Xtractpler User Manual

Version 3.6.2
Multi-velocity sample capture, slicing, and export

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1. About this manual

This document describes **Xtractpler v3.6.2**: how the application is organized, what each area of the interface is for, and how the capture-to-export pipeline fits together. It replaces the v3.0.0 manual for day-to-day use. Project files (`.xcfg`) created in v3.0 remain **fully compatible** with v3.6.x.

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2. What Xtractpler does

Xtractpler automates **recording**, **transient-aware slicing**, and **batch processing** of **multi-velocity** (and round-robin) samples from audio and/or MIDI sources. Typical uses include:

- Building velocity-layered drum or instrument libraries from a DAW, plug-ins, or live input
- Exporting finished audio in common formats **and** optional **sampler mapping** files (SFZ, Decent Sampler, and more)
- Working through a fixed **five-tab workflow** so setup, capture, review, and export stay predictable

The **Next-Gen Audio Engine** supports **high-resolution audio** across the full workflow (capture, processing, and export), with support for up to **32-bit float** depth and sample rates up to **96 kHz**. This ensures studio-grade fidelity for users who need extended dynamic range and modern production-quality detail.

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3. Supported platforms

Platform	Notes
macOS	Native; optimized for **Apple Silicon**; Intel Macs are **not supported** since 3.5.
Windows	**Windows 10 / 11**, Intel.
Linux	**Intel**; common distributions (e.g. Ubuntu, Fedora, Arch). Typical packages: `.AppImage` (recommended) or `.deb`.

Use the build that matches your OS from the official download or purchase page.

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4. Demo vs full version

The **Demo** is functionally complete for exploring the workflow. It applies these limits:

- Capture memory is limited to **3 rows** (velocities) and **1 round-robin** per session

The **licensed** product removes those limits according to your edition.

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5. Core concepts

Before using the tabs, these terms appear throughout the app:

- **Project (`.xcfg`)** — Saves your session: grid, devices, plug-in chain choices, capture settings, export options, etc. You can open v3.0 projects in v3.6 without conversion.
- **Velocity layers** — Rows in the configuration grid that correspond to different hit strengths (e.g. MIDI velocity ranges).
- **Round-robins** — Multiple captures per layer for natural variation.
- **Transient / grid** — Slicing aligns to transients; the **grid** and waveform help you verify timing between hits and adjust behavior.
- **Capture methods**
  - **Internal (VST3 / AU)** — Renders through the configured plug-in chain using **offline audio render** for very fast, repeatable captures.
  - **Inter-App/External Hardware** — Automated capture for audio sources outside Xtractpler itself (other applications or external synthesizers/hardware), where MIDI and audio are routed between Xtractpler and those sources. May require third-party routing software depending on your system.
  - **Live Capture** — Guided capture for live mic or line-in audio, with **manual** and **automatic** drive modes.

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6. The main window: five-tab workflow

The graphical interface is organized as **five tabs**. Work **left to right** through the pipeline; each tab has a single job.

6.1 Configure

Purpose: Define **what** you are sampling, **how** the session is wired, and **where** audio enters Xtractpler—all in one place.

The Configure tab is divided into two main areas: **Project & Session** (left) and **Hardware Setup** (right), followed by the **Sample Configuration Grid** below.

6.1.1 Project & Session

- **Current Session File** — Path to the active `.xcfg` project. Use **LOAD** to open an existing project or **NEW** to start a fresh one.
- **Target Instrument Type** — Sets the musical role of the session (Drums, Sound, etc.) and controls which export formats and mapping behaviors are available.
- **Collection Name** — The name for the current capture collection. Xtractpler writes all raw captures into an `OutputFolder/CollectionName` subfolder. Set this **before** starting a capture pass. Changing it after a capture does not move or rename the raw files—Xtractpler remembers the original capture location and will continue to find raw files correctly during export and cleanup operations.
- **File Prefix** — A short text string prepended to every exported audio filename (e.g. `KS_` produces `KS_Kick_R1.wav`). Configure this alongside Collection Name so both naming fields are managed in one place.

> ***Best practice:*** *Set both Collection Name and File Prefix before you start the first capture pass of a new session. You can update them between separate sessions, but avoid renaming while raw files from the current session are still pending export.*

6.1.2 Hardware Setup

This card is the single place to configure all audio hardware and capture quality settings. The controls shown depend on the **Capture Mode** you select.

Capture Mode selector

Choose one of three modes:

Mode	Description
Internal VST / AU	Offline render through the Plug-ins tab chain. No live audio device needed.
Inter-App / External Hardware	Real-time capture from another application or a physical instrument connected via your audio interface.
Live Capture	Guided real-time capture from a microphone or line input.

When Internal VST / AU is selected:

A **Render Quality** selector appears, letting you choose the sample rate at which the offline render engine operates:

Option	Description
44.1 kHz · 32-bit float	Standard CD quality; smallest file size
48 kHz · 32-bit float	Broadcast standard
88.2 kHz · 32-bit float	Double-rate; wider frequency headroom
96 kHz · 32-bit float *(default)*	Recommended for modern production

Internal capture always produces **32-bit float** audio, which preserves the full dynamic range of the plug-in's audio engine. Downsampling to a lower bit depth or sample rate is available at export time if needed.

