i4M

Seeder V2

Programming Instructions

Version: 1.2

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Issued By: Daniel Niven-Hulett

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Opening Controller Enclosure

Open the Seeder V2 enclosure as shown below.
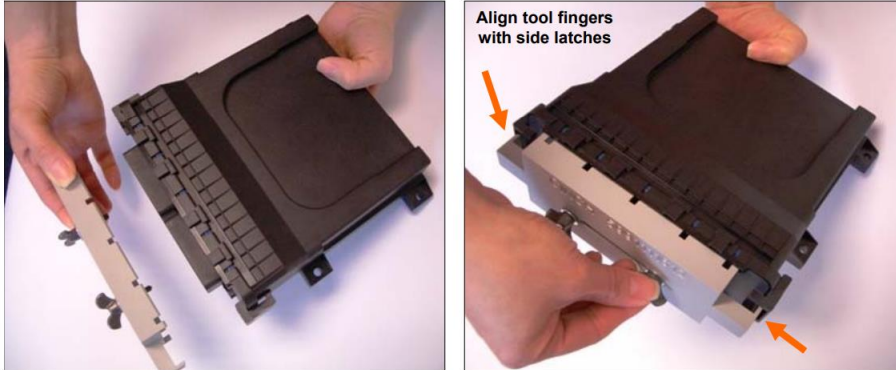
- Position tool so that the screws capture both header bushings
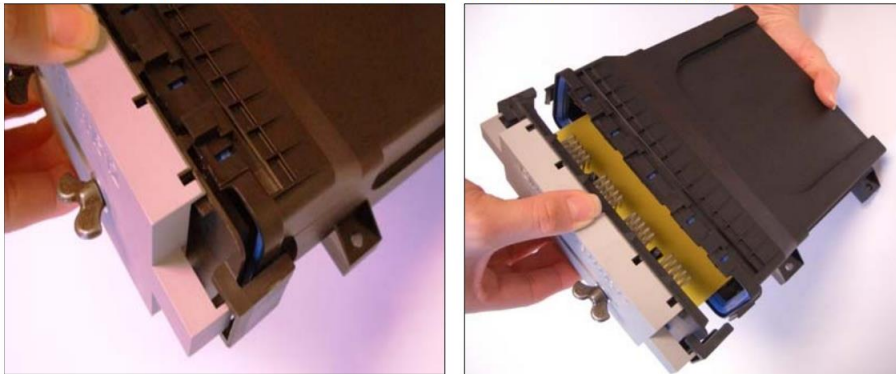
- Alternately tighten each screw evenly until tool releases the header from the enclosure,
- Both side latches must be unlocked (audible snaps) to release the header,
- Pull tool straight out to remove the header/PCB from the enclosure.
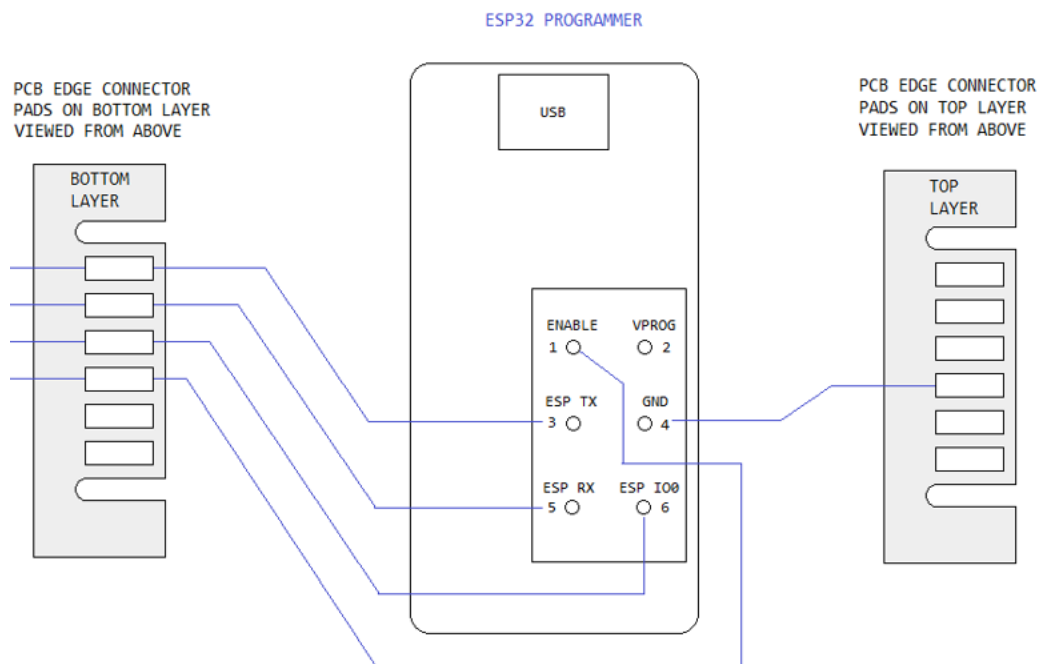
Programming ESP32

Connections

1. On ESP32 programmer, install and remove jumpers as necessary according to the diagram below.
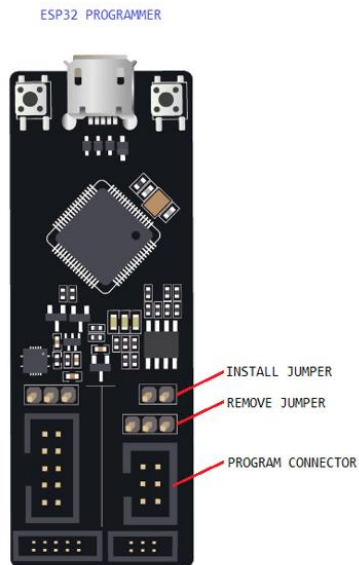
2. Connect ESP32 programmer to the Seeder V2 controller using the edge connector in accordance with the wiring diagram below. Connect the programmer to a computer via USB.
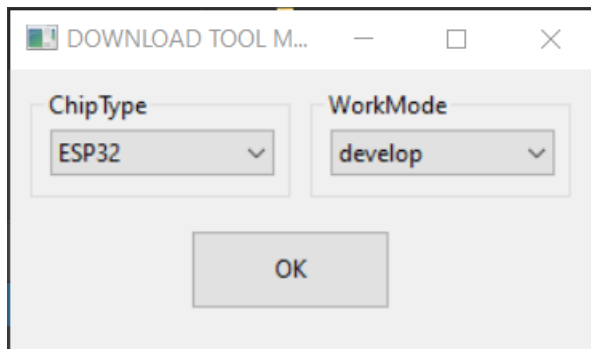

3. Connect Seeder V2 controller to power supply. Turn on power supply.
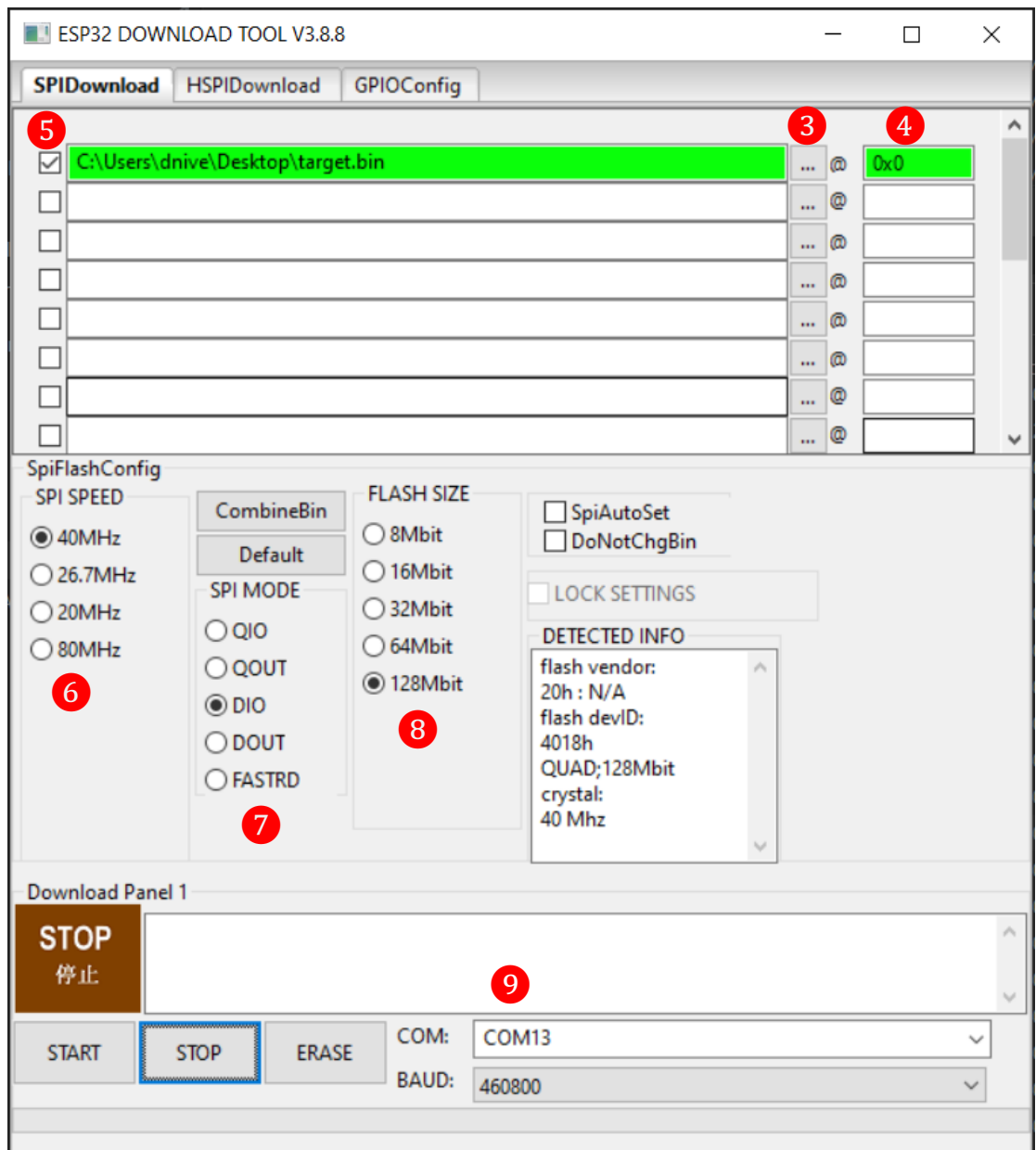
Software

1. Install ESP Download Tool. Available for download at https://www.espressif.com/en/support/download/other-tools under "Flash Download Tools".
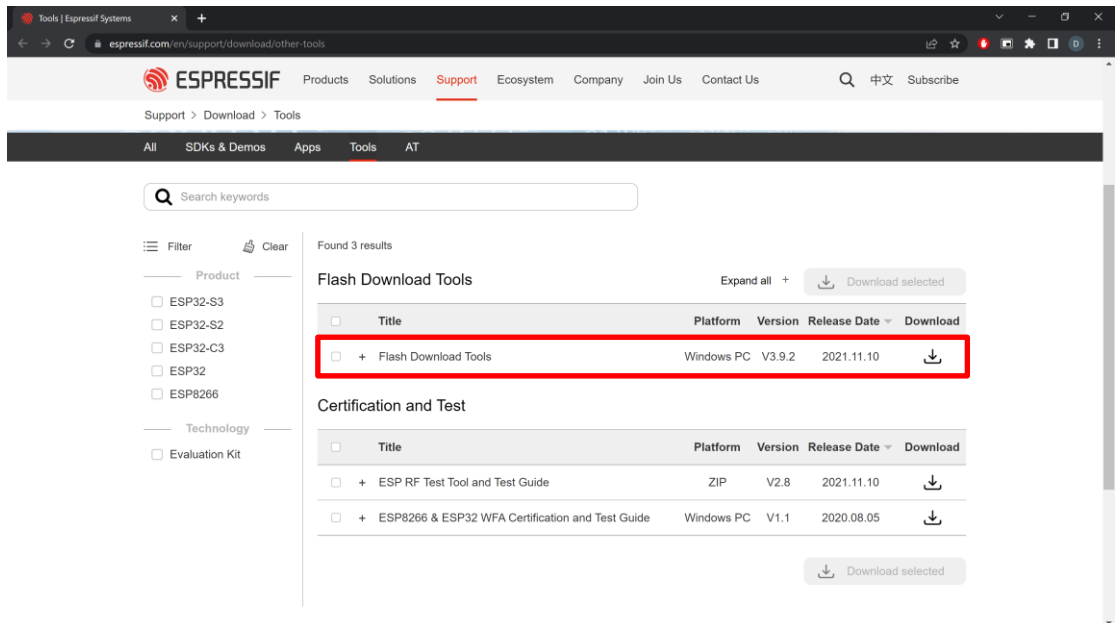
2. Run ESP Download Tool. Select ChipType ESP32 and click OK.

