

# How to Configure your CTRL Keyboard!



Hey everybody!

Thank you for purchasing your **Massdrop CTRL Mechanical Keyboard**. We hope you're enjoying it so far. If you've landed here, you probably want to take full advantage of the keyboard's features so you've come to the right place.

We'll start with the basics, then we'll move on to complete custom configuration.

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## THE BASICS

### Default Hot Keys

Hold FN + listed keys to activate

### LED Keys

**Fn + A:** LED Pattern Select Previous

**Fn + D:** LED Pattern Select Next

**Fn + W:** LED Brightness Increase

**Fn + S:** LED Brightness Decrease

**Fn + Q:** LED Scrolling Pattern Speed Decrease

**Fn + E:** LED Scrolling Pattern Speed Increase

**Fn + Tab:** LED Toggle Breathe Effect

**Fn + Caps Lock:** LED Toggle Scrolling Pattern Direction

**Fn + X:** LED Toggle On/Off

**Fn + Z:** LED Toggle Mode (Keys+Edge, Keys Only, Edge Only, Only modifiers)

### Media Keys

**Fn + Page Up:** Volume Up

**Fn + Page Down:** Volume Down

**Fn + Print:** Mute

**Fn + Insert:** Play/Pause

**Fn + Home:** Stop

**Fn + Delete:** Previous

**Fn + End:** Next

## Keyboard Option Keys

**Fn + N:** Toggle keyboard 6KRO/NKRO (Default state 6KRO)

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## CUSTOM CONFIGURATION

### How do I configure my keyboard?

Note: You will currently need a second keyboard to complete the 3rd step of this process.

1. Create your configuration.

2. Compile the firmware with your configuration.

Use our web-based configurator tool to handle both steps at once:

<https://www.massdrop.com/mechanical-keyboards/configurator> . See below for more information about our configurator.

If you are comfortable with programming and want to use QMK functionality that our configurator does not support, you can manually create and compile your configuration by checking out the official QMK repository: [https://github.com/qmk/qmk\\_firmware](https://github.com/qmk/qmk_firmware) . CTRL Keyboard is in the folder "massdrop/ctrl". QMK setup instructions are here: <https://docs.qmk.fm/#/newbs>

3. Load the firmware onto your keyboard.

To load the firmware onto your CTRL keyboard, download the appropriate loader application for your computer's OS here:

<https://github.com/Massdrop/mdloader/releases/tag/1.0.3>. Then follow the instructions here: <https://github.com/Massdrop/mdloader> .

We are working with Jack and the other QMK contributors to get the loader application integrated into the next version of QMK Toolbox to simplify this loading process.

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## MASSDROP KEYBOARD CONFIGURATOR

<https://www.massdrop.com/mechanical-keyboards/configurator>

When you first go to the configurator, you will be prompted to choose your keyboard (only CTRL Keyboard available for now). After choosing, you will see a top-down view of the keyboard and a layer selector on the right side.

By clicking on a key, you can customize its behavior by selecting another key or function in the panel that appears below the keyboard. The currently available behaviors are:

- **Keys** - Individual keys such as letters, numbers, media keys, and function keys.
- **Layer** - Activate and deactivate layers. The CTRL Keyboard ships with a keymap where the Fn key activates layer 1.
- **Modifier** - Send multiple modifiers with a single key press or allow a key to be a modifier when held and another key when tapped.
- **Special** - Behaviors specific to the keyboard. For the CTRL Keyboard, these control the LEDs.

After you have configured the behaviors to your liking, click the "**Compile & Download**" button in the top right to download the compiled firmware for your configuration. This typically takes around 30 seconds. You will need to load this compiled firmware onto your keyboard. See step (3) above for instructions.

If you are logged in to Massdrop, you will see a "**Save as a New Copy**" button next to the "Compile & Download" button. Clicking this button will save your configuration, allowing you to revisit it and modify it. The next time you go to the configurator, you will see your saved configurations above the list of keyboards.

