



# TONEBANK

AFRO-HARMONIC SEQUENCER

## Tonebank

Version 2.0

## User Guide

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# Background

Tonebank is a plugin that models harmono-rhythmic structures found in traditional African music. Underlying most music of xylophones, harps, kalimbas (thumb pianos) and vocal polyphony, are looping chord sequences.

Much of the strength of traditional African music of this type lies in several key elements that Tonebank encodes:

- Solid rhythmic formulae that create cyclic strength
- Symmetric, logical and balanced harmonic sequences
- Complex swing patterns with micro-rhythmic variations
- Alternative tuning systems

Melodies and accompaniments can be drawn from these loops. In Tonebank, the notes that the plugin 'improvises' for you are always placed in harmonic agreement with the loop. There are differences though to what you may expect from chord sequences found in other common music.

- a) African systems of harmony (various pentatonic, hexatonic and heptatonic) all have chords, some of which only have 2 notes - there are between 2 and 6 chords in traditional systems.
- b) The harmonies follow specific rhythmic patterns where chord changes occur at varied timings. Unlike Western harmonic sequences, traditional African harmonic sequences are often faster moving and create consistently strong and balanced melodies through their symmetric patterning.
- c) Musical conversation - call and response between different voices - is an essential aesthetic in many African musical traditions. Multiple instances of Tonebank can be layered to create this conversational interplay - specifying where one voice ends a melodic phrase (the question) and where another begins its phrase (the answer).

The term "Tonebank" was coined by ethnomusicologist Peter Cooke for any loop that the xylophones would play in Southern Ugandan music, usually with one note on every division of every beat.

This plugin builds upon decades of research and collaboration with master musicians from Africa, including Hukwe Zawose (Tanzania), Nofinishi Dywili (South Africa), Albert Noah Messomo (Cameroon), Albert Ssempeke (Uganda), Bernard Woma (Ghana), and Chartwell Dutiro (Zimbabwe). It also draws from the extensive research of Peter Cooke, Andy Cooke, Gerhard Kubik, Simha Arom, Polo Vallejo, Paul Berliner, Hugh Tracey, and David Dargie, as well as ethnographic recordings from labels including Ocora, Fonti Musicali, UNESCO, and others.

# Introduction

Tonebank is what is known as a “MIDI effect” plugin. It is essentially a note generator. It does not have any sounds of its own. It requires the notes it generates to be sent or passed onto an instrument or synthesizer plugin in order to play the notes. You can have multiple instances of Tonebank on different tracks in your DAW.

Each instance of Tonebank in your project acts like a separate instrument, all playing within the same musical structure, visualised on the Grid. There are two different tabs: **Sequence** is good for textures, backgrounds and basslines (think harmonic or percussive instruments), while **Melody** is like an intelligent soloist, good for lead sounds and song-like instruments.

All the instances in your project will automatically link together. Changes to the Shared Controls will affect all instances, while changes to the Instrument-Specific Controls only apply to the current instance.

## Getting Started

Please refer to the DAW Setup section at the end for instructions on setting up Tonebank in your DAW. You will find instructions for the following DAWs:

[Ableton Live](#)  
[Bitwig Studio](#)  
[FL Studio](#)  
[Logic Pro](#)  
[Reaper](#)  
[Studio One](#)

In general, Tonebank will work in any host that supports VST3, CLAP, or Audio Unit format “MIDI effect” plugins. There is also an AAX format for Pro Tools. This requires a recent version of Pro Tools from 2024 or later that supports MIDI effect AAX plugins.

## Understanding the Interface

### Harmonies and Chords

The harmonic system in Tonebank works as follows:

1. First, from the **Harmony** dropdown, select the desired system - this defines a collection of chords (from 2 to 6)
2. Each chord in this collection is represented by a row in the grid
3. The **Tonic** sets the root/reference note, enabling transposition of all chords

4. When you select cells in the grid, you're creating a sequence of these chords over time

The scale formed by all the notes in the harmonic system is shown in the box above the **Harmony** dropdown. The set of chords is shown to the right of the grid.

Since version 2.0, it is possible to create your own Harmony settings.

## Clave and Timing

The **Length** parameter defines the total number of divisions in the cycle. The dropdown shows how many beats there are in the cycle and how many divisions are in each beat. This affects both the **Clave** and **Swing** options available:

- **Clave:** Defines where chord changes can occur. Visually represented by black vertical lines on the grid. The divisions immediately after these lines are the "on-clave" notes. These are always combinations of 3 and 2. You can define a custom clave pattern with the "Edit..." option.
- **Swing:** Defines both the number of divisions per beat (3 or 4 divisions; where the white ticks appear above/below the grid) and the relative "micro-timing" of each division within a beat.

For example, a "3:2:2:3" swing means divisions within a beat have duration ratios of 3:2:2:3, with the first and last division being slightly longer than the middle ones.

## Recommended Workflow

A typical workflow in Tonebank:

1. Begin with fundamentals:
  - Choose (or create) a Harmonic system from the **Harmony** dropdown and a **Tonic** (or start with a preset)
  - Set a **Length** for your cycle
  - Based on your Length, select compatible **Clave** and **Swing** patterns
2. Design your tonebank:
  - Click on the Grid to select which chords play at which divisions
  - This will enable the Play button once you've made a valid selection
3. Tab-specific settings:
  - Decide between **Sequence** and **Melody** tabs
  - Adjust settings like **Density**, **Pitch Variance**, **Range**, etc.

- For Melody, choose a **Phrase Mode** and related settings

#### 4. Playback and refinement:

- Use **Sync** with your DAW or hit the **Play** button
- Adjust parameters in real-time
- Save your created environment (harmony, tonic, grid etc) as a preset if desired

You may find it productive to experiment with the parameters and then record the MIDI outputs of Tonebank.

