

Version & Build History

23.01.2026, Initial release:

- **V1.0 (Core Engine):** Established the base movement, rendering loop, and basic sprite classes for the player and aliens.
- **V1.1 (Mechanics Update):** Integrated the bunker/shield system, mystery UFO behaviour, and collision detection.
- **V1.2 (Visual Polish):** Added the neon aesthetic, startled background, screen shake effects, and particle system for explosions.
- **V1.3 (UI & Stats):** Implemented the Start and Game Over screens, high score tracking, and the mission statistics box.
- **V1.4 (Balance Patch - Current):** Adjusted wave difficulty scaling to prevent aliens from spawning too close to the player at Wave 7+ and capped movement speeds to ensure long-term playability.

Build Summary

24.01.2026: **Version 1.4 (Stable Build 05).**

We have gone through **5 major iterations** (builds) to reach this level of implementation.

Build	Focus	Key Feature Added
01	Architecture	Sprite groups and movement logic.
02	Gameplay	Power-ups (Shields/Multi-shot) and UFOs.
03	Aesthetics	Particle effects and "Retro-Modern" UI.
04	Alignment	Fixed the Game Over statistics layout (white line overlap fix).
05	Scaling	Capped enemy spawn depth and speed for Wave 7+ stability.

Version 1.4 (Stable Build 06)

—> Current state, 25.01.2026: **Version 1.4 (Stable Build 05).**

- **Stable Audio Integration:** Finalized the `SoundManager` class for synthesis in RAM. No more external asset dependencies.
- **Audio Profile:** - Verified pulse-width modulation for the Player Laser.
 - Balanced white-noise explosions and alien fire frequencies.

- Sustained low-frequency oscillation for the Mystery Ship.
- **Core Stability:** Fixed event-loop congestion caused by previous sound implementation attempts.
- **Visual Baseline:** Verified CRT scanline rendering and screen-shake intensity are locked to Version 1.4 specs.