> ***Tip:*** *The Render Quality setting is saved per project, so different sessions can use different rates without affecting each other.*

When Inter-App / External Hardware is selected:

The following controls appear:

Control	Description
Audio Input Device	Select the virtual audio device (e.g. BlackHole, VB-Cable, JACK) that receives audio from your DAW or external source.
Input Channels	Dynamically populated with the actual input channels reported by the selected device. Choose **Stereo (L+R)** or a specific hardware channel by name (e.g. "Ch 1: Input L").
Requested Sample Rate	The sample rate you want JUCE/CoreAudio to use when opening the device. **Auto (Device Native)** uses whatever rate the OS and device are currently set to; explicit options (44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz) request a specific rate.

Recording Format (WAV)	The bit depth used when encoding the captured WAV file: **32-bit float** (lossless, recommended), **24-bit PCM**, or **16-bit PCM**.

> ***Note on Inter-App sample rate:*** *The OS/virtual device controls the actual delivered rate. If you request 48 kHz but the device is locked to 44.1 kHz system-wide, CoreAudio (macOS) or WASAPI (Windows) will resample transparently. For best results, match the requested rate to your OS audio settings before opening the device.*

When Live Capture is selected:

All four controls above also appear, plus one additional consideration:

Control	Description
Audio Input Device	Select the microphone or audio interface input that Xtractpler will record from.
Input Channels	Populated dynamically with the hardware channel names reported by the device after it is opened (e.g. "Ch 1: Mic", "Ch 2: Line In", "Ch 3: Main Out L"). Choose **Stereo (L+R)** for a full stereo recording, or a specific mono channel.
Requested Sample Rate	As above. **Auto (Device Native)** is usually correct for direct hardware recording; set an explicit rate if your interface supports multiple rates and you need a specific one.
Recording Format (WAV)	As above. See the **32-bit float** note below.

> ***Multi-channel interfaces (e.g. MOTU M4, Focusrite Scarlett 18i20):*** *When you select a specific hardware channel (e.g. "Ch 3: Main Out L"), the audio engine extracts that channel directly from the device's raw stream — no OS-level channel remapping is required. The VU meters in the Capture tab reflect the actual captured channel.*

Why 32-bit float recording is recommended

32-bit float is the native internal format of the audio engine on all supported platforms (CoreAudio on macOS, WASAPI on Windows, ALSA/PipeWire on Linux). Capturing in 32-bit float means:

- **No headroom clipping** — 32-bit float supports sample values above 0 dBFS without data loss. Peaks that would clip a 16 or 24-bit integer recording are preserved and can be corrected in post-processing.
- **Full dynamic range** — Approximately 1,528 dB of theoretical dynamic range, far beyond any 24-bit integer format.
- **No quantization noise floor** — The noise floor of 32-bit float is below the sensitivity of any existing analog converter.
- **Zero-loss pass-through** — Audio that enters the engine in 32-bit float and is exported in 32-bit float undergoes no re-quantization, preserving every bit of the original capture.

Platform notes:

Platform	Internal Pipeline	Notes

macOS	CoreAudio 32-bit float	The default and most efficient path.
Windows	WASAPI 32-bit float	Available on Windows 10/11 with modern drivers. ASIO devices may have their own bit depth, but the engine always processes in 32-bit float internally.
Linux	ALSA / PipeWire 32-bit float	Supported on modern PipeWire setups. Older ALSA-only configurations may deliver 16 or 24-bit samples to the engine; the engine still processes in 32-bit float internally, but the original ADC depth limits effective dynamic range.

Downsampling to 24-bit or 16-bit at export time is always available and appropriate for final distribution (streaming, hardware samplers, etc.), but it is recommended to **capture and archive at 32-bit float** and only downsample during export.

Current capture quality — Capture tab footer

Once the device is open, the **Device Status Strip** at the top of the Capture tab and the **Capture Quality Badge** in the application footer display the actual detected sample rate and the selected recording format:

```
🎤  M4 · Ch 3: Main Out L · 48kHz / 32-bit float    ⚙ SETUP
```

This strip is the **authoritative display** of what the device is delivering. If the detected rate differs from your requested rate, it means the OS overrode the request — adjust your OS audio settings and re-open the device by changing the Audio Input Device or Requested Sample Rate selector.

MIDI Routing (OUT / CH / IN) — Set the MIDI output device, channel, and optional MIDI input for testing or live MIDI monitoring. This section is visible for all capture modes that involve MIDI triggering.

6.1.3 Sample Configuration Grid

The grid defines each velocity layer and round-robin to be captured. Each row represents one note or sample target.

Grid columns:

Column	Description
Sample Name	Label used for output file naming
Enabled	Check to include this row in the capture pass
MIDI	Note name (e.g. `C1`) or range (e.g. `C1..C5` or `36..48`)
Samples	Number of round-robin takes per layer
Secs	Duration each note is held ON (in seconds)
TAIL(s)	Extra recording time **after Note OFF** (in seconds). Used to capture the natural release/decay of the instrument. Default: `0`. See §6.1.4.
Min / Max	MIDI velocity range for this layer

Curve	Velocity distribution shape across the range
Fadeout	Auto-fade applied at the tail of each slice (ms)
Thresh	Silence threshold for transient detection (dB)
RR	Round-robin count

Grid controls:

- **UNDO (Cmd+Z)** / **REDO (Cmd+Shift+Z)** — Step through grid edit history.
- **ADD ROW** — Append a new velocity layer row.
- **REMOVE** — Delete the selected row(s).
- **APPLY GRID CHANGES** — Save the current grid state to your project file immediately.