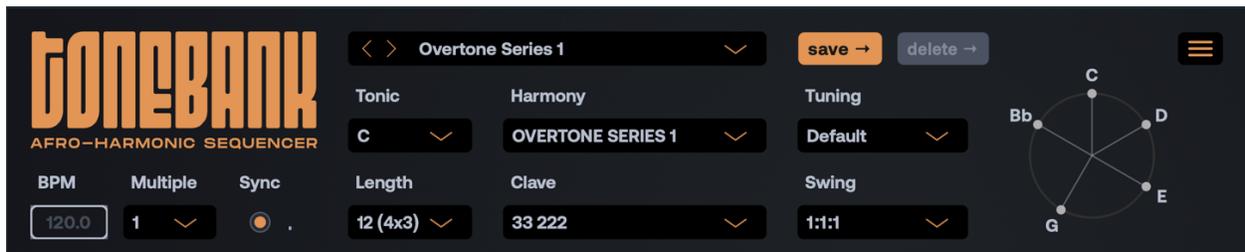
**Please note:** *Harmony, Swing, Clave, Length* and all the cells in the Tonebank grid must be selected for playback to be enabled.

## Features

### Shared Controls

These controls define the fundamental structure of your tonebank and affect both Sequence and Melody tabs - they are also shared across multiple instruments (instances of the plugin), except for the Play and Mute buttons:

### Top Bar Controls



**BPM** - Sets the tempo when not synced to your DAW

**Multiple** - When Sync is enabled, sets playback rate relative to your DAW's tempo (e.g., 2/3, 1, 4/3). This allows Tonebank to play at different rhythmic ratios to your project BPM

**Sync** - Toggle button to synchronise with your DAW's tempo and transport

**Tonic** - Sets the reference note of the tonality, i.e. the root note.

**Harmony** - Selects the harmonic system or tonality, i.e. the chord set to use (each row on the Grid represents one chord from this set). Here you can also choose "Edit..." to define a custom harmony.

**Tuning** - Selects alternative tuning systems for the current harmonic system. Each harmonic system comes with its own tuning options.

**Swing** - Defines the swing (micro-rhythmic) ratios between divisions of each beat

**Length** - Sets the number of divisions (columns) in the complete cycle (with 3 or 4 divisions per beat, like the majority of African music)

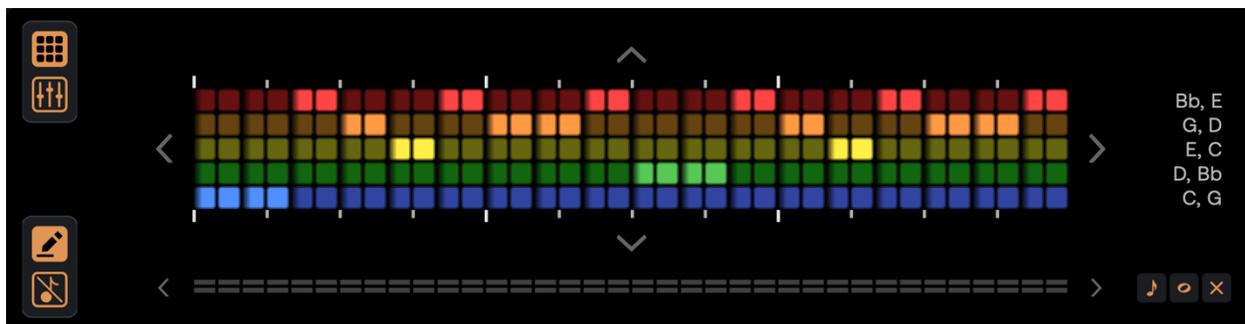
**Clave** - Sets the harmonic rhythm, shown as black vertical lines on the Grid

**Scale display** - A radial graph that shows the complete scale formed by all chords in the current harmonic system

**Presets** - Load, save, and delete presets

**Settings menu** - Clicking on “hamburger” icon on the top-left will open a dialog with settings, registration information and credits.

## Grid Toolbar and Grid



The **Grid** is the central visual representation of your tonebank. Each column represents a division in time, and each row represents a chord from the selected harmonic system.

The **Grid Toolbar** on the left allows you to interact with the Grid depending whether you're in the Sequence or Melody Tab:

### Sequence Tab tools

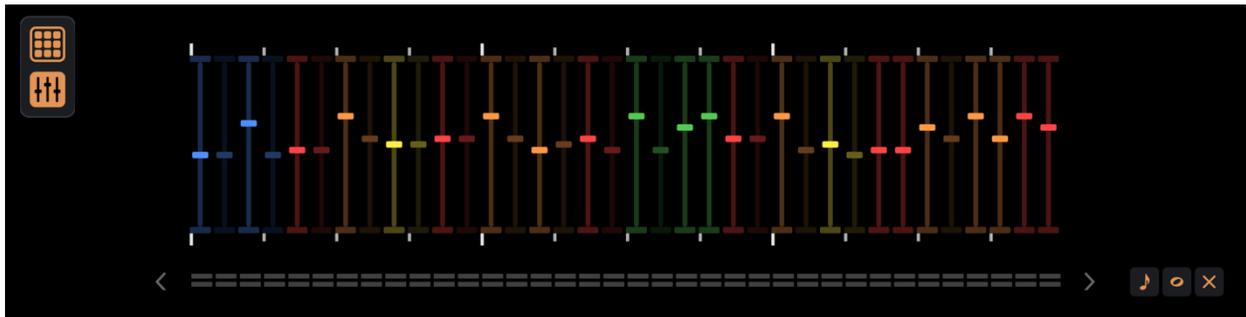


- **Grid view** - The tonebank harmony layout
- **Pitch Sliders view** - The generated notes in the sequence



- **Edit tool** - Click on a cell to select which chord plays at which clave point
- **Mute tool** - Click on cell to mute it (this is also available with right-click when editing)

## Pitch Sliders



When in Sequence mode, you can also view and interact with the notes in your sequence in the Pitch Sliders view. You can move the sliders up and down, and you will be able to see which note in your harmony will be played when the mouse pointer is over the slider. You can also activate and deactivate notes using ctrl-click or right-click.

Note that all the sliders have their own parameter, so it's possible to record the generated automation for later editing in your DAW, or to map the slider parameters to a MIDI controller if your DAW supports that, in order to adjust the sequence live.