### About Layers

Layers allow you to configure your keyboard with more behaviors than its number of physical keys. For example with the CTRL Keyboard, by default, when you hold Fn + A to change the LED pattern, the keyboard is actually activating Layer 1 and sending the code for switching to the previous LED pattern. The physical key that is mapped to the letter A on Layer 0 is mapped to changing LED patterns on Layer 1.



For each key, its behavior is determined by the highest active layer. For the highest active layer, if the key's behavior is "transparent" (denoted by a grayed-out "(trns)" on the keyboard display), then it falls back to the next-highest layer where its behavior is not transparent.

The QMK documentation has some tips for working with layers:  
[https://docs.qmk.fm/#/feature\\_advanced\\_keycodes?id=working-with-layers](https://docs.qmk.fm/#/feature_advanced_keycodes?id=working-with-layers)

### Configurator Development Roadmap

Our configurator tool is still a work-in-progress. Here is what you can expect to be added to the tool in the future:

1. Merge our QMK changes back into the main QMK repository
2. Macros support
3. Support for changing some QMK settings
4. Support for more keyboards

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**Looking for the latest news and software updates from the DROP community?  
Check out the CTRL Keyboard Configurator guide and community updates here:**

<https://drop.com/talk/9382/how-to-configure-your-ctrl-keyboard>

## Additional Details on Firmware Flashing

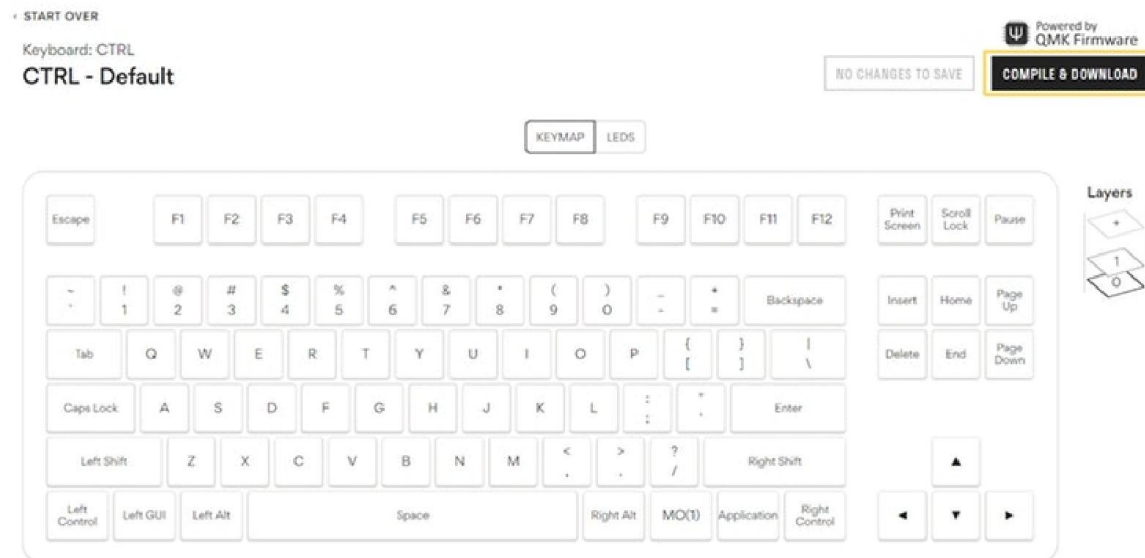
Download the appropriate loader application for your computer's OS here:  
<https://github.com/Massdrop/mdloader/releases/tag/1.0.3>.