> ***Tip:*** *Use* ***keyboard navigation*** *(arrow keys, Tab, Enter to edit, shortcuts—see §9) for large grids. Tab moves through cells in row order; Enter confirms the current edit.*

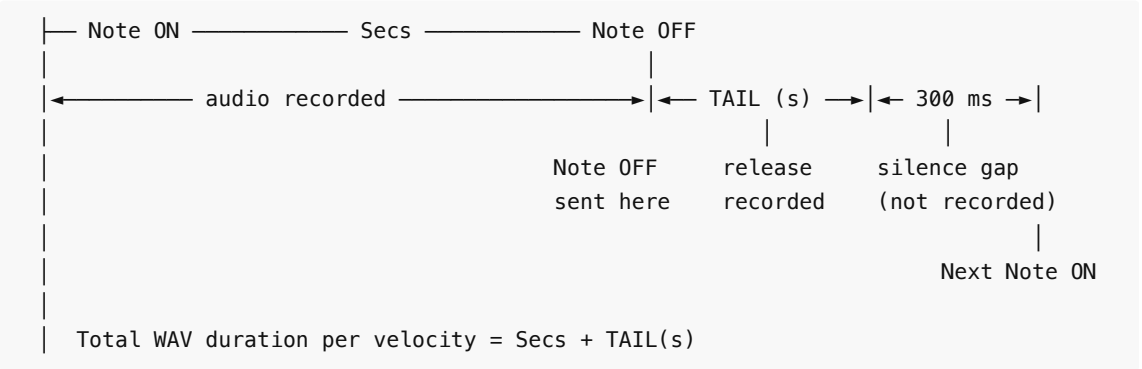
6.1.4 Understanding the TAIL Parameter

The **TAIL(s)** column is one of the most important controls for capturing instruments with a **slow or sustained release** (piano sustain pedal, string pads, long reverb tails, bowed instruments, etc.).

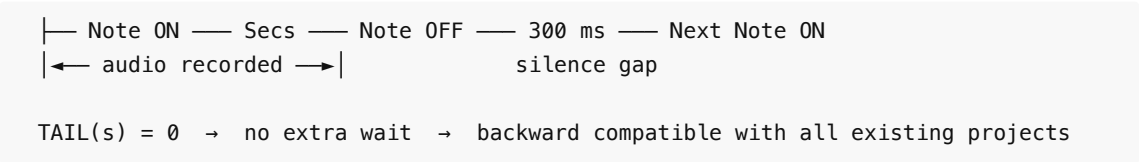
How the capture sequence works

For every velocity layer, Xtractpler follows this exact sequence:

Sound / Instrument type (`Secs` + `TAIL(s)` recorded):



Drum / Percussion type (`Secs` only, TAIL not used):



During the entire period — `Secs` + `TAIL(s)` — the **JUCE audio engine continues recording** into the FIFO buffer. The 300 ms gap at the end is not recorded; it exists solely so the C++ AudioSlicer can detect the silence boundary between adjacent notes when slicing the raw WAV.

When to use TAIL

Instrument type	Recommended TAIL value

Drums, short percussives	`0` (default)
Plucked strings (guitar, harp)	`1 – 2 s`
Piano (no sustain pedal)	`1 – 3 s`
Piano (with sustain pedal)	`3 – 6 s`
String pads, long reverb	`4 – 10 s`
Bowed strings, organ	`2 – 5 s`

> ***Backward compatibility:*** *Existing* `.xcfg` *projects that do not have a* `tail` *field are automatically migrated — Xtractpler sets* `TAIL(s) = 0` *on load, preserving all previous behavior.*

Tuning the workflow with Review + Threshold + FadeOut

After capturing instruments with a long release, use the **Review tab** to verify that slicing works correctly. The key variables to tune are:

1. **Silence Threshold (Thresh)** — Sets the dB level below which the AudioSlicer considers audio to be silence. If your TAIL value is not long enough for the instrument to fully decay, the slicer may not find a clean cut.
2. **FadeOut** — Applies a linear fade at the end of each slice. Instead of extending TAIL until the signal reaches full silence, you can:
    - Set a **higher threshold** (e.g. `−48 dB` instead of `−60 dB`) so the slicer cuts earlier
    - Add a **FadeOut** value (e.g. `15 ms`) so the cut ends smoothly without an audible click

> ***Practical tip — short TAIL + higher threshold + FadeOut:***
>
> *Suppose your instrument has a long release that never quite reaches −60 dB within your TAIL budget. Instead of extending TAIL to 10+ seconds:*
>
> 1. *In the grid, set* ***Thresh = −48 dB*** *(the slicer will cut sooner, where signal is still fading)*
> 2. *Set* ***FadeOut = 15 ms*** *(a short fade is applied so the ending sounds natural, not abrupt)*
> 3. *In the Review tab, zoom into the tail of a slice and verify the transient markers land in the right place.*
>
> *This technique lets you capture reasonable-length samples without silence overhead, while still producing a clean, professional-sounding decay on every slice.*

6.2 Plug-ins

Purpose: Manage the **audio plug-in chain** used when capturing through the **Internal** path (VST3 on Windows/Linux; VST3/AU on macOS).

Xtractpler works as a native **plug-in host**. In normal installations, it scans the default plug-in locations for your OS, builds the available plug-in list, and lets you open the plug-in's own graphical interface (**UI**) directly inside the workflow.

Default scan behavior:

- **macOS** — Scans standard **VST3** and **AU** locations used by most installers.
- **Windows** — Scans standard **VST3** locations and indexes compatible plug-ins for internal capture.

- **Linux** — Scans standard **VST3** locations used by your distribution or plug-in manager.

