

# CONSENSYS USER GUIDE v1.4

Rev. a



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# WHAT'S NEW IN THIS RELEASE

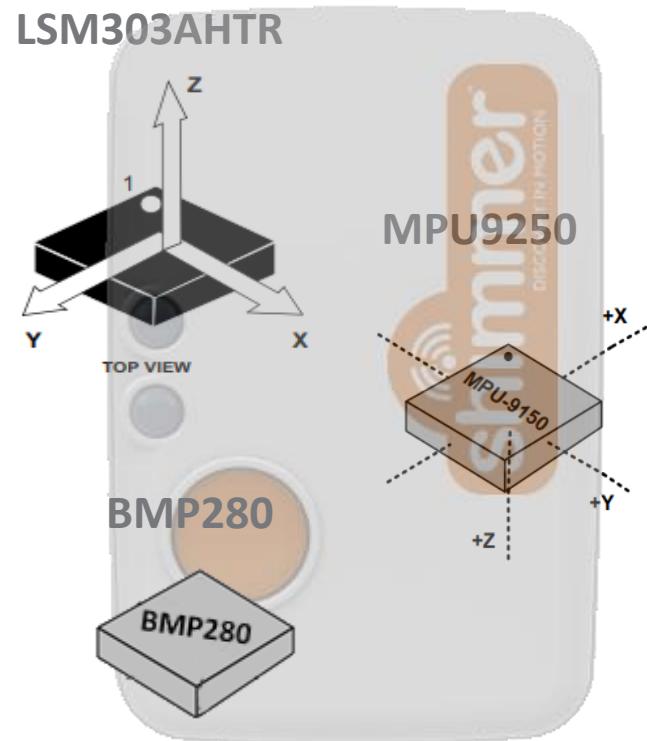
*Consensys v1.4.0 brings a number of software updates and bug fixes*

## Updates:

- Support for new IMU chips
  - LSM303AHTR
  - MPU9250
  - KXTC9-2050
- Support for new Pressure/Temperature chip
  - BMP280
- Quick plot option for device and sensor

## Bug fixes:

- Improved import time for EMG algorithm module
- Increased threshold for activity detection for activity algorithm module
- Database insertion method over Bluetooth
- Recording to Database or SD card over Bluetooth for ConsensysBASIC



# INTRODUCTION

*Consensys v1.4.0* is used with a *Consensys Base6* during the creation of this guide.

**Supported Software:** ConsensysBASIC / ConsensysPRO

**Supported Hardware:** *Shimmer Dock* / *Consensys Base6* / *Consensys Base15* / all *Shimmer3 Units*.

**Supported Firmware:** *SDLog* / *LogAndStream*.

Follow the links for more information on:

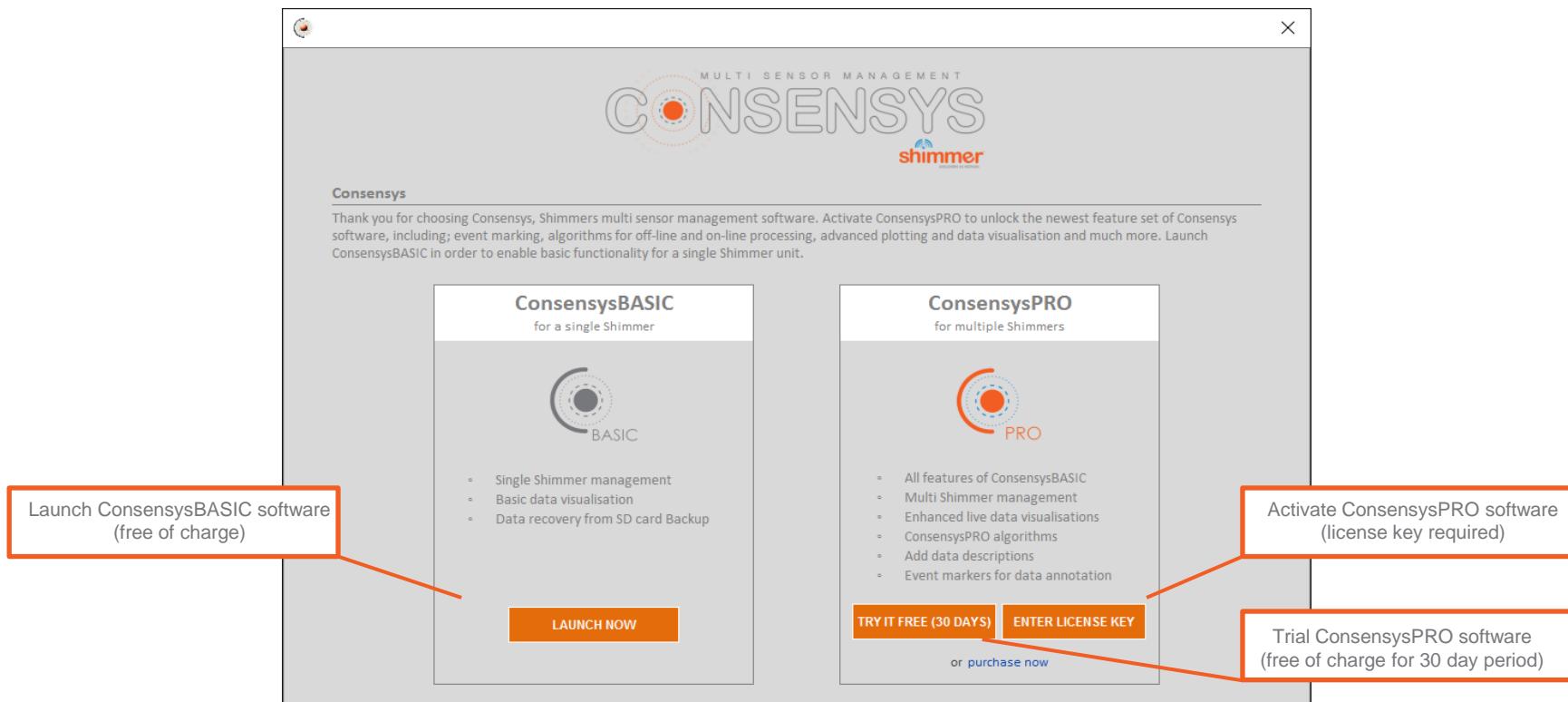
- *Consensys Software* – <http://www.shimmersensing.com/menu/products/consensys>
- *Consensys Base6* - <http://www.shimmersensing.com/menu/products/consensys-base6>
- *Consensys Base15* - <http://www.shimmersensing.com/menu/products/consensys-base15>
- *Documentation & Downloads* – <http://www.shimmersensing.com/menu/support>

# CONSENSYSBASIC v CONSENSYSPRO

Consensys v1.4.0 comprises of two applications, ConsensysBASIC and ConsensysPRO.

**ConsensysBASIC** – Basic functionality for a single Shimmer unit

**ConsensysPRO** – Advanced functionality for multiple Shimmer units including event marking, off-line and on-line processing, event marking, advanced plotting and data visualisation and much more



# INSTALL HARDWARE & SOFTWARE (1/8)

STEP 1 – Download the *Consensys* software from our [website](#)<sup>†</sup>.

STEP 2 – Connect the AC adapter with the *Base*.

STEP 3 – Plug the power cable into the AC adapter and a mains power socket.

STEP 4 – Connect the USB cable from your computer to the *Base*.

STEP 5 – Windows will now install the drivers for the *Base*. Status feedback is given in Windows' system tray; right bottom corner of the screen:

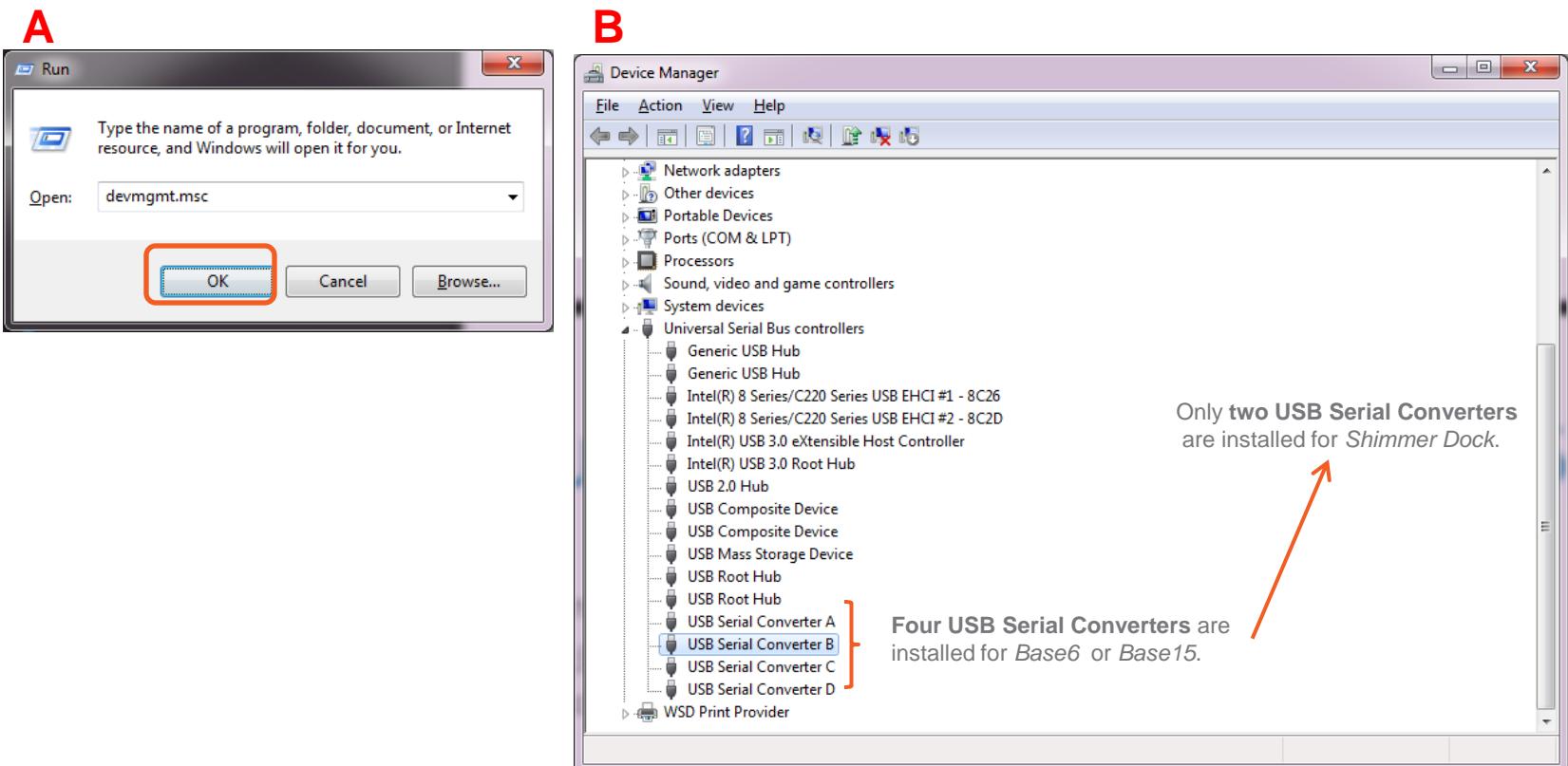


**N.B.** The driver installation can take up to a few minutes. In case you are not sure if the installation has finished, just go to the next STEP to verify the driver installation.

# INSTALL HARDWARE & SOFTWARE (2/8)

## STEP 6 – Verify driver installation:

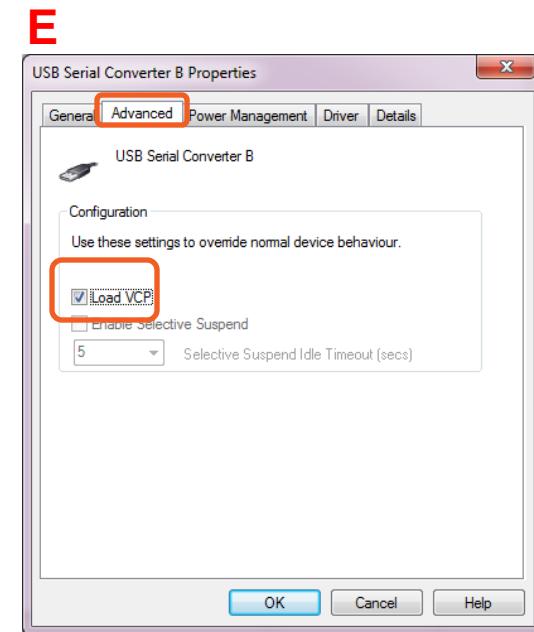
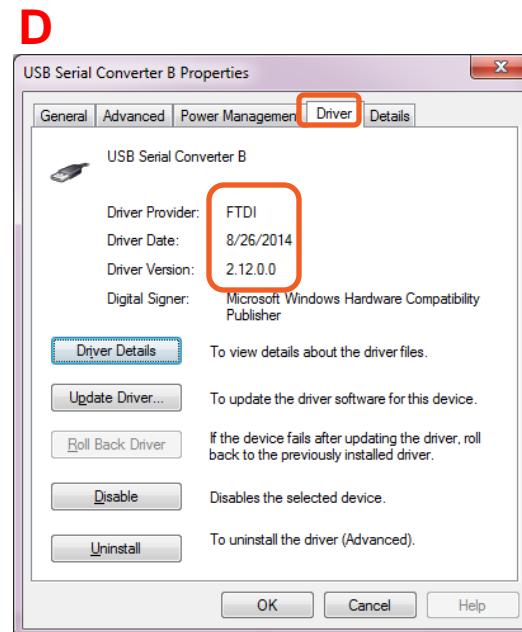
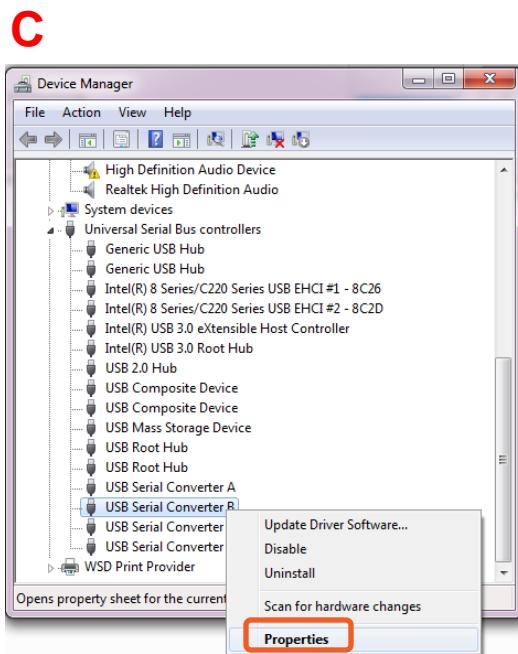
- Run the Device Manager: Press [Windows Key] + R; type *devmgmt.msc*; click “OK”.
- Go to Universal Serial Bus Controllers.



# INSTALL HARDWARE & SOFTWARE (3/8)

## STEP 6 – Verify driver installation - continued:

- C. Right-click on one of the USB Serial Converters; click **Properties**.
- D. Go to “Driver”; check if **FTDI Driver v2.12.0.0** or later is installed → **Correct Driver has been installed!**
- E. Go to “Advanced”; make sure **Load VCP** is checked.
- F. Repeat for the other USB Serial converters. Skip to STEP 9 if correct driver is installed for all USB Serial Converters.



# INSTALL HARDWARE & SOFTWARE (4/8)

## STEP 7 – Download the FTDI Driver:

- Go to <http://www.ftdichip.com/Drivers/VCP.htm>.
- Download the latest Windows “setup executable”.

A

B

Currently Supported VCP Drivers:

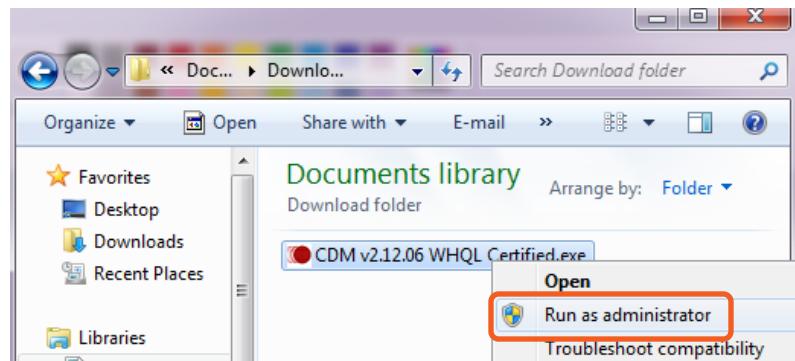
		Processor Architecture							
Operating System	Release Date	x86 (32-bit)	x64 (64-bit)	PPC	ARM	MIPSII	MIPSIV	SH4	Comments
Windows*	2015-07-28	<a href="#">2.12.06</a>	<a href="#">2.12.06</a>	-	-	-	-	-	<a href="#">2.12.06 WHQL Certified Available as _setup executable Release Notes</a>
Linux	2009-05-14	<a href="#">1.5.0</a>	<a href="#">1.5.0</a>	-	-	-	-	-	All FTDI devices now supported in Ubuntu 11.10, kernel 3.0.0-19 Refer to <a href="#">TN-101</a> if you need a custom VCP VID/PID in Linux
Mac OS X 10.3 to 10.8	2012-08-10	<a href="#">2.2.18</a>	<a href="#">2.2.18</a>	<a href="#">2.2.18</a>	-	-	-	-	Refer to <a href="#">TN-105</a> if you need a custom VCP VID/PID in MAC OS
Mac OS X 10.9 and above	2015-04-15	-	<a href="#">2.3</a>	-	-	-	-	-	This driver is signed by Apple
Windows CE 4.2-5.2**	2012-01-06	<a href="#">1.1.0.20</a>	-	-	<a href="#">1.1.0.20</a>	<a href="#">1.1.0.10</a>	<a href="#">1.1.0.10</a>	<a href="#">1.1.0.10</a>	
		<a href="#">1.1.0.20</a>			<a href="#">1.1.0.20</a>				

# INSTALL HARDWARE & SOFTWARE (5/8)

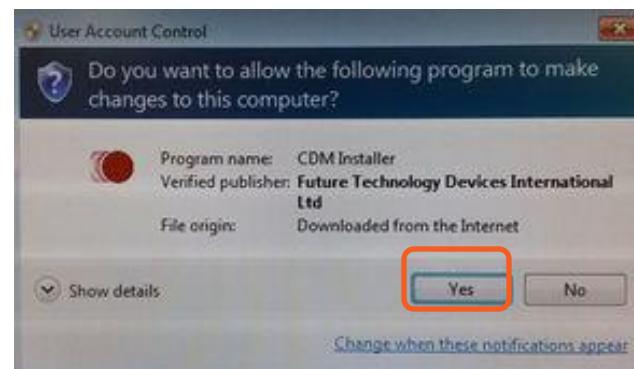
STEP 8 – Manual Driver installation:

Right-click the downloaded file;

“Run as administrator”:



Press “Yes” if this screen is shown:

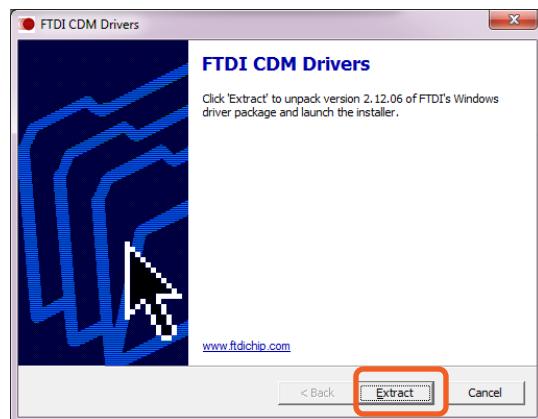


N.B. If a security warning pops up, click “Run”.

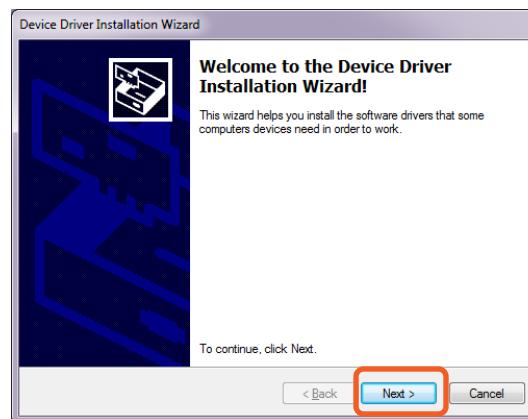
# INSTALL HARDWARE & SOFTWARE (6/8)

STEP 8 – Manual Driver installation - continued:

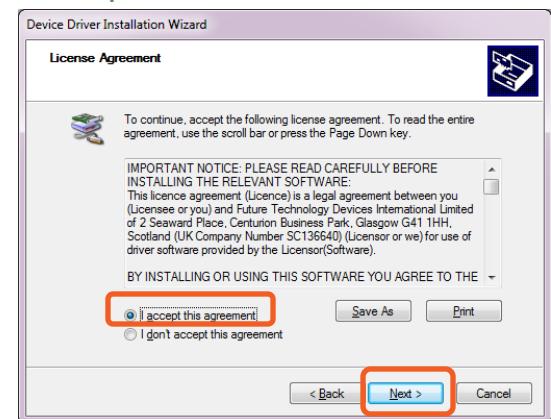
Click “Extract”:



Click “Next”:



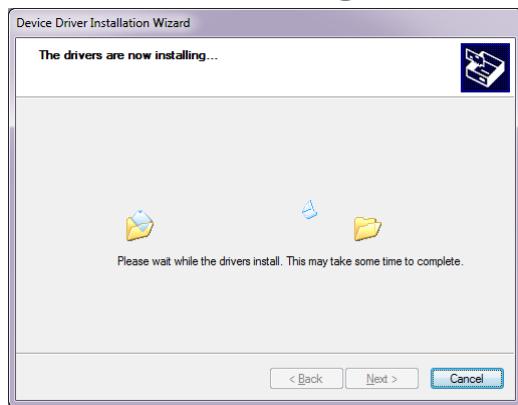
Accept and click “Next”:



# INSTALL HARDWARE & SOFTWARE (7/8)

STEP 8 – Manual Driver installation - continued:

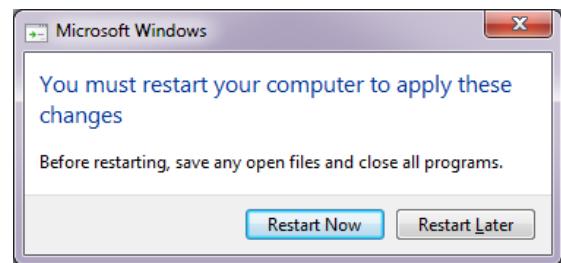
Drivers are installing:



Click "Finish":



Click "Restart Now":



N.B. Repeat STEP 6 before proceeding!

# INSTALL HARDWARE & SOFTWARE (8/8)

**N.B.** Only continue with STEP 9 if the driver installation has been verified (STEP 6).

STEP 9 – Extract the zip-file downloaded at STEP 1.

STEP 10 – Double-click “*setup.exe*” and follow the instructions.

STEP 11 – When the installation is complete, double-click the *Consensys* desktop icon to start.

# LICENSING - OVERVIEW (1/3)

**N.B.** ConsensysPRO requires a license to utilize the software, skip this licensing section if you intend to only use ConsensysBASIC for which a license is not required.

**Subscription:** Subscription license permits the use of ConsensysPRO for a specified time period after which time the subscription must be renewed in order to use the application. ConsensysPRO implements an annual subscription (365 day period).