**Windows users:** Download mdloader\_windows.exe and applet-flash-samd51j18a.bin and put them in the same folder.

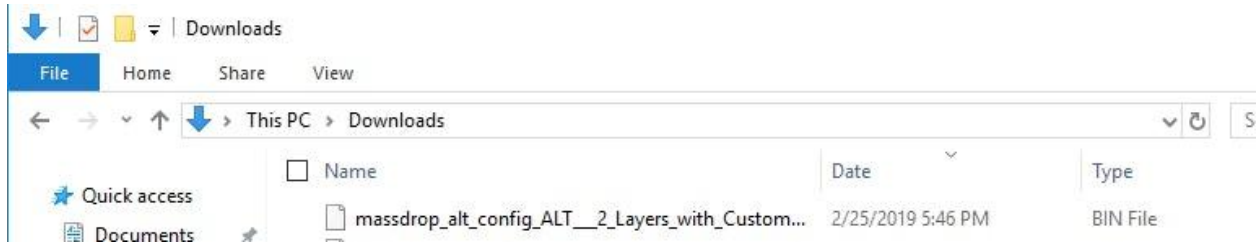
**Linux users:** Download mdloader\_linux and applet-flash-samd51j18a.bin and put them in the same folder. `chmod u+x mdloader_linux` to make it executable.

**Mac users:** Download mdloader\_mac and applet-flash-samd51j18a.bin and put them in the same folder. If downloading with Safari, mdloader\_mac will have a .dms extension appended to it. This is fine. `chmod u+x mdloader_mac` to make it executable. (`chmod u+x mdloader_mac.dms` if downloaded from Safari)

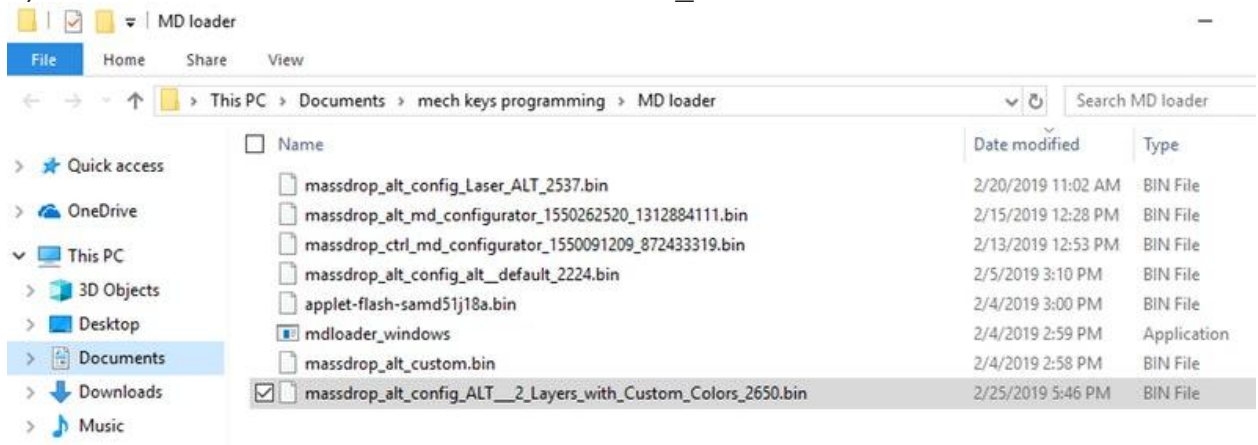
- 1) Go to the default configuration  
(<https://drop.com/mechanical-keyboards/configurator/preset/ctrl--default>) and click COMPILER & DOWNLOAD for the default keymap. Otherwise, make your desired changes before clicking COMPILER & DOWNLOAD.



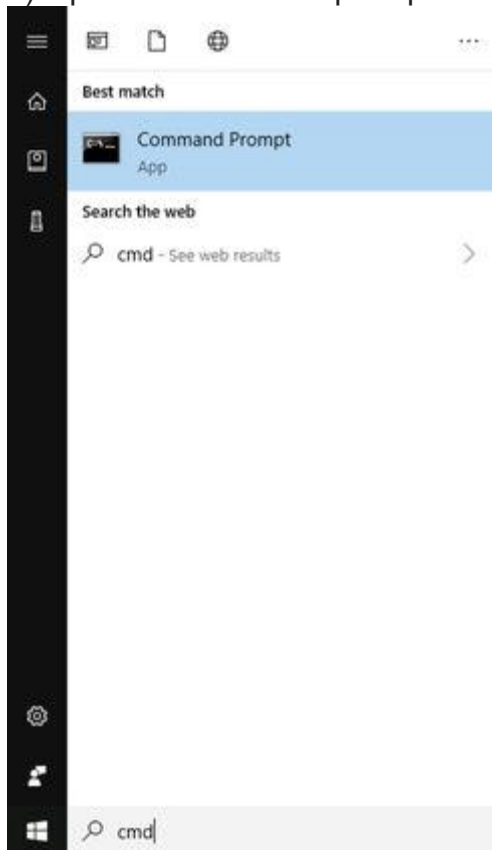
- 2) Locate the BIN file generated and downloaded via the configurator



