\ THE MUSICIAN'S KNIFE
Your Complete Practice Companion

User Manual & Onboarding Guide

Field: Music & Sound · Knife 14 of 50 · \ Offline.Ltd

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TOOLS	OFFLINE	FREE UPDATES	TRACKING

This manual covers every tool, input, and feature of The Musician's Knife — a single HTML file containing eleven professional music utilities. It runs entirely in your browser with no internet connection, no installation, and no data sent anywhere. Includes a chromatic tuner, metronome, BPM tap counter, chord finder, scale visualizer, circle of fifths, frequency table, DTMF generator, ear trainer, and MIDI studio with WAV recording.

Version 2.0 · For use with The_Musician_s_Knife.html

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Key terms defined

1 Getting Started

The Musician's Knife is a single HTML file. No installation, no app store, no account. Double-click the file and it opens in your browser, ready to use.

System Requirements

BROWSER	VERSION	NOTES
Chrome / Edge	90+	Full support including Web MIDI API
Firefox	90+	Full support except Web MIDI (use Chrome for MIDI)
Safari	15+	Full support except Web MIDI
Mobile Chrome	90+	Tuner, audio, and all tools work; MIDI via OTG adapter
Mobile Safari	15+	Full support except Web MIDI

How to Open

Locate `The_Musician_s_Knife.html` on your device. Double-click it (or tap it on mobile). It opens in your default browser. That's it — you're ready.

> ♫ **PRO TIP**
> E-mail this HTML file to your webmail. It will always be waiting for you on any computer — a tuner, metronome, chord reference, and ear trainer, always offline, always free.

The Welcome Screen

On first launch you'll see a welcome modal explaining the basics. Click **Got it — open the knife** to dismiss it. It won't appear again on that device (stored in localStorage). You can clear data from the Files tab to reset it.

2 Interface Overview

The interface has four zones: a branded header, a scrollable tab bar, the main content area, and a slim disclaimer footer.

The Header

The header displays the red \ brand mark, the product name, the field category (Music & Sound), and the knife number (14 of 50). The left border uses the field colour — a muted steel blue.

The Tab Bar

Eleven tool tabs plus two system tabs. Tool tabs switch between instruments; system tabs access file management and help. The active tab is highlighted with a red underline. Tabs scroll horizontally on narrow screens.

TAB	SHORTCUT	FUNCTION
Tone Gen	Ctrl+1	Frequency reference tone generator
Tuner	Ctrl+2	Live chromatic microphone tuner
Metronome	Ctrl+3	Adjustable click track with time signatures
BPM Tap	Ctrl+4	Tap-tempo BPM counter
Chords	Ctrl+5	Chord finder with piano and playback
Scales	Ctrl+6	Scale visualizer with diatonic chords
Circle of 5ths	Ctrl+7	Interactive circle of fifths diagram
Frequencies	Ctrl+8	Full note frequency reference table
DTMF	Ctrl+9	Telephone dual-tone generator
Ear Train	Ctrl+0	Ear training quiz game
MIDI Studio	—	MIDI keyboard input and WAV recorder
Files	—	Export, import, and manage saved state
? Help	Ctrl+H	Documentation and tool reference

Tooltips

Some field labels have an **i** icon. Hover (or tap on mobile) to see an explanation of that field. On mobile, tap the icon again to dismiss.

The Disclaimer Bar

The bottom bar confirms that all audio is generated locally via the Web Audio API and that no data leaves your browser. It links to the full disclaimer in the Help tab.

3 Saving & File Management

Your settings auto-save to your browser's localStorage every time you change something. The Files tab lets you export everything to a portable JSON file and import it on another device.

Exporting Your State

1. Open the **Files** tab.
2. Click **Export All**.
3. A JSON file downloads automatically with the naming pattern `musician.knife.state_YYYY-MM-DD.json`.

Importing a State File

1. Open the **Files** tab.
2. Click **Import All**.
3. Select the JSON file. The knife validates it and restores all tool settings.