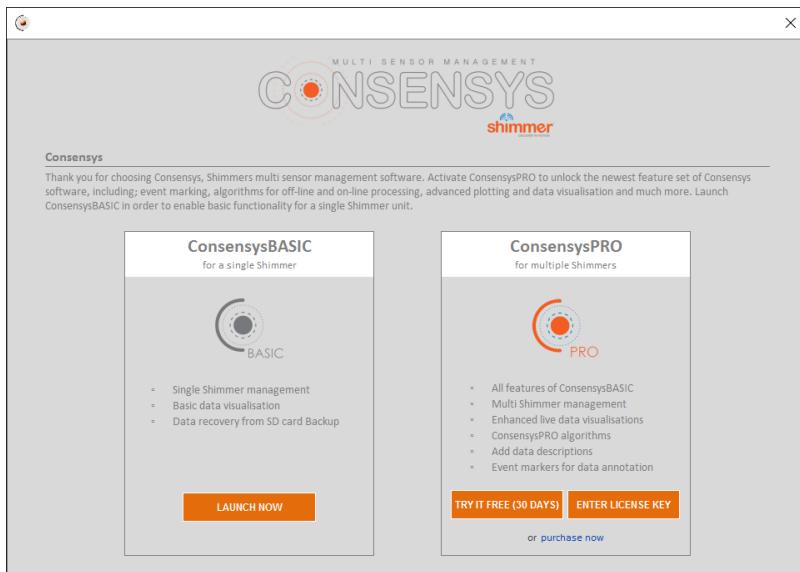
**Floating:** Floating licensing authorizes the use of ConsensysPRO with the given number of activations. The number of concurrent activations is tracked, and the total number of running sessions of the licensed application at any time is limited by the maximum allowed activations in the floating licenses purchased by the licensee.

**Trial:** You can try ConsensysPRO free of charge for a 30 day period after which you must purchase a license to continue to use ConsensysPRO or use ConsensysBASIC.

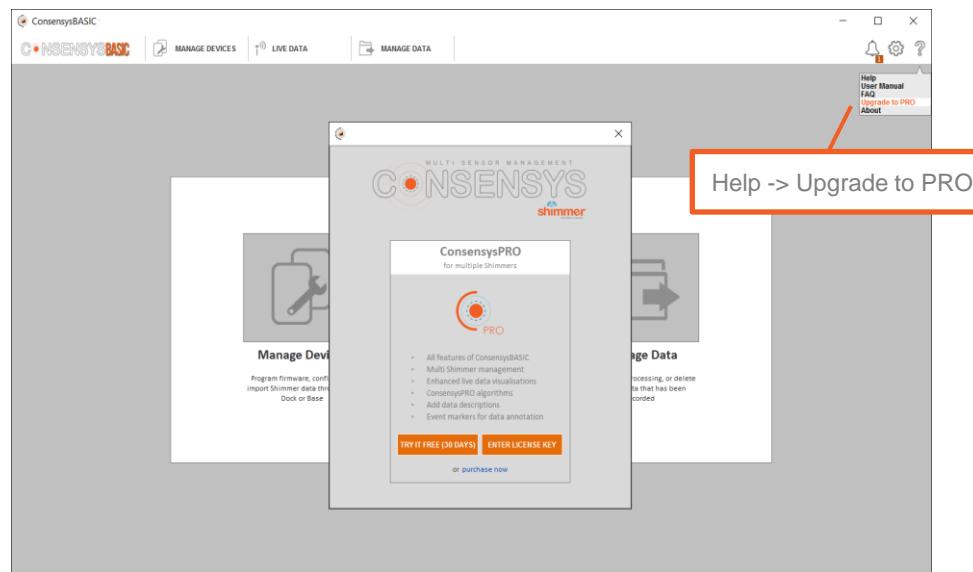
# LICENSING - ACTIVATION (2/3)

**N.B.** ConsensysPRO requires a license to utilize the software, skip this licensing section if you intend to only use ConsensysBASIC for which a license is not required.

**(A)** Activate ConsensysPRO on software startup

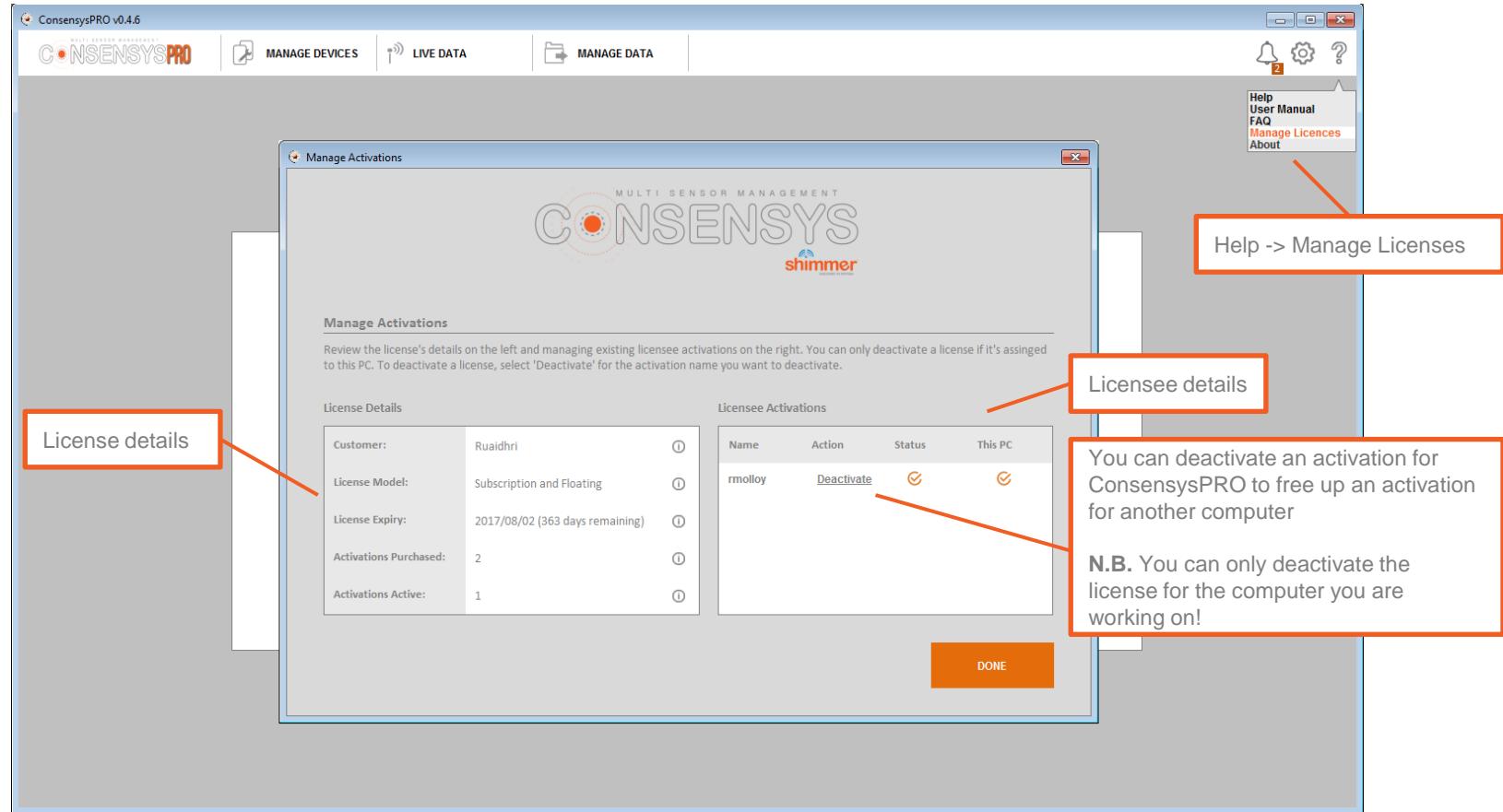


**(B)** Activate ConsensysPRO by selecting Help -> Upgrade to PRO



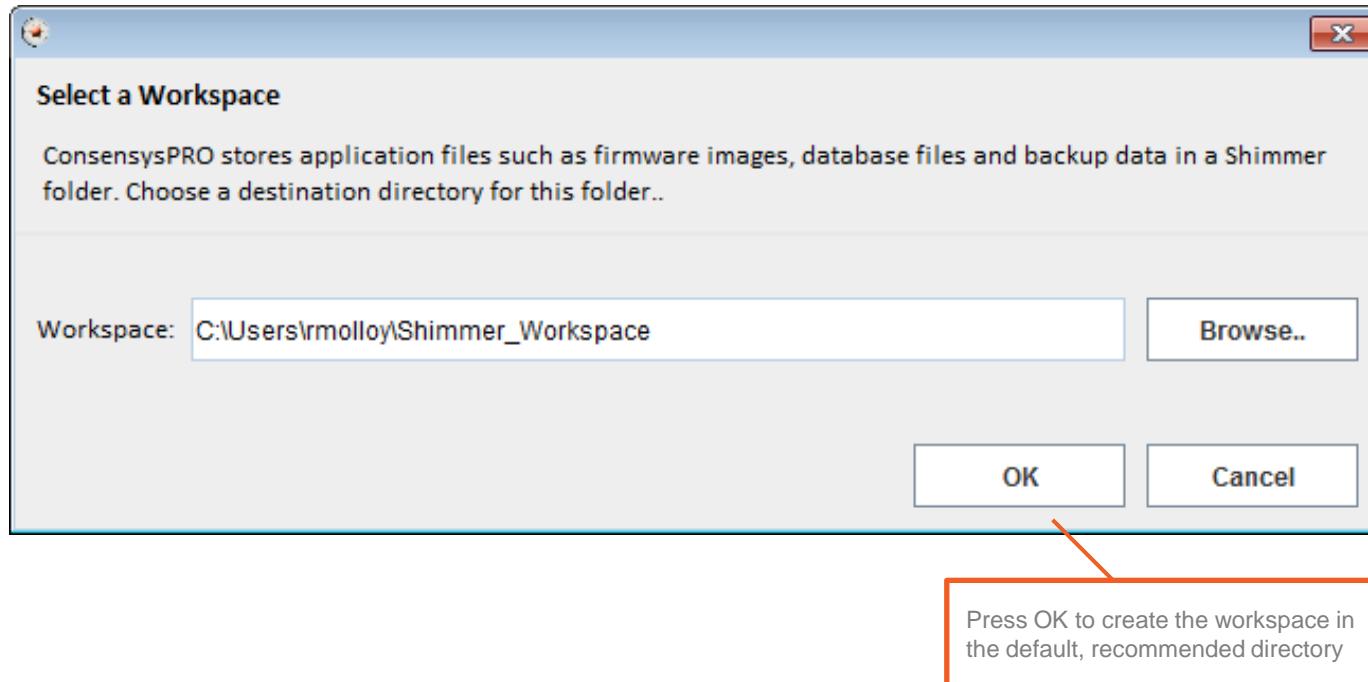
**N.B.** You can trial ConsensysPRO for free for a 30 day period or you can purchase a license by visiting <http://www.shimmersensing.com/menu/products/consensys>

# LICENSING - MANAGEMENT (3/3)

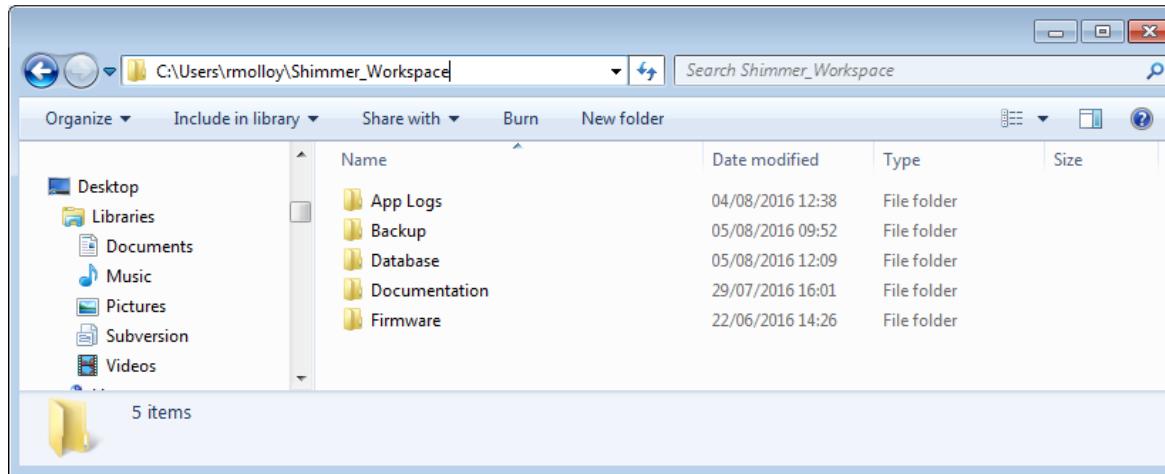


# CONSENSYS WORKSPACE (1/2)

**N.B.** The first time a new version of Consensys software is run, a workspace must be created to store application files. The workspace will be created automatically when you choose a directory and press the 'OK' button. The structure of the workspace is detailed on the next slide.



# CONSENSYS WORKSPACE (2/2)



**App Logs:** Contains text files with debug information used by the Shimmer team to debug Consensys hardware and/or software issues.

**Backup:** Contains a back up of the data imported from Shimmer SD cards into Consensys software.

**Database:** Contains database files with data imported from Shimmer SD cards and recorded over Bluetooth which can be exported to text files in Consensys software (using the MANAGE DATA tab).

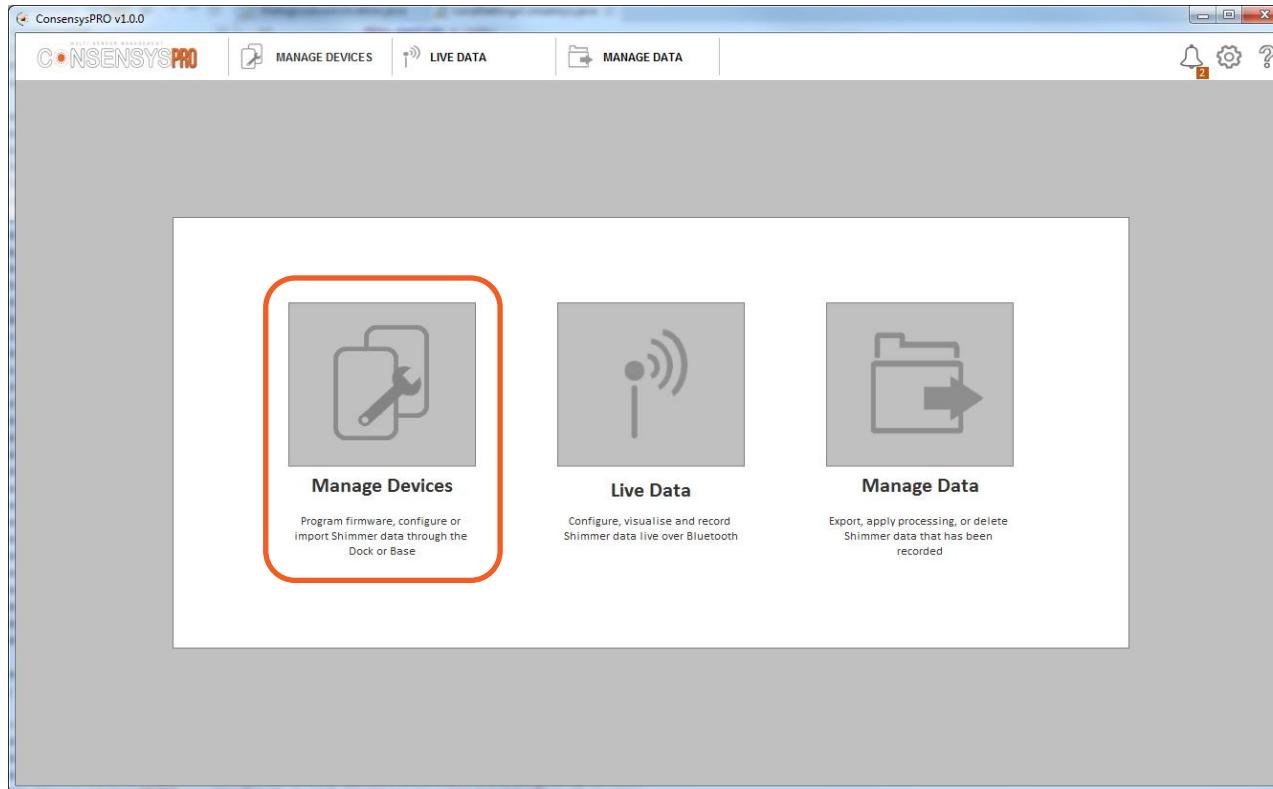
**Documentation:** Contains this user guide and a FAQ document (both accessible in Consensys software through the help icon)

**Firmware:** Contains Shimmer3 firmware files (e.g. LogAndStream, SDLog) which can be programmed onto Shimmers in Consensys software.

# PROGRAM FIRMWARE (1/3)

STEP 1 – Start *Consensys*.

STEP 2 – Click “MANAGE DEVICES”.

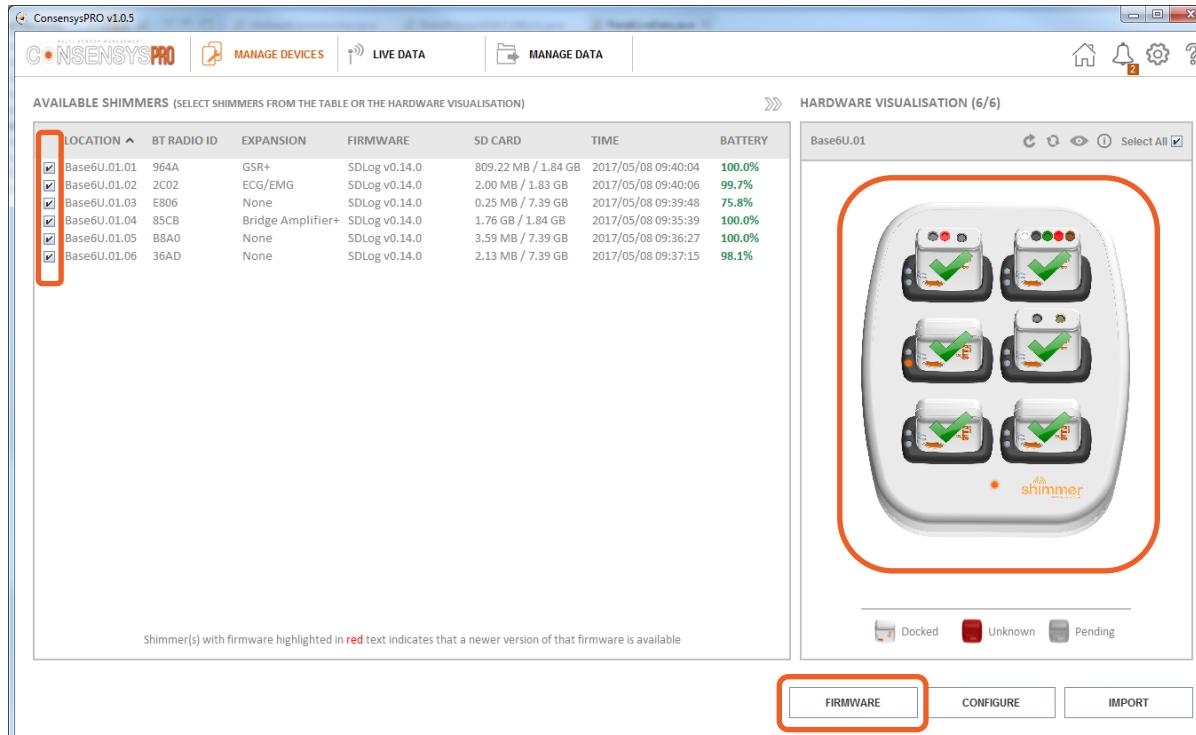


# PROGRAM FIRMWARE (2/3)

STEP 3 – Switch on the Shimmer(s) and place in the *Base6*.

STEP 4 – Click on the graphic or the device list to select/deselect the Shimmer(s).

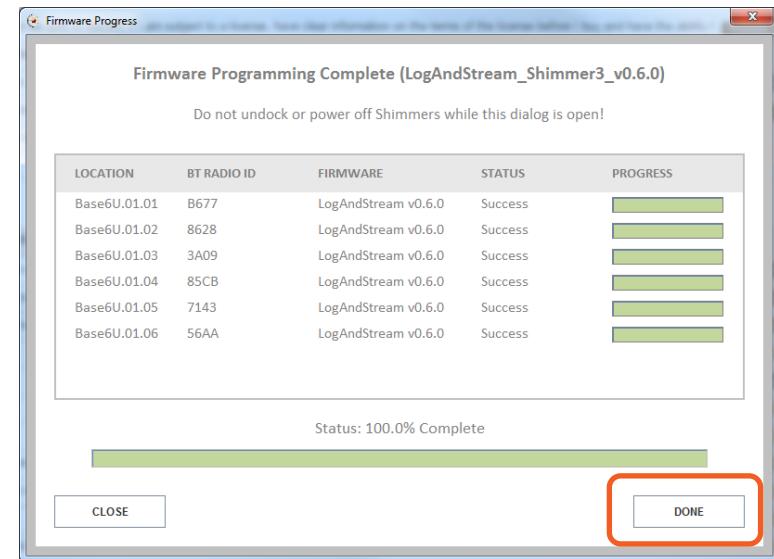
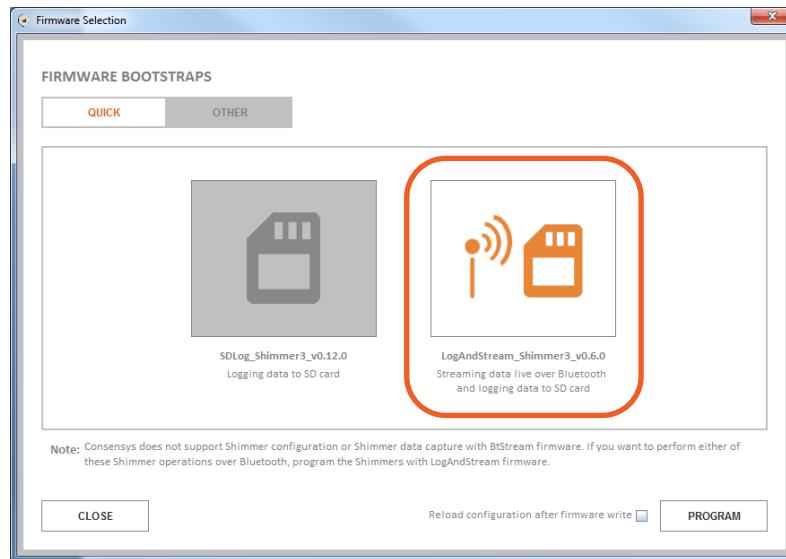
STEP 5 – Select one or more Shimmers and click on the “FIRMWARE” button.



# PROGRAM FIRMWARE (3/3)

STEP 6 – Program the Shimmer with *SDLog* or *LogAndStream*:

Select *SDLog* or *LogAndStream*, and click PROGRAM": Click "DONE" when complete:



# LOGGING

**Logging data on the SD card(s) of one or multiple Shimmers.**

In this section:

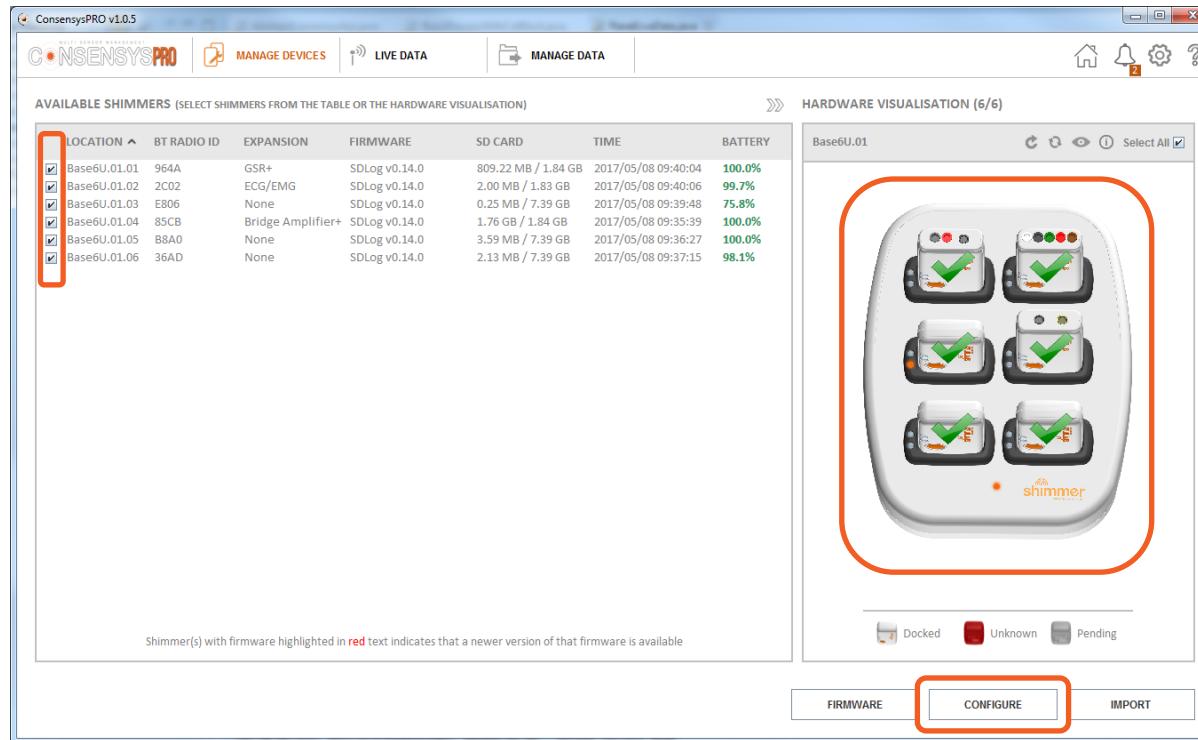
- [Configure Trial](#)
- [Capture Data](#)
- [Import Data](#)

**N.B.** To enable logging data to the SD cards Shimmers need to be programmed with *SDLog* or *LogAndStream* firmware – see [Program Firmware](#).