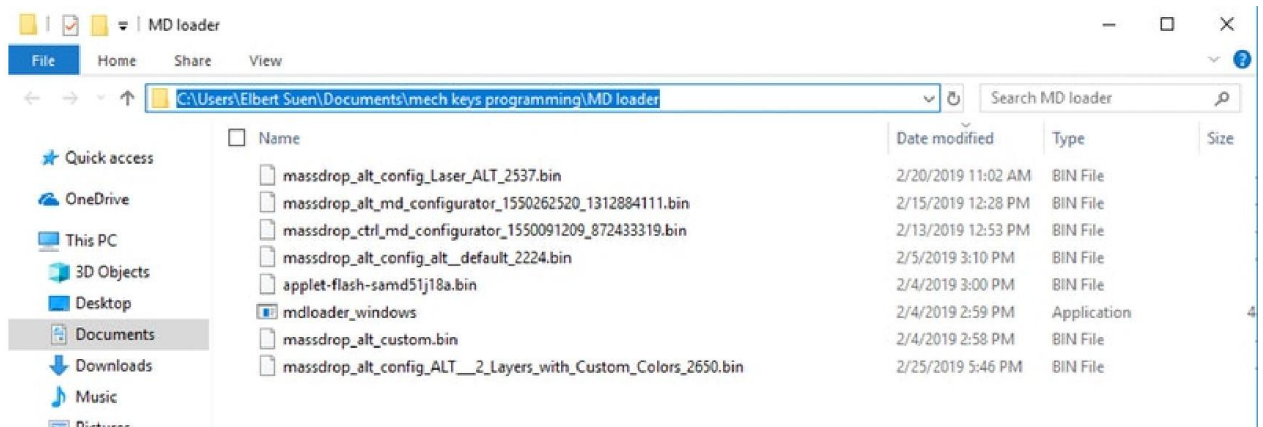
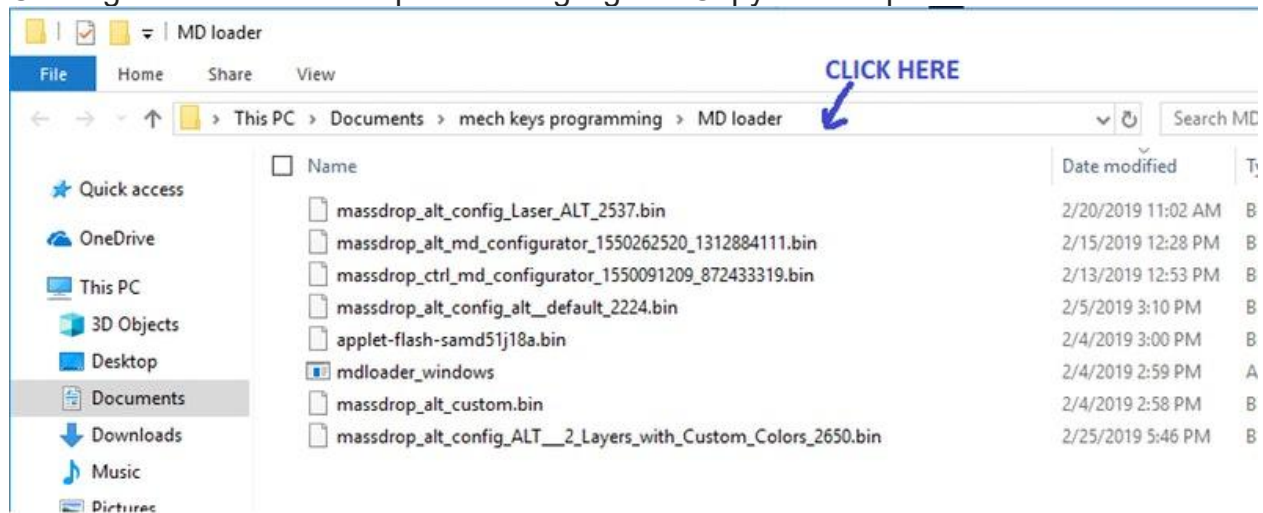
3) Move the file to the same folder as mdloader\_windows.exe