## Accent and Tie notes



To set up accents, you can click on the upper row of rectangular buttons under the grid component.

Tie notes are activated by the lower row of buttons as seen above.

There are helper buttons for preset accent patterns. From left to right:



- Clave – accents on every clave downbeat
- Beat – accent on every beat
- Clear – remove all accents



Tie notes overlap the end of one note with the start of the next note. This is useful for creating slides, glides or portamento effects in monophonic instruments.

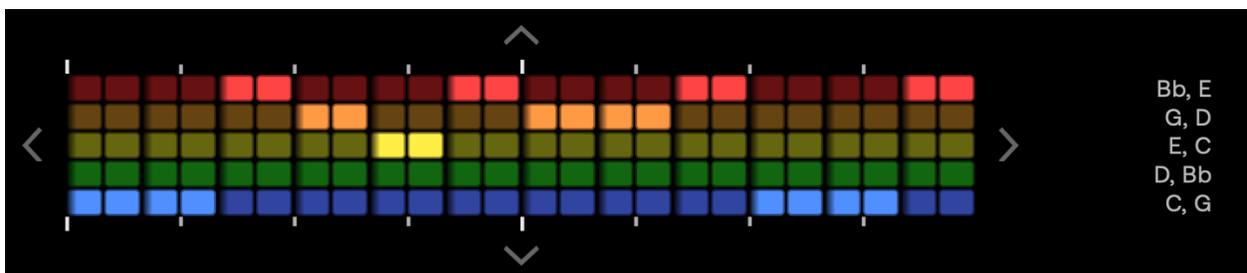


## Melody Tab tools



- **Edit tool** - Click on a cell to select which chord plays at which clave point
- **Fix Phrase marker tool** - Click on a division column to set the [phrase start marker](#) or [phrase end marker](#)

## The Grid



- **Rotation arrows** - Use the arrows to shift the entire harmonic organisation left/right/up/down

- **Chord display** - Shows the chord names for each row (right side)
- **Black vertical lines** - These represent the clave pattern (harmonic rhythm)
- **White ticks** - These show where the beats fall - according to the loop length / metre

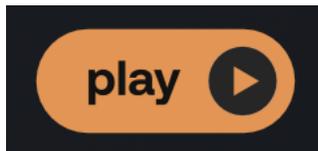
## Generate button



- When “on” (filled) Tonebank will generate new notes as it plays.
- When “off” (outline) the current state of notes will be “frozen”. These notes will be stored in project state for recall.
- In Sequence mode Pitch Sliders view, the notes can be adjusted whether Generate is on or off

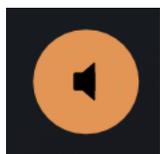
Setting Generate to off locks the current pattern so it repeats exactly the same way every cycle. This is the only way to ensure complete consistency if you want the exact same pattern each time, as even with Pitch Variance at 0, controls like Density and Rhythmic Tension might introduce some randomness. This is an automatable parameter.

## Play/Stop button



- Starts/stops the internal playback of the current Tonebank instance
- Note that this button will be disabled if DAW Sync is on and playback is active

## Instrument Mute button

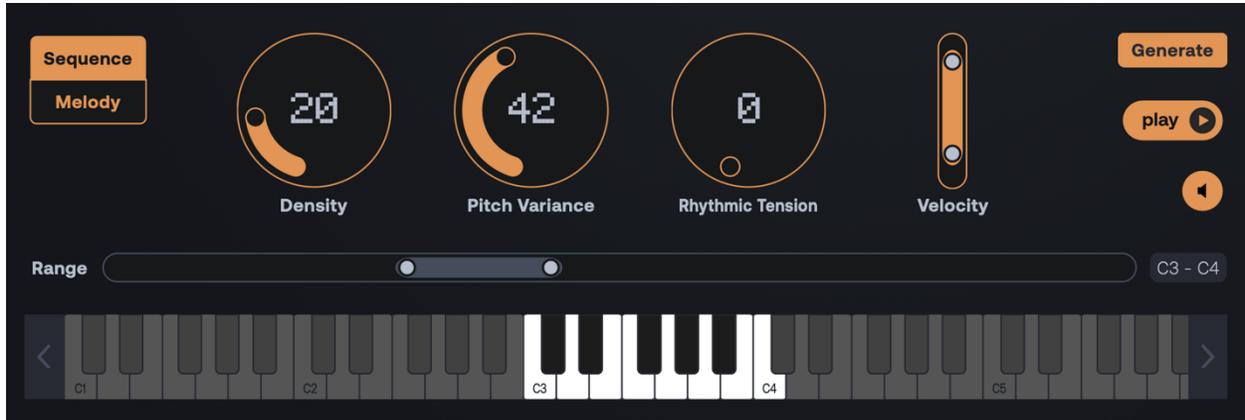


- When muted, Tonebank does not generate any MIDI notes, but maintains its place in the cycle so that it comes back in the right place when unmuted (unlike bypassing/deactivating the plugin in the DAW, which will de-synchronise the instruments). This is an automatable parameter.

## Instrument-Specific Controls

These controls are set separately for each instrument (that is, for each instance of the plugin). Tonebank has two tabs (or modes) with different control sets:

### Sequence Mode



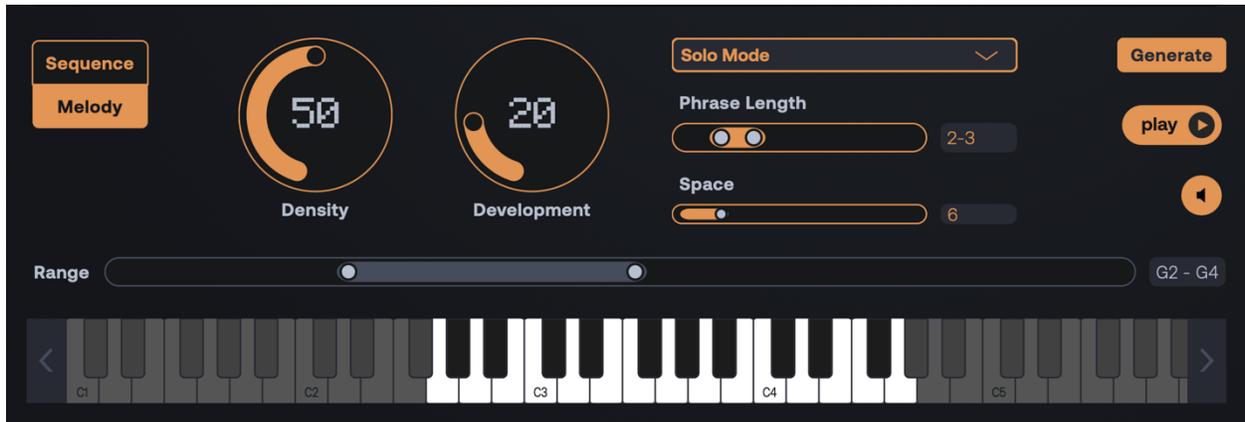
Sequence mode functions like an intelligent arpeggiator, playing notes from the selected chords division by division.

- **Density** (0-100) - Controls how many "filler" notes are added between clave points
  - At 0: Only plays notes defined by the clave and the level of Rhythmic Tension
  - At 100: Plays notes at every division (except muted ones)
- **Pitch Variance** (0-100) - Controls how much the pitch pattern changes with each cycle
  - At 0: Every division has the same note choices every time (though whether a certain division is played or not will depend on Density and Rhythmic Tension settings)
  - At 100: All pitches are chosen again at each cycle
- **Rhythmic Tension** (0-100) - Shifts emphasis between "on-clave" and "off-clave" notes
  - At 0: Only "on-clave" notes (divisions marked with black lines)
  - At 100: Only "off-clave" notes (no divisions marked with black lines are played)
- **Velocity** - Dual slider that sets velocity for accentuated (top slider value) and non-accentuated (bottom slider value) notes
- **Range** - Defines the keyboard range where notes can be played. The left/right arrows scroll the keyboard. Maximum range is C1-C8.
  - **Note:** If the range is adjusted, but Pitch Variance is at 0, Tonebank will not play the notes in the adjusted range until Pitch Variance is set above 0.

- **Generate**

- When “Generate” is on, Tonebank will generate new notes every cycle. When “Generate” is off, notes are stored along with the project, so you can be sure that if you find something you want to keep, that it will be the same next time you load the project.

## Melody Mode



The Melody tab generates melodic phrases that "solo" over the chord progression / tonebank. These phrases are designed to mimic spoken and sung language patterns through their structure.

In the Melody tab, each melodic phrase is composed of words (groups of short (1) and long (2) notes/"syllables" - e.g., "121" "12" "2") separated by one-division rests

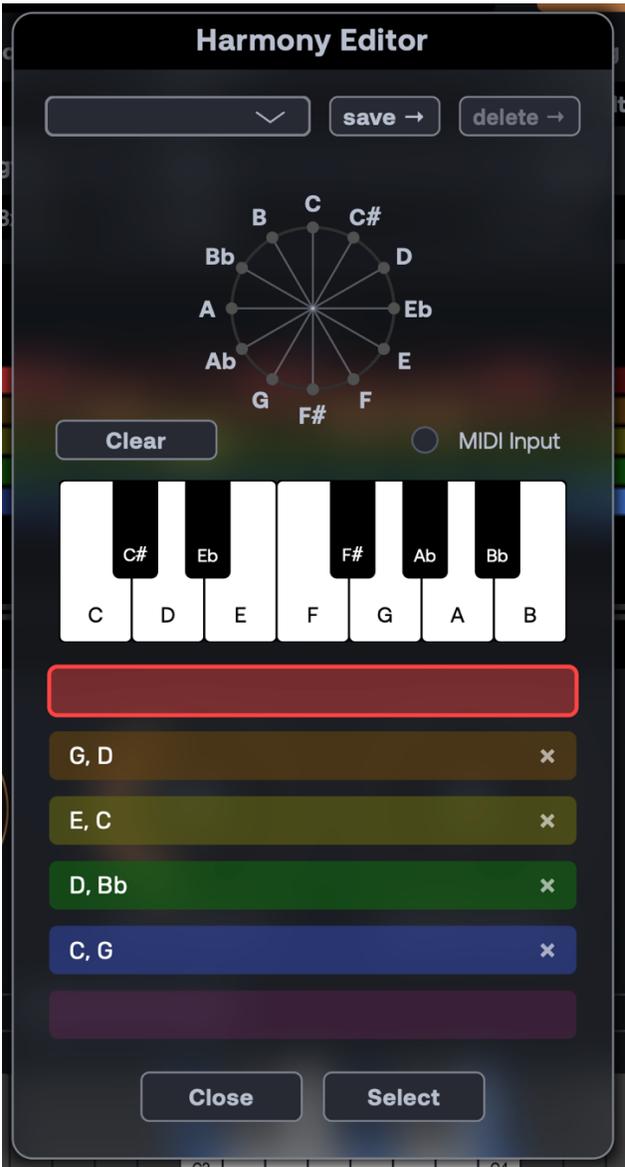
- **Density** (0-100) - Controls the syllable length distribution in words
  - At 0: Short syllables only (e.g., "111 111")
  - At 100: Long syllables only (e.g., "222 22")
- **Development** (0-100) - Controls how phrases evolve over time
  - At 0: The exact same phrase structure repeats (e.g., if the phrase is "211 121 2", this exact pattern will repeat, though the actual pitches may change)
  - At 100: With each new phrase, words will definitely be added, removed, or modified
- **Phrase Mode** - Defines how phrases relate to the tonebank cycle
  - **Solo Mode:** Phrases appear at various positions in the loop with spacing as defined by the Space slider
  - **Fix Phrase Ending:** Each phrase ends at a marked position (set by the Grid Toolbar button or Shift+click on the Grid)

- **Fix Phrase Beginning:** Each phrase begins at a marked position (set by the Grid Toolbar button or Shift+click on the Grid)
- **Direct Mode:** Phrases play only when the "**Play Phrase Now**" button is clicked
- **Fix Phrase Ending/Beginning Markers** - Only visible in their respective Phrase Modes, these markers are set by Shift-clicking on the Grid and define where phrases must end or begin
- **Phrase Length** - Dual slider setting minimum and maximum words per phrase
- **Space** - Sets the minimum number of divisions between phrases (Solo Mode)
- **Play Phrase Now** - Manually triggers a phrase (Direct Mode only)
- **Range** - Defines the keyboard range for melody notes

## Harmony Editor

You can create your own harmonies using the Harmony Editor. This is accessible from the Harmony dropdown menu, when clicking the last item titled "Edit..."