> ▲ **CAUTION**
> Importing a state file overwrites your current settings for all tools. Export your current state first if you want to keep it.

Clearing All Data

At the bottom of the Files tab, click **Clear All Data**. A confirmation dialog appears. This permanently removes all localStorage entries for this knife.

> ♫ **PRO TIP**
> Name your exported state files by context — "rehearsal_setup.json", "guitar_tuning_432hz.json", "jazz_practice.json". You can maintain multiple profiles and swap between them in seconds.

4 Tone Generator

Tab: Tone Gen · Shortcut: Ctrl+1

Generates a continuous reference tone at any frequency from 20 Hz to 20,000 Hz using the Web Audio API. Choose between four waveforms and see the signal shape in real time on the waveform canvas.

INPUT	DESCRIPTION
Frequency slider	Drag to set frequency between 20–4,000 Hz
Frequency input	Type a precise value up to 20,000 Hz
Note Presets	Quick buttons for C4, D4, E4, F4, G4, A4 (440 Hz), B4, C5
Waveform	Sine, Triangle, Square, or Sawtooth
Volume	0–100% output level
OUTPUT	**DESCRIPTION**
Frequency display	Current frequency in Hz, large readout
Waveform canvas	Real-time animated visualization of the wave shape

♬ **PRO TIP**

Use the note presets for quick instrument tuning references. Switch to square or sawtooth wave for a richer harmonic reference that cuts through ambient noise better than a pure sine.

5 Chromatic Tuner

Tab: Tuner · Shortcut: Ctrl+2

Listens through your device's microphone and detects the pitch you're playing or singing. Displays the nearest note, how many cents sharp or flat you are on an analog needle gauge, and flashes green when you're within ±5 cents of perfect pitch.

INPUT	DESCRIPTION
Start / Stop Listening	Toggles microphone input on and off
A4 Reference slider	Adjustable concert pitch from 415–466 Hz (default 440)
Lock to Note	Restrict detection to a single note name (e.g. just A)
OUTPUT	**DESCRIPTION**
Needle gauge	Analog-style arc showing ±50 cents with green zone at ±5¢
Note name	Detected note (e.g. A) — turns green when in tune
Octave number	Which octave the detected note is in
Cents offset	Exact deviation in cents, e.g. +3.2 ¢ or -8.1 ¢
Frequency readout	Raw detected frequency in Hz
PROBLEM	**CAUSE & SOLUTION**
No pitch detected	Ambient noise too high or signal too quiet. Move closer to the mic.
Microphone denied	Browser blocked mic access. Check site permissions and allow.
Jumpy readings	Multiple pitches present. Isolate the instrument, reduce background noise.
Wrong octave shown	Harmonics can confuse detection on low strings. Pluck cleanly.

CAUTION

The tuner uses autocorrelation pitch detection which works best with single, sustained notes. It is not designed for polyphonic audio or speech.

PRO TIP

Set the A4 reference to 432 Hz for alternative tuning or 415 Hz for Baroque pitch. Lock to a specific note when tuning a single string — it filters out other strings ringing sympathetically.

6 Metronome

Tab: Metronome · Shortcut: Ctrl+3

A full-featured metronome with adjustable tempo from 20–300 BPM, multiple time signatures, visual beat indicators, and an accented downbeat. Uses Web Audio scheduling for drift-free timing.

INPUT	DESCRIPTION
Tempo slider	Set BPM between 20 and 300
Time Signature	4/4, 3/4, 2/4, 6/8, 5/4, 7/8, or 1 (no accent)
Volume	0–100% click volume
OUTPUT	**DESCRIPTION**
BPM display	Large tempo readout
Beat dots	Visual circles that light up on each beat (first = accent)
Tempo marking	Italian name: Largo, Andante, Allegro, Presto, etc.