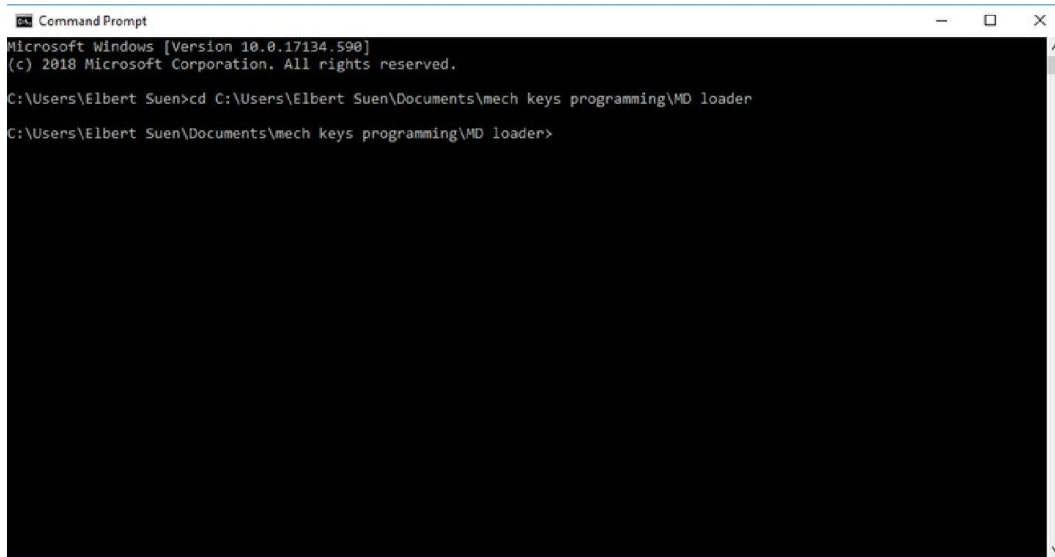
4) Open the command prompt



5) a) Determine the file path to the directory that contains the BIN file you just downloaded. You may simply click the file path near the top of windows explorer. Clicking it will show the file path and highlight it. Copy that file path.