**N.B.** In the Logging section of this guide *SDLog* is used, which allows for synchronisation between multiple Shimmers when logging to the SD card. Synchronisation is not available for *LogAndStream*. The advantage of *LogAndStream* is that it can also be used to stream data over Bluetooth – see the [Streaming section](#) of this guide.

# LOGGING – CONFIGURE TRIAL (1/8)

STEP 1 – Select one or more Shimmer(s) with the same firmware (type and version) and click on “CONFIGURE”:



N.B. ConsensysBASIC only allows the use of one Shimmer at any one time!

# LOGGING – CONFIGURE TRIAL (2/8)

## STEP 2 – Set TRIAL NAME & Sync Devices:

- Choose a TRIAL NAME.
- Click the *Sync Devices* tile to enable synchronised logging from multiple Shimmers (available for *SDLog* firmware only).
- Choose Mode based on estimated logging duration.

**A**

**B**

TRIAL NAME: DefaultTrial ✓ AUTO STOP (MINS): 0

Sync Devices

Mode: Short (<1hr)

Start/Stop Logging Method

User Button

Undock/Dock

SHIMMER NAME: Shimmer\_964A ✓ SAMPLING RATE (Hz): 51.20 ✓

Reset

AVAILABLE SHIMMERS

LOCATION	BT RADIO ID	EXPANSION	SHIMMER NAME
Base6U.01.01	964A	GSR+	Shimmer_964A
Base6U.01.02	2C02	ECG/EMG	Shimmer_2C02
Base6U.01.03	E806	None	Shimmer_E806
Base6U.01.04	85CB	Bridge Amplifier+	Shimmer_85CB
Base6U.01.05	B8A0	None	Shimmer_B8A0
Base6U.01.06	36AD	None	Shimmer_36AD

Master Shimmer shown in orange text, only applicable when sync devices enabled.

SENSORS

Low-Noise Accelerometer

Range: +/- 2g

Wide-Range Accelerometer

Range: +/- 500dps

Gyroscope

Magnetometer

Pressure & Temperature

Resolution: Low

Battery Voltage

External Expansion ADCs

Ext A6 Ext A7 Ext A15

Internal Expansion ADCs

Int A12 Int A13

GSR+ PPG

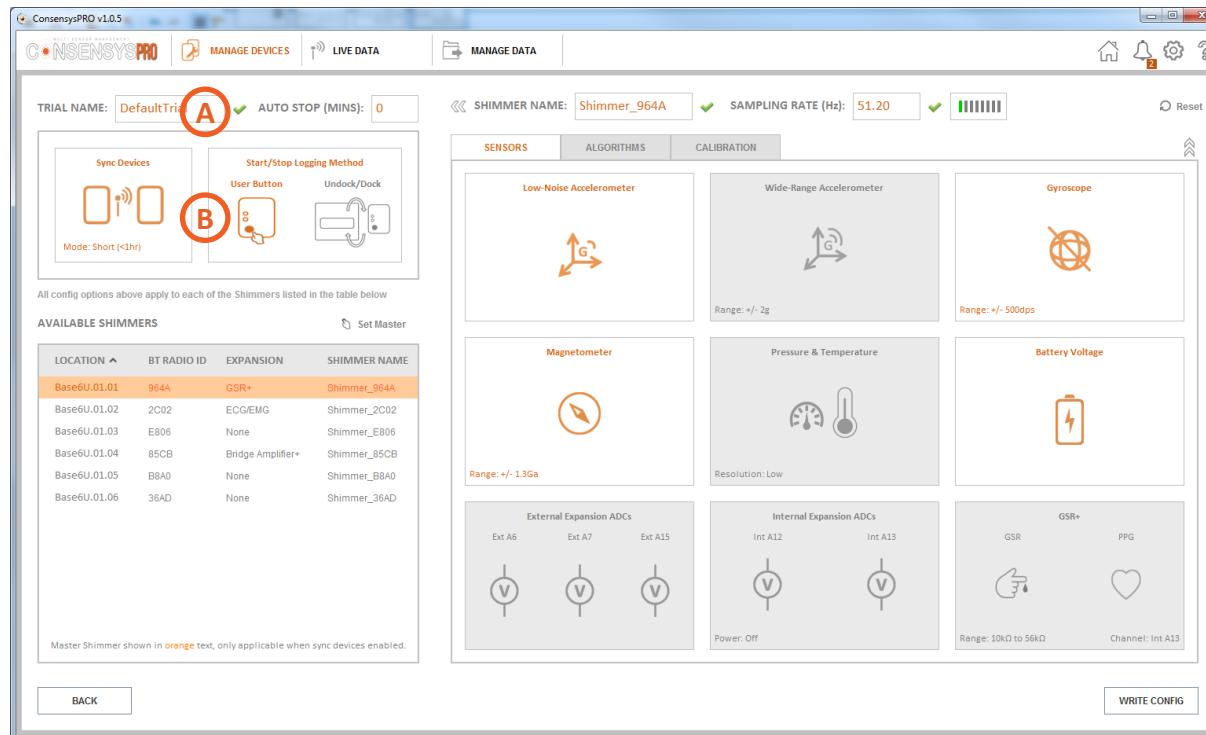
Range: 10kΩ to 56kΩ Channel: Int A13

WRITE CONFIG

# LOGGING – CONFIGURE TRIAL (3/8)

## STEP 3 – Set AUTO STOP & Start/Stop Logging Method:

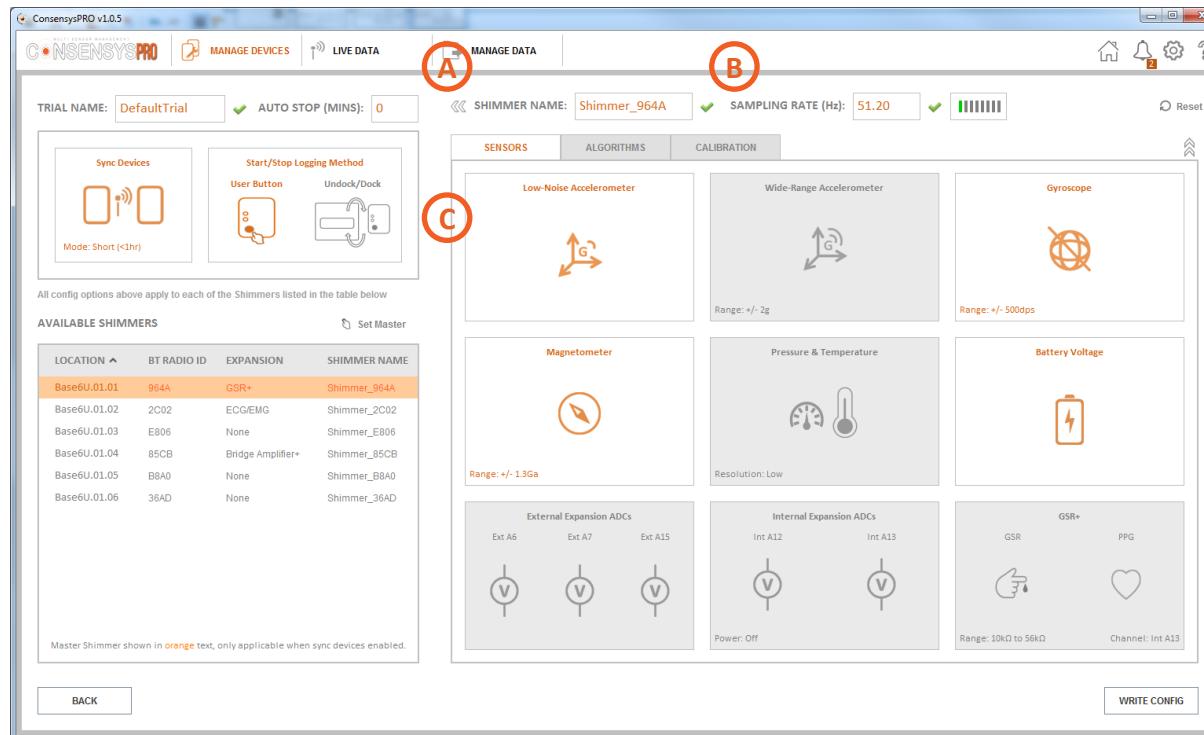
- To automatically stop logging, enter a value other than zero.
- Choose to start and stop logging with the User Button or by undocking/docking – User Button is used in this guide.  
**N.B.** When using the Undock/Dock method, log for at least one minute to ensure a data file is created.



# LOGGING – CONFIGURE TRIAL (4/8)

STEP 4 – Set parameters for **each** Shimmer.

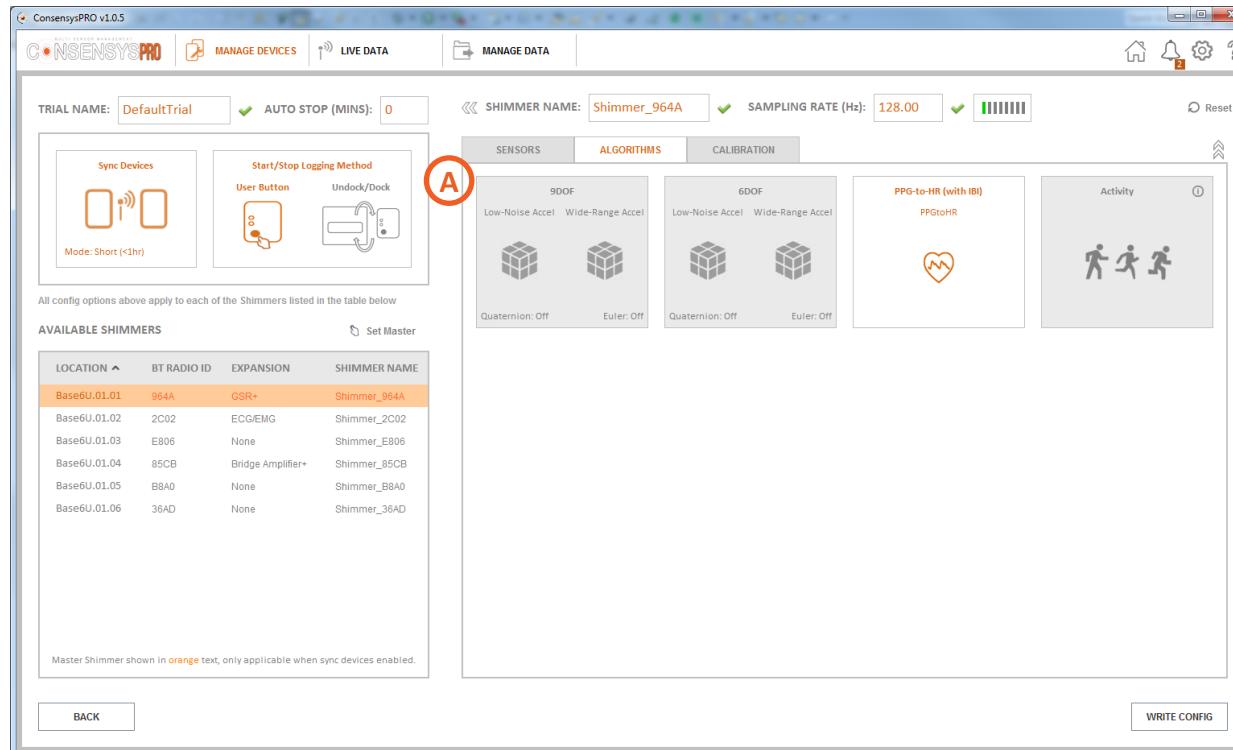
- Choose SHIMMER NAME.
- Choose SAMPLING RATE.
- Click on the tiles to enable and configure sensors.



# LOGGING – CONFIGURE TRIAL (5/8)

## STEP 5 – Set algorithms for each Shimmer

- A. Enabled algorithms specific to the hardware (e.g. 9DoF to Quat for Shimmer3 IMU, ECG-to-HR for Shimmer3 ECG etc)



N.B. Algorithms are not available in ConsensysBASIC!

# LOGGING – CONFIGURE TRIAL (6/8)

## STEP 6 – Review calibration for each Shimmer.

- A. Review the calibration for each of the IMU sensors. You can reset the calibration of all or an individual IMU to the factory default calibration by pressing the reset icon

The screenshot shows the ConsensysPRO v1.0.5 software interface. The main window title is "ConsensysPRO v1.0.5". The top menu bar includes "MANAGE DEVICES", "LIVE DATA", and "MANAGE DATA". The "CALIBRATION" tab is selected. On the left, there are sections for "Sync Devices" (Mode: Short (~1hr)) and "Start/Stop Logging Method" (User Button, Undock/Dock). Below these are "AVAILABLE SHIMMERS" listed in a table:

LOCATION	BT RADIO ID	EXPANSION	SHIMMER NAME
Base6U_01.01	964A	CSR+	Shimmer_964A
Base6U_01.02	2C02	ECG/EMG	Shimmer_2C02
Base6U_01.03	E805	None	Shimmer_E805
Base6U_01.04	85CB	Bridge Amplifier*	Shimmer_85CB
Base6U_01.05	B8A0	None	Shimmer_B8A0
Base6U_01.06	36AD	None	Shimmer_36AD

Below the shimmer table, it says "Master Shimmer shown in orange text, only applicable when sync devices enabled." At the bottom left is a "BACK" button.

The central part of the screen is the "IMU Calibration Parameters Review" section. It contains four tables for different IMU types:

- Low-Noise Accelerometer (Range: +/- 2g):** Shows Offset (lx), Sensitivity (Kx), and Alignment (Rx) parameters.
- Gyroscope (Range: +/- 500dps):** Shows Offset (lx), Sensitivity (Kx), and Alignment (Rx) parameters.
- Wide-Range Accelerometer (Range: +/- 2g):** Shows Offset (lx), Sensitivity (Kx), and Alignment (Rx) parameters.
- Magnetometer (Range: +/- 1.3G):** Shows Offset (lx), Sensitivity (Kx), and Alignment (Rx) parameters.

On the right side, there is a "Calibration Review Color Code" section with two status indicators:

- Custom Calibration:** "The sensor is using custom calibration parameters. However, this custom calibration may not be accurate."
- Invalid Calibration:** "The sensor is using invalid calibration parameters. Use the 9DoF calibration software to calibrate the sensor."

At the bottom right, there is an "IMU Calibration Formula" section with the equation  $c = Rx^{-1} \cdot Kx^{-1} \cdot (ux - bx)$  and its components:

- $c$  = 3x1 calibrated signal vector
- $Rx$  = 3x3 alignment matrix
- $Kx$  = 3x3 sensitivity matrix
- $ux$  = 3x1 uncalibrated signal vector
- $bx$  = 3x1 offset vector

Two red boxes with arrows point to specific buttons:

- A red box with an arrow points to the "Reset all to factory default calibration" button, which is located next to the "Custom Calibration" status indicator.
- A second red box with an arrow points to the "Reset individual IMU to factory default calibration" button, which is located next to the "Invalid Calibration" status indicator.

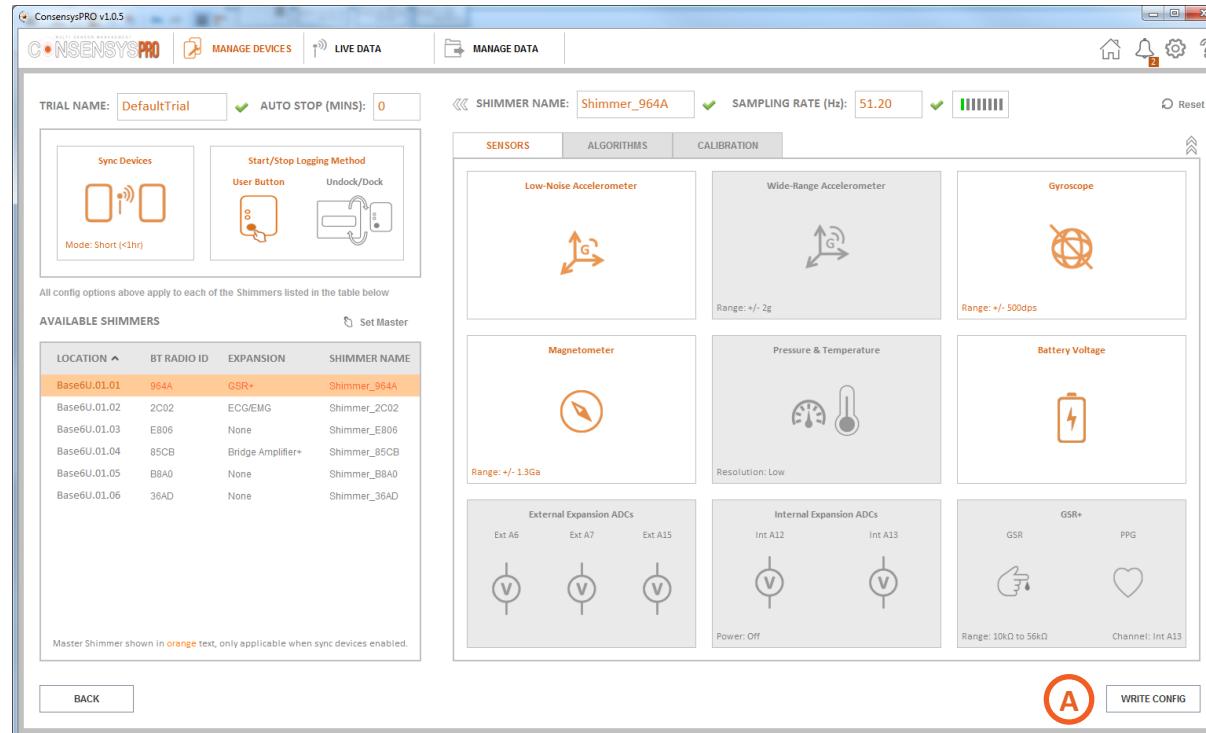
**N.B.** A Shimmer that appears with a **red** warning symbol has an invalid IMU calibration  
And should be reset to default or calibrated using Shimmer's 9DoF calibration software



# LOGGING – CONFIGURE TRIAL (7/8)

## STEP 7 – Write settings for all Shimmer.

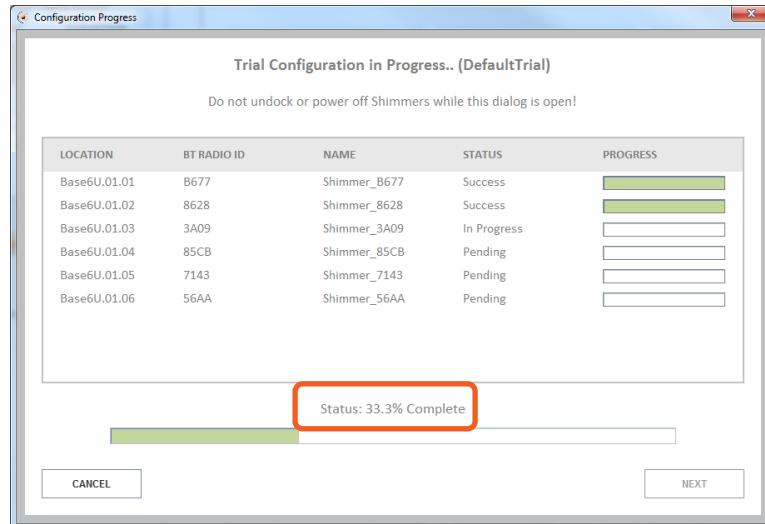
- Press the WRITE CONFIG button to save the configuration (trial details, Shimmer details, sensor details, algorithm details, calibration details) to each of the Shimmers.



