Document ID: 20150020012

Revision: 2026-1-18

Subject: Work Instructions – Control Firmware Update for MAC based PC

Purpose

This guide explains how to use the automated firmware upload tool to update your Gross Engineering controller. The tool handles all technical setup automatically – no command-line experience required.

What You Need

- Mac computer
- Gross Engineering controller connected via mirco USB
- Firmware .hex file from Gross Engineering
- The upload_firmware.sh script file
- Internet connection (for first-time setup only)

Instructions

Step 1: Prepare the files

Option A (Recommended):

Place your firmware .hex file in the same folder as the upload_firmware.sh script. The tool will automatically find it.

Option B:

Keep the firmware file anywhere on your Mac. The tool will ask you to type the location.

Step 2: Make the script executable (one-time setup)

1. Right-click (or Control-click) on upload_firmware.sh
2. Select "Get Info"
3. In the "Open with" section, select "Terminal.app"
4. Click "Change All..."

Alternative method:

1. Open Terminal (search for "Terminal" using Spotlight)
2. Type: chmod +x
3. Drag the upload_firmware.sh file into the Terminal window
4. Press Enter

Step 3: Run the tool

1. Make sure your Gross Engineering controller is connected via USB
2. Double-click the upload_firmware.sh file
3. If you see a security warning, click "Open" to allow the script to run
4. The tool will automatically:
    a. Install Arduino-CLI (first time only)
    b. Find your connected controller
    c. Locate your firmware file
    d.

Follow any on-screen prompts (if multiple boards or firmware files are found)
Confirm the upload when asked
Wait for the upload to complete (30-60 seconds)



What to Expect

First time running the tool

The first time you run the tool, it will:

- Download and install Arduino-CLI (requires internet)
- Download the Arduino platform tools
- This takes 2-3 minutes and only happens once

Subsequent runs

After the first setup, the tool will:

- Start immediately without downloads
- Take only 30-60 seconds to upload firmware
- Show a green checkmark when successful

Important Notes

- Do not unplug the USB cable during the upload
- Do not rename the firmware .hex file
- The tool window will stay open until you press Enter at the end
- You can rerun the tool anytime to upload new firmware



Troubleshooting

"No controller found" error

Check that:

- The controller is powered on
- The USB cable is fully plugged in at both ends
- The USB cable supports data transfer (not just charging)

Upload fails

- Unplug and reconnect the USB cable
- Double-click the script to try again
- Make sure no other programs are using the USB connection

Script won't open

- Make sure you completed Step 2 (making the script executable)
- Try right-clicking the script and selecting "Open"
- Check System Preferences > Security & Privacy if macOS blocks it

Need help?

If problems persist:

- Take a screenshot of the error message
- Contact Gross Engineering support
- Include the screenshot in your support request