3. Browse and select "target.bin".

4. Set flash location to "0x0".

5. Tick box on the left hand side.

6. Set SPI SPEED to 40MHz.

7. Set SPI MODE to DIO.

8. Set FLASH SIZE to 128Mbit.

9. Set correct com port. Select it in the dropdown, don't type it in. Programmer has two com ports. Select the larger com port number for programming. Set BAUD to 460800.
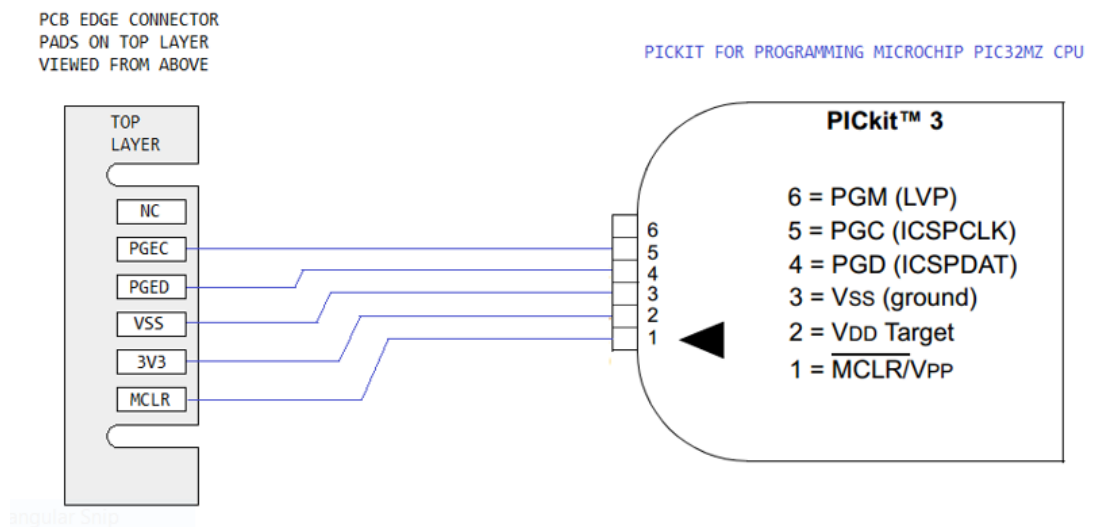
10. Click START. When finished click STOP.

11. On programmer hold RST button for 2 seconds. Release and Wi-Fi module will start.
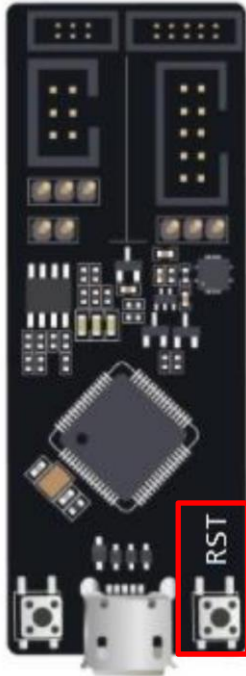
Programming PIC32

Connections

1. Connect MPLAB SNAP programmer to Seeder V2 controller using the edge connector in accordance with the wiring diagram below. Connect the programmer to a computer via USB.
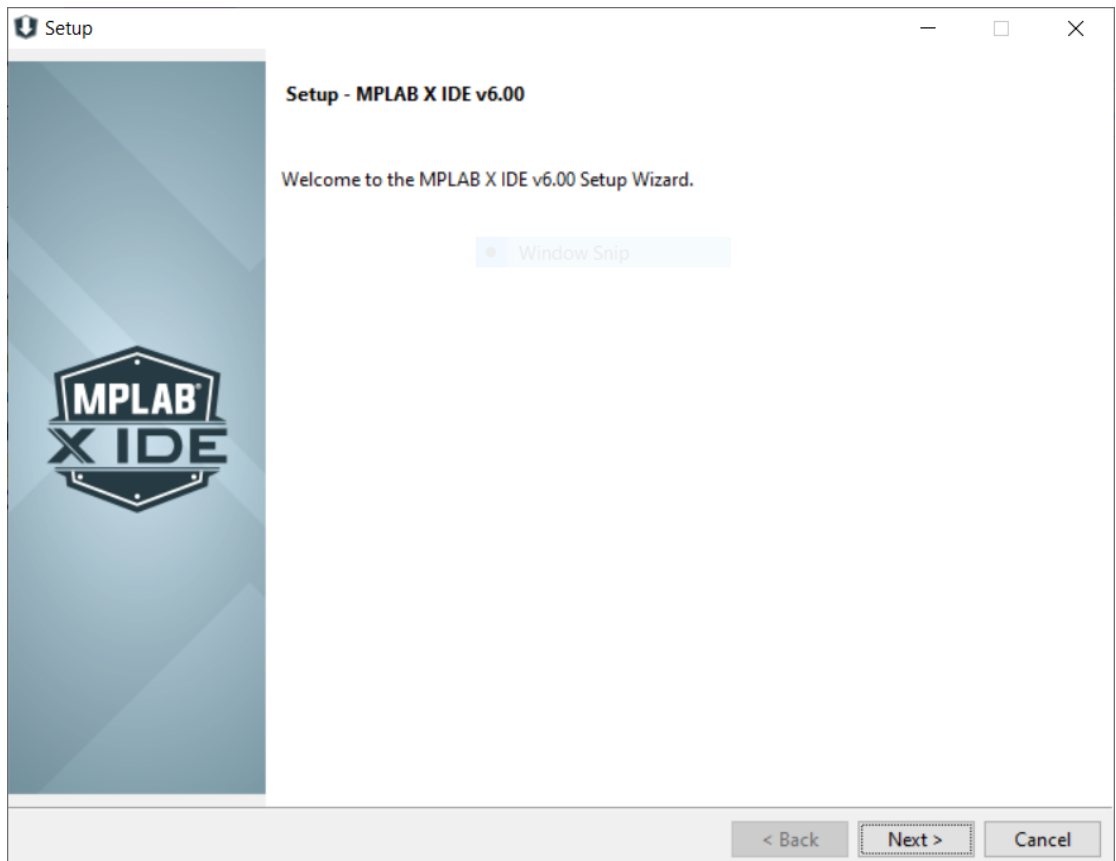

