Skipper's Mate - What To Do With an ISO

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INTRODUCTION

This document is intended to help you get going with either a pre-prepared micro SD card purchased from the web site (containing the ISO image) **or** the ISO image downloaded from the web site.

This covers the full version of **Skipper's Mate**. It assumes that you have one of the following :

- ◆ micro SD card pre-loaded from the web site

- ◆ ISO image only – downloadable from the web site

You can also compile from source if you wish. If so, you will require separate software and documentation- available from the web site Downloads page.
All our software is Open Source. If you wish to compile from source files please consult the website - at https://www.skippersmate.co.uk/downloads.html for additional documentation and the program downloads to be applied to an existing Rasbian installation.

Skipper's Mate - What To Do With an ISO

STEP 1 - BURNING THE ISO TO A CARD (for downloaders only)

If you have a pre-prepared card GO DIRECTLY TO STEP 2 OMITTING STEP 1

When unzipped, this image needs to be written to a 8Gb SD or micro SD card. If you use a larger card you can expand the partition using the Raspbian utility raspi-config (see web for details).

1.1 Windows

Firstly unzip the tgz file (using 7-Zip for example).

Then follow the instructions here :

http://elinux.org/RPi_Easy_SD_Card_Setup

The image is a **fully-prepared bootable Rasbian image** with a range of utilities, plus the Skipper's Mate software and all constituent software. If you're interested in what's included the Software page on the http://www.skippersmate.co.uk web site provides details.

1.2 Mac OS

No idea how to unzip. If anyone else does, please contribute to these notes.

There are instructions here - http://elinux.org/RPi_Easy_SD_Card_Setup – for Mac, as well as Windows and Linux.
It may well be that the instructions for using a terminal in Linux will also work for a Mac but since we don't have one to test on, we can't be sure.

1.3 Linux

From a terminal, unzip the tar file containing the ISO :

tar -zxvf <releasename>.tgz
e.g. tar -zxvf skippersmate0.9.2.3.tgz

This will produce a ISO image – usually called **unregimg** which can be written to a card.

Check the device name of the card using :

```
df -h
```

Identify the SD card as /dev/<something> - Gparted is also useful to identify/check this.
Assuming you're using an 8Gb card it will look something like this :

```
/dev/sdd showing a size of something like 7.2Gb
```

Take a note of this.

As root, or using sudo make ABSOLUTELY SURE that /dev/sd**X** is correct as dd will copy wherever you say – if that's a hard disc partition then you will shortly be very unhappy !

```
sudo dd bs=1M if=<imgname> of=</dev/sdX>
```
e.g. sudo dd bs=1M if=unregimg of=/dev/sdc

To check how the copy to the card is progressing, open another terminal window. Enter :
```
pgrep -l '^dd$'
sudo watch -n 10 kill -USR1 <pid returned from pgrep >
```
This will unzip and copy on the fly to the SD/micro SD card.

Once you have a working card you can follow the instructions below. It is not necessary to set Skipper's Mate up at home but you may prefer to ensure that you have all the bits working before setting out on the briny (or not so briny).

STEP 2 - KIT YOU NEED TO GET STARTED

Note – if you are unsure of what hardware will work with a Raspberry Pi we suggest you Google for "Raspberry Pi Verified Peripherals".

See also **Assembly Instructions** available from the Downloads page on the web site https://www.skippersmate.co.uk

2.1 Essentials for Getting Started

You should have the following :

◆ **Raspberry Pi** – we suggest a Pi 3B but have tested on various 'B' versions (including a 256kb) and the 'B+'. (We are looking at a version for the Pi Zero – check the web site for NEWS.)

◆ **Power Source for Raspberry Pi** – you will need a step-down from 12V or 24V to 5V, unless you want to run off mains power, in which case you will need a suitable mains power transformer (2 amp min.).

◆ **SD or Micro SD card** - bootable

◆ **USB Wireless Access Point** (WAP) – if you're using a Pi3B then all is fine – ignore the warning below and carry on

Warning if you're using a Pi which does not have built in Wi-Fi!

