New Applications Suite for the Blue Nebula Guitar Pedal

This User Guide introduces, and shows how to use, the new suite of Blue Nebula Applications. These have been completely re-written[1] and should be easier to use on both Windows and Mac OS platforms. Note that the screenshots in this document have been captured on a Windows PC. The apps will have a slightly difference appearance on Mac OS, but the functions and operations are the same.

Each package contains four individual apps. These are Windows executables (.exe files) or Apple Mac applications, depending on which version of the package you have downloaded. The compressed file package can be downloaded, and the contents extracted to any desired folder on your computer. By default, the downloaded compressed file will be found in the Downloads folder on both Windows and Mac.

[1] For those of you who are technically inclined, the old apps were written in Java which required the user to have the Java Runtime System (JRS) installed on their computer. This is a large install and sometimes created problems with 32-bit and 64-bit versions of the user's operating system. The new apps are written in Python and seem to be better integrated with the operating system, are self-contained executable programs, and do not require a large run-time system to be installed.

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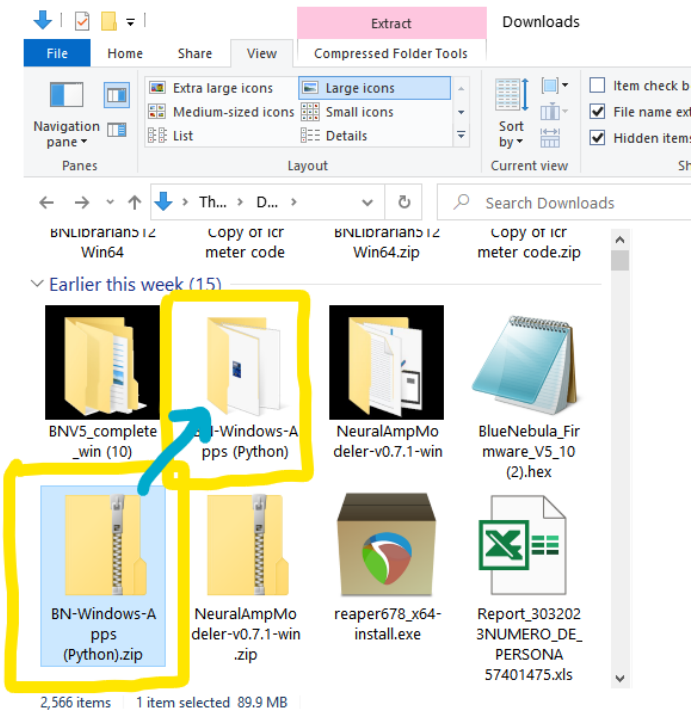
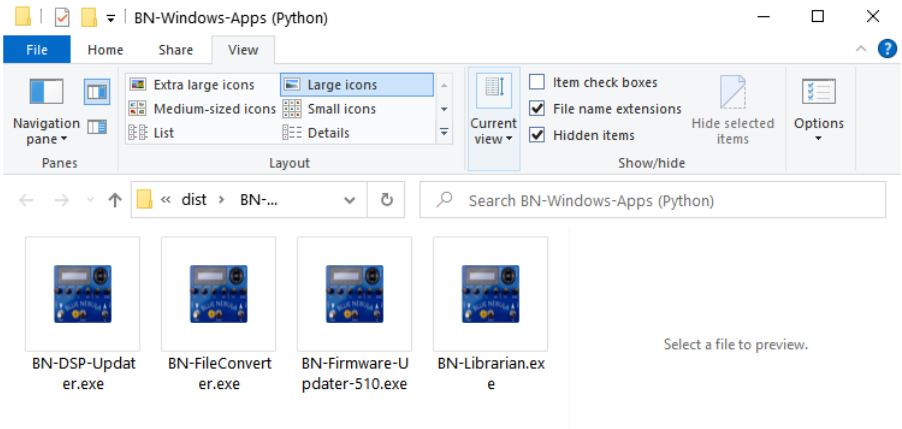


The programs can be extracted to, and run from, any location on your computer's hard drive - they do not require an installer.



After you have extracted the contents of the zip file you will have a folder named BN-Windows-Apps (Python)[2] with four application icons:

1. BN-DSP-Updater for updating MEM1 and/or MEM2 in the DSP memories of your Blue Nebula.

2. BN-FileConverter for converting old patch files to the new format and vice versa[3].

3. BN-Firmware-Updater-510 for updating the Blue Nebula Firmware ('510' denotes that firmware version 5.10 will be installed to the Blue Nebula).

4. BN-Librarian for patch file backup/saving/restoring of patches and for Set List editing/handling/sending to the Blue Nebula. There are no patch editing capabilities[4].

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[2] On Apple mac OS the folder is called BN-MacOS-Apps (Python)
[3] The patch file format was changed to allow for future expansion/improvements.
[4] If you are one of the few who uses the Patch Editing facility of the old (Java) Librarian, you can continue to use it and we will maintain a download link for it, but no further updates are planned for this older version.