2. Connect Seeder V2 controller to power supply. Turn on power supply.
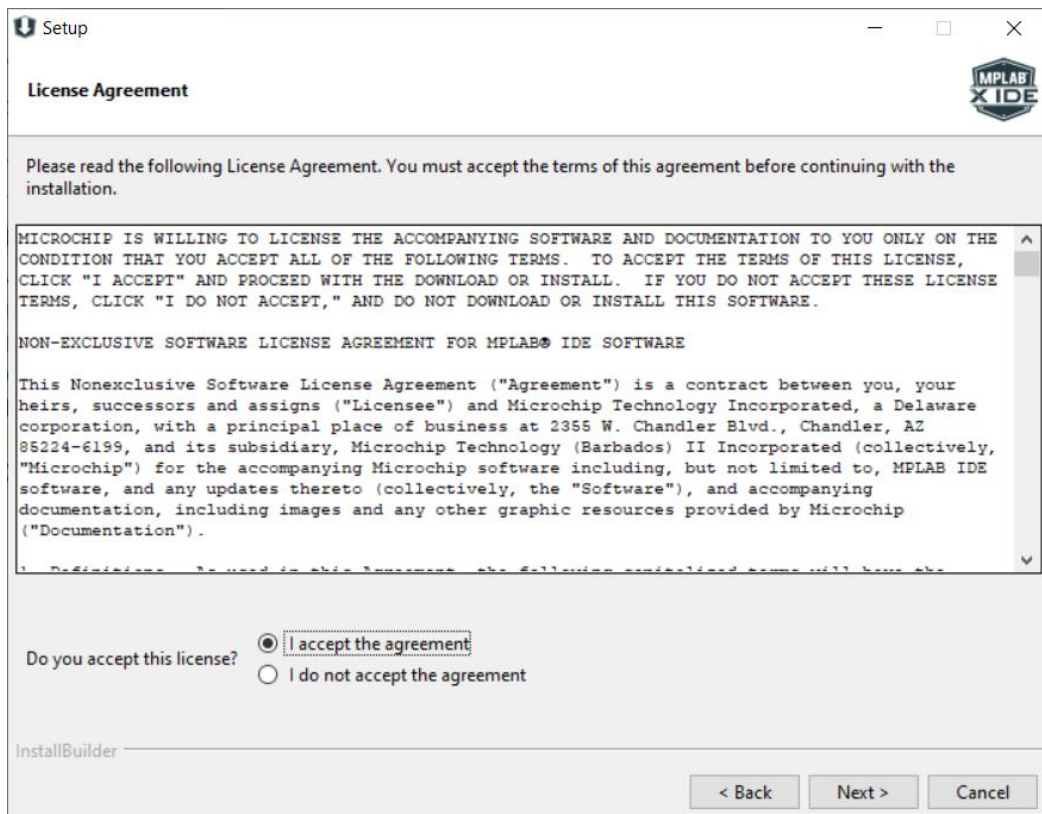
Software

1. Download MPLAB X IDE installer. Available for download at
   https://www.microchip.com/en-us/tools-resources/develop/mplab-x-ide#tabs.
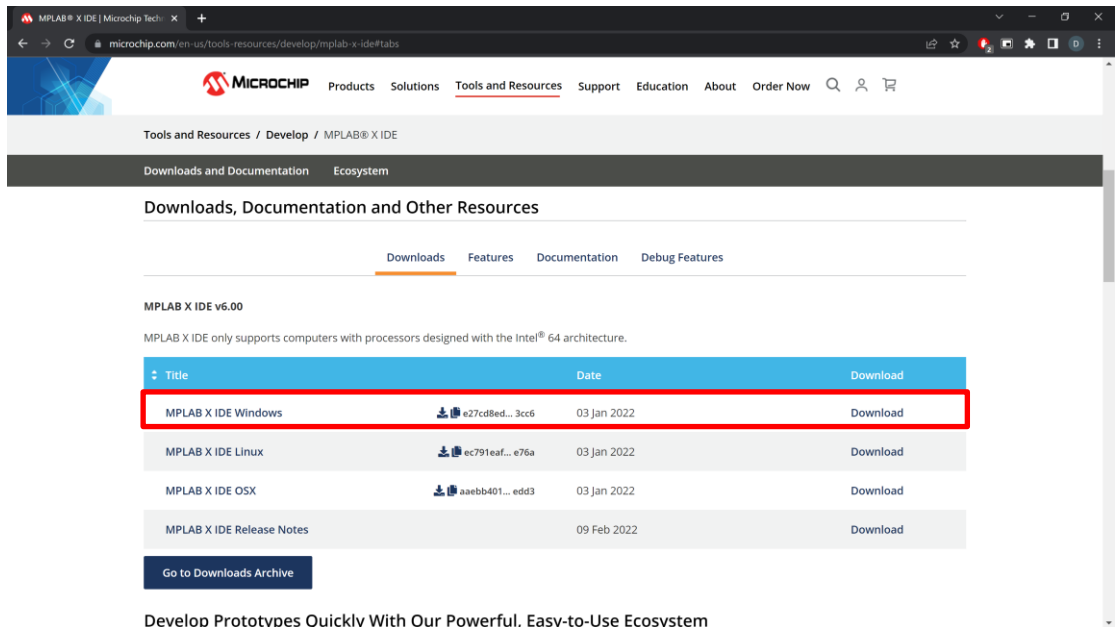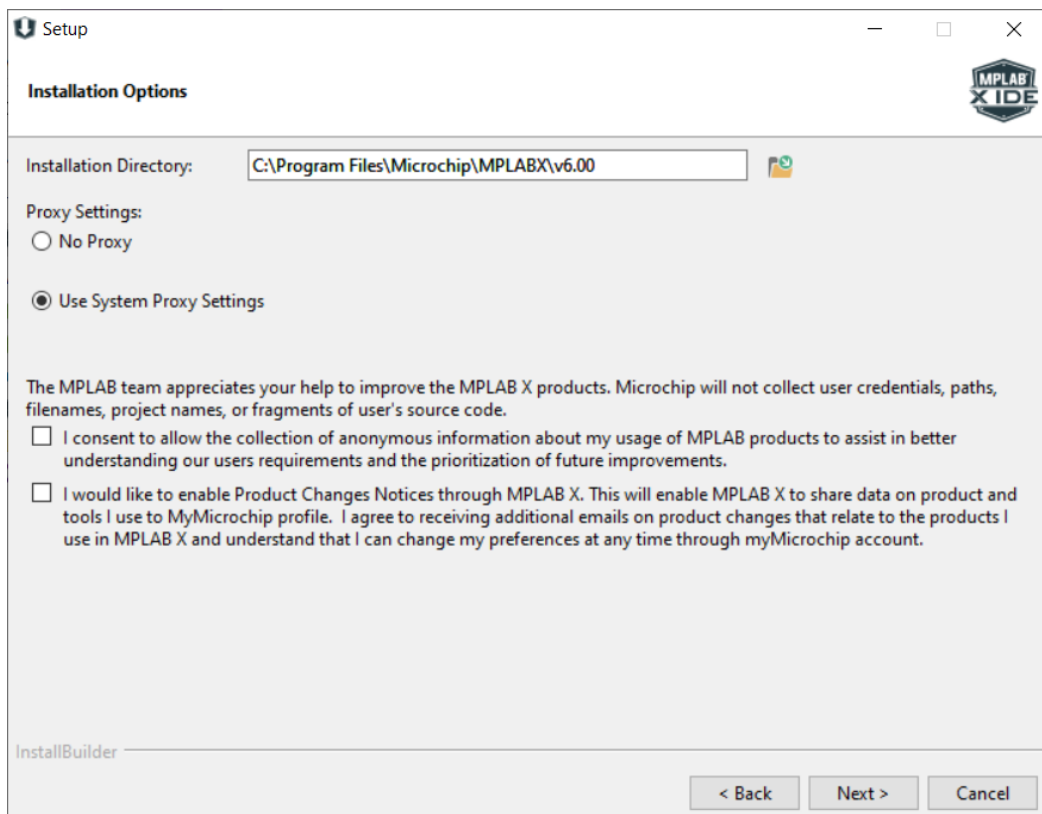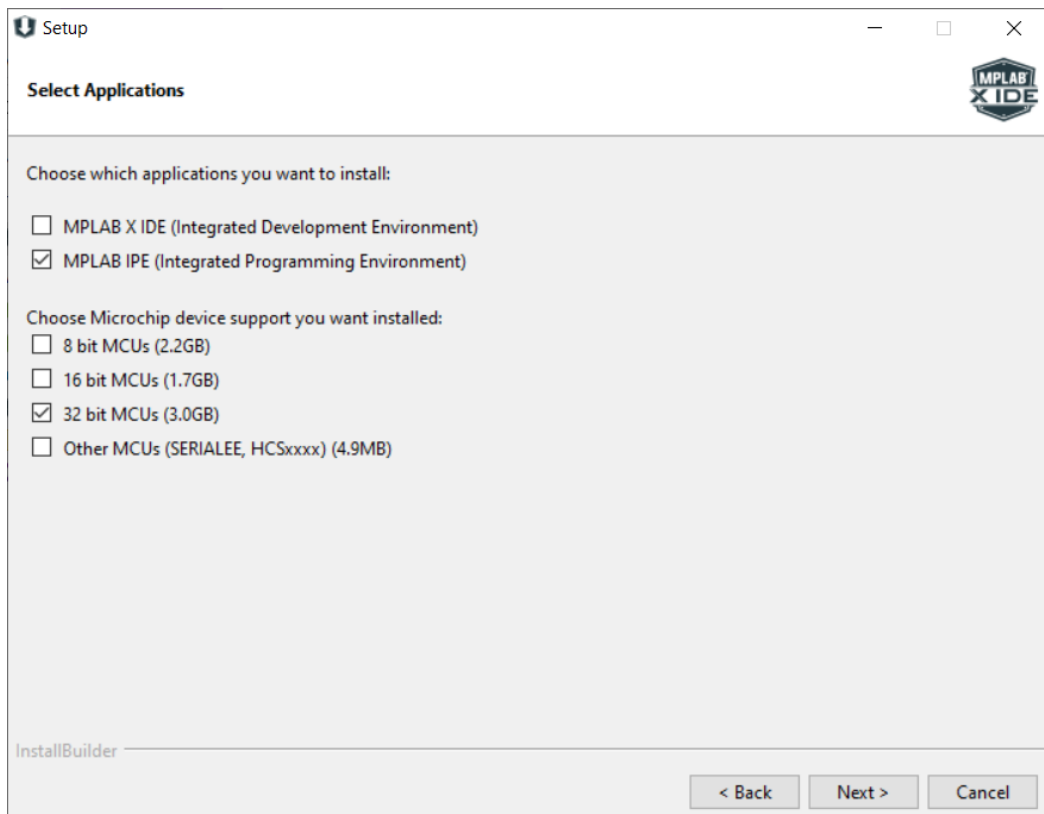

2. Run MPLAB X IDE installer.

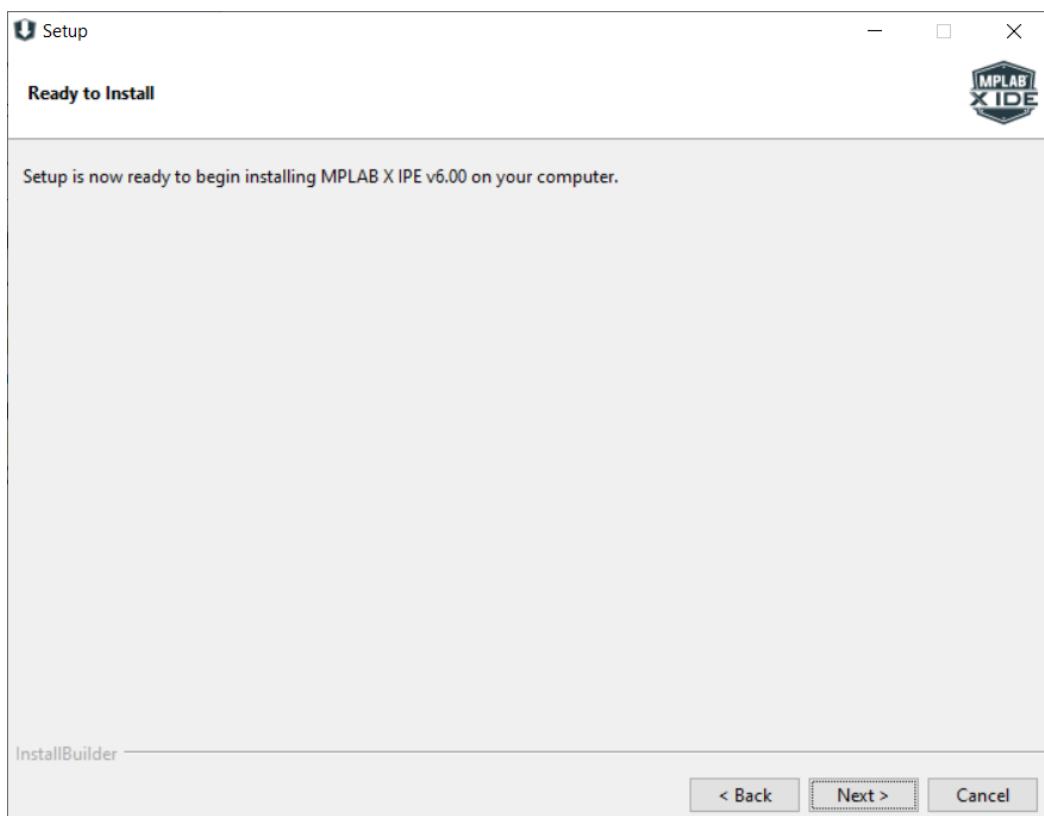3. Accept license agreement.