Only a limited set of wireless devices can act as access points (to provide a hotspot). If you are supplying your own wireless device to act as an access point do check the web. There is a utility present in the release which you can run via the System / Execute Commands to check your wireless device. If you can't get into the Raspberry via the AP (or the wireless device you want to use as an AP then you will need to plug an ethernet cable from your PC/laptop. **MAKE SURE YOU PLUG THIS IN *BEFORE* YOU PLUG IN ANY EXTERNAL WIRELESS RECEIVER** to ensure that the system sees the Skipper's Mate Hotspot WAP as the FIRST wireless device.

2.2 You may find these useful

◆ **Ethernet Cable** – if you have problems accessing your Skipper's Mate via wireless you may need an ethernet cable.

◆ **Optional USB Extension Cables** - you may need one or more extension cables – either because you want to site your receiver (or Access Point) at a distance from the Raspberry or because the design of the devices prevents you using both USB ports otherwise (**i.e.** too fat, too wide). For example, we tend to run the GPS dongle on a 3 metre extension cable. The RPi3B has 4 USB ports but you may find that using all 4 consumes too much power, in which case a powered USB hub may be the answer.

◆ **Suitable Powered USB Hub** - alternatively, if you plan to run 3 or 4 USB devices you may find you need a powered USB hub (see web site and/or *Google for "Raspberry Pi Verified Peripherals").* The RPi can be fussy about which hubs work and which don't

2.3 Essential Comms

To talk to the outside world, one or both of these are required :

Skipper's Mate provides connectivity between your boat and the outside world – either for you to browse the web when you're on board or for you to access the boat when you're at home/work/out and about. So you need one (or more) of the 2 comms devices listed below.

 ◆ **3G/4G Mobile Broadband Dongle** (fitted with a suitable SIM)

and/or

 ◆ **Wireless Receiver** – suitable for use with the Raspberry and capable of receiving a signal from your marina or other wireless access point. Choosing one with a removable antenna is a good idea – typically they are supplied with a 2dB antenna which is not a lot of use in an outdoor environment but you can buy much more powerful ones with which to replace the original. Mostly these have a reverse SMA fitting (screw fitting). We have tested with antenna of up to 9dB and have managed to receive wireless signals over distances greater than 3 km. Note however that obstructions such as masts can affect signal significantly. In general terms, the more powerful the antenna the more susceptible to movement.

A diagram of the hardware for the Wi-Fi Hotspot version is shown in **Appendix A**

Note : The power available from the Raspberry itself may be insufficient to run all the USB devices you wish to run (e.g. 2 wireless devices, GPS, camera). A powered hub may well be useful, even with the 4-USB port B+ Raspberry. A diagram of the hardware for a fuller version of Skipper's Mate is shown in Appendix B

2.4 Sensors

If you wish to run sensors (e.g. for intruder detection and alarms, bilge/float alarm, voltage monitoring, temperature/humidity/dewpoint monitoring or an online barograph) you will need to add a Bluetooth controller to your Boat Control Unit. Not all Bluetooth controllers work with the RPi and there are many fakes about.

Each Sensor Control Unit will require a single Bluetooth client – see the Assembly Notes (downloadable) for each sensor type. See Step 6 for more details on Sensor Control Units.

STEP 3 – BOOTING AND CONNECTING TO SKIPPER'S MATE

3.1 Booting

Ensure you have all the items in 2.1 Essentials for Getting Started – plug them together and your Skipper's Mate Boat Control Unit – i.e. the RPi – should boot. The power up light sequence will depend on the type of Pi you're using so consult the web if you experience problems.

3.2 Connecting Wirelessly to the Boat Control Unit

Using a wireless-enabled device, look for the wireless access point – **SkippersMate**. If this is available, connect using the password **skippersmate**. (You customise both these within the Skipper's Mate system using the menu option Settings / Hotspot Settings.)

3.3 Logging In To the Skipper's Mate Boat Control Unit

Once you're connected wirelessly, open a browser and enter **http://192.168.51.254**. This should bring up a Login screen :

Enter the temporary login details – unless you have been told that your pre-prepared card has been synchronised for you

Temporary login :   User name : skipper
**   Password   :   mate**

If the card has been synchronised then use the user name and password which you supplied when purchasing/registering. This should have been sent to you as an email. If you can't find it please contact us via the web site Contact page.

