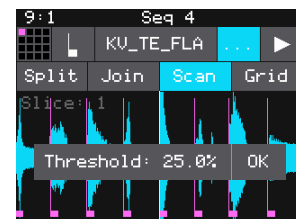


**Waveform
Slicing Menu**

You can have as many or as few slices as you want.

To Use Auto Scan to Create Slices

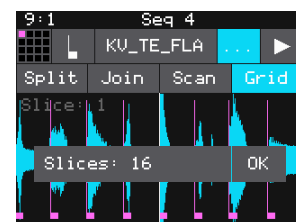
1. From the Waveform screen for the slicer pad, touch the menu item with the three dots "...". This will display the Waveform Slicing menu.
2. Touch Scan and then use a control knob to select a Threshold percentage for the sensitivity of the scan. The lower the threshold, the higher the number of slices that will be created. Touch OK when you are ready to scan. (You can touch outside of the Threshold field to cancel the scan.) The blackbox will detect and create slice points in the file automatically. The slice points are shown as pink horizontal lines with a small pink square near the bottom.



Scan Threshold

To Use Slice to Grid

1. From the Waveform screen for the slicer pad, touch the menu item with the three dots "...". This will display the Waveform Slicing menu.
2. Touch Grid and then use a control knob to select the number of Slices to create. Touch OK when you are ready to scan. (You can touch outside of the Slices field to cancel the scan.) The blackbox will automatically divide up the WAV file evenly into the number of slices you specified. The slice points are shown as pink horizontal lines with a small pink square near the bottom.



**Grid Slice
Selector**

You can adjust the results of the slice to grid or auto scan by manually adding or removing slices to get the slices that match your creative vision.

To Use Slices to Synchronize Playback of Clip Pads

You can use slices in a clip pad to synchronize playback of the beats in the clip. When the value of the Sync parameter for a clip pad is set to Slice, blackbox will use the location of the slices in the WAV file as the location of the "beats" for Sync purposes in order to prevent timing drift.

But how do you get slices in a clip pad? First configure the pad in Slicer Mode, create the slices, then change the Pad Mode to Clip. The slices will still be visible on the Waveform screen and can be used for synchronization.

Work with Granular Pads

The final pad mode is granular mode. Granular is similar to sample mode, but with the additional ability to use multiple grains when playing back your sample. You can use granular to facilitate loop cross fading and to generate new sounds from your samples. In this mode, the sample is played back in small portions about 10 to 200ms in length, called grains. You can control the size, count, spread and playback speed of the grains.

Pad Parameters Specific to Granular Mode

Granular pads support the same parameters as sample pads, except for Loop Fade. They also use the following additional parameters:

Parameter	Description	Range of Values	Mod Target?
Grain Size	The size of the small segments of the WAV file that will be played.	0% to 100% , which is about 20ms to about 1 second.	No
Density	Controls the number of grains per second. At the lowest end, you will get about 1 grain every few seconds. At 50%, you will get 3 grains with some overlap. Above 50% there is constant overlap that becomes more pronounced.	0% to 100% ., Keep in mind that more grains require more processor power.	No
Scatter	When density is less than 50%, scatter controls how evenly the grains are distributed over time. When density is above 50%, scatter has no impact.	0% to 100% .,	No
Speed	How quickly the playback of the grains advances through the source WAV file. At 100% it will sound most like the original file. At 50% it will be half speed. At 200%, it will progress through the WAV file at twice the original rate. At 0%, it will keep playing the same spot in the WAV file.	0 to 200%	Yes
Window	The length of file on either side of the current playback position from which the grains are selected. When set to 0%, the grains are always pulled from the same place in the WAV file. When set to 100%, the grains are pulled from a window of about a few seconds around the current playback position.	0% to 100% .,	No
Pan Rnd	Controls how widely the sound is spread apart across the left and right speakers. This controls how far apart the grains sound.	0% to 100% .,	No

Record New WAV Files

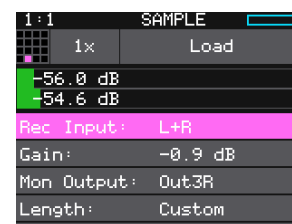
The blackbox comes with over 800 WAV files loaded on the microSD card and allows you to load your own WAV files on the microSD card. You can also record new WAV files to create your own custom sound. You can record a single WAV, or you can use MIDI or CV automation to record an entire multi-sample bank.

To record a single WAV file

1. Start by plugging an audio signal source into the Audio In jack. This is a stereo input.
2. Push the **PADS** button to display the sample bank.
3. Touch a pad in the grid to select it. With the pad selected, press the **INFO** button.

If the pad is empty, blackbox will display the Load and Record screen. If the pad is already loaded, blackbox will display the Waveform screen. If you are on the Waveform screen, press the Pad Mode icon to the left of the WAV file name at the top of the screen and then touch New Recording. You will now see the Load and Record screen.

4. In the top menu, touch the button to the left of the **Load** button. This will display the recording mode menu. Touch 1x to record a single file.
5. At the top of the WAV File Load and Record Screen, you will see the level meters for the two channels followed by a list of recording parameters. Turn one of the top two knobs to select a parameter, and then turn one of the bottom two knobs to select a value for that parameter. The table below shows the list of available parameters for single WAV file recording.



WAV File Load and Record Screen

Parameter	Description	Range of Values
Rec Input	Sets whether you are recording from only one input, the stereo input pair, or re-sampling the audio currently being generated to OUT1.	L+R, Left, Right, Resam
Gain	The VU meters represent the level of the signal to be recorded. You can adjust the gain to get the desired level and avoid clipping. For best results leave some room (a few dB) between your loudest level and the max allowed, which is 0dB. If a red bar appears to the right of the level, the signal is clipping and the level of the input signal should be lowered for best quality.	-96.00 dB to +20.00 dB

Parameter	Description	Range of Values
RecToPlay	When to set to On, blackbox will automatically start to play the new sample when recording ends if the Length parameter was used for recording.	On, Off
Length	This parameter allows you to specify a length of time that you want to record, in terms of notes and bars. When Custom is selected, touch the Stop button to stop recording.	Custom, 1/4, 1/2, 1 bar, 2 bars, 4 bars, 8 bars, 16 bars, 32 bars, 64 bars, 128 bars
Rec Quant	This parameter lets you quantize the recording to start and stop at the designated musical time interval. This is not available when Threshold recording is enabled.	None - always start and stop immediately 1/16 - quantize to the next sixteenth note time 1/8 - eighth note 1/4 - quarter note 1/2 - half note 1 bar - a whole note assuming 4/4 time 2 bars 4 bars 8 bars
Rec Mon	Controls whether the input signal received through Audio IN is sent to the output selected in Mon Output. This enables you to monitor the recording.	Off - Inputs are never played through the outputs. Auto - Inputs play through the selected output while recording or the recording screen is visible. On - Inputs always play through the selected output.
Mon Output	Controls where the input signals are played out to enable you to monitor the recording.	Out 1, Out 2, Out 3, Out1L, Out1R, Out2L, Out2R, Out3L, Out3R
RecThresh	When set to On, recording will not start until the audio input meets or exceeds the audio level set in the Threshold parameter.	On, Off
Threshold	When threshold recording is enabled, this controls the minimum sound level required to trigger recording to begin.	-96.00 dB to +0.00 dB

6. Send a signal to the audio Input. The source will play through the selected output if the Rec Mon setting is ON or Auto. The VU meters at the top of the screen display the input levels. Adjust the gain as needed.
7. To start recording, hold the **REC** button while you press the **PLAY** button.

Note:

- ▶ If you have the global Lead In option enabled (See Tools below), the blackbox will wait four beats and then will start recording.
- ▶ If RecThresh is ON, the recording will start once the input level meets the threshold level specified in the Threshold parameter.
- ▶ If you selected a time value for Length, recording will stop after the selected length of time.
- ▶ The Load and Record screen displays a running clock of measures and beats and time while recording.
- ▶ There may be a delay between when you push Rec + Play and when the recording starts, as blackbox waits to quantize the recording to the selected Rec Quant time interval. See [Synchronize Playback with a Clock](#) on page 112 for more information about clocks and quantization.

8. Push Stop to end recording. There may be a delay between when you touch Stop and when the recording ends due to quantization.

Note:

- ▶ When the recording has stopped, the **PADS** screen is displayed with the new WAV file loaded in the selected pad. The pad name will be RC with a numeric suffix. We will discuss changing file names and managing WAV files in Manage WAV Files below.
- ▶ If you set the parameter RecToPlay to ON, blackbox will automatically start to play the new sample when recording ends, if the Length parameter was used for recording.
- ▶ The new WAV file is stored on the microSD card in the folder associated with the preset. This folder is located under \Presets and has the same name as the preset. For example, if your preset name is KickinGroove then your recordings will be in the folder \Presets\KickinGroove.

Work with WAV Files Recorded on Blackbox

How you will work with these files depends on whether you are recording samples to build a library to use in presets in the future, or whether you are recording WAVs specifically for the current preset.

If you are recording WAVs for the current preset

1. Record WAVS until you get the files you need. The WAVs are stored in the preset specific folder.
2. Assign the WAVs you want to use to individual pads.
3. Push Preset and then touch File->Pack to create copies of any of the other files used in the preset into the preset folder.

If you are recording WAVs to build up a library of sounds

1. Create a new preset to host the content from your recording session.
2. Record into pads as desired. The blackbox places the WAV files into the preset's folder.
3. You can optionally use your computer to move the WAV files from the preset's folder on the microSD card into sound library folders on the card. When you want to use these files in another preset, point to the WAV files you moved to the library folders. Then pack up those presets to preserve copies of the WAVs you used for each preset.

Note:

- ▶ The blackbox won't stop you from loading a WAV file from a Preset B folder into Preset A. However, if you do this, you could potentially break Preset A if you ever move or rename Preset B for any reason. Therefore, if you have WAV files that you want to re-use across presets, we encourage you to move these WAV files into library folders outside of the **\Presets** folder, and to Pack your presets often.
- ▶ If you record into a loaded pad, the original WAV file remains intact on the microSD card and a new WAV file is created.
- ▶ You can turn off the Lead In and Metronome on the **TOOLS** pages.
- ▶ The blackbox streams the recording directly to your microSD card. The length of your recording is limited to the space available on the microSD card. Check available space on the **TOOLS** pages.

Advanced Recording Techniques

To Record a Single WAV File while Sequences or Song Scenes are Playing

You can record WAV files while you are also playing sequences or song scenes.

1. Set up the sequences or song scenes you want to play, and start playback.
2. Go to the WAV Load and Record screen and configure the empty cell.
3. Push Rec while on the WAV Load and Record screen and the sequences or scenes are playing.
4. Push Rec again if needed to stop recording. The sequences or scenes will continue to play. If you have Rec to Play enabled, the pad will also start to play. Configure looping and other options as desired.

To Use Resampling to Layer Recordings and Save Effects

If you like the sound of a specific effect on a pad, or you want to layer sounds into a single sample, you can record this to a new WAV file. You can also record a Sequence to create a new clip. To do this, configure the source pads to play to Out1. Use Clip mode, an external controller, or a Sequence to trigger playback of a single pad. Set up a sequence you want to record. Set up a different pad for recording and set the recording input to RESAM, then start recording.

1. Configure a pad you want to resample by loading a WAV file, applying effects, and configuring other parameters as desired.
2. To be able to trigger the pad while recording, you will need to either set up an external controller to trigger the pad, configure and arm a sequence to trigger it, or set it up as a Clip and arm it for playback.
3. Set the output for all pads to be recorded to Out1.
4. Open an empty pad for recording. Set the Rec Input parameter to Resam. Set up the other recording parameters as desired.
5. Push Play and Record at the same time. This will trigger the armed Sequences and Clips and start recording. Trigger additional pads or sequences using an external controller if desired.
6. Push **STOP** to end recording. You will now have a new WAV file that has all of the audio signal sent to Out1 while recording.

Note:

- Resampling happens after the compressor is applied. If you use RESAM as a source when the compressor is on, the amplitude of your new recording will be a few dB lower. Turn off the compressor on the **TOOLS** page to avoid this drop in amplitude.

To Manually Record a Multi-sample Pack

1. Create a preset for the multi-sample pack. Let's call it MyBank.
2. Record the files into the new MyBank preset. Delete any extra files that are not needed.
3. Assign root notes to each of the files if you want to ensure blackbox maps the files to the correct note. For example, if you recorded a sample for C3 and you want that sample to be used when you play C3 and pitched shifted for notes on either side of it, then set the Root Note parameter for that WAV file to C3. Do this for each of the pitched samples that you recorded. This means you will have to load each WAV into a pad individually in order to set the Root Note. Be sure to save the WAV file after you set the Root Note so the setting will be saved into the file. See [in WAV Files](#) on page 55 to learn how to save the Root Note.
4. Open the Preset where you want to use the multi-sample pack. Let's call it MySong.
5. Create a new sample pad and use Load All to load the multi-sample preset's folder into the sample. For our example, that would mean using Load All for the folder **\presets\MyBank** into the multi-sample pad.
6. Pack up the target preset (MySong in our example) to copy the multi-sample files into a sub-folder under the target preset's folder. In this case, you would end up with the following folder:

 \Presets\MySong\MyBank
7. Now you are free to delete or move the original MyBank preset if desired, or leave it there for future re-use.

To Record a Multi-Sample Bank using MIDI or CV + Gate Automation

You may have a MIDI or CV controlled instrument that you want to sample so you can take the sounds with you on your blackbox. Maybe you just created a great sounding patch on your Eurorack and you want to capture that sound so you can use it again after you change your patch. You may have a large synthesizer with a great sound but you can't fit it in your backpack. The blackbox's automated multi-sampling helps you record these instruments with just a little set up.

Recording a multi-sample pack starts out the same way as recording a single sample, but you use the 1x button next to the selection grid to change to Multi mode. You will set up your external instrument to play the sound you want and connect its audio and CV or MIDI triggers to blackbox. Then you will need to set up a pad on blackbox as Multi-Sample recording, and specify the range of notes, how many steps between samples, how many velocity layers, and a few other options. Finally, you start recording and watch as blackbox sends CV and MIDI signals out to trigger all of the specified notes and records each note as a WAV file in a new folder on the microSD card. When finished, you will have a folder full of WAV files that you can use as a multi-sample pack.

1. First set up the external instrument you want to record. Connect its audio output to the stereo audio IN jack on the back of blackbox.
2. Set up the connections for blackbox to trigger the external instrument. You can use MIDI or CV triggers. The blackbox will send out MIDI and CV signals while multi-sampling. You only need to connect one of them to the external device.

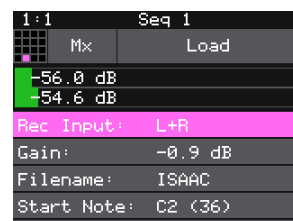
If you are using MIDI, connect a cable between either the USB MIDI device or TRS MIDI out jack of blackbox to the MIDI input of the instrument to be recorded. You may need to use the TRS to MIDI 5 pin DIN adapter included with blackbox.

If you are using CV, connect the audio OUT 1 of blackbox to the CV and Gate inputs of the instrument to be recorded. The CV signal will be sent on the left channel, and the gate will be on the right channel of audio OUT 1. Use a TRS splitter to break out the channels.

3. Now configure the pad for recording. Push **PADS** and then select a pad in the grid.
4. Push **INFO**. If the pad is empty, you will see the WAV File Load and Record screen. If the pad is loaded, you will see the waveform screen.

If you are on the waveform screen, touch the Pad mode icon to the right of the Grid icon, and then select New Multi.

