

UPS model: 9P Li-ION



Date: 09/07/2023

Contents

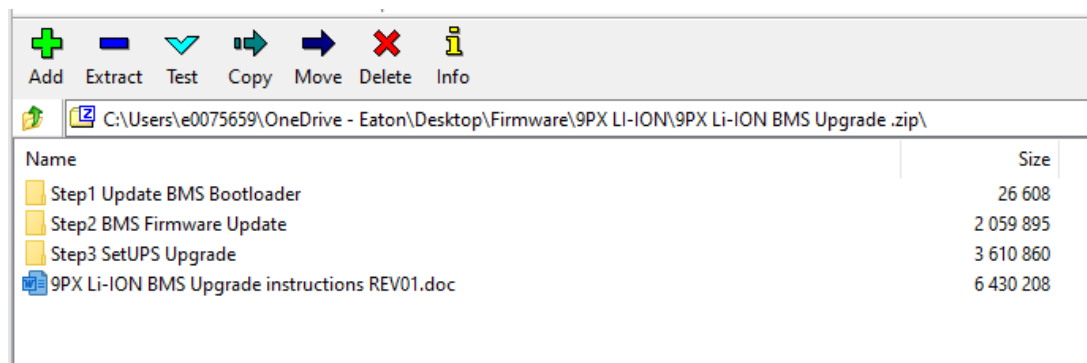
1	UPGRADE TOOL AND SOFTWARE	3
1.1	EXTRACTION	3
2	STEP1: UPDATE BMS BOOTLOADER	4
2.1	OVERVIEW.....	4
2.2	CABLE CONNECTION.....	4
2.3	UPGRADE PROCEDURES	5
3	STEP2 BMS FIRMWARE UPDATE	7
3.1	OVERVIEW.....	7
3.2	COMMUNICATION	7
3.3	UPGRADE PROCEDURES	7
4	STEP3 SETUPS UPGRADE UPS & BMS	9
4.1	OVERVIEW.....	9
4.2	COMMUNICATION	9
4.3	UPGRADE PROCEDURES (SETUPS)	9

Firmware upgrade procedure

1 Upgrade Tool and Software

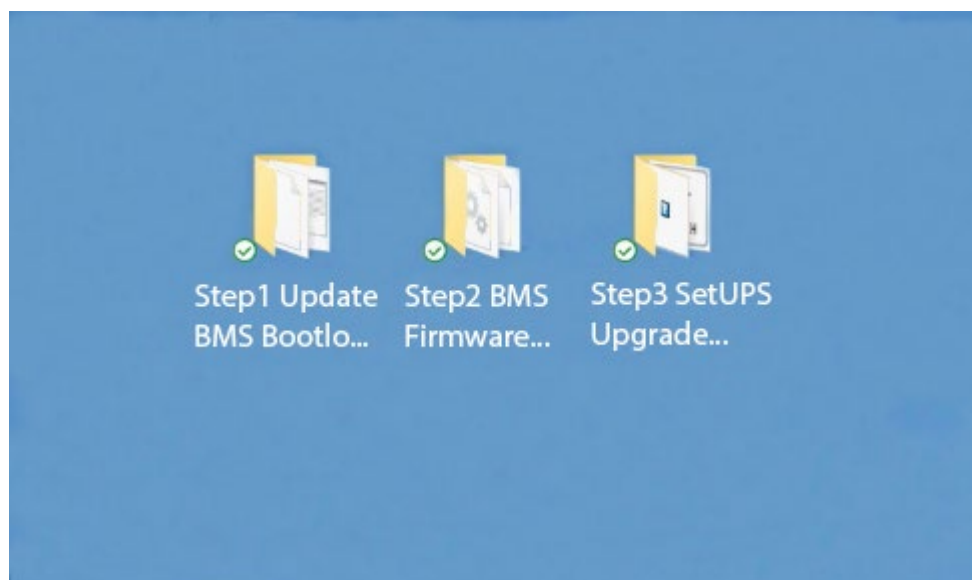
To Upgrade the UPS and BMS system which does not support remote upgrade to the latest version which can support remote upgrade, there are some software and tools that are needed.