BN-DSP-Updater App

This app is used to update the DSP programs contained in either of the two program memories MEM1 and MEM2 in the Blue Nebula pedal. The programs, one for each memory, are contained in .hex files and will be named something like BN_V502_MEM1.hex[5] for MEM1 and BN_V500_MEM2.hex for MEM2. The numbers following the 'V' in the filenames indicate the version number of the file and 'MEM1' and 'MEM2' indicate which of the memory locations this file is intended to be uploaded to.

Important: Do not attempt to upload a MEM1 file to the MEM2 memory in the pedal or vice-versa; that would not end well!

Important: Before running this app, make sure you have your Blue Nebula connected to the computer via the USB cable **and** that the pedal is also powered by its usual 12V power supply. If you run the app before connecting the cable to your pedal, you will not see the Blue Nebula's serial port in the list – simply quit the app, connect the cable, and run the app again. If the 12V supply is not connected, the MEM1 and/or MEM2 contents will not be updated correctly.

To perform a DSP update, double-click the BN-DSP-Updater icon and the application should run, and you will see the following window.[6]

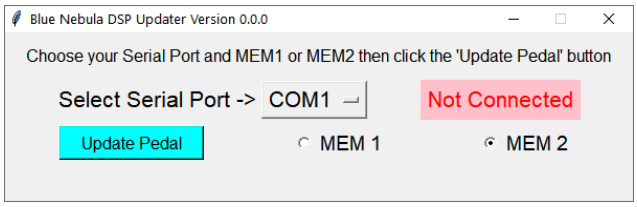


Figure 1: DSP Updater on Windows

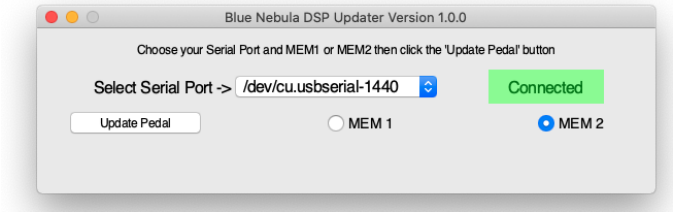
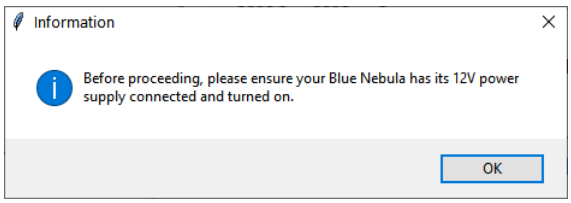


Figure 2: DSP Updater on MacOS

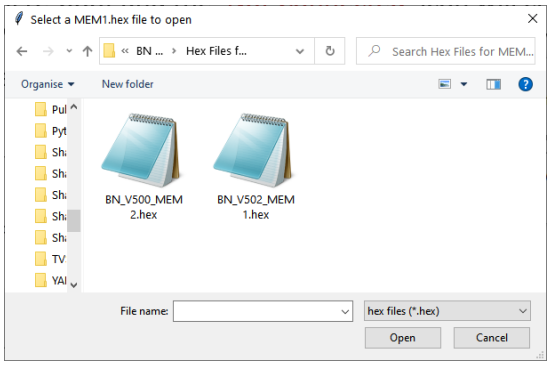
Simply follow the instructions in the first line of text in the window.

Start by choosing the correct serial port for your pedal by clicking on the dropdown list button beside *Select Serial Port ->*. If you choose the correct port, the pedal will re-boot and the 'Not Connected' icon will change to 'Connected'. Now select one of the two radio buttons MEM1 or MEM2, depending on which memory location you wish to update and click the Update Pedal button. An Information dialog will open to remind you to ensure that your pedal's 12V power supply is connected and turned on:

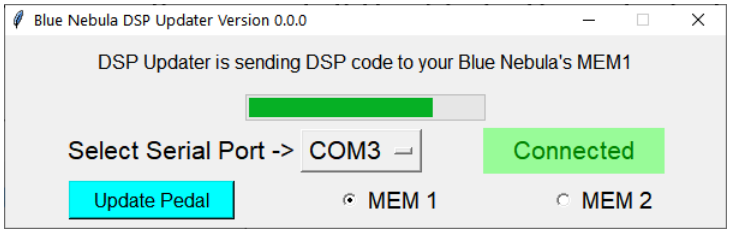


[5] You may not see the .hex file extension, depending on your operating system and its File Explorer/Filer settings.
[6] Please refer to **Appendix 1** if you see any warnings from your operating system or anti-virus software.

After checking your power supply, click OK and a file system dialog box will open to allow you to browse for and find the required MEM1 or MEM2 file:

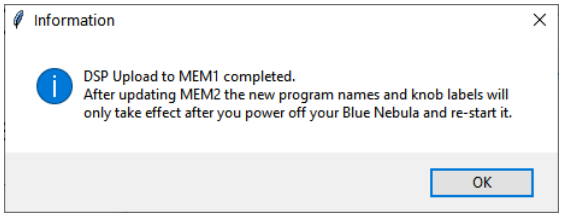


Click on the file you require and click Open. The app will now install the file to the selected memory location: MEM1 or MEM2, depending on which radio button you selected at the beginning. The window will tell you which memory location it is updating, and it will display a progress bar as the code is being uploaded.