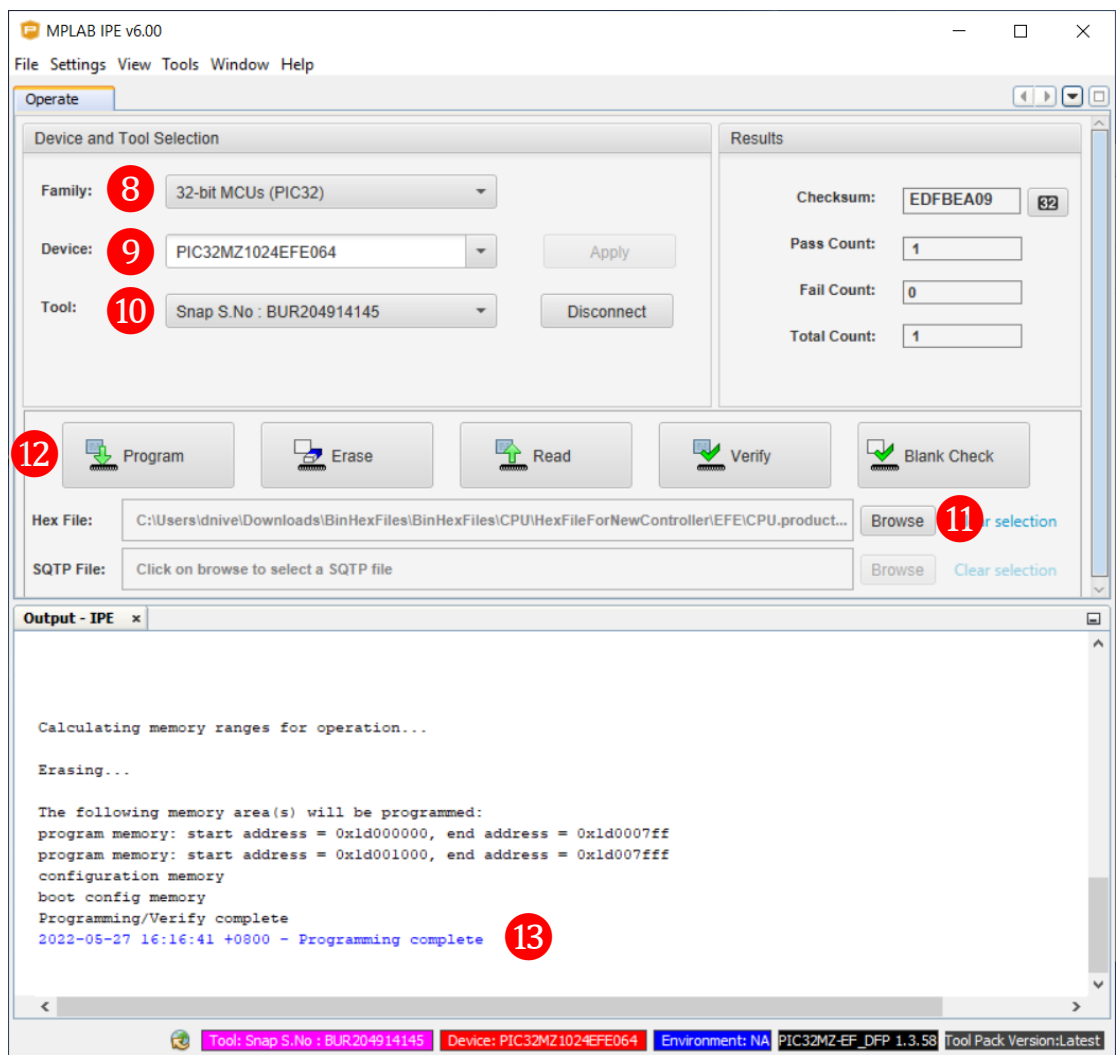

4. Select installation options.

5. Select applications MPLAB IPE and 32 bit MCUs.


6. Install

7. Once installation is complete, open MPLAB IPE.

8. Under Family dropdown menu, select "32-bit MCUs (PIC32)".

9. Under Device dropdown menu, select appropriate device model. This will be of the form PIC32MZ1024*xxx*064, where *xxx* are three uppercase letters. These letters can be found on the MCU1 section of the Seeder V2 controller PCB, as shown in the pictures below. These images depict a controller with device model PIC32MZ1024**EFE**064. Not all controllers use the same device model, so each one will need to be inspected. Once selected, click Apply.
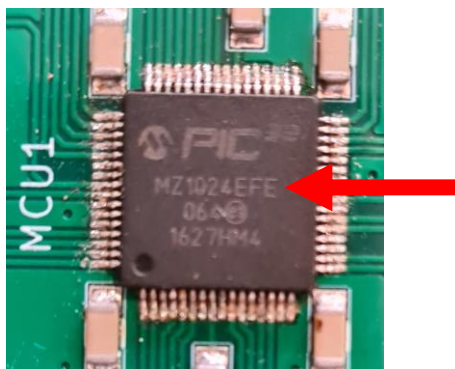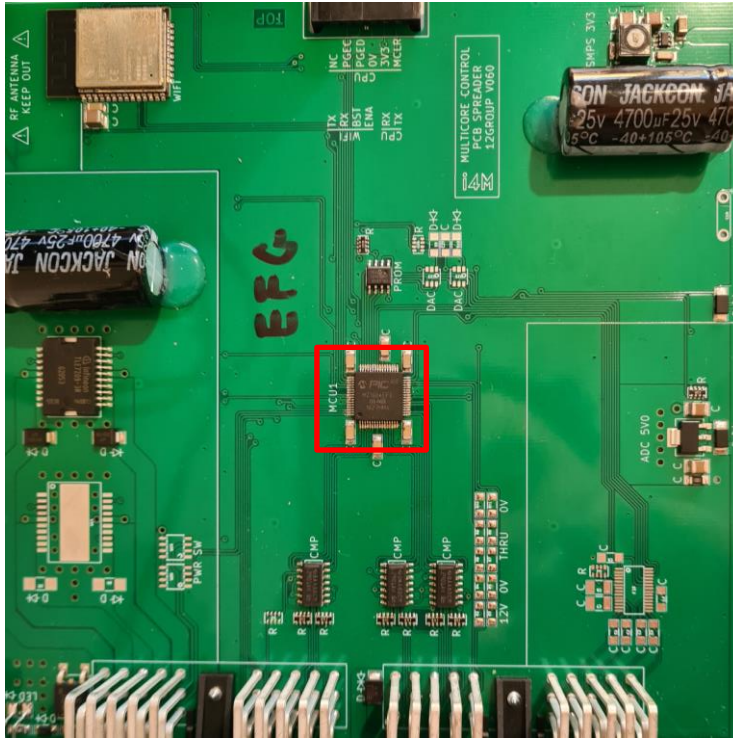

10. Under Tool dropdown menu, select MPLAB SNAP programmer and click Connect.

11. Next to Hex File, click Browse and locate the appropriate hex file. There are different hex files for each device model. For example, when programming a PIC32MZ1024**EFE**064, ensure that the EFE hex file is selected.

12. Click Program.

13. If successful, the Output – IPE terminal should display "Programming complete".

14. Remove the edge connector from the controller. The controller should boot up. The status LED on the controller will change from off to solid red to solid green.
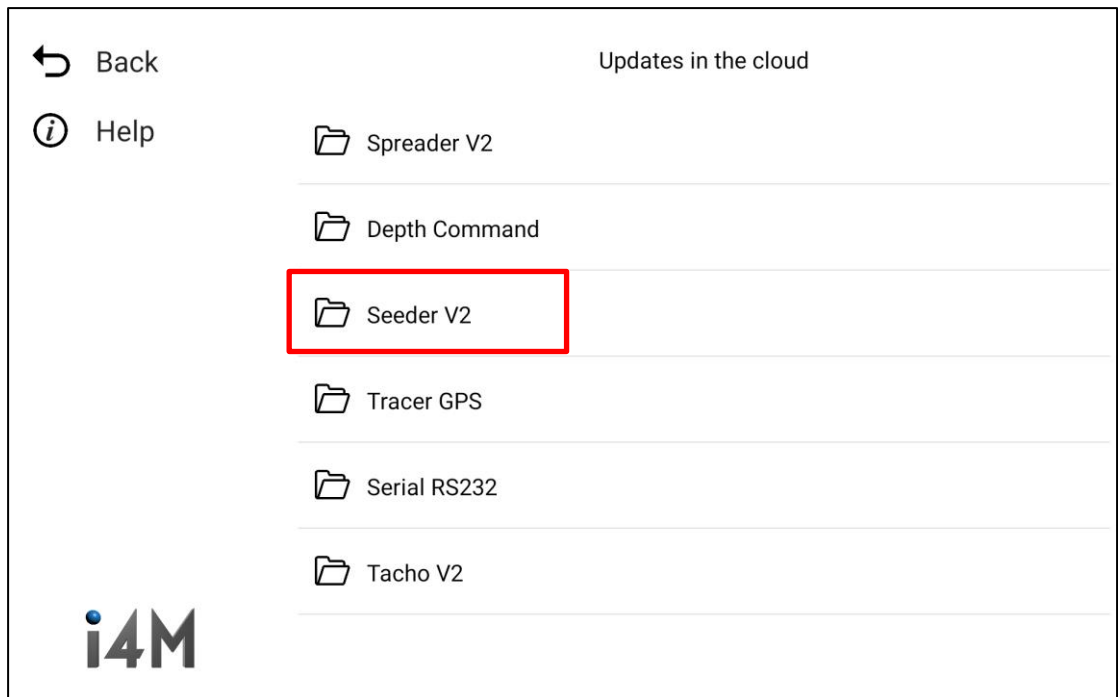
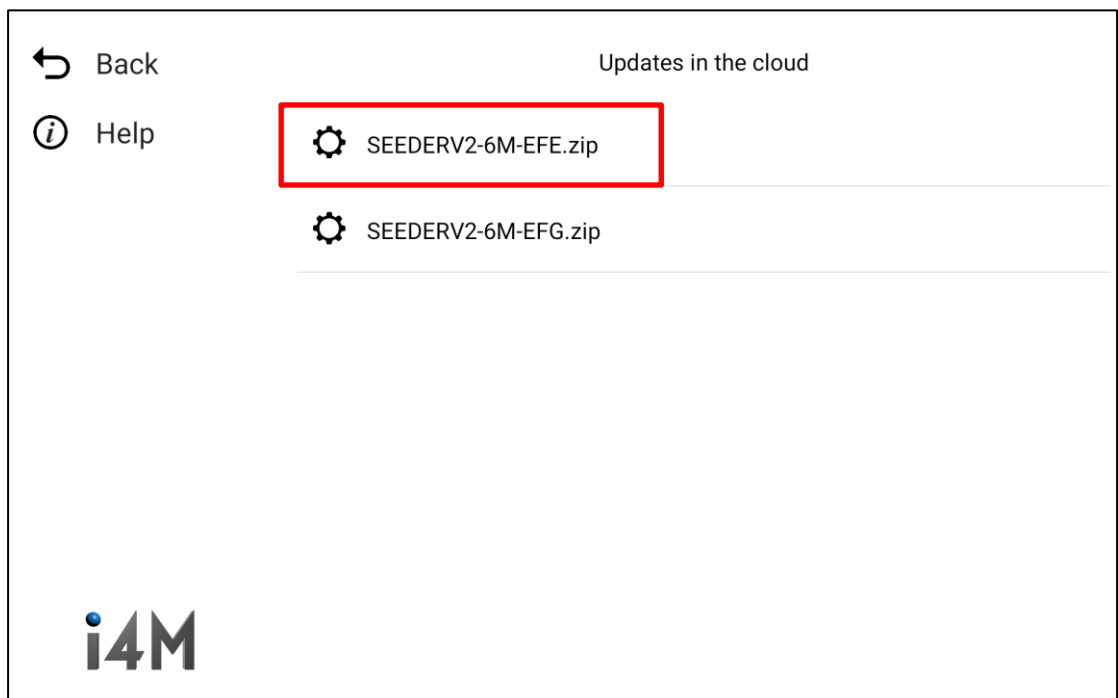1. Download, install and open i4M Machine Update app.
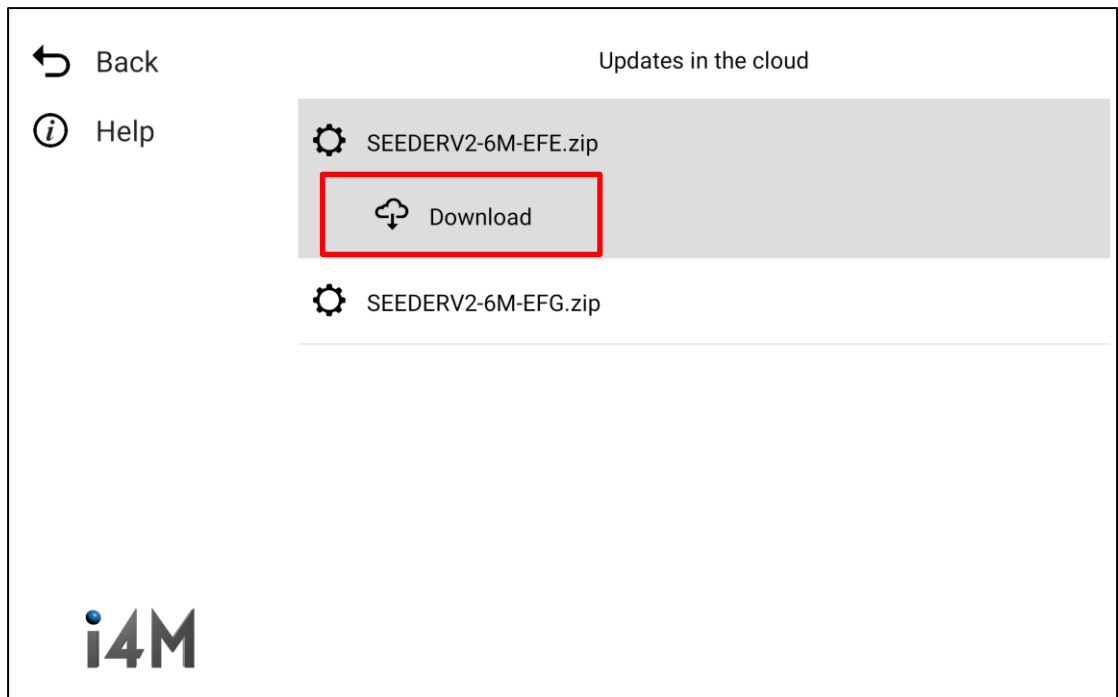
2. Tap Updates.
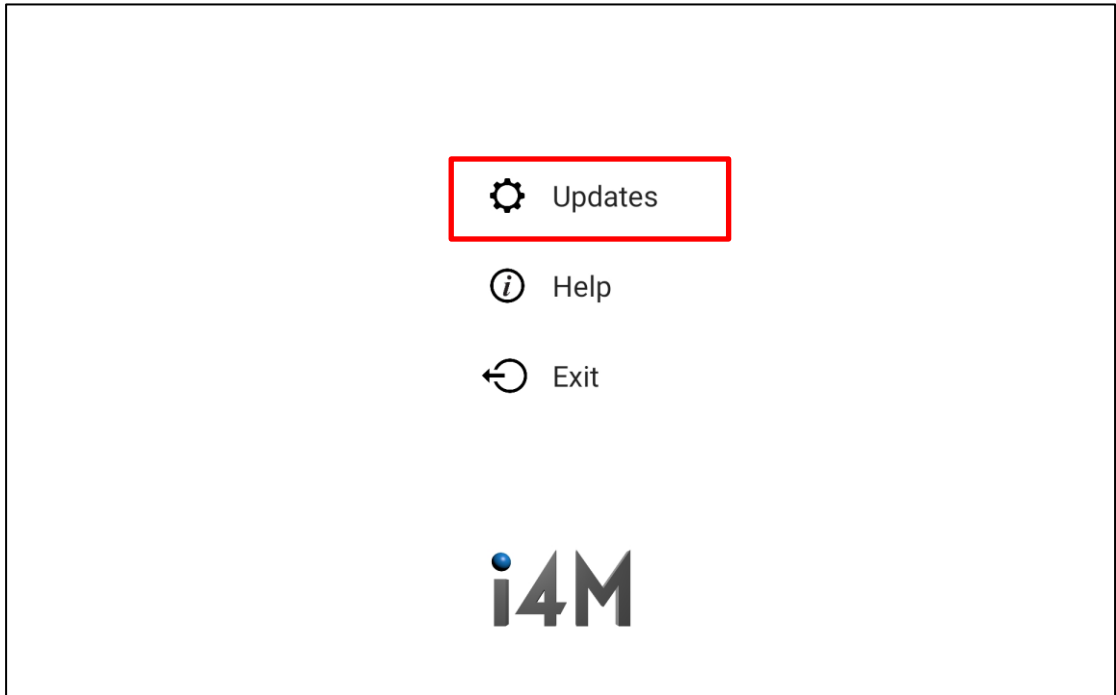
3. Tap Download.

