

# Installation of a UPG1 Upgrade Module On a SanDevices E680 or E681

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**Warning: Do not perform this procedure unless you have a SOCKETED Ethernet module on your E680 or E681, and you have the new UPG1 upgrade module in hand. Once you load the new firmware the board will not function until a working UPG1 module is installed.**

**If you are upgrading more than one controller, make sure the first one is updated successfully before doing the rest.**

The firmware file you load **MUST** have a name that matches your hardware. If you are upgrading an E680, the file will say **E680\_UPGRADED**, For an E681 upgrade it will be **E681\_UPGRADED**. If you load the wrong firmware file your board will not be operational and can only be recovered by using a Parallax Prop Plug Programmer.

The firmware version number will be of the form x.nnn, there may or may not be a -01 or -02 suffix, and the file type will always be .eeprom. Please note that the current firmware version on your controller must be greater than 2.006 in order to use this procedure. Version 2.006 boards must be updated by another method.

Version 3 firmware was never released other than for beta testing and has now been replaced by version 4. In almost all cases the current firmware will be version 4.026 or higher (as of 05/22/2013). Version 4 is the newer graphical interface.

The firmware update process involves running a firmware sender program called fwloader\_1\_0.exe on a PC, and at the same time giving the E68x controller a command to tell it to begin looking for the new firmware.

The firmware sender is a small self-contained executable program (fwloader\_1\_0.exe) that sends the firmware file to all of the E68X controllers on your LAN (only controllers that have been instructed to do so (see step 7) will actually load the new firmware. It is possible to update firmware on more than 1 controller at a time.

Please follow these steps to do the firmware update:

## **IMPORTANT: The firmware update MUST be done BEFORE installing the UPG1.**

- 1) If you have not already done so, download the SanDevices firmware loader program, fwloader\_1\_0.exe, from the SanDevices web site (or possibly an email attachment). This only needs to be done one time. Remember where you download it because the firmware file will have to go in the same folder.
- 2) Download the new firmware file from the sandevices.com web site, or if this is an email it will be attached. This will be a file with the type ".eeprom". The latest firmware versions for each device will be on the web site. **Make sure you download the proper file for your controller:** E680\_UPGRADED or E681\_UPGRADED. Download the firmware file to the same folder that you downloaded thefwloader\_1\_0.exe file to.
- 3) **Important: Rename the firmware file to: firmware.eeprom.**
- 4) Some items to check before proceeding:  
If you have more than one network connection to your PC (say you use a wireless connection for internet access, but a wired Ethernet connection to the E68X), you will need to disable all network connections other than the one to the E68X.  
Make sure that no SACN/E1.31 'senders' are running on your network.  
Make sure that Test Patterns are turned OFF on the E68X.

- 5) Bring up the web configuration page for the controller that you are updating. If you have not changed the as-shipped default IP address, you would access the controller by typing 192.168.1.206 in the address bar of your web browser.
- 6) Double-click **fwloader\_1\_0.exe**. This should open up a black window with the text “**Firmware File: firmware.eeprom found**”. If the black window disappears immediately it means that the firmware file has not been properly renamed (to firmware.eeprom). or has not been placed in the same folder as fwloader\_1\_0.exe.
- 7) Start the firmware update process on the controller. This procedure will vary according to the firmware version presently on the controller. Do this within 10-15 seconds of step #6:

For existing firmware versions 2.xxx enter the command **GF** (then press enter)

- 8) After about 60-120 seconds you should see the controller restart (possible preceded by rapid flashing of the red and green LEDs, depending on the current firmware version), and you will see the LEDs go off for a few seconds then come back on. If you don't see the LEDs react as described, just wait at least 3 minutes before proceeding. The black command window for the updater will close automatically after about 90 seconds.
- 9) Try to refresh the configuration page of the E68X by typing a dummy command such as XX. **The screen should NOT refresh.** If it does, it will show a status message showing why the firmware update failed. If the screen does not refresh, indicating a good firmware update, please go to step 10.

If the screen does refresh, and shows a firmware update failure status, try again. If you see the same failure status after another attempt, these are the most likely causes:

If the status says “Timed Out” and If the “black window” appears only very briefly then disappears, it means you have not placed the firmware file in the folder with fwloader\_1\_0.exe, or you have not properly renamed it as “firmware.eeprom”.

If the black window stays active for more than a minute, and the status is “Timed Out”, check that you have checked the items listed in step 4.

If you see a different failure status, or if you can't determine the cause of the failure, please contact SanDevices by email.

If you're having trouble getting the firmware update to complete successfully, check the following:

You need to start the firmware update process on the controller within 10-15 seconds or so of starting the updater. If you wait too long, the fwloader\_1\_0 program will timeout before the controller has received the entire firmware file.

The following status messages may be displayed for “Last Firmware Update Status”:

None Tried	no firmware update has been attempted since the last controller restart.
Timed Out	<p>the update operation timed out before receiving the complete firmware file. This can be caused by a number of reasons:</p> <p>The firmware file isn't being sent (the black windows should stay open for more than a minute).</p> <p>Another SACN sender (LOR, Madrix, Sacnview, etc) is active on the network.</p> <p>The controller has a test pattern enabled.</p> <p>You have more than one network connection on your PC, and fwloader_1_0 is sending upgrade firmware to the wrong one.</p> <p>You waited too long before typing the GF command.</p>

Not For Me	the firmware file being sent is not compatible with this hardware. Contact SanDevices.
>1 Senders	more than one instance of the updater program was sending a firmware file at the same time.
Bad CRC	the received file was not valid
Running	a firmware update is currently in progress (note that repeatedly refreshing the web page while a firmware update is running may cause it to time out).

The firmware update process involves several steps. First the firmware file is downloaded to the controller. Next it is checked to make sure that it is a valid firmware file. Finally the new firmware file is written to the non-volatile memory on the E68x, and then the E68x restarts.

It is important to not interrupt power to the E68x controller, or reset it, during the time that the new file is written to the eeprom. WAIT until you see the "start-up" sequence on the LEDs, or wait a minimum of 3 minutes after typing the GF command.

- 10) Power down the controller. Remove the old Ethernet module. Install the UPG1. **Important: The UPG1 installs with the Ethernet jack facing TOWARD THE PIXEL CONNECTORS. This is 90 degrees CCW from the previous orientation.**
- 11) Power up the controller. You should see activity on the LEDs on the Ethernet jack. The LAN RCV, LAN SND, and LAN LINK jacks will no longer function. This is normal. You should be able to access the new version 4 web page at the same IP address as before. Please refer to the Version 4 firmware documentation file for information on the new version 4 firmware.