3.4 Looking Around Inside the Boat Control Unit Menus

If you login successfully you should see a set of menus similar to this (note that if we update or add to the system this snapshot might be out of date) :
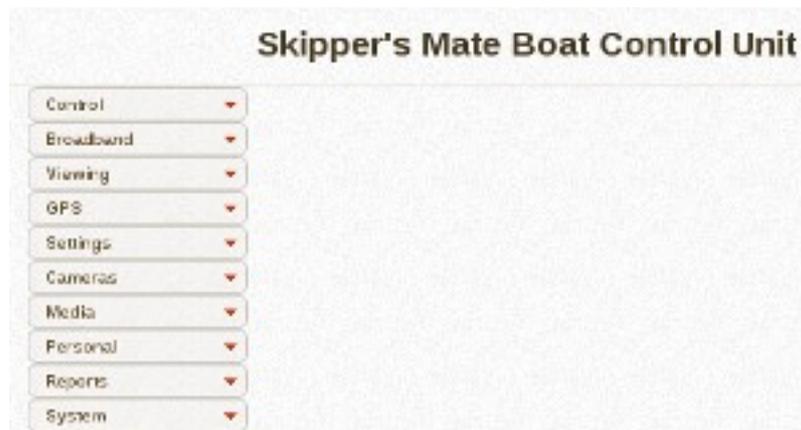
For more details on what the menu options do, please refer to the User Manual – available from the Downloads page on the web site https://www.skippersmate.co.uk – or from the Help buttons (on the Login screen and most screens within the system – the Help Index (on the top bar within any help page) will give you a full alphabetical list of programs and functionality.

To return to the Login screen from the menus, hit the back arrow twice.

3.5 Checking Communications Before Synchronising Your System

BEFORE SYNCHRONISING YOUR SYSTEM you **MUST** ensure that you have access to the Internet via either your 3G/4G Mobile Broadband dongle OR your External Wireless Receiver.

Refer to 2.3 Essential Comms – plug in whichever type of comms you plan to use. Only one can be in use at any one time (see Control / Control Panel) so choose which one you wish to test first and then follow the steps in either 3.6 Connecting Your 3G/4G Mobile Broadband Dongle or 3.7 Connecting your External Wireless Receiver

3.6 Connecting Your 3G/4G Mobile Broadband Dongle

Shut down your BCU, inserted your SIM card, plug your dongle into either the Boat Control Unit (BCU) itself or, for preference, the powered USB hub and then power on again.

3.6.1 Using a HiLink Dongle

We only support HiLink dongles (i.e. which treats the dongle as ethernet and has a web interface which allows you to store your user id/password etc.).

However, if you have a dongle which does not conform to this there is a menu option to enter the details provided by your mobile broadband supplier, select Broadband / 3G/4G Settings. Configuration is up to you !

3.6.2 Using a non HiLink Dongle

Enter the connection/dongle details. Hit OK to save the information. Close the Mobile Broadband Settings screen using the X in the top right hand corner.

3.6.3 Checking Your Broadband Connection

Now check your broadband connection by selecting Broadband / Check Broadband Connection and hitting the OK button. If successful – i.e. you have a connection to the Internet – you should see a screen similar to this one (obviously the IP address will be specific to your mobile broadband supplier, not that shown here.)
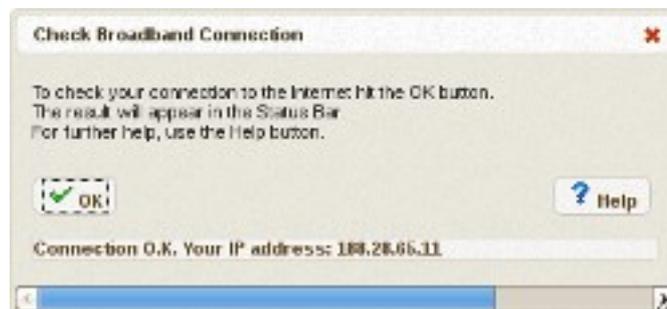
Now test by browsing - if your Connection O.K. message appears with an IP address you should now be able to open another browser tab and visit a web site (choose a page which you have not visited recently to check that it is up to date information, not that cached by your browser).