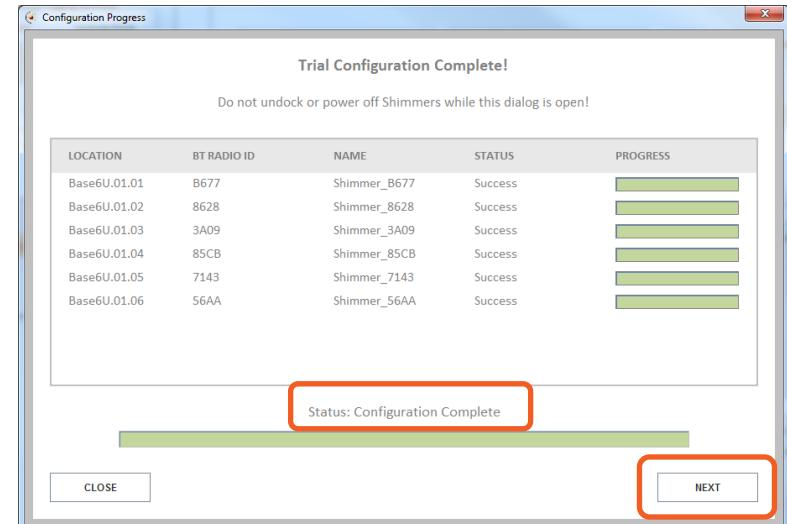
# LOGGING – CONFIGURE TRIAL (8/8)

## STEP 8 – WRITE CONFIG.

Wait until Trial Configuration is written:



Click “NEXT” to complete the configuration:



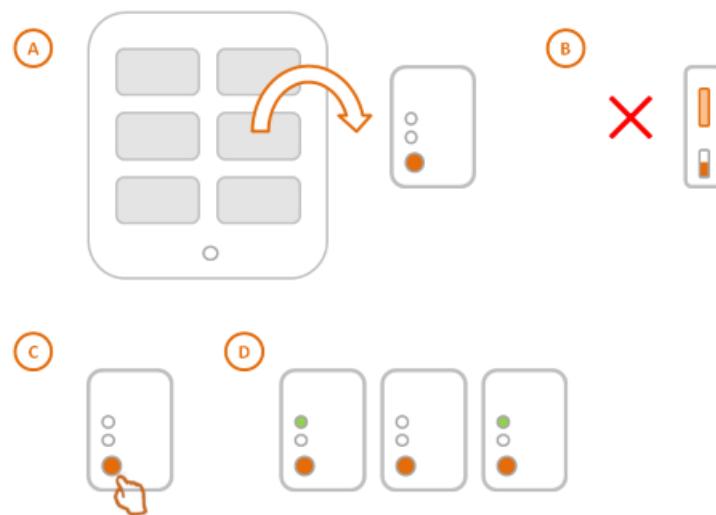
# LOGGING – CAPTURE DATA (1/2)

STEP 1 – Undock the Shimmer(s). (A)

STEP 2 – DO NOT Power off the Shimmer. (B)

STEP 3 – Press the orange User Button on the Shimmer(s) to start data capture. (C)

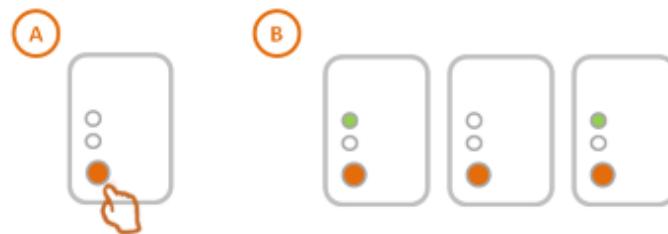
STEP 4 – The green LED will turn on and off at one second intervals when capturing data. (D)



# LOGGING – CAPTURE DATA (2/2)

STEP 5 – Press the orange User Button again to stop data capture. (A)

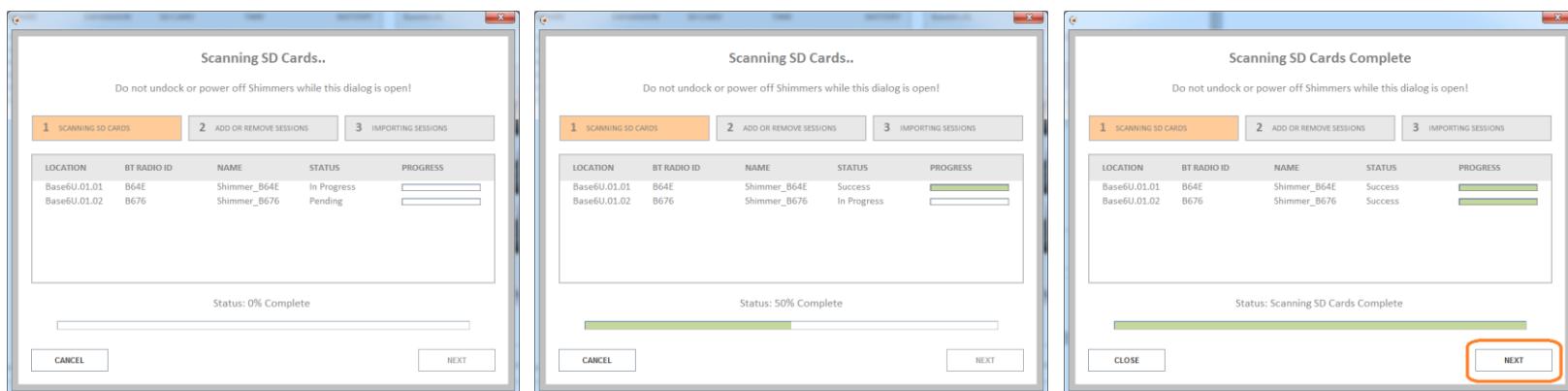
STEP 6 – The green LED will now turn on briefly once every two seconds. (B)



# LOGGING – IMPORT DATA (1/6)

## STEP 1 – Scanning SD Cards:

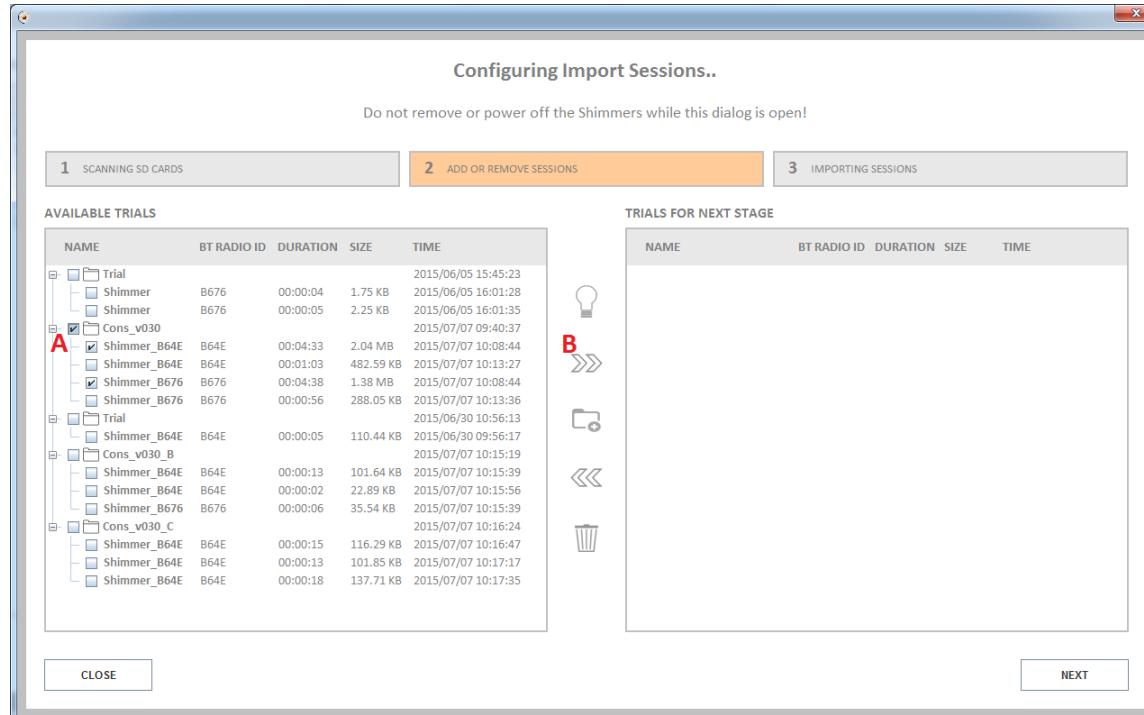
- A. Place the Shimmer(s) in the Base.
- B. Select the Shimmer(s) you want to import data from and click “IMPORT”.
- C. Hit “NEXT” when scanning is complete.



# LOGGING – IMPORT DATA (2/6)

## STEP 2 – Configuring Import Sessions:

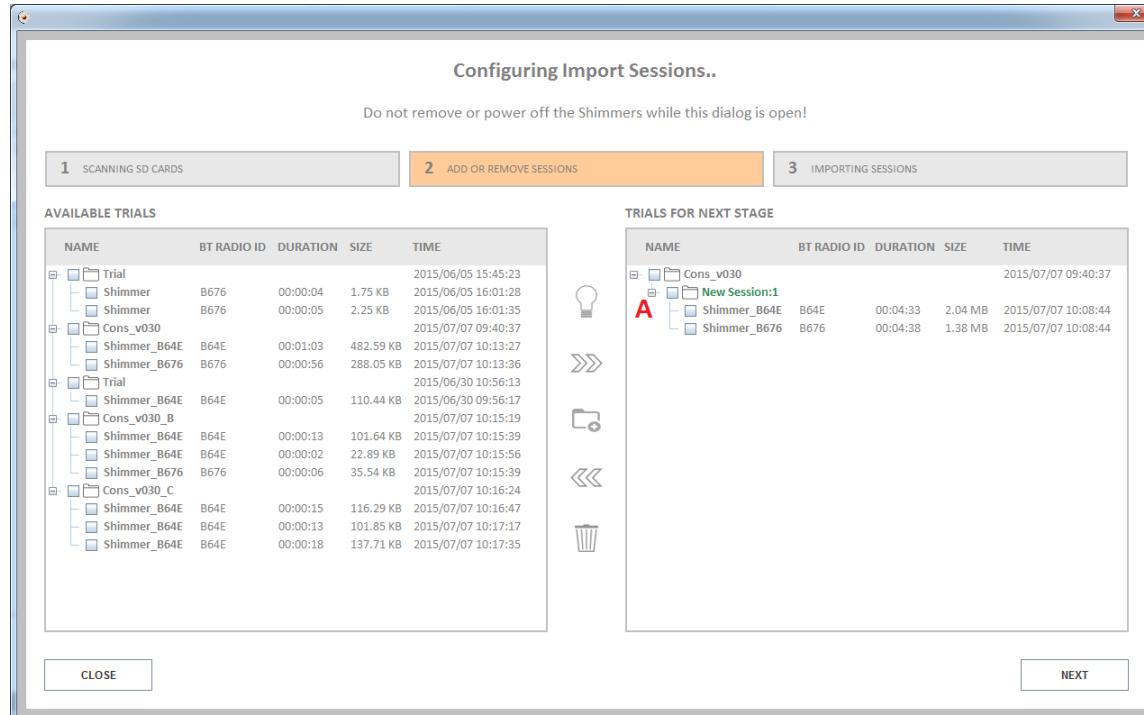
- A. Select data from one or more Shimmers.
- B. Click the button to add the data as new session to the list for the next stage.



# LOGGING – IMPORT DATA (3/6)

## STEP 2 – Configuring Import Sessions – continued:

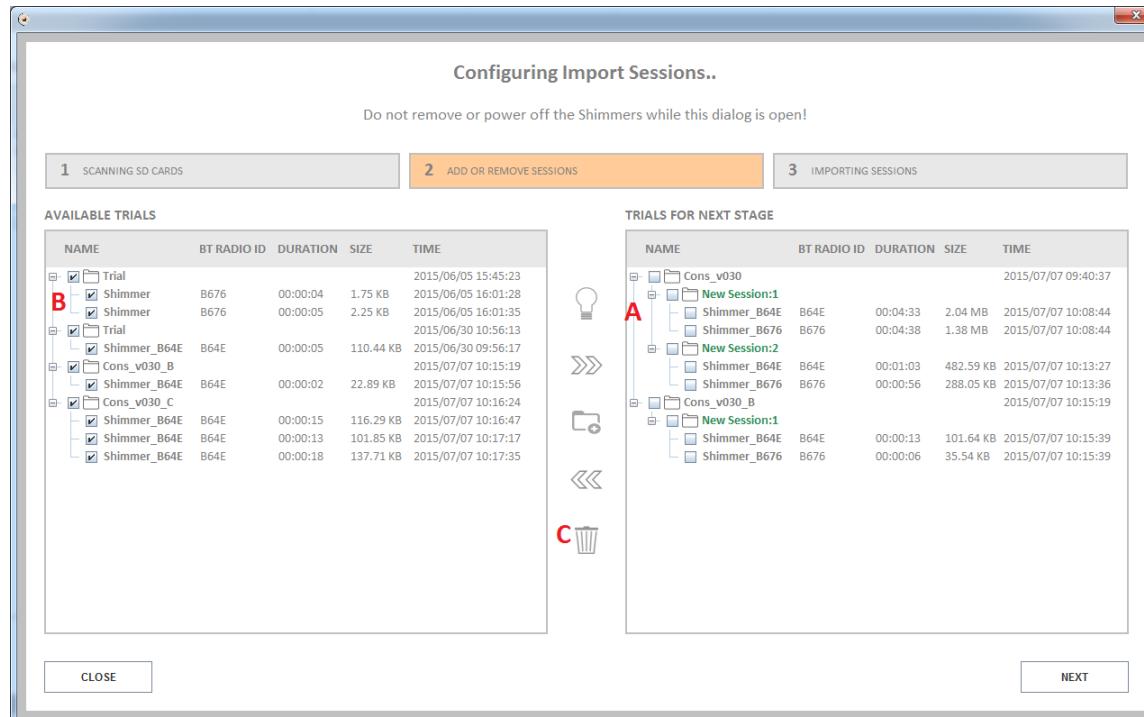
- A. For trial “Cons\_v030” the data is added to “New Session:1”.



# LOGGING – IMPORT DATA (4/6)

## STEP 2 – Configuring Import Sessions – continued:

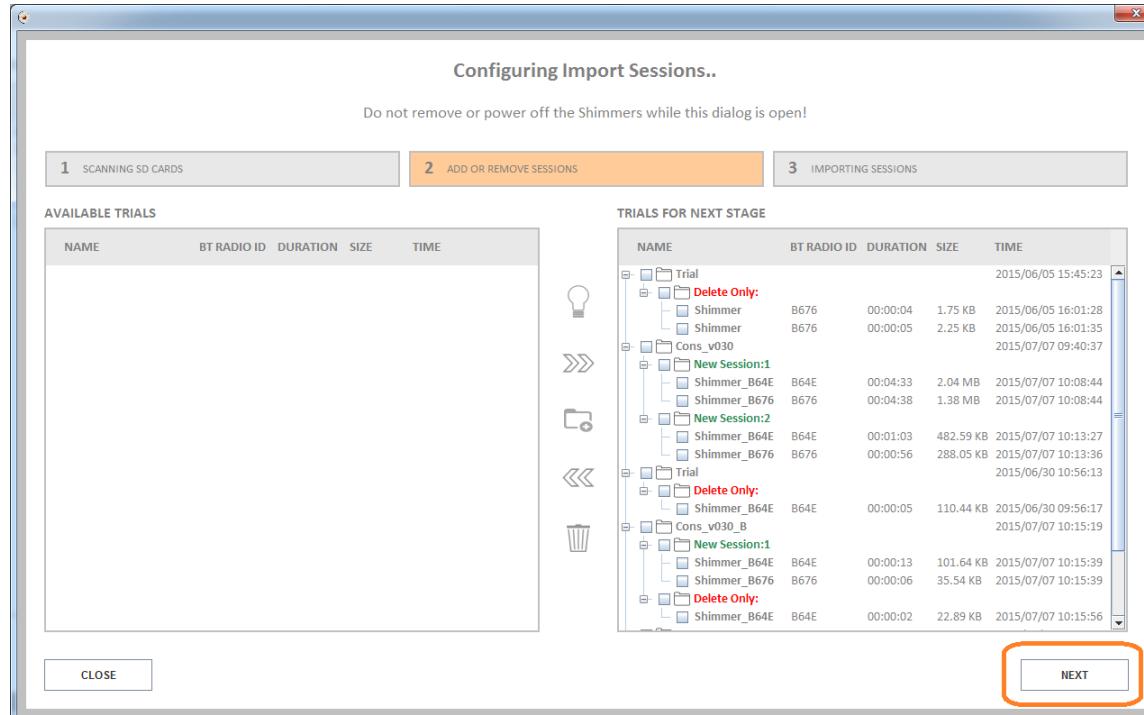
- A. In the same way data is added as “New Session:2” of trial “Cons\_v030” and “New Session:1” of “Cons\_v030\_B”.
- B. The remaining data on the SD cards of the selected Shimmers is selected.
- C. Clicking this button will mark the data selected in AVAILABLE TRIALS (B) to be deleted in the next stage.



# LOGGING – IMPORT DATA (5/6)

## STEP 2 – Configuring Import Sessions – continued:

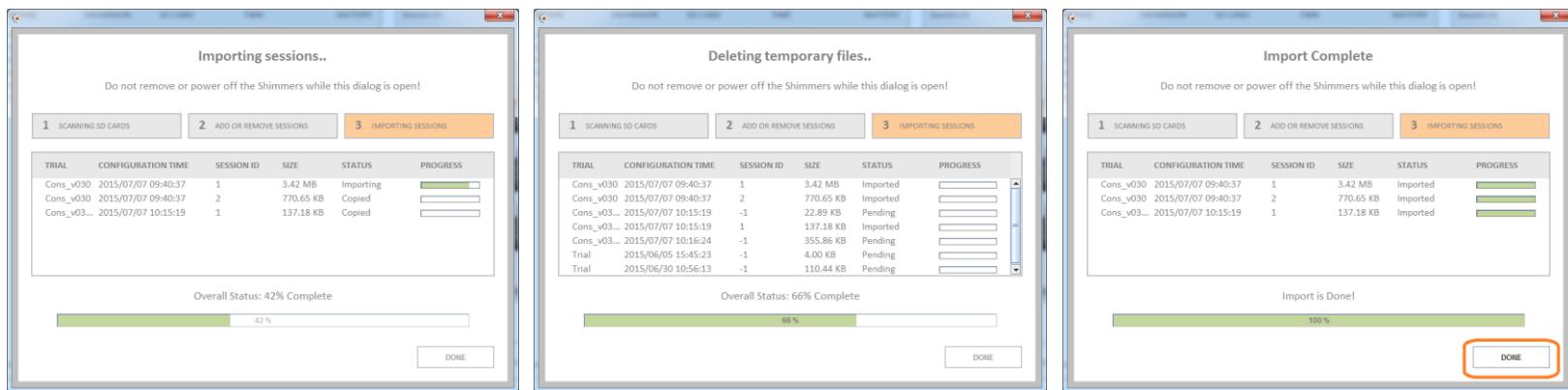
- A. Data not to be imported in the next stage is now listed to be deleted – marked “Delete Only”.
- B. Hit “NEXT” to continue to the next stage (and hit “YES” to confirm).



# LOGGING – IMPORT DATA (6/6)

## STEP 3 – Importing sessions:

- A. The data selected for import is now being imported into the database.
- B. Data marked to be deleted is now being deleted.
- C. Hit “DONE” when Import is complete to go to “MANAGE DATA”.



**N.B.** Skip to Manage Data for instructions on accessing the imported data.

# STREAMING

**Streaming data** from one or multiple Shimmers to the computer **over Bluetooth**.

In this section:

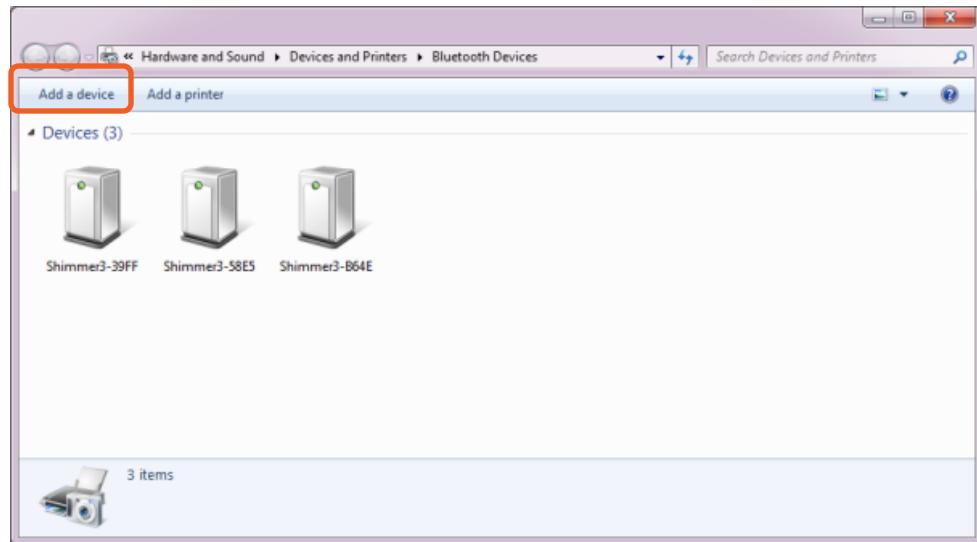
- [Pair Shimmer](#)
- [Connect](#)
- [Configure Trial](#)
- [Stream & Plot](#)
- [Record](#)

**N.B.** The computer needs to be equipped with a Bluetooth Adapter to allow streaming over Bluetooth.

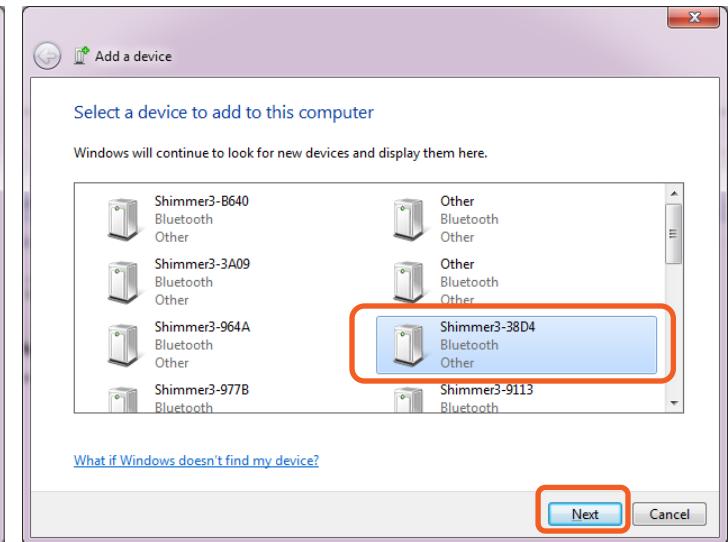
**N.B.** Shimmers need to be programmed with *LogAndStream* firmware - see [Program Firmware](#).  
*BtStream* firmware is not supported in *Consensys software*.

# STREAMING – PAIR SHIMMER (1/2)

Click “Add a device” in Bluetooth devices in Control Panel:

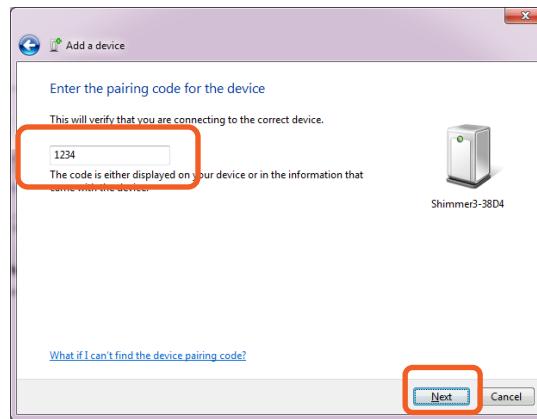
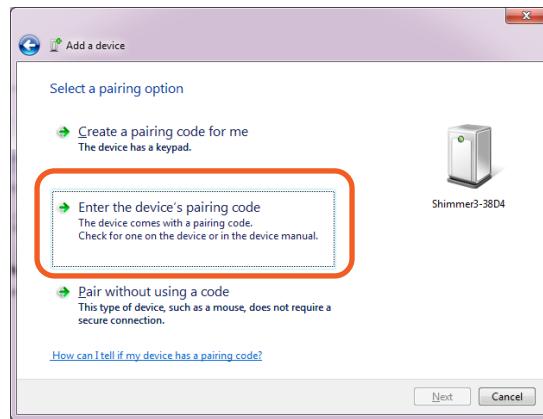


Select Shimmer, click “Next”:

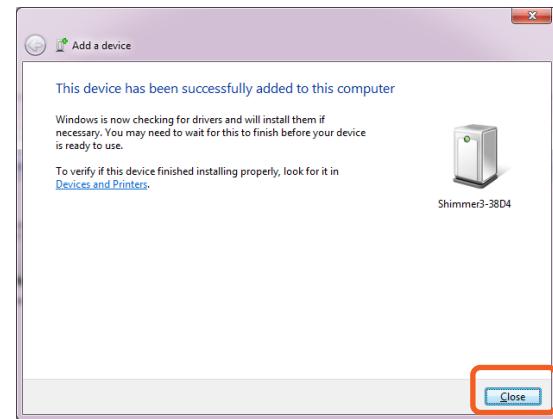


# STREAMING – PAIR SHIMMER (2/2)

Enter the pairing code: “1234” and click “Next”:

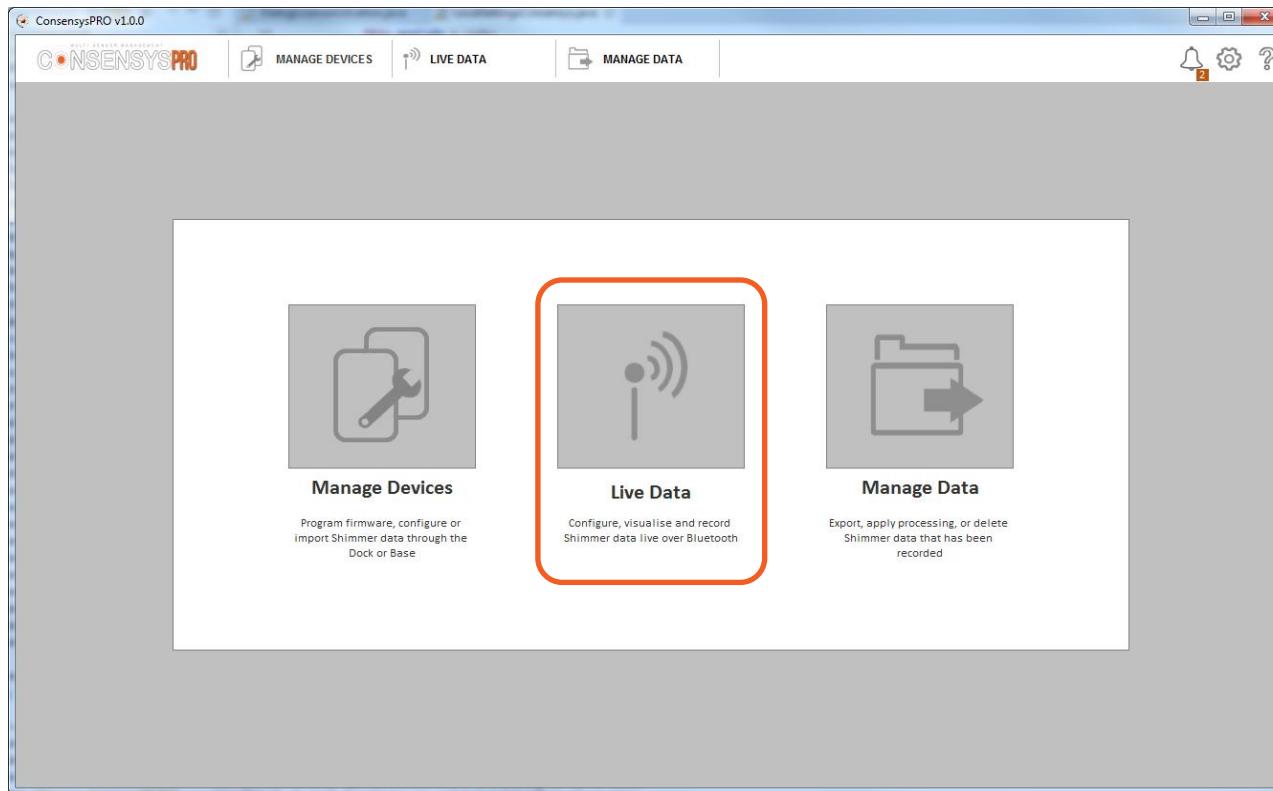


Click “Close”:



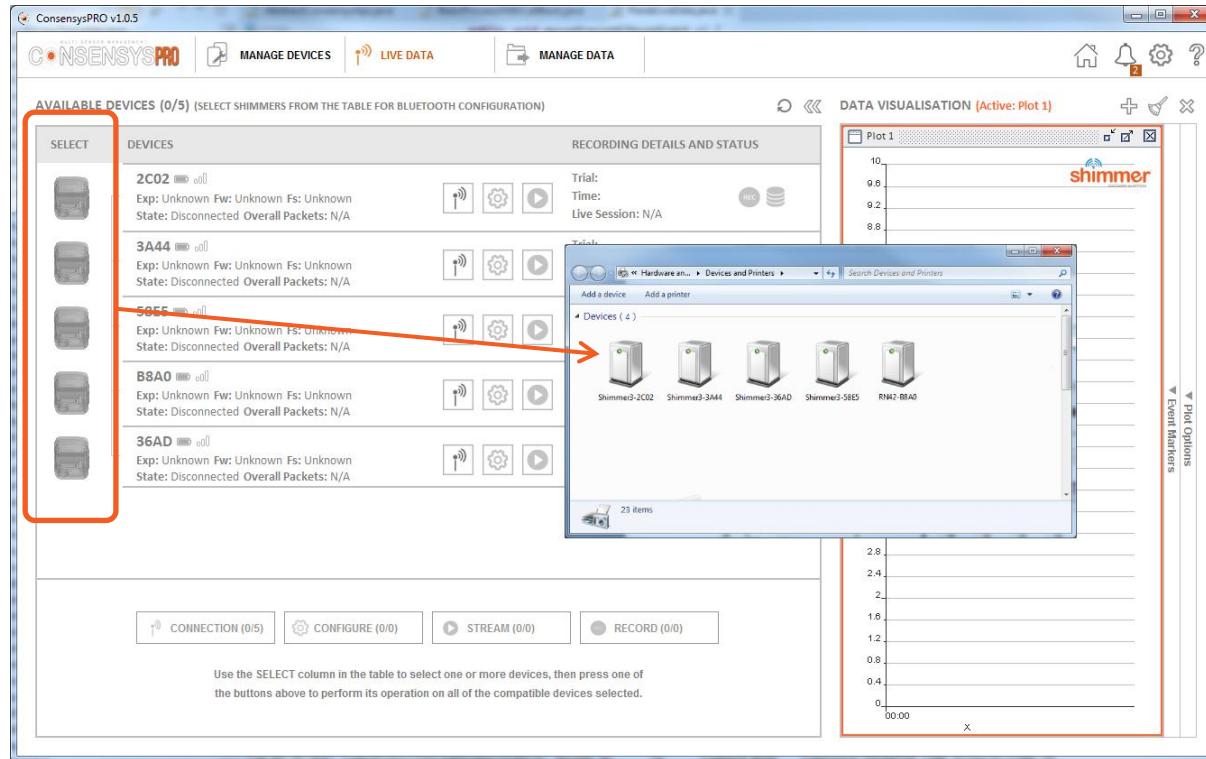
# STREAMING – CONNECT (1/5)

STEP 1 – Go to “LIVE DATA”:



# STREAMING – CONNECT (2/5)

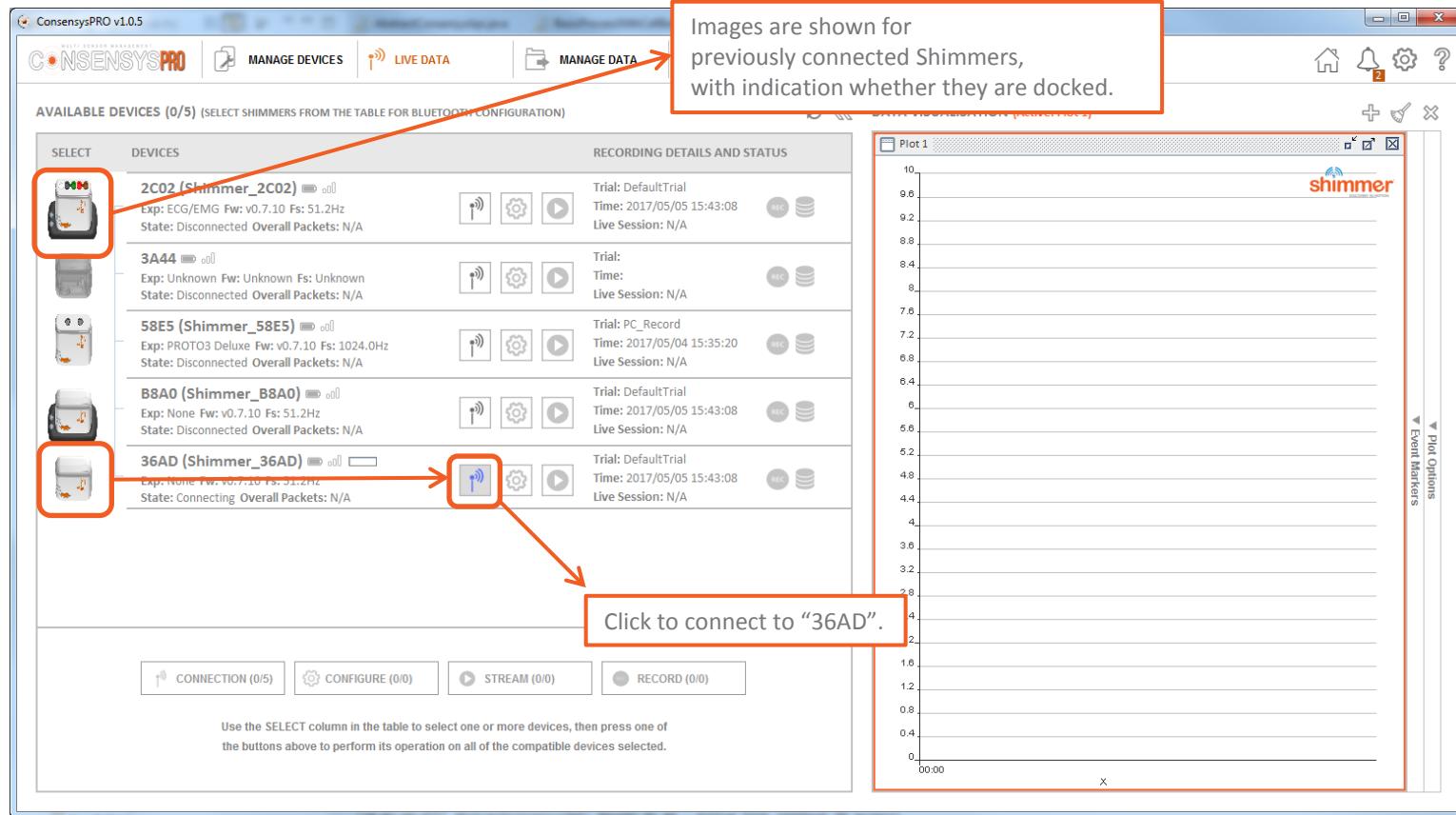
STEP 2 – Note all Shimmers listed in “Devices and Printers” show up in “LIVE DATA” :



N.B. ConsensysBASIC only allows the use of one Shimmer at any one time!

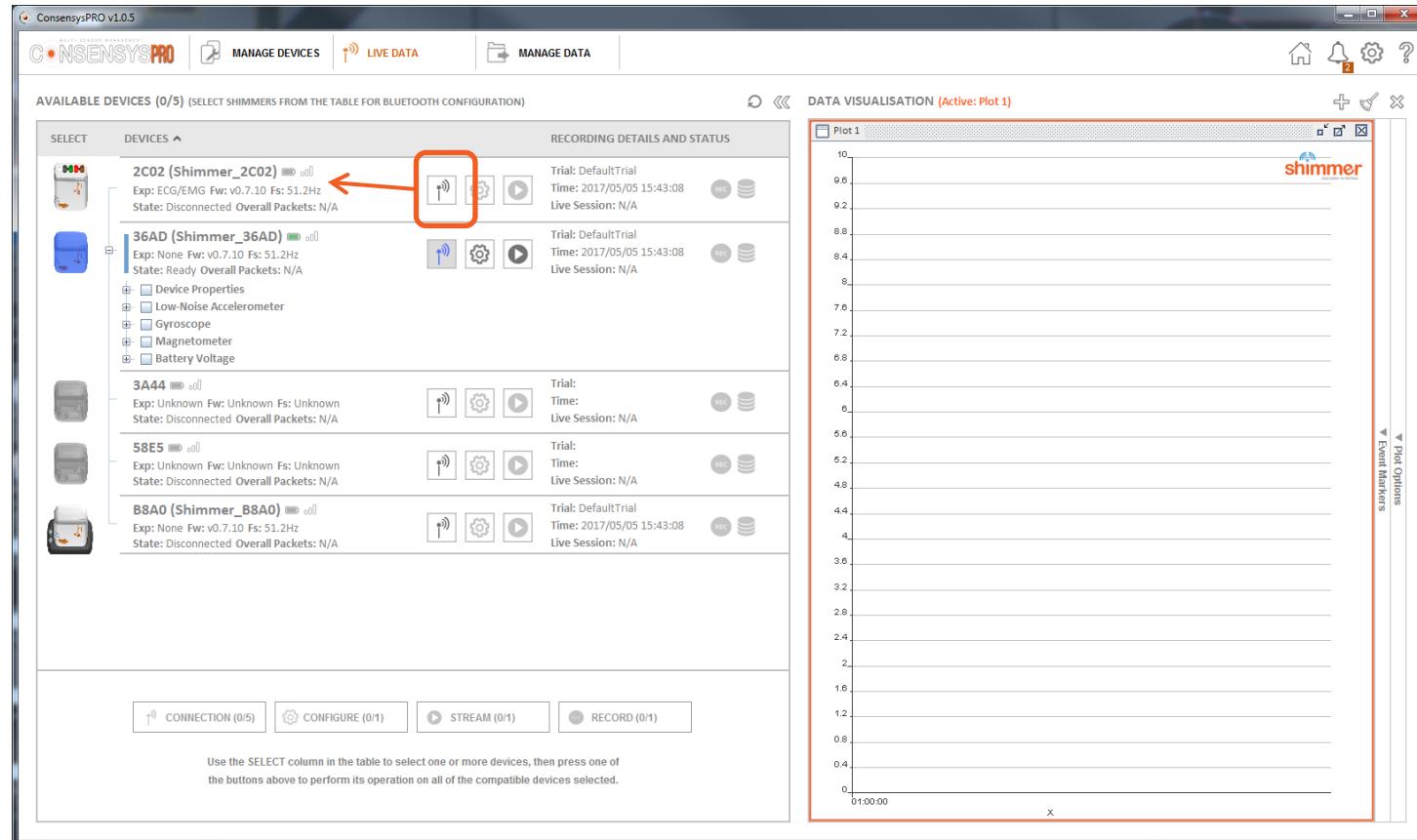
# STREAMING – CONNECT (3/5)

STEP 3 – Connect to Shimmer (“36AD” in this example):



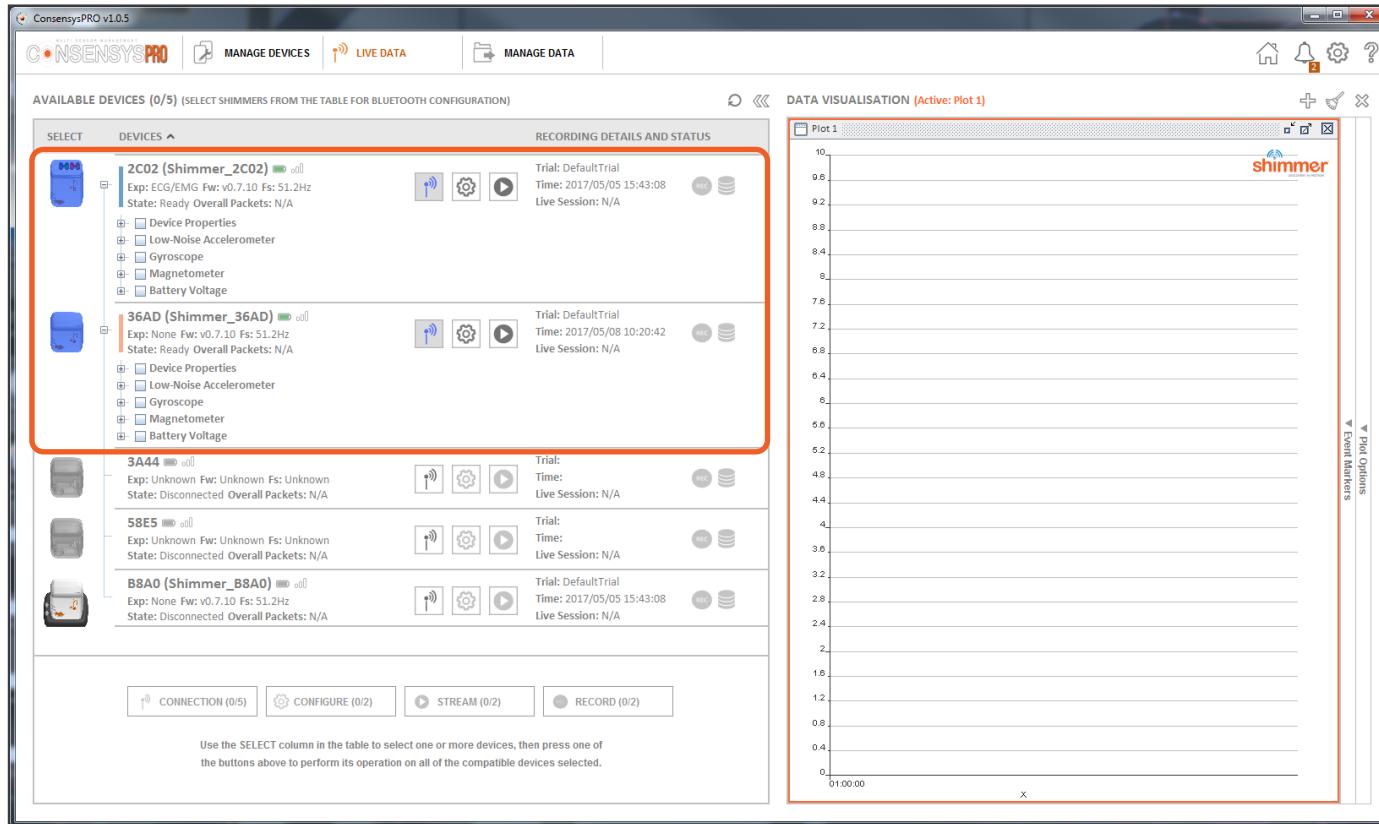
# STREAMING – CONNECT (4/5)

STEP 4 – Connect to another Shimmer (“2C02” in this example):



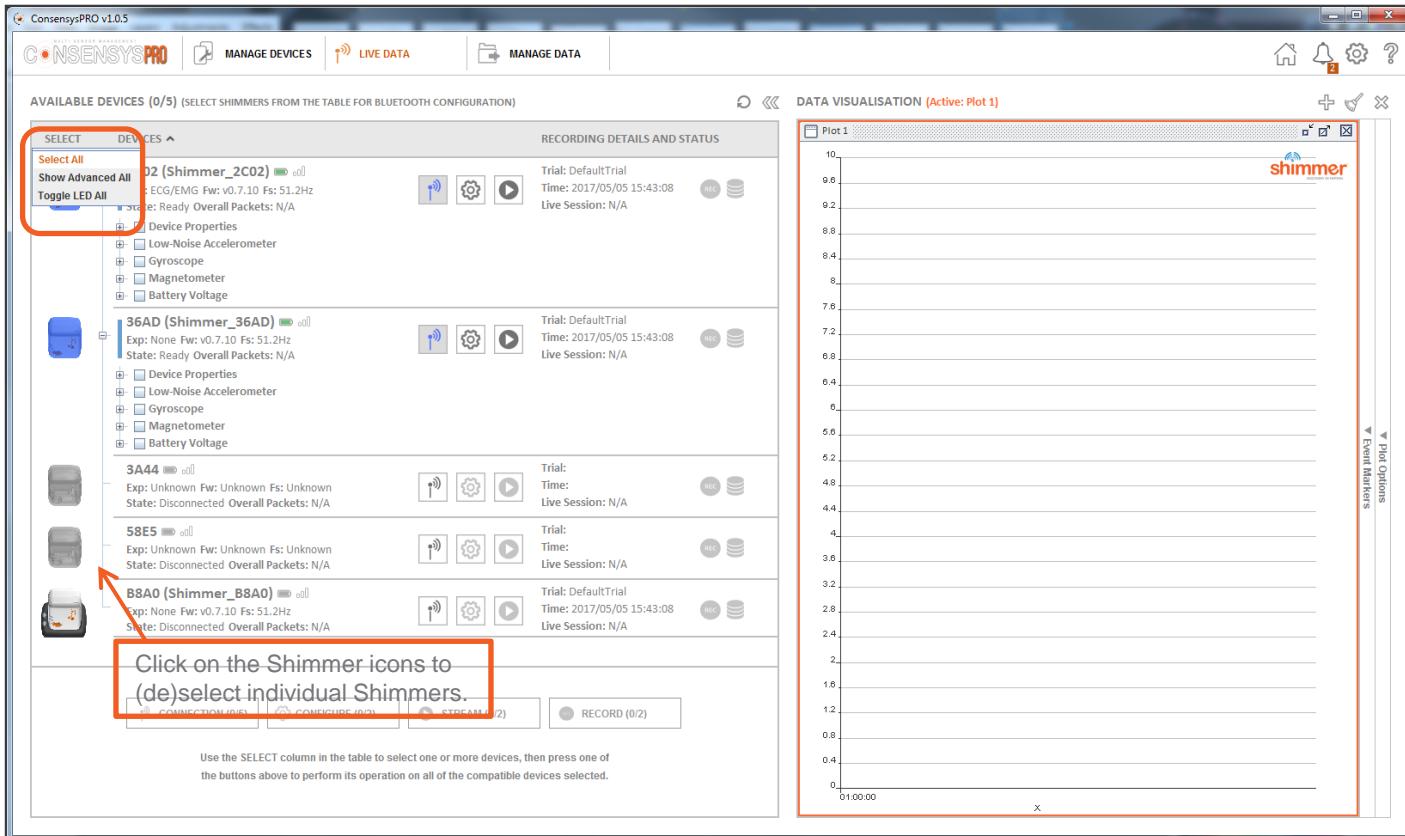
# STREAMING – CONNECT (5/5)

STEP 5 – Find both connected Shimmers at the top of AVAILABLE SHIMMERS:



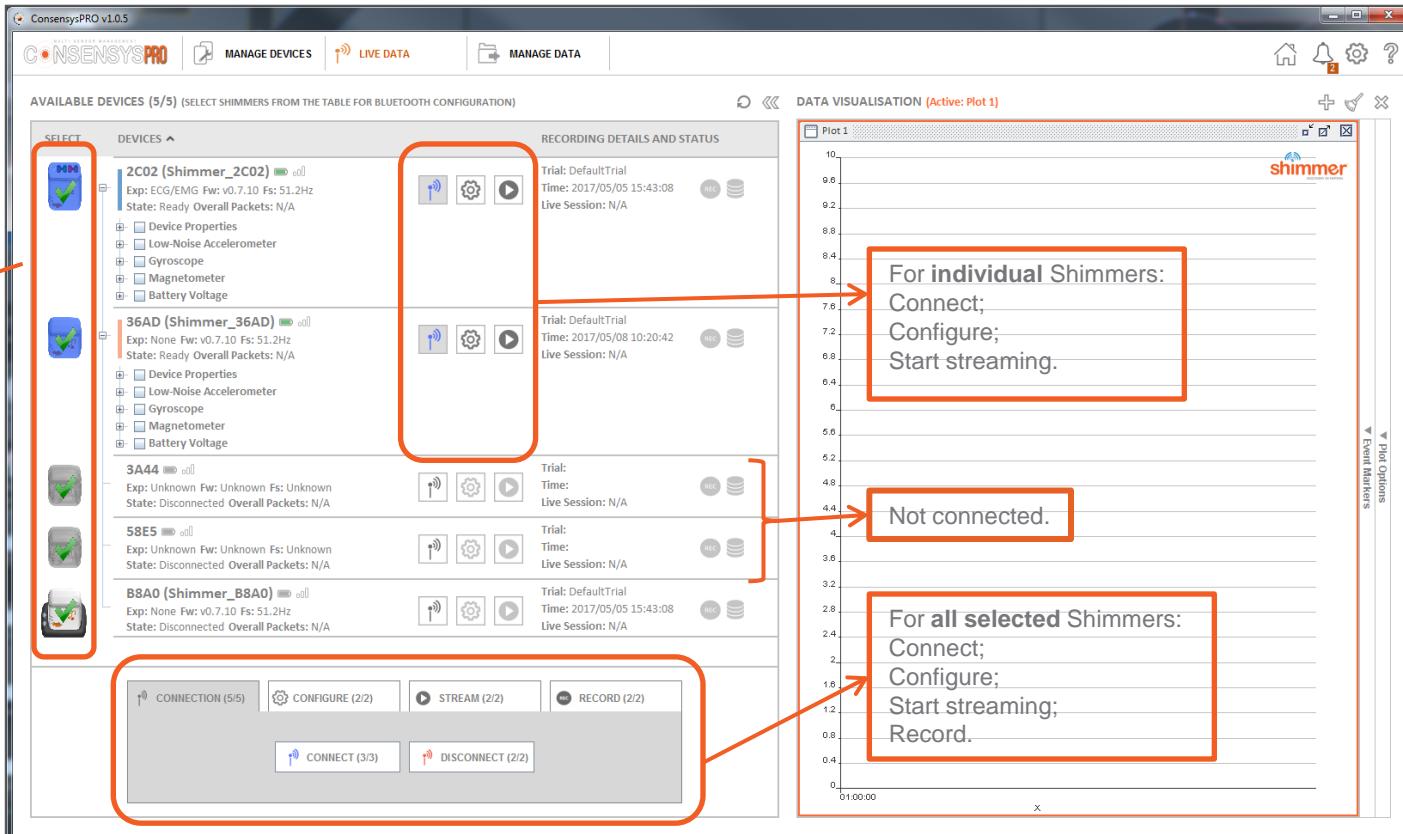
# STREAMING – CONFIGURE TRIAL (1/7)

STEP 1 – Select Shimmers – e.g. by right-clicking on “SELECT”, press “Select All”:



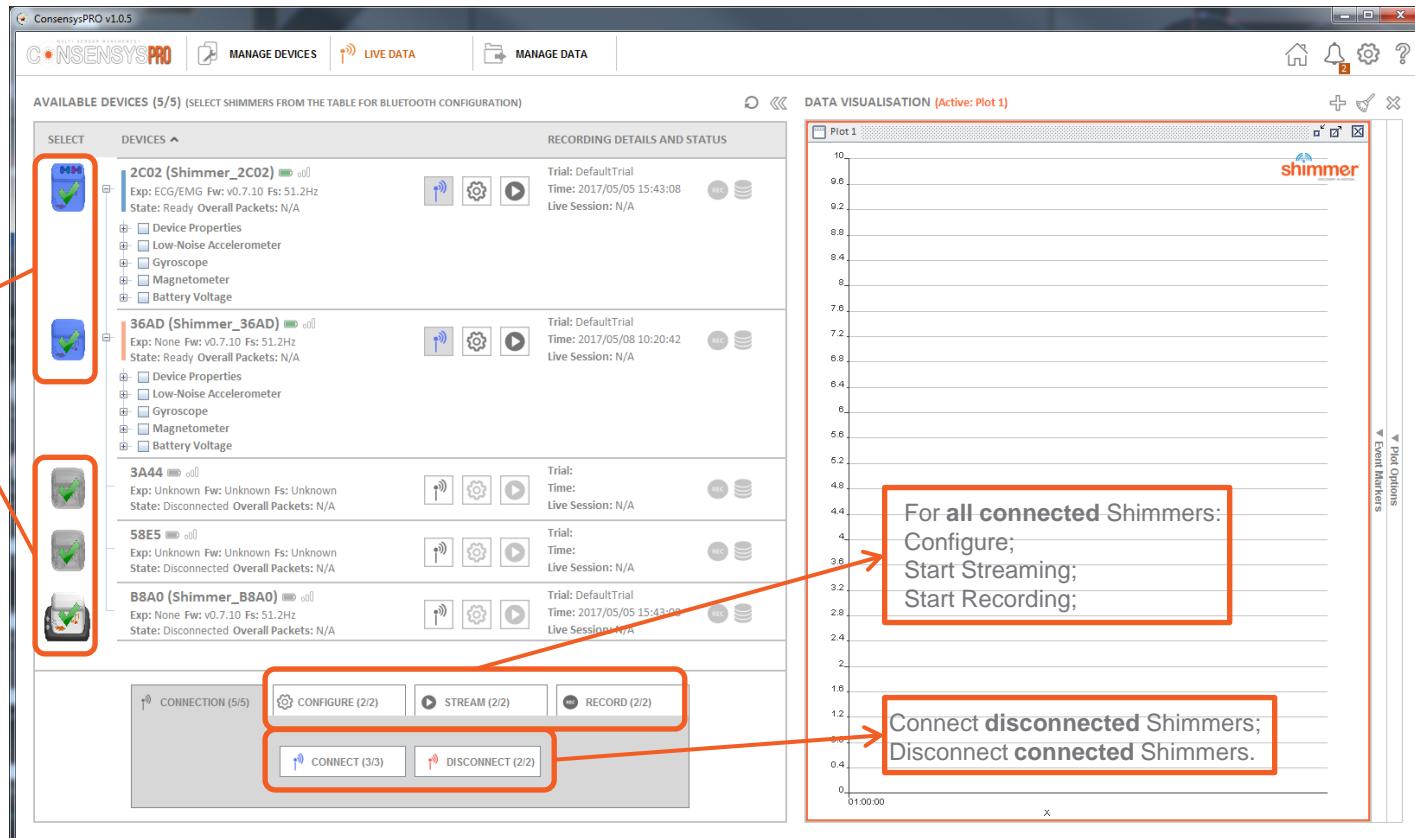
# STREAMING – CONFIGURE TRIAL (2/7)

STEP 2 – Selecting Shimmers enables Group Buttons:



# STREAMING – CONFIGURE TRIAL (3/7)

STEP 3 – Selecting Shimmers enables Group Buttons – continued:



# STREAMING – CONFIGURE TRIAL (4/7)

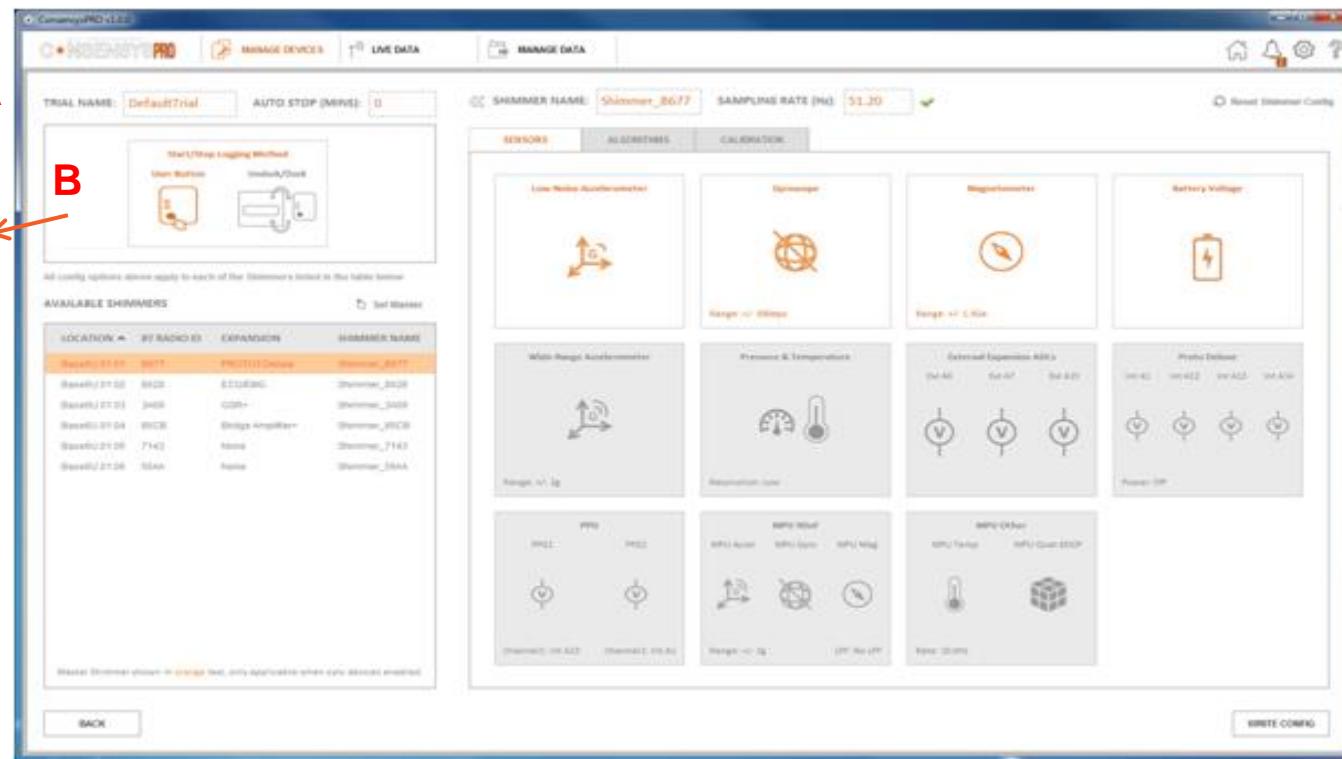
STEP 4 – Configure the connected Shimmers – click “Configure tab”:

The screenshot shows the ConsensysPRO v1.0.5 software interface. On the left, the 'AVAILABLE DEVICES (5/5)' tab is active, displaying a list of connected Shimmers. The first two devices, '2C02 (Shimmer\_2C02)' and '36AD (Shimmer\_36AD)', are highlighted with blue checkmarks and have a blue border around them. Their 'Trial' status is listed as 'DefaultTrial'. The third device, '3A44', has a grey checkmark and no border, indicating it is not part of the same trial. A red callout box with the text 'N.B. Colour identification is different for Shimmers that NOT belong to the same Trial.' points to the '3A44' entry. Below the device list, there are four tabs: CONNECTION (5/5), CONFIGURE (2/2) (which is highlighted with a red box), STREAM (2/2), and RECORD (2/2). At the bottom, there are 'CONNECT (3/3)' and 'DISCONNECT (2/2)' buttons. On the right, the 'DATA VISUALISATION' tab is active, showing a plot titled 'Plot 1' with a y-axis from 0 to 10 and an x-axis from 01:00:00 to X. The plot area is empty. A red callout box contains the text: 'N.B. Only Shimmers configured simultaneously belong to the same trial and have the same colour identification.'

# STREAMING - CONFIGURE TRIAL (5/7)

## STEP 5 – Set TRIAL NAME:

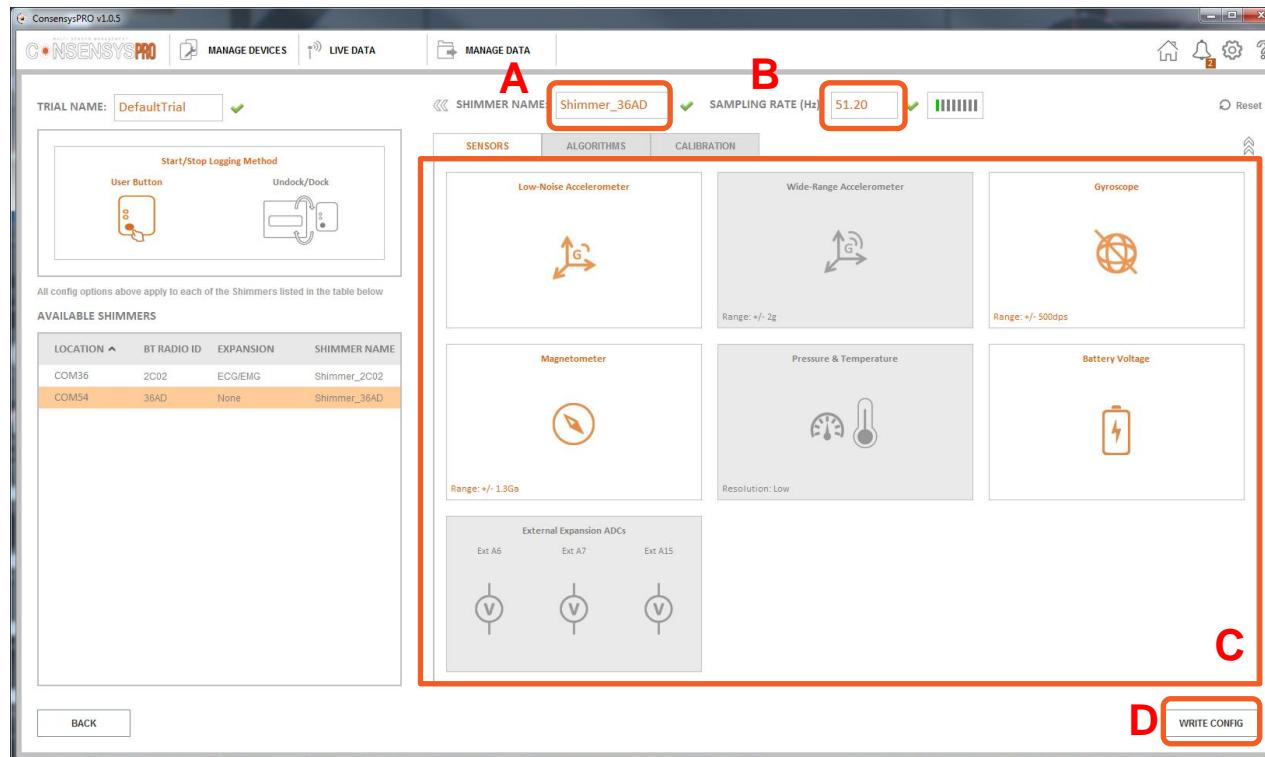
- Choose TRIAL NAME.
- Start/Stop Logging Method cannot be changed when connected over Bluetooth.



# STREAMING - CONFIGURE TRIAL (6/7)

STEP 6 – Set parameters for each Shimmer:

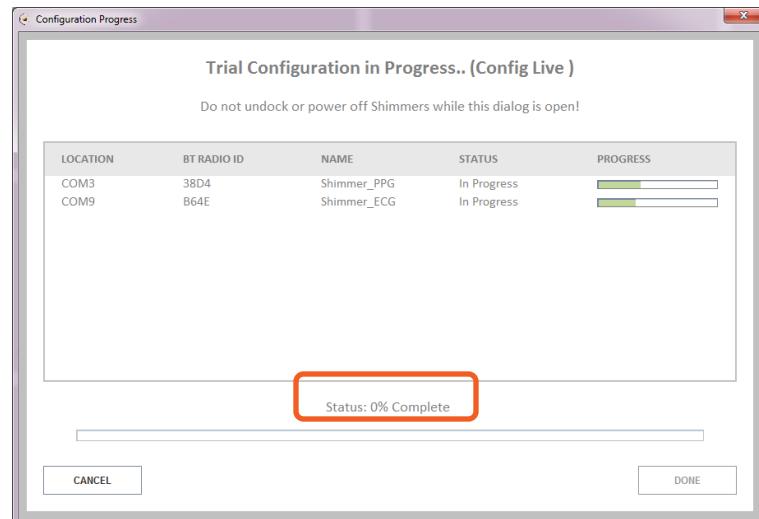
- A. Choose SHIMMER NAME.
- B. Choose SAMPLING RATE.
- C. Click on the tiles to enable and configure sensors.
- D. When all Shimmer are configured, click “WRITE CONFIG” to write the configuration to the Shimmers.



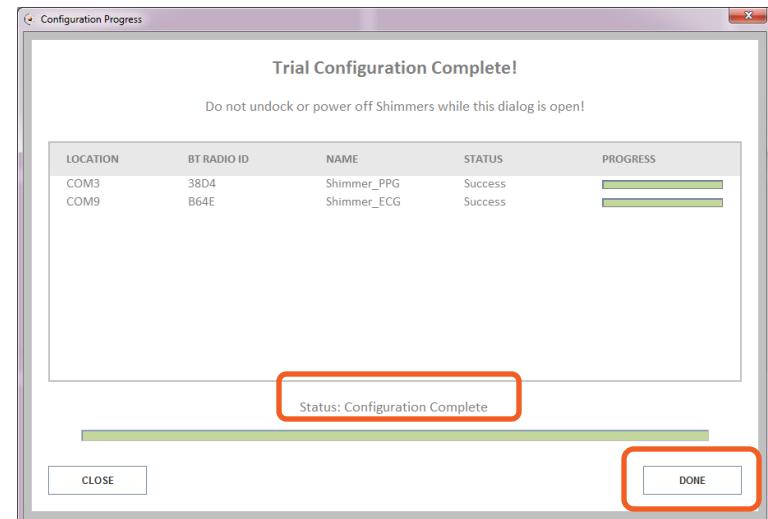
# STREAMING - CONFIGURE TRIAL (7/7)

## STEP 7 – WRITE CONFIG.

Wait until Trial Configuration is written:

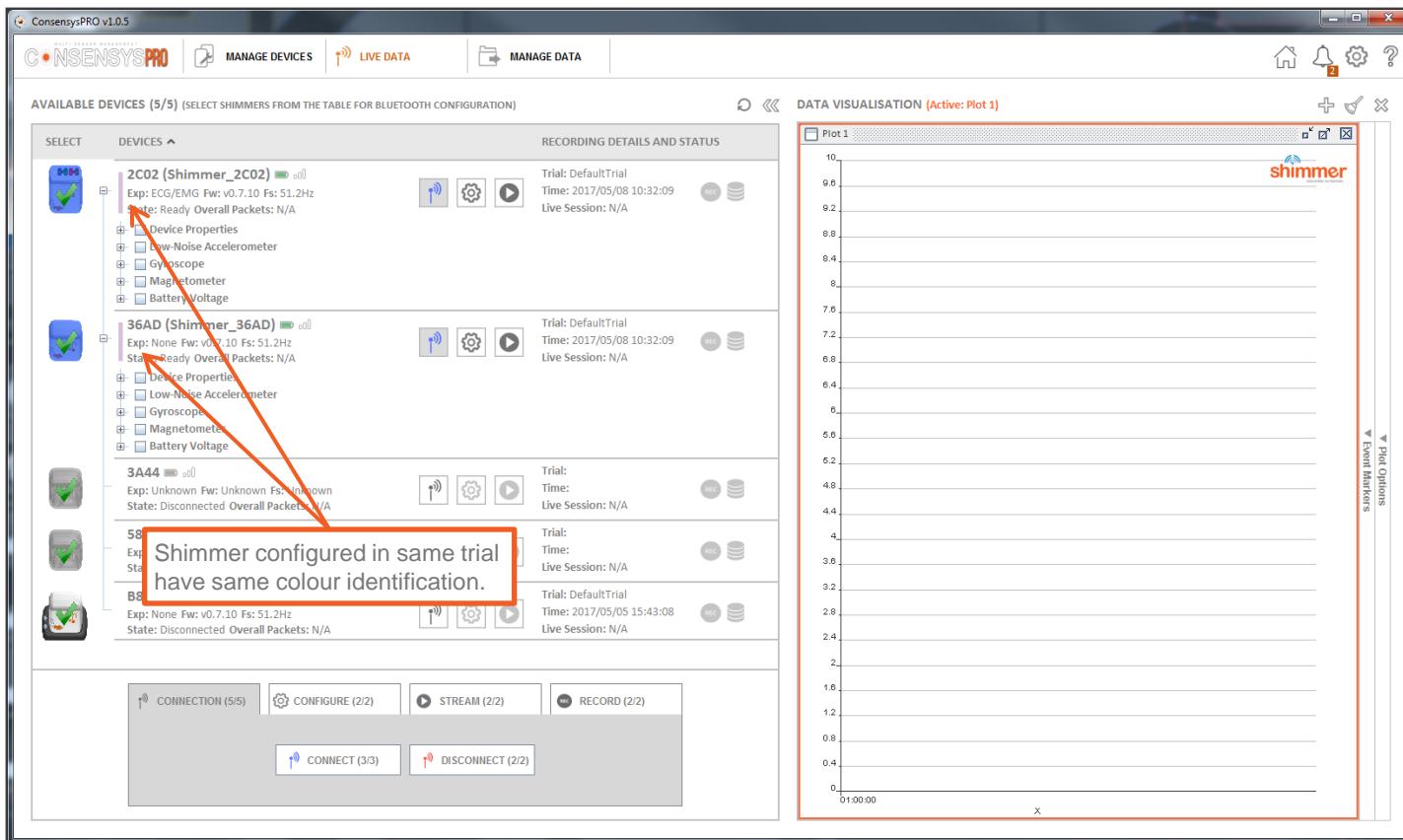


Click “NEXT” to complete the configuration:



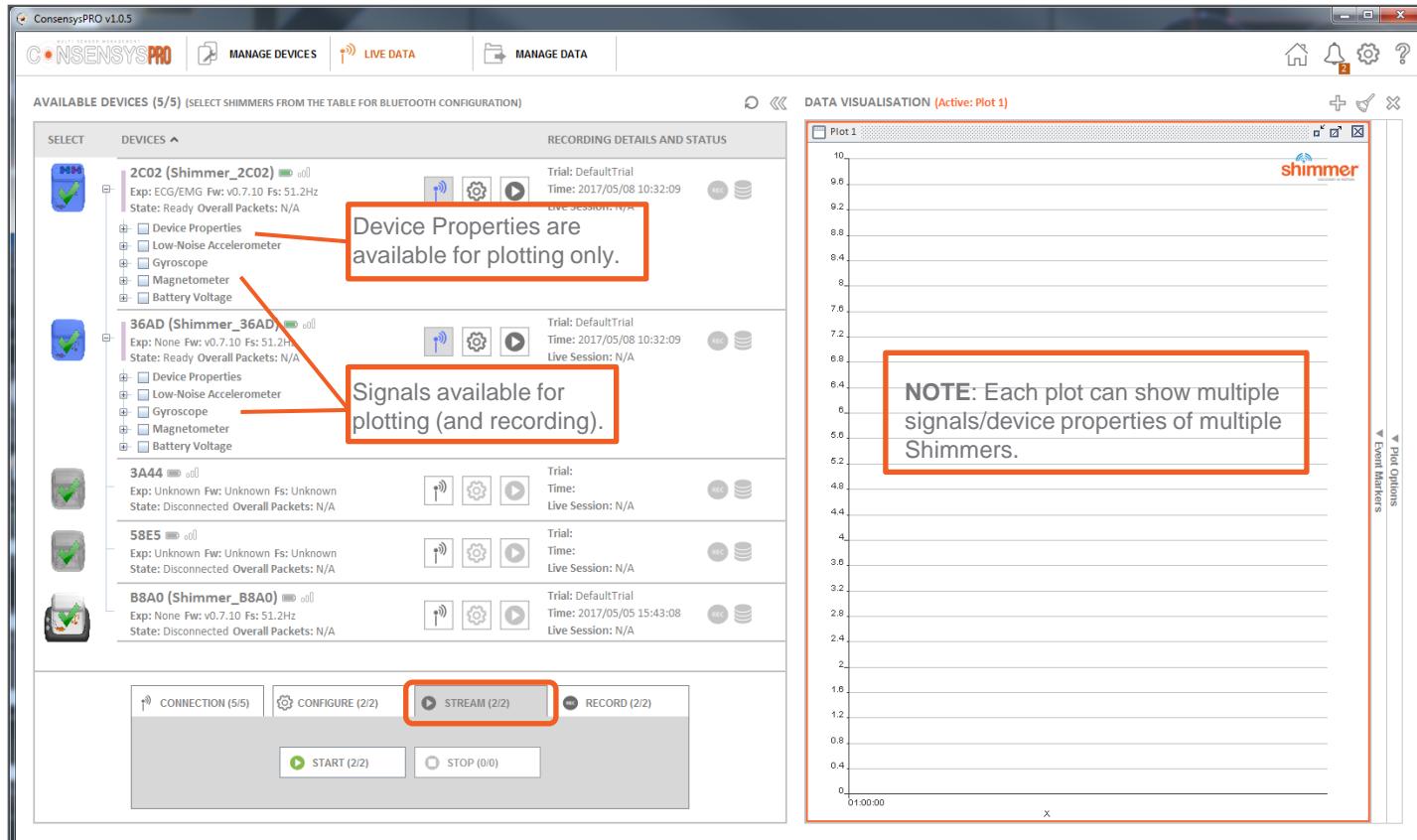
# STREAMING - STREAM & PLOT (1/5)

STEP 1 – Undock Shimmers before streaming:



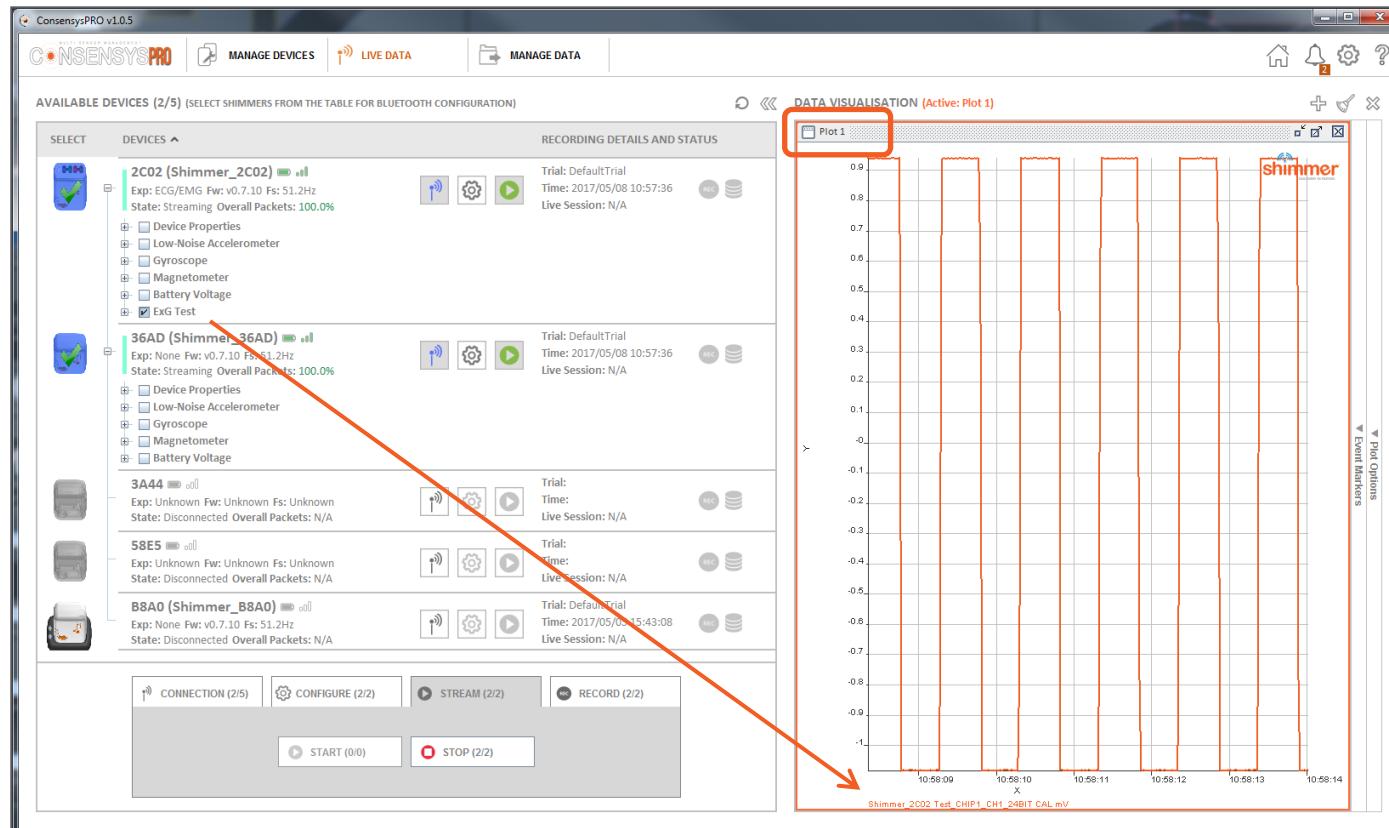
# STREAMING - STREAM & PLOT (2/5)

