

MPlus⁺ Field Firmware Update

Equipment Needed:

1. Phillips screwdriver, size #1
2. USB Flash “thumb” drive
Specs: 2TB maximum capacity
FAT(16) or FAT32 file system

Procedure:

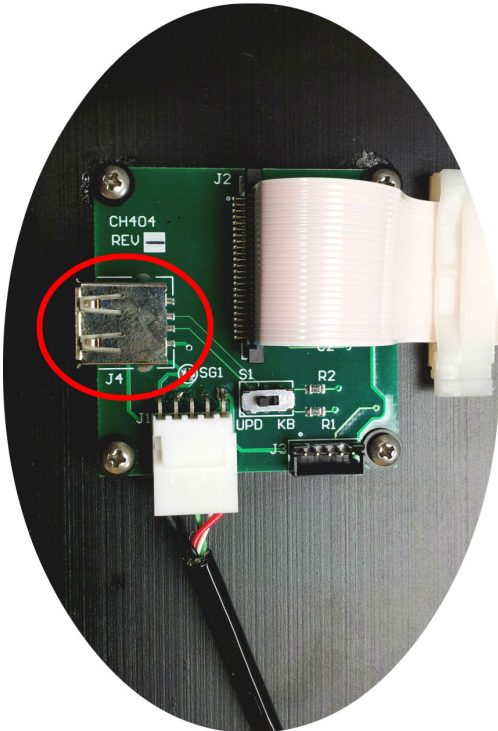
1. Load the firmware update file, **MPupdate.cfw**, onto the USB Flash drive in the “root”, meaning not inside of any folder. For example, if the thumb drive shows up as drive E:, the update file should have the following path (address): E:\MPupdate.cfw. For USB Flash drives containing multiple partitions, the firmware update file must be loaded into the drive’s first primary partition, typically assigned the lowest letter alphabetically, i.e., closest to ‘A’, of the partitions on the drive.

To obtain the MPlus⁺ firmware update file, please contact CUES Customer Service at 1-800-327-7791.

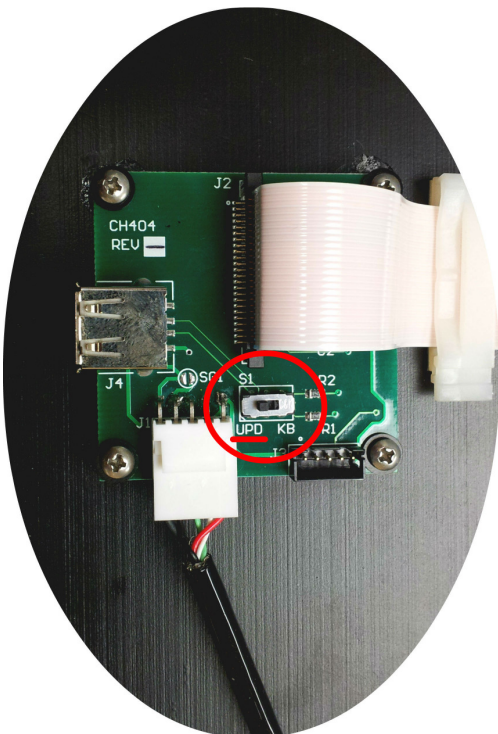
2. Power-down the MPlus⁺, if necessary, by pressing the power button.
3. Using the Phillips screwdriver, unscrew the 14 screws that secure the keyboard panel to the fold-down portion of the MPlus⁺ Control Unit.



4. Locate the circuit board attached to the underside of the keyboard panel. Insert the USB Flash drive into the USB port, J4, on top of this circuit board.

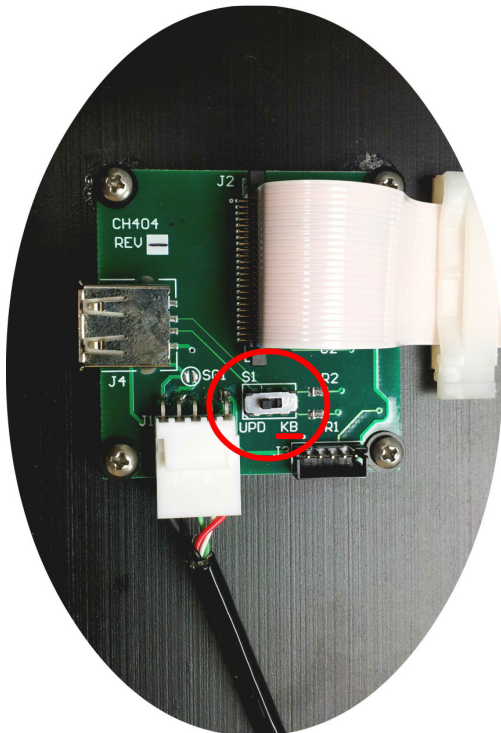


5. Move the sliding switch, S1, on the circuit board to the 'UPD' position.



6. Activate the firmware update mode:
 - Press and hold the MPlus⁺ power button. The system powers-up initially, as indicated by the blue LED turning on.
 - Continue holding down the MPlus⁺ power button until the system powers back down, as indicated by the blue LED turning off. This occurs after anywhere between three and six seconds.
 - Release the MPlus⁺ power button. The system immediately powers-up, but this time into the firmware update mode.
7. Wait while the MPlus⁺ firmware is updated. Onscreen messages indicate the update progress and will identify if any issues occur during programming.