After a successful upload you will see this dialog box, reminding you to power your pedal off completely and back on again – unplug the USB cable **and** disconnect the 12V supply to ensure the pedal is completely off.

Tip: This is only necessary if it was an update to MEM2 because the pedal needs to re-boot to reset the knob labels after an update to MEM2.



The LCD on your pedal will also show the DSP update in progress, for example:

BN-Firmware-Updater-510

First, a brief word of explanation. The Firmware in your pedal is a software program embedded in the pedal's microcontroller that performs a similar function to the operating system (OS) in your computer. Whether it be Windows or Mac OS, the OS tells the computer how to work and the Firmware in the Blue Nebula tells the pedal how to work. It updates the display, handles the button presses, loads patches and allows you to edit them etc. It also handles communication with your computer via the USB cable when you are doing updates or using the Librarian.

From time to time, we may release an update to the Firmware code, perhaps to fix a bug or to add a new feature. When a new version is released, you can use the BN-Firmware-Updater app to upload it to your pedal. Note that the pedal always reports what version of Firmware it is currently running in the start-up message on the LCD, for example:

You should only need to update your Firmware if it is older than the current version. For example, if your pedal shows V5.00, as above, this is older than V5.10 and so it should be updated. The Firmware version included in the Firmware-Updater app is given as the last part of the app's name. At the time this guide was written, the current version of the firmware was 5.10:

BN-Firmware-Updater-510 <- Firmware Version number is V5.10

Again, simply follow the instructions in the app window:

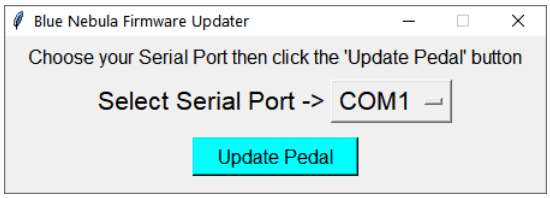


Figure 3: Firmware Updater on Windows

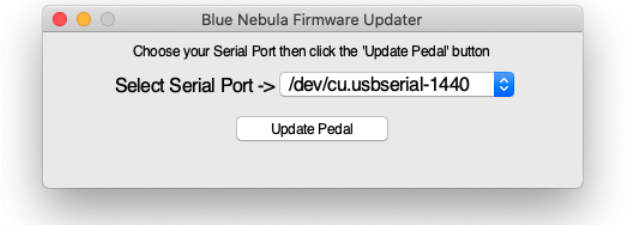
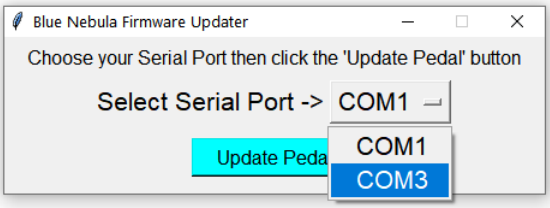


Figure 4: Firmware Updater on MacOS

Click on the Serial Port dropdown and choose the correct port for your pedal from the list of ports. (Remember to connect the pedal via the USB cable before running the app otherwise the Blue Nebula's serial port won't be in the list).

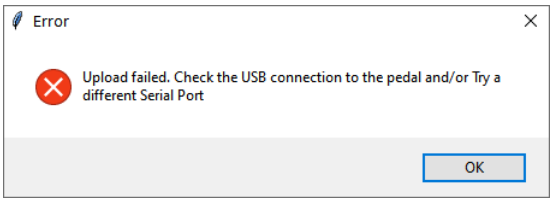


*Note: the pedal will **not** restart when you select the serial port. This is normal. The update does not begin until you have clicked the Update Pedal button. Just make sure you have selected the correct port - See* 'Finding the correct serial port'.

Now click the Update Pedal button and the app will begin to upload the new Firmware to your pedal.

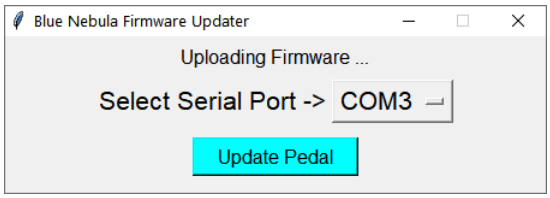
Tip: *The pedal's LCD will not change until the update completes. It should then reboot and show the new Firmware Version number.*

Important: If the following error message is displayed, make sure you have chosen the correct port and you have closed any other app (for example, the DSP-Updater or the Librarian app) as it may be preventing the Firmware Updater from opening the serial port to the pedal. No more than one app can access the Blue Nebula's serial port at the same time.

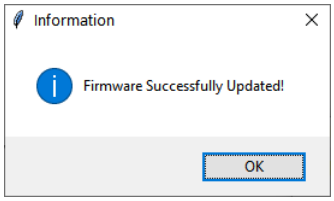


Close the other app that is blocking the connection and click OK, then click the Update Pedal button again and the Firmware update should start.