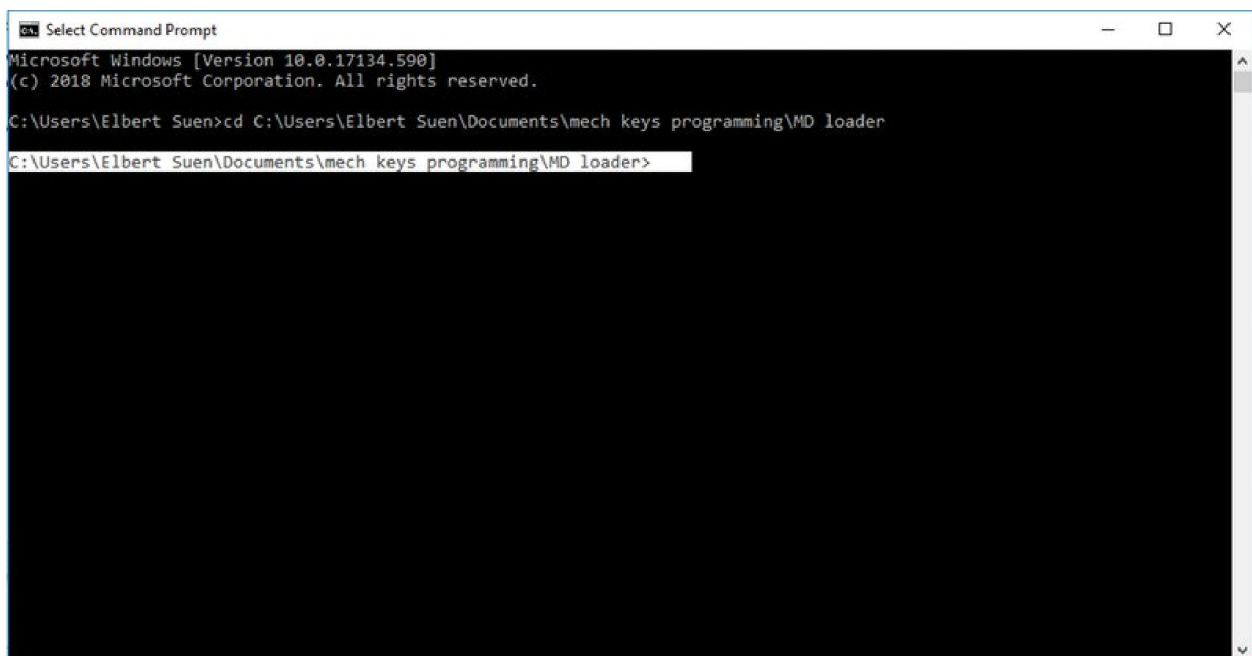
b) In the command prompt, navigate to the directory that contains the BIN file by typing "cd [file path]" and pressing Enter. As you have copied the file path in the above step, simply type "cd" and paste (Ctrl + V) the file path. Note that there is a space between "cd" and [file path].



```
Command Prompt
Microsoft Windows [Version 10.0.17134.590]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\Elbert Suen>cd C:\Users\Elbert Suen\Documents\mech keys programming\MD loader
C:\Users\Elbert Suen\Documents\mech keys programming\MD loader>
```

The highlighted line in the image below shows the directory you are currently in. It should match the file path that you copied.



```
Select Command Prompt
Microsoft Windows [Version 10.0.17134.590]
(c) 2018 Microsoft Corporation. All rights reserved.

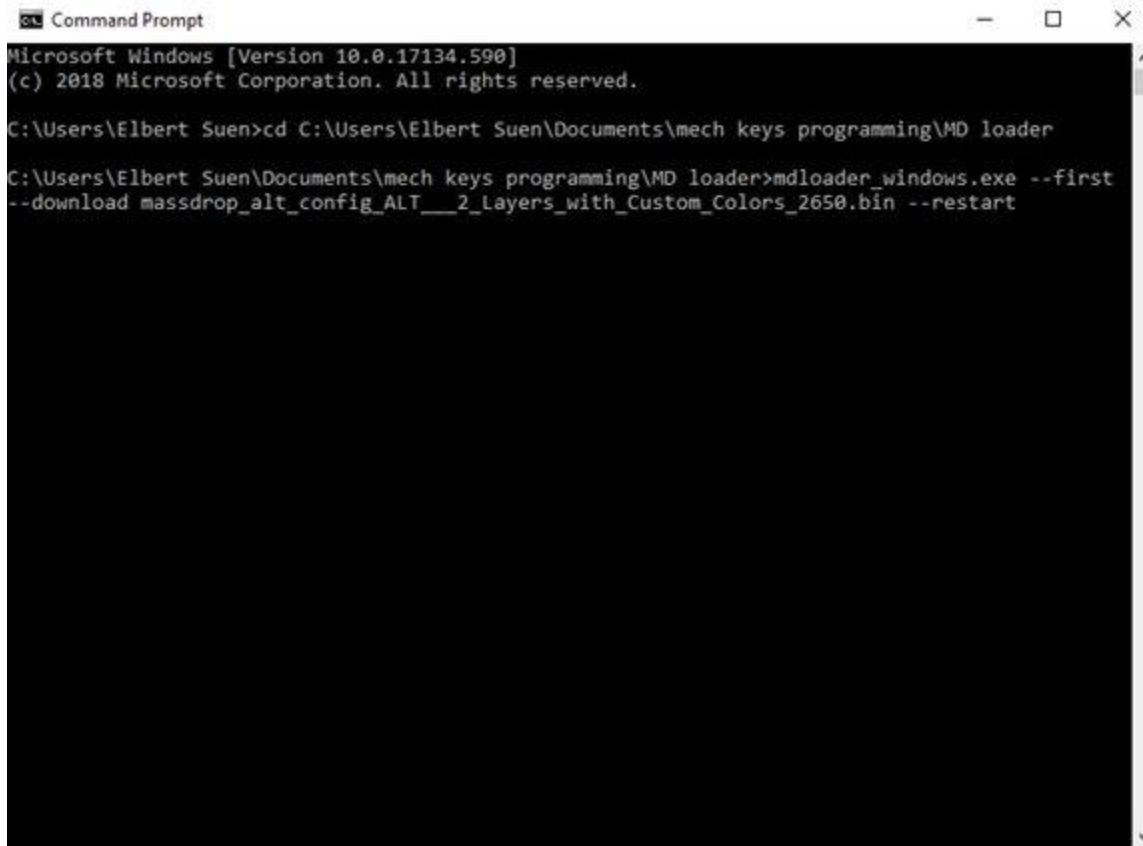
C:\Users\Elbert Suen>cd C:\Users\Elbert Suen\Documents\mech keys programming\MD loader
C:\Users\Elbert Suen\Documents\mech keys programming\MD loader>
```

