

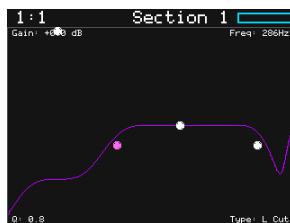
# Blackbox 2.0 Upgrade Guide

1010music is excited to release the blackbox 2.0 firmware upgrade. This release includes many frequently requested features. We appreciate the support and feedback you have shared on the forums and social media. We receive so many feature requests that we can't possibly do them all. But we hope this release addresses many of them. We hope you will find new ways to be inspired by your blackbox with these new features.

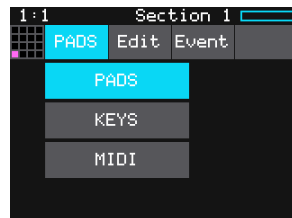
This guide is intended to cover the new features in the blackbox 2.0 firmware. It is not a comprehensive user manual. An update to the full user manual is coming soon. This document is designed to help musicians who are already using the blackbox to ramp up quickly on the new features.



- Touchscreen knob controls
- Pad Specific LFOs



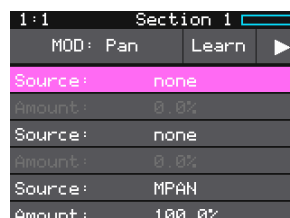
- 4 band EQ



- MIDI Only Sequences



- Improved Granular Engine



- Easier access to modulation controls

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## WORKING WITH PADS

### Pad Parameters Screen <Updated>

To access the pad parameters screen, push PADS, touch a pad to select it, and then push INFO twice.

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.

The top of the pad parameters screen shows the usual timing information. Below that are the common pad parameter controls:



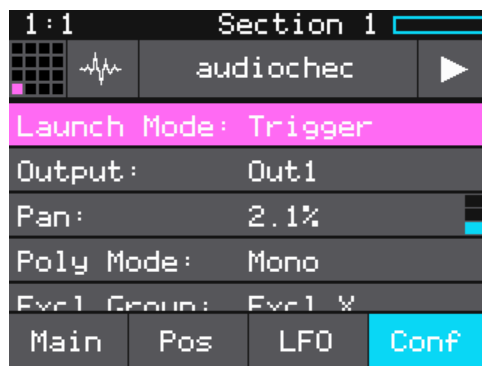
**Main Pad Parameters Screen**

- The grid selector. Touch to select a different pad.
- The Pad Mode selector. Touch to change the pad mode.
- The WAV file name. (To select a different WAV file, push BACK to go to the Waveform screen, and touch the WAV file name at the top of that screen.)
- The play button. Touch to trigger the current pad.

**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 8 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.



**Config Pad Parameters Screen**

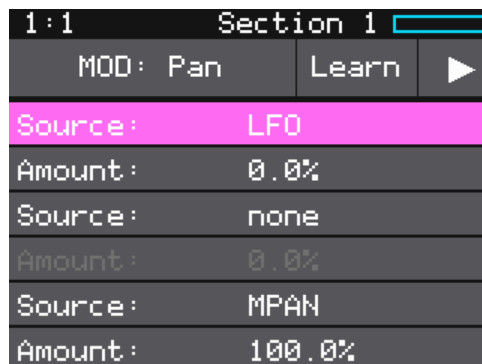
To Add Modulation to a Parameter: <Updated>

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. Blackbox will set the modulation source to be the value for MIDI Channel and MIDI CC number of the MIDI signal received.
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.



**Modulation Target Examples**



**Modulation Parameters Screen**

## Updated Pad Parameters

### Main Pad Parameters Page

The Main Pad Parameters Page is common to all Pad Modes. Here you can control the following parameters:

- Level
- Filter
- Pitch
- Resonance <NEW - Filter resonance>
- Attack <Now Modulatable!>
- Decay <Now Modulatable!>
- Sustain (not modulatable)
- Release <Now Modulatable!>

All of these parameters, except Sustain, can be modulated.