4. Tap Seeder V2.

5. Tap update package according to CPU model *e.g.* SEEDERV2-6M-EFE.zip
   for model EFE CPU.
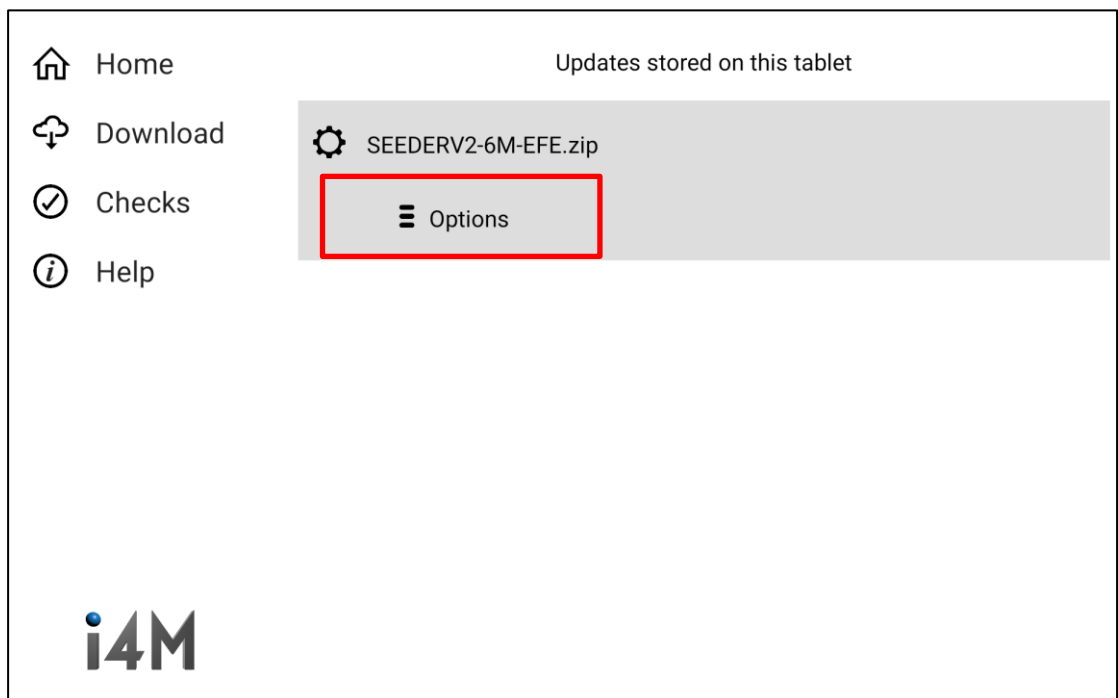
6. Tap Download.