For non-standard installations (portable plug-ins, custom library drives, manually moved binaries), use **Custom Folders** to add additional scan paths. After adding a path, run a rescan so the new plug-ins appear in the list.

You typically use this tab to:

- Load and order **instrument/effect** plug-ins that produce the sound you want to sample.
- Open each plug-in **UI** to set patches, macros, modulation, and output levels before capture.
- Balance **CPU** and **latency** for your machine; heavy chains may affect live responsiveness, while **offline internal** capture favors speed and repeatability.

Testing the plug-in

Before you run a full capture pass, verify that the loaded plug-in responds correctly:

1. Go to the **Configure** tab.
2. Select your keyboard/controller in **MIDI In**.
3. Keep your target bus/channel in **MIDI Out** as needed for your test context.
4. Play notes or pads from your controller and monitor behavior (velocity response, articulation changes, patch switching).

During this live test, Xtractpler routes the monitored signal automatically to the operating system's default **Audio Out** device, so you can immediately hear whether the loaded VST3/AU is configured correctly.

Tips:

- Keep the chain **minimal** unless you need specific processing baked into the samples.
- If a plug-in fails to load, check the **error console** (see §7) for messages you can share with support.
- If a plug-in is missing, verify its location and add the folder under **Custom Folders**, then rescan.

6.3 Capture

Purpose: Record or **render** audio into Xtractpler according to the grid and the method you have configured.

6.3.1 The Capture Header Bar

At the top of the Capture tab, a persistent header bar provides at-a-glance status and quick access to output routing controls.

Device Status Strip (Inter-App / Live Capture modes)

When using Inter-App/External Hardware or Live Capture, a read-only strip on the left side of the header shows the currently active hardware setup:

```
🎤  BlackHole 2ch (Virtual) · Stereo · 48kHz / 32-bit float    ⚙ SETUP
```

- The icon, device name, channel configuration, and detected capture quality are all displayed in a single compact line.
- This strip is **read-only** in the Capture tab by design, ensuring you cannot accidentally change device routing mid-session.
- To change any of these settings, click the **SETUP** button. This navigates directly to the **Configure tab → Hardware Setup** card.

> *The Device Status Strip is hidden when using **Internal VST / AU** mode, since no live audio device is involved in that capture path.*

Audio Output (Monitor)

To the right of the device status strip, the **Audio Output** selector lets you choose which playback device Xtractpler uses for monitoring. This is separate from the capture input and can be changed at any time without affecting a running session.

Monitor Audio toggle

The toggle to the far right of the header enables or disables real-time audio monitoring through the selected output device. Turn this on to hear the captured signal live; turn it off to avoid feedback or unwanted playback during a session.

Drive Mode (Live Capture only)

When Live Capture is active, a **Drive Mode** selector is also shown:

Mode	Description
Manual	You control when each pass starts and stops. Suited to performance-style recording.
Automated	Xtractpler drives the pass sequence against your grid. Suited to consistent, repeatable takes.

6.3.2 Pre-Capture Overwrite Check

Before each capture pass begins, Xtractpler scans the target Collection folder for existing raw capture files. If files from a previous capture are already present, a **confirmation dialog** appears:

> ***Raw Captures Already Exist***
> *The folder "CollectionName" already contains N raw capture file(s). Starting a new capture will overwrite them and cannot be undone.*
> ***[Overwrite & Capture] [Cancel]***

- Click **Overwrite & Capture** to proceed. The previous raw files will be replaced.
- Click **Cancel** (or press Escape) to abort and return to the Capture tab so you can choose a different Collection Name or export the existing captures first.

> ***Tip:*** *If you need to keep previous raw files and also record a new set, change the* ***Collection Name*** *in the Configure tab before starting the new pass. Each Collection Name maps to a separate subfolder, so they will not overwrite each other.*

6.3.3 Capture Path Lock

Once a capture pass completes successfully, Xtractpler **locks the capture path** internally. This means:

- **Export always reads the correct folder** — Even if you change the Collection Name after capturing, the export engine reads raw files from the folder where they were actually recorded, not from a potentially renamed path.
- **Delete RAW Captures targets the correct folder** — The cleanup option in the Export tab removes files from the original capture location, not from any renamed destination.
- **Review tab auto-navigates** — Switching to the Review tab after a completed capture automatically opens the locked capture folder, so files are immediately available to audition.

The path lock is cleared when you load a new or existing project (`.xcfg`), which signals the start of a fresh session.

6.3.4 Three capture approaches

A. Internal (VST3 / AU) — Offline Audio Render

- Renders audio **through the plug-in tab's chain** without real-time playback constraints.
- Delivers a **large speed-up** compared to purely real-time capture for many sessions.
- Best when your sound is **entirely inside** the plug-in chain and you want repeatable, fast passes.
- Capture quality (sample rate) is set in **Configure → Hardware Setup → Render Quality**.

B. Inter-App / External Hardware

- Execute an **automated capture** when sound comes from other audio applications or from external connected hardware.
- Capture is performed **in real-time**; audio and MIDI routing must be set up in **Configure → Hardware Setup** before starting.
- **Virtual cables may be required** — Depending on your system, audio/MIDI between applications requires a third-party virtual routing extension. See §8 for detailed routing instructions.

C. Live Capture (guided)

- Walks you through capture when sound comes from **live input hardware** (microphone, instrument, acoustic source).
- Choose **Manual** or **Automatic** Drive Mode in the header bar.
- **Retake** — If you make a performance mistake during a pass, use the **Retake** button (or its keyboard shortcut) to discard the current take instantly and re-record only that specific velocity/note target, without aborting the full session.