### Conf Pad Parameters Page

On the Configuration (Conf) Pad Parameters page you can control how the pad behaves. Not all parameters are available in all pad modes. Here you can control the following parameters:

- Launch Mode
- Output
- Pan
- Poly Mode (Sample, Slicer and Clip modes only)
- Exclusive Grouping (Excl Group)
- Interpolation (Interp) (Sample mode only)  
(Upgrade Note: this was formerly known as High Q Mode)
- MIDI In
- MIDI Out
- Root Note (Sample and Granular mode only)
- Pad Note



**Main Pad Parameters Page**

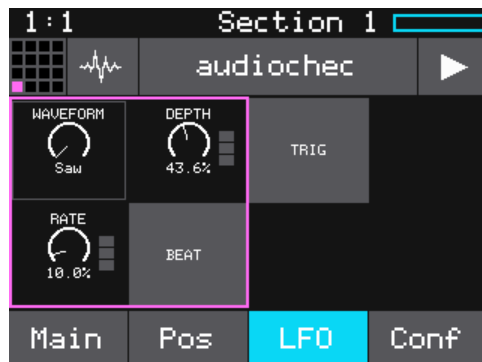


**Conf Pad Parameters Page**

## LFO Pad Parameters Page &lt;NEW&gt;

Each pad has one Low Frequency Oscillator (LFO) running for use in modulating parameters for that pad. Configure the LFO using the following parameters on the LFO page:

- Wave Form - sets the shape of the wave. (e.g. Triangle or Sine)
- 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. Set to 0.0 to stop the LFO.
- Depth - the amplitude of the oscillating wave.
- Beat Sync - Controls the operation of the rate parameter. When this is ON, the wave cycle is synchronized with the clock.
- Trig - When on, the LFO will restart each time the pad is triggered.



LFO Pad Parameters Page

**Notes:**

- ▶ To apply this LFO for modulation, select LFO as the modulation source for a parameter for this pad.

## Sample Mode: Pos Pad Parameters Page

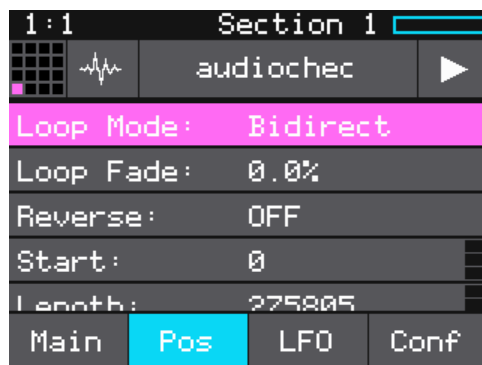
When in sample mode, the Position page allows you to control playback position, direction and looping. It can be easier to control start and end points on the waveform screen, but here you can apply modulation to them. Here is the parameter list:

Not Modulatable:

- Loop Mode
- Loop Fade
- Reverse

Modulatable:

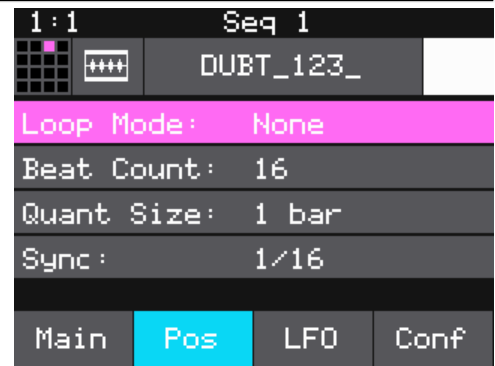
- Start
- Length
- Loop Start
- Loop End

Pos Pad Parameters Page  
for Sample Mode

## Clip Mode: Pos Parameter Page

In Clip mode, the Pos page controls the following parameters: They are displayed as a name/value pair list.

- Loop Mode
- Beat Count
- Quant Size
- Sync

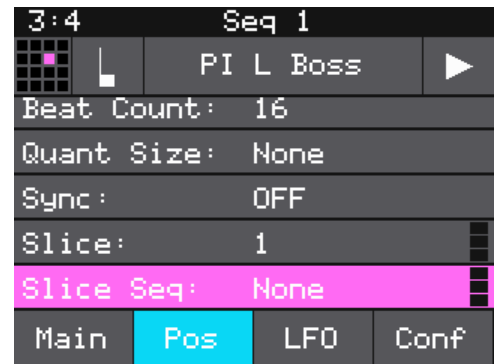


**Pos Pad Parameters Page  
for Clip Mode**

## Slicer Mode: Pos Parameter Page

In Slicer mode the Pos page has the following parameters, most of which cannot be modulated. Only Slice supports modulation.