Upgrade pack: This operation has an upgrade pack, which includes all software and firmware files.



1.1 Extraction

Extract the three folders in the zip file to an easy to access location such as the desktop.



Firmware upgrade procedure

2 Step1: Update BMS Bootloader

2.1 Overview

This upgrade process allows you upgrade one of the BMS Bootloaders via PC at a time.

This upgrade method is only available on old version BMS.

There are two critical notices for this method:

- **You cannot use this method to upgrade BMS version 00.06.0004 or higher.**
- **This upgrade will only work when BMS is in charge or rest mode.**

2.2 Cable Connection

Remove the two screws holding the network management card in the MS slot and pull the card out.

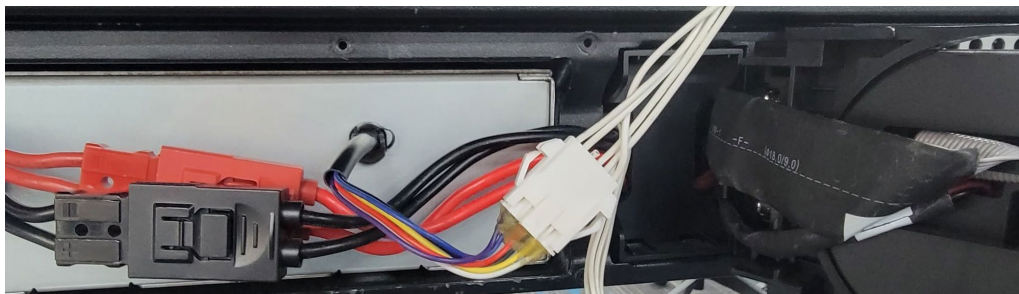
Place the UPS in bypass using the control menu on the front panel.

Note that at this point, the loads are powered by the UPS, but if there is an outage, the UPS and load will power down.

For the BMS of the internal battery, there is a special port to DB9 cable, as shown below:

*******WARNING*******

BMS COM LOST alarm will activate when the internal cable is unplugged to connect the communications cable. Press the ESC button to acknowledge the alarm and silence it.



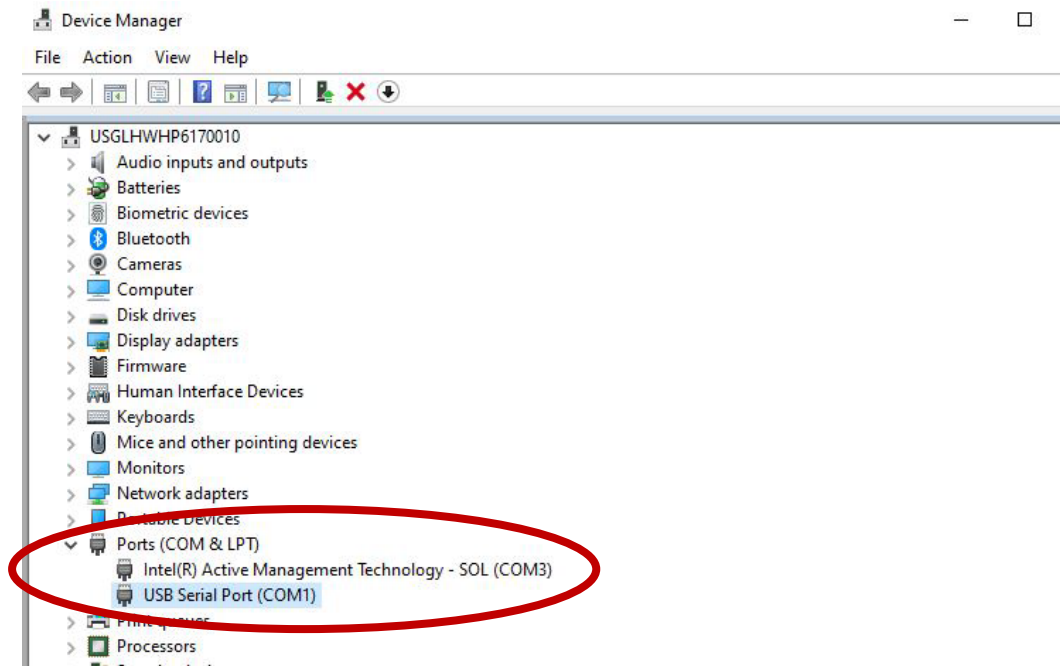
For external BMS, there is an RJ45 to DB9 cable, as shown below:



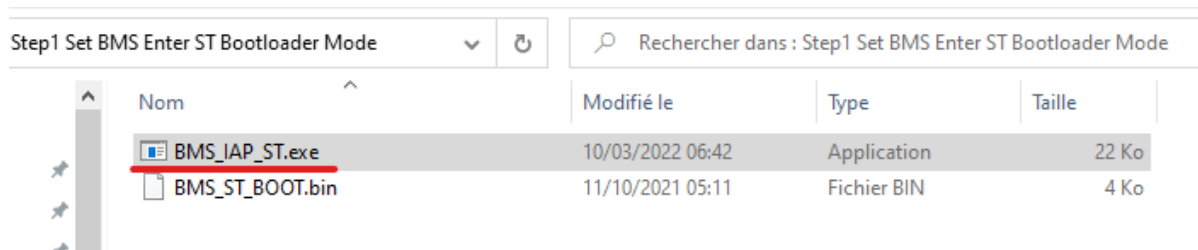
Firmware upgrade procedure

2.3 Upgrade Procedures

After connecting the cable, you can check the COM port number in the computer's device management, as shown below.

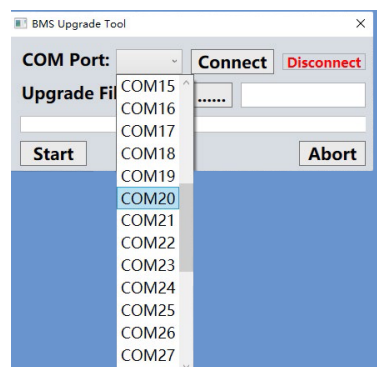


Open the “Step1 Update BMS Bootloader” folder, and there will be two files.



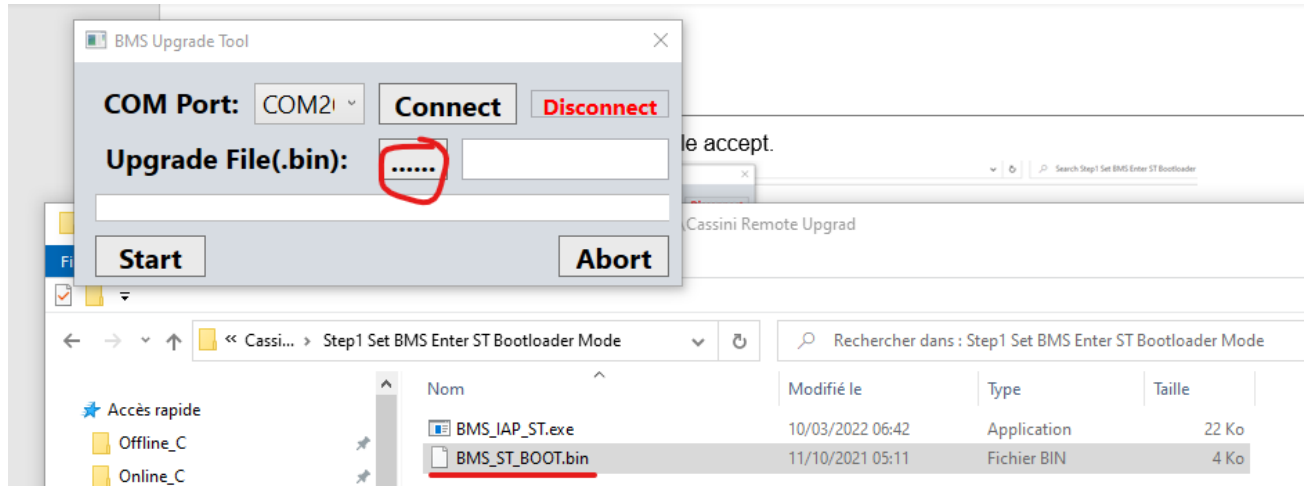
Open the “**BMS_IAP_ST.exe**” file in the “Step1 Update BMS Bootloader” folder.