3.7 Connecting your External Wireless Receiver

Shut down your BCU, inserted your external wireless receiver into either the Boat Control Unit (BCU) itself or, for preference, the powered USB hub and then power on again

To enter the details provided by your mobile broadband supplier, select Broadband / Connect to Wireless Signal.

Select the Wireless Access Point (WAP) you wish to connect to. If it's a private one (e.g. a yacht club) where you've been supplied with the password you will need to select the WAP, enter the WPA Passphrase and then hit the Connect Button.

If you don't see the WAP you want, you may need to hit the Rescan button.

If you are connecting to a public (open) WAP you should not need a password but, obviously, when you try to browse the net in the testing option below you will be asked to enter the details or pay for the Internet connection you are trying to use.

There is more detailed information available both from the Help button and the User Manual.

Now check your broadband connection by selecting Broadband / Check Broadband Connection and hitting the OK button. If successful – i.e. you have a connection to the Internet – you should see a screen similar to this one (obviously the IP address will be specific to your broadband supplier, not that shown here.)
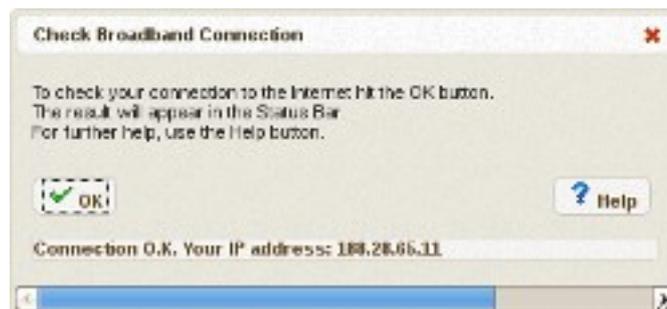
Now test by browsing - if your Connection O.K. message appears with an IP address you should now be able to open another browser tab and visit a web site (choose a page which you have not visited recently to check that it is up to date information, not that cached by your browser).

3.8 Synchronising Your System

You MUST have a working Internet connection before trying this step.

If you have downloaded the ISO you will need to Register for Remote Access (see web site Tech.Stuff menu). After registering and responding to the emails you should have your login details and can then progress to **Checking Communications** and **Synchronising** the system.

If your pre-prepared purchased card has not been synchronised then you will need to **Synchronise** the system to get your details loaded on to the Boat Control Unit.

Select Control / Synchronise. (If the Synchronise option is crossed through then this step has already been carried out and you must have logged in as YOU or you wouldn't be here. Once

Synchronisation is complete you must log out and the temporary user id will have been deleted so only YOU (or Skipper's Mate support) can log in.

Now enter the **User Name** and **Password** you chose when you purchased or registered for remote access – you should have received an email with these. (If you have mislaid it or can't remember the details you will need to contact us via the web site Contact page – supplying your **Full Name** and **Vessel Name.)**

Hit the OK button and you should receive a message indicating that the details have been transferred to the Boat Control Unit.

Log out as the temporary user and Login as You - Logout (by using the back arrow twice or closing the browser tab – according to the type of device you are using). Log in again to Skipper's Mate (http://192.168.51.254) with **your own User Name and Password .** The system should now be ready to use.

Note that the ~~Synchronise~~ option will be struck through - this is a one-time use option. If you see other options struck through this means that they are not available. ISO users/Open Source users should have all options available but obviously you need to provide the requisite hardware. For details on this please refer to this document, the User Manual, the Assembly Notes (both available from the Downloads page) or on the Forum available from the web site.

STEP 4 – GPS - optional

This one's easy. Power down your BCU. Plug the GPS (with or without an extension cable – of not more than 3 metres) into the powered hub (preferred) or the BCU itself.

Boot up the BCU. Give the system a minute or so to boot and to start communicating with the GPS and storing temporary data (on ramdisk). ***WARNING !*** A GPS can often take several minutes (even as long as 5 or 10) to find satellites and get it's very first fix. Consult the documentation with your GPS to see what light characteristics indicate it has got a fix.

Check that the GPS is switched on in Control / Control Panel (if not, switch it on and give it a minute or so to get its act together.