- Loop Mode
- Beat Count
- Quant Size
- Sync
- Slice (modulatable)
- Slice Seq
- Play Thru



**Pos Pad Parameters Page  
for Slicer Mode**

## Granular Mode: Pos Parameter Page

Here's the list of parameters on the Position page in Granular mode:

### Modulatable:

- Start
- Len
- Loop Start
- Loop End

### Not Modulatable:

- Loop Mode
- Rev
- Root Note



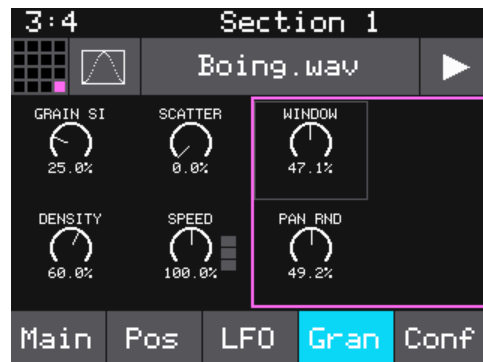
**Pos Pad Parameters Page  
for Granular Mode**



## Granular Mode: Gran Parameter Page <UPDATED>

Pads in Granular mode will have a Gran parameter page with the following parameters. Only the Speed parameter can be modulated.

- Grain Size - the size of the grain, ranging from about 20 ms to about 1 second in length.
- 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.
- 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.
- Speed (modulatable) - 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.
- 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.
- Pan Rnd - Controls how widely the sound is spread apart across the left and right speakers. This controls how far apart the grains sound.



**Gran Parameters Page for Granular Mode**

## ADDITIONAL PAD CONTROLS

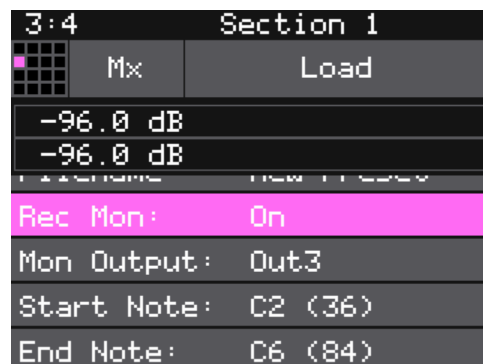
To Control the Pad Mode:

You can now configure the pad mode in two places:

- The top left of the Waveform Screen
- The top left of the Pad Parameters Screen

To Configure the Output Monitor for Multi-Sample Recording:

You can now choose which output will monitor the recording source during Multi-channel recording. Select a value for Mon Output on the Recording Parameters page.



**Pad Recording - Multi-sample Mode**

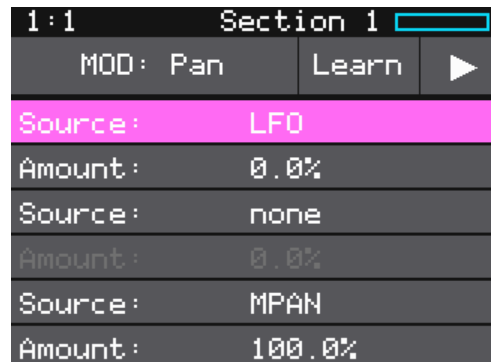
## MODULATING WITH LFOS <<NEW>>

Blackbox supports one internal Low Frequency Oscillator (LFO) per pad. You can configure each LFO to modulate the parameters for that pad. Use the parameters on the LFO page of the Pad Parameters screen to configure the LFO for that pad. Then apply the LFO to a parameter by selecting LFO as a modulation source for that parameter. You can even modulate the depth and rate of the LFO by adding modulation to these parameters on the LFO page.

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.



**Pad Parameters - LFO Page**



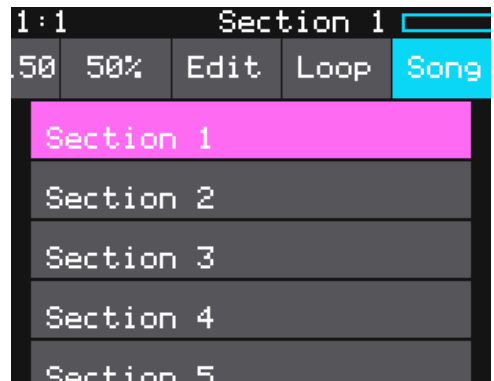
**Modulation Parameters with an LFO Source**

## TAP TEMPO <<NEW>>

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

To Use Tap Tempo to set the Internal BPM:

1. Push the white SONG button to open Song mode. The current tempo is displayed as a number in the top left corner below the time.
2. Turn the top left knob to select a tempo.
3. Tap the tempo number in the top left to the beat. After a few taps, the tempo will adjust to match the tapped beat.