Creating custom harmonies makes Tonebank useful as a composition tool for many styles of music.



You can play notes in via MIDI by selecting the “MIDI Input” toggle.

You can the currently loaded harmony, or you can press the “Clear” button to clear everything and create your own.

Click on a row to select it and get it ready to add notes to.

Once you’re happy with a harmony row, be sure to select the next one, so it’s ready to receive the notes of the next row in your harmony.

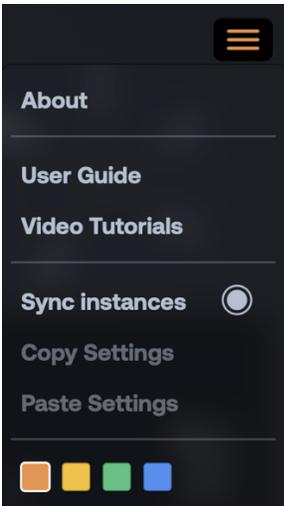
You can create up to six rows in your custom harmony.

Once you’re happy with your harmony. You can save it for reuse.

You can then press the “Select” button to select it and close the dialog.

If you don’t want to use it yet or you simply want to dismiss the dialog you can press the “Close” button.

## Colour Schemes



In order to easily differentiate between various instances of Tonebank, you can choose an individual colour scheme by clicking on the “hamburger” menu icon in the upper right-hand corner.

This brings up a Settings menu, at the bottom of which is a selection of four colour schemes for you to choose from.

## Instance sync

The default behaviour of synchronising the tonebank grid across all instances in a project can be switched off per-instance, with the “Sync instances” setting in the menu.

This can be useful when you want to have parts with different harmonies playing together, or if you want to rotate the grid for one part only.

## Tunings, Musical Structure and Presets

### Tuning setup

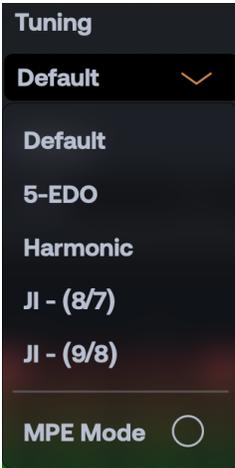
The Tuning dropdown will show you the available tunings for the currently selected Harmony.

Default tuning means no tuning adjustments are being applied.

When a tuning other than Default is selected, Tonebank uses pitchbend messages to retune the notes that Tonebank generates.

Enabling MPE mode (toggle on) will output multichannel MIDI compatible with MPE instruments. Select this if your instrument supports MPE. It is useful for sounds with a long release, ensuring each note retains it’s tuning while the next note begins.

(Note: If you use Logic Pro, some of the built-in instruments support “Multi-mono mode” which is equivalent to MPE support)



Tonebank assumes the following pitchbend ranges in the receiving instrument:

MPE mode on: +/-48 semitones

MPE mode off: +/-2 semitones

In future versions we will make this adjustable if there is demand for this feature.

## Tunings

Tonebank has a number of micro-tuning presets. The available tunings are specific to the selected harmonic system. In traditional African music, there is too much variety to be represented here, so we have chosen but a handful that may be useful. There are African musical systems that utilise just intonation (JI), and there is a great selection of temperaments (EDO, equal division of the octave) also.

5-EDO	5-note equal temperament
7-EDO	7 note equal temperament
Harmonic	Notes from 1 overtone series
Mavila	Mavila temperament approximation, 7 notes from 16-edo
JI - I IV V	Harmonic tuning with triads I, IV and V
JI - (8/7)	Harmonic tuning with high 2nd (8/7) and 6th degrees
JI - (9/8)	Harmonic tuning with high 6th degree (27/16)
JI - (10/9)	Harmonic tuning with low 2nd degree (10/9)

**Tuning tables** (note that not all tunings use all intervals from the root)

<b>Note</b>	<b>5-EDO</b>	<b>7-EDO</b>	<b>Harmonic</b>	<b>Mavila</b>	<b>IIV V</b>	<b>8/7</b>	<b>9/8</b>	<b>10/9</b>
<b>1</b>	0ç (1/1)	0ç (1/1)	0ç (1/1)	0ç (1/1)	0ç (1/1)	0ç (1/1)	0ç (1/1)	0ç (1/1)
<b>2b</b>	110ç	171.4ç	105ç (16/15)	75ç	111.7ç (16/15)	155.1ç (35/32)	111.7ç (16/15)	111.7ç (16/15)
<b>2</b>	240ç	171.4ç	203.9ç (9/8)	150ç	203.9ç (9/8)	231.2ç (8/7)	203.9ç (9/8)	182.4ç (10/9)
<b>3b</b>	480ç	342.9ç	297.5ç (19/16)	225ç	315.6ç (6/5)	266.9ç (7/6)	315.6ç (6/5)	294.1ç (32/27)
<b>3</b>	480ç	342.9ç	386.3ç (5/4)	300ç	386.3ç (5/4)	386.3ç (5/4)	386.3ç (5/4)	386.3ç (5/4)
<b>4</b>	480ç	514.3ç	470.8ç (21/16)	525ç	498ç (4/3)	470.8ç (21/16)	498ç (4/3)	498ç (4/3)
<b>4#</b>	600ç	514.3ç	551.3ç (11/8)	600ç	590.2ç (7/5)	617.5ç (10/7)	590.2ç (7/5)	568.7ç (25/18)
<b>5</b>	720ç	685.7ç	702ç (3/2)	675ç	702ç (3/2)	702ç (3/2)	702ç (3/2)	702ç (3/2)
<b>6b</b>	840ç	857.1ç	772.6ç	750ç	813.7ç	737.7ç	813.7ç	813.7ç