You may want to check that the GPS has been recognised (and indeed that your GPS uses standard settings). Use the GPS / GPS Settings menuy option for this – and look on the Device tab.

To check whether the GPS is working, select GPS / GPS Real-Time Update. If your GPS is working you should see figures in all fields (with the likely exception of Heading (True) which may well be blank if your house/office/boat (or whereever you're testing) is at rest !

If the Real-Time Update shows genuine figures then consider using the Set Base option (see Help for more details) and you can also look at the GPS – Plot Your Position which should show your GPS (boat/office/house !) on Google maps.

Errors

If you see an error message (e.g. *"Initialising GPS. Please be patient")* and this does not change then you are going to have to dig deeper – see Troubleshooting below.

STEP 5 – RPi camera - optional

There are several camera options – daylight RPi ribbon cable camera, the night vision version, standard USB webcams and IP cameras.

For the moment, we'll tackle the RPi ribbon cameras as the main example. Instructions on attaching these are shown in the Assembly Notes (available from the Downloads page on the web site) and from many suppliers of Pi cameras.

Shut the system down, power down, add camera and power on.

Check that the Cams switch is on in Control / Control Panel.

If you have added one Pi camera you should be able to see it using the Viewing / Camera 1 menu option.

To configure the camera and motion detection options see Cameras / Camera 1. The Help in this program is fairly extensive. If you have further queries please consult the Forum available from the web site and, if you can't find an answer there to your question, then you can post the query there.

Power consumption

We are developing a series of figures which should shortly be available from the web site under Tech. Stuff called Current Draw. If you have shore power then most things are possible. If you are planning to run from a 12V supply we suggest consulting this page – some items, e.g. infra-red/night viewing cameras, draw quite a lot of current while doing not a lot.

The TESS Edition combines an LED light (or your boat lighting, if you choose) with a PIR so that a daylight camera can be used after dark – thus saving the current taken by infra-red cameras/lights.

STEP 6 – Sensor Control Units - optional

Sensor Control Units can be added to Skipper's Mate for the following :

- ◆ hatches, doors – for intruder detection - alarms

- ◆ PIR – for intruder detection (see also notes on TESS Edition) - alarms

- ◆ bilge/float - alarms

- ◆ voltage monitoring (graphs) and alarms

- ◆ temperature/humidity/dew point monitoring and alarms

- ◆ online barograph for monitoring barometric pressure

You can have more than one of most of these types – excluding the online barograph – so you can monitor multiple battery banks or the temperature/humidity in different parts of the boat.

The Assembly Notes (available from the Downloads page of the web site) give instructions and diagrams/photos for putting together each type of Sensor Control Unit.

All Sensor Control Units require a Bluetooth client and you will need to register each of these via the command line and then create entries in the Skipper's Mate database for each.

6.1 Accessing the BCU via SSH

In order to register the Bluetooth device(s) on the Sensor Control Unit(s) you will need secure shell access to the BCU.

This document currently describes how to do this from a Linux or Android device. If you're using Windows you can use a freely-available utility called **putty**. If you're using a Mac we suggest that Google is your answer – there appear to be quite a lot of articles on the subject.

First you need to use either a Linux terminal or an Android SSH app such as JuiceSSH. The BCU details via wireless are :

IP address : 192.168.51.254

User : pi

Password : raspberry

Port : 22

For example, from a Linux terminal you would need to type :

ssh pi@192.168.51.254 (port 22 is the default)

and then enter the password.

If you're using Juice the quickest way seems to be to use the button (looks like a lightning strike) for Quick Connect and then enter (as shown) :

pi@192.168.51.254:22

and enter the password.

6.2 Registering, Pairing and Trusting Bluetooth Devices

From the ssh connection enter :

```
hcitool scan
```

and hit Enter. We suggest you do this with one device at a time. If you have a Bluetooth controller in your BCU and one Sensor Control Unit with a Bluetooth device available you might see something like this :

```
Scanning ...
   98:D3:37:00:91:1C  HC-05
```

i.e. the Bluetooth address or MAC followed by the device type.   It indicates that the controller can "see" the client device.