5. At the top of the Load and Record screen, look at the button to the right of the selection grid. It should say either 1x or Mx depending on how you got to this screen. If it says 1x, you are set up to record a single file. Touch the 1x button and the Mode Selector menu will drop down. Touch Multi. You are now in Multi or Mx mode. The list of recording parameters changes to support this mode.
6. On the Recording screen, turn one of the top knobs to select which parameter in the list you are editing, and you use one of the bottom knobs to set the value for that parameter. Select values for the following parameters to configure your recording session:



Load and Record Screen - Multi Mode

Recording Parameter	Description	Range of Values
Rec Input	Choose which audio source to record.	L+R, Left, Right
Gain	The VU meters above the list of parameters represent the level of the signal to be recorded. You can adjust the gain to get the desired level and avoid clipping.	-96.0 dB to + 20.0 dB
Filename	The name of the folder that will store the multi-sample bank recordings. It will also be used as a prefix for the individual file names.	Select this parameter and then push the INFO button to open the file naming screen. Turn a knob to move the cursor position. Touch the onscreen keyboard to enter a file name. Touch Enter to save the filename and return to the parameters screen.
Rec Mon	Controls when the incoming audio signal will be played out through the blackbox outputs.	On - the audio input will always be played. Auto - the audio input will only be played when you are on the recording page for this pad. Off - the audio input will never be played out.
Mon Output	Choose which output will monitor the recording source during Multi-channel recording.	Out 1, 2, 3, 1L, 1R, 2L, 2R, 3L, 3R
Start Note	The note that will be sent out as a trigger to record the first WAV file.	C#-1 (1) through G9 (127)
End Note	The note that will be sent out to trigger the last WAV file that will be recorded.	C#-1 (1) through G9 (127)
Sample Every	How many semitones to step between each WAV file recorded. Set to 1 to record a WAV file for each note. Set to 12 to record one note per octave.	1 through 16
Vel Layers	How many velocity layers should be recorded for each note.	1 through 16
Max Vel	The MIDI Velocity required to play the loudest velocity layer.	1 through 127
Note Length	In seconds, the length of time that the note gate will be on.	1 through 60

Recording Parameter	Description	Range of Values
Release Len	In seconds, the length of time that recording will continue after the note length is over. This will record the tail of the note.	1 through 15
MIDI Chan	Select the MIDI channel that will trigger the instrument to be recorded if you are using MIDI triggers.	1 through 16

7. When you are ready to start recording, push **REC** and **PLAY** together and sit back and let the auto-sampler do its work. The blackbox will display which note it is currently recording. The blackbox will display the Waveform screen when the auto-sampling is complete.
8. You can push **STOP** to interrupt recording. Any completed recordings will still be on the micro SD card. You can remove them with the Preset Clean command. Keep in mind that if you have a folder full of WAVs that you recorded but that are not used on any pads, blackbox will assume you do not need them and the folder and its contents will be deleted when you Clean a preset.

Note:

- ▶ When the auto-sampling is complete, you will have a series of WAV files in a new folder. The folder name will be \Presets\<preset name>\<Filename>\<Filename>. See [Manage WAV Files](#) on page 59 for more information about file organization.
- ▶ The WAV files will be named <Filename> + "-" + <MIDI Note Number> + "-" + <MIDI Velocity>. For example, if your preset name is Pet Sounds and your multi-sample filename is Cat Meows, an example file name would be \Presets\Pet Sounds\Cat Meows\Cat Meows-036-100.
- ▶ Each WAV file will have the Root Note and Vel Layer parameters set based on the MIDI Note used to trigger it. The blackbox will use WAV tags to embed this information into the files.
- ▶ The pad used for recording will be changed to a Multi-Sample pad with the new sample bank loaded.
- ▶ This feature will allow you to **record up to 127 notes by 16 velocity layers**. The blackbox can only **load 64 samples per pad** – so choose your sampling settings wisely. You can create multi-sample packs that can be used on other devices that can take advantage of the additional WAV files.

Save and Load Parameters in WAV Files

There are several pad parameters that blackbox can read from and write to WAV files. These parameters are:

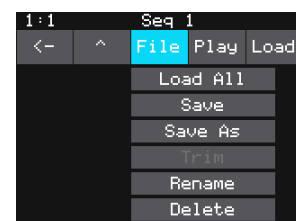
Parameter	Description	Supported Pad Modes
Root Note	When you use Notes to play this sample, the base sample will play for this root note. The sample will be pitch shifted up or down one semitone for each note away from the root note. The blackbox will read the root note from the WAV file, if available, when you add the WAV to the preset. However, you can specify a different value here to be used for this WAV on this pad in this preset. If you save the WAV file from this pad, the Root Note value will be saved with it. Stored in the WAV smpl tag.	Sample (Single and Multi), Granular
LpStr	Point where the looping will begin when playing forward, or looping will end when playing in reverse. Expressed in samples. Must be before or equal to LpEnd. LpStr is read from the WAV file when sample is loaded, and saved to the WAV file when the WAV is saved. Stored in the WAV smpl tag.	Sample (Single)
LpEnd	Point where the looping will end when playing forwards, or looping will begin when playing in reverse. Expressed in samples. Must be after or equal to LpStr. LpEnd is read from the WAV file when a sample is loaded, and saved to the WAV file when the WAV is saved. Stored in the WAV smpl tag.	Sample (Single)
BeatCount	Enter the number of beats in the clip file to give blackbox more information to work with when synchronizing playback to the current song BPM. Stored in the WAV acid tag.	Clip
Slice Points	The slice markers that are inserted into the file. Some other systems refer to these as Cue Points. Stored in the WAV cue points.	Slicer, Clip

Note:

- ▶ These parameters are saved in a format that is commonly used by other music products. This means you can set these values in the other product and then use them in blackbox, and the reverse.
- ▶ When blackbox first loads a WAV file that has parameters stored in it, it will load the values of the parameters that are in the WAV, and use default values for the other parameters. If you change a value of one of these parameters for the pad, those changes only apply to this pad, and are not automatically saved back to the WAV file. This allows you to override parameters for specific pads.
- ▶ When loading a WAV file, blackbox makes an assumption about the pad mode based on the parameters that are available in the WAV file. If there are slices in the WAV, then it sets the pad mode to slicer. If there are loop points in the WAV, then it sets the pad mode to sample.

To save the values you have configured for a pad back to the WAV file

1. Open the WAV screen for the pad.
2. Touch the name of the WAV file at the top of the screen to display the WAV selection screen.
3. Touch File and then Save or Save As. If you select Save, blackbox will save the configured parameters into the same WAV file you have loaded. If you choose Save As, you will see the WAV file naming screen. Type in a new name to save the changes to a different WAV file, and then touch Enter to save. . The blackbox will now load the newly modified WAV file into the pad.



WAV File Actions Menu

To revert back to the parameter and slice values stored in the WAV file, simply reload the file into the pad.

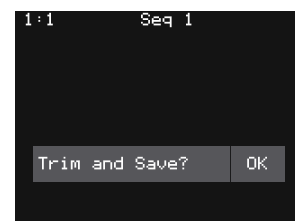
Note:

- ▶ If you use an existing file name when you use Save As, the old file will be overwritten with the current WAV file and parameters.

Trim WAV Files

When recording new samples, you sometimes get some unwanted material at the start or the end of the WAV file. Here's how to trim the file:

1. Open a pad with a WAV file you want to trim.
2. Set the pad mode to Sample.
3. On the WAV screen, turn the top left knob to set the left side of the pink bracket to where you want the new file to begin. Turn the top right knob to set the length of the pink bracket to be where you want the desired end point for the WAV file.
4. Touch the name of the WAV file at the top of the screen to display the WAV Selection screen.
5. Touch File and then Trim. The blackbox will ask if you want to Trim and Save? Touch OK to overwrite the WAV file with the portions outside of the pink bracket trimmed off. This is a destructive edit. Touch anywhere else on the screen to cancel.
6. Save your preset to save the change to the pad. Otherwise, the length parameter for the pad will be wrong when you reload the preset.



WAV File Trim Confirmation Prompt

Note:

- **Trim is a destructive edit.** You may want to use File -> Save As before you trim the file to give yourself a backup copy of the file.

Use Clipboard Functions with Pads

The blackbox has a slightly hidden set of clipboard buttons on the Pad screen. You can use these buttons to Cut, Copy, and Paste between pads and to Clear a pad. To access these functions, turn the lower right knob while on the Pads screen. The blue Velocity bar on the right edge of the screen will be replaced with several clipboard buttons. Select the pad you want to act on, then touch the button for the desired action. Turn the lower right knob back the other way to go back to the Velocity bar.



Pads Screen with Clipboard Side Panel

Edit Menu Option	Action
Cut	Copy all of the WAV file references and parameter settings for the selected pad and clear this pad. The copied information is now in the clipboard for pasting into a different pad. The current pad is now empty and all parameters are set back to their default values.
Copy	Copy all of the WAV file references and parameter settings from this pad. The copied information is now in the clipboard for pasting into a different pad. The current pad is unchanged.
Pste	Paste the pad information from the clipboard into the selected pad. This pastes the WAV file references along with all pad parameters.
Clr	Clear all WAV file references and parameter settings from the selected pad.

Manage WAV Files

The blackbox comes with hundreds of WAV files bundled with the firmware. You can load WAV files into pads in order to add them to a preset. We talked about how to configure pads previously in this document. Here we will discuss what tasks you can perform to manage the WAV files themselves.

Working with WAV Files on the MicroSD Card

You can use the microSD card with your computer to manage the WAV files on the card. You can load new WAV files onto the card or backup your existing WAV files for safekeeping. The blackbox is compatible with all standard WAV files.

You can use a microSD Adapter to insert your microSD card into your computer. Then you may use standard file techniques to rename the WAV files, reorganize them into directories, delete them, copy them onto your computer, or copy them onto other microSD cards. We recommend that you occasionally make backup copies of your WAV files, especially before upgrading to new firmware.

The blackbox supports organizing WAV files into folders and sub-folders. You can create your own folder structure on the microSD card.

The blackbox 1.5 changed where new recordings are stored. When you create a new recording, it will be stored in the folder for that preset. For example, the first new recording for the My Kickin Grooves preset will be saved as \Presets\My Kickin Grooves\RC000001.wav. When you load an existing WAV file into a pad, the preset will have a pointer to that WAV file in its source folder. If you want to gather copies of all of the files for a preset into the preset folder, use the preset pack option.

Note:

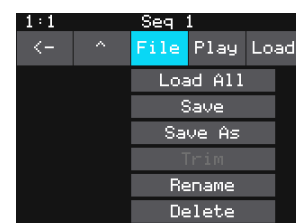
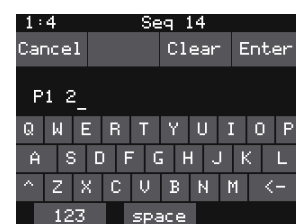
- ▶ Before you remove a microSD card from a computer, you must select the option to Eject the card in order to avoid corrupting your card.
- ▶ If you need to format your MicroSD card, we recommend the tool provided by the SD Association. You can find it at <https://www.sdcard.org/downloads/formatter/>.

Note:

- ▶ If you delete, move or rename a WAV file, it will no longer be available for use by presets that were previously using it. The name of the WAV file will still appear in the Preset, but the Waveform screen will be blank until you load a new WAV file into the pad.
- ▶ The blackbox supports samples in the WAV file format. It supports 1 or 2 channel files with 16, 24 or 32 bit resolution at any sample rate. 48kHz is the preferred sample rate.
- ▶ WAV file names may use Alpha Numeric Characters (A-Z, 0-9) and some special characters. The following characters are NOT allowed:
 " / \ ? * < > : |
 File names must be less than 256 characters, including the path name. Files that do not conform to these naming constraints will not be recognized by blackbox.

To Delete, Save As or Rename a WAV File

1. Touch a loaded pad on the Pads screen to display the Waveform Screen.
2. Touch the name of the WAV file at the top of the screen to display the WAV Edit screen.
3. Use the control knobs to scroll to the WAV file or folder you want to delete. You may need to load directories to navigate to the file you want to delete.
4. Touch File to display the WAV File Actions menu.
5. Touch Delete to delete the selected WAV file or folder from the microSD card. Touch Save As to save a copy of the WAV file with a different name. Touch Rename to change the name of the file on the microSD card.
6. If you select Delete, blackbox will display a confirmation prompt. Touch OK to confirm, or touch anywhere else to cancel.
7. If you select Rename or Save As, blackbox displays the file naming keyboard. Use the touchscreen to enter letters using the keyboard. Touch the <- to delete the previous letter. Turn a knob to position the cursor. Touch Enter to save your changes.
8. Touch the back arrow <- in the top left to exit the WAV Edit Screen.

**WAV File Actions Menu****File Naming Keyboard**

Note:

- ▶ If you delete, move or rename a WAV file, it will no longer be available for use by presets that were previously using it. The name of the original WAV file will still appear in the preset, but the Waveform screen will be blank until you load a new WAV file into the pad.
- ▶ To remove a WAV file from a pad without deleting the file, go to the Waveform screen and touch the Pad Mode icon to the left of the file name, and then touch New Recording. You can press **PADS** to go back to the Pads screen without loading a file and the pad will be empty.

To Pack a Preset

After you spend time carefully creating a preset, you don't want to worry about it getting broken if you make changes to that WAV file or re-organize your sample library. You may also want to gather up all of the files used in a preset so you can move it to another microSD card or archive it on your computer. The Pack feature was created to address these needs.

1. Load the preset you want to pack.
2. Push **PSET** and then touch File->Pack. The blackbox will find all of the WAV files that are assigned to pads and copy them into the folder for this preset. Multi-sample banks will be copied to a sub-folder.

Note:

- ▶ If you continue to add WAV files to your preset after you pack it, the preset will still point to these WAV files in their source folders. Pack the preset again to copy these files over.
- ▶ If the Pack option is disabled, then the preset is fully packed already.

WORK WITH KEYS

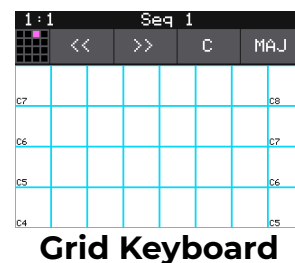
The Keys screens provide two alternative ways for you to play WAV files that have been configured on the **PADS** screen and to enter notes into a sequence. There are two Keys input modes. The first time you push the **KEYS** button, blackbox will display a traditional black and white keyboard. Push **KEYS** again to toggle to the grid keyboard. On the grid keyboard, you can trigger four octaves of notes within the scale specified using Scale selection buttons at the top right of the screen, so you don't have to worry about scale specific sharps and flats. Use the arrow buttons at the top of the screen to access additional octaves.

Use the KEYS Screen to Play Individual Pads

When you select a sample, granular or clip pad to play with Keys, blackbox will play the WAV file for that pad, pitch shifted based on the triggered note. For single sample and granular pads, the native sample will play with C4 by default and it will shift up or down the appropriate number of semitones based on the note you play. If you have specified a root note for a single sample or granular pad, play this root note to hear the sample as recorded, and then the sample will be pitch shifted as you move up and down the keyboard from there. When you use a multi-sample pad with Keys, it will play the sample that has the root note closest to the played note and then pitch shift as needed. When you select a slicer pad to play with Keys, blackbox will map the slices in the pad to the notes on the keyboard.

To Play a Sample, Granular or Clip Pad With the KEYS Screen

1. Push **PADS** to view the sample bank.
2. Touch a pad or turn a knob to select the desired pad. The pad will be pink when selected.
3. Push **KEYS** once to display the Traditional Keyboard, or twice to display the grid keyboard. Touch the keys or grid squares on the screen to play notes. You can slide your finger across the screen to play adjacent notes.
4. Touch the arrow buttons at the top of the screen or turn a knob to scroll left or right one note or one octave. The current octave label is displayed on each C note.



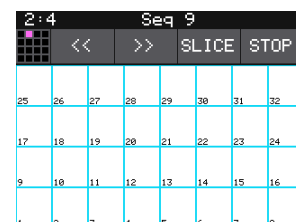
To Play Slicer Mode Pads With Keys

You can use the Keys screen to trigger individual slices within a pad. Here is a basic example of how to do this:

1. Create a slicer pad and create four or more slices by either using the Scan feature or manually creating the slices.
2. Set the following values for the pad parameters:

Parameter	Value	Explanation
Launch Mode	Trigger	This will cause the WAV slice to play from beginning to end when a trigger is received. Other values will work, but let's use this for the example.
Loop Mode	Off	We will turn off looping for this example.
Slice	3	This does not impact how the Keys screen plays the slices.
Slice Seq	None	We will not use the Slice Sequencer in this example.