			(25/16)		(8/5)	(49/32)	(8/5)	(8/5)
<b>6</b>	960¢	857.1¢	840.5¢	825¢	884.4¢	933.1¢	905.9¢	884.4¢
			(13/8)		(5/3)	(12/7)	(27/16)	(5/3)
<b>7b</b>	960¢	1028.6¢	968.8¢	900¢	1017.6¢	968.8¢	1017.6¢	996.1¢
			(7/4)		(9/5)	(7/4)	(9/5)	(16/9)
<b>7</b>	1080¢	1028.6¢	1088.3¢	975¢	1088.3¢	1172.7¢	1088.3¢	1088.3¢
			(15/8)		(15/8)	(63/32)	(15/8)	(15/8)

## Harmonic Systems

Tonebank has 16 harmonic systems selected from the **Harmony** dropdown menu. The musical organisation is described below.

African harmonic systems differ fundamentally from Western harmonic systems - not just in how they are applied rhythmically, but in their core structural principles. There are a multitude of options that have fewer than 7 notes. While it is impossible to give a run-down of the entire continent's tonal systems, here are some useful observations:

- The single overtone series (used by the Wagogo, OVERTONE SERIES 1 in Tonebank) has 2 chords and a passing note
- Chords of 2 notes are common in many systems, where the culture accepts the interval of a 4th as a consonance, but not much more than that
- The PENTATONIC 2a and 2b are systems of 5 harmonies. They look like they accept 3rds as consonant, but the reality is that local tunings are much more evenly spread than Western notation can show. If you adjust the tuning dropdown to 5-edo, you may hear the beauty of having music in these systems with in-built microtonal tensions

The HEPTATONIC system is a major scale (yes!). If you need a minor scale, it is best to use a mode of this system. eg, set your tonic to C, but:

- use A as your tonal centre (for Amin Aeolian mode, or natural minor)
- use D as your tonal centre (for Dmin Dorian mode, or minor ♯6)
- use E as your tonal centre (for Emin Phrygian mode, or minor ♭2 ♭6)

## Presets

<b>Heptatonic</b>	Classic Shona mbira music structure (Nhemamusa) from Zimbabwe
<b>Hexatonic 1</b>	Beti xylophone music/song (Angara) from Cameroon
<b>Hexatonic 2</b>	Unknown song from Gabon
<b>Overtone 1</b>	Gogo song accompaniment (Tamaduni Tanzania) from Tanzania
<b>Overtone 2</b>	Xhosa song accompaniment (similar to Qongqothwane) from South Africa
<b>Pentatonic 1b</b>	Dagaaba song/xylophone music (Yaa Yaa Kole) from Ghana
<b>Pentatonic 1c</b>	This was included here as an easy example to follow in the 'Getting Started' video. It is not traditional (but could be)
<b>Pentatonic 2a</b>	Ganda song accompaniment (Olutatlo 'olwen Nsisi) from Uganda
<b>Pentatonic 2b</b>	Soga song accompaniment (Babalema) from Uganda

# Automation

The following parameters of Tonebank can be automated in the DAW:

Accomp Density

Accomp Pitch Variance

Accomp Range Bottom

Accomp Range Top

Accomp Rhythmic Tension

Accomp Velocity Bottom

Accomp Velocity Top

Division 1–64 Pitch

Generate

Instance Mute

Melody Density

Melody Development

Melody Phrase Length Max

Melody Phrase Length Min

Melody Phrase Mode

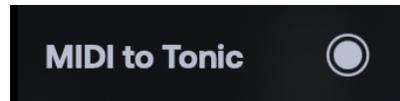
Melody Range Bottom

Melody Range Top

Melody Space

Output Mode

# MIDI Control



The settings menu has an option to switch on MIDI control of the Tonic, for live key changes within your track. Note that if Sync Instances is also on, this will affect other Tonebank instances that also have Sync Instances set.

## DAW Setup

### Ableton Live Setup

If you are on a Mac computer, please ensure you allow Ableton Live to find VST3 plugins. The AudioUnit (AU) Tonebank plugin is not compatible with Ableton Live.

1. Create an instrument track
  - Load your chosen instrument (synthesizer, sampler, etc.) on a MIDI track
  - This will be the sound source for Tonebank's generated notes
2. Add Tonebank to a separate MIDI track
  - Create a new MIDI track (Ctrl/Cmd + Shift + T)
  - In the device browser, navigate to Plugins and drag Tonebank onto this track
3. Configure MIDI routing
  - On the instrument track, set the Monitor control to "In"
  - In the "MIDI From" section of the instrument track, select the Tonebank track from the first dropdown
  - Select "Tonebank" in the second dropdown

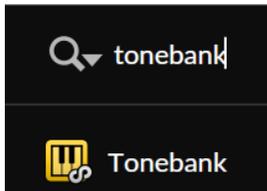


4. Start playback
  - Press Play in Ableton or hit the Play button in Tonebank

- Tonebank will now send MIDI to your instrument

## Bitwig Studio Setup

1. Create a new instrument track
2. Find the CLAP Tonebank plugin (you can type the name in the search bar)



3. Now you should see Tonebank as the first device on the track.
4. Next, hit the plus button to choose an instrument device or plugin.