Then, set the port in the BMS upgrade tool to the port identified in the device manager and press the “connect” button, as shown below.

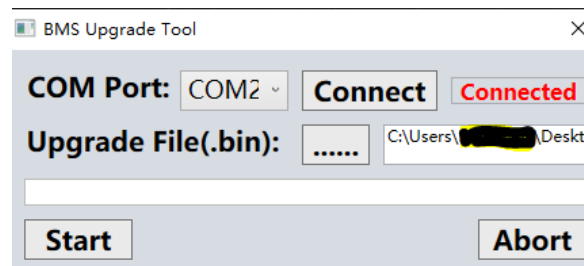


Firmware upgrade procedure

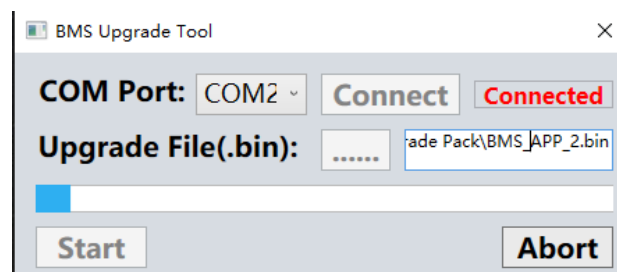
Using the button select the upgrade file “BMS_ST_BOOT.bin”.



After you select the correct file, it will show as below.

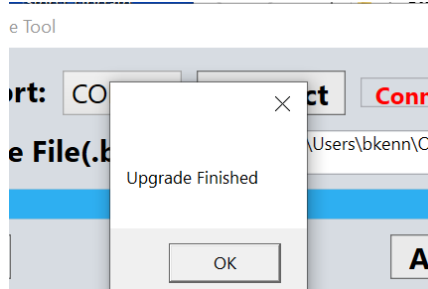


Now press the “start” button to start the upgrade. The progress bar will show the progress rate of the upgrade in 25% increments and will take about 30 seconds before the first progress bar update will appear.



Firmware upgrade procedure

When the upgrade is finished, you will receive a message box as shown below.



Press the “OK” button.

Now close this software upgrade tool.

*****WARNING*****

DO NOT DISCONNECT THE COMMUNICATIONS CABLE AT THIS TIME.

This connection will still be required in the next step. The BMS has had the boot loader updated, and the bootloader is ready for the main firmware update; disconnecting the cable will mean repeating the previous steps.

3 Step2 BMS Firmware Update

3.1 Overview

This process allows you upgrade one BMS' application and bootloader firmware via PC. So, you can use this method to upgrade a BMS that does not support remote upgrade to the version that supports the remote upgrade.

And there are two important notices for this method:

- **You should not disconnect the communication cable during the upgrade process.**
- **This upgrade procedure has a minimal probability that it can damage the BMS.**

3.2 Communication

Type: RS232

3.3 Upgrade Procedures

Open the “Step2 BMS Firmware Update” folder and there will be a folder and six files.

Open the file named “**Upgrade_BMS.bat**” file in the step2 folder.

*****WARNING*****

DO NOT TRY TO RUN THE “STMFlashLoader.exe” file it will not work.