Tips:

- Watch **VU meters** (stereo/mono) to avoid clipping; adjust source levels or plug-in gain early. In Inter-App and Live Capture modes, the VU meters are driven directly from the JUCE audio engine FIFO — they reflect the **actual captured channel**, not a proxy Web Audio stream.
- If capture fails mid-session, read the **integrated error console** before re-running (§7).
- Verify the **Device Status Strip** at the top of the Capture tab and the footer **Capture Quality Badge** before starting a long session — they show the confirmed sample rate and recording format.
- **Waveform display (stereo):** When recording in Stereo (L+R), the waveform viewer displays both channels simultaneously: **Left channel** in the top half (red) and **Right channel** in the bottom half (blue), separated by a subtle divider line. Mono captures display a single full-height waveform.

6.4 Review

Purpose: Listen, **inspect**, and **tune** captured material **before** export—levels, slice boundaries, loop points, and grid alignment.

You typically use this tab to:

- Audition individual cells or groups against the **waveform** display.
- Catch problems (silence, double hits, wrong velocity) while fixing the session is still cheap.

Auto-navigation after capture

When you switch to the Review tab after a successful capture pass, Xtractpler automatically opens the folder that contains the most recently captured raw files. You do not need to browse manually—the file view is already positioned on the correct Collection folder and ready to audition. If no capture has been completed yet in the current session, the tab falls back to the configured output folder.

Interactive capabilities:

- **Waveform Viewer & Navigation:** The waveform display includes a visible frame ruler along the bottom. Navigate using horizontal scrolling with the mouse wheel, smooth zoom with trackpad gestures, or the dedicated on-screen zoom icons and **Fit** button to auto-zoom the entire selection.
- **Loop Information:** When working with looped material, the UI displays precise loop metadata: **Loop Start**, **Loop End**, **Loop Length** (in both frames and seconds), and the **Total Audio Duration** (in seconds).
- **Auto-Transient Detection:** Fine-tune transient detection on the fly using three controls: **Attack (dB)**, **Silence (dB)**, and minimum silence time **Silence (ms)**. Adjusting these parameters updates the visual slice markers immediately.

Tips:

- Small timing and transient tweaks here often save hours of rework in the sampler later.
- Combine visual waveform cues with **meters** for level issues that are not obvious by eye.

6.5 Export

Purpose: Write **audio files** and optionally generate **sampler mapping** presets in one place.

> ***Important:*** *Audio slices are **always exported** to your output folder when you click **CONVERT & EXPORT**, regardless of whether any mapping format is selected. Mapping files (SFZ, Decent Sampler, etc.) are entirely **optional add-ons** on top of the core audio export. You do not need to select any mapping format to export your samples.*

6.5.1 Session Info — Collection Name & File Prefix

At the top of the Export tab's **File Naming & Mapping** section, a read-only strip shows the **Collection Name** and **File Prefix** that will be used for this export:

```
Session — Collection Name & File Prefix
[ AbbeyRoad60  ]  /  [ KS_  ]   [ ⚙ CONFIGURE ]
```

- These fields are **read-only** in the Export tab. They reflect the values set in the Configure tab and cannot be changed here, so you cannot accidentally rename a session mid-export.
- To change Collection Name or File Prefix, click the ⚙ **CONFIGURE** button. This navigates directly to the Configure tab → Project & Session card.

> ***Note:*** *The read-only display always shows the values from the Configure tab. Even if you renamed the Collection Name after capturing, the export engine internally uses the locked capture path (see §6.3.3), so your raw files will still be found and processed correctly.*

Delete RAW Captures

A **Delete RAW Captures** checkbox is available in the Export tab. When enabled, Xtractpler removes the original raw capture files from the capture folder after a successful export. This operation targets the **locked capture folder** (§6.3.3), not the current Collection Name path, ensuring the correct files are deleted even if the Collection Name was changed after capturing.

6.5.2 Export Errors — Captures Not Found

If Xtractpler cannot locate **any** of the expected raw capture files when you run **CONVERT & EXPORT**, the job is halted and an error dialog is shown:

> ***Export Failed — Captures Not Found***
> *None of the expected raw capture files could be found. This usually means the Collection Name was changed after capturing without re-capturing, or the capture folder was moved or deleted. Please check your Collection Name and Output Folder settings, or run a new capture.*

The progress bar is reset to zero and no partial output is written. Review the Collection Name (Configure tab) and output folder path, then either correct the path or run a fresh capture.

> ***Partial export:*** *If only some instruments fail (e.g., one row is missing but others process correctly), the export continues for successful rows, and a summary in the console lists which items were skipped.*

6.5.4 Audio Formats & Codec Implications

When exporting, be aware of the codec compatibility for your target format:

- **WAV** — Uncompressed; default archival choice. **Strictly required** by hardware sampler formats like **Akai MPC (.xpm)**, **Elektron (.wav)**, and **Roland SPD-SX PRO**, as well as **Logic Pro (.exs)**.
- **FLAC** — Lossless compression; smaller than WAV with no quality loss. Supported by modern software formats like **Decent Sampler** or **Bitwig Studio**, but typically rejected by older hardware engines.
- **MP3** / **OGG** — Compressed; useful for previews or size-constrained software delivery. Suitable for formats like **SFZ** and **Ableton Sampler (.adv)**, where the sampler supports compressed audio playback natively.

6.5.5 Tonal Instruments ("Sound" type) & Stretch-Up Logic

When capturing tonal instruments (configured as `type="sound"` in the grid), Xtractpler maps notes across the keyboard to fill gaps between recorded samples.