5. Now you should see Tonebank followed by your chosen instrument.



6. Press the plugin window button  to load the Tonebank interface and start playing!

# FL Studio Setup

## 1. Create a Patcher track

- Right-click in the Channel Rack and select "Add one"
- Navigate to and select "Patcher" from the plugin list
- This opens FL Studio's modular routing environment



## 2. Add Tonebank inside Patcher

- Right-click anywhere in the Patcher window
- Select "Add plugin" > "More..." > "Tonebank"
- Tonebank will appear as a module in Patcher

## 3. Disconnect Tonebank's audio output

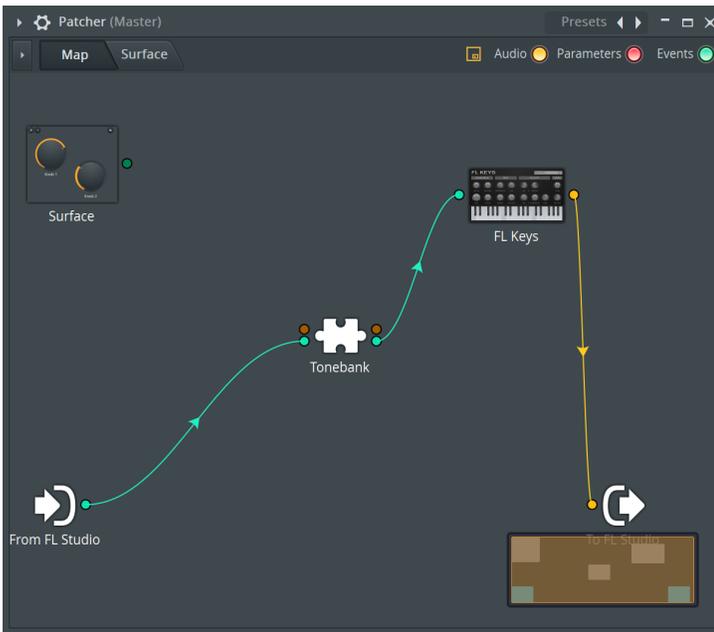
- Right-click on Tonebank's audio output (right side, orange connector)
- Select "Disconnect" or simply delete the cable by dragging its final point away
- Tonebank only outputs MIDI, so audio routing is not needed

## 4. Add your instrument

- Right-click again in the Patcher window
- Select "Add plugin" and choose your desired instrument
- The instrument module will appear in Patcher

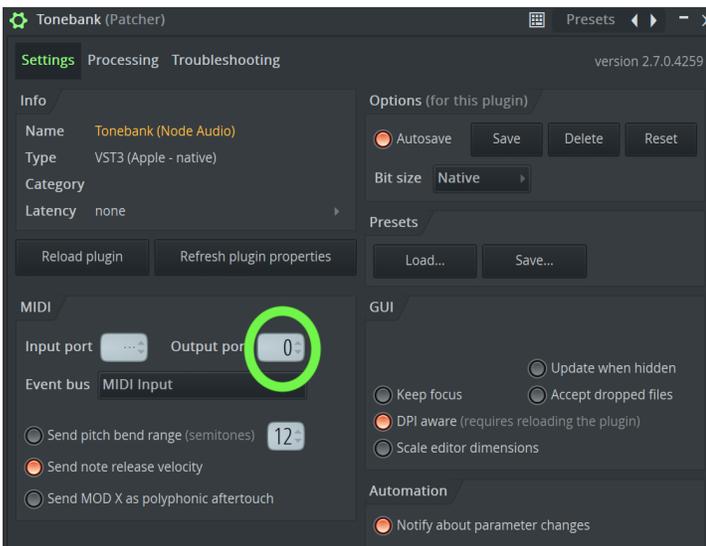
## 5. Configure MIDI routing

- Disconnect the instrument's default MIDI input (left side, green connector)
- Click and drag from Tonebank's MIDI output (right side, green connector)
- Connect it to the instrument's MIDI input (left side, green connector)
- Connect the instrument's audio output to the "To FL Studio" module



## 6. Configure Tonebank settings

- Double-click Tonebank to open its interface
- In Tonebank's settings, select an output port
- This ensures proper MIDI communication within Patcher



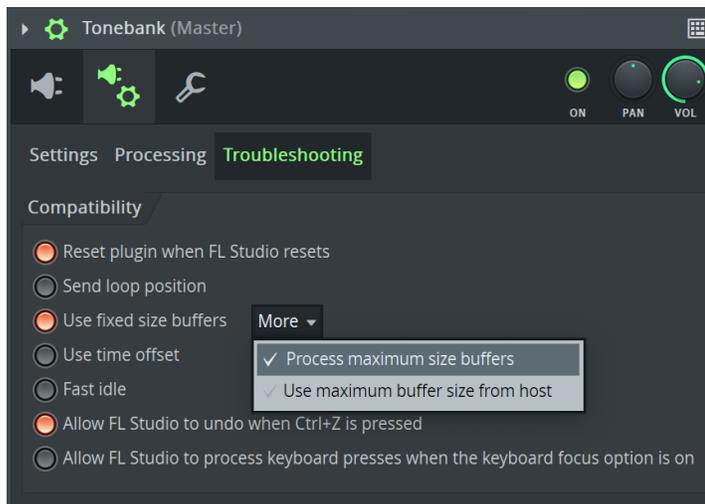
## 7. Start playback

- Press Play inside Tonebank or in FL Studio (if DAW sync is checked)

## 8. Optional: fix sync issues

- If sync issues occur when pressing Play in the DAW - still in Tonebank's Detailed Settings, go to the Troubleshooting section
- Enable "Use fixed size buffers"

- Enable "Process maximum size buffers"



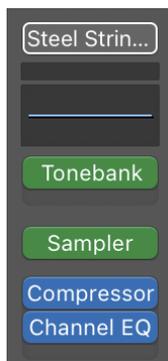
## Logic Pro Setup

### 1. Create an instrument track

- Create a new Software Instrument track (Option + Cmd + N)
- Load your desired instrument plugin from the browser

### 2. Add Tonebank as a MIDI effect

- In the channel strip, click on the MIDI FX slot (located above the instrument slot)
- Navigate to Audio Units > Node Audio > Tonebank