3. Push **KEYS** to go to the Traditional Keyboard screen.
4. Play C2 on the Traditional Keyboard screen. You will hear that slice 1 is played.
5. Play D#2 and slice 4 will be played. Keys C2 and up are now mapped to Slices 1 and up for playback.
6. Push **KEYS** again to go to the Grid Keyboard screen. The blackbox will display numbered squares in the grid for each slice in the WAV file. Use the arrows at the top of the screen to access additional octaves.
7. Touch a numbered square on the grid to play that slice.
8. Touch **STOP** at the top of the screen to stop playing all slices. (The SLICE button next to the **STOP** button does not do anything. It is just a reminder that this is a slice pad.)



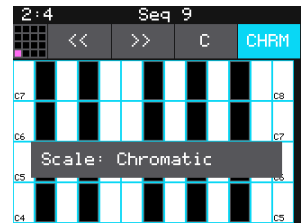
**Grid Keyboard
for Slices**

Note:

- ▶ On the traditional keyboard, the last slice will be played for all notes above the last slice. Nothing will play for notes below C2.
- ▶ If you use the Grid-based keyboard with a slicer pad, the grid displays the numbered slices.
- ▶ The steps above show a simple example of using Keys alone to trigger different slices within one pad. You can use this with Loop Mode ON with Launch Modes of Gate or Toggle to achieve different effects. You could also use this with Slice Seq if you want to have the Slice Seq control which slices play when a pad trigger is received.

To Select a Scale on the Grid Keyboard

1. Push the **KEYS** button until you see the Grid keyboard.
2. Touch the left Scale Selector button to display a list of values for the Root Note. Touch an option to select it. Alternatively, you can turn any knob while on the grid keyboard to change the Root Note.
3. Touch the right Scale Selector button to display the Scale or Mode options. Turn any knob to scroll through the values. Touch the screen or any button when the desired value is displayed.



Grid with Scale Mode Selector

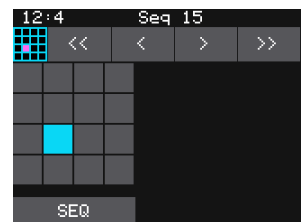
Note:

- To find the right key to match some music, tap a root note on the grid while turning a knob to scan through the root notes.

To Change Which Pad is Playing on the Keys Screen

There are two ways to change which pad is playing with the keys screen:

- Change which pad is selected on the Pads screen.
- Touch the Pad selector grid in the top left corner of the screen, then touch the pad you want to use. This will also change which pad is selected on the Pads screen.



Keys - Pad Selector

Use the Keys Screen with Sequences

You can use the Keys screen to record a Keys or MIDI sequence. You can either set the Keys screen to play the Pad that is mapped to the selected sequence (only for Keys sequences), or you can use SEQ mode. See [Use MIDI Sequences to Play an External MIDI Instrument](#) on page 109 to learn how to use Keys with a MIDI Sequence.

To Record a Keys or MIDI Sequence Using the Keys Screen Mapped to a Sequence

1. Select the Keys sequence you want to record into.
2. Push the **KEYS** button to open the Keys Screen.
3. Touch the pad selector grid in the top left corner.
4. Touch the SEQ button at the bottom of the pad selector overlay screen. The Keys screen is now in SEQ mode. Notes played and recorded here will now be sent to the selected sequence. If that sequence is a MIDI sequence, the notes will be sent through to the MIDI Out channel selected for that sequence. If it's a Keys sequence, the notes will be recorded into the sequence but will only be sent to the MIDI Out channel during sequence playback.

To Record a Keys Sequence Using the Keys Screen Mapped to a Pad

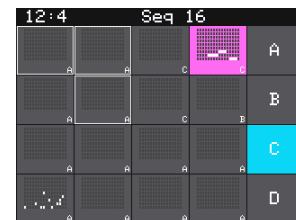
1. Select the Keys sequence and pattern you want to record into.
2. Push the **KEYS** button to open the Keys Screen.
3. Touch the pad selector grid in the top left corner.
4. Touch the pad that is mapped to the selected Keys sequence.
5. Notes played and recorded here will now be sent to the selected sequence and the pad that is mapped to it. If the Keys sequence is mapped to a MIDI Out channel, the notes will be recorded into the sequence but will only be sent to the MIDI Out channel during sequence playback.

WORK WITH SEQUENCES

Now that you've placed samples on your pads, you can record Sequences with them.

Push the **SEQS** button to bring up the Sequences Home screen. It contains 16 cells, each with a tiny piano roll view of the sequence events. (Don't worry, you don't have to edit sequences on them!)

You'll also notice a letter in the lower right of each cell – labeled A, B, C, or D – to indicate the currently active Pattern (see below).



Sequences Home

Sequences have a lot of flexibility. Not only can you assign any sequence to work with any pad, but you can trigger pads from the **PADS** and **KEYS** screens to play along with a recorded sequence, or record a sequence in real time.

You can play back multiple sequences at the same time, and if you want to record into a sequence while playing others, you can select which sequence and pattern you are recording to.

Note:

- For a sequence to loop seamlessly, the Quant Size for the sequence must be less than or equal to the length of the sequence.

Sequence Patterns

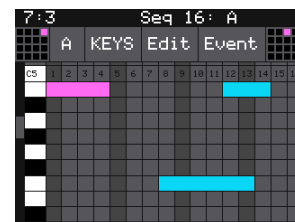
Each sequence in the Sequences Grid can have up to four patterns, labeled A through D. All patterns in the cell have the same Sequence mode (Keys, Pads, MIDI), the same target (pad or MIDI Out), and the same quantization settings. Each sequence pattern can have a different Step Length (time between event triggers), from 1/64th note to 8 bars in straight time or triplets, and Step Count (number of steps in the sequence) from 1 to 256. Only one pattern per sequence may play or be edited at a time.

To Select the Active Pattern for a Sequence from the Sequences Grid

1. Push SEQS to open the Sequences Grid.
2. Turn the bottom right knob to swap out the right panel for the layer selector.
3. Touch the letter for the layer you want to play and edit. The layer is displayed in the lower right corner.

To Select the Active Pattern for a Sequence from the Sequencer Screen

1. Push **SEQS** to open the Sequences Home screen.
2. Touch a square in the grid to select the sequence you want to work with, then push the **INFO** button.
3. On the Piano Roll Screen, the letter that is just below the clock in the top left corner is the currently selected pattern. Touch the letter to select a different pattern.



Piano Roll Screen

Record and Play Sequences

Before we dive into the details of working with Sequences, let's make sure Song Mode is disabled to keep things simple for now.

To Toggle Song Mode On and Off

1. Push the **SONG** button below the screen.
2. The onscreen Song button at the top right of the Song Mode screen is blue when it's on, and gray when it's off. Touch to turn it on/off; when you do, the context display at the top of the screen will be updated to display the current sequence number (when off) or Song scene (when on).

To Record a Sequence

1. Push **SEQS** to see the Sequences Home screen.
2. Touch a cell or turn a knob to select a sequence cell. The selected sequence cell will be pink. The context at the top of the screen will now display the number of the selected sequence.
3. Push **INFO** to open the Sequencer.
4. Touch the Pattern selector in the header to choose which pattern you are working with.
5. Touch the pattern mode button (PADS, KEYS, MIDI) to select a sequence mode.
6. If you chose Keys mode, touch the grid in the top right corner to select which pad the sequence will play.
7. Push **PADS** or **KEYS** to play the sequence to be recorded. You can also trigger pads using an external MIDI device.
8. Hold down the **REC** button while you push **PLAY** to start recording. If you have the global Lead In option set to ON, blackbox will wait four beats, then start to play any active sequences and start recording.



Keys Sequence Pad Selector

9. Touch pads or keys to add notes to the sequence you are recording. A Keys sequence will only record notes from the pad assigned to the sequence.
10. Push **REC** to continue playing but stop recording. Push **STOP** to stop recording and stop playing the loop.

Note:

- ▶ If you record into an empty sequence using the Keys screen without selecting a mode or pad, blackbox will change the mode and pad to match the content recorded. However, once you have recorded into a sequence, rerecording or recording into a different pattern will not change the mode or the assigned pad.
- ▶ While recording, the sequence will record to the length specified in the sequence parameters, and then loop back and play what has been recorded. You can then layer additional notes into the sequence if you continue to play.
- ▶ Any active sequences will play while you are recording. However, the notes from other sequences will not record into the currently selected sequence. Only the notes you trigger on the **PADS** screen, the **KEYS** screens, or via external MIDI devices will be added to the sequence.
- ▶ You can push **REC** while another sequence is playing to start recording immediately into the selected sequence.

To Play Sequences

1. Push **SEQS** to see the Sequences Home screen.
2. Touch sequence cells to toggle their active state. Active sequences have a white frame. You can play multiple sequences at once.
3. Push **PLAY** to start playing the active sequences.
4. Turn the lower right knob to open the Pattern Selector Panel.
5. Touch a letter in the Pattern Selector Panel to change which pattern is playing for the selected sequence.
6. Touch sequence cells to turn them on or off. The cells start and stop in alignment with the sequence quantization settings. A blue progress bar shows the current playback state of the sequence. A white progress bar indicates that the sequence will start at the next quantization break.
7. Push **STOP** when you are finished. If some WAV files remain playing, you can push **STOP** again to turn them off.

Note:

- ▶ Some sequences trigger long WAV files. These WAV files may still be playing after the sequence stops.
- ▶ Some sequences use pads in toggle mode. It's possible to stop a sequence between the toggle on and the toggle off notes, leaving the WAV still playing after the sequence stops.
- ▶ You can record a sequence while others are playing. Simply push REC in this case to start and stop recording. You can even switch which sequence you are recording into without pushing **STOP**.

To Edit and View the Notes and Pad Triggers in a Sequence

You can use the **INFO** button with a selected sequence cell to view and edit the sequence.

1. Touch a sequence cell to select it.
2. Push the **INFO** button to drill into that cell. The blackbox will display the sequence editor Piano Roll screen, with the current pattern shown at top left. You can change the pattern by touching this button. Also note the selection grid at top left. You can touch it to bring up a grid of sequences, and choose which cell to edit, without having to leave the piano roll view. Note that when you call up a new cell, you'll be shown the currently active pattern.
3. If the sequence is in Keys or MIDI mode, the piano roll view will have a chromatic keyboard along the left side of the screen. In Pads Mode, the left edge lists the pad numbers. The piano roll displays the notes or pads recorded for each step over time moving from left to right. You can touch the mode button at the top of the screen to switch the mode between Keys, MIDI and Pads. **Note that if switch to or from Pads mode, any recorded events in all four patterns in that cell will be cleared.**
4. Each sequence can record keys input for only one pad. This is selected using the selection grid that appears at top right in **KEYS** mode.
5. You can use the control knobs and touch gestures to adjust notes and to zoom and scroll through the sequence as described in the table:



Piano Roll Keys View



Keys Sequence Pad Selector

Action	Result
Turn the top left control knob	Select a different note.
Turn the top right control knob	Changes the length of the currently selected note
Turn the bottom left control knob	Moves the note left or right to change the timing of the note.
Turn the bottom right control knob	Moves the currently selected note up or down through the piano scale. (Only works in KEYS View.)
Two finger pinch or stretch	Zooms the piano roll in or out
Single finger drag or swipe	Scrolls the piano roll

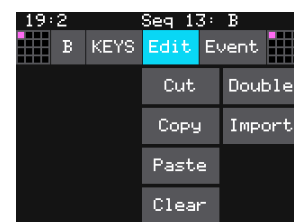
Note:

- ▶ While recording a sequence, if you play something in blackbox that doesn't match the mode or pad assignment of the selected sequence, the pads will play but will not be recorded.
- ▶ When the Sequencer Screen reloads, it zooms horizontally to display the number of steps that have been selected in Step Count, and scrolls vertically to display the entered notes.
- ▶ The note position is restricted to the Step Count configured for this Sequence.
- ▶ When recording, the incoming notes are added to the sequence. Previously existing notes are not removed. Touch Edit then Clear before touching **REC** if you want to start with a clean piano roll.
- ▶ The C notes on the piano roll are numbered to indicate which octave is currently displayed. If you zoom out too far the numbers will not be displayed.
- ▶ The numbers across the top of the piano roll indicate the step numbers. If you zoom out too far the numbers will not be displayed.
- ▶ To quickly switch the sequence you are editing, touch the selection grid at the top left corner of the screen and then touch the square in the expanded selection grid that corresponds to the sequence you want to edit.

To Copy and Clear Sequences

You can use standard clipboard style functions to cut, copy, paste, and clear sequences.

1. Push **SEQS** to display the Sequences Grid.
2. Touch a sequence or turn a knob to select a sequence. Select a pattern for that sequence.
3. Push the **INFO** button to display the Piano Roll screen.
4. Touch **EDIT** at the top of the Piano Roll screen to display the clipboard functions menu.
5. Touch a menu option to perform the action described below.



Piano Roll Edit Menu

Edit Menu Option	Action
Cut	Copy all of the notes and pad triggers and parameter settings in the currently selected pattern in this sequence, then clear the piano roll of this sequence. The cut information is now on the clipboard for pasting into a sequence.
Copy	Copy all of the notes and pad triggers and parameter settings in the currently selected pattern in this sequence. The copied information is now on the clipboard for pasting into a sequence.
Paste	Paste the sequence information from the clipboard into the current selected pattern in this sequence. Pasting is an additive action. This means that it only adds notes and pad triggers to the piano roll. It doesn't remove them. This can be useful to merge two sequences together. Keep in mind that the sequence parameters are also copied along with the note and pad events.
Clear	Clear all note and pad trigger information from the currently selected pattern in this sequence. All parameter settings remain untouched.
Double	Doubles the Step Count for the currently selected pattern (e.g. a 16-step pattern now has 32 steps) and copies all note and pad trigger information from the first half into the second half. This makes it easy to start with a short pattern of basic beats (e.g. a kick and snare) and quickly turn it into a longer framework for other instruments to be added on top.
Import	Imports MIDI data from a .MID file on the microSD card into the currently selected pattern.

To Edit Sequence and Pattern Settings

Each sequence cell has sequence parameters to control the length of the steps, the length of the sequence, quantization, duty cycle, and MIDI Output channel.

1. Push **SEQS** and touch the sequence cell you want to edit.
2. Push **INFO** twice to display the parameters for the selected pattern.
3. At the bottom of the page are five tabs. Select Seq for parameters that apply to the entire sequence cell, and A–D for parameters specific to each pattern.
4. Use the top knobs to scroll between the parameters (or just touch the one you want to edit) and use the bottom knobs to adjust the value of the selected parameters.

Parameters that apply to the entire sequence cell include:		Range of Values
Duty Cycle	The duration of the note events, where 0% is inaudible, and 100.0% is playing the full duration of the note.	0% to 100%
Quant Size	Defines precisely when to start the sequence. When a sequence is activated or deactivated, blackbox will wait until the start of the next Quant Size interval to start or stop the sequence.	1/64, 1/32T, 1/32, 1/16T, 1/16, 1/8T, 1/8, 1/4T, 1/4, 1/2T, 1/2, 1 bar, 2 bars (T = Triplet)
Step Mode	Step Mode controls whether the sequence notes are quantized to the grid while recording. When Step Mode is OFF, recorded notes will no longer be quantized to the grid. Use Step Mode ON to force your notes to the quantization points for tight alignment to the tempo. Use Step Mode OFF to adjust micro-timing on recorded notes with the bottom left knob.	ON, OFF
MIDI OUT	The MIDI Channel that this sequence will use for output	None, Ch1, through Ch 16

Each of the four patterns can have its own settings for the following parameters:		Range of Values
Step Len	Controls the length of time the sequence will spend on each step, in terms of fractions of a bar.	1/64, 1/32T, 1/32, 1/16T, 1/16, 1/8T, 1/8, 1/4T, 1/4, 1/2T, 1/2, 1 bar, 2 bars, 4 bars, 8 bars (T = Triplet)
Step Count	The number of steps in the sequence	1 to 256

Note:

- If a value of a sequence parameter is changed during playback of the sequence, the change will take effect at the start of the next loop through the sequence.