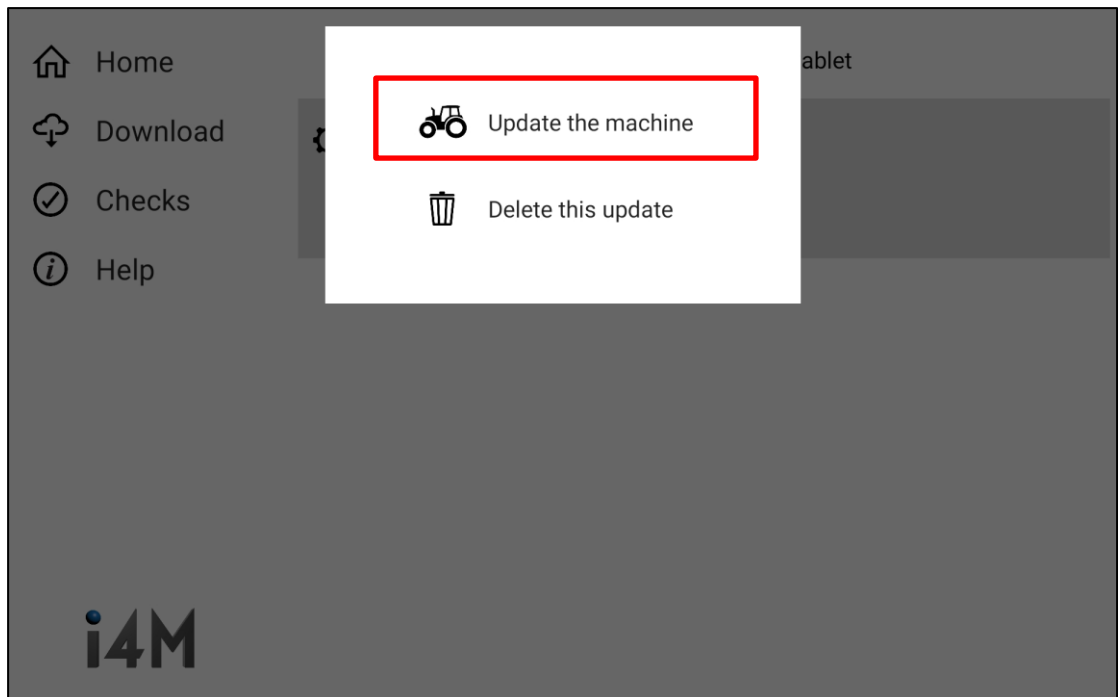

7. When download is complete, tap Back.
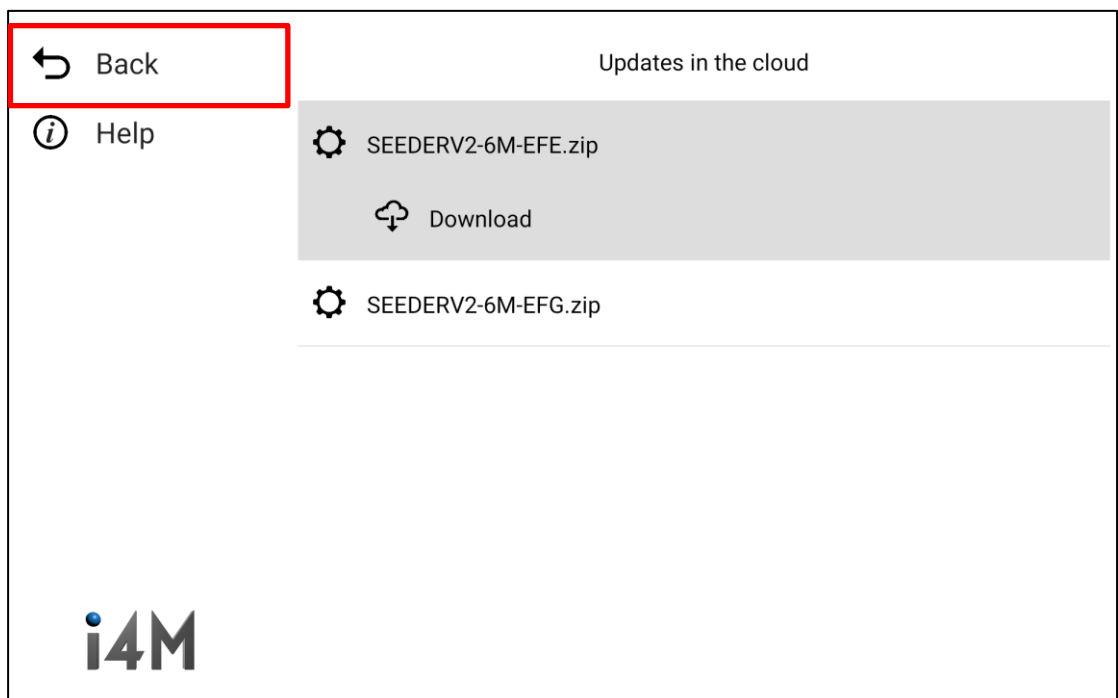
8. Tap update package according to CPU model *e.g.* SEEDERV2-6M-EFE.zip for model EFE CPU.
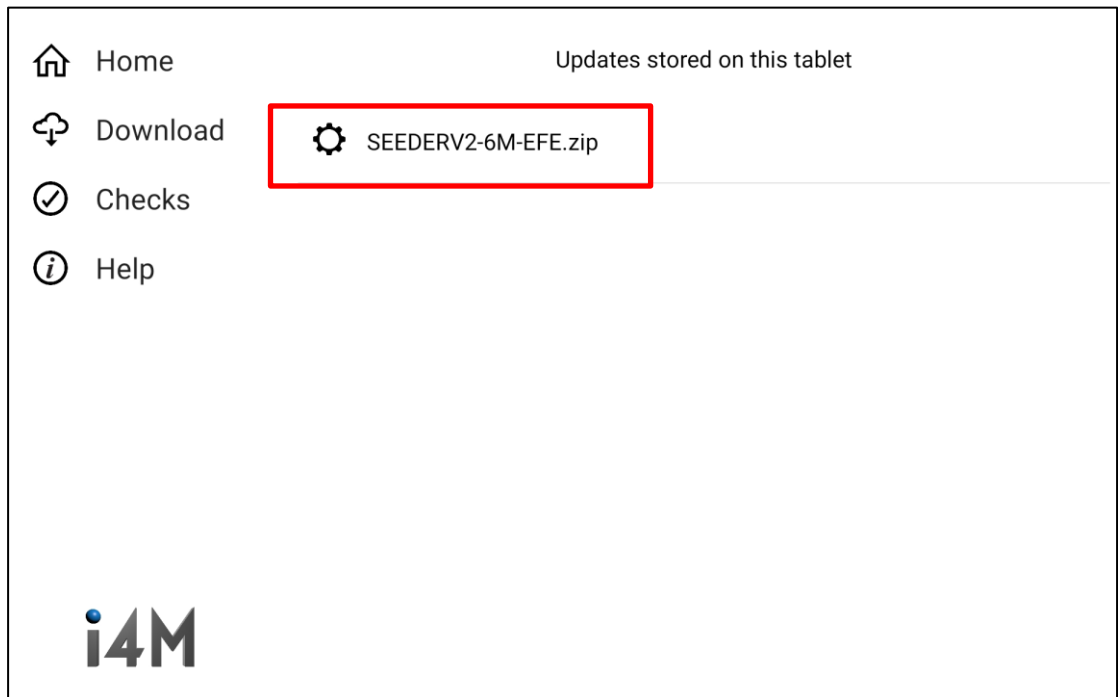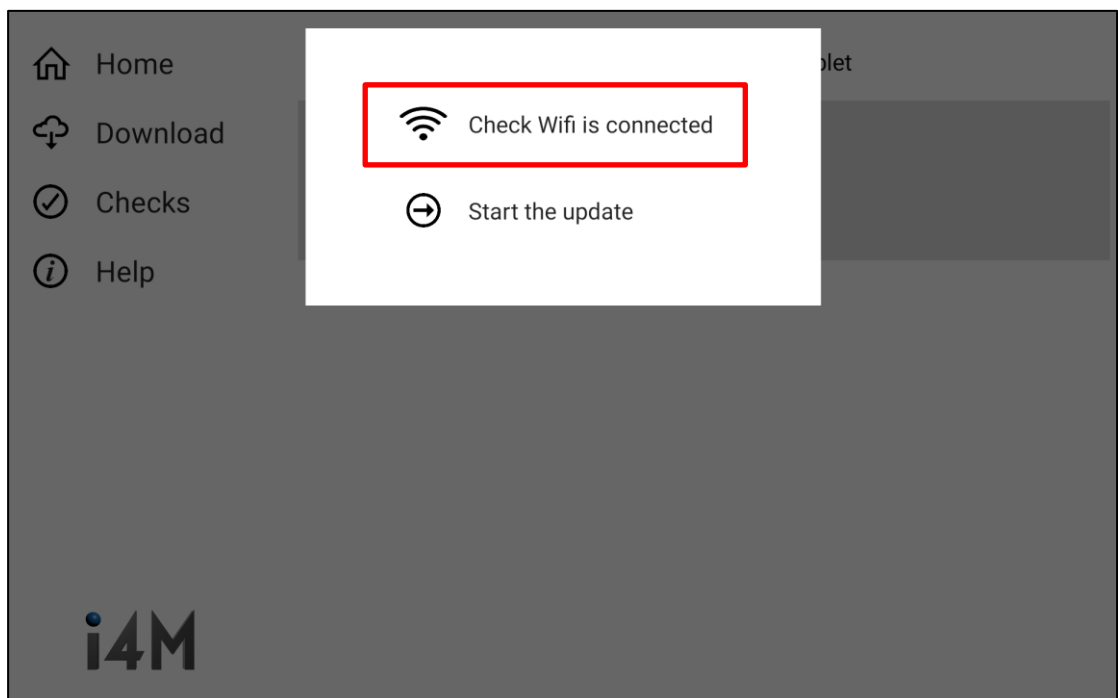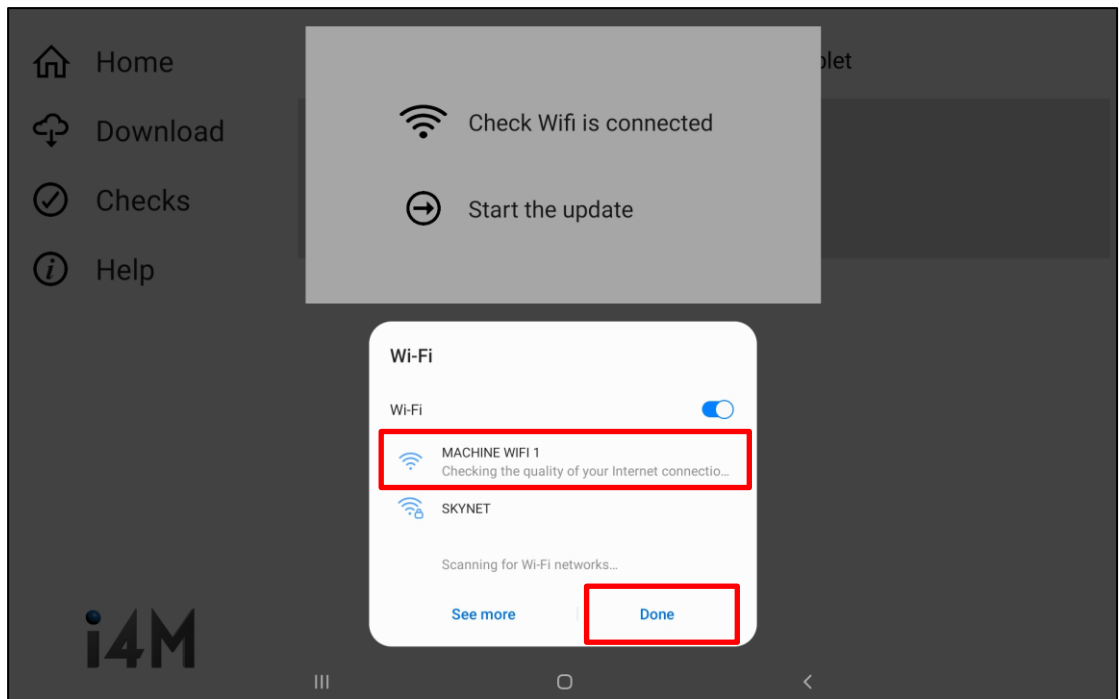

9. Tap Options.

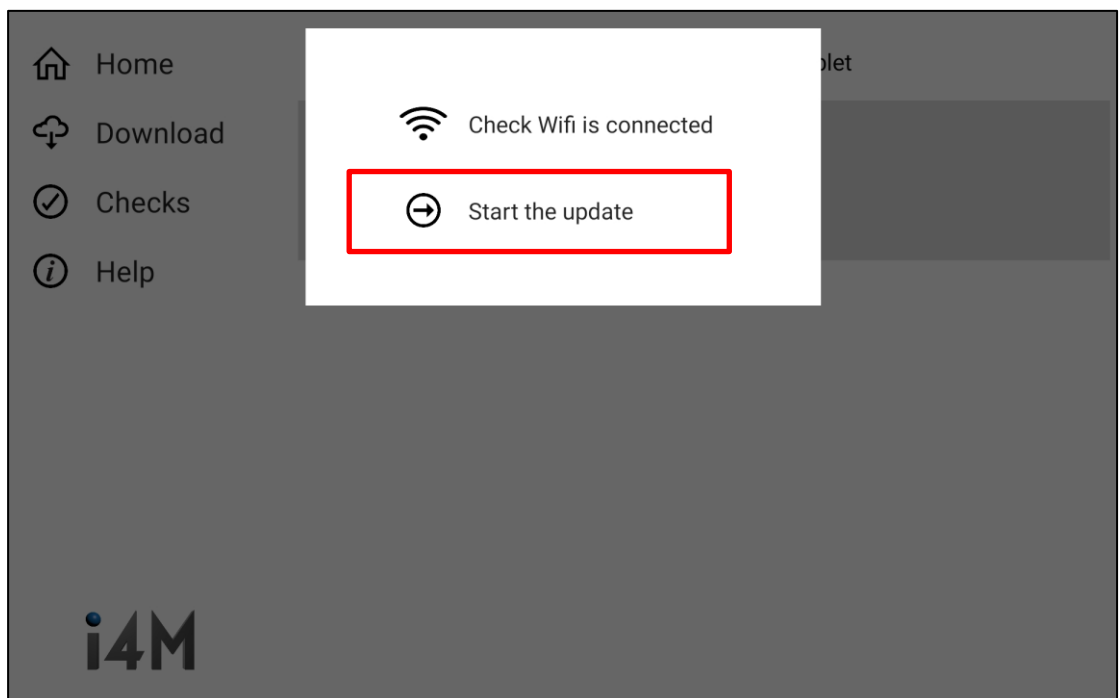10. Tap Update the machine.
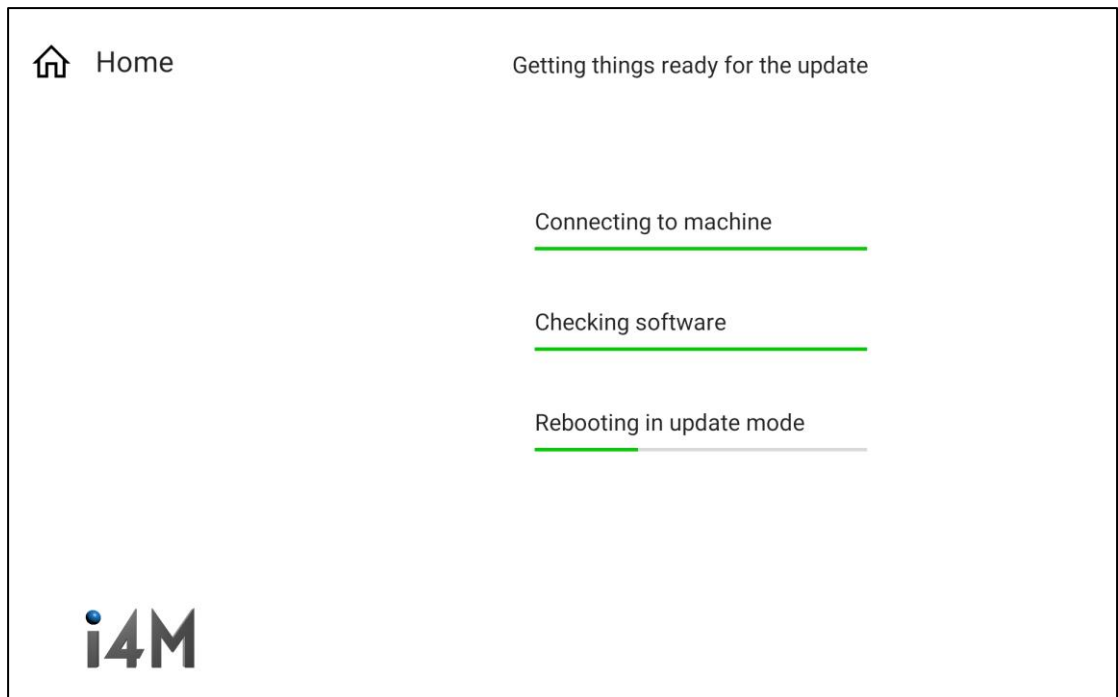