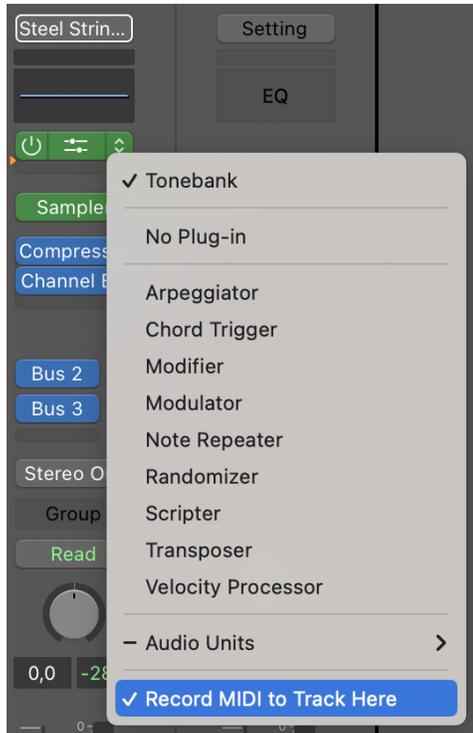
### 3. Enable plugin playback

### 4. **Important:** Logic disables plugin playback when first loading Tonebank

- Press Play in Logic once to enable Tonebank's internal transport
- After this initial play, Tonebank will work normally

### 5. Record MIDI output

- To capture Tonebank's generated MIDI, click on the MIDI FX slot again
- Select "Record MIDI to Track Here"



## REAPER Setup

1. Create a new track
  - Right-click in the track area or use Ctrl/Cmd + T
  - This will be your instrument track

2. Add Tonebank first

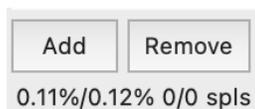
- Click the FX button on the track



- In the FX browser, locate and add Tonebank
- **Important:** Tonebank must be placed **before** any instruments in the chain

3. Add your instrument

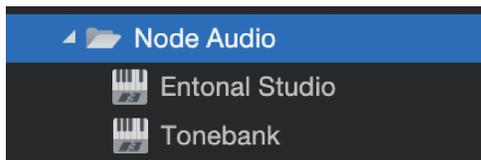
- In the same FX window (bottom-left), click "Add"



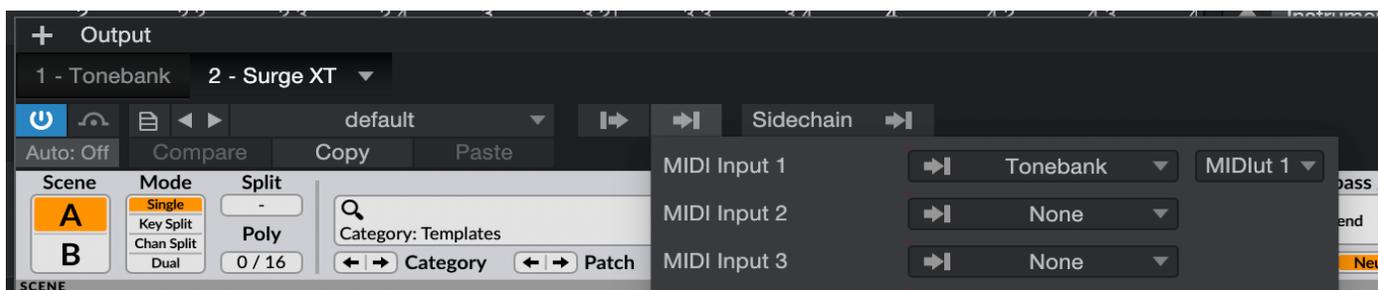
- Select your desired VSTi or AU instrument
  - Make sure it appears below Tonebank in the FX chain
    - VST3i: Tonebank (Node Audio)
    - AUi: Helm (Matt Tytel)
4. Start playback
- Press Play in REAPER or use Tonebank's internal Play button
  - The MIDI generated by Tonebank flows directly to the instrument below it

## Studio One

1. Open your VST3 (or CLAP) plugin folder in the Instruments section on the right-hand side browser.



2. Find and drag Tonebank to create a new instrument track.
3. Choose an instrument and drag that to create another new instrument track.
4. Now, with the instrument window open, click on the “Direct Inputs” button. 
5. Now route the MIDI of Tonebank to the input of the instrument as shown:



Now you can go ahead and open the Tonebank window and start playing!

## Glossary

**Tonebank:** A loop played on xylophones in Southern Ugandan music. In our plugin, a sequence of “rhythmicised” chords defined by Harmonic system, rhythm (clave), and user chord selections.

**Divisions** (short for divisions of the beat): A division is the smallest time unit in the cycle, represented as columns on the grid.

**On-clave notes:** Notes that fall immediately after the black vertical lines. They define the structure of the rhythmic cycle or clave.

**Off-clave notes:** Notes that fall between the black vertical lines. They are characteristic of rhythmic tension against the structure provided by the clave.

**Phrase:** In the Melody tab, a complete musical thought comprised of words. For example: "121 12 2" is a phrase with three words.

**Word:** A group of syllables in a melody phrase, separated by short rests. For example, in "121", there are three syllables.

**Syllable:** Individual short (1) or long (2) notes that make up words. These mimic patterns of spoken and sung language.

# Examples



## The Queen of Xhosa bows Madosini - Mvimbeni

Simple loop with 2 chords of major triads/harmonic series from South Africa

<https://www.youtube.com/watch?v=TwvJsr1CLc4>



## Nakibembe Xylophone Troupe

Pentatonic music using 4 chords from Southern Uganda. (the system has 5 chords - only 4 are used here)

[https://www.youtube.com/watch?v=\\_X72cBnMHS4](https://www.youtube.com/watch?v=_X72cBnMHS4)



## Simple loop with 2 chords from diatonic hexatonic scale from Cameroon

Someone sings the flat 7th but it is not there in the xylophones

<https://www.youtube.com/watch?v=ATxSrSAtIR8>



## Heptatonic music using 6 harmonies – a classic from Zimbabwe

The loop is 48 divisions, 4 cycles of 12/8

<https://www.youtube.com/watch?v=sc47P8Vq1pg>



## Pentatonic music with loop using 3 harmonies from North West Ghana

<https://www.youtube.com/watch?v=drjOn4mlQi4>



## Pentatonic (from harmonic series) music with 2 chords from Tanzania

<https://www.youtube.com/watch?v=BqR6hXO6dq8>