To Use Sequence Quick Action Buttons

On the Sequence Grid screen, the buttons in Quick Actions panel along the right side allow you to perform actions that apply to the entire sequence. Turn the lower right knob to switch between the Quick Actions panel and the Pattern Selector panel.

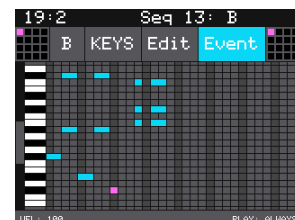
Sequencer Button	Result
UNDO	Rolls back the last round of changes to the notes and pad triggers added to the selected sequence. Any notes or pad triggers added since the last time you pressed REC will be removed from the sequence.
CLEAR	Clears all notes and pad triggers from all patterns of the selected sequence. Sequence parameters remain unchanged.
OFF	Deactivates all sequences.

To Adjust Probability and Velocity for Note Events

You can make Sequence loops more interesting by adjusting the probability of playback for individual note or pad events in a sequence. You can also add some more variety to your sound by adjusting the playback velocity. By default, Velocity is configured as a modulation for the Level parameter for all pads. This means at lower velocities, the pad playback level will be lower. Additionally, multi-sample pads may have WAV files that are triggered at different velocities. WAV files are mapped to different velocities either during automated multi-sample recording on blackbox, or in an external WAV file editor.

When recording a sequence, blackbox will capture velocity values used during the recording from either MIDI Velocity or the Velocity touch control on the right side of the **PADS** screen. You can adjust the velocity as well as the probability of note playback as follows:

1. Push **SEQS** to go to the Sequences screen.
2. Select a sequence and push **INFO** to display the sequence Piano Roll screen.
3. Touch Event at the top of the screen to enable the Event editor. The Event button will turn blue and you will see the VEL and PLAY parameters for the selected note at the bottom of the screen.
4. Turn the top left knob to select the note to be edited. The selected note is pink.



Sequence Event Editor Mode

5. Turn the bottom left knob to adjust the velocity for the selected note event. The VEL parameter in the bottom left corner of the screen shows the current value.
6. Turn the bottom right knob to adjust the probability of playback for the selected note event. The PLAY parameter in the bottom right corner of the screen shows the current probability.
7. Touch the Event button again to disable note event parameter editing so you can use the knobs to move and change the length of notes.

Note:

- ▶ You can use the Event editor in both **PADS** and **KEYS** mode on the Piano Roll screen.
- ▶ If a value of a note event is changed during playback of the sequence, the change will take effect at the start of the next loop through the sequence.

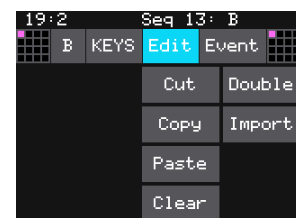
To Import a MID file into a Sequence

If you have a MIDI sequence you created in your DAW or another device, you can use a MID file to import the sequence into blackbox. The sequence can be a Keys or MIDI sequence. A Keys sequence will play with the pad selected in the top right selection grid at the time of importing. A MIDI sequence will play out to the MIDI Channel configured for the sequence.

1. Push **SEQS** to go to the Sequences Home screen.
2. Select a sequence and push **INFO** to display the Sequence Piano Roll screen.
3. Select either Keys or MIDI mode using the selector at the top of the screen.
4. If you chose Keys, then touch the pad selector grid at the top right and then select the pad that will play the sequence.
5. Touch Edit at the top of the screen to open the menu.
6. Touch Import and then select a .mid file to import, using the knobs to scroll through files and folders. Touch the caret ▲ button and the Load button to navigate through the file folders. Select the file to import and then touch Load to import the sequence. The sequence will now include the note events imported from the MID file.



Keys Sequence Pad Selector



Piano Roll Edit Menu

7. Push **INFO** to see the Sequence Parameters screen. Adjust the Step Length and Step Count to match the imported sequence if needed.

Note:

- ▶ The blackbox will only import the first track in a MIDI file.
- ▶ The sequence will be mapped to the pad selected in the pad selection grid at the time of import. You can use Copy and Paste to move it to a different pad if needed.
- ▶ If the imported sequence is longer than the number of steps configured for the sequence, the sequence length be extended to match the imported data.

Note:

- ▶ The blackbox has 16-note polyphony. Importing a sequence with more than 16 simultaneous notes will cause note stealing and other unpredictable effects.

WORK WITH SONGS

Now that we've created some sequences, we can put them together to make a complete arrangement, which we call a Song. A Song is a collection of up to 32 Scenes in a set order. Each scene plays back a particular pattern a given number of times, along with one or more events triggered at the start of the scene.

When you create a new preset, Song Mode is turned off by default. This means that you are recording and playing sequences on their own. When Song Mode is turned on, sequences play back as part of a given scene. You can manually add more sequences to play along with the scene, or even record a sequence as the song plays.

You access the primary Song Screen by pressing the **SONG** button. The top line of the display shows the current bar and beat and the currently selected sequence or scene. Next to that is a blue progress bar that appears during scene playback in Song Mode, showing where you are in the scene as it plays.

Underneath that are displays for Tempo (adjusted with the top left knob) and Swing amount (adjusted with the top right knob), as well as buttons to bring up the Edit menu, turn looping on and off, and turn Song Mode on and off.



SONG Screen

Note:

- Swing only takes effect if the selected pattern has a step length of 1/16 or smaller.

Two types of loops are available, and are selected by touching the Loop button repeatedly:

Button State	Loop Type
Loop (gray)	Looping is turned off
Loop1 (blue)	The current scene loops
LoopA (blue)	The song is looped with all scenes playing in order

When Song Mode is turned on (blue), blackbox will play from the currently selected scene. Scenes will start in sync with the beginning of the bar when selected.

If you activate more patterns on the **SEQS** page while a song is playing, they will play along with the current scene only if that sequence is included in the scene (subject to the 16-note polyphony limitation of the blackbox sound engine). Use a Keep in that sequence cell to allow free control of the sequence. Note that Song Mode remains in effect until turned off, regardless of which other pages you visit.

Parts of a Scene

Each line in Song Mode shows the information about a particular scene. The currently selected scene is pink.

First, there's a name for the scene. Names are assigned automatically by default: Scene 1, Scene 2, etc. Note that scenes are numbered consecutively as they are created, and these numbers don't change if you move scenes around. If you want a more descriptive name for a scene, touch the Edit button and select Rename.

Next to the name are two grids. The first indicates a set of pad events that are played at the beginning of a scene, useful for emphasis on parts that you don't want to repeat over and over again as a scene plays out. The second indicates which sequences and patterns are played within the scene.

You can change both of these by touching the respective grids and selecting new pads or sequences. Note that on the sequence grid, you can have multiple patterns playing back at once, and select which pattern each cell plays using the A–D buttons. If a cell is assigned to a pattern that you want to change, it can be reassigned simply by turning it off, selecting the new pattern, and turning it back on again. To exit either of these screens, press the **BACK** or **SONG** button.

On the right of each scene are two numbers e.g 1 x 2 or 4 x 4. The first is the length of the longest selected sequence, given in 16-step increments: 1 for 16 steps, 2 for 32 steps, etc. The second is the Play Count: how often the pattern is repeated within the scene. Press the **INFO** button to set the play count, using the top left knob, and press **BACK** or **SONG** to exit.

To Play a Song or Scene

1. Press the **SONG** key to enter the Song Screen.
2. Touch the Song button in the top right corner of the screen to turn Song Mode on (blue).
3. Set the looping behavior you desire. To disable looping and play the song through only once, touch the Loop button until it turns gray and says Loop. If you want to loop one Scene continuously, touch the Loop button until it turns blue and reads Loop1. If you want to loop the entire song continuously, touch the Loop button until it reads LoopA.
4. Select the scene you want to play first by touching it (it turns pink). By default, the first scene will play first.
5. Press **PLAY** to begin playback. Unless Loop1 is selected, the song will move from one scene to the next after it finishes playing. You can queue up any scene mid-song simply by touching it; playback will begin in sync with the next bar.

To Manage Scenes

1. Select the scene you wish to edit.
2. Touch the Edit button. You will be presented with a menu of the following operations:

Edit Menu Option	Action
Cut	Copy a song scene and remove it. All sequence and pad events, the scene name and the play count will all be copied. The information is held in the clipboard for pasting.
Copy	Copy a song scene. All sequence and pad events, the scene name and the play count will all be copied. The information is held in the clipboard for pasting.
Paste	Pastes the scene information from the clipboard into the selected scene. All information in the target scene will be replaced.
Clear	Clears all sequence actions from the selected song scene and resets the Play Count to 1.
Add	Inserts a new song scene below the selected song scene.
Rename	Displays a virtual keyboard where you can rename the scene. Touch enter at the bottom of the screen when you are ready to save the changes.
Delete	Deletes the selected song scene
Grab	Adds any currently playing patterns to the current scene, and removes patterns that have been deactivated. This lets you experiment with building scenes from patterns on the fly. You can use Loop1 to cycle through a scene continuously and experiment with different combinations of patterns, using Grab to save configurations that work for you.

To Reorder Scenes

Scenes cannot be directly reordered. The procedure for moving a scene to a new location is done with Add, Cut, and Paste.

For example, let's say you want to move Scene 3 between Scene 1 and Scene 2:

1. Select Scene 1 and then touch Edit and Add. This will put a blank scene in between Scene 1 and Scene 2.
2. Select Scene 3 and touch Edit and Cut. This will remove Scene 3 from the song.
3. Select the blank scene you just created and touch Edit and Paste. This will place all of Scene 3's data, including its name, into the blank scene.

Keep

You may have noticed that both the pad and cell grids have a button in the bottom right corner labeled Keep. This function is new for blackbox 3.0, and offers the ability to “keep” a pad or pattern playing over a scene change. This has a variety of uses.

For example, let’s say you’ve assigned one pad to play a very long sample, one that might play a drone or loop under an entire song. Setting that pad to Keep on the pad grid will accomplish that; the pad will play right through scene changes without stopping or resetting itself to start over.

In another example, you may want a scene to play back several patterns, but have one of them keep going when the scene changes. That one pattern can be set with Keep.

Using Keep is easy; just press Keep so it’s lit and then select the pad or cell you want to keep playing from the previous scene. It will light with a down arrow.

Keep lets you easily experiment with new sequences during song playback by adding a sequence to a scene before recording it. Here’s how it works:

To Record a Sequence during Song Playback

You can experiment with new sequences during song playback by adding a sequence to a scene before recording it.

1. Push SONG and select a scene. Tap Song at the top right to enable Song Mode.
2. Tap the Loop button until it says Loop1 to loop the selected scene.
3. Touch the scene’s sequences grid on the right to open it.
4. Touch Keep, and then touch the sequence you want to add.
5. Push PLAY to start playback of the scene.
6. Push SEQS to open the sequences screen. Select the sequence and pattern you want to edit.
7. Push REC when ready to start recording, then play into the sequence as usual.
8. Push REC again to stop recording.
9. While the scene is playing back, you can push SEQS and then turn the sequence you just recorded on and off (giving its grid box a white frame) to hear the scene with and without the new sequence.

In this case, Keep remembers the previous state of the sequence (on or off) when the scene loops around and starts again. If it was on, it stays on; if it was off, it stays off. That lets you listen to the scene through many loops while turning that sequence on and off at will. If you had followed this same procedure – but in step 4, enabled a particular pattern A, B, C, D instead of Keep – then that sequence would reset itself and start playing every time the scene looped, making it impossible to audition the scene without it.

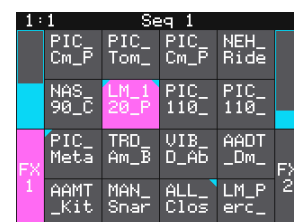
Note that the scene will always play to the end before enabling or disabling any sequence, so all sequences remain in sync.

APPLY EFFECTS

The blackbox has two effects that can be applied to as many pads as you want. You apply an effect by selecting the send amount for the pad for each of the desired effects (FX1 or FX2) and then configuring the parameters for that effect. After the effect is applied, the wet signal is routed to Audio Out 1. All pads share the same effect parameters.

To Route a Pad to an Effect

1. Push the **FX** button to go to the effects Screen.
2. On the effects screen, select the pad that you want to use.
3. Turn the top left knob near FX1 to set the FX1 send amount for the pad. This is the amount of the signal from this pad that you want to send to FX1 for effects processing. You can also use the touch screen to slide the level selector next to the knob to the desired position. When a pad is sending some of its signal to FX1, a blue triangle is displayed in the top left corner of the pad. You can repeat this step for FX2 and a blue triangle will appear in the top right corner of the pad.

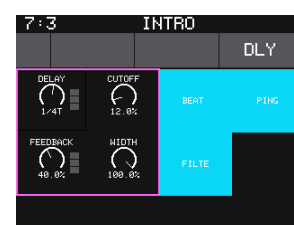


FX Screen

To Modify Effect Parameters

1. Push the **FX** button to display the effects screen.
2. Touch the FX1 or FX2 box in a lower corner of the screen to select it. The currently selected effect is highlighted pink.
3. Push **INFO** to display the effect parameters screen for the selected effect.

Turn the knobs or touch the onscreen buttons to adjust the effect parameters. You will hear the impact of the parameter changes in real time. You can also touch a knob on the screen and slide your finger left and right or up and down to adjust the value. Here are the available effect parameters:



FX1 Parameters Screen

Effect	Parameter	Settings	Mod Target?
FX1 = Delay	DELAY	Determines the delay length. When Beat Sync is On, delay is specified in musical intervals: 1/64, 1/32, 1/16, 1/8T, 1/16D, 1/8, 1/4T, 1/8D, 1/4, 1/2T, 1/2, 1 bar When Beat Sync is Off, delay is specified as a percentage from 0% to 100%.	Yes
	FEEDBACK	0 to 100%. Determines the amount of regeneration or echo in the delayed signal. Set to 0% to get a single echo.	Yes
	CUTOFF	When Filter is on, this is the cutoff frequency for the filter. Select a positive value for a high pass filter and negative value for a low pass filter.	No
	WIDTH	The width of the range of frequencies included when FILTER is on.	No
	BEAT	Turns Beat Sync for the delay length on or off.	No
	FILTER	Turns the Filter on or off.	No
	PING	When Ping is on, the echoes will alternate (or ping pong) from side to side. When off, the echoes are the same in the left and right channels.	No
FX2 = Reverb	DECAY	Determines the decay time for the reverb – how long it will last. Specified as a percentage from 0% (dry) to 100% (fully wet, only reverb is heard).	Yes
	DAMPING	Sets the amount of high-frequency damping applied to the reverb. As you turn it up, higher frequencies in the reverb tail will damp out sooner than low frequencies, simulating a room with absorbent walls. 0% to 100%.	Yes
	PREDELAY	Sets a delay time before the reverb begins. This simulates the time it takes for a source sound to first reach walls of the room and bounce back. 0% to 100%.	No

Note:

- ▶ The same effect parameter values are applied to all pads that are sending signals to that effect.
- ▶ The Reverb effect is very processor intensive. The blackbox does not limit what you can do based on anticipated processor needs. As a result, it is possible to overdrive the processor, causing crackling and drop outs. See [Processor Management Tips](#) on page 118 for more information about preventing sound artifacts.

To Apply Modulation to Effect Parameters

1. Push **FX** to go to the Effects Page.
2. Touch FX1 or FX2 in lower corner of screen, then push **INFO**.
3. Touch to select the parameter you want to modulate.
4. Push **INFO**.
5. Select a value for Source for each modulation slot you want to configure. Top knobs select rows, and bottom knobs select values.
6. Configure the Amount for each modulation slot to control how much that source affects the value of the parameter.
7. Push BACK. Notice the column of the three blue boxes beside each effect parameter knob. When you set a modulation source other than “none” (even if it’s set to 0), that slot’s box will light up blue.