Xtractpler applies an **ascending stretch-up** logic: it starts from C-2 up to the note immediately preceding the next captured note (Next Captured Note - 1).
Example: If Xtractpler captures C1 and G1, the C1 sample will stretch from C-2 up to F#1. G1 will stretch from G1 up to the next captured note - 1. The final (highest) captured note (e.g., G4) will stretch from its root key all the way up to C8.

(Note: When capturing tonal instruments and generating compatible formats like SFZ, Decent Sampler, and Ableton Sampler, Xtractpler injects a customizable ADSR envelope to make exported instruments plug-and-play and prevent audio clicks.)

6.5.6 Drum vs. Sound & Specific Format Limitations

Xtractpler adapts its export behavior depending on whether the project is set to **Drum** or **Sound**. Not all formats support both, and some have strict hardware-imposed limitations:

Standard Formats (Included in base license):

- **SFZ (.sfz)** — Supports both Drum and Sound.
- **Decent Sampler (.dsbundle)** — Supports both Drum and Sound. Generates a ready-to-play bundle with UI and effects.
- **Ableton Sampler (.adv)** — Supports both Drum and Sound. Native Ableton Live preset for chromatic instruments.
- **Bitwig Studio (.multisample)** — Supports both Drum and Sound.
- **Sitala (.sitala)** — **Drum only.** Only supports uncompressed WAV. Strictly limited to 16 pads and does not support multi-velocity layers; Xtractpler maps the maximum captured velocity per pad.

Pro & Hardware Extensions (Require Pro License):

- **Logic Pro (EXS24)** — Supports both Drum and Sound. Offers a single **consolidated (monolithic) audio file** option or **multiple individual audio files**.
- **Ableton Drum Rack (.adg)** — **Drum only.** Pad mapping strictly begins at the C1 Pad.
- **Akai MPC Beats (.xpm)** — Supports both exact mapping for drums and stretch-up mapping for tonal instruments.
- **Elektron (.wav)** — **Drum only.** Serialized WAV formatting for Digitakt/Analog Rytm. Does not support stretch-up or multi-velocity layering.
- **Hydrogen Drumkit (.h2drumkit)** — Supports both Drum and Sound. WAV only. For tonal instruments, applies stretch-up logic. For drum instruments, applies exact note mapping and sets `isStopNote` so the sample cuts off on note release.
- **Roland SPD-SX PRO** — **Drum only.** Limited to 9 pads. Maps only the lowest and highest captured velocities to Layer A and Layer B; intermediate velocities are ignored.
- **Studio One Impact (.preset)** — **Drum only.**

6.5.7 Upgrading to Pro

Version 3.6 introduces an "Upgrade to Pro" path for users holding a valid Standard license, unlocking all Pro & Hardware extensions.

The upgrade can be initiated in three ways:

1. Navigating to the **File** menu and selecting **Upgrade to Pro**.
2. Using the keyboard shortcut: **Cmd+Shift+U** (macOS) or **Ctrl+Shift+U** (Windows/Linux).
3. Clicking the checkbox of any locked Pro format in the Export tab.

Initiating this action opens a guided pop-up window to securely complete the upgrade and activation process.

6.5.8 Auto-Loop Export

The **Auto-Loop** feature can be enabled via a checkbox in the Export tab.

- **Seamless Loops:** The engine calculates seamless loop points and applies an auto-crossfade for smooth, continuous playback.
- **Optimization:** Specifically optimized for melodic instrument types (`type="sound"`).
- **Format Support:** Logic Pro EXS24, Ableton Live (.adv), Akai MPC, Bitwig, Studio One Impact, Decent Sampler, and SFZ.

Tips:

- Export a **small test batch** (one velocity layer) before running a full multi-hundred-file job.
- Keep `.xcfg` **backups** before major grid changes so you can return to a known-good state.
- If no mapping format is selected, the console output will confirm that audio files were exported to the output folder. Check the folder path shown in the console to locate your files.

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7. Footer Status Indicators

The application footer contains two persistent status indicators that provide important real-time feedback about the relationship between your **capture quality** and your **export settings**. These are visible across all tabs.

7.1 Capture Quality Badge

When a capture session is active or has been configured, a **green badge** appears in the footer showing the current capture quality:

```
🎤  96kHz · 32-bit float · Internal
```

- For **Internal VST / AU** captures, this reflects the Render Quality selected in Configure → Hardware Setup.
- For **Inter-App** and **Live Capture** modes, this reflects the **actual sample rate** delivered by the device after opening, combined with the **Recording Format (WAV)** bit depth you selected in Configure → Hardware Setup.
- The same information is shown in the **Device Status Strip** at the top of the Capture tab (device name · channel · rate / depth).
- The badge is hidden when no capture quality has been established (e.g., on first launch before any device has been opened).
- If an update notification is shown in the footer, the badge is temporarily hidden to avoid crowding the footer area.

7.2 Export Quality Mismatch Warning

An **amber warning** appears in the footer whenever your **Export** settings (sample rate or bit depth) are set **higher** than what was actually captured:

```
⚠  Export 96kHz > Capture 48kHz · 32-bit > 16-bit — no quality gain
```

Exporting at a higher rate or bit depth than the captured source does not add quality—it only increases file size. The warning is intended to help you avoid unintentionally bloated exports.

The MATCH button

Alongside the warning, a **MATCH** button appears. Clicking it instantly aligns your export sample rate and bit depth to match the captured quality, eliminating the mismatch without requiring you to navigate to the Export tab manually. A brief visual confirmation pulse confirms the change was applied.