11. Tap Check Wifi is connected.
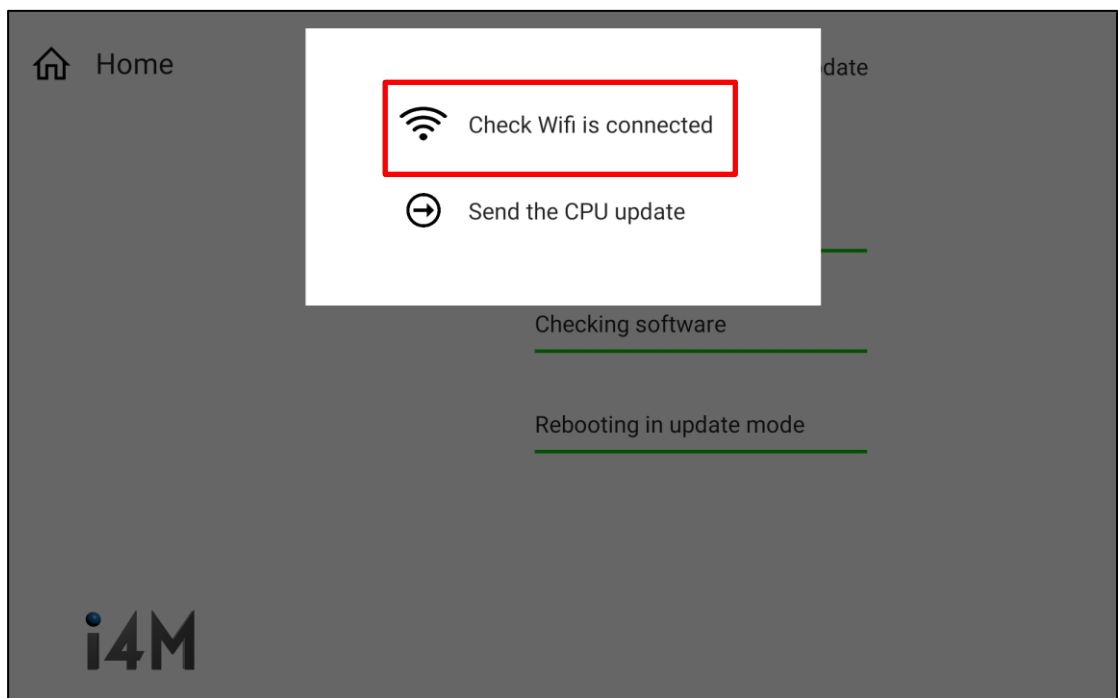
12. Connect to MACHINE WIFI and tap Done.

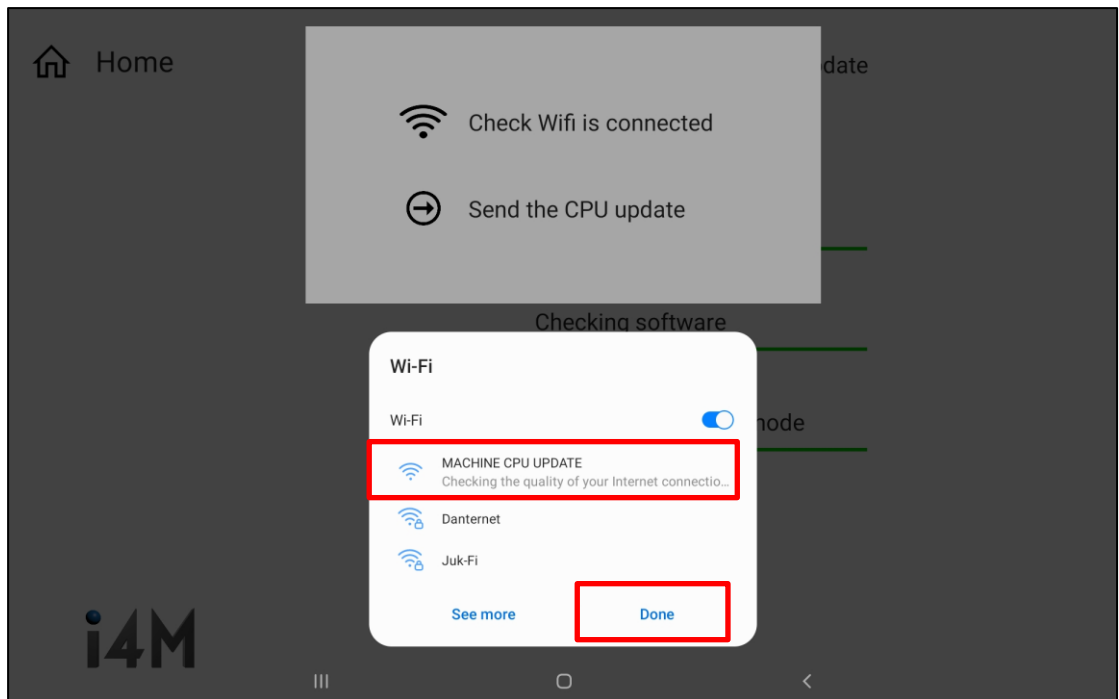13. Tap Start the update.

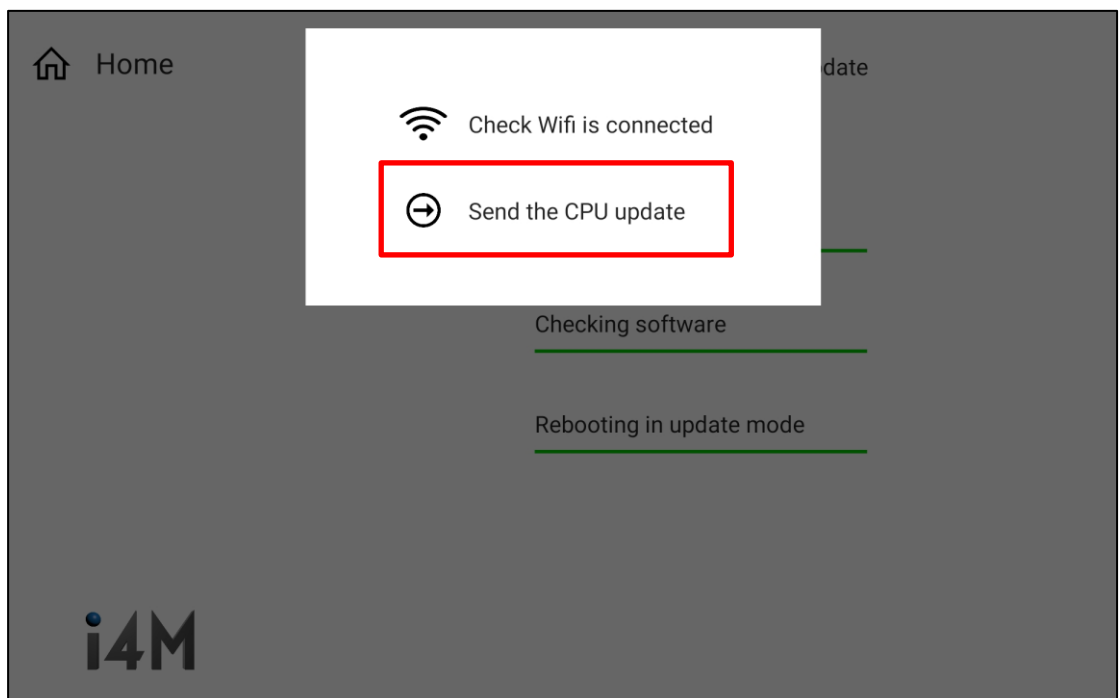14. Wait for controller to reboot.
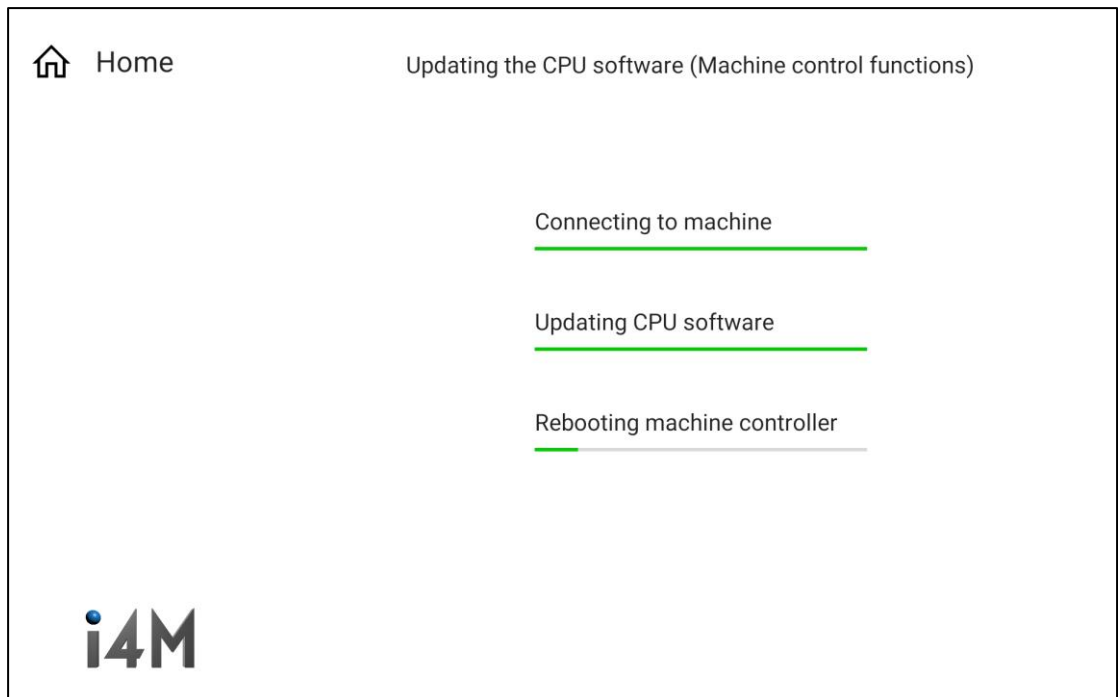

15. Tap Check Wifi is connected.

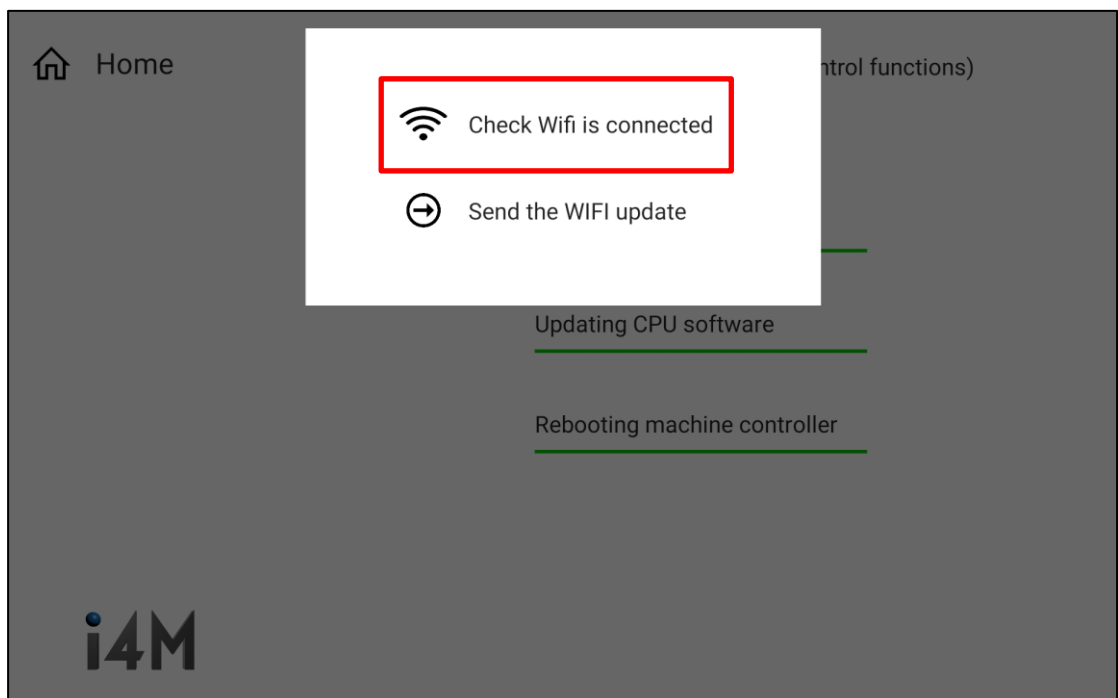16. Connect to MACHINE CPU UPDATE and tap Done.