While the update is proceeding the window will show Uploading Firmware …



And, after about 15-20 seconds, if the Firmware update was successful, you will see the following message and your pedal will re-boot:



Click OK and your update is complete. You can check when the pedal re-boots that it now displays the new Version number in the start-up message on the LCD. If it still shows the old version, try repeating the procedure and make sure that you selected the correct serial port.

BN-Librarian

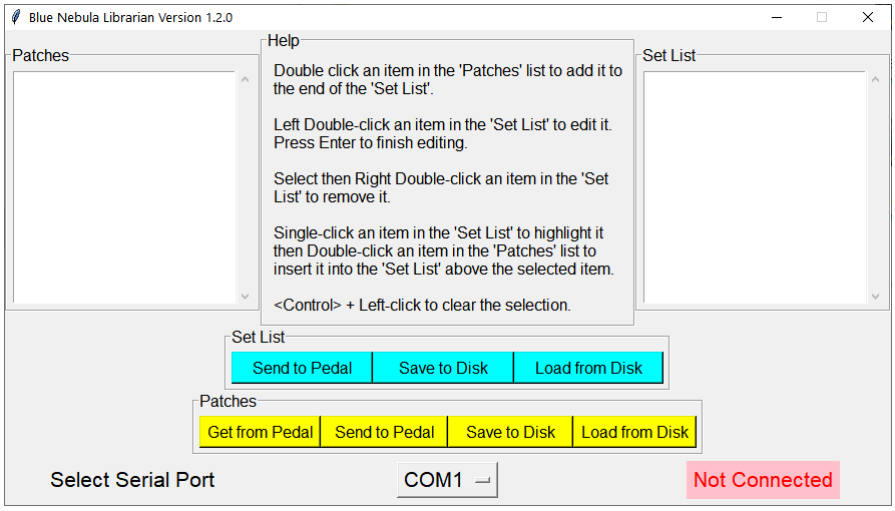


Figure 5: Librarian on Windows

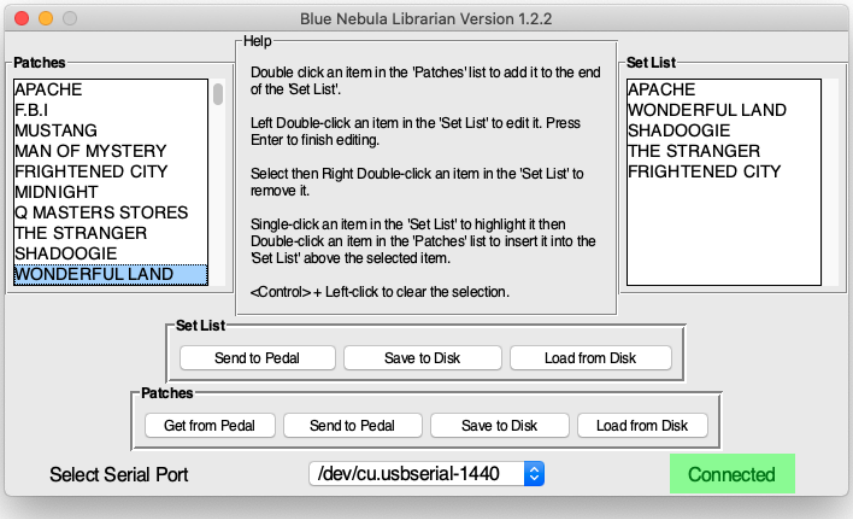
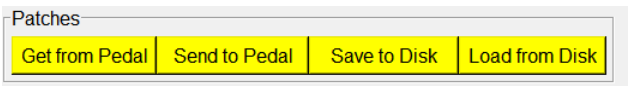


Figure 6: Librarian on MacOS

The BN-Librarian can perform several functions, and has buttons arranged in two sections to facilitate these. Each of the functions is activated by clicking on one of the seven buttons at the bottom of the window. They are arranged in two groups, one for the patch handling functions and one for the set list handling functions.

Patches

This section allows you to save and restore the patches in your pedal. It's important, especially if you have modified the factory patches and/or created patches of your own, that you make a backup of your patches onto your computer. This section contains four buttons that allow you to do this easily.

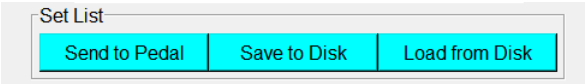


- Get patches from the pedal.
- Send patches to the pedal.
- Save patches to your computer.
- Load patches from your computer

Set List

This section allows you to compile a set list by arranging patches for tunes into the order you intend to play them. You add patches from the Patches list on the left to the Set List on the right. The Help panel in the centre of the window gives useful instructions on how to create and edit your set lists.

There are three buttons in the Set List section that allow you to manage your set lists.