7 BPM Tap Counter

Tab: BPM Tap · Shortcut: Ctrl+4

Tap along to music and get an accurate BPM reading. Averages your last 8 taps for stability. Shows milliseconds per beat and the Italian tempo marking. Send the result directly to the metronome with one click.

INPUT	DESCRIPTION
Tap area / Space key	Click or press Space in rhythm with the music
Reset	Clear all taps and start over
Send to Metronome	Transfer the detected BPM to the Metronome tool
OUTPUT	**DESCRIPTION**
BPM display	Current detected beats per minute
Average BPM	Running average across recent taps
Tap count	Number of taps in current session
MS per beat	Milliseconds between beats
Tempo	Italian tempo marking for the detected BPM

8 Chord Finder

Tab: Chords · Shortcut: Ctrl+5

Select a root note and chord type to see the notes, intervals, and a piano keyboard visualization. Play the chord to hear all notes sounded together.

INPUT	DESCRIPTION
Root Note	C, C#/Db, D, D#/Eb, E, F, F#/Gb, G, G#/Ab, A, A#/Bb, B
Chord Type	Major, Minor, Dim, Aug, Dom7, Maj7, Min7, Sus2, Sus4, Add9, and more
Play Chord	Hear all chord tones at once
OUTPUT	**DESCRIPTION**
Chord name	Full name, e.g. "A Minor 7th"
Notes	Individual note names in the chord
Intervals	Interval formula, e.g. R — m3 — P5 — m7
Piano display	One-octave keyboard with active notes highlighted

9 Scale Visualizer

Tab: Scales · Shortcut: Ctrl+6

Visualizes any scale on a piano keyboard, shows the notes and intervals, and lists the diatonic chords built from the scale. Play the scale ascending to hear it.

INPUT	DESCRIPTION
Root Note	All 12 chromatic notes
Scale	Major, Minor, Harmonic Minor, Melodic Minor, Dorian, Phrygian, Lydian, Mixolydian, Locrian, Pentatonic Maj/Min, Blues, Whole Tone, Chromatic
Play Scale	Hear the scale ascending through the octave

OUTPUT	DESCRIPTION
Piano display	One-octave keyboard with scale degrees highlighted
Scale Notes	All note names in the scale
Intervals	Interval formula from root
Related Chords	Diatonic chord sequence with Roman numerals (7-note scales)

10 Circle of Fifths

Tab: Circle of 5ths · Shortcut: Ctrl+7

Interactive Circle of Fifths showing all major and minor keys with their key signatures. Click any key to see its dominant, subdominant, relative minor/major, and parallel minor.

OUTPUT	DESCRIPTION
Major key ring	Outer ring with all 12 major keys
Minor key ring	Inner ring with all 12 relative minor keys
Key signature	Number of sharps or flats
Key relationships	Dominant (V), Subdominant (IV), Relative, Parallel

11 Note Frequency Table

Tab: Frequencies · Shortcut: Ctrl+8

Displays the frequency of every note in 12-TET equal temperament across all octaves. Adjustable A4 reference pitch for standard, Baroque, or alternative tuning systems. Click any frequency to hear it.

INPUT	DESCRIPTION
A4 Reference Pitch	Slider from 415–466 Hz (default 440)
Octave Range	Full (0–8), Middle (2–6), or Guitar (3–5)

♬ **PRO TIP**

Click any cell in the frequency table to hear that exact pitch. Useful for checking instrument intonation across the full range.

12 DTMF Tone Generator

Tab: DTMF · Shortcut: Ctrl+9

Generates the classic telephone keypad dual-tone multi-frequency signals. Each key combines a low-frequency row tone and a high-frequency column tone per the ITU-T Q.23 standard. Build and replay dial sequences.