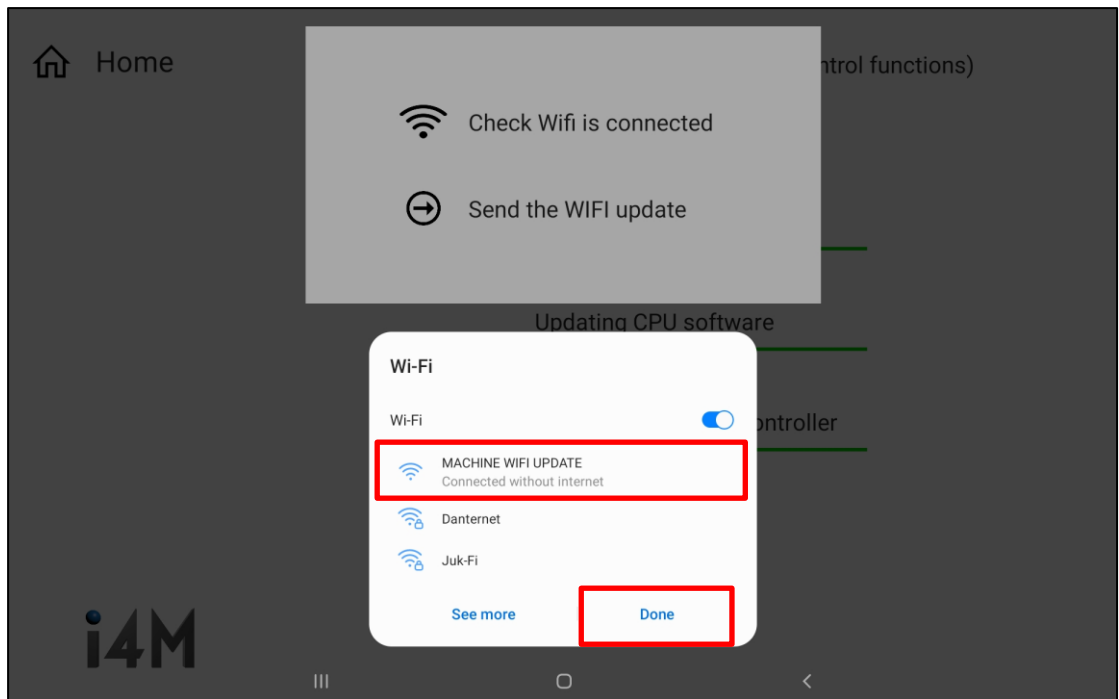17. Tap Send the CPU update.
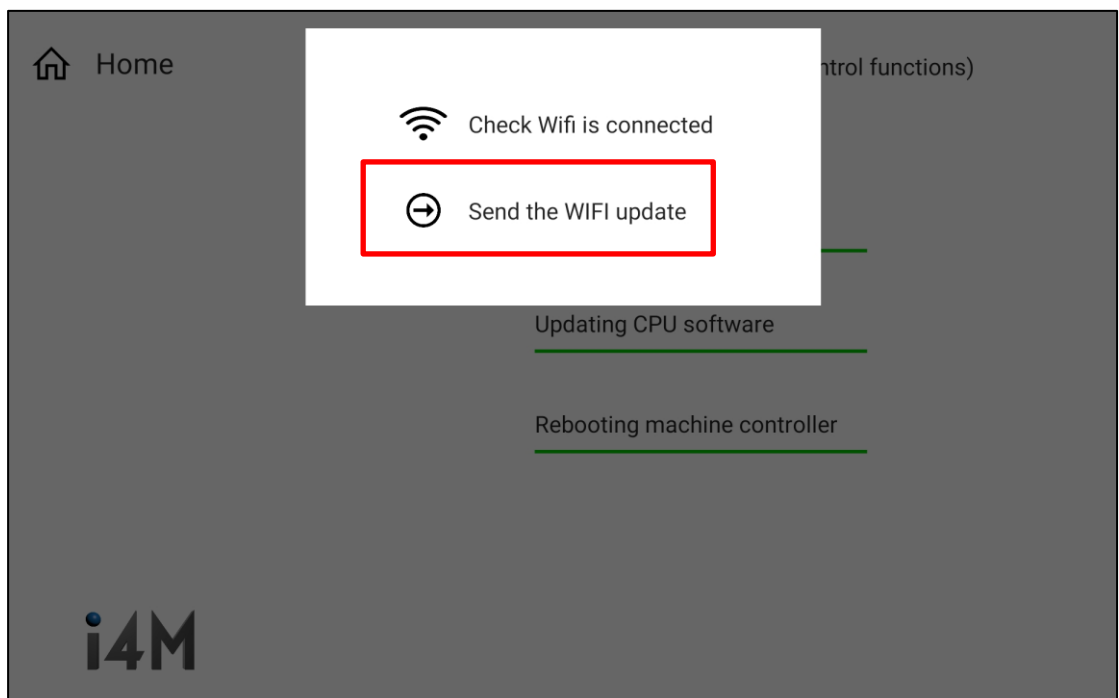
18. Wait for controller to reboot.

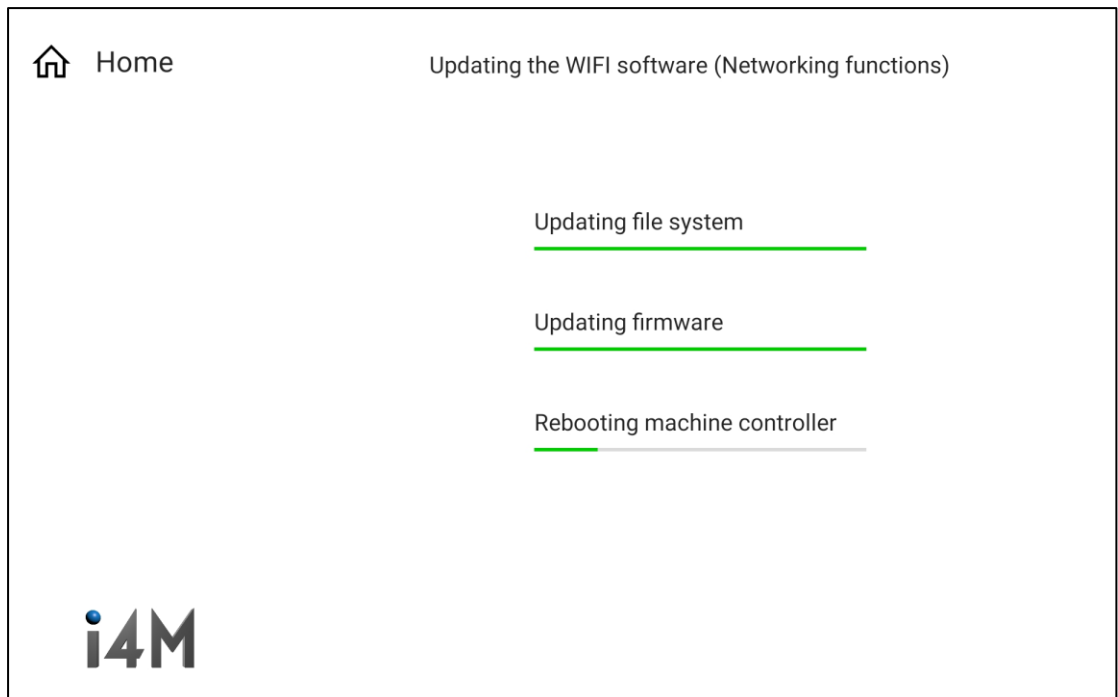19. Tap Check Wifi is connected.

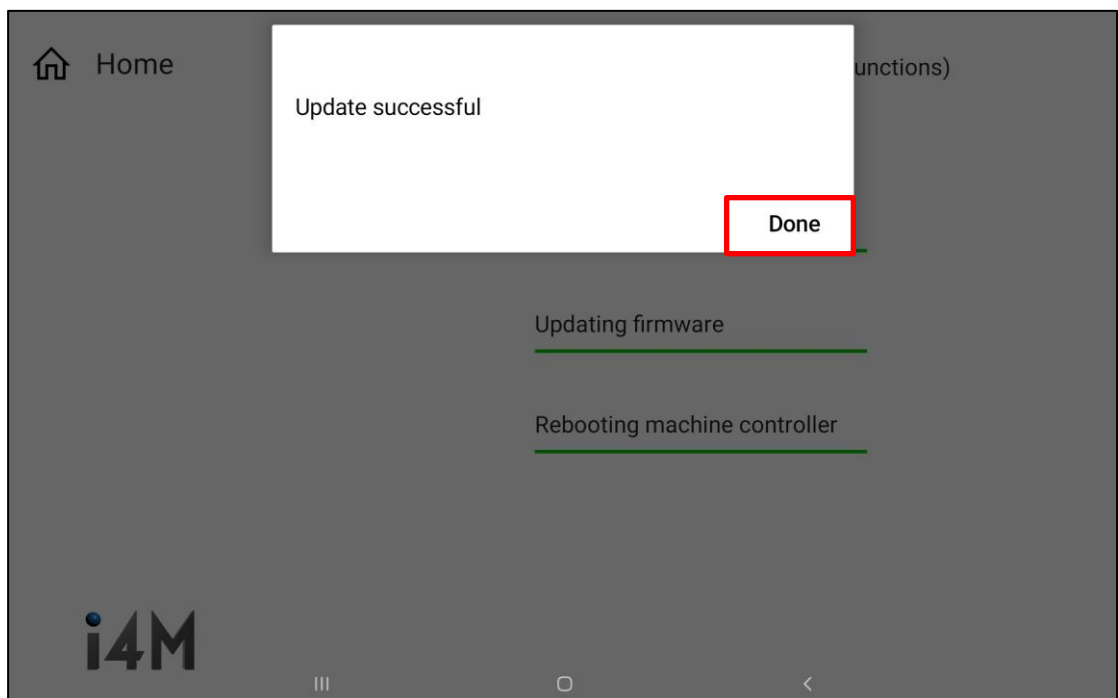20. Connect to MACHINE WIFI UPDATE and tap Done.

21. Tap Send the WIFI update.

22. Wait for controller to reboot.

23. Tap Done.

24. If an update package changes factory settings (*e.g.* changing default machine width from 12m to 6m) the controller will need to perform a factory reset for the new factory settings to take effect. To do this, open the OmniaE-Seed app, navigate to Machine > Settings > Device and tap Reset All. When the controller restarts, it will be populated with the updated factory default values.