**Song Screen**

## FX CONTROLS

Blackbox 2.0 includes an updated Delay effect algorithm that includes a built in band pass filter and ping pong mode. This new algorithm also allows you to configure the delay to play just a single echo. This release also upgrades the parameter controls for the FX to the new on screen, touchable knobs, like those used on the Pad Parameters screen. The way you control Effect sends and access the FX parameters has not changed. The Modulation Parameters screen has been updated to the new layout used in the Pad Parameters screen.

### To Modify Effect Parameters:

1. Push the FX button to display the FX 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.
4. Turn the knobs 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:

### Modulatable parameters for Delay:

- Delay
- Feedback - set to 0% to get a single echo.

### Non-Modulatable parameters for Delay:

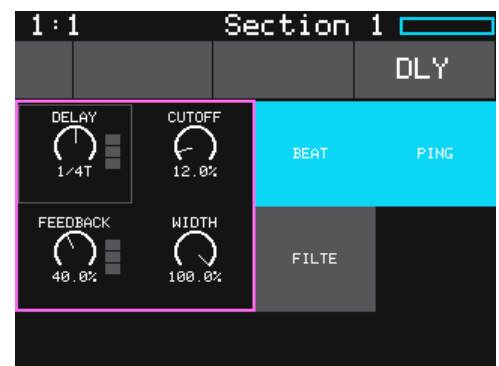
- Cutoff <NEW> (works when FILTER is ON)
- Width<NEW> (works when FILTER is ON)
- Beat
- Filter<NEW> Turn Filter on and then adjust the cutoff and width parameters to filter the delay.
- Ping<NEW> When Ping is on, the echoes will alternate (or ping pong) from side to side. When off, the echoes are the same in the left and right channels.

### Modulatable parameters for Reverb:

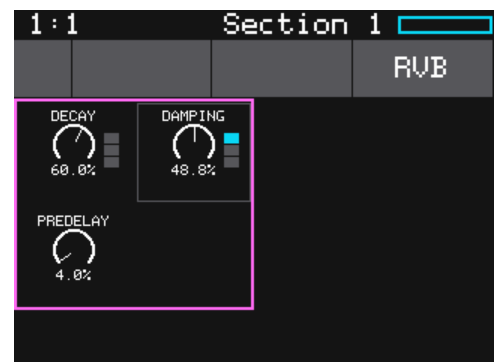
- Decay
- Damping

### Non-Modulatable parameter for Reverb:

- Predelay



**FX Parameters for Delay**



**FX Parameters for Reverb**

## **Knob Focus**

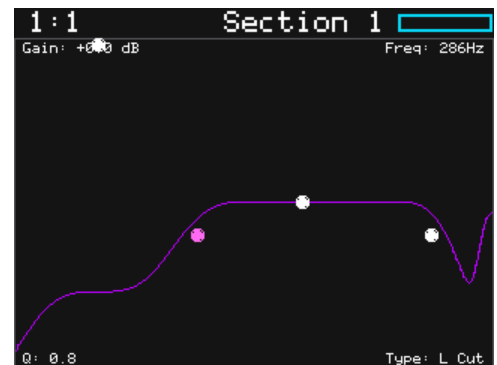
On the delay parameters screen, touch one of the on screen controls on the left if needed to move the knob focus, indicated by the pink square, to the left side of the screen. Touching a button on the right side of the screen will move the focus to the right.

## EQ CONTROL <<NEW>>

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 a value for the selected filter point Top left - Gain Bottom left - Q - sometimes shape or bandwidth based on EQ Type. Top right - Frequency Bottom right - Equalization 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
Back button	Not used in EQ mode.

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**

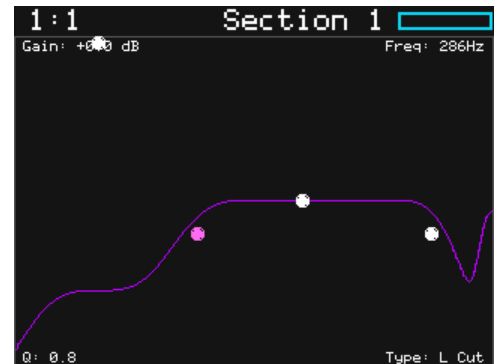
You can touch the grid to move the filter point for each band. The filter point will also move in the grid as you turn the knobs to adjust each of the parameters for that filter band. Push the INFO button to select a different filter point to control. The filter point for the selected node is pink. Set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

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 Shelf
  - Param = Parametric
  - H Shelf = High Shelf
  - H Cut = High cut filter



**Parametric EQ Controls**

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:
  - Filter Type
  - Frequency
  - Gain
  - Q
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.