> *The mismatch warning is only shown for activated (licensed) users. In Demo mode, export settings are automatically constrained.*

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8. Feedback, monitoring, and stability

This release emphasizes **visible feedback** and **robust operation**.

- **VU meters (stereo / mono)** — Real-time level monitoring during capture and review.
- **Progress bars** — Clear indication of long jobs (offline render, batch export).
- **Integrated error console** — Central place for routing, device, plug-in, and processing messages. Toggle visibility with the **Show Console** checkbox in the bottom-right corner of the window.
- **Waveform visualization** — Higher-fidelity display to support **transient** and **grid** decisions.

If something misbehaves, note your **OS version**, **audio/MIDI setup**, and any **console** text when contacting support.

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9. Inter-App & External Hardware Routing

This section covers practical routing for real-time capture sources that are not fully internal plug-in renders.

9.1 Inter-App Routing (DAW / Standalone App)

Use this method when the sound source is another app running on the same computer (DAW project, standalone synth, drum app, etc.).

Requirements:

- A **Virtual Audio Cable** (for example: **BlackHole**, **VB-Cable**, **Soundflower**, or equivalent).
- A virtual MIDI bus (for example: **IAC Driver** on macOS, **loopMIDI** on Windows, distribution-specific virtual MIDI ports on Linux).

Audio routing (step by step):

1. In your DAW/source app, set output to the **Virtual Audio Cable** device.
2. In Xtractpler, go to **Configure → Hardware Setup** and set **Audio Input** to that same **Virtual Audio Cable** device.
3. Confirm incoming level in Xtractpler meters before starting capture.

MIDI routing (step by step):

1. In Xtractpler **Configure → Hardware Setup**, set **MIDI Out** to a virtual MIDI bus and choose the target channel.
2. In the DAW/source app, set **MIDI In** to that same virtual bus and channel.
3. Arm/enable MIDI reception in the source app so incoming notes from Xtractpler trigger the instrument.
4. Run a short test pass and confirm both note triggering and audio return.

Signal flow summary:

- **Audio:** DAW/App **Audio Out** → **Virtual Audio Cable** → Xtractpler **Audio Input**
- **MIDI:** Xtractpler **MIDI Out** (virtual bus + channel) → DAW/App **MIDI In** (same bus + channel)

[Insert Inter-App routing diagram here]

9.2 External Hardware (Synthesizers / Modules)

Use this method when the sound source is a physical synth, drum machine, or sound module connected to your computer/interface.

Audio routing (physical):

1. Connect the hardware's **Audio Out** (L/R or mono) to your audio interface input(s).
2. In Xtractpler **Configure → Hardware Setup**, select that interface as **Audio Input**.
3. Set input gain on the interface and verify healthy level in Xtractpler (avoid clipping).

MIDI routing (physical):

1. In Xtractpler **Configure → Hardware Setup**, select your MIDI interface/device as **MIDI Out**.
2. Connect a physical MIDI cable from the computer/interface MIDI output to the hardware **MIDI In** port.
3. Match MIDI channel settings between Xtractpler and the hardware instrument.
4. Run a trigger test (single note at different velocities) before full capture.

Signal flow summary:

- **Audio:** Hardware **Audio Out** → Interface input(s) → Xtractpler **Audio Input**
- **MIDI:** Xtractpler **MIDI Out** → Physical MIDI cable → Hardware **MIDI In**

[Insert External Hardware connection diagram here]

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10. Keyboard shortcuts

Xtractpler uses the same actions on every platform; only the **primary modifier** name changes. **macOS** uses **⌘ Command**; **Windows** and **Linux** use **Ctrl** for the same roles. The tables below use **Cmd** as shorthand for ⌘ Command.

Role	macOS	Windows / Linux
Primary modifier (equivalent to "control")	**⌘ Cmd**	**Ctrl**
Alt / secondary modifier	**⌥ Option**	**Alt**

Linux generally matches the **Windows / Linux** column. If a shortcut does nothing, your desktop environment may be capturing it—check **Settings → Keyboard** or try rebinding the conflicting shortcut.

10.1 Configuration grid (Configure tab)

Action	macOS	Windows / Linux
Move cell focus	← ↑ → ↓	Same
Start editing / confirm edit	**Enter**	Same
Cancel edit	**Esc**	Same
Open a drop-down cell (when focused)	**Space**	Same
Add row(s)	**Cmd+A**	**Ctrl+A**
Remove selected row(s)	**Delete** or **Backspace**	Same
Undo	**Cmd+Z**	**Ctrl+Z**
Redo	**Cmd+Shift+Z**	**Ctrl+Shift+Z** or **Ctrl+Y**

> ***Note: Cmd+A** / **Ctrl+A** in Xtractpler is reserved for **adding grid rows**, not "select all text," while the grid has focus.*

Additionally, you can enter a single note (e.g., `60` or `C3`) or a range using the `..` delimiter (e.g., `60..72` or `C3..C4`) in the **MIDI** column.

10.2 Review Tab

Navigation & Zoom

Action	Input / Gesture
Zoom In	+ (Regular keyboard or Numpad)
Zoom Out	– (Regular keyboard or Numpad)
Trackpad Zoom	Pinch In / Spread Out (Apple Trackpad & compatibles)
Horizontal Scroll	Mouse Wheel / Two-finger swipe
Fit to Screen	Click the **Fit** icon on screen

Transient Control (Drag-Value)

Action	Input / Gesture
Adjust Attack (dB)	Click & Drag Up / Down on the number
Adjust Silence (dB)	Click & Drag Up / Down on the number
Adjust Silence (ms)	Click & Drag Up / Down on the number

(You can also double-click any of these values to type a specific number directly.)

