**Updated Vision Statement**

*“This is not a DAW, not a plugin rack, and not a synth. It is a digital workbench for building and shaping sound effects. A place where sound can be generated, gated, morphed, sculpted, and exported for use in games, music, or multimedia projects.”*

**🛠️ Generators: Sound Sources as Modular Units**

**🔹 What a Generator Is:**

* A **modular component** (like effects), but acts as a **signal source**
* Can be placed **at the start** of a chain—or even mid-chain for layered or reactive effects
* Can be composed of **other generators** = Generator Tree / Graph

**🔁 Generator Examples**

| **Generator Type** | **Controls** | **Notes** |
| --- | --- | --- |
| **Oscillator** | Waveform (Sine, Square, Tri, Saw), Freq, Amp | Classic tone source |
| **Burst / Click** | Duration, Envelope, Repeats, Random Spread | For percussion FX or glitch |
| **Noise (White/Pink)** | Filter, Gain, Seed, Slope | Texture, wind, static |
| **Impulse** | Duration, Fade-in/out | For resonator triggering |
| **Sweep** | Start Freq, End Freq, Duration, Curve | For UI/game transitions |
| **Bit Modulator** | Custom logic-driven byte output | Retro or digital FX sounds |
| **Composite Generator** | Child generators + mix logic | Enables complex layering |

**⚙️ Composition of Generators**

Generators are:

* **Composable**: You can nest them
* **Groupable**: Just like effect stacks
* **Re-usable**: Save and re-insert generator groups in other projects

Imagine a **“Laser Zap”** generator made from:

* A sine sweep from 12k to 500Hz
* A burst noise layer
* A sharp ADSR envelope
* A resonant filter post-chain

That’s your **sound effect building block.**

**🔗 Placement in Stack**

* Generators can appear:
  + At the **start** of a stack
  + At **midpoints** (layered with processing)
  + In **parallel branches** (future feature?)

**🎛️ Visual Difference in UI**

* Generators appear as **color-tagged blocks** or icons
* UI makes it clear: **Generator vs. Effect**
* Grouped generators collapse like effect groups
* They have their own mini control panel structure

**📤 Output Goals**

* Export the result as a WAV (1-shot FX)
* Or use in plugin format downstream
* Reuse generator config as building blocks (maybe .dspgen files)