Note:

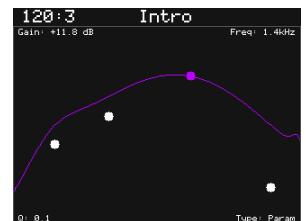
- ▶ You can also use MIDI Learn mode to select a MIDI modulation source. We will cover that when we talk about MIDI below.

EQ CONTROL

You can now adjust the frequency response for the master output using a 4-band Parametric EQ. With the EQ, you can adjust the frequency response for 4 nodes. To access the EQ screen, push the **FX** button twice. You will then see the EQ grid. Here's how to use the EQ:

Control	Control Behavior in EQ Mode
Knobs	Adjust values for the selected filter point Top left – Gain Top right– Frequency Bottom left – Q Bottom right– EQ type
Touch	Touch and drag in the grid to move the selected filter point for the selected track. Touch does not change filter point selection.
FX button	Toggle between the EQ Screen and the effects send screen.
INFO button	Select the next filter band in the EQ graph

On the EQ screen, you will see a graph that represents the frequency response for the master output. In this graph, the X axis represents frequency and the Y axis represents the gain that will be applied at that frequency. As you change parameter values for each of the four filter bands, the shape of the graph will change to show the impact of all of the bands applied together. The gain in this context is the amount of boosting or attenuation that will be applied to the signal level at various frequencies.



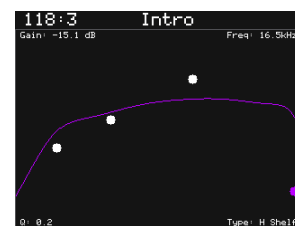
Parametric EQ Controls

You can touch the grid to move the filter point for each band. The filter point will also move in the grid as you turn the knobs to adjust each of the parameters for that filter band. Push the **INFO** button to select a different filter point to control. The filter point for the selected node is pink. Set the filter type to None for the filter bands that are not used. The selected filter node will be purple. You can set the filter type to None if a particular node isn't needed.

Each of the four knobs controls the EQ parameter displayed in the corresponding corner of the EQ grid for the selected filter band.

To Adjust the EQ

To adjust the EQ, you will select a filter band to adjust, select an EQ type for that filter band and then adjust the corresponding settings for that filter type.



1. Push **FX** twice to bring up the EQ screen.
2. Push **INFO** to change which filter band you are controlling for the selected track. The filter point on the grid for the selected filter band is pink.
3. Turn the bottom right knob to choose the Type of equalization to be used for this filter band. The selected value is displayed in the lower right corner of the grid. The options are:
 - None
 - L Cut = Low cut filter
 - L Shelf = Low shelving EQ
 - Param = Parametric Peaking filter
 - H Shelf = High shelving EQ
 - H Cut = High cut filter
4. Turn the other three knobs to adjust their values. The numbers in the respective corners display the current value and the shape of the frequency response graph will change accordingly. The four knobs control the following:
 - EQ Type (see above)
 - Gain (-24 dB to +24 dB)
 - Frequency (20 Hz to 20.4 kHz)
 - Q (0.1 to 18.4)
5. Tap a spot in the grid to quickly move a filter point on the grid to that spot and reshape the filter based on the corresponding frequency and gain there.
6. Touch the selected filter point and drag it to make more gradual changes.

Depending on the EQ type, the Q knob will have a different effect: for L Cut and H Cut, it controls resonance; for L Shelf and H Shelf, it controls the shelf shape; for Param, it controls the bandwidth of the peak, with higher Q values giving narrower peaks.

Note:

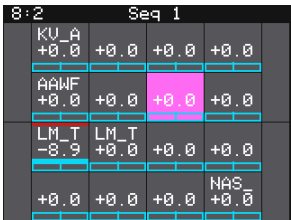
- You cannot select a different filter node in the EQ Grid Control by touching the grid. You have to push the **INFO** button to select a different filter node.

ADJUST THE MIX

On the Mixer screen you can independently adjust the volume and pan of each pad. The number on the pad represents the dB level of the audio output. The bar at the bottom of the grid cell represents the pan position for the pad. Pan is only available if the pad is routed to a stereo output. When the pan line is in the middle, the output is balanced equally between left and right. A solid blue bar below the sound level indicates a pad is actively playing. A red bar at the top of a cell indicates that pad is muted.

To Adjust the Sound Level and Pan of a Pad

- 1. Push **MIX** to display the Mixer screen.
- 2. Touch the cell you want to adjust.
- 3. Turn one of the top two knobs to adjust the level of the currently selected pad.
- 4. Turn one of the bottom two knobs to adjust the pan, if available.



Mixer Screen

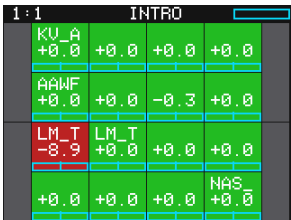
Note:

- You can hear adjustments to pan and volume in real time when a sequence or pad is playing.

To Mute and Unmute Pads

The mixer screen also allows you to mute individual pads.

- 1. Push the **INFO** button or push **MIX** on the Mixer screen to enter Mute mode. In this mode, active pads have a green background and muted pads have a red background.
- 2. Touch a pad while in Mute mode to toggle its mute state.
- 3. Push **INFO** or **MIX** again to go back to controlling level and pan. Any muted pads will have a red bar across the top of the pad.



Mixer Screen in Mute Mode

Note:

- Mute state is not saved with the preset.

MANAGE PRESETS

The blackbox stores a set of pad configurations, sequences, and song scenes as a preset. You can save as many presets as you want, as long as there is room for the files on your microSD card. When you turn on blackbox, it automatically loads the most recently used preset on this microSD card. The microSD card that comes with blackbox has about 60 presets and corresponding WAV files loaded.

When blackbox loads a preset, it loads the set of WAV files and configured parameters for each pad, sequence, and song scene saved in the preset. Review the loaded presets to see some examples of blackbox features in action. The presets that are loaded on blackbox use only a fraction of the WAV files that are available on the microSD card. You can use the microSD card to load your own WAV files into blackbox, as well as record new ones. The blackbox also enables you to customize and create your own presets.

Presets are saved on the microSD card when you choose to save them. If you load a different preset without first saving the current preset, you will lose your work. If you change to a different microSD card, you will have a different set of presets. When you switch to a different preset, all previous settings will be replaced with the settings of the newly selected preset, which may be blank.

The blackbox stores all of the preset xml files in sub-folders under the **\Presets** folder. Each preset has its own sub-folder with the name of the preset, and a **preset.xml** file within that sub-folder. For example, the preset My Kickin Grooves will be stored as a file named preset.xml in the \Presets\My Kickin Grooves folder. When you first start working with the preset, it will point to the WAV files in their source folders. The Pack function will copy all of the used WAV files into the preset folder.

When you create a new recording, blackbox stores it in the folder for that preset. For example, the first new recording for the My Kickin Grooves preset will be saved as \Presets\My Kickin Grooves\RC000001.wav.

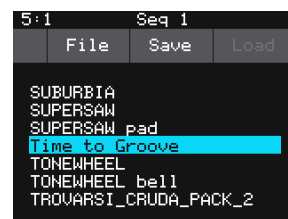
Note:

- ▶ All of the preset folders are gathered under one **\Presets** folder at the root.
- ▶ Before you Pack a preset file, the .xml file lives in its own sub-folder under **\Presets** which is created as soon as you create a preset, but the WAV files stay in their source folders until you pack them.
- ▶ The blackbox will automatically move a legacy preset into the new folder location the first time you load that preset after upgrading to the 1.5 or newer firmware. You may then use the Pack function to consolidate all of the files used by the preset into the preset's folder.
- ▶ All presets have a file named **preset.xml** under the folder that has the name of the preset. This file contains all of the settings for this preset.
- ▶ We covered how [To Create and Name a Preset](#) earlier.
- ▶ Presets are not saved automatically in the background. This ensures that you don't make unintended changes to a preset.

To Save Changes to a Preset

By now you may have added a few pads to your preset and spent some time configuring them. If you want to keep the results of your efforts, you will need to save the preset. The blackbox does not automatically save changes as you work. If you change to a different preset or unplug blackbox, you will lose your work.

1. Press **PSET** to display the Preset Management screen.
2. Touch File to display the Preset File Menu.
3. Touch Save to store your changes to the currently loaded preset.

**Preset File Menu**

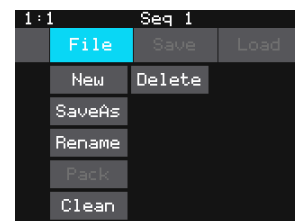
To Load a Preset

1. Press **PSET** to display the Preset Management screen.
2. Use the knobs to scroll through the list of presets. The blue highlight indicates the currently selected preset.
3. Touch Load to load into blackbox the information that was previously saved for this preset. The only values that are not stored in each preset are the values on the **TOOLS** pages. These are global settings that apply across presets and are stored separately on the microSD card.

To Pack a Preset

After you spend time carefully creating a preset, you don't want to worry about it getting broken if you make changes to that WAV file or re-organize your sample library. You may also want to gather up all of the files used in a preset so you can move it to another microSD card or archive it on your computer. The Pack feature was created to address these needs.

1. Load the preset you want to pack.
2. Push **PSET** and then touch File->Pack. The blackbox will copy all of the WAV files used by this preset into this preset's folder. Any multi-sample banks will be copied with their folder. The preset.xml file will be updated to point to these copies of the WAV files and will be saved.



Preset File Menu

Note:

- ▶ If you continue to add WAV files to your preset after you pack it, the preset will still point to these WAV files in their source folders. Pack the preset again to copy these files over.
- ▶ If the Pack option is disabled, then the preset is fully packed already.

To Clean Unused WAV Files Out of a Preset's Folder

If you change which WAV files are loaded in your Pads, you may want to remove any unused WAVs from the preset folder.

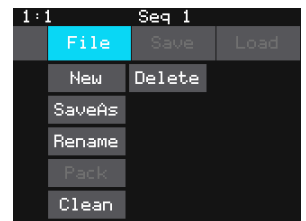
1. Load the preset you want to clean.
2. Push **PSET** and then touch File->Clean. The blackbox will prompt you to confirm "Del Unused WAVs?" If you choose OK, blackbox will search the preset folder for any WAV files that are not mapped to pads in this preset. Any WAV files in this preset's folder that are not used by pads in this preset will be deleted. The blackbox will save the preset.xml file as part of this process.

WARNING: this action cannot be undone. You can touch anywhere besides OK to cancel this operation..

To Delete a Preset

When you delete a preset, you remove the preset from the list of presets on the Preset Management Screen, and you delete the corresponding XML file from the microSD card. You cannot undo this action. To delete a preset:

1. Push the **PSET** button to view the Preset Management screen.
2. Use the control knobs to scroll through the list of presets. The blue highlight indicates the currently selected preset.
3. Touch File to display the Preset File Menu.
4. Touch Delete to delete the highlighted preset. Touch OK to confirm the delete, or touch anywhere on the screen to abort the operation.



**Preset
Management
Screen**

WARNING: this action cannot be undone. You can touch anywhere besides OK to cancel this operation..

To Rename a Preset

1. Push the **PSET** button to view the Preset Management screen.
2. Use the control knobs to scroll through the list of presets. The blue highlight indicates the currently selected preset.
3. Touch File to display the Preset File Menu.
4. Touch Rename to display the keyboard screen.
5. Touch the back arrow <- to erase the preset name or turn a knob to position the cursor where you want type. Then use the onscreen keyboard to type in a new name. Use the caret button ^ to toggle between upper and lower case letters. Touch the 123 button to display the numeric keyboard if needed. When the name is complete, touch Enter to save the name and return to the Presets screen with the preset selected.

Note:

- Renaming a preset does not load that preset.

To Save Current Changes as a New Preset

Sometimes while working on a preset, you may decide to save your changes to a different preset in order to save your work while still preserving the original preset state.

1. Push the **PSET** button to view the Preset Management screen.
2. Touch File to display the Preset File Menu.
3. Touch Save As. The blackbox displays a touch screen keyboard you can use to enter a new name. Touch the Enter button to save the changes and go back to the Pads screen with the renamed preset loaded.

Note:

- If you enter a name that is already in use, you will replace the old file with the current preset.

Work with Preset Files on the microSD Card

Preset files can be backed up on your computer or shared with other blackbox users. The presets are saved as XML files on the microSD card. Each preset is saved in a preset.xml file in a folder with the name of the preset under the \Presets folder. For example, a preset named April Gig will be stored as \Presets\April Gig\presets.xml. If you have packed a preset, all of the WAV files for that preset will be stored in the preset's folder.

You can use a microSD Adapter to insert your microSD card into your computer. You can then use standard file techniques to rename the preset folders, delete them, copy them onto your computer or copy them onto other microSD cards. We recommend that you occasionally make backup copies of your presets, especially before upgrading to new firmware. Keep in mind that if you move a preset file to another microSD card, it will only work properly if the WAV files needed for that preset are on the new card in the same directory structure. The **Pack** function makes that much easier.

Note:

- ▶ The blackbox stores all presets in self named folders under the \Presets folder. The blackbox will not find them if you move the XML files outside of these folders or move these folders outside of the \Presets folder.

Legacy Presets prior to v 1.5

The blackbox Firmware version 1.5 changed the way presets and new sample recordings are managed. In older versions, the preset files were stored in the root folder, but now the preset files are in individual folders under the \presets folder. New WAV file recordings also used to be stored in the root folder and are now stored in the preset's folder. What if you have some legacy presets on your microSD card?

What will happen to my legacy presets? How do I convert them to the new file structure?

When you load presets, blackbox will display a single list with all presets stored at the root and all presets stored under the **\Presets** folder. The files will be in alphabetical order by file name, independent of where they are stored. Each time you open a preset that is stored in the root, blackbox will create the preset folder for this preset and move the preset into that folder. In this way, as you open the presets, they will be migrated to the new structure one at a time. You can then use the File->Pack feature to collect all of the WAV files used by this preset into the corresponding sub folder. Any new recordings you make will be stored in the preset sub folder.

When will my legacy WAV files get cleaned out of the root folder?

We won't move them automatically. We recommend that you pack up all of your presets one by one, which will copy all of the files used by the presets into their respective folders. When that is done, you may choose to delete the files that are stored at the root or safely move them to a sub folder for future use.

Upgrading Presets to v. 3.0

The blackbox 3.0 firmware made several changes to how MIDI, sequences and songs work that required changes to the structure of presets. The blackbox will attempt to convert your sequences and presets to the new format, but you will need to make adjustments if the old preset used any of the following features:

Per Pad MIDI Out.

All MIDI out now comes from sequences. If you want to double the sound from a pad by also triggering a MIDI instrument, create a Keys sequence and assign in to that pad. When the sequence is played, it will trigger the pad and send out MIDI notes.

Global Keys

Use MIDI Seq with sequences mapped to Individual Pads or MIDI Outputs. You can also assign a channel to each pad, and change the channel on the MIDI controller to switch pads.

Multiple Pads with a Keys Sequence

You now have 4 patterns for each sequence. Each Keys sequence is mapped to a single Pad. This will require you to rearrange sequences that made use of this feature. The first four pads used in each sequence are mapped to the 4 patterns in the sequence when loading old content. Use copy and paste to move the notes for different pads to new Keys sequences.

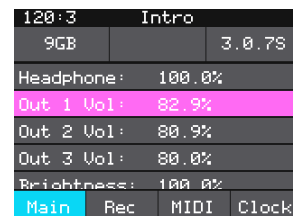
Song Sections that Toggled Sequences in the Middle of the Section

Song Sections have been replaced with Song Scenes. Each Song Scene triggers, turns off or allows to keep running a set of pads and sequences at the start of the scene. Use new scenes to bring elements in or out. You now have twice as many scenes (32) to work with.