Firmware upgrade procedure

ob > Cassini > UserManual > Cassini Remote Upgrade Pack Rev 00 > Step2 BMS Upgrade APP & Boot by ST Flash Loader

Name	Date modified	Type	Size
Map	2022/3/10 10:33	File folder	
BMS_APP_BOOT.hex	2022/1/21 18:16	HEX File	360 KB
Files.dll	2015/8/30 21:08	Application exten...	50 KB
STBLLIB.dll	2015/8/30 21:08	Application exten...	98 KB
STMFlashLoader.exe	2015/8/30 21:08	Application	41 KB
STUARTBLLIB.dll	2015/8/30 21:08	Application exten...	105 KB
<u>Upgrade_BMS.bat</u>	2021/12/8 17:09	Windows Batch File	1 KB

Enter the COM port number of your PC. If it is COM port 1, press “1”, then press “enter”.

C:\WINDOWS\system32\cmd.exe

```
Please enter the COM port number which used to connect to BMS device. For example: COM1 please press 1.
4
Opening Port [OK]
Set Dtr line [OK]
Reset Rts line [OK]
Activating device [OK]

ERASING ...
erasing all pages [OK]

DOWNLOADING ...

downloading page/sector 0 @0x 8000000 size 2.00(KB) [OK]
downloading page/sector 1 @0x 8000800 size 2.00(KB) [OK]
downloading page/sector 2 @0x 8001000 size 2.00(KB) [OK]
downloading page/sector 3 @0x 8001800 size 2.00(KB) [OK]
downloading page/sector 4 @0x 8002000 size 2.00(KB) [OK]
downloading page/sector 5 @0x 8002800 size 2.00(KB) [OK]
downloading page/sector 6 @0x 8003000 size 2.00(KB) [OK]
downloading page/sector 7 @0x 8003800 size 1.74(KB) [OK]
downloading page/sector 8 @0x 8004000 size 2.00(KB) [OK]
downloading page/sector 9 @0x 8004800 size 2.00(KB) [OK]
downloading page/sector 10 @0x 8005000 size 2.00(KB) [OK]
downloading page/sector 11 @0x 8005800 size 2.00(KB) [OK]
downloading page/sector 12 @0x 8006000 size 2.00(KB) [OK]
```

You will see the page above. Wait (~15min) until the upgrade is finished. There are approximately 65 page/sectors for the complete update. Press any key when prompted.

Reconnect BMS to the UPS

Repeat sections 2 and 3 for each BMS needed.

For example, if there is one UPS and one EBM, the process needs to be performed on both the UPS and the EBM.

Firmware upgrade procedure

4 Step3 SetUPS Upgrade UPS & BMS

4.1 Overview

This upgrade process allows you upgrade all the BMS application firmware in the UPS system via SetUPS or Network M2 card.

And there are three critical notices for this method:

- **UPS cannot start this upgrade process with the inverter operating.**
- **The UPS cannot switch to inverter or any other operation during the BMS upgrade.**
- **The UPS LCD cannot display other information during the BMS upgrade.**

4.2 Communication

SetUPS: USB, RS232.

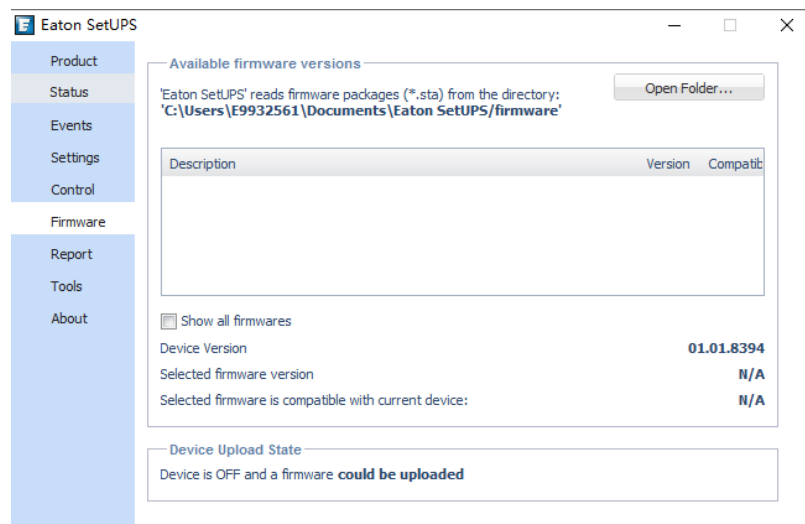
NMC card: RJ45.

