

@don-music

(Don Kelley)

presents

voXRay Forensic DAW

The Complete Polyphonic Audio Analysis & Micro-Tuning Suite Available for iOS, Android, macOS, Windows, and Web via voxray.info

Table of Contents

1. **Getting Started** (Account Setup & Login)
2. **Loading Audio** (Importing & AI Configuration)
3. **The Extraction Process** (Cloud DSP Processing)
4. **Playback & Navigation** (The Piano Roll)
5. **The Studio Mixer** (DSP Racks & Drum Bus)
6. **High-Resolution Forensics** (X-Ray & Dual-Take)
7. **AI Synthetic Voice Detection** (Neural Network Scanning)
8. **Pitch Editing & Micro-Tuning** (The Note Inspector)
9. **Reporting & Exports** (Scorecards & Dossiers)
10. **File Management & DAW Compatibility** (.vxp & Stems)
11. **Account Settings & Support**

1. Getting Started

Creating an Account & Logging In

When you first launch the voXRay app, you will be greeted by the secure login portal.

- **New Users:** If you do not have an account yet, you can register and request beta access by visiting **voxray.info**. Once your account is approved and activated, return to the app to log in.
- **Existing Users:** Simply enter your registered email and password to access the DAW.
Note: One account works universally across all your devices (mobile, desktop, and web).

Password Recovery

If you forget your password, request a reset link from the login screen.

- When you tap the secure link sent to your email, voXRay will automatically intercept it and open a dedicated **Set New Password** screen right inside the app.
- Enter your new password, tap "Update Password," and you will be securely routed directly into your workspace.

2. Loading Audio

Once you are in the workspace, your first step is to feed the engine some audio. Tap the **Main Menu** (the three dots in the top right) and select **Load New Audio** (the cloud upload icon). Select a supported audio file from your device, and the app will guide you through a series of smart popups to configure the AI:

Popup 1: Audio Upload Type

The engine needs to know what kind of file it is looking at:

- **Full Mix:** Select this if your file is a complete song containing multiple instruments playing together.
- **Single Stem:** Select this if you are uploading a file that is *already* an isolated instrument (e.g., an unaccompanied vocal track or a solo bassline). You will be asked to identify exactly which instrument it is from a dropdown list.

Popup 2: Select Acoustic Profile (Full Mixes Only)

If you uploaded a Full Mix, you must tell the engine how to intelligently separate the frequencies:

- **Standard / Pop / Modern:** Optimized for traditional band setups (Vocals, Drums, Guitars, Bass, Keys).
- **Classical / Orchestral:** Optimized for complex symphonic acoustics, specifically tuning the engine to separate Piano from Strings, Woodwinds, and Brass.

Popup 3: Optimize Extraction (Standard Profiles Only)

To save processing time, voXRay allows you to explicitly tell the engine what *not* to look for:

- **Contains Vocals:** Uncheck this if your track is strictly an instrumental.
- **Contains Guitar:** Uncheck this if there are no acoustic or electric guitars in the recording.

3. The Extraction Process

Once your configuration is set, tap **START PROCESSING**. The heavy lifting is completely offloaded from your device to our high-powered server architecture.

- **The Upload Phase:** The status bar will read: *"Analyzing and extracting all stems... Please keep app open"*. **Do not close the app during this phase.** Uploading high-fidelity audio can take a few moments.
- **The Processing Phase:** Once the upload completes safely, the server takes over. You will see real-time percentage updates indicating the engine's progress.
- **The Download Phase:** When the separation is complete, the status will change to *"Downloading audio stems..."*. The app is pulling the pristine, multi-track stems securely back to your device's memory.

Once the progress bar disappears, your project will automatically save itself, your timeline will populate, and your track is ready for deep forensic analysis!

4. Playback & Navigation

Once your audio is processed and loaded, voXRay visualizes the performance data inside a highly interactive, multi-layered timeline.

Transport & Playback Controls

- **Play / Pause:** The main transport button is located in the bottom left corner of the workspace.
- **Scrubbing vs. Continuous Play:** By default, the app is in "Scrub" mode. If you drag or pan across the timeline while the audio is playing, the playhead will dynamically follow your movement. You can toggle this to "Play Continuous" via the Main Menu if you prefer the audio to keep playing uninterrupted.
- **Looping:** If you have placed at least two markers on your timeline, you can set a loop boundary via the Marker tools in the right-hand sidebar. Toggle the Loop icon to automatically repeat that section of the track.

Navigating the Timeline

voXRay is built with a hardware-accelerated, 60fps scrolling engine.

