Drone Box

User Manual

An 8-lane continuous drone instrument with distortion,
reverb, time-based song mode, and SSL-style fade controls.

Box Instruments | shlutibox.com

Created by Julius Biercott & Claude

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1. Overview

Drone Box is an 8-lane continuous drone instrument designed for ambient composition, meditation, sound design, and live performance. Each lane plays a looping audio file with independent volume, tuning, fade times, and frequency filtering.

There are two versions:

- Drone Box (Generic) — Load your own audio files into any lane
- Drone Box Indian — Pre-loaded with tanpura, shruti box, harmonium, sitar, and ektara samples

2. Getting Started

Open dronebox.html in any modern browser (Chrome, Firefox, Safari, Edge).

To make sound:

- Click "Select audio" on any lane to load a WAV, MP3, OGG, or other audio file
- Click the numbered pad on the left to start the drone — it fades in at the set fade time
- Click the pad again to stop — it fades out at the set fade time
- Load files into multiple lanes and toggle them on/off to build layered drone beds

3. Lane Controls

Each of the 8 lanes has identical controls, arranged left to right:

- Toggle Pad — Click to start/stop the drone. Glows amber when active. Dimmed when no file is loaded.
- Select Audio — Opens a file picker to load any audio file. Shows the filename when loaded.
- Volume — Controls the lane output level (0-100). Real-time adjustment while playing.
- Tune — Pitch shift in semitones (-24 to +24). Useful for creating intervals between drones.
- IN Button — SSL-style fade in button. Starts the drone with a smooth fade from silence.
- Fade In Knob — Rotary control for fade-in duration (0.1 to 10 seconds). Drag up to increase.
- Fade Out Knob — Rotary control for fade-out duration (0.1 to 10 seconds). Drag up to increase.
- OUT Button — SSL-style fade out button. Fades the drone to silence, then stops.
- Freq Range — Dual-handle slider with logarithmic mapping. Drag either handle to set HP/LP cutoff.

  Drag the purple bar between handles to slide the entire frequency window.

4. Fade In / Fade Out (SSL-Style)

The fade controls are inspired by the SSL 4000 G console master bus auto-fade section.

Fade In:

- Press the IN button — the lane starts from silence and ramps to the set volume level
- The ramp is linear (straight line from 0 to volume) over the time set on the fade-in knob
- The IN button glows amber during the fade, then returns to idle

Fade Out:

- Press the OUT button — the lane fades from current volume to silence, then stops
- The ramp is linear over the time set on the fade-out knob
- The OUT button glows purple during the fade

Rotary Knobs:

- Drag up to increase time, drag down to decrease (standard DAW knob behavior)
- Range: 0.1 seconds (instant) to 10 seconds (very gradual)
- Alt+click any knob to reset to default (2s for In, 3s for Out)

5. Frequency Range Filter

Each lane has a dual-handle frequency filter with logarithmic mapping. This means the slider feels even across the audible spectrum — low frequencies get as much slider travel as high frequencies.

- Left handle = High-pass cutoff (removes frequencies below this point)
- Right handle = Low-pass cutoff (removes frequencies above this point)
- Drag the purple bar between handles to slide the entire window up or down
- Use this to carve frequency space between layers — tuck a bass drone below 200Hz, keep a harmonium in the 300-2000Hz mid range, let a shimmer sit above 3kHz

6. Master Distortion

Four distortion algorithms process the combined output of all lanes. Each has a dedicated slider and can be used individually or stacked for extreme textures:

- Soft Clip (tanh) — Warm tube-style saturation. Gentle at low settings, full overdrive at 100%.
- Hard Clip — Aggressive digital clipping with makeup gain. Creates square-wave harmonics.
- Bitcrush — Reduces bit depth from 16-bit to 1-bit. Lo-fi, retro digital destruction.
- Foldback — Signal folds when exceeding threshold. Creates dense, alien inharmonic content.

All distortion parameters apply linearly per audio sample — no smoothing or slewing.

7. Master Reverb

A convolution reverb send processes the combined output:

- Send — Controls the amount of reverb added (0% = dry only, 100% = heavy reverb)
- This is an additive send — reverb is layered on top of the dry signal
- Short tail — 1.5 second reverb, tight room ambience
- Long tail — 4 second reverb, cathedral-like sustain

8. Song Mode

Song Mode provides time-based automation for the drone lanes. Each column in the grid represents 5 seconds. Paint cells to define when each lane should play.

Using Song Mode:

- Click a cell to toggle it on (amber = lane plays during that 5-second window)
- Click and drag to paint multiple cells at once
- Select duration: 1, 2, 3, 5, or 10 minutes from the dropdown
- Press Play to start — the playhead moves through the grid left to right
- Lanes automatically fade in and out at their set fade times when the grid activates/deactivates them
- Press Stop to fade out all active lanes and reset to the beginning

Song Mode is designed for guided meditations, ambient installations, and compositions where drones need to evolve over time without manual intervention.

9. Keyboard Shortcuts

Spacebar	Play / Stop song mode
Return	Stop and rewind to beginning
Alt + click slider	Reset slider to default value
Alt + click knob	Reset knob to default value

10. Sessions

Save and load complete Drone Box sessions including all lane settings, fade times, filter positions, FX settings, and song mode grid.

- Save — Click the save button in the title bar. Downloads a .json session file.
- Open — Click open to load a previously saved session.
- Audio files are embedded in the session as base64 WAV data — fully self-contained.
- Session files can be several MB depending on how many audio files are loaded.

11. Creative Tips

- Layer 3-4 copies of the same sample at different tunings (+7, +12, -5 semitones) to build harmonic drone beds from a single source file.
- Use the frequency filter to separate layers — bass below 200Hz, mids 200-2kHz, air above 4kHz.
- Set different fade-in times per lane (1s, 3s, 7s) so the drone builds gradually rather than all at once.
- Soft clip at 20-30% adds warmth without obvious distortion. Stack with a touch of bitcrush for texture.
- Song Mode with long fade times creates beautiful natural crossfades between different drone combinations — ideal for guided meditation sessions.
- Try loading non-traditional sources: field recordings, vocal drones, synthesizer pads, or even reversed audio clips.
- The foldback distortion at extreme settings can turn a simple drone into a dense, shimmering wall of harmonics — useful for noise and ambient textures.

12. Technical Notes

- Built with the Web Audio API — runs entirely in the browser, no server required
- All audio processing (distortion, reverb) happens in real-time on the client
- Supports WAV, MP3, OGG, FLAC, AAC, and any format your browser supports
- Session files embed audio as base64 WAV for portability
- Frequency filter uses Web Audio BiquadFilter nodes (12dB/octave slope)
- Reverb uses an impulse response generated from noise with exponential decay

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