

Recording Sounds with a Mic in Pro Tools

In this guide you will record a sound with a microphone, import it into Pro Tools and practice basic editing techniques. You will export the sound for use in GameMaker or Unreal Engine.

Step 1: Setting Up Your Recording Environment

1. **Choose Your Sound Source:** Select an object with a distinct sound (e.g., crumpling paper, tapping metal, dropping a book).
2. **Find a Quiet Spot:** Minimize background noise by recording in a quiet room or using a pop filter.
3. **Connect Your Microphone:** Plug in a USB mic or an XLR mic connected to an audio interface.
4. **Open Pro Tools:** Launch the software and create a new session.
5. **Document setup:**
 - Name Your Session.
 - **Use settings of 48 kHz and 24-bit**, as industry standard for Unreal Engine. **OR use 44.1 kHz, 16-bit**, as industry standard for GameMaker.
 - Choose a designated folder as a **location** where you will save your audio files.
 - Click **Create**.
6. **Set Audio Input:**
 - Go to **Setup > Playback Engine** and choose your interface.
 - Then, go to **Setup > I/O** and ensure your mic input is selected.
 - If nothing appears, click **Default** to reset.
 - Click the **Output tab** and make sure your computer speakers (or headphones) are selected. You may need to go into your computers sound settings, choose the appropriate input and outputs and then restart Pro Tools.

Step 2: Recording the Sound

1. **Create a New Track:**
 - Click **Track > New** and select **Mono Audio Track** (unless you have more experience on when to implement **stereo** for richer sound).
2. **Arm the Track:** Click the **record-enable** button on your track.
3. **Set Levels:** Speak or make a sound into the mic while watching the meter. Adjust the gain so it doesn't peak (stay in the green/yellow range).
 - **If the sound is too low (stays in the dark green zone):**
 1. Increase the **gain/volume** on your audio interface or USB mic settings.
 2. If using an **interface**, adjust the **gain knob** carefully.
 - **If the sound is too loud (meter hits red):**
 1. Lower the **gain** on your interface/mic until peaks stay in **green/yellow**.
 2. Speak a little farther from the mic or adjust **mic positioning**.
4. **Start Recording:**
 - Press **Record (red button)** and then **Play (spacebar)**.
 - Make your sound multiple times for variety.

- Press **Stop (spacebar)** when done.
- 5. **Listen and Trim:**
 - Select the best take.
 - Use the **Trim Tool** to remove unwanted sections.
 1. **Hold Command (⌘) while dragging the Trim Tool.** This allows smaller, more precise adjustments instead of large jumps.
 - **Unreal Engine Pro Tip: Create Multiple Sound Variations:** For variety, duplicate the audio track and trim different segments. You'll export each segment separately. Later in Unreal Engine, you can program object blueprints to randomly (or sequentially) select from these variations, making the game experience more dynamic.

Step 3: Enhancing the Sound in Pro Tools

1. **Normalize Volume:**
 - Select the region, go to **AudioSuite > Other > Normalize**, and set to **-3dB** to bring the peak volume to a level slightly below the max. Then click **Render**.
 1. **Why Normalize to -3dB?**
 - **Prevents Clipping & Distortion** – Keeps volume high while avoiding distortion, ensuring clean in-game audio.
 - **Balances Sound Levels** – Can bring multiple recordings to a similar volume, making them sound more cohesive.
 - **Optimizes for Game Engines** – Provides a clear, dynamic base level for Unreal Engine and GameMaker, leaving room for in-game mixing.
2. **Enhancing Clarity & Removing Background Noise with EQ3 7-Band**
 - **Open the Mix Window**
 - Go to **Window > Mix** or press **Cmd + = (Mac) / Ctrl + = (PC)** to switch between Edit and Mix views.
 - **Add the EQ Plugin**
 1. Locate your **Audio Track** in the **Mix Window**.
 2. Click an **empty slot in Inserts A-E**.
 3. Select **Plug-ins > EQ > EQ3 7-Band**.
 - **Activate the High-Pass Filter (HPF)**
 1. Find **HPF** at the bottom left of the EQ window.
 2. Click the **"IN" button** to activate it.
 3. Set **FREQ to 100Hz** (type "100" or drag the knob).
 - **Why This Matters**
 1. Removes **low-end background noise** (air conditioners, mic rumble).
 2. Makes your sound **cleaner and more professional**.
 - **Compare & Fine-Tune**
 1. Click **Compare** and then **space bar** to toggle between original and adjusted sound.
 2. Use **headphones** to better detect subtle differences.