When converting an old preset to blackbox 3.0, the old Song Sections will be converted to Song Scenes where all sequences in the old section start at the beginning of the new scene. If you had sequences starting and stopping in an old song section, you will need to create new scenes for each change in sequences.

TOOLS

The Tools screen is the home for global parameters that apply across presets. This is where you can adjust the Headphone volume and control the metronome. Touch the page buttons along the bottom of the screen to find appropriate lists of parameters, then use either top knob to scroll through them and either bottom knob to adjust their values.



Tools Screen

Settings on the Tools Screen

Page	Parameter	Description
Main	Headphone	Controls the volume of the signal going to the PHONES jack.
	Out 1/2/3 Vol	Controls the volume of the signal going to the relevant AUDIO jack: 1, 2, or 3. Remember these are stereo outputs.
	Brightness	Controls the brightness of the display screen.
	Metronome	Controls when the metronome is used. Select Play to use the metronome whenever the PLAY button is active. Select Rec to only use the Metronome when you start recording. Select Off to disable the metronome completely.
	Metro Out	The metronome will only play on the audio output channel selected here: Out1, Out2 or Out3 (in stereo); only the L or R channel of any Out; or the PHONES out (HP). If you choose any channel other than HP, the signal will not be included in the headphone output.
	Metro Gain	Adjusts the volume level of the metronome from -96 dB to +20 dB (ouch!).
	Compressor	When set to ON , blackbox will apply a compressor to the signals sent to Out 1.
	SD Mode	This is a troubleshooting option. If you get the message "Please insert microSD" when the microSD card is inserted, try setting SD Mode to Compatible. You may also try Compatible mode if your blackbox seems to be having trouble writing to high speed microSD cards. If everything is behaving properly, leave this set to High Speed.
Rec	RecToPlay	When set to ON, blackbox will automatically start to play the new sample when recording ends if the Length parameter was used for recording.
	RecConfig	When set to Global, changes made to recording settings on the Pad Loading and Recording screen will apply to all empty pads. When set to Per Pad, these changes only change the current pad and do not change what is used for other empty pads. Use Per Pad when you want to set up a Template preset with different recording configurations for each pad.
	Lead In	When set to ON , blackbox will wait 4 beats before recording begins. It will display the countdown as a negative number in the measure counter in the top left of the screen.

Page	Parameter	Description
MIDI	Global In	Specifies which MIDI channel is used to trigger pads and sequences as well as perform other functions. See Work with MIDI Inputs below for more information. When set to Omni, these functions will be triggered by all MIDI channels – excluding any MIDI channel that has been assigned as the MIDI In for a particular pad. You can also disable Global In by selecting None.
	MIDI Seq	Specifies which MIDI channel is used to play notes into a MIDI or Keys mode sequence for recording. For a sequence in MIDI Mode, notes are routed through to the sequence's MIDI Out channel during recording and playback; in Keys, they are only routed out during playback. Use the Global In channel to record Pads sequences.
	PGM In	When set to ON , MIDI Program Change messages on the Global In channel can be used to select Presets.
	Pad Record	When set to ON , MIDI Triggered Recording is enabled.
	MIDI Out	Controls which MIDI signals are sent to the TRS MIDI OUT port. Options are: • Enabled (sends notes from playing sequences – see Work with MIDI Outputs on page 108 for more information) • MIDI In Thru (passes only MIDI messages from the TRS MIDI IN port) • USB Dvc Thru (passes only MIDI messages from the USB DEVICE port)
	USB Dev Out	Enables or disables MIDI message output to the MIDI device plugged into the USB DEVICE port.
Clock	Receive	Selects a source for the clock signal when you have one or more MIDI devices connected to blackbox. Your choices are: USB Device (the USB port); MIDI In (the MIDI IN TRS jack); All (both USB and TRS active at once); or Off (use the blackbox internal clock). Select All when you only plan to have one device with a clock connected at a time and don't want to have to keep changing this parameter... or if you want to let the various clocks fight it out. (Hey, you do you.)
	Send	Sets the output routing for the clock signal when you have one or more MIDI devices connected to blackbox. Your choices are: USB Device (the USB port); MIDI In (the MIDI OUT TRS jack); All (both USB and TRS); or Off (no clocks are sent out).
	Analog In	Controls how the signal received in the CLOCK IN jack is interpreted. Set this to the PPQ (number of pulses per quarter note) generated by the external clock source. Options are 1, 2, 4, 8, 12, and 24 PPQ.
	Analog Out	Controls the clock signal sent out through the CLOCK OUT jack. Set this to the PPQ (number of pulses per quarter note) expected by the external device that will receive the clock signal. Options are 1, 2, 4, 8, 12, and 24 PPQ. Note that Analog In and Analog Out can have different values.

USE MIDI DEVICES WITH THE BLACKBOX

The blackbox's capabilities “in the (black)box” can be extended greatly by connecting it to MIDI devices. You can use external devices to control blackbox and play sounds, and you can use blackbox as a MIDI sequencer/controller. The blackbox can share its clock with other devices and sync to external clock signals. (More on that later.)

Work with MIDI Inputs

Start by plugging in your MIDI input device. You can use either the rear-panel DEVICE USB-A jack or the TRS MIDI IN jack. Because there can be compatibility issues with how TRS-to-DIN adapter cables are wired (learn more at <https://1010music.com/stereo-minijacks-midi-connections-compatibility-guide>), we recommend that you use the MIDI adapter cables that came with your blackbox.

The blackbox offers several options for MIDI input, leading to distinct workflows. Most of these are dependent on MIDI Channel selections made in the [TOOLS page](#) MIDI tab:

Global In: This MIDI Channel is used to activate a wide variety of functions in blackbox, letting you turn an ordinary MIDI keyboard into a powerful control surface. The most common use for the Global In MIDI Channel is to trigger pads as one shots, but there are many more functions you can do with this channel. These functions are mapped to MIDI Note numbers as follows:

- Trigger Song scenes: notes 2–33
- Select and trigger the previous scene: note 34
- Select and trigger the next scene: note 35
- Trigger pads in one-shot mode: notes 36–51
- Trigger sequences: notes 52–67
- Record into a pad: notes 68–83
- Clear pads: notes 84–99
- Select the previous pad: note 100
- Select the next pad: note 101
- Play the selected pad: note 102
- Record to the selected pad: note 103
- Clear the selected pad: note 104

We'll cover a lot of these functions in more detail later in this section.

MIDI Seq: This MIDI Channel is used to play notes into a sequence for recording. It can also be used to play MIDI through to an external MIDI Device.

- For a sequence in MIDI Mode, notes played on this channel will be recorded into the selected sequence. They will also be passed through to the MIDI Out channel mapped to that sequence. That lets you hear the instrument the MIDI sequence will be playing as you record notes.
- For a sequence in Keys Mode, notes on this channel will be recorded into the selected sequence but not passed through to the MIDI Out. When you play back the sequence, notes will be sent to the MIDI Out channel.

In Pads Mode, the MIDI Seq channel is not used for recording. Instead, all operations in Pads Mode use the Global In channel, which we'll discuss in detail next.

To Trigger Pad Hits and Sequences with MIDI

The Global In channel lets you trigger pads and sequences by playing particular notes on that channel. When set to Omni, blackbox will respond to input on all MIDI channels, but you can configure a specific channel by changing the value of the Global In parameter on the Tools screen.

1. Push **TOOLS** to display the Tools screen and select the MIDI tab.
2. Set the Global In parameter to the MIDI channel that you want to use to trigger pads and sequences. Set this to Omni to respond to all MIDI input channels that have not been otherwise assigned.
3. Connect your MIDI device to blackbox and configure it to use the selected Global In MIDI channel.
4. Play some notes on your MIDI device to trigger pads. [The table on the right](#) shows the default mapping of MIDI note numbers to the blackbox pads. The range for pads is Note 36 (usually C2) through Note 51 (usually D#3/Eb3). You may need to shift your MIDI device up or down octaves to reach these notes.
5. Push **PADS** and you can watch the pads activate as you play notes on your MIDI device.
6. To customize which MIDI note plays a particular pad, select that pad and press INFO twice to get to the Pad Parameters screen. Touch the Conf tab and scroll down to Pad Note, then dial in the precise note you want. To return to the mapping described above, set Pad Note to Default.

48	49	50	51 D#3
44	45	46	47
40	41	42	43
36 C2	37	38	39

**Default Mapping of
MIDI Notes to
Blackbox Pads**

64	65	66	67 G4
60	61	62	63
56	57	58	59
52 E3	53	54	55

**Default Mapping of
MIDI Notes to
Blackbox Sequences**

- Sequences can be triggered from the Global In channel using a slightly higher range of 16 notes. [The table on the right](#) shows how the MIDI note numbers map to the blackbox sequences. The range for triggering sequences is Note 52 (usually E3) through Note 67 (usually G4). You may need to shift your MIDI device up or down octaves to reach these notes. Playing a MIDI note for a given sequence will toggle its active state on and off.
- Push **SEQS** and you can watch the sequences start and stop on the Sequences screen. A white rectangle will appear at the bottom of the sequence cell to show that the sequence is queued up to play at the quantization break. This rectangle is replaced with a blue progress bar when the sequence starts to play. The bar will turn into a white rectangle again when the sequence is playing out after deactivation.

Per Pad MIDI In: In addition to these global operations, each pad can have its own specific MIDI In channel, which is set in the Pad Parameters screen under the Conf tab. Setting a pad's MIDI In channel gives you several control workflows.

To Play Notes and Use Common MIDI Modulation Commands on a Pad:

Any pad that has its own MIDI In channel specified can use MIDI input on that channel to play a pad chromatically (in the case of single Sample, Multi-sample, Granular, or Clip modes). If the pad is set up as a Slicer, MIDI notes will trigger specific slices just as they do when played from the **KEYS** screen. Here's how to set it up:

- Push **PADS** and select the pad you want to work with.
- Push **INFO** twice to get to the Pad Parameters screen, then touch Conf to access the Configuration page.
- Scroll down to MIDI In and set a specific channel for the pad. Now it's ready to use with your external MIDI devices.
- Play notes on the connected MIDI controller using the channel selected and they will trigger the pad chromatically or play slices.
- Touch Main and then touch whichever control you'd like to modulate.
- Push **INFO**. The Modulation page will be called up. For each source, you can choose from the following MIDI options (as well as the internal LFO):
 - VEL: MIDI Velocity (also the Velocity slider on the **PADS** screen)
 - PTCH: MIDI Pitch Bend
 - MODW: MIDI Mod Wheel (Control Change 1)
 - MVOL: MIDI Volume (Control Change 7)
 - MPAN: MIDI Pan (Control Change 10)

As noted earlier, once you select a Source for a modulation slot, its associated box beside the relevant control will light up blue.

To Record Sequences in Keys Mode with MIDI

Keys sequences work a bit differently than Pad Mode when it comes to recording. Notes on a pad's MIDI In channel can be used to record Keys Mode sequences, as long as the sequence is selected and mapped to that pad. Notes received on the MIDI Seq channel may also be recorded into the selected Keys sequence.

1. Push **SEQS** and select which sequence you'd like to record into. It needs to be highlighted (pink) and selected for playback (white border).
2. Press the **INFO** button to access the piano roll screen. From the top of the screen, select the pattern (A–D) to record into, then select KEYS Mode.
3. On the top right grid, select the pad you want to trigger with this sequence.
4. Press **REC + PLAY** to start recording. The sequence will capture notes as you play.

Note:

- For sequences in Keys mode, all patterns in a sequence cell use the same Pad.

To Map MIDI Control Changes to Pad and Effect Parameters

You can use MIDI CC signals to control many pad and effect parameters in real time. These changes are not recorded into sequences.

1. Navigate to the parameter you want to control. Any parameter that has four dots to the right of the dial or the parameter line can be modulated. Touch the onscreen knob or the parameter list entry to select it.
2. Push **INFO**. The Modulation page will be called up.
3. Select the source you want to change, and then touch the Learn box at top right; it will light up blue.
4. Move the appropriate control on your MIDI device, and it will be assigned as a modulator. The Learn box will turn gray again when a modulator is successfully assigned.
5. Adjust the Amount for the source to control the amount of impact the mapped control will have on the value of the parameter.

To Clear a MIDI CC Mapping to a blackbox Parameter

1. Go to the parameter screen for that parameter.
2. Select the parameter and push **INFO**.
3. On the modulation parameters screen, select the Source row for the slot you want to clear and set the Source to None.

Note:

- ▶ Different parameters work differently with MIDI CC inputs. For example, for the Filter parameter, the values are bipolar with 0 at the middle of the range for the control by default. However, for the Start parameter, the values only move in one direction.
- ▶ You can map the same MIDI control to more than one parameter on more than one pad or effect.
- ▶ MIDI CC controls use the on-screen parameter value as a starting point. The blackbox then maps the range of the controller to values from the starting point to the value of Starting Point +/- the Modulation Amount parameter. For example, if the Filter parameter is set to 20%, and you set the Modulation Amount to 15%, then the lowest value of the MIDI control will map to 5% (20% - 15%), and the highest value of the MIDI control will map to 35% (20% + 15%).
- ▶ MIDI CC mappings are saved in the blackbox preset as a mapping to a specific MIDI CC number on a specific MIDI Channel. If you swap out MIDI controllers, and the new controller uses the same MIDI CC number and channel, it will continue to modulate the assigned parameter.
- ▶ The MIDI channel assigned to a pad does not need to match the MIDI channel used for MIDI CC modulation.
- ▶ There is a maximum of eight MIDI CC mappings per pad. If you try to add a ninth, it will be dropped.

MIDI Triggered Recording

The Global In channel also contains notes mapped to help you record into pads, but before we can get into those operations, first we have to set up blackbox to allow them.

MIDI triggered recording can help streamline the workflow for live looping, field sampling, and more. With this feature, you can use a connected MIDI controller to start and stop recording for an empty pad, clear a pad, and change pad selections.

To Configure Blackbox to Use MIDI Triggered Recording:

1. Push **TOOLS** and select the MIDI tab, then turn Pad Record ON.
2. Connect your MIDI controller to the blackbox via the USB DEVICE port or the TRS MIDI IN jack.
3. Set the Global In channel to match the channel being output by your MIDI controller, or to Omni to use all available channels not used by Per Pad MIDI In.
4. You may also want to use Pad Templates to set up your pads in advance of recording. See [CREATE PRESET TEMPLATES FOR RE-USE](#) on Page 116 to learn how to do this.

When using the Global In note map, blackbox maps two MIDI notes to each pad: one note starts and stops recording; the other note clears the pad. Recording, including MIDI triggered recording, will only work if the target pad is already empty; loaded pads must be cleared first. Note that clearing a pad removes the mapping of the WAV file to the pad, but does not delete the WAV file from the microSD card.

To Clear a Specific Pad Using MIDI

Clearing a pad removes the mapping between the WAV file and the pad. It does not delete the WAV file.

1. Set up blackbox for MIDI triggered recording as described above.
2. Press the MIDI Note that maps to the pad you want to clear, as shown in the map on the right. The blackbox will open the **PADS** screen and select the corresponding pad. Any existing mapping to WAV files for that pad will be cleared. Pad parameters will not be cleared.

96	97	98	99 D#7
92	93	94	95
88	89	90	91
84 C6	85	86	87

**MIDI Notes to
Clear Pads**

To Trigger Recording to a Specific Pad Using MIDI:

- 1. Set up blackbox for MIDI Triggered Recording as described above.
- 2. Press the MIDI Note that maps to the pad you want to record into, as shown in the map on the right.

The blackbox will jump to the **PADS** screen and select the corresponding pad. If the pad is empty, you will see the recording screen and recording will begin, the same as if you had pressed the **REC + PLAY** transport buttons. Any armed Clips will start to play.

80	81	82	83 B5
76	77	78	79
72	73	74	75
68 G#4	69	70	71

**MIDI Notes to
Trigger Pad
Recording**

Recording will end when:

- you press the corresponding MIDI Note again,
- when the recording reaches the length specified in the recording settings, or
- when you press the **STOP** transport button.