4.3 Upgrade Procedures (SetUPS)

If SetUPS v2.6 or newer is not installed, open the folder “Step3 SetUPS Upgrade” and install the SetUPS tool by double-clicking the “setUPS.exe” file and following the installation process.

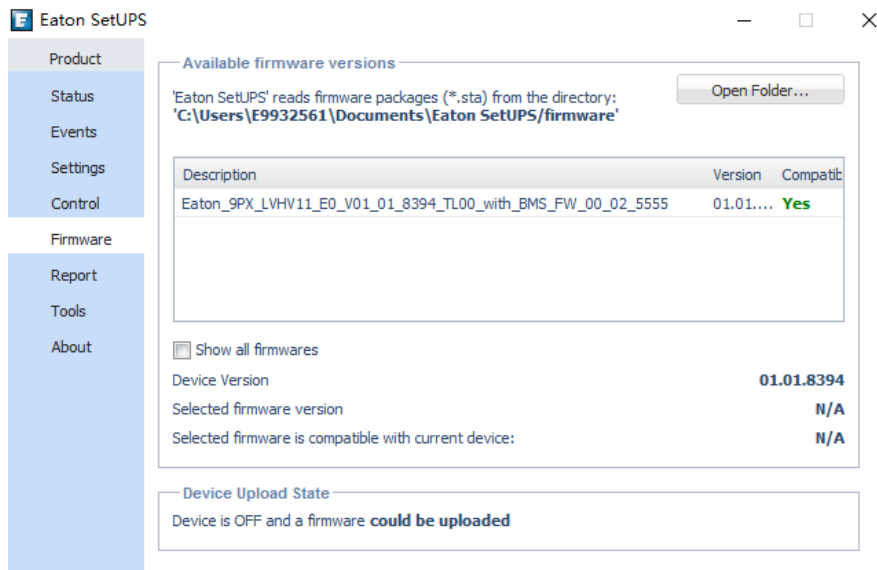
Connect the UPS to SetUPS via USB. Make sure the UPS is operating in either standby or bypass mode. Choose the “Firmware” page in SetUPS. You will see the page below.

If there is no upgrade pack in the table. You can press the “Open folder” button, then put the file “Eaton_9PX_LVHV11_EDEE_9PXL13K1904_V01_08_13399_TL00_with_BMS_FW_00_08_0006.sta” in the folder.



