OpenRGB Vanguard Bridge Plugin – Technical Documentation

This document describes the OpenRGB Vanguard Bridge project. It covers architecture, OpenRGB plugin integration, HID communication, reverse engineered packet structure, build requirements, and runtime dependencies.

Project Overview

Native OpenRGB plugin that mirrors a selected device color to a Corsair Vanguard keyboard via HID.

System Architecture

OpenRGB Plugin (Qt5/MSVC) → ResourceManagerInterface → RGBController → HIDAPI → Vanguard Keyboard.

OpenRGB Plugin Integration

Implements OpenRGBPluginInterface. Plugin metadata must match OpenRGB Qt version and compiler.

Build Requirements

Qt 5.x MSVC 64-bit

Visual Studio Build Tools

hidapi (MSVC build)

Release configuration only

HID Device Identification

Vendor ID: 0x1B1C

Product ID: 0x2B0D

Usage Page: 0xFF42

USB Sniffing Summary

Captured using USBPcap + Wireshark.

Global color data located in frame index 12.

Critical HID Frame

Frame 12 byte offsets:

16 = Brightness

17 = Blue

18 = Green

19 = Red

Timing Constraints

Frames must be sent sequentially with ~20ms delay.

Runtime Dependencies

hidapi.dll must be placed next to OpenRGB.exe.

Common Errors

Invalid metadata version = Qt mismatch

Cannot mix debug/release = wrong build

Cannot find module = missing DLL

Conclusion

This plugin provides native OpenRGB integration without SDK server dependency.