Now use the **bluetoothctl** utility to carry out the rest of the steps required before you can use the bluetooth client :

```
bluetoothctl
power on
scan on
agent NoInputNoOutput
default-agent

pair <mac>
(when you use the pair <mac> command you will be asked for the passcode
– this is usually 1234 – if not, you'll need to find the passcode for
the Bluetooth device you bought)

trust <mac>

info <mac> - should show now be trusted, paired e.g.
Device 98:D3:37:00:91:1C
   Name: HC-05
   Alias: HC-05
   Class: 0x001f00
   Paired: yes
   Trusted: yes
   Blocked: no
   Connected: no
   LegacyPairing: no
   UUID: Serial Port

<ctrl> z will close bluetoothctl – or you can follow the steps from pair
onwards for a further device.
```

This Bluetooth device should now be active as far as the operating system is concerned – but you need to do some more to make the SCU part of the Skipper's Mate system.

You will need the Bluetooth identifier/MAC for the database.

6.3 Making the Database Entries for the SCU

Setup is the only time when you should need to edit these entries via a utility – once the system is

configured for the hardware you're adding, you should be able to control the system via the menu options of Skipper's Mate.

To do this you need to run the utility http://192.168.51.254/phppgadmin from a browser. You should see a screen like this :

Login with : Username : pcl

Password : pcl

Click on the pcl database + sign to open.	
Then open the public schema Tables by clicking on the + sign	

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Amending database tables

sm_sensorpanel

The **sm_sensorpanel** table must be edited before an sm_remoteunit entry can be edited/created.

Scroll down through the tables on the right hand side until you see sm_sensorpanel – click on the box before the table name and then hit the Browse button on that row to view/modify the table.

The base system comes populated with typical rows so you can probably use the Edit button on one of those which looks closest to your requirements and then change it to suit.

If there are no rows suitable (i.e. similar to the SCU you're working on) then you can use the Insert button to create a new row but it is much easier to edit an existing one.

For example, if you wanted to edit Sensorno 1 – House V for your voltage sensor you could do so. Note that, if you create a new row, some columns are required, others are defaulted – notes below.

To edit the voltage row :

Here we have shown a couple of rows – in this example we will edit the row with a legend of House V – assuming you are trying to get a voltage sensor working. Hit the Edit button to the left of the row.

You should now be in edit mode. ONLY change the data in the Value column on the right and ONLY change those items listed here. DO NOT CHANGE ANY OTHER VALUES.

sensorno – if you are editing, leave this unchanged. If you are inserting IT MUST BE UNIQUE so pick the next number higher than the last sensorno shown.

legend - short title – used for Sensor Panel display (where appropriate), graphs etc.

currentstatus

runo – this is specific to the SCU. With the exception of the multiple sensor Temperature/Humidity/Dewpoint (THD) (which all share one **runo**) this should be unique. You will need this number to enter into the sm_remoteunit table – see below.

Sensortype – this must match one of the entries from the sm_devicetype table (which you can Browse to view if you wish – but do NOT change in any way) :

So if you were working on a voltage sensor your sensorno should be 1 (dtno=1 typename=Volts). There is more on setting up a THD sensor below.

All other fields can be left as defaults. The display, alert and graph axes (high/low) can be configured via the appropriate menu option (where applicable) e.g. Settings / Voltage Settings, Settings / Temp/Humid/DewPt Settings.

Hit the Save button at the foot of the page.

sm_remoteunit

sm_remoteunit MUST be updated for ALL Sensor Control Units.

Select the sm_remotenunit table :

☐ sm_remotesvr	pcl		0	Browse	Select	Insert	Empty	Alter	Drop	Vacuum	Analyze	Reindex	
☑ sm_remoteunit	pcl		8	Browse	Select	Insert	Empty	Alter	Drop	Vacuum	Analyze	Reindex	
☐ sm_sensorfreq	pcl		0	Browse	Select	Insert	Empty	Alter	Drop	Vacuum	Analyze	Reindex	
☐ sm_sensorpanel	pcl		6	Browse	Select	Insert	Empty	Alter	Drop	Vacuum	Analyze	Reindex	

by ticking the box and then hitting the Browse button on that line. You should then see the existing contents of the table sm_remoteunit. Here we have shown a couple of rows – in this example we will edit the row with a legend of House V – assuming you are trying to get a voltage sensor working. Hit the Edit button to the left of the row.