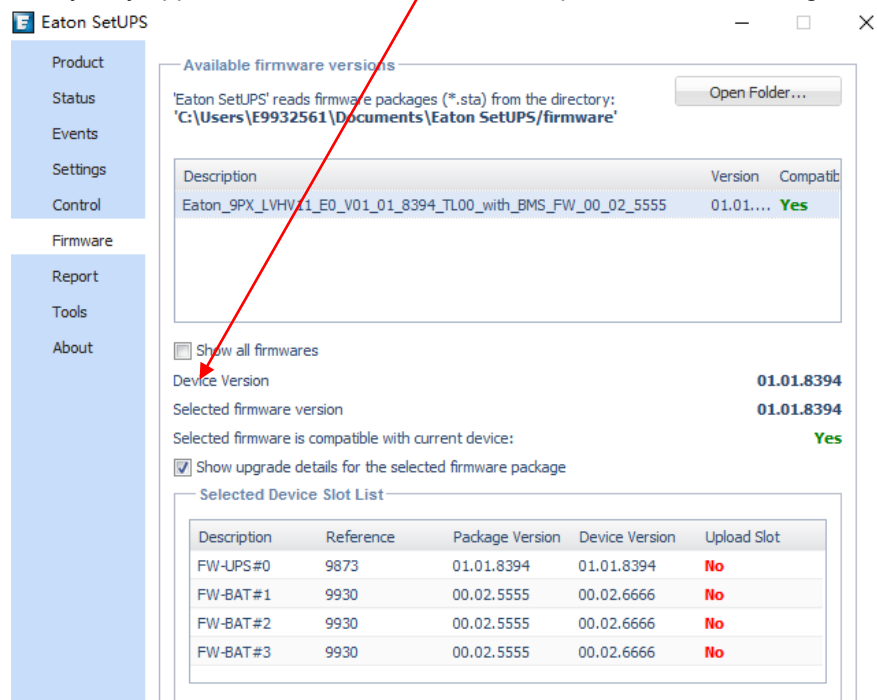
Firmware upgrade procedure

You will see the page below after you put the upgrade “.sta” pack into the folder.



Choose the upgrade pack, then turn on “show upgrade details for the selected firmware package”, as shown below.

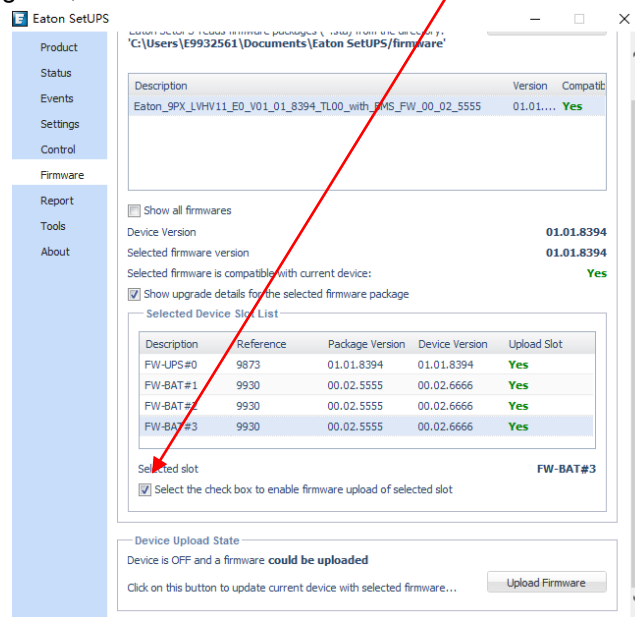
NOTE: This option may only appear once the UPS firmware is updated to 01.08 or higher.



Firmware upgrade procedure

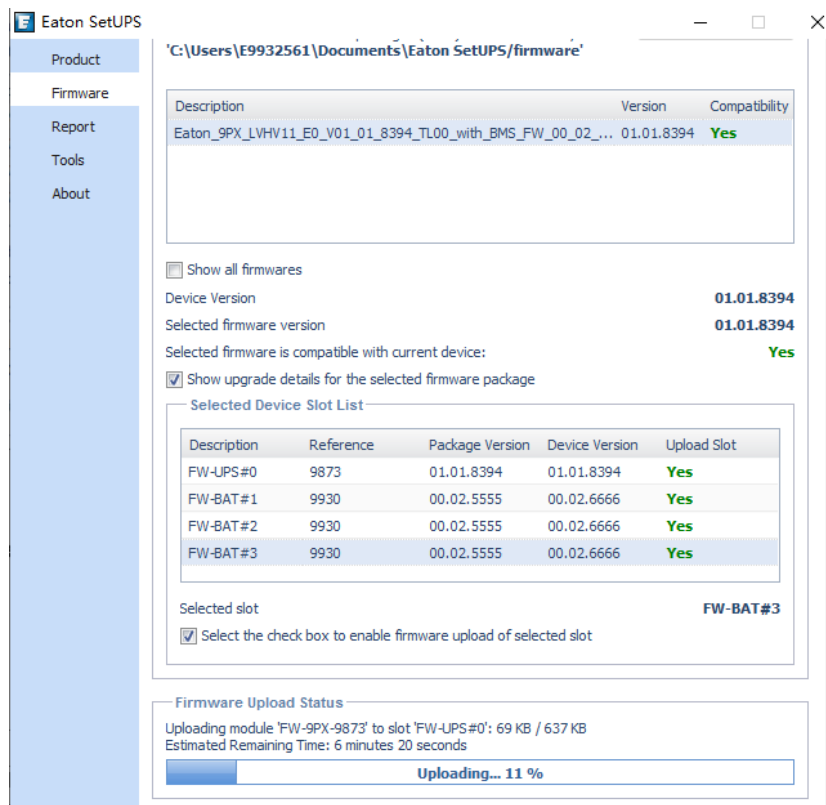
Now you can see the device version compared to upgrade pack.