**To flash your keyboard:**

- 1) Plug in the keyboard
- 2) In the command prompt, type **"mdloader\_windows.exe --first --download FILE\_NAME --restart"** where FILE\_NAME is the filename of your compiled firmware (the BIN file you downloaded from the configurator). For example, I would type **"mdloader\_windows.exe --first --download massdrop\_alt\_config\_ALT\_\_2\_Layers\_with\_Custom\_Colors\_2650.bin --restart"**



The "--first" option auto-detects the first available keyboard to flash over the next 60 seconds. Using --first, you can submit the flashing command with your CTRL keyboard and then press the reset button---no second keyboard needed. **Press Enter.**



```
Command Prompt
Microsoft Windows [Version 10.0.17134.590]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\Elbert Suen>cd C:\Users\Elbert Suen\Documents\mech keys programming\MD loader
C:\Users\Elbert Suen\Documents\mech keys programming\MD loader>mdloader_windows.exe --first
--download massdrop_alt_config_ALT__2_Layers_with_Custom_Colors_2650.bin --restart
```

3) Press the reset button. The reset button is in a hole on the underside of the keyboard. After pressing the reset button, all the LEDs will turn off. Your keyboard should flash and restart.



```
Command Prompt
Microsoft Windows [Version 10.0.17134.590]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\Elbert Suen>cd C:\Users\Elbert Suen\Documents\mech keys programming\MD loader

C:\Users\Elbert Suen\Documents\mech keys programming\MD loader>mdloader_windows.exe --first
--download massdrop_alt_config_ALT__2_Layers_with_Custom_Colors_2650.bin --restart
Massdrop Loader 1.03

Massdrop Loader Copyright (C) 2018 Massdrop Inc.
This program is Free Software and has ABSOLUTELY NO WARRANTY

Scanning for device for 60 seconds
.
Device port: COM7 (SAMDS1J18A)

Opening port 'COM7'... Success!
Found MCU: SAMDS1J18A
Bootloader version: v2.18Sep 4 2018 16:48:28
Applet file: applet-flash-samd51j18a.bin
Applet Version: 1
Writing firmware... Complete!
Booting device... Success!
Closing port... Success!

C:\Users\Elbert Suen\Documents\mech keys programming\MD loader>
```

P.S. Yes, the images show an ALT, but the process is identical.