Edit Delete	6 Bilge	Bilge	71	0 20:16:10:27:55:95	1	0 /dev/rfcomm2 9600	8		none	NULL	NULL	0 ⌾1	2016-09-17 16:39:41.017494	6	NULL	6	1	1
Edit Delete	1 House Battery	House V	71	1 98:D3:37:00:91:1C	0	1 /dev/rfcomm0 9600	8		none	NULL	NULL	0 ⌾1	2016-07-11 10:48:55.830848	1	NULL	1	1	1

You should now be in edit mode. ONLY change the data in the Value column on the right and ONLY change those items listed here. DO NOT CHANGE ANY OTHER VALUES.

description – not displayed – merely for your reference in the database

legend – used on the Sensor Panel, graphs etc. Keep it short for the panel displays.

active – Set this to 1 which indicates that the sensor is active.

mac – this is vital – it must be the Bluetooth identifier/mac **with colon delimiters** that you used in bluetoothctl

serialdev – the BCU will assign a /dev/rfcomm device to each Bluetooth client, starting with number 0 so if volts is the first SCU you attach then this should be /dev/rfcomm0. When you add a second one it should be /dev/rfcomm1. If you wish to check that you really do have the right device name you can, from the ssh command line you used for bluetoothctl, enter :

ls /dev/rfc* and you should see something like this (here we have 2 Bluetooth units) :

```
/dev/rfcomm0   /dev/rfcomm1
```

PostgreSQL 9.4.10 running on localhost:5432 – You are logged in as user "pol"

phpPgAdmin: PostgreSQL?;   pol?;   public?;   sm_remoteunit?:

Edit row

Column	Type	Format	Null	Value
ruid	integer	Value		1
description	character varying(30)	Value	☐	House Battery
legend	character varying(20)	Value	☐	House V
smid	integer	Value		71
active	integer	Value		1
mac	character varying(17)	Value		98:D3:37:00:91:1C
alerton	integer	Value		0
showonpanel	integer	Value		1
				/dev/rfcomm0

Hit the Save button at the foot of the page.

TROUBLESHOOTING

Problem no. 1 - I cannot attach to my Skipper's Mate Access Point

You have followed **Section 3 Setting Up the Hotspot** - Steps 1 to 3 but are unable to connect to the SkippersMate Access Point (AP) signal.

You will, of course, have made sure you have line of sight to the AP. So if the signal doesn't appear or perhaps you aren't able to connect please follow the steps below.

Step 1 - Contact Your Raspberry by Ethernet

Attach your laptop/PC to the Raspberry using a standard ethernet cable. This will work for most devices – some will require a cross-over cable.

Set your ethernet connection on the laptop to a fixed IP in the 192.168.69 range e.g.

```
IP Address : 192.168.69.99
Subnet Mask : 255.255.255.0
Gateway : 192.168.69.254
```

If you don't know how to do this with your operating system and version, there is plenty out on the web so Google is your chum.

You should now be able to :

```
ping 192.168.69.254
```

and get answers back. If not, check that your laptop has got the correct IP address details. (Google for **ipconfig** if you're using Windows and don't know how. Linux and Mac use **ifconfig**.)

So let's assume that you're talking to the Raspberry.

Step 2 – Open Skipper's Mate in a Browser and run Execute Commands

Open Skipper's Mate in a browser by entering the following into the URL bar :

http://192.168.69.254

You should be able to login using the default login details (see Section 2). From the menus, select System / Execute Commands.

*Note this tool is intended to help you dig into the detail without using the command line. If you're happy with the command line then do go ahead. **Remember** that the command line AND Execute Commands don't nanny you with "Are you sure ?" messages so be it on your own head if you enter the wrong command !*

Step 3 – Check that the Wireless USB Device is recognised

Enter :   lsusb (and hit the Enter key)

You should see a result similar to this in the Results window :

```
Bus 001 Device 002: ID 0424:9514 Standard Microsystems Corp.
Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
Bus 001 Device 003: ID 0424:ec00 Standard Microsystems Corp.
```
Bus 001 Device 004: ID 148f:5370 Ralink Technology, Corp. RT5370 Wireless Adapter

The line you're after is something like the one in bold (this is the line for the AP we supply).   If nothing like that appears then the wireless device isn't recognised. Try the usual – ensure plugged in etc. There is a short list of chipsets which we have tested with the Rpi – see the Hardware page on the website for Skipper's Mate. If that doesn't help, try checking that your wireless device is compatible with the Raspberry Pi – Google for RPi Verified Peripherals – eLinux.