10.3 Menus and standard editing

Action	macOS	Windows / Linux
Cut / Copy / Paste (in text fields)	**Cmd+X** / **Cmd+C** / **Cmd+V**	**Ctrl+X** / **Ctrl+C** / **Ctrl+V**
Select all (in text fields)	**Cmd+A**	**Ctrl+A**
Navigate to Configure Tab	**Cmd+O**	**Ctrl+O**
License Activation	**Cmd+T**	**Ctrl+T**
Upgrade to Pro	**Cmd+Shift+U**	**Ctrl+Shift+U**
Help	**Cmd+Shift+H**	**Ctrl+Shift+H**

10.4 Platform-specific differences

- **macOS only: Cmd+Q** quits the application. **Windows / Linux:** use **Alt+F4** (Windows) or your window manager's close shortcut on Linux.
- **macOS:** Some dialogs list **Return** where Windows lists **Enter**; both behave the same in Xtractpler.
- **Windows vs Linux:** There is **no intentional difference** inside Xtractpler between Windows and Linux shortcuts; divergent behavior usually comes from the desktop environment capturing a conflicting chord.

Always trust **in-app menus** and tooltips if they disagree with this table—labels in the shipping build take precedence.

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11. Licensing and documentation

- **Activation** — Use the dialog provided with your purchase email; keep your license key private.
- **EULA** — The End User License Agreement ships with the product (PDF in the bundle or on the website).
- **Updates** — The application notifies you when a new build is available; follow the on-screen prompt to download and install.

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12. Document history

Version	Summary
3.6.2	**Dynamic audio routing & recording quality controls.** Hardware Setup now exposes per-mode controls for all three capture modes (Internal VST, Inter-App, Live Capture). Inter-App

	and Live Capture modes now show: **Input Channels** populated dynamically from the device's actual hardware channel names (supports multi-channel interfaces such as MOTU M4, Focusrite Scarlett 18i20); **Requested Sample Rate** selector (Auto / 44.1 / 48 / 88.2 / 96 kHz) so the user controls the rate at which Xtractpler opens the device; **Recording Format (WAV)** selector (32-bit float / 24-bit / 16-bit) controlling WAV output bit depth. The old "Capture Quality (Detected from Device)" read-only display and **REFRESH** button have been removed — the footer Capture Quality Badge and the Capture tab Device Status Strip are now the sole authoritative display of the active rate and format. **Waveform display** now renders stereo captures as a dual-band view (L = top / red, R = bottom / blue). Added documentation for **32-bit float lossless recording** with platform-specific notes for macOS, Windows, and Linux. Version bump: 3.6.1 → 3.6.2.
3.6.1	**Session management improvements.** Moved **Collection Name** and **File Prefix** fields from the Export tab to **Configure → Project & Session**, making them the single place to set naming before capture. Export tab now shows a read-only mirror of both fields with a ⚙ **CONFIGURE** shortcut button. Added a **pre-capture overwrite check**: if raw files already exist in the target collection folder, a confirmation dialog is shown before any files are overwritten. Introduced internal **capture path lock**: the folder where raw captures were recorded is remembered for the lifetime of the session, so export, raw-file deletion, and Review tab navigation all target the correct folder even if the Collection Name is renamed after capturing. **Review tab** now auto-navigates to the locked capture folder when opened after a successful capture. **Export** now shows a clear error modal (and resets progress to zero) when none of the expected raw files can be found, preventing silent false-progress. Audio bit depth always reported as 32-bit float, matching the internal Web Audio pipeline.
3.6	Reorganized **Hardware Setup** into Configure tab as single source of truth for all audio device and capture quality settings. Added mode-specific controls: Render Quality selector for Internal VST captures; Audio Input Device, Input Channels, Capture Quality display, and REFRESH button for Inter-App/Live modes. Capture tab now shows a read-only **Device Status Strip** (device · channels · rate/depth) with a direct **SETUP** button to Configure. Footer adds a **Capture Quality Badge** (green) showing active capture mode and quality, and an **Export Quality Mismatch Warning** (amber) with a **MATCH** button to instantly align export settings to capture quality. Export mapping formats clarified as fully optional: audio slices are always exported to the output folder regardless of mapping format selection. Added Pro export formats (Logic Pro EXS24, Ableton Drum Rack, Akai MPC Beats, Roland SPD-SX PRO, Elektron) and Pro license upgrade flow. Added Sitala and Hydrogen formats. Removed FL Studio support.
3.5.5	Added new Standard export formats (Ableton .adv, Bitwig, Sitala); Prepared UI and engine for upcoming Pro formats; Major UX fixes to the configuration grid (Tab navigation, row deletion stability); Improved 'Apply Changes' workflow.
3.5.3	Added support for note ranges (e.g., C1..C5) in a single grid row via In-Memory Expansion; fixed filename sanitization for sharp notes during export.
3.5.1	Five-tab UI (Configure, Plug-ins, Capture, Review, Export); Internal offline capture; Live Capture (manual/automatic); FLAC/OGG export; SFZ & Decent Sampler mapping; engine and grid improvements; `.xcfg` compatible with v3.0; keyboard shortcut reference (macOS vs Windows/Linux).
3.0.0	Earlier grid-centric workflow and v3.0 feature set (superseded for UI flow by this document).

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