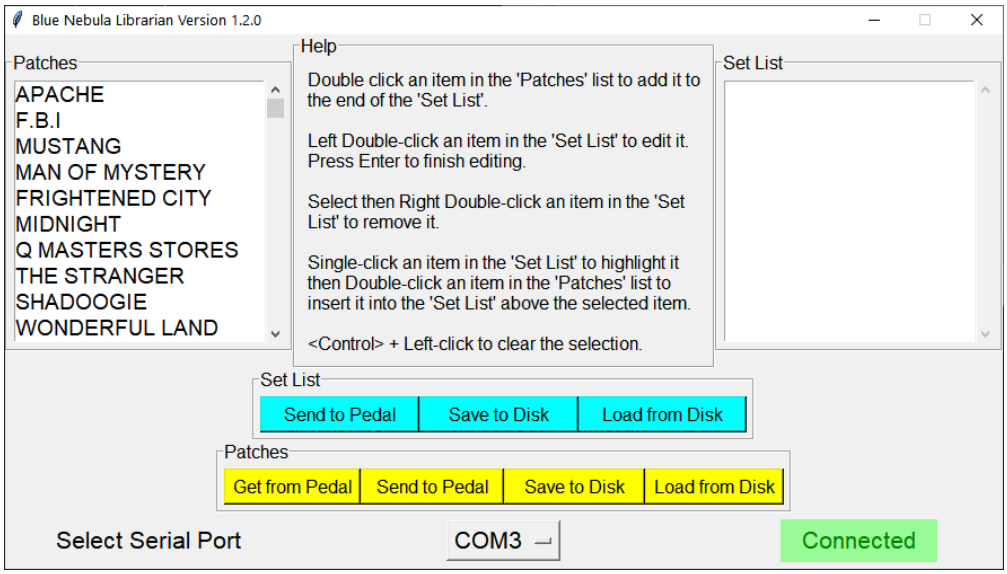


- Send the set list to the pedal, ready for your next performance.
- Save the set list to your computer so you can use it again later.
- Load a previously saved set list from your computer. You can then edit it, if necessary, and re-save it and/or send it to the pedal ready for your next performance.

Before you can do any work, you will need to load the patches into the Patches list column on the left. If you have previously saved your patches to your computer, you could start by loading them back in using the **Load from Disk** button in the 'Patches' section. This would be useful if you previously created some patches of your own which you had saved to disk as a backup before resetting the pedal to the factory default patches.

Alternatively, you can load the patches from the pedal itself, but first you must establish contact with the pedal. As usual you do this by selecting the correct serial port from the dropdown list and, if you choose the correct one, the pedal re-boots and the 'Not Connected' icon changes to 'Connected'. Now you can click the **Get from Pedal** button to load the patches from your pedal.

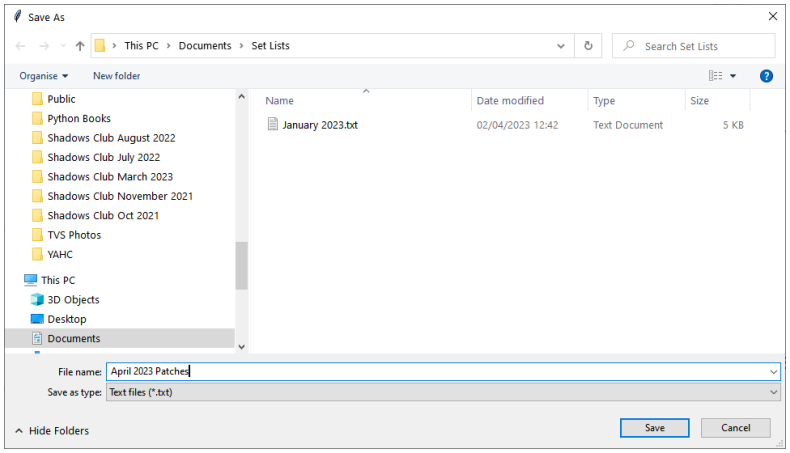
Once you have loaded patches, either from a file on your computer or from your pedal, they will appear in the Patches column on the left:



Typical Librarian Tasks

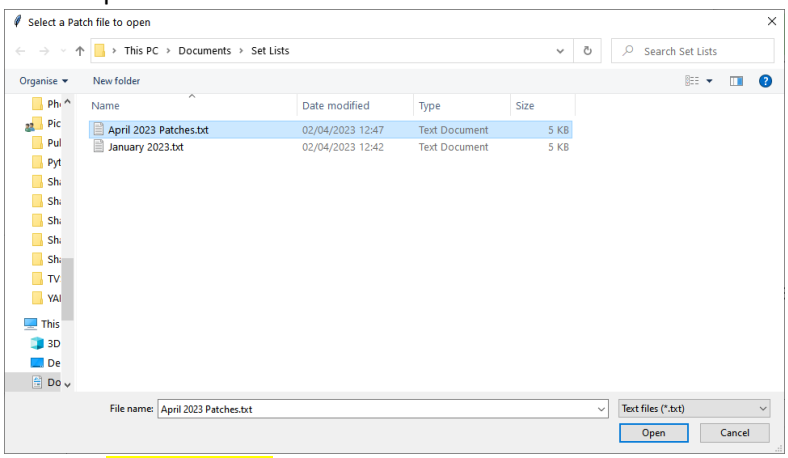
Backing up your patches

1. Connect your pedal's USB cable.
2. Run the Librarian and choose the correct serial port.
3. Make sure the icon shows 'Connected'.
4. Click the **Get from Pedal** button to load your patches from the pedal.
5. Click the **Save to Disk** button – a file Save As dialog box opens.
6. Browse to the folder where you wish to save your patches, enter a suitable name, and click Save:



Restoring your patches to the pedal

1. Connect your pedal's USB cable.
2. Run the Librarian and choose the correct serial port.
3. Make sure the icon shows 'Connected'.
4. Click the **Load from Disk** button and find the required file using the File browser and click Open to load the patches



5. Click the **Send to Pedal** button to send these patches to your pedal

Creating a Set List

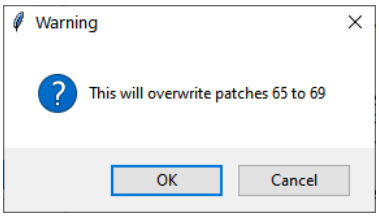
You may be wondering 'What is a Set List for?' Put simply, if you are going to be playing a set of tunes at an event, you will surely want to have the patches for those tunes arranged on the pedal into the order in which you intend to play them. Most players will already have their set list made out on paper so it's simply a matter of setting that up on your Blue Nebula.

The Help panel in the centre of the Librarian window explains how to add, remove, and insert patches into the set list column on the right side of the window. You can change the name of the patch in the set list by double-clicking on it and editing the name before pressing the Enter key to confirm.

Important: Changing the name of a patch in the set list does **not** alter the patch settings: only the name is changed. This allows you to have each patch in your set list named according to the tune you will be playing, even though the tune uses the same patch settings as another tune. That way, you can step through your set list by pressing the Up footswitch and, as you are about to play the next tune, a quick glance at the LCD will confirm that you have the matching patch for that tune selected.

When you have finished creating your set list, you can save it to your computer as a backup by clicking the Save to Disk button. You would then click the Send to Pedal button to send the set list to the pedal. A dialog

box will warn you that this will overwrite some patches, starting from patch 65, so click the OK button to confirm the transfer:



Tip: After sending the set list to your pedal, you will find it starting from **User Patch 65**.

BN-FileConverter

We had to make some changes to the format of the files that are used to save the patches data. If you have some patch files saved by the old Java Librarian, this small app can be used to convert them to the new file format so they can be used with the new Python Librarian. It can also convert the new format back to the old format should you wish to use them again in the old Java Librarian.

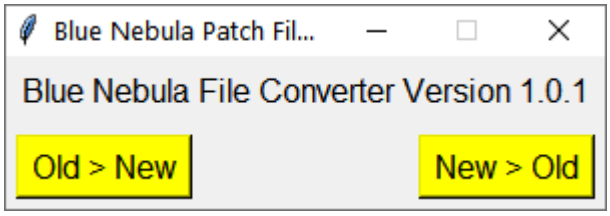


Figure 7: File Converter on Windows

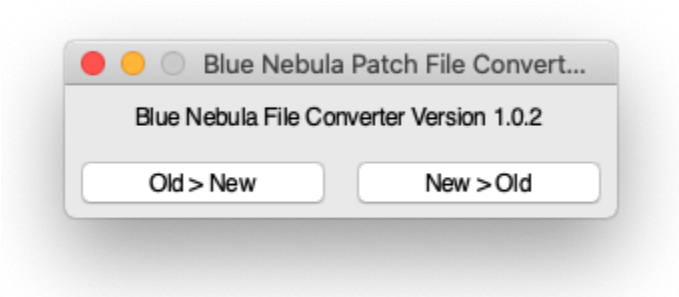
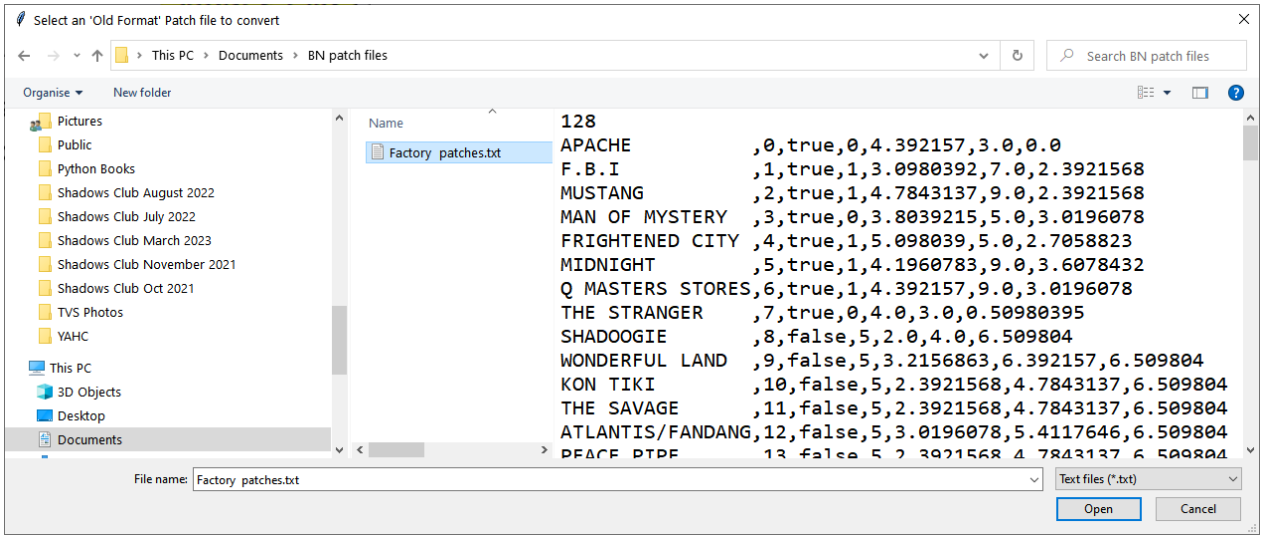