INPUT	DESCRIPTION
DTMF keypad	16-key grid (0–9, A–D, *, #) — press and hold to sound
Clear	Reset the dial sequence
Play Sequence	Replay the entered sequence as rapid DTMF bursts

13 Ear Trainer

Tab: Ear Train · Shortcut: Ctrl+0

An interactive ear-training game with three modes: Intervals, Chords, and Scales. The knife plays a random musical element, gives you four multiple-choice answers, and tracks your streak and accuracy over time. Stats persist across sessions.

MODE	WHAT IT TESTS
Intervals	All 12 intervals from minor 2nd to octave
Chords	Major, Minor, Dim, Aug, Dom7, Maj7, Min7
Scales	Major, Minor, Dorian, Phrygian, Lydian, Mixolydian, Pentatonic, Blues

OUTPUT	DESCRIPTION
Current BPM	Instant feedback — green for correct, red for wrong
Streak	Consecutive correct answers
Best Streak	Highest streak achieved
Correct / Total	Running count of correct and total answers
Accuracy	Percentage correct

♫ **PRO TIP**

Start with intervals — they're the foundation of all ear training. Once you can consistently identify perfect 4ths, 5ths, and octaves, move to chords. Daily 5-minute sessions build skills faster than weekly marathons.

14 MIDI Studio & WAV Recorder

Tab: MIDI Studio

Auto-detects any USB MIDI keyboard or controller the moment you plug it in. Play the built-in synthesizer live with visual key feedback. The WAV recorder captures all audio output from every tool in the knife — MIDI playing, tones, metronome clicks, everything — and exports it as a downloadable audio file.

INPUT	DESCRIPTION
MIDI Input	Auto-detected device selector
Sound (waveform)	Triangle, Sine, Square, or Sawtooth synth voice
Volume	0–100% MIDI playback volume
Record / Stop	Start or stop audio recording
Download WAV	Save the recorded audio as a file
OUTPUT	**DESCRIPTION**
Device status	Connected device name with live indicator
Last note	Most recent MIDI note name, octave, and frequency
Visual keyboard	Two-octave keyboard that lights up on key press
Recording timer	Elapsed recording time in MM:SS

PROBLEM	CAUSE & SOLUTION
No MIDI device	Web MIDI requires Chrome, Edge, or Opera. Firefox and Safari lack support.
Device not detected	Unplug and replug the USB cable. Ensure no other app claims the device.
Latency / delay	Close other audio-heavy tabs. Lower system audio buffer size if possible.
Recording silent	Ensure audio is actually playing when recording. Check volume levels.

CAUTION

The Web MIDI API is only available in Chromium-based browsers (Chrome, Edge, Opera). Firefox and Safari do not support it. The WAV recorder works in all modern browsers regardless.

PRO TIP

Start the metronome, switch to MIDI Studio, and jam along — then download the recording as a practice reference. You can also record a drone tone or tuning reference to share with bandmates.

15 Keyboard Shortcuts

Global

`Ctrl + S`	Export full knife state
`Ctrl + H`	Open Help tab
`Escape`	Close any modal, stop audio
`Ctrl + 1`	Tone Generator
`Ctrl + 2`	Chromatic Tuner
`Ctrl + 3`	Metronome
`Ctrl + 4`	BPM Tap Counter
`Ctrl + 5`	Chord Finder
`Ctrl + 6`	Scale Visualizer
`Ctrl + 7`	Circle of Fifths
`Ctrl + 8`	Frequency Table
`Ctrl + 9`	DTMF Generator
`Ctrl + 0`	Ear Trainer

BPM Tap

`Space`	Tap a beat (when Tap tool is active)

16 Troubleshooting

No Sound at All

Ensure your device is not muted and the volume slider in the tool is above 0%. Some browsers require a user gesture (click/tap) before audio can play. Click any button in the knife to unlock audio.

Microphone Not Working

The tuner requires microphone permission. Check your browser's address bar for a blocked-microphone icon. Click it and select "Allow". On iOS, Safari requires permission per-session.

Settings Lost After Closing

Settings are stored in localStorage. If you use private/incognito mode, data is erased when the window closes. Use normal browsing mode, or export your state.