I am not sure if my wireless device can act as an Access Point – follow the steps in Problem 2 **-** I cannot see a signal from the Skipper's Mate Access Point

Let's assume that it **is** seen by the Rpi.

Step 4 – Check that the AP is the first wireless device

Enter :   ifconfig (and hit the Enter key)

This should display all the network devices on the Rpi – your wired connection will be showing as eth0. In the example below the AP is shown as **wlan2**. This is incorrect (achieved by changing the card from one Raspberry to another where the wireless AP and receiver details had already been saved to file).

wlan2 Link encap:Ethernet HWaddr 7c:dd:90:57:25:de
```
UP BROADCAST MULTICAST MTU:1500 Metric:1
RX packets:0 errors:0 dropped:0 overruns:0 frame:0
TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:1000
RX bytes:0 (0.0 B) TX bytes:0 (0.0 B)
```

If there is only one wireless device shown and it is wlan0 then carry on to Step 6.

If you have more than one wireless device showing (e.g. wlan0 and wlan1) check which one is the AP. Remember you should have not got as far as Section 2 Step 4 Plugging in the Wireless Receiver yet so remove that from the Raspberry and reboot **once you have followed the steps below to remove the saved information.**

Step 5 – Remove the saved wireless device information

Enter :   rm /etc/udev/rules.d/70-persistent-net.rules (and hit the Enter key)

This command does not have any output so check that you have deleted the file by entering :

Enter :   ls /etc/udev/rules.d(and hit the Enter key)

You should see a listing similar to this (don't confuse 70-persistent-cd.rules – it is 70-persistent-**net**.rules which should have been deleted.

BEFORE rebooting MAKE SURE that you only have your wireless access point in (and no receiver. Now reboot. You can do this by selecting from the menu System / Reboot Skipper's Mate or by typing reboot into the Execute Commands screen.

Once you have rebooted use the ifconfig command again and you should see something like this with the AP as wlan0.

```
wlan0 Link encap:Ethernet HWaddr 7c:dd:90:57:25:de
inet addr:192.168.51.254 Bcast:192.168.51.255 Mask:255.255.255.0
UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
RX packets:57 errors:0 dropped:31 overruns:0 frame:0
TX packets:56 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:1000
RX bytes:26536 (25.9 KiB) TX bytes:27627 (26.9 KiB)
```

BE PATIENT ! Treat your little Raspberry gently ! You can often sign in to Skipper's Mate when it's still finishing its reboot. It may still be loading software so if the menu options don't pop up when you select them WAIT A BIT !

Problem no. 2 - I cannot see a signal from the Skipper's Mate Access Point

The majority of wireless devices can act as receivers (Infrastructure Client mode) but don't have the capability to act as an access point/transmitter.

If you are unsure and have checked the other information referred to in Problem no. 1 – Step 3 then try this using System / Execute Commands :

Enter :   dmesg | grep usbcore (and hit the Enter key)

You should see something similar to this – the line you want is the last one which details the wireless device driver. (It may not always be the last line.)

```
[ 0.933258] usbcore: registered new interface driver usbfs
[ 0.938960] usbcore: registered new interface driver hub
[ 0.944523] usbcore: registered new device driver usb
[ 1.403682] usbcore: registered new interface driver smsc95xx
[ 1.999987] usbcore: registered new interface driver usb-storage
[ 2.140439] usbcore: registered new interface driver usbhid
[ 20.669327] usbcore: registered new interface driver rt2800usb
```

Now browse to : http://wireless.kernel.org/en/users/Drivers and check the table to see if your driver can act as an AP (column 4). The **rt2800usb** (Ralink - one of the devices we supply as an AP) **does** act as an AP. You will see that many in that table don't. If yours doesn't, then you will need to find one which does before proceeding.