Choose the device to upgrade and turn on “Select the check box to enable firmware upload of selected slot” to enable this device for upgrade, as shown below.



Then press the “upload firmware” to start the upgrade. If both the UPS and BMS are chosen for the upgrade, SetUPS will always upgrade the UPS first, then the BMS.

After you press the “Upload Firmware” button, SetUPS will start the upgrade, and a progress bar will show the progress rate of the upgrade. Please note the progress bar is not for the total upgrade but for the current device upgrade.

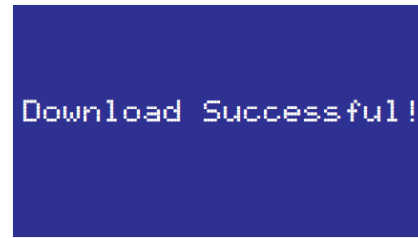


Firmware upgrade procedure

If both the UPS and BMS are chosen for the upgrade, SetUPS will always upgrade the UPS first. When the UPS starts the upgrade, the display will show.

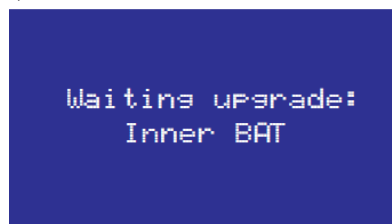


Followed by.

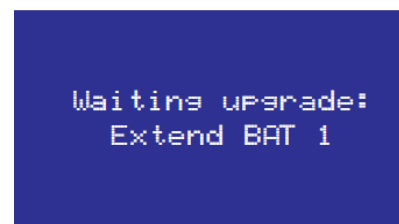


After UPS the upgrade is successful, SetUPS will start the BMS upgrade.

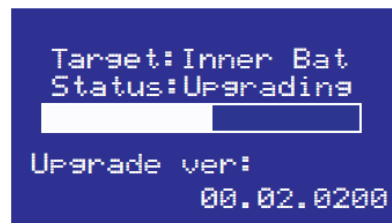
When SetUPS starts the inner or Extended BMS upgrade process, the LCD of the UPS will show the upgrade information page 1, as shown below.



Or



When the UPS starts the BMS upgrade, the LCD will display page 2 as shown below:



Or



Page 1: The LCD will tell us which BMS will be upgraded on this page. If the UPS starts up with a BMS in bootloader mode, this page will display a reminder to the user to upgrade BMS first.

Page 2: In this page, the LCD will tell us the upgraded device, the upgrade progress rate, the upgrade status and upgrade firmware version.

During BMS remote upgrade, there are five possible error situations:

- a) Erased failed: User can restart the upgrade. If it still fails, the BMS may have failed.
- b) Out memory: Please check the upgrade pack is correct and try again.
- c) Program failed: The user can restart the upgrade. If it still fails, the BMS may have failed.
- d) Checksum error: Please check the upgrade pack is correct and try again.
- e) BMS Comm lost: Please check the communication cable of UPS to BMS.

Reinstall the network management card and the two screws holding it in place and verify the card is communicating properly with the UPS via the IP address of the card.

This may take up to five minutes for the card to fully reboot and connect to the network.

Return the UPS to normal operation using the control menu on the front panel.