**NOTE:**

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

## MIDI TRIGGERED RECORDING <<NEW>>

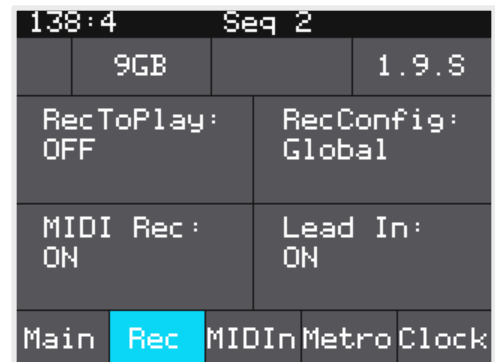
MIDI triggered recording can help streamline the workflow for live looping, field sampling, and more. With this feature, you can use a connected MIDI controller to start and stop recording for an empty pad, clear a pad, and change pad selections.

There are two different techniques you can use for MIDI Triggered recording. The MIDI Note to Pad mapping approach works well if you can dedicate 16 to 32 MIDI Notes to the task. If you prefer to work with a range of 5 MIDI notes, use the MIDI Note Actions mapping approach. In either case, the pad must be empty for recording to occur. Also, you can only record to one pad at a time.

### To Configure Blackbox to Use MIDI Triggered Recording:

Whether you will use MIDI Note to Pad mapping or MIDI Note to Actions mapping, blackbox needs to be configured to allow MIDI Recording on the Tools page. You will also need to set blackbox to receive MIDI Pads on the channel used for output by your MIDI controller. Follow these steps to set up blackbox for MIDI Triggered Recording:

1. Push Tools and then touch Rec on the bottom of the screen to see the recording settings page.
2. Set MIDI Rec to ON by turning the knob next to the parameter.
3. Connect your MIDI controller to the blackbox. You can use the USB Device input or the TRS MIDI In input.
4. Touch MIDIIn on the bottom of the screen to go the MIDI Settings page.
5. Set the value of the MIDI Pads channel to the MIDI channel used by your MIDI controller. Choose Omni to allow all incoming MIDI channels to control Pads. Keep in mind that this also controls which channel will trigger pads and sequences to play.
6. You may also want to use Pad Templates to set up your pads in advance of recording. See **CREATE PRESET TEMPLATES FOR RE-USE** in the blackbox user manual to learn how to do this.



**Recording Settings**

## Record or Clear a Specific Pad with MIDI

When you use MIDI Note to Pad Mapping, blackbox maps two MIDI notes to each pad: one note starts and stops recording; the other note clears the pad. Recording will only work if the pad is already empty. Clearing a pad removes the mapping of the WAV file to the pad, but does not delete the WAV file from the microSD card.

For MIDI triggered recording to work, the target pad must be empty. Blackbox will not allow MIDI triggered recording to record into a loaded pad.

### 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. 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.

### To Trigger Recording to a Specific Pad Using MIDI:

This recording method will only work if the target pad is empty.

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.

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.

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 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.

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

**MIDI Notes to Clear Pads**

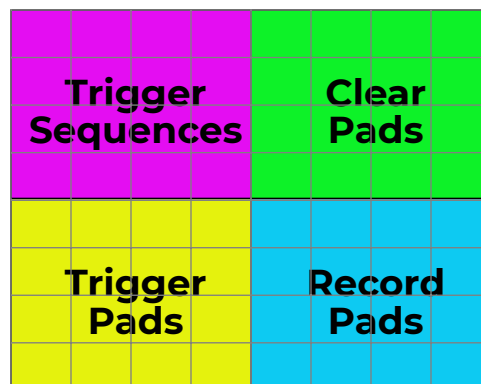
80	81	82	83 B5
76	77	78	79
72	73	74	75
68 G#4	69	70	71

**MIDI Notes to Trigger Pad Recording**



**Notes:**

- ▶ 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 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 X controller works well with blackbox as a MIDI Pads controller when the LaunchPad X 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.



