Ocean Beach Digital

# **DB-1 firmware upgrade instructions**

revised Augist 6, 2012

In order to program new firmware into your DB-1 Drawbar Controller you will need the following four things:

- A PC running Microsoft Windows XP (SP2 or later), Vista, or Windows 7, or a Mac running OSX 10.4 or newer

- A USB MIDI Cable to connect your computer to your DB-1. These are available from a variety of manufacturers, and most of them don't require any special drivers. You can just plug them in and away you go. If you're in the market for a cable, we've had great success with the M-Audio MIDI Sport Uno cables – they're inexpensive and super reliable.

- The latest version of the DB-1 Firmware, available on our website at http://www.oceanbeachdigital.com/downloads/   Clicking on the firmware icon will link to a .zip (compressed archive file). Save this file to your computer, and then extract the firmware file from the zip file. The firmware filename will have a `.obd` file extension.

- The latest version of the Firmware Upgrade Utility, which is part of the Firmware Update bundle. The Windows version uses a `setup.msi` installer. Double-click on this installer and follow the directions to install the Firmware Upgrade Utility. The MacOS version is an application `.app` file. No special installation is necessary – you can run this application directly from its current location, or you can drag it to your Applications folder if you like.

The illustrations shown here are all from the Mac version, but from this point forward the procedure is exactly the same for either operating system.

1) If you have a Series II DB-1 Drawbar Controller, place a fresh battery in the battery comportment and make sure the POWER button is depressed. If you have a Series 1 DB-1, connect the wall wart power supply to your DB-1. Even if you've had good luck running off MIDI bus power, you will want to run off external power during the upgrade process. The drawbar controller will be writing to its own FLASH memory, and these write operations require more current than normal drawbar operation. A power glitch during this process will corrupt program memory and will likely "brick" the unit, rendering it inoperable. (Instructions for recovering from this condition can be found on the last page.)

2) Connect the MIDI Interface to one of your computer's USB ports

3) Connect the USB Interface MIDI OUT to the DB-1's MAIN MIDI IN

4) Connect the USB Interface MIDI IN to the DB-1's MAIN MIDI OUT

5) Make sure nothing is connected to the DB-1 AUX MIDI jacks

6) Launch the Firmware Upgrade Application:
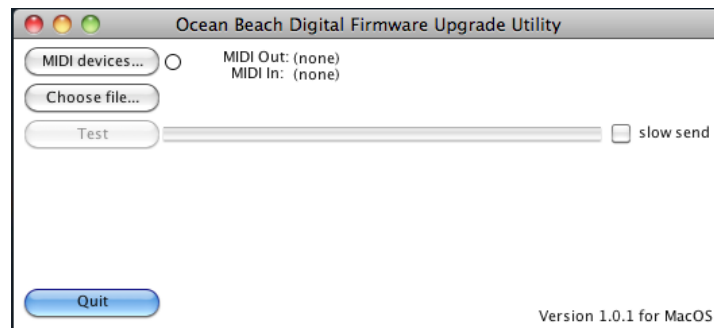
7) Click on "**MIDI Devices...**" This will bring up the MIDI Port Selection window. Click on "**refresh MIDI ports.**" You can then click on the **Input** and **Output** port dropdown menus to select the MIDI Device. Depending on your computer's hardware, you may see more than one device available. (On Windows machines your MIDI interface may show up generically as "USB Audio Device" – this is a limitation of early Windows MIDI drivers).
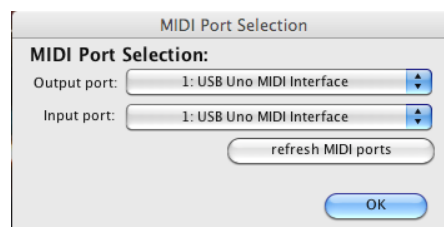

8) When you have the MIDI ports selected, click **OK**.

9) In the main window, you should now see a message indicating what firmware version is being reported by the DB-1:
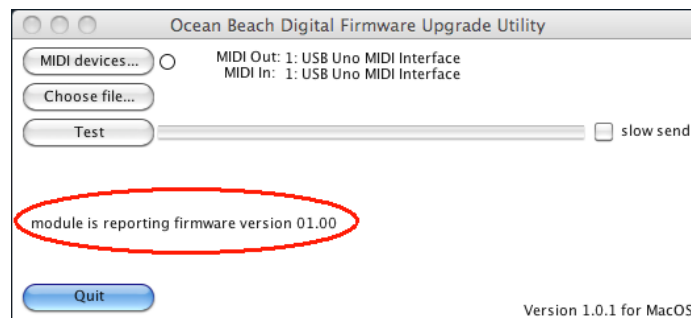

If you do not see this message, it means that the drawbar controller is not communicating with the Firmware Upgrade Utility for some reason. Double check power to the drawbar controller (does the MIDI indicator flicker when you move a drawbar?) Also double check the MIDI port selections.