Figure 8: File Converter on MacOS

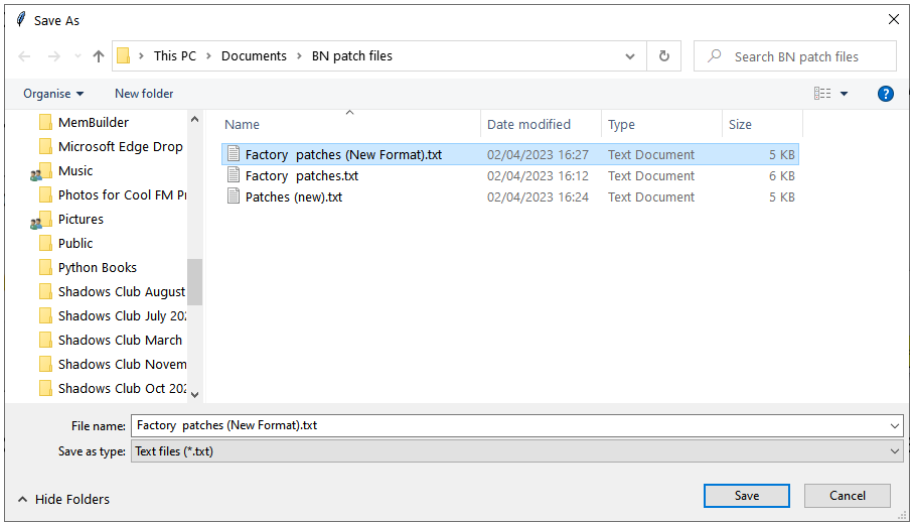
To convert an old-format file to a new-format file, start by clicking the **Old > New** button and a file browser will open so you can locate the file you wish to convert[7].

Important: the converter expects your patch files to have the .txt extension; if they don't you won't see them in the file browser so make sure you have set the file extension to .txt, as in the example in the screenshot below.

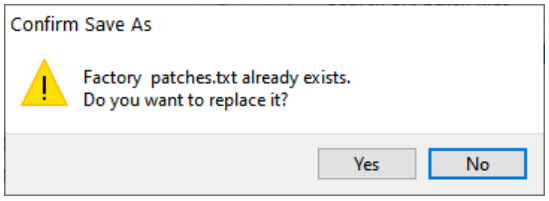


[7] Handy tip: The old file format will have a number (usually 128) on the first line. The new format has *BNPatchFile* on the first line of the file.

Select the file you wish to convert and click Open. A new Save As browser will open and you should enter a different name to be used for the new format file, otherwise you will overwrite the old file, which is probably not something you want to do.

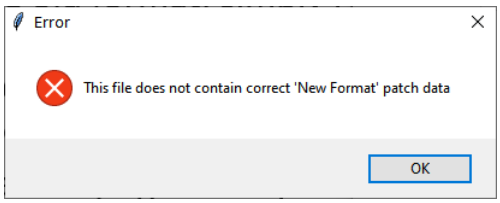


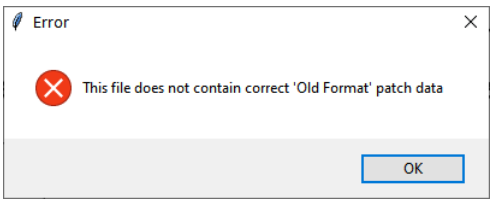
If you do use the same filename, you will be asked to confirm, if you wish to replace it. Just click No and choose another name, unless you really want to overwrite your old file.



To convert a new format file back to the old format, simply repeat the above but click the **New > Old** button.

It's possible that you may inadvertently select for conversion a patch file of the wrong format, for example you selected an old-format file after you clicked the **New > Old** button. In this case you will see an error box like one of the following. Just click OK and try again but pick the correct file this time.