**Novation Launchpad X  
Drum Mode Note Mapping  
to Blackbox Controls**

To Use MIDI Note Actions to Record or Clear a Pad:

Blackbox has allocated a range of MIDI Notes that map to actions that control pads. To use this mapping:

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

**Notes:**

- ▶ 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 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.

## Summary of MIDI Pads Note Mappings

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

MIDI Note Range	Mapping
C2 - D3# (36 - 51)	Trigger playback for a Pad. Pads are mapped starting in the bottom left, moving across and then up.
E3 - G4 (52 - 67)	Trigger a Sequence. Sequences are mapped starting in the bottom left, moving across and then up.
G#4 - B5 (68 - 83)	Trigger recording for a pad. Pads are mapped starting in the bottom left, moving across and then up.
C6 - D#7 (84 - 99)	Clear a pad. Pads are mapped starting in the bottom left, moving across and then up.
E7 / 100	Select Previous Pad
F7 / 101	Select the Next Pad
F#7 / 102	Play the currently selected pad
G7 / 103	Record to currently selected pad (must be empty)
G#7 / 104	Clear the currently selected pad

### To Disable MIDI Triggered Recording and Pad Clearing:

If you are not careful with MIDI Triggered recording and pad clearing, you could unintentionally clear a pad or trigger recording. If you are not using this feature, you can disable it.

1. Push TOOLS.
2. Touch the Rec tab at the bottom of the screen.
3. Turn the knob next to MIDI Rec to set the value to OFF.

## QUICKER ACCESS TO MUTE MODE <<NEW>>

You can press MIX to toggle between the Mixer screen and Mute mode. You can still push INFO from the Mixer screen as well.

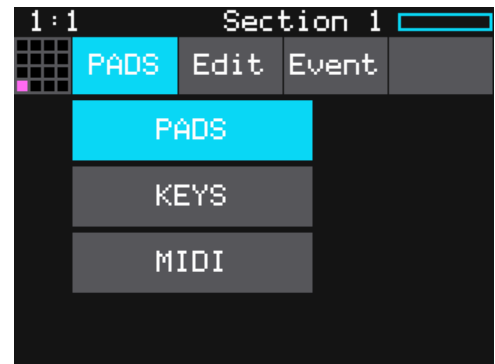
## MIDI ONLY SEQUENCES <<NEW>>

You can add that little extra something from your external gear to your blackbox jam with MIDI only sequences. You can now create sequences that send notes to external MIDI devices while not using a blackbox pad.

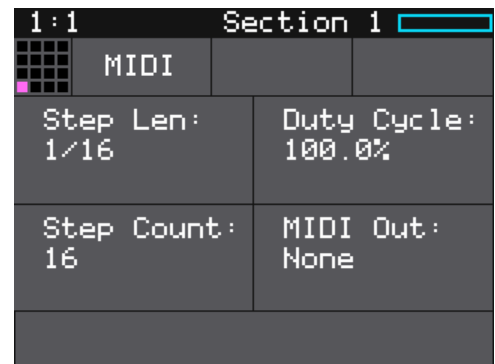
There are several ways to enter notes into a MIDI Only sequence. You can enter notes into the piano roll view of the sequence using the touch screen, import a MIDI file, convert a Keys sequence, copy and paste from another sequence, or record a MIDI input.

### To Setup a MIDI Only Sequence and Add Notes via the Touchscreen:

1. Push SEQS to open the Sequences page and select an empty sequence.
2. Push INFO to open the piano roll view of the selected sequence.
3. In the top left corner, next to the Sequence Selector Grid, touch the Sequence Mode selector, then touch MIDI.
4. Push INFO again to see the MIDI Parameters page.
5. Set MIDI Out to the MIDI Channel that is used by the external gear you want to control.
6. Connect the external MIDI gear to blackbox through either the TRS MIDI out jack or the USB MIDI Device connection. Note that blackbox uses a Type B TRS MIDI connection. You may need to use a 5 Pin DIN MIDI adapter to connect to your gear. See our [TRS MIDI Compatibility Guide](#) for more information.



**Sequence Mode Selector**



**Sequence Parameters**

7. Push Info twice to get back to the Piano Roll screen for this sequence.
8. Touch the Piano Roll to add notes.
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.

### To Import a MIDI File into a MIDI Only Sequence:

1. Create a MIDI Sequence as described above.
2. From the piano roll screen for this sequences, touch the Edit button and then select Import.
3. Choose the file and touch Load.