MIDI Keyboard Not Detected

Web MIDI only works in Chrome, Edge, and Opera. Connect the device before opening the knife, or unplug and replug. Ensure no other application has claimed the device.

Mobile Tab Bar Overflow

The tab bar scrolls horizontally. Swipe left/right to reveal all tabs. On very narrow screens, tabs shrink automatically.

Import File Rejected

The JSON file must contain a "knife" field set to "musician". State files from other knives will be rejected with a toast message.

17 Accuracy & Limitations

TOOL	TYPICAL ACCURACY	NOTES
Tone Generator	±0.01 Hz	Limited by Web Audio API oscillator precision
Chromatic Tuner	±1–2 cents	Depends on mic quality, ambient noise, and sustained pitch
Metronome	±1 ms	Web Audio scheduling; visual sync may lag on slow devices
BPM Tap	±1–2 BPM	Averages last 8 taps; human timing is the main variable
Chord Finder	Exact (12-TET)	Standard equal temperament intervals
Scale Visualizer	Exact (12-TET)	Standard equal temperament intervals
Circle of Fifths	Exact	Standard key signature reference
Frequency Table	±0.001 Hz	Standard 12-TET formula with adjustable A4
DTMF Generator	Exact	ITU-T Q.23 standard frequencies
Ear Trainer	N/A	Training tool — accuracy is yours to develop
MIDI Studio	< 10 ms latency	Depends on browser audio buffer and USB latency

▲ **CAUTION**

These tools are provided "as is" for educational and practice purposes. Audio timing depends on your browser's Web Audio implementation. Do not rely on this software for professional audio engineering, broadcast, or mission-critical timing applications without independent verification.

18 Glossary

12-TET	Twelve-tone equal temperament. The standard Western tuning system that divides the octave into 12 equal semitones.
A4	The note A in the fourth octave. Standard concert pitch is 440 Hz.
Autocorrelation	A signal-processing technique used to detect the fundamental frequency (pitch) of an audio signal.
BPM	Beats per minute. The standard measure of musical tempo.
Cent	1/100th of a semitone. Used to express fine pitch differences. 100 cents = 1 semitone.
Chord	Three or more notes sounded together. Defined by a root note and an interval pattern.
Circle of Fifths	A diagram showing the relationships between the twelve chromatic keys, arranged by ascending perfect fifths.
Concert Pitch	The agreed-upon standard tuning reference. Typically A4 = 440 Hz (ISO 16).
Diatonic	Notes or chords belonging to a particular major or minor scale without chromatic alteration.
DTMF	Dual-Tone Multi-Frequency. The signalling system used by touch-tone telephones.
Equal Temperament	A tuning system where each semitone has an equal frequency ratio (the 12th root of 2).
Interval	The pitch distance between two notes, measured in semitones or named (e.g. minor 3rd, perfect 5th).
Key Signature	The set of sharps or flats at the beginning of a staff indicating which notes are altered from their natural state.
localStorage	A browser API for storing data locally on the user's device. Persists between sessions.
MIDI	Musical Instrument Digital Interface. A protocol for communicating musical events (note on, note off, velocity) between devices.
Octave	The interval between one pitch and another at double its frequency. Spans 12 semitones.
Semitone	The smallest interval in 12-TET. The distance between adjacent keys on a piano.

Tempo Marking	An Italian term indicating the speed of a piece: Largo, Andante, Allegro, Presto, etc.
Time Signature	A notation indicating how many beats per measure and which note value gets one beat (e.g. 4/4, 3/4).
WAV	Waveform Audio File Format. An uncompressed audio format for high-quality recordings.
Web Audio API	A browser API for generating and processing audio in real time without plugins.
Web MIDI API	A browser API for accessing MIDI devices. Supported in Chromium-based browsers.

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Stay in tune.

Version 2.0 · The_Musician_s_Knife.html
No cloud. No tracking. No nonsense.