3. Adding Reverb in Pro Tools to Enhance Sound Depth

- **Open the Mix Window**
 1. Go to **Window > Mix**
- **Add a Reverb Plugin**
 1. Locate your **Audio Track** in the **Mix Window**.
 2. Click an **empty slot in Inserts A-E**.
 3. Navigate to **Plug-ins > Reverb** and select **D-Verb** (a common built-in Pro Tools reverb).
- **Adjust Reverb Settings**
 1. In the **D-Verb** window, choose a **Reverb Type** (e.g., **Room, Hall, Plate**).
 2. Adjust the **Mix knob**:
 3. **Lower (20-30%)** for subtle ambiance (good for footsteps).
 4. **Higher (50%+)** for larger, more dramatic effects (explosions).
 5. Set the **Decay Time** (how long the reverb lasts):
 - **Short (under 1s)** for small spaces.
 - **Long (2-5s)** for cavernous or echoey effects.
- **Compare & Fine-Tune**
 1. Play the sound and **toggle the Bypass button** to hear before/after.
 2. Adjust the **Mix and Decay** to match your scene.
 3. Use **headphones** to hear subtle details.
- Now, your sound has **added depth**, making it more immersive for your game!

4. Using Compression for Game Sound Effects in Pro Tools

- **Add a Compressor**
 1. Open the **Mix Window**
 2. Click an **empty slot in Inserts A-E** on your track.
 3. Go to **Plug-ins > Dynamics > Dyn3 Compressor/Limiter**.
- **Adjust Key Settings**
 1. **Threshold**: Set to **-15 dB to -10 dB** to control louder peaks.
 2. **Ratio**: **3:1 to 4:1** for natural compression (footsteps, object impacts).
 3. **Attack**: **Fast (5-10ms)** for sharp sounds like clicks; **Slower (30ms)** for more natural effects.
 4. **Release**: **100-200ms** for clean decay.
 5. **Makeup Gain**: Increase slightly if the sound gets too quiet.
- **Test & Fine-Tune**
 1. **Use the Bypass button** to compare before/after.
 2. **If too much compression, raise the threshold or lower the ratio.**
 3. **Use headphones** to hear subtle changes.
- Compression helps balance volume for **consistent footsteps, object impacts, or tool sounds** without harsh spikes. Keep it subtle for natural results!

5. Changing Pitch Using the TCE Tool (Easiest Method)

- **Make Sure Elastic Audio is Off:**
 1. Right-click the **Elastic Audio button** on your track and select **None**.
 2. If asked to commit, click **Yes**.
- **Switch to the TCE Tool:**

1. Press **F6** or **Right-click the Trim Tool** and select **TCE Tool (Time Compression/Expansion)**.
- **Click and Drag the Edge of Your Audio Clip (hold ⌘ for precise editing):**
 1. **Stretch it longer** = Slower, deeper pitch.
 2. **Condense it shorter** = Faster, higher pitch.
- If you like your edits, right click on the audio track and choose **commit**.

Step 4: Exporting for GameMaker or Unreal Engine

1. **Export Selected Clips as Files:**
 - **Use the Selection Tool** to highlight the your audio.
 - Press **Cmd + Shift + K (Mac) / Ctrl + Shift + K (PC)** to open the **Export**
 - Select **WAV, 48kHz, 24-bit** (Unreal Engine standard).
 - Select **WAV 44.1 kHz, 16-bit** (GameMaker standard).
2. **Save to Game Folder:**
 - Store in a designated folder for your game
3. **Import into Unreal:**
 - Open **Unreal Engine**.
 - Go to **Content Browser > Import** and select your WAV file.
 - Look for online guides on how to use sound in Unreal Engine
4. **Importing into GameMaker**
 - Open **GameMaker Studio** and load your project.
 - In the **Asset Browser**, right-click **Sounds > Create Sound**.
 - Click **Import** and select your **WAV (44.1 kHz, 16-bit)** file.
 - Click **Apply** to save the sound.
 - Look for online guides on how to use sound in GameMaker

Congratulations on making a custom sound for your custom game!