If you have RecToPlay set to ON (you'll find it in **TOOLS** - > Rec) and have specified a recording length, the pad will start playing as soon as recording is finished.

While recording, MIDI Clear notes and MIDI Action notes will be ignored.

Note:

► Some devices map the MIDI note numbers one octave lower. The mapping here assumes C4 is Note 60.

► If you want to configure lengths for each pad independently, make sure you have RecConfig set to Per Pad (**TOOLS** - > Rec).

► If you have the same MIDI channel (or Omni) for both MIDI Pads and MIDI Keys, you will trigger both playback of the pad via MIDI Keys mode, and the MIDI Pads mapping action when you trigger a MIDI note into blackbox. This may be fun to do, but you may want to use separate MIDI channels if you don't want to trigger MIDI Keys and MIDI pads behavior with the same controller.

► The Novation Launch Pad controllers work well with blackbox when the LaunchPad is configured in **Drum mode**. With the default note mapping, the bottom left quadrant of the LaunchPad triggers pads, the bottom right quadrant triggers recording, the top left quadrant triggers sequences, and the top right quadrant clears pads. When in the correct mode, the Launchpad lights the buttons using the color pattern shown in the diagram pattern below.

To Use MIDI Notes Actions to Record or Clear a Pad

The blackbox has allocated a range of MIDI Notes that map to actions that control pads. If you don't want to use the entire range of notes for triggering and clearing pads as described above, these five notes at the high end of the keyboard range will still prove useful.

1. Set up blackbox for MIDI Triggered Recording as described above.
2. Press the MIDI Note that maps to the desired action using the MIDI Note to Action Map below:

MIDI Note Number	Action
100 (usually E7)	Select Previous Pad
101 (usually F7)	Select the Next pad
102 (usually F#7)	Play the currently selected pad
103 (usually G7)	Record to currently selected pad (must be empty)
104 (usually G#7)	Clear the currently selected pad

Note:

- ▶ Some devices map the MIDI note numbers one octave lower. The mapping here assumes C4 is middle C.
- ▶ If you want to configure lengths for each pad independently, make sure you have RecConfig set to Per Pad on the Recording settings page in TOOLS mode.
- ▶ If you're recording a sequence in Pads Mode, notes on the MIDI In channel for that pad will play it in real time, but won't be recorded – only MIDI on the Global In channel (or playing the pads on the screen) will be recorded.
- ▶ If the Global In channel is set to Omni, any pad with a specified MIDI in channel will not respond to messages on other channels – it is 'excluded' from control by the Global In.

Using Song Mode with MIDI

The Global In channel lets you trigger pads and sequences by playing particular MIDI notes on that channel. When set to Omni, blackbox will respond to input on all MIDI channels, but you can configure a specific channel by changing the value of the Global In parameter on the Tools screen.

To Trigger Song Scenes with a MIDI Device

1. Push **TOOLS** to display the Tools screen and select the MIDI tab.
2. Turn the knob next to the Global In parameter to select the MIDI channel that you want to use to trigger pads, sequences, and scenes. Set this to Omni to respond to all MIDI input channels that have not been otherwise assigned.
3. Connect your MIDI device to blackbox and configure it to use the selected Global In MIDI channel.
4. Push **SONG** and make sure that the Song tab is illuminated (Song Mode ON).
5. Scenes can be triggered using a specific range of notes on your MIDI device. The range for the 32 possible scene triggers is Note 2 (usually D-1) through Note 33 (usually A1). The first scene is triggered by Note 2, the second scene by Note 3, etc. You may need to shift your MIDI device down by one or more octaves to reach these notes.
6. Push **SONG** and you can watch the scenes switch as you play the appropriate notes.
7. There are two more important operations available for Song Mode control via MIDI: Note 34 (usually A#1/Bb1) selects and triggers the previous scene, and Note 35 (usually B1) selects and triggers the next scene.

Summary of MIDI Global In Channel Note Mappings

Here's a summary of all of the note mappings that blackbox will respond to when notes are received on the Global In:

MIDI Note Range	Action
2-33 (D-1 - A1)	Select and trigger a scene. Scenes are mapped starting at the bottom left, moving across and then up
34 (A#1)	Select and trigger the previous scene
35 (B1)	Select and trigger the next scene
36-51 (C2-D3#)	Trigger playback for a pad. Pads are mapped starting at the bottom left, moving across and then up.
52-67 (E3 - G4)	Select and trigger a sequence. Sequences are mapped starting at the bottom left, moving across and then up.
68-83 (G#4 - B5)	Trigger recording for a pad. Pads are mapped starting at the bottom left, moving across and then up.
84-99 (C6 - D#7)	Clear a pad. Pads are mapped starting at the bottom left, moving across and then up.
100 (E7)	Select the previous pad
101 (F7)	Select the next pad
102 (F#7)	Play the currently selected pad
103 (G7)	Record to the currently selected pad (must be cleared first)
104 (G#7)	Clear the currently selected pad

Finally: if you're not careful with MIDI triggered recording and pad clearing, you could unintentionally clear pads, or record data into blank pads without meaning to. If you are not using this feature, you can disable it.

To Disable MIDI Triggered Recording and Pad Clearing

1. Push **TOOLS**.
2. Touch the MIDI tab at the bottom of the screen.
3. Scroll to Global In and set it to None.

Sharing of MIDI Input Channels

How do all of these MIDI Input channel assignments interact? Basically, they all stay out of each other's way. Any channel that is assigned to a specific Pad or to the MIDI Seq channel will be excluded from the Omni pool of channels when Global In is set to Omni. However, any specific channel assignments will be applied, even if they are assigned to two things.

Here's another way to think about it:

- If the MIDI In channel is assigned on a pad, that pad will always respond to MIDI notes received on that channel.
- Pad hits and sequences will be triggered by notes on an incoming MIDI channel if that channel has been specifically assigned as the Global In channel on the Tools screen.
- If Global In is set to Omni, and the incoming notes are on a MIDI channel that has not been specifically assigned to anything else (a pad's MIDI In, or the MIDI Seq parameter), then the notes will be applied as per the MIDI Global In Channel Note Mappings chart on the previous page.
- If Global In is set to Omni, and the incoming notes are on a MIDI channel that has been specifically assigned as a particular pad's MIDI In channel or the MIDI Seq channel, then the notes will only be used by the specifically assigned channel mapping.
- If Global In is set to a specific MIDI Channel, and that same channel is assigned as the MIDI In channel for a pad, then the notes will trigger the specific pad, and the notes will be applied as per the MIDI Global In Channel Note Mappings chart on the previous page.
- If Global in and MIDI Seq are set to the same MIDI channel, then notes received on that channel will be used both to play and record notes through the selected MIDI sequence or record into the selected Keys sequence, and the notes will be applied as per the MIDI Global In Channel Note Mappings chart on the previous page.

Be careful with the last two scenarios, as they have the potential to lead to very confusing results!

Use MIDI Program Change to Open a Preset

Some MIDI controllers can transmit a MIDI command to trigger a program change. The blackbox can be configured to load presets in response to MIDI Program Change messages, with the program number assigned to presets in alphabetical order, just as they are listed on the Preset screen when you push the **PSET** button.

Keep in mind that a program change, just like any other time when you change presets, will cause the preset to change immediately without saving your edits. So be sure to save your preset if needed before initiating a program change.

Because of the potential for data loss, blackbox has a Tools parameter that allows you to control whether or not the device responds to MIDI Program Change messages. This parameter is called PGM In, and is by default turned off.

To Enable or Disable MIDI Program Changes

1. Push **TOOLS**.
2. Touch the MIDI tab at the bottom of the screen.
3. Scroll down to PGM In and turn it ON or OFF as desired.

If you set PGM In to ON, any MIDI program change on any connected MIDI channel will cause blackbox to load the corresponding preset.

Note:

- ▶ The blackbox supports using MIDI Program Changes to access the first 128 presets. This limit is the result of how MIDI manages program banks.
- ▶ The blackbox does not pass through or send out MIDI Program Changes.
- ▶ On some devices, the first program is labeled 0, on others it is labeled 1. Behind the scenes, it is always PGM 0.

Work with MIDI Outputs

In addition to all these functions controllable via MIDI input, you can also use blackbox sequences to send note events to drive other MIDI instruments. Connect your blackbox to a MIDI device via the MIDI Out TRS jack. We recommend using the TRS-to-DIN MIDI adapters that came with blackbox, so as to avoid the compatibility issues discussed in [Work with MIDI Inputs](#) on page 96.

You can send MIDI notes out while also playing pads via Keys or Pads sequences, or you can use MIDI Sequences to send out notes without playing anything on the blackbox itself.

One important distinction between MIDI input and MIDI output in blackbox is that while MIDI In can use the Global In, MIDI Seq In, or assigned to a particular pad, MIDI output is always generated by a sequence, even when it's played back as part of a scene in Song Mode.

As with MIDI input, MIDI output can be set up in a variety of ways. Two important global MIDI output settings are controlled from the MIDI tab of the **TOOLS** page:

MIDI Out: This controls which MIDI signals are sent to the TRS MIDI OUT port.

- Enabled: sends either:
 - Note playback from sequences that have a MIDI Out channel assigned; or
 - Notes (with velocity) and pitch bend from the MIDI Seq channel, which are passed through to the MIDI OUT if the selected sequence is in MIDI Mode.
- USB Dvc Thru: only passes through MIDI from the USB DEVICE port.
- MIDI In Thru: only passes through MIDI from the TRS MIDI IN jack.

USB Dev Out: This controls whether MIDI signals are sent out to the DEVICE port.

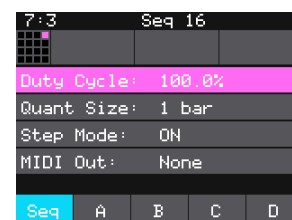
Note:
▶ Pitch Bend is not recorded into sequences. It is only passed through during playback when a MIDI sequence is selected.
▶ MIDI Control Changes (CC) are not passed through during playback and are not recorded into sequences.

Use MIDI Out to Play an External MIDI Instrument Along with blackbox

You can enhance the sound from a sequence in Keys or Pads mode by sending the sequence notes out to a MIDI instrument. Here's how.

To Send MIDI Notes from a Keys or Pads Sequence to an External MIDI Instrument

1. Connect your MIDI instrument to the blackbox MIDI TRS Output jack and configure it to use the desired MIDI channel.
2. Push **SEQS** and select a Pads or Keys sequence to drive the MIDI device.
3. Push **INFO** twice to get to the sequence parameters screen, then select the Seq tab at the bottom of the screen.
4. Set the MIDI Out parameter to match the MIDI channel used by the MIDI instrument.
5. Activate the sequence and push **PLAY** on blackbox. The blackbox will now send the note events from the configured sequence to the MIDI instrument while also playing the internal pad or pads.



Sequence Parameters

Note:

- ▶ If you have a MIDI Out channel assigned to a Keys or Pads mode sequence, blackbox will only send the MIDI notes out during playback of the sequence. It will not send out MIDI notes while recording the sequence.
- ▶ The MIDI Out channel for a sequence can also be used to control external lighting or other MIDI devices.

Use MIDI Sequences to Play an External MIDI Instrument

MIDI sequences are a great way to add an external MIDI Instrument to your blackbox song. These sequences do not trigger any sounds within the blackbox. They only send MIDI Notes out. A MIDI sequence can also be used to play MIDI notes through the blackbox even without a recorded sequence so you can experiment before you are ready to record the sequence.

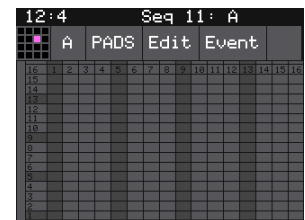
You can enter notes into a MIDI sequence in much the same way as you would for a Keys sequence.

Note:

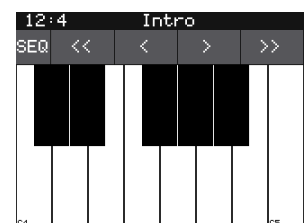
- ▶ It's easier to record sequences when Song Mode is off.

To Setup a MIDI Sequence and Add Notes via the Touchscreen

1. Connect your MIDI instrument to the blackbox MIDI TRS Output jack and configure it to use the desired MIDI channel.
2. Push **SEQS** to open the Sequences page and select an empty sequence.
3. Push **INFO** to open the Sequence Piano Roll.
4. In the top left corner, next to the Sequence Selector Grid and Pattern selector, touch the Sequence Mode selector (PADS/KEYS/MIDI), then select MIDI from the pop-up.
5. Push **INFO** again to get to the Sequence Parameters page, then touch Seq at the bottom left.
6. Set the MIDI Out parameter to match the MIDI Channel used by the MIDI Instrument.
7. Push **BACK** to return to the Piano Roll screen.
8. Touch the piano roll to add notes. Remember that you can use pinch and swipe gestures to zoom and move around the sequence.
9. Follow the usual steps to use knobs to adjust note length, move notes up and down, and change the velocity and probability of individual notes.
10. Push **PLAY** and the sequence will send the entered notes to the MIDI device via the MIDI Out channel selected above.

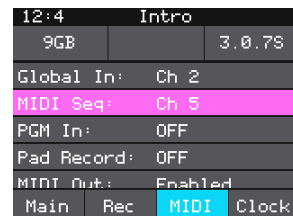
**Sequencer**To Record a MIDI Sequence Using the Keys Screen

1. Select the MIDI sequence you want to record into.
2. Push the **KEYS** button to open the Keys Screen.
3. Touch the pad selector grid in the top left corner.
4. Touch the SEQ button at the bottom of the pad selector overlay screen. The Keys screen is now in SEQ mode. Notes played and recorded here will now be sent to the selected sequence. If that sequence is a MIDI sequence, the notes will be sent through to the MIDI Out channel selected for that sequence. If it's a Keys sequence, the notes will be recorded into the sequence but will only be sent to the MIDI Out channel for the sequence during playback.

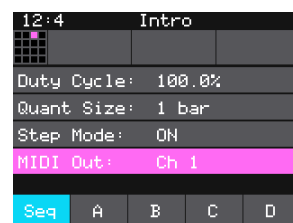
**Keys - Pad/Mode Selector****Keys in SEQ Mode**

To Record a MIDI Sequence Using an External MIDI Controller

1. Connect a MIDI controller to the TRS MIDI In port or the USB Device port. Set the controller to send MIDI out on the desired channel. Let's call this channel A.
2. Connect a MIDI instrument to the TRS MIDI Out port or the USB Device port. Set the instrument to receive MIDI notes on the desired output channel. Let's call this channel B.
3. Tell blackbox to send the notes received on MIDI channel A to the selected sequence:
 - Push the **TOOLS** button and then touch the MIDI tab.
 - Set the value of the MIDI Seq parameter to MIDI channel A.
4. Push **SEQS** and select which sequence you'd like to record into. It needs to be highlighted (pink) and selected for playback (white border).
5. Press the **INFO** button to access the sequence. Select the pattern (A–D) to record into, then select MIDI Mode.
6. Push **INFO** again to access the Sequence parameters, then touch the Seq tab. Set the MIDI Out parameter to MIDI channel B.
7. Push **BACK** to return to the sequence.
8. Play some notes on the MIDI controller using the MIDI Seq channel. You will hear the notes on the connected MIDI instrument.
9. Press **REC + PLAY** to start recording. The sequence will capture notes as you play. The notes will also be sent out to the MIDI channel assigned to the sequence.



**Tools - MIDI
Page**



**Sequence
Parameters
Page**

SYNCHRONIZE PLAYBACK WITH A CLOCK

The blackbox can either run on its own internal clock or follow an external clock. It can also provide a clock signal for other devices to follow.

Time Units for Display and Sync

The blackbox displays the current clock time in the top left corner of most screens in the format **<bar>**: **<beat>**. If more than one clock input is available, the highest priority clock signal will be used. The blackbox can adjust the timing of the playback of a clip pad to synchronize it with a specified unit of musical clock time (e.g. 1 bar, quarter note triplet, etc); these beat-based settings are also available for FX delay time and pad LFO rate.