10) Click "**Choose file...**" to select the firmware file that you downloaded from the Ocean Beach Digital website. All DB-1 Firmware filenames end in the .obd file extension.

11) Click "**Send...**" The Firmware Update Utility will now test the MIDI interface to make sure it's working reliably. It does this by sending a bunch of MIDI packets to the DB-1, and the DB-1 reports back a checksum for the data in each MIDI message. A failure here might indicate a loose cable, or an unreliable USB MIDI interface.

12) If the MIDI test is successful, a message is displayed instructing you to press the rear panel PROGRAM button on your DB-1:
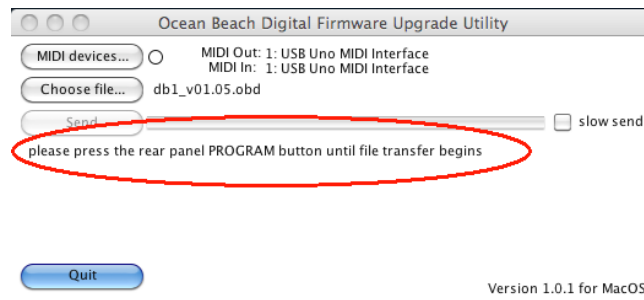
13) Press the rear panel PROGRAM button and hold it until the download begins (you'll see the progress bar start moving). One the file transfer begins you can release the button. It's very important that you do not interrupt this file transfer.

14) When the download is complete, the drawbar controller will reboot itself and the Firmware Upgrade Utility will display the new software version now running in the DB-1
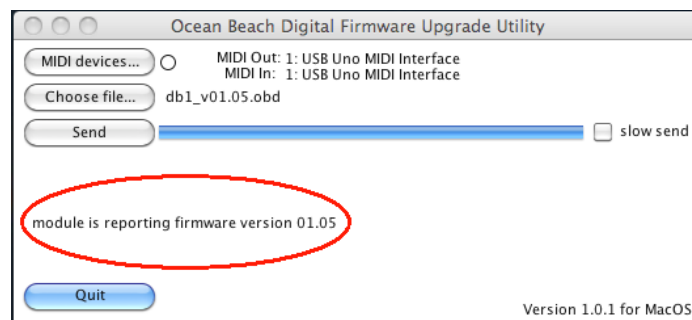
15) Press and hold the rear panel PROGRAM Button. After a few seconds the LED will flash slowly. Keep holding the PROGRAM button down. After about ten seconds it will flash quickly. Release the PROGRAM button. The DB-1 will reboot one more time.

All done! You can now `Quit` out of the Application and disconnect your DB-1 Drawbar Controller from your computer.

Troubleshooting

If you somehow managed to "brick" the drawbar controller (either because the file transfer was interrupted, or because the unit lost power, etc), you'll probably see a bunch of error messages in the application window. If this occurs, here's how you recover from this condition. The instructions vary slightly, depending on whether you're using a Series I (wall wart) or Series II (battery) DB-1.

With a Series I DB-1 Drawbar Controller:

16) First, double check that the wall wart is securely plugged into a powered outlet.

17) Disconnect the two MIDI cables from the drawbar controller. This is very important. We want to make sure the DB-1 is not leeching power off the MIDI bus so that the processor goes fully to sleep. Otherwise, this procedure will not work.

18) Disconnect the power cable from the back of the drawbar controller

19) **While holding the rear Program button down,** plug the power connector back into the back of the DB-1. Powering the DB-1 up with the Program button depressed will put it into a special "bootloader" mode which handles the firmware upgrade process.

20) Reconnect the MIDI cables as described in steps 3, 4, and 5.

21) Go to step 11 and click the `Send` button. The MIDI test and file transfer should now begin. (It will not be necessary to press the Program button from Step 13.)

With a Series II DB-1 Drawbar Controller:

16) First, make sure that you have a fresh 9v battery connected

17) Disconnect the two MIDI cables from the drawbar controller. This is very important. We want to make sure the DB-1 is not leeching power off the MIDI bus so that the processor goes fully to sleep. Otherwise, this procedure will not work.

18) Make sure the Power button is in the off (out) position.

19) **While holding the rear Program button down,** press the Power button (button goes to the "in" position.) Powering the DB-1 up with the Program button depressed will put it into a special "bootloader" mode which handles the firmware upgrade process.

20) Reconnect the MIDI cables as described in steps 3, 4, and 5.

21) Go to step 11 and click the `Send` button. The MIDI test and file transfer should now begin. (It will not be necessary to press the Program button from Step 13.)