

## USB Update Procedure OSX (Replacing unsupported zTerm)

These instructions make much use of the instruction manual. zTerm is no longer supported in Sierra. "OS Update using the USB port" - hereafter referred to as The Update Manual - as the instructions follow the five key sections laid out in there namely:

- Connect Octopus to your computer
- Interrupt the boot loader prior to execution of Octopus OS
- Load the new Octopus OS onto the Octopus hardware
- Write the new OS file to Octopus flash
- Boot into the new Octopus OS

**Please note that the procedure below relies on a terminal command `lsz` to send the file to the Octopus. This is not a regular Mac terminal command, and needed the installation of the homebrew package manager in order to do this.**

### Instructions

#### Preparation

- Download the relevant ELF file and store in a place on your mac where you know the absolute location. For ease I stored the ELF file in the Applications folder.
- Connect the Octopus to the Mac with a USB cable.
- Install homebrew on your Mac (as mentioned above) - google 'install homebrew' for latest on how to do this. This is just a well-trodden package manager that is used to install the 'lsz' command so this command can be used later on.

**Note in my case I had already downloaded the FTDI driver as per p2 of The Update Manual - but it maybe you don't need to do this if it's true that macs since OS10.9 have a driver for FTDI built in (as has been reported on some websites).**

#### 1. Connect Octopus to your computer

- Open the terminal program (in Applications/Utilities)
- Install the lsz command using homebrew with by typing the following command into the terminal program (followed by return - for all future commands I will omit saying followed by return)  
`brew install lrzsz`
- Get a list of serial devices to potentially connect to by typing  
`ls /dev/tty.*`

This should give you a list of these potential serial ports such as:

```
/dev/tty.Bluetooth-Incoming-Port /dev/tty.lpss-serial2
/dev/tty.lpss-serial1             /dev/tty.usbserial-00005314
```

This list the 4 ports as shown on my specific computer. Yours may be different. As per the information given around selecting a serial port on the zTerm program in The Update Manual p3 section 4, you need to select a USBserial port from your list. You then connect to it with this command  
`screen [port] 38400`

where [port] is replaced by the port you want to connect to - e.g. for me I typed the command  
`screen /dev/tty.usbserial-00005314 38400`

Note the 38400 at the end is specifying a baud rate of 38400 which is what The Update Manual mentions.

Note also: Terminal is now using a program called 'screen' to talk to the Octopus - one can google GNU Screen to find out information about operating this program if you are interested.

- Test the connection by resetting the Octopus (The Update Manual p3 section5) and you should see the text from The Update Manual top of p5.

## 2. Interrupt the boot loader prior to execution of Octopus OS

- Read The Update Manual pages 6&7. Effectively do exactly the same; reset the Octopus, make sure that terminal [screen] is selected and press CNTL-C within one second of resetting.
- You should now have the Octopus> prompt.

## 3. Load the new Octopus OS onto the Octopus hardware

- Read The Update Manual pages 8 & 9. Again one needs to do the same (i.e. upload the file via the connection), but the method for uploading the file within the terminal/screen application is a bit more complicated as there is no menu option to select a file like on zTerm.
- Set Octopus to receive file transmission using same command as on p8 of The Update Manual i.e. enter the command

```
load -m ymodem -b 0x00010000
```

This will then start a series of Cs appearing on the terminal indicating that the Octopus is waiting for a file to be delivered. If you wait too long then it will time out and you get a timeout message on your screen.

- Send the new OS file to the Octopus. This is the trickiest part of the operation. Firstly you have to enter a special mode of screen that allows you to type in a command. This is done by typing CNTL-A and then the : key (ie. SHIFT+;). You'll know if you've done this right as the cursor will jump to the bottom of the terminal window. Once this is done you need to enter a command to transfer the file via the ymodem protocol to the Octopus. The command is

```
exec !! lsz -Y [file name]
```
- So in my case with the ELF file stored in Applications I used the command

```
exec !! lsz -Y /Applications/OCT_OS.elf
```

This then loads the file and you see it counting the kilobytes up to around 300kb.

Note you get a message at the end saying transfer incomplete. This is the same as the 'cancelled' connection at the top of p9 of The Update Manual and the file should be transferred fine. You should have a message similar to the middle of p9 - the Entry point: .....

## 4. Write the new OS file to Octopus flash

- Follow the rest of the instructions in the update manual on pages 10 onwards, including writing to flash with the fis create command

```
fis create -b 0x00010000 -l 0x00070000 -f 0x01820000 OCT_OS.elf
```

Double check in the command line above that "-l" is lowercase "L"

## and 5 Booting and initialising memory data

- Disconnect screen and terminal using the following commands  
CNTL-A and then k. Reply y you do want to kill this window. You are now disconnected and the Octopus is updated.

*Many thanks to Dominic Curtis for developing & documenting this revised OSX update procedure.*