Send the blackbox Clock Signal to External Devices

The blackbox always sends an analog pulse clock through the CLOCK OUT port. Like the analog CLOCK IN, the analog CLOCK OUT can be set to 1, 2, 4, 8, 12, or 24 pulses per quarter note (PPQ). Use the Analog Out parameter, found under the Clock tab on the Tools screen, to adjust this.

In addition, blackbox can send MIDI Clock, Start, and Stop messages to the TRS MIDI OUT jack, the USB DEVICE port, or both at once. The Send parameter under the Clock tab on the Tools screen allows you to choose which MIDI ports will send out the clock:

- Off: The clock signal is not sent out to MIDI ports.
- MIDI Out: The clock signal will be sent to the MIDI Out TRS port.
- USB Device: The clock signal will be sent to the USB DEVICE port.
- All: The clock signal will be sent to the MIDI Out TRS port and the USB DEVICE port.

Note:
▶ The Clock Send parameter will override the MIDI Out and USB Dev Out settings on the Tools MIDI page.
▶ Unlike the Clock inputs, which have the potential for conflicts and thus need to be routed with care, Clock messages can be sent to all three Clock outputs at once without fear of conflicting timebases.

Configure Blackbox to Follow an External Clock

There are a few different musical clock sources that you can use with blackbox:

Name	Description	Priority
Clock In	The blackbox gets a Clock signal from an input to the CLOCK IN jack on the back of the case. You can tell blackbox what PPQ to expect on the Tools screen.	First
MIDI Input via USB Device port	When a MIDI Clock source is connected to the Device USB port, blackbox will follow MIDI Start, Stop, and Clock messages.	Second
MIDI Input via MIDI In TRS port	When a MIDI Clock source is connected to the TRS MIDI In jack, blackbox will follow MIDI Start, Stop and Clock messages.	Second
blackbox Internal Clock	When no other clock input is provided, blackbox will use its own internal clock. Set the BPM on the Song screen to adjust the clock speed.	Last

You can control whether blackbox responds to the USB Device MIDI input, the TRS MIDI Input, or ignores MIDI clock on the Tools screen:

1. Push **TOOLS** and then touch Clock at the bottom of the screen.
2. Select the Receive parameter and then choose which MIDI clock source you want to use. The options are:
 - ❑ Off: MIDI clock messages will be ignored.
 - ❑ MIDI In: MIDI clock messages from the TRS MIDI In jack will be followed.
 - ❑ USB Device: MIDI clock messages from the USB DEVICE port will be followed.
 - ❑ All: MIDI clock messages from both the USB DEVICE port and the TRS MIDI In jack will be followed. This setting is convenient for users who want to have both Clock sources set up at all times so they can switch back and forth without having to reconfigure the Clock input... or for users who want to run both Clock sources at once and watch what happens. (To quote Dr. Seuss: "These things are fun and fun is good.")

Note:

- ▶ If MIDI and CLOCK inputs are both used, blackbox will select the highest priority clock based on the following order of priority:
 1. CLOCK IN (analog)
 2. MIDI Input (either TRS MIDI or USB DEVICE; see above for how to choose)
 3. Internal Clock.
- ▶ See [Work with a Clip Pad](#) on page 38 for more information about synchronizing clips.

Reset the Clock

You can use the following methods to reset the clock counter back to 1:1:

- Press Play.
- Stop the Clock input for a few seconds and then restart it.
- Receive MIDI play and MIDI clock signal.

Tap Tempo

You can now adjust the internal tempo by turning a knob or by tapping to the beat.

To Use Tap Tempo or Manually Set the Internal BPM:

1. Push the **SONG** button to open Song mode. The current tempo is displayed as a number in the top left corner below the bar:beat time display.
2. Turn the top left knob to manually set the tempo, or
3. Tap the tempo number display in time with the beat, and after a few taps, the tempo will adjust to match the tapped beat.

POWERING MIDI DEVICES

When you are using an external USB MIDI device with blackbox, you will need to ensure you have an adequate power supply to drive both blackbox and the MIDI device. Use the provided USB power cable with one of the following to ensure adequate power:

- The power supply provided to plug blackbox into a standard power outlet
- A power adapter that delivers at least 2 amps at 5 volts. Newer iPad adapters will work.

The following power sources may not reliably provide sufficient power to support blackbox plus a MIDI device:

- An iPhone adapter USB Power Adapter
- A laptop or computer USB connection

Any adapter that supports under 2 amps at 5 volts

If you need to use one of these lower power sources for blackbox, you may be able to use a separate power supply to power the MIDI device. If the power supplied is insufficient, the MIDI controller may not power up and blackbox may have unreliable behavior.



**Power Supply
With
International
Adapters**

CREATE PRESET TEMPLATES FOR RE-USE

Preset template support was added in blackbox 1.2 in response to requests from some users who like to set up their presets a certain way each time, and other users who want to configure a preset in preparation for a live performance. Preset templates allow you to configure the pad mode, output, MIDI settings, modulation, and other settings before you have associated a WAV file with the pad.

A preset template is simply a preset that has pads which have been configured but do not have WAV files associated with them. Preset templates can also store all of the other information a standard preset has: Sequences, Song Scenes, Effects, Mixer settings and more.

To Configure a Pad without a WAV file

1. Select the pad you want to configure as a template on the **PADS** screen.
2. Push **INFO**. If the pad is loaded with a WAV file, this will display the WAV screen. Touch the Pad Mode icon next to the pad selection grid at top left. From the menu, select New Rec to go to the Load/Record screen; when you exit this screen, the WAV file mapping for that pad will have been cleared.
3. Push **INFO** again to see the Parameters screen for this pad.
4. Choose the Pad Mode on the Main page of the Parameters screen.
5. Use the buttons across the bottom of the screen to choose the desired page and update the parameters as you normally would.
6. Push **PSET** and then touch File and Save or Save As to save the changes to this preset.

To Add a WAV file to a Template Pad

1. Select the pad you want to configure as a template on the **PADS** screen.
2. Push **INFO** to display the Load and Record screen.
3. Touch Load if you want to use an existing WAV file. Otherwise, begin recording a new WAV as usual.

NOTE:

- ▶ Not all parameters are available before you add a WAV file to the Pad. For example, you cannot add loop points to a sample mode pad because blackbox does not know how long the file will be.
- ▶ You can use the SEQs, SONG, Effects and MIX screens to configure other elements as needed.

REDUCE ALIASING WHEN PLAYING PADS CHROMATICALLY

The blackbox offers two choices for the interpolation algorithm used to play sample pads chromatically. The first algorithm is called Normal mode. In this mode, blackbox may introduce some aliasing with some WAV files when pitch shifting notes to play sample, multi-sample and granular pads chromatically. The second algorithm is the High Quality (High Q) algorithm. This algorithm reduces the aliasing, but it requires more processing power, leaving less room to do other things.

By default, your pads will use the Normal mode algorithm. You can configure sample and multi-sample pads to use the High Quality algorithm when needed. Here's how to configure this option:

To Use HighQ Mode to Reduce Aliasing

1. Open the parameter pages for the pad that is experiencing aliasing.
2. Touch Conf to select that page.
3. Scroll down to the Interp parameter, which is set to Normal by default. Turn a bottom knob to select the HighQ algorithm.

Note:

- ▶ The High Quality setting uses more processing power. This means you may encounter drop outs or crackling sooner when this option is selected. See [Processor Management Tips](#) on page 118 to learn techniques to avoid drop outs and crackling.
- ▶ This option is only helpful when playing sample and multi-sample pads chromatically. If you are not playing the pad chromatically, it's best to leave it set to Normal.

PROCESSOR MANAGEMENT TIPS

If you have experienced drop outs or crackling sounds with blackbox, you have most likely pushed the processor to its limits. The blackbox does not limit what you can do based on anticipated processor load. We have tried to balance the design of the system to optimize what you can do without over driving the processor while still giving you room to make creative choices. That being said, here are some tips you can use to reduce your processor load and the corresponding chance of encountering sound artifacts:

- Configure your pads to run monophonic whenever possible. On most percussion sounds, you won't hear the difference and this is an easy win.
- Disable the reverb by making sure no pads have FX2 applied on the Effects screen. This is an expensive algorithm that can also be done off board. Keep in mind that the reverb will continue to run for 60 seconds after you disable it, so you won't get the benefit for a short while.
- Use mono samples instead of stereo where appropriate. Stereo samples are twice the work to load and play.
- Use 48kHz samples when possible—especially for stuff played at unity pitch. This gives the CPU less work to do.
- Use the pad level filters sparingly.
- Reduce the number of grains used for pads in Granular mode.
- For sample, multi-sample, and granular pads, use Normal mode (at top of ADSR screen). The High Quality mode uses more processor cycles.

If you like crackly sounds, by all means do the opposite of what each of the tips above suggest.

SLEEP MODE

When you are done using blackbox, you can simply unplug it to turn it fully off, or you can put it into sleep mode.

To Put blackbox in Sleep Mode

Press and hold the B button for 3 seconds. The screen will go dark and all sound will stop. The power usage will be reduced but the unit is still on.

To Wake blackbox from Sleep Mode

Push any button.

UPDATE FIRMWARE, AUDIO FILES AND PRESETS

You can update the blackbox firmware to get the latest features and other updates. The firmware can be updated with the factory image, which includes the original presets, or just the firmware itself. You can also choose individual presets to copy over to your microSD Card.

Switch to a New microSD Card While Operating the blackbox

You can switch to a different microSD card while operating blackbox. Simply remove the current card and insert the new one, then load a preset from the new card as usual. Just make sure you save any changes before you remove the original card.

Backup Your Presets and WAV Files

Before you use a microSD card to update firmware, backup the files that are stored on the microSD card:

1. Remove the microSD card from the front edge of blackbox and insert into your computer. You may need to use a microSD adapter for your computer (not included).
2. Copy the files from the microSD card onto your computer.

Install New Firmware

We have a video that walks through the steps to download and install new firmware at <https://youtu.be/jiu5tJFYiVE>, or you can keep reading below for full written instructions.

To Install New Firmware

Here are the steps required:

1. Download the desired firmware onto your computer. You can find the latest firmware images on the forum at <https://forum.1010music.com>. You must be a registered user of the forum to access the download files. Forum registration is free.
2. Unpack the zip file. Some browsers do this automatically for you. Make sure the name of the .bin file is exactly blackbox.bin. If you have a previous version on your computer, sometimes the file gets renamed during download to create a unique file name.
3. Prepare a microSD card with the FAT32, MSDOS Fat, or ExFat format. The card that comes with blackbox is formatted properly, but you may need to reformat a card that came from somewhere else.

4. If you want to replace the Presets with the factory image, copy the full contents of the zip file onto a microSD card. If you do not want to overwrite your presets, copy only the BLACKBOX.BIN file to the microSD card.
5. Unplug blackbox.
6. Place the updated microSD card in blackbox.
7. While plugging in blackbox, hold the **BACK** and **INFO** buttons. When you see the words “blackbox Installer” on the screen, you can let go of the buttons.
8. When the upgrade finishes in about 15 seconds, the unit will restart with the new software.

Reset a Blackbox Preset to Factory Settings

If you want to reset one or more of the blackbox presets to the original factory settings, you can copy individual preset files onto your microSD card.

1. Download the blackbox firmware onto your computer. You can find the available firmware images on the forum at <https://forum.1010music.com>. You must be a registered user of the forum to access the download files. Forum registration is free.
2. Unpack the zip file. Some browsers do this automatically for you.
3. Find the *.xml file in the unpacked folder that has the same name as the preset you want to restore. Copy the .xml file onto the microSD card to replace the file on the card. Keep in mind that you will also need the WAV files that go with that Preset and you may need to copy those over as well.
4. Insert the microSD card into the MICRO SD slot of blackbox.
5. Push the **PSET** button to display the Presets selection screen.
6. Select any preset to load the updated presets.

Note:

- Before you remove a microSD card from a computer, you must select the option to Eject the card in order to avoid corrupting your card.
- If you need to format your MicroSD card, we recommend the tool provided by the SD Association. You can find it at <https://www.sdcard.org/downloads/formatter/>.

TECHNICAL SPECS

Onboard Memory

The blackbox has 64MB of onboard RAM. However, this is a cache, not a hard limit to what can be loaded at once. That's because blackbox streams content directly from the microSD card in real time.

Maximum Sample Length

The blackbox streams the longer samples from the microSD card, so the maximum length is a function of the maximum file size for a sample. The maximum file size is 4GB, which can be many hours depending on the sample rate and bit depth. The blackbox caches smaller samples as needed.

Samples Supported

The blackbox supports stereo samples. It can record in stereo and has stereo outputs.

The blackbox supports samples in the WAV file format. It supports 1 or 2 channel files with 16, 24 or 32-bit resolution at any sample rate. 48kHz is the preferred sample rate. The blackbox engine uses a 24-bit ADC and DAC.

WAV file names may use alphanumeric characters (A-Z, 0-9) and some special characters. The following characters are NOT allowed: double quotes, forward slash, back slash, question mark, asterisk, less than and greater than symbols, the colon and the pipe symbol (" / \ ? * < > : |). File names must be less than 256 characters, including the path name. Files that do not conform to these naming constraints will not be recognized by blackbox.

Maximum Number of Voices Supported

The blackbox can support playback of up to 32 total voices across all pads at once. Additionally, there is a limit for each pad, based on the pad mode. The blackbox supports 16-note polyphony for pads in Sample and Multi-Sample Modes, 2-note polyphony in Clip and Slicer Modes, and one note at a time in Granular mode.

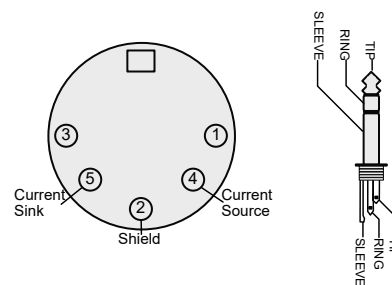
Nothing in blackbox will prevent you from trying to play 16 voices on all 16 pads at the same time. However, the CPU can be overloaded if you play too many notes at once while also using sequencing and effects. You can reliably play 24 voices across all pads simultaneously. Beyond that, you may encounter some sound quality issues like crackling. The exact breaking point depends on whether effects are running, the CPU load, and other factors.

Pin Mapping for Mini TRS Jack to MIDI 5 Pin DIN Connectors

The musical instrument industry currently uses several different ways of mapping MIDI 5 Pin DIN signals to mini TRS jack connectors. The diagram below to the right shows the numbering of the pins on a MIDI connector and the labels of the connection components of a mini TRS jack. 1010music products are compatible with cables that use the following mapping of MIDI signals between female MIDI connectors and mini TRS jacks:

MIDI Signal	MIDI Connector	Mini TRS
Current Source	Pin 4	Tip
Current Sink	Pin 5	Ring
Shield	Pin 2	Sleeve

MIDI Connector to Mini TRS Jack Signal Mapping



5 Pin DIN and Mini TRS Jack Connectors

For more information on the use of adapters, read the blog post on our website, Mini TRS Jacks for MIDI Connections Compatibility Guide at:

<https://1010music.com/stereo-minijacks-midi-connections-compatibility-guide>

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Demonstration Videos and Latest Documentation

You can find links to video demonstrations of blackbox and the latest documentation on our website at <https://1010music.com/blackboxdocs>.

Latest Troubleshooting Tips

Our support team maintains a list of [troubleshooting tips](https://1010music.com/troubleshooting) on our website at <https://1010music.com/troubleshooting>. Check it out if you are experiencing any problems. It just may have the answer you need.

Connect with Other Blackbox Users

There is a very active community of users of 1010music products at forum.1010music.com. If you have a question about blackbox that isn't answered in this manual, this is your best source for help. We actively monitor the wish list sub-forums for ideas for future versions of our products. Forum registration is free. We hope to see you out there!

Follow Us on Social Media

We post about new product releases, firmware updates and contests on [Instagram](#) and [Facebook](#).

Contact Us

Are you loving blackbox? Have questions? You can contact us through our website at <https://1010music.com/contact-us>.