STEP 2 – Select signals to plot and press “START” to start streaming:



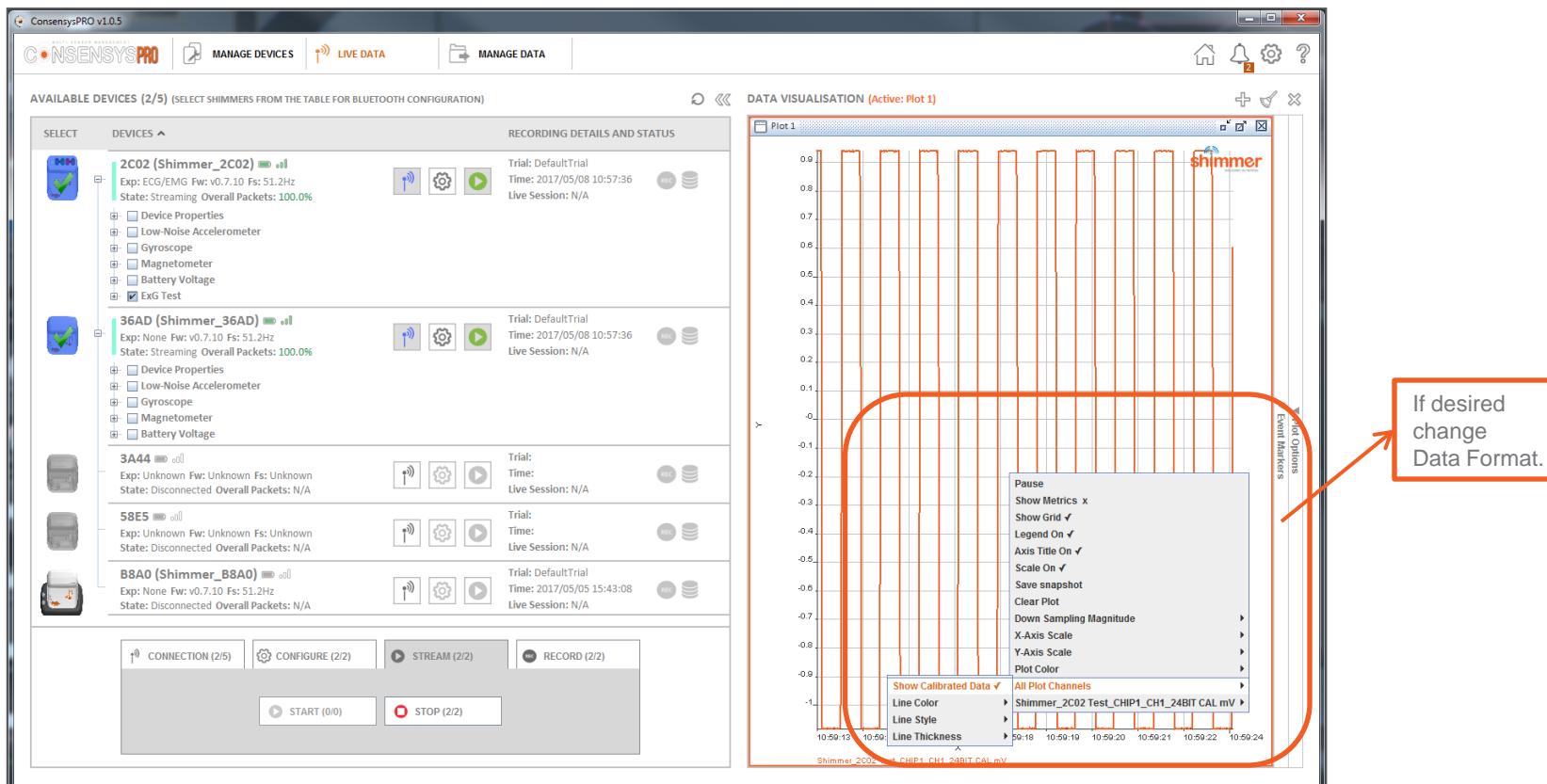
# STREAMING - STREAM & PLOT (3/5)

Example: Signal “ExG Test” is plotted in “Plot 1”:

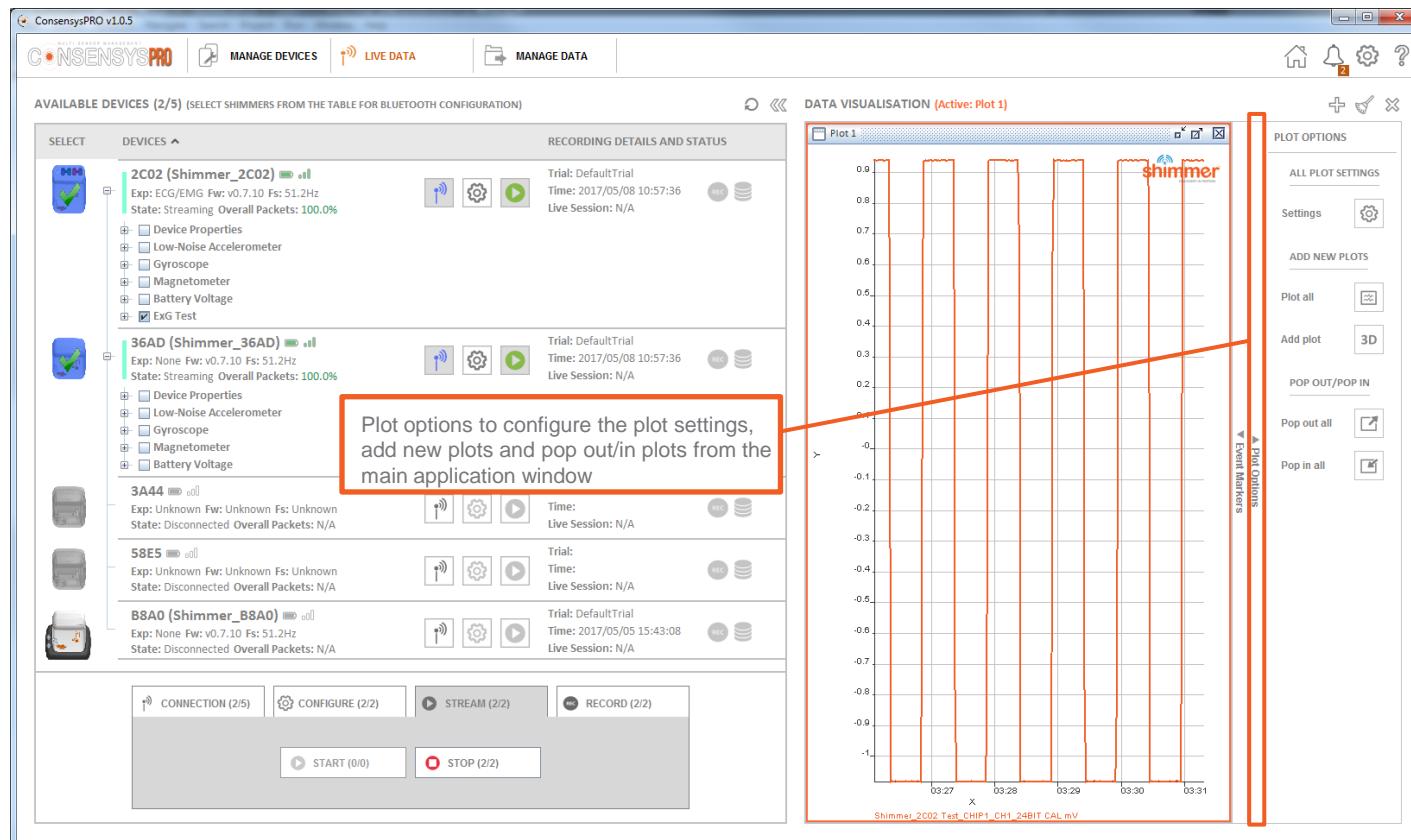


# STREAMING - STREAM & PLOT (4/5)

STEP 4 – Right-click in a plot window to change its properties:

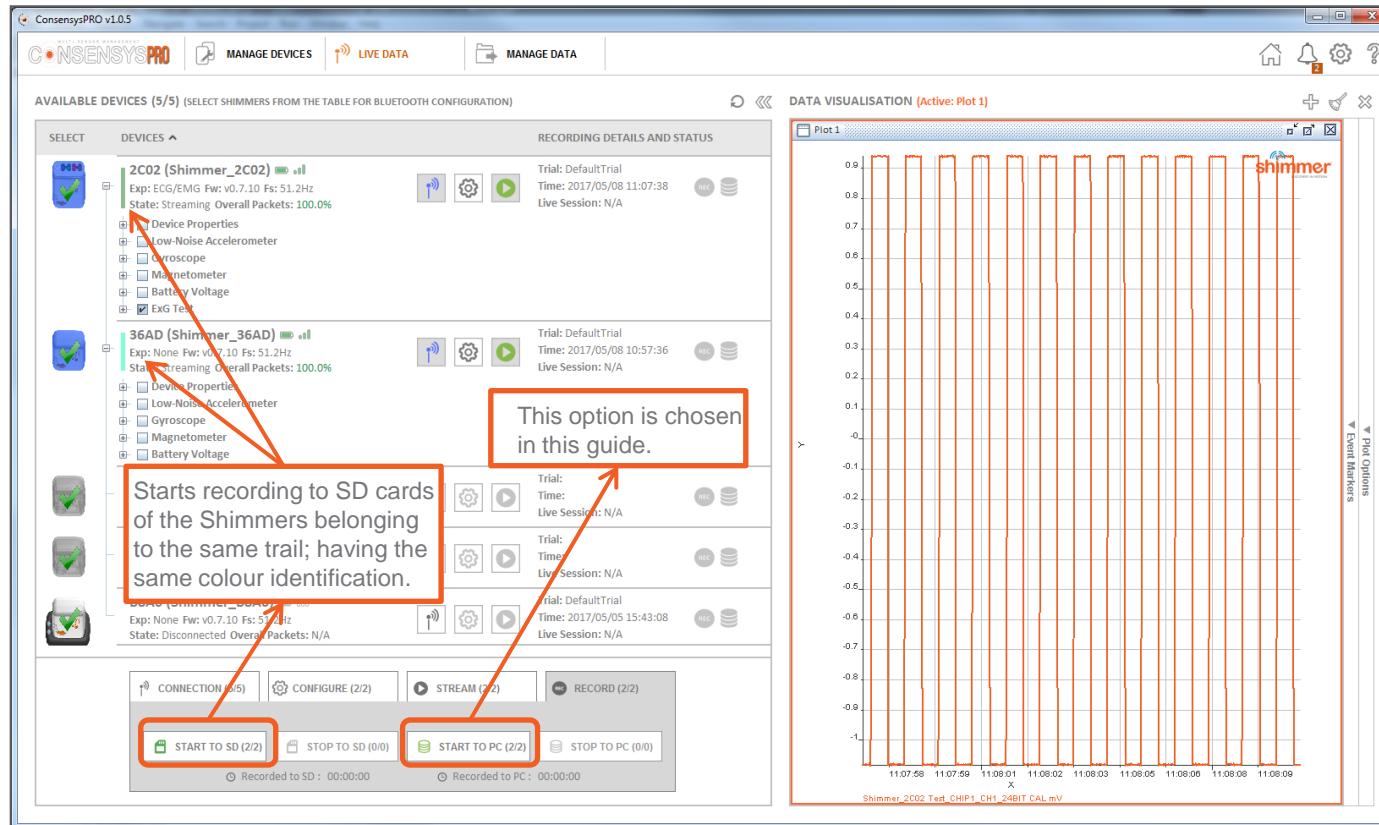


# STREAMING - STREAM & PLOT (5/5)



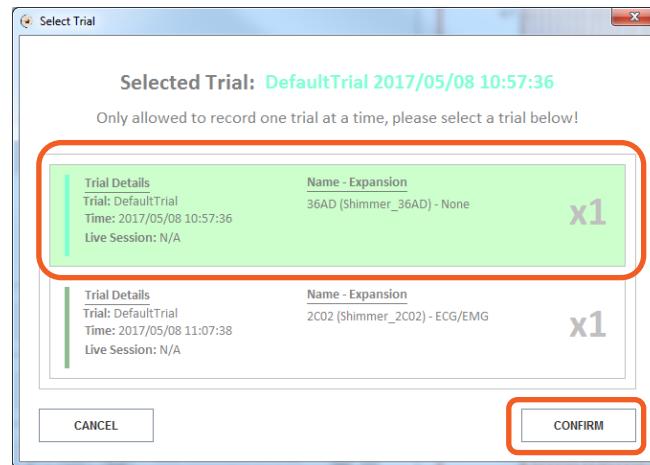
# STREAMING - RECORD (1/4)

STEP 1 – Press buttons on “RECORD” tab to start recording – Choose “START TO PC”:



# STREAMING - RECORD (2/4)

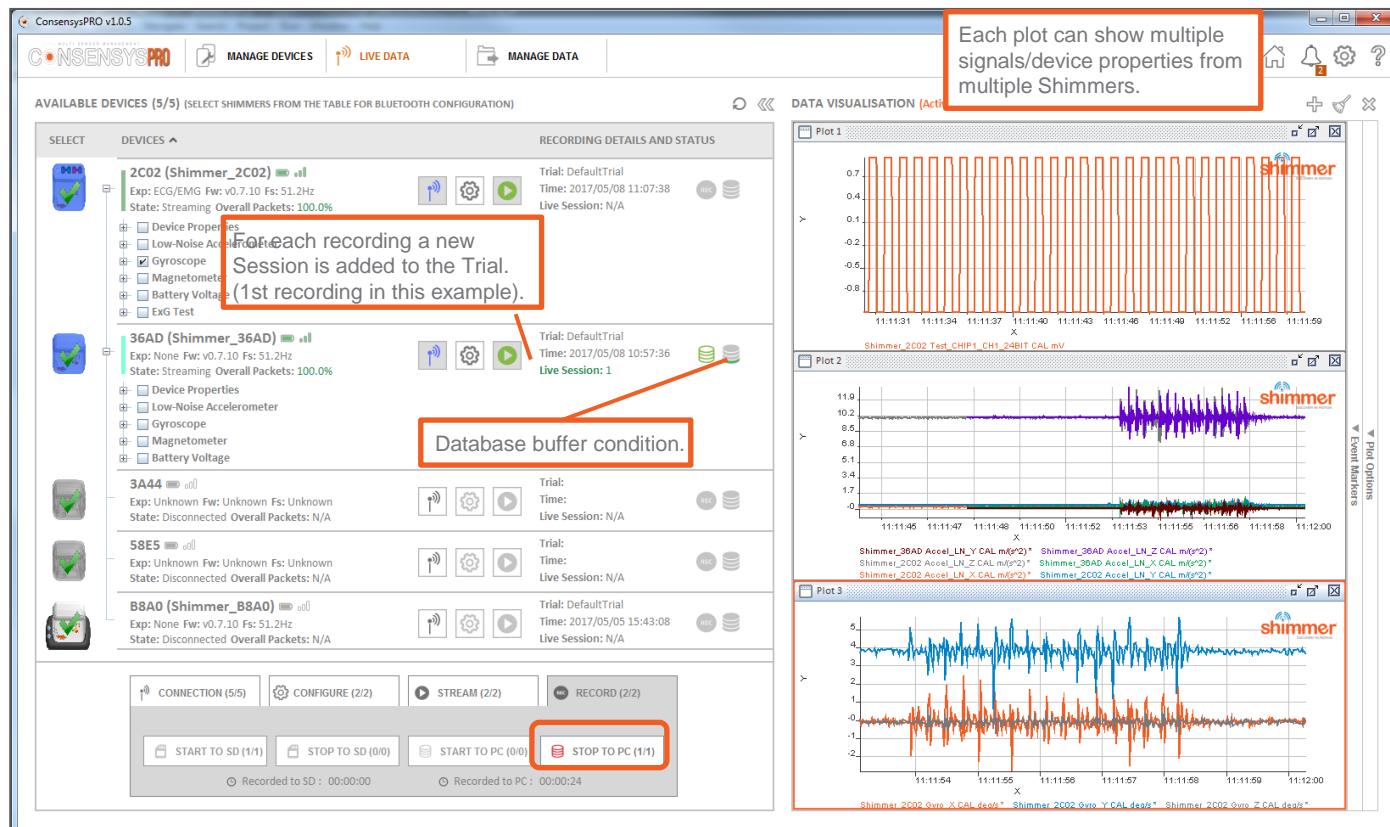
STEP 2 – Select the trial for recording and press “CONFIRM”:



**N.B.** This dialog only shows up when Shimmers across multiple trials have been selected.

# STREAMING - RECORD (3/4)

STEP 3 – Press “STOP TO PC” to stop recording to PC:



# STREAMING - RECORD (4/4)

STEP 4 – To record simultaneously to SD and PC:

The screenshot shows the ConsensysPRO v1.0.5 software interface. On the left, the 'AVAILABLE DEVICES (5/5)' panel lists five devices: 2C02 (Shimmer\_2C02), 36AD (Shimmer\_36AD), 3A44, 58E5, and B8A0 (Shimmer\_B8A0). The 2C02 and 36AD entries have red boxes around them, with a callout 'Recording to PC and SD' pointing to the 36AD entry. A callout 'For each recording to PC a new Session is added to the Trial.' points to the 36AD entry. Another callout 'Recordings to SD need to be imported first. See "Logging Import Data".' points to the B8A0 entry. At the bottom of the device list, there are buttons for 'START TO SD (0/0)', 'STOP TO SD (1/1)', 'START TO PC (0/0)', and 'STOP TO PC (1/1)'. The status bar indicates 'Recorded to SD : 00:00:29' and 'Recorded to PC : 00:00:11'. On the right, the 'DATA VISUALISATION' panel shows three plots: Plot 1 (gyroscope data), Plot 2 (accelerometer data), and Plot 3 (gyroscope data). A red box surrounds Plot 3, with a callout 'Record to SD AND PC:' followed by a numbered list: 1) Start Streaming, 2) Start Recording to SD, 3) (Streaming pauses briefly.), 4) Start Recording to PC.

Recording to PC and SD

For each recording to PC a new Session is added to the Trial.

Recordings to SD need to be imported first. See "Logging Import Data".

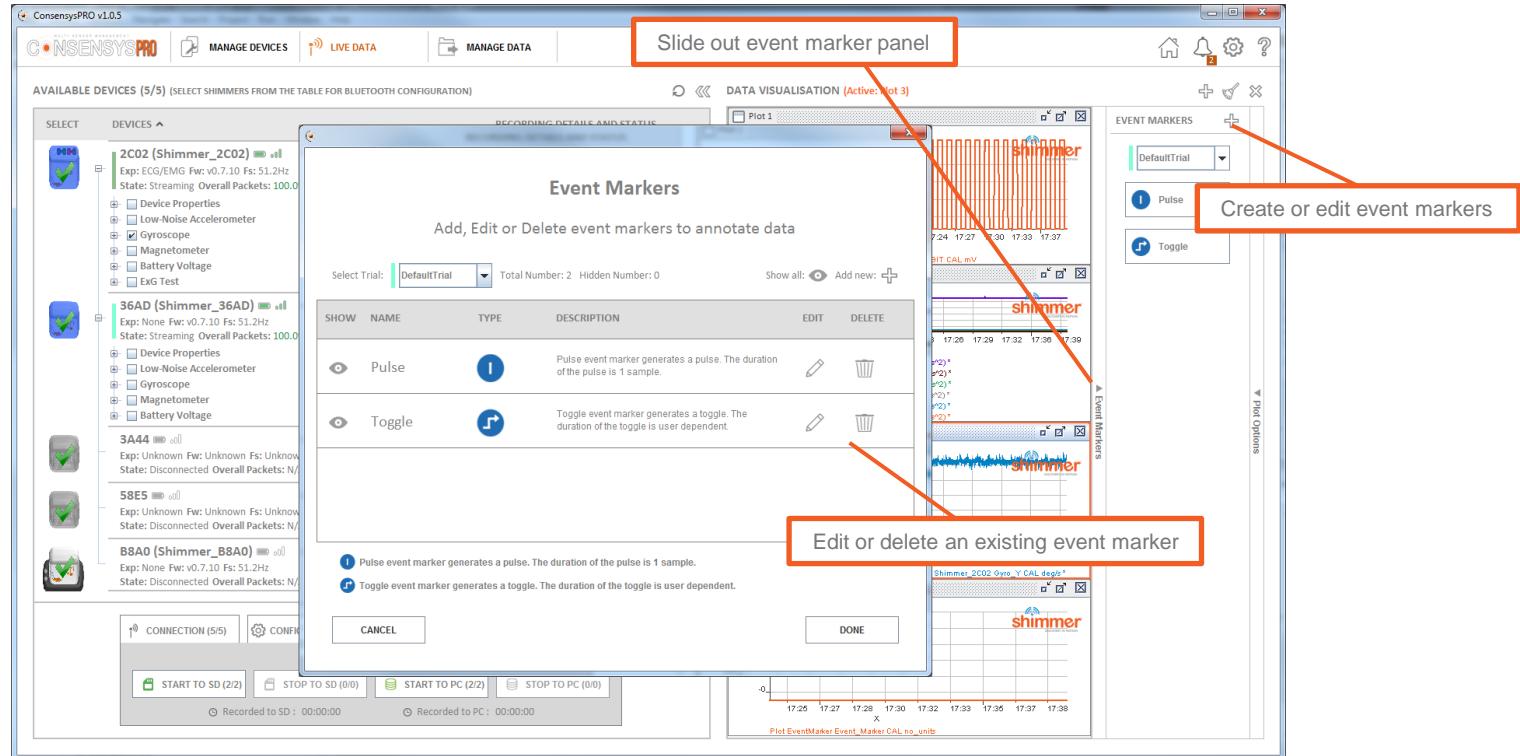
START TO SD (0/0) STOP TO SD (1/1) START TO PC (0/0) STOP TO PC (1/1)

Record to SD AND PC:  
1) Start Streaming.  
2) Start Recording to SD.  
3) (Streaming pauses briefly.)  
4) Start Recording to PC.