Please refer to the Troubleshooting section if the system displays an error message.
8. Wait until the MPlus⁺ system automatically powers-down; this occurs approximately 8 – 10 seconds after the firmware update completes.
9. Remove the USB Flash drive from the circuit board.
10. Move the sliding switch, S1, on the circuit board back to the 'KB' position.



11. Set the keyboard panel back in place into the fold-down portion of the MPlus⁺ Control Unit, and, using the Phillips screwdriver, reinstall the 14 screws to secure it. Be careful to not over-tighten the screws.

Troubleshooting:

The following is a list of the error messages provided by the MPlus⁺ firmware update program, along with a description of what each indicates and some potential causes.

NOTES:

1. All of the below error messages can, additionally, be caused by communication problems with the attached USB Flash drive, which can be caused by poor connection between the contacts in the drive and those in the USB connector.
2. If the error message description does not provide a solution, try pulling the USB Flash drive out and plugging it back in, and then retry the procedure from step 6.
3. If failures persist, retry the procedure from the beginning with a different USB Flash drive.

- **NO USB DEVICE FOUND**

- A USB device is not plugged into the USB port, J4, on the circuit board attached to the underside of the keyboard panel.

- **USB COMMUNICATION ERROR**

- The system is having unspecified problems communicating with the attached USB device.

- **UNSUPPORTED CONFIG DSCRPTR**

- The 'Configuration Descriptor' data received from the USB device was too large to fit into the internal buffer.
- *This is an uncommon error that should only occur when using a non-standard USB Flash drive or when the attached USB device is something else entirely.*

- **UNSUPPORTED USB DEVICE**

- The attached USB device has not been identified as a 'Mass Storage Device', which is the standard classification for USB Flash drives.
- Check the state of the slide switch, S1, on the circuit board attached to the underside of the keyboard panel. Make sure it is set to the 'UPD' position for performing the firmware update.

- **UNSUPPORTED LOG BLOCK LEN**

- The 'Logical Block Length' reported by the USB Flash drive is not equal to the value, 512 bytes, supported by the MPlus⁺ firmware update program.
- *This is an uncommon error that should only occur when using a non-standard USB Flash drive.*

- **UNSUPPORTED NUM LOG BLOCKS**

- The number of 'Logical Blocks' reported by the USB Flash drive exceeds the maximum number supported by the MPlus⁺ firmware update program.
- *If the drive's 'Logical Block Length' is the standard 512 bytes, this equates to approximately 2TB of memory capacity.*

- UNSUPPORTED FILE SYSTEM
 - The MPlus⁺ firmware update program was unable to locate a volume on the USB Flash drive formatted with either of the two supported file systems, FAT(16) or FAT32.
 - *On USB Flash drives containing multiple partitions, only the first primary partition is examined.*

- UNSUPPORTED VOL SECTR SIZE
 - The 'Bytes Per Sector' parameter of the detected FAT volume is not equal to the value, 512 bytes, supported by the MPlus⁺ firmware update program.
 - *This is an uncommon error that should only occur when using a non-standard USB Flash drive.*

- VOLUME MAY BE CORRUPTED
 - Information gathered from the FAT volume indicates that it may be corrupted.
 - *This can result from either: (A) not dismounting the volume properly, e.g., pulling the USB Flash drive out of a USB port without first using the "Safely Remove..." feature, or (B) the occurrence of a disk read/write error, indicating that some of the USB Flash drive's memory sectors may have gone bad.*

- UPDATE FILE NOT FOUND
 - The MPlus⁺ firmware update program was unable to locate a filename that matches the firmware update file, **MPupdate.cfw**, in the volume's "root" directory.
 - Check the filename of the firmware update file on the USB Flash drive to make sure it is named properly, including its three-letter extension. The filename is not case-sensitive.
 - Check the location of the firmware update file on the USB Flash drive to make sure it is located in the "root", i.e., not inside of any folder.

- UPDATE FILE IS CORRUPTED
 - The firmware update file that was found has failed one of the MPlus⁺ firmware update program's integrity checks, meaning it contains invalid data that cannot be used.
 - Try re-loading the firmware update file onto the USB Flash drive.
 - Try obtaining a fresh copy of the firmware update file, either by re-downloading the original file you received or by requesting a new copy from CUES Customer Service.

- ERROR DURING PROGRAMMING
 - Some of the raw firmware data being programmed into memory failed the verification step, i.e., the data read back differed from the data that was written.
 - *This can result from a problem with the microcontroller on the main circuit board inside the MPlus⁺ Control Unit.*