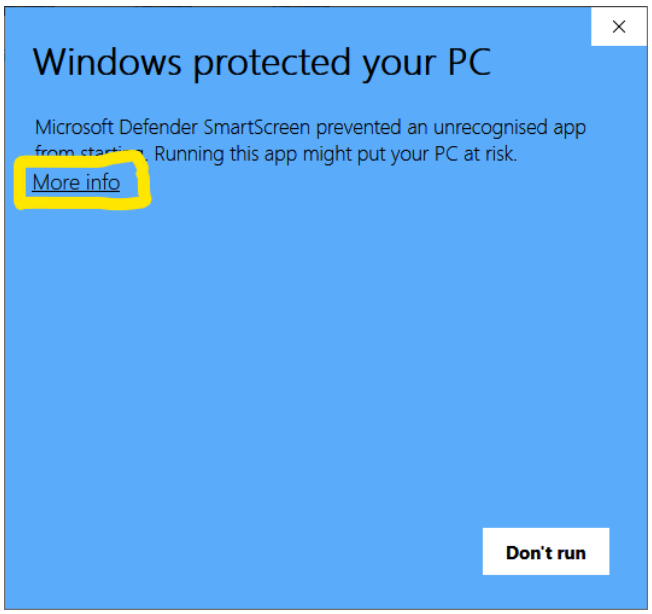




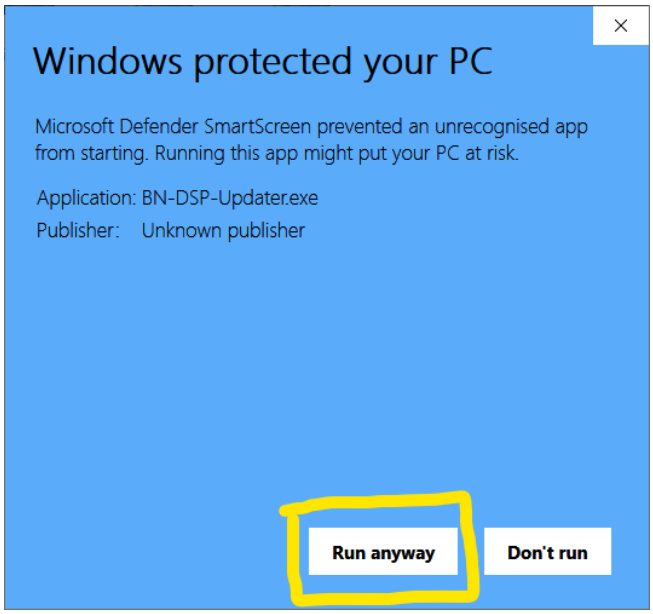
Appendix 1: Operating System Security Checks

Windows 10 and 11

The first time you attempt to run one the apps after it has been downloaded, when you double-click on the .exe file you may see the following warning dialog box from Windows Defender SmartScreen.



To run the app simply click on the More info link (highlighted above) and then click the Run Anyway button that will appear:



If your anti-virus software gives a further warning, please be assured that it is safe for you to allow the program to run as we have scanned it with industry-leading anti-virus software before it was uploaded to our server. Consult your own anti-virus User Guide if you require further help on this.

Mac OS X

The Gatekeeper security app on your Mac may prevent our apps from running the first time after you have downloaded them. I have put together a video on YouTube which shows how to deal with the security checks that Mac OS uses to protect your Mac as you first run the BN apps. Once you have authorised the apps as the video explains, you do not need to go through these security checks again when you next run the apps.

(Although the video shows the earlier Java apps, the same procedure is used to authorise the new Python apps).

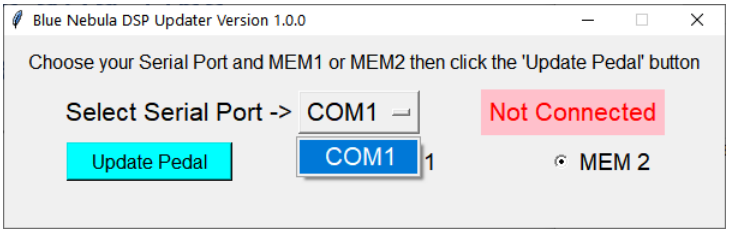
https://youtu.be/mfUFd0qge_I?t=118

Appendix 2: Hints and Tips

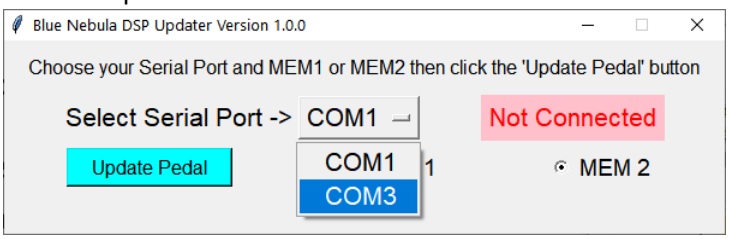
Finding the correct serial port

If you're not sure which serial port your pedal is connected to, a simple way to check is as follows:

1. Make sure the pedal's USB cable is **not** connected.
2. Run the app you wish to use.
3. Open the Serial port dropdown list and note the ports listed:



4. Quit the app.
5. Connect your pedal via its USB cable[8].
6. Run the app again.
7. Open the Serial port dropdown list and note that there is a new port listed – this will be your pedal's serial port. In this example, the pedal is connected to COM3 because that is the port that appeared when the pedal was connected via USB:



[8] If you always plug your pedal in to the same USB port on your computer, the serial port should be the same every time you run an app. Plugging in to a different port will usually cause the pedal's serial port to change. We therefore recommend that you always plug the cable into the same USB port every time.