# STREAMING – EVENT MARKERS (1/3)

Event markers can be used to annotate incidents that occur during data collection

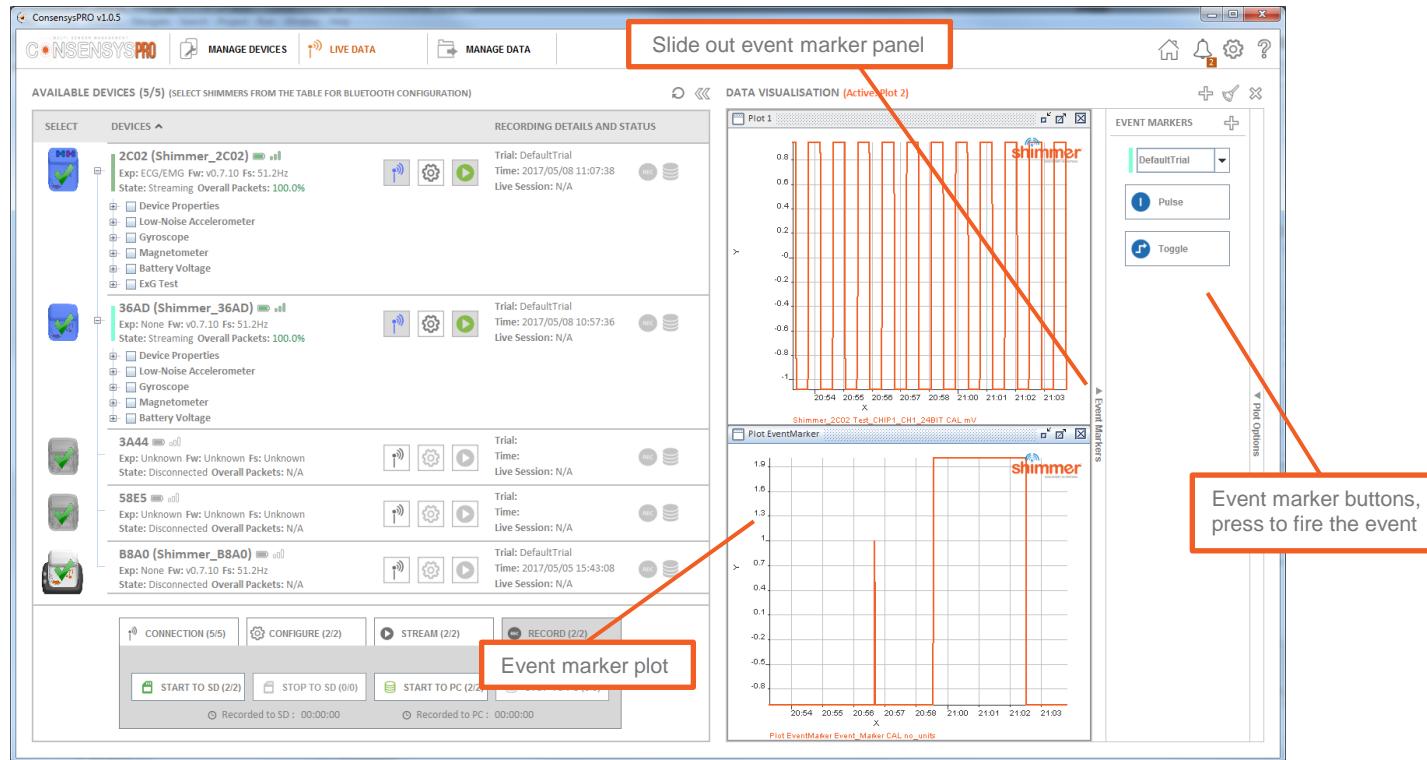
STEP 1 – Create or edit event markers (of type Pulse and/or Toggle) when at least one Shimmer is connected over Bluetooth:



N.B. ConsensysBASIC does not support event markers!

# STREAMING – EVENT MARKERS (2/3)

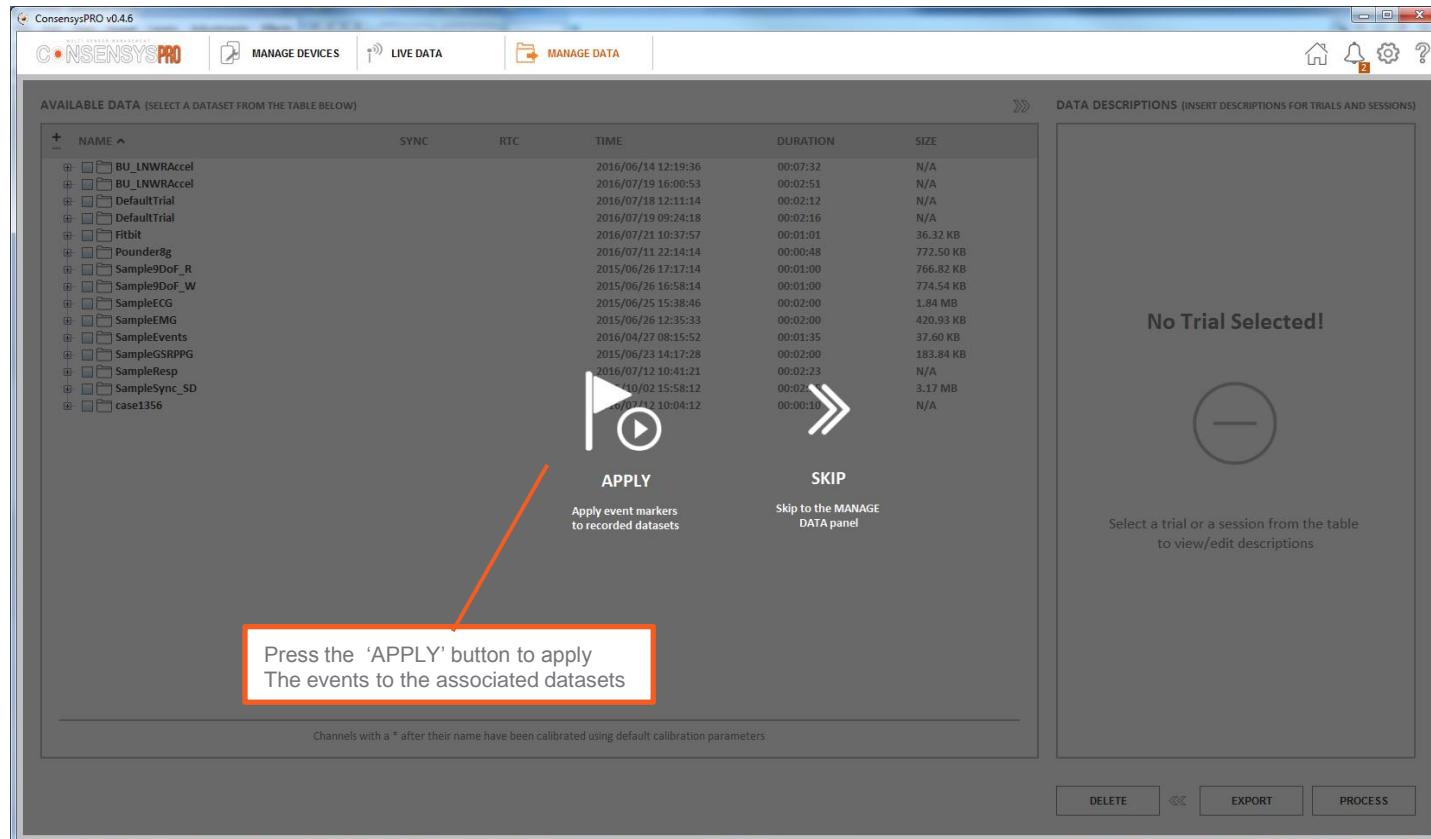
STEP 2 – Show the available event markers (buttons) when at least one Shimmer is connected data over Bluetooth and fire the event by pressing the relevant event button.



N.B. The event marker value is a code relating to the number of the event

# STREAMING – EVENT MARKERS (3/3)

STEP 3 – Apply the used event markers to the associated datasets. Then the event marker data will get exported along with the Shimmer sensor data.



# MANAGE DATA

“MANAGE DATA” – Interfaces with Consensys’ database.

Consensys’ database holds:

- **SD-Recordings**: imported data from Shimmer SD cards – see [Logging – Import Data](#).
- **PC-Recordings**: recorded data streamed to the PC – see [Streaming – Record](#).

In this section:

- [General](#)
- [Export](#)
- [Delete](#)
- [Process](#)

# MANAGE DATA – GENERAL

The screenshot shows the 'MANAGE DATA' tab selected in the top navigation bar. The main area displays a table of available data, with several rows highlighted by red boxes and arrows pointing to specific annotations.

**Annotations:**

- Imported logged data.** Points to a row under 'Config Live'.
- Recorded through Bluetooth interface of "LIVE DATA."** Points to a row under 'PC Recording'.
- Recorded streamed data.** Points to a row under 'GS-v0.4.0'.
- Imported logged data from one Session of a Trial with three Shimmers with SDLog firmware, with synchronisation enabled. (Synchronisation for logging trials is only available for SDLog firmware).** Points to a row under 'SamplesSync\_SD'.
- "M" indicates the Master Shimmer .** Points to a column labeled 'SYNC'.
- The post-process synchronisation has been successful, indicated by the green ticks in the SYNC column.** Points to the same 'SYNC' column.
- (Details on the synchronisation process for logging trials can be found in the SDLog firmware user manual.)** Points to the bottom of the table area.
- DATA DESCRIPTIONS (INSERT DESCRIPTIONS FOR TRIALS AND SESSIONS)** Points to the right panel where trial descriptions are listed.

NAME	SYNC	RTC	TIME	DURATION	SIZE
Config Live			2015/11/12 14:20:48	00:07:51	422.35 KB
SD Recording			2015/11/12 14:48:35	00:00:43	422.35 KB
Session 2			2015/11/12 14:48:40	00:00:35	N/A
Shimmer_PPG - 256.0Hz - 100%			2015/11/12 14:48:49	00:00:35	N/A
Shimmer_SCG - 512.0Hz - 100%			2015/11/12 14:48:49	00:00:35	N/A
Session 2			2015/11/12 14:49:43	00:00:11	N/A
Shimmer_PPG - 256.0Hz - 99%			2015/11/12 14:49:43	00:00:11	N/A
Shimmer_ECG - 512.0Hz - 99%			2015/11/12 14:49:43	00:00:11	N/A
Session 4			2015/11/12 14:55:10	00:06:21	N/A
Shimmer_PPG - 256.0Hz - 100%			2015/11/12 14:55:10	00:06:21	N/A
Shimmer_ECG - 512.0Hz - 100%			2015/11/12 14:55:10	00:06:21	N/A
GS-v0.4.0			2015/11/12 12:34:37	00:01:38	67.25 KB
PPG			2015/10/15 09:07:35	00:00:03	N/A
Sample9DoF_R			2015/06/26 16:17:14	00:01:00	766.82 KB
Sample9DoF_W			2015/06/26 16:58:14	00:01:00	774.54 KB
SampleECG			2015/06/25 15:38:46	00:02:00	1.84 MB
SampleEMG			2015/06/26 12:35:33	00:06:00	420.93 KB
SampleGSRPPG			2015/06/23 14:17:28	00:02:00	183.84 KB
SampleSync_SD			2015/10/02 15:58:12	00:02:25	3.17 MB
SD Recording			2015/10/02 16:08:05	00:02:25	3.17 MB
Session 1			2015/10/02 16:08:05	00:02:00	1.06 MB
Shimmer_36AD - 1024.0Hz - 98%			2015/10/02 16:08:14	00:02:00	1.06 MB
Shimmer_38D4 - 1024.0Hz - 98%			2015/10/02 16:08:04	00:01:59	1.05 MB
Shimmer_38D4 - 1024.0Hz - 98%					

**Right Panel: DATA DESCRIPTIONS (INSERT DESCRIPTIONS FOR TRIALS AND SESSIONS)**

- Config Live - 2015/11/12 14:20:48**: Trial information can be added here. Trial "Config Live" is configured during the creation of this instruction document and a few recordings are have been made as specified in the session info below.
- SD Recording - Session 2**: SD Recording - Session 1 has been deleted. For Session 2 the RTC (Real Time Clock) has been set for both Shimmers.
- PC Recording - Session 1**: For this session the data of both Shimmers have not been synchronised yet. The User can synchronise the data of both Shimmers by clicking on the icon with the circular arrows in the SYNC column; the data icons will be the same as for session 4.
- PC Recording - Session 2**: For this session the data cannot be synchronised, because the recording lasted only 11 seconds.
- PC Recording - Session 4**: (empty)

**Bottom Buttons:** DELETE, File Format (.CSV), File Delimiter (tab (t)), Timestamp Format (Unix), Data Format (Calibrated), EXPORT, PROCESS.

**N.B. ConsensysBASIC does not support DATA DESCRIPTIONS!**

# MANAGE DATA – EXPORT (1/2)

## STEP 1 – EXPORT – Select data and format:

- Select one or more sessions from one trial.
- Select “File Delimiter”, “File Format”, “Timestamp Format”, “Data Format”.
- Hit “Export” to export the selected data to a file in the requested format.

The screenshot shows the Consensys v0.4.0 software interface. The top navigation bar includes tabs for 'MANAGE DEVICES', 'LIVE DATA', and 'MANAGE DATA'. The 'MANAGE DATA' tab is active.

**AVAILABLE DATA** (SELECT A SINGLE TRIAL AND MULTIPLE SESSIONS AND/OR DEVICES FOR EXPORT OR PROCESSING)

NAME	SYNC	RTC	TIME	DURATION	SIZE
Config live			2015/11/12 14:20:48	00:07:51	422.35 KB
SD Recording			2015/11/12 14:48:35	00:00:43	422.35 KB
Session 2			2015/11/12 14:48:35	00:00:43	54.04 KB
Shimmer_PPG - 256.0Hz - 100%			2015/11/12 14:48:35	00:00:43	366.31 KB
Shimmer_ECG - 512.0Hz - 100%			2015/11/12 14:48:35	00:00:43	N/A
PC Recording			2015/11/12 14:48:49	00:00:35	N/A
Session 1			2015/11/12 14:48:49	00:00:35	N/A
Shimmer_PPG - 256.0Hz - 100%			2015/11/12 14:48:49	00:00:35	N/A
Shimmer_ECG - 512.0Hz - 100%			2015/11/12 14:48:49	00:00:35	N/A
Session 2			2015/11/12 14:49:43	00:00:11	N/A
Shimmer_PPG - 256.0Hz - 99%			2015/11/12 14:49:43	00:00:11	N/A
Shimmer_ECG - 512.0Hz - 99%			2015/11/12 14:49:43	00:00:11	N/A
Session 4			2015/11/12 14:55:10	00:00:21	N/A
Shimmer_PPG - 256.0Hz - 100%			2015/11/12 14:55:10	00:00:21	N/A
Shimmer_ECG - 512.0Hz - 100%			2015/11/12 14:55:10	00:00:21	N/A
GS404.0			2015/11/12 14:34:37	00:01:38	67.25 KB
PPG			2015/10/15 09:07:35	00:00:03	N/A
Sampled0of_R			2015/06/26 17:17:14	00:01:00	766.82 KB
Sampled0of_W			2015/06/26 16:58:14	00:01:00	774.54 KB
SampledEG			2015/06/25 15:38:46	00:02:00	1.84 MB
SampledTMG			2015/06/26 12:35:33	00:02:00	420.93 KB
SampledSSPPG			2015/06/23 14:17:28	00:02:00	183.84 KB
SampledSyn_SD			2015/10/02 15:58:12	00:02:25	3.17 MB
SD Recording			2015/10/02 16:08:05	00:02:25	3.17 MB
Session 1			2015/10/02 16:08:05	00:02:00	1.06 MB
Shimmer_36AD - 1024.0Hz - 98%			2015/10/02 16:08:14	00:02:00	1.06 MB
Shimmer_3D04 - 1024.0Hz - 98%			2015/10/02 16:08:31	00:01:59	1.05 MB
Shimmer_2B00 - 1024.0Hz - 98%					
Accel_WR_X (+/- 2g, 1344.0Hz)					
Accel_WR_Y (+/- 2g, 1344.0Hz)					
Accel_WR_Z (+/- 2g, 1344.0Hz)					

Channels with a \* after their name have been calibrated using default calibration parameters

**DATA DESCRIPTIONS** (INSERT DESCRIPTIONS FOR TRIALS AND SESSIONS)

**A** highlights the session tree on the left.

**B** highlights the data table in the center.

**C** highlights the bottom export controls.

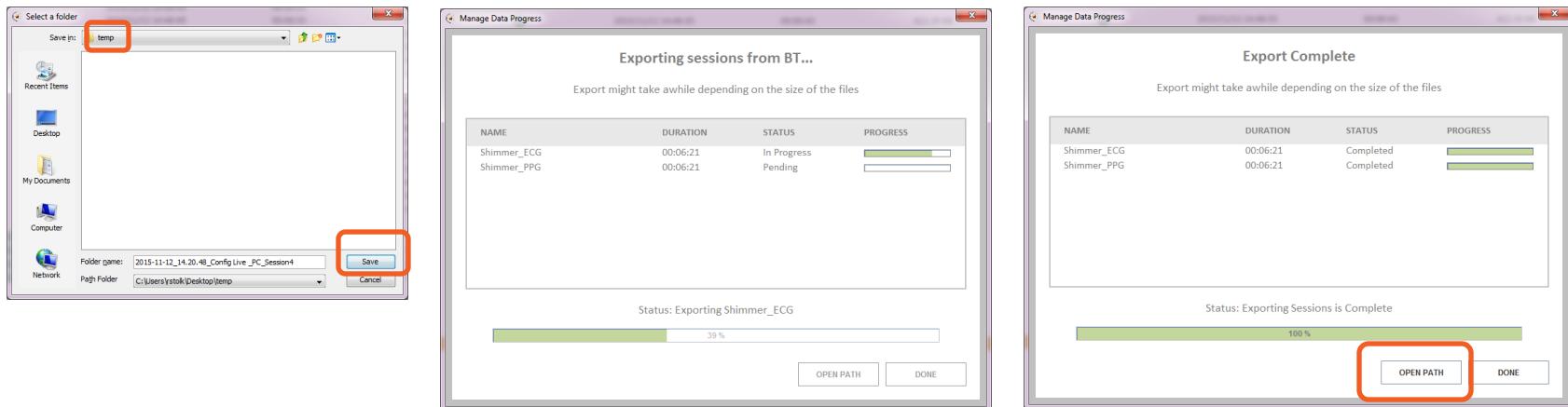
Bottom controls (highlighted with a red box):

- DELETE
- File Format: CSV
- File Delimiter: Tab (t)
- Timestamp Format: Unix
- Data Format: Calibrated
- EXPORT (highlighted)
- PROCESS

# MANAGE DATA – EXPORT (2/2)

## STEP 2 – EXPORT – Export the data:

- A. Select a directory and hit “Save”.
- B. When Export is complete, click “OPEN PATH” to navigate to the exported file(s).
- C. Open the file with a spreadsheet application, or with for example MATLAB.



# MANAGE DATA – DELETE (1/3)

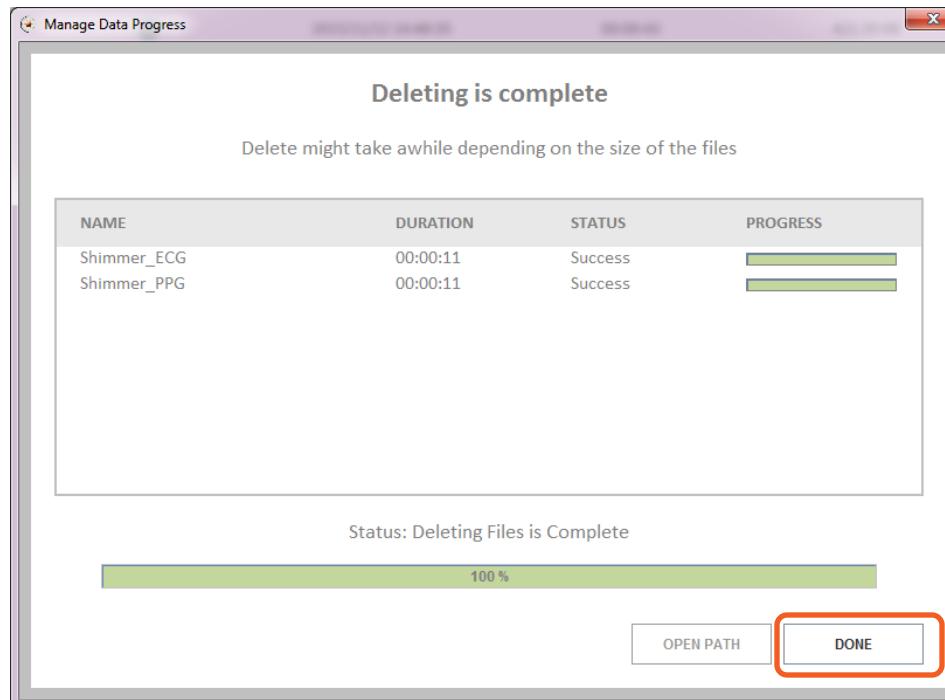
## STEP 1 – DELETE – Select and delete data:

- Select data to be deleted – this can.
- Hit “DELETE” to delete the selected data from the database (and hit “YES” to confirm).

The screenshot shows the Shimmer Consensys v0.40 software interface. The main window has tabs for "MANAGE DEVICES", "LIVE DATA", and "MANAGE DATA". The "MANAGE DATA" tab is active. On the left, there's a tree view of "AVAILABLE DATA" with categories like "Config Live", "PC Recording", "GS-v0.4.0", "PPG", etc. In the "PC Recording" section, several sessions are listed with checkboxes. A "Permanently delete selected data?" dialog box is centered over the list, asking if the user wants to proceed. The right side of the window displays "DATA DESCRIPTIONS" for each session, including details like trial names, times, and sizes. At the bottom, there are buttons for "DELETE", "EXPORT", and "PROCESS".

# MANAGE DATA – DELETE (2/3)

STEP 2 – DELETE – Click “DONE” when Deleting Files is Complete:



# MANAGE DATA – DELETE (3/3)

STEP 3 – DELETE – Confirm data has been deleted:

Before deleting:

AVAILABLE DATA (SELECT A SINGLE TRIAL AND MULTIPLE SESSIONS AND/OR DEVICES FOR EXPORT OR PROCESSING)

NAME	SYNC	RTC	TIME	DURATION	SIZE
Config Live			2015/11/12 14:20:48	00:07:51	422.35 KB
SD Recording			2015/11/12 14:48:35	00:00:43	422.35 KB
Session 2			2015/11/12 14:48:35	00:00:43	54.04 KB
Shimmer_PPG - 256.0Hz - 100%			2015/11/12 14:48:35	00:00:43	368.31 KB
Shimmer_ECG - 512.0Hz - 100%					
PC Recording			2015/11/12 14:48:49	00:00:35	N/A
Session 1			2015/11/12 14:48:49	00:00:35	N/A
Shimmer_PPG - 256.0Hz - 100%			2015/11/12 14:48:49	00:00:35	N/A
Shimmer_ECG - 512.0Hz - 100%			2015/11/12 14:48:49	00:00:35	N/A
Session 2	<input checked="" type="checkbox"/>		2015/11/12 14:49:43	00:00:11	N/A
Shimmer_PPG - 256.0Hz - 99%			2015/11/12 14:49:43	00:00:11	N/A
Shimmer_ECG - 512.0Hz - 99%			2015/11/12 14:49:43	00:00:11	N/A
Session 4			2015/11/12 14:55:10	00:06:21	N/A
Shimmer_PPG - 256.0Hz - 100%					
Shimmer_ECG - 512.0Hz - 100%					
GS-v0.4.0					
PPG					
Sample9Dof_R					
Sample9Dof_W					
SampleECG					
SampleEMG					
SampleSRPPG					
SampleSync_SD					
SD Recording					
Session 1					
Shimmer_36AD -1024.0Hz - 98%			2015/10/02 16:08:05	00:02:25	3.17 MB
Shimmer_38D4 -1024.0Hz - 98%			2015/10/02 16:08:05	00:02:00	1.06 MB
Shimmer_2BE0 -1024.0Hz - 98%			2015/10/02 16:08:14	00:02:00	1.06 MB
Shimmer_X (+/- 2g, 1344.0Hz)			2015/10/02 16:08:31	00:01:59	1.05 MB
Accel_WX_X (+/- 2g, 1344.0Hz)					
Accel_WY_Y (+/- 2g, 1344.0Hz)					
Accel_WZ_Z (+/- 2g, 1344.0Hz)					

Channels with a \* after their name have been calibrated using default