- **Panning:** Simply touch and drag horizontally to move through time, or vertically to scroll up and down the pitch scale (the piano keys on the left).
- **Fling Navigation:** If you quickly "fling" the timeline left or right, the timeline will smoothly glide, and the audio playhead will instantly snap to wherever your fling lands.
- **Zoom Sliders:** Use the horizontal slider below the timeline to zoom in and out of time (Zoom X). Use the vertical slider next to the piano keys to zoom in and out of the pitch range (Zoom Y).
- **Macro Minimap:** Located just above the main timeline, the Minimap gives you a birds-eye view of the entire track's waveform envelope, allowing for rapid macro-navigation.

Decoding the Piano Roll (The Moving Blocks)

The rectangular blocks moving across your screen represent the exact notes extracted by the DSP engine.

- **Vertical Position:** Represents the specific pitch of the note.
- **Horizontal Length:** Represents the start time and duration of the note.
- **Color-Coded Pitch Accuracy:** The color of the block tells you instantly how perfectly in-tune the performance is. Light Blue means studio-accurate ($\leq 10\text{¢}$ variance), Amber means moderate natural drift (11-25¢ variance), and Red indicates poor tuning ($> 25\text{¢}$ variance).
- **Faded Blocks:** If a note block appears faded or highly transparent, it means the audio amplitude is very quiet (ghost notes or breath sounds).
- **Drum Blobs:** If you are analyzing a drum track, the blocks are replaced by circular, glowing orange blobs that represent transient percussion hits.

5. The Studio Mixer

voXRay features a built-in, real-time audio mixer that allows you to balance your extracted stems, apply studio-grade effects, and isolate specific instruments. To open the mixer, tap the **Tune icon** (the slider switches) located in the main toolbar above the timeline.

The Anatomy of a Channel Strip

Every extracted instrument—as well as your Master Output, original Mix, and the Synth layer—gets its own dedicated channel strip.

- **Reactive VU Meters:** An LED-style visual meter displays the real-time audio amplitude for that specific track.
- **Mute & Solo:** Use the **Speaker icon** to mute a track, or the **Headphones icon** to Solo it. You can solo multiple tracks simultaneously.
- **Volume & Pan:** Control the output level and the stereo field (L, C, R) of the track.
Pro-Tip: Double-Tap any Volume or Pan slider to instantly snap it back to its default value!

DSP Plugin Racks

Every channel strip includes 4 independent plugin slots for real-time audio processing. Tap a slot's dropdown menu to load an effect:

- **Compressor:** Tames audio dynamics. The engine automatically applies mathematical makeup gain based on your threshold/ratio to keep perceived volume consistent.
- **EQ:** A low-pass filter with a built-in resonant sparkle to sweep out harsh high frequencies.
- **Overdrive:** A wave-shaper that applies harmonic saturation and soft-clipping distortion.
- **Reverb:** A Freeverb algorithm to place the track in a physical space, featuring Wet/Dry Mix and Room Size controls.

Once a plugin is loaded, tap the **Gear Icon** next to it to tweak the effect's parameters in real-time while the audio plays.

The Forensic Synth Engine

voXRay generates a dedicated **SYNTH** channel (the purple mixer strip). This engine plays back the raw piano-roll pitch data directly, allowing you to mathematically verify detected pitches independent of the original recording.

- **Synth Settings:** Open the Main Menu to access Synth Settings. You can change the waveform, adjust the ADSR envelope, or force the synth to perfectly follow the high-resolution X-Ray contour (reproducing every human vibrato synthetically).

The VCA Drum Bus

If you extract individual drum components (Kick, Snare, Hi-Hat, Toms, Cymbals), voXRay will automatically route them into an intelligent Submixer Group.

- **Master VCA Control:** The primary "DRUMS" channel acts as a VCA master. Lowering the main Drums fader mathematically scales down the volume of the sub-stems

simultaneously while preserving their relative mix.

- **Summed VU Metering:** The VU meter on the master Drums channel dynamically calculates and sums the energy of all your individual drum pieces so you can monitor the entire kit's headroom at a glance.
- **Anti-Phasing Killswitch:** To ensure absolute acoustic clarity, if individual drum stems are detected in your workspace, the master drum audio file is permanently silenced to eliminate any risk of audio phase cancellation.

6. High-Resolution Forensics

Standard piano rolls display pitch as rigid, quantized blocks. voXRay's X-Ray engine bypasses this, mathematically tracing the exact, raw acoustic frequency of the audio in real-time.



Generating & Viewing X-Ray Data

- **Activation:** To generate high-resolution contour data for a stem, select the track and tap the **Fingerprint Icon** in the top toolbar.
- **The Continuous Contour:** Once processed, a continuous teal line will weave through your note blocks on the timeline. This represents the micro-pitch contour, capturing every human imperfection.
- **Infinite Visual Resolution:** As you increase Zoom X (Time) and Zoom Y (Pitch), the X-Ray line visually expands. You will be able to clearly see granular vibrato waves, breath scoops, and natural human pitch wobbles that standard DAW blocks hide.



Dual-Take X-Ray Comparison (Forensic Alignment)

If you have two similar takes (e.g., a lead vocal and a doubled vocal), voXRay can forensically compare them.

- **Loading the Second Track:** First, ensure both tracks are loaded into your workspace. Open the Main Menu and select **Import Individual Track** to upload your second vocal take into the current project.
- **Running the Comparator:** Tap the **Dual Fingerprint Icon** in the toolbar. A dialog will appear asking you to select exactly which two tracks you want to compare.
- The engine will cross-correlate the phase relationships of both tracks, mathematically calculating the exact millisecond offset required to perfectly align them.
- Once aligned, both X-Ray contours are overlaid on the timeline (Cyan for Take A, Magenta for Take B).
- **Identical Match Regions:** The engine will highlight exact mathematical performance overlaps with glowing green background blocks, instantly revealing if a vocal double was copy-pasted rather than organically sung.

7. AI Synthetic Voice Detection

voXRay features an experimental neural network designed to detect artificially generated audio, deepfakes, and heavily synthetic processing.

Running an AI Inspection

Select a track and tap the **Brain (Psychology) Icon** in the toolbar to initiate the scan.

The AI Forensics Dialog

Once the scan completes, a detailed modal will appear:

- **The Verdict:** Displays a massive, color-coded probability score (e.g., "85% AI") alongside a definitive verdict.
- **Interactive Waveform:** A scrubbable waveform maps out exactly where suspicious acoustic anomalies occurred in the track.
- **Metric Filters:** Use the timeline chips to filter artifacts by specific AI-generation hallmarks, such as Pitch Slew, Formant Decoupling, and Grid Lock.
- **Flagged Events:** A scrollable list breaks down every single anomaly by severity (High/Red, Medium/Orange, Low/Amber) with millisecond timestamps.

The Timeline Heatmap

If AI artifacts are detected, closing the dialog reveals a glowing heatmap strip physically painted onto the floor of your main timeline.

- **Red:** High probability of AI synthesis (> 75% score).
- **Orange:** Suspicious modulation / artifacting (> 45% score).
- **Teal:** Natural acoustic characteristics (< 45% score).

8. Pitch Editing & Micro-Tuning

voXRay is the only mobile-targeted DAW equipped with a true **Polyphonic DSP Engine**, giving you the power to non-destructively tune individual notes inside complex chords.

The Polyphonic Advantage

Standard pitch correction software can only handle one note at a time. voXRay's engine analyzes overlapping frequencies and automatically flags complex polyphony. This means if you upload an acoustic guitar track where the player flubbed a single string in a chord, you can physically grab that one out-of-tune note and adjust it without affecting the rest of the chord!

Direct Canvas Dragging

For rapid workflow, you can retune notes physically right on the piano roll timeline:

- **Select a Drag Mode:** In the top toolbar, tap the **Pan Tool icon** to change your drag mode from Normal to **Semitone Drag** (locks to the rigid piano grid) or **Micro-Tuning Drag** (fluid, un-quantized movement).
- **Ghost Blocks & Live Feedback:** When you grab and drag a note, a transparent "ghost" block remains in its original position so you never lose your point of reference. As you drag, the app generates a real-time synth preview tone so you can hear the exact pitch you are shifting to before you drop it.

The Note Inspector (Deep Editing)

For granular, surgical control over an individual note, ensure your Drag Mode is set to **Normal (Off)**, then tap any note block on the canvas to open the **Note Inspector**.

The Header & Forensic Analysis

- **Exact Pitch Variance:** Displays exactly how sharp or flat the note is (in cents) relative to the perfect grid.
- **X-Ray Drift:** Displays the average continuous pitch drift throughout the duration of the note.
- **AI Forensics:** Automatically flags the note as either "Natural Human Wobble" or warns you if "Mechanical Tuning Detected".

Micro-Tuning Controls Use the sliders to non-destructively warp the audio data:

- **Micro Tuning (Cents):** Fine-tune the pitch mathematically up to +100¢ or down to -100¢.
- **Vibrato Width:** Scale the singer's natural vibrato from 0% (flattened) to 200%.
- **Pitch Drift:** Control the initial scoop or fall-off of the note.
- **Time Stretch / Warp:** Shrink the note's duration down to 50% or stretch it up to 200%.

Quick Actions

- **Snap to Scale:** Instantly calculates the exact cents required to pull the note to a mathematically perfect 0¢ pitch.
- **Revert Pitch:** Instantly zeroes out all math and restores the note to its pristine, original recorded state.
- **Mute & Delete:** Mute the note (turns it transparent grey on the timeline) or delete it entirely.

 **THE RENDER WORKFLOW (IMPORTANT!)** All pitch edits made via the Note Inspector or Canvas Dragging are purely mathematical at first. **Standard playback will NOT reflect your retuned notes yet.**

When you make an edit, the **Ear Icon** (Render) in your top toolbar will glow red. This means you have pending changes. Tap the glowing Ear icon to securely process your edits through the server's DSP engine. The engine will instantly bounce your changes into a lightweight, high-quality audio file and load it into your player so you can hear the final results!

9. Reporting & Exports

When your analysis is complete, voXRay provides enterprise-grade tools to export your findings. Open the **Main Menu** to access these features.

The Performance Scorecard

The Scorecard analyzes the raw math of the singer's performance and generates an instantaneous grade.

- It calculates the **Average Pitch Error** and the percentage of notes that are **Studio-Accurate (≤ 10 ¢ variance)**.
- It isolates the "Most Variance by Note," showing you exactly which pitches the singer struggled with the most.
- **Forensic Pitch Verdicts:** The engine will determine if a performance is "Mechanically Precise" (flagging potential auto-tune usage), "Extremely Accurate," or "Highly Variable".

Advanced Downloads

Select **Advanced Downloads** from the menu to access physical exports:

- **Forensic Dossier (PDF):** Compiles the scorecard, tuning metrics, and AI verdicts into a formatted, professional PDF report.
- **PitchPrint™ Graph (SVG):** Exports the timeline's high-resolution pitch analysis as a Scalable Vector Graphic, perfect for zooming infinitely without pixelation.

10. File Management & DAW Compatibility

voXRay is designed to seamlessly integrate with your existing audio engineering workflow.

Importing Single Stems

If you already have an isolated track (like a dry vocal), open the Main Menu and select **Import Individual Track**. The app will ask you to identify the instrument and will instantly generate its high-resolution tracking matrix without needing to run the full mix separation engine.

Exporting Audio

- **Export Master Mix:** Bounces your entire timeline—including all DSP mixer plugins, volume adjustments, and pitch edits—into a single audio file (WAV, FLAC, or MP3).
- **Export Stems Archive:** Packs all of your unmixed, isolated multi-track stems into a single .zip file.
- **Export Synth Audio:** Renders the pure mathematical pitch data from the piano roll directly into a raw Synth WAV file.

Export Marked Stem (Reaper/Audacity Compatibility)

When performing forensic analysis, you can export a track specifically formatted for use in external DAWs like Reaper or Audacity.

- Select **Export Marked Stem** to bounce a pristine WAV file that physically embeds voXRay's forensic warning markers directly into the audio file's metadata.
- High-probability pitch corrections and deep AI synthesis artifacts are embedded as standard cue/marker labels. When you drop this WAV file into Reaper or Audacity, these labels will automatically appear on their respective timelines, pinpointing the exact milliseconds where anomalies occurred.

The voXRay Project Format (.vxp)

When you save your work, voXRay packages everything into a proprietary .vxp archive.

- This offline file contains your extracted audio stems, JSON note data, full DSP mixer states, undo/redo histories, and all micro-tuning manipulations.
- **True Cross-Platform Continuity:** The .vxp format is completely universal. You can start isolating a track on your iPhone, save the .vxp file, and open it later with zero compatibility loss on an Android device, a Mac, a Windows PC, or directly within the Web browser.

version of voXRay.

11. Account Settings & Support

You can manage your app experience and account security directly from the Main Menu.

App Settings & Support

- **Submit Bugs / Features:** If you encounter a glitch or have an idea for a new feature, select this option to open the feedback portal and send data directly to the development team.
- **Build Info:** Displays your current voXRay app version, build number, and specific release notes.
- **Manage Account:** Opens your master account settings to review your profile and subscription status.

Security & Account Deletion

- **Log Out:** Securely disconnects your active session.
- **Delete Account:** Found at the bottom of the main menu, this option allows you to permanently erase your voXRay presence. **Warning:** This action is permanent and cannot be undone. Proceeding will instantly revoke your access to the app and permanently wipe your profile, all saved forensic data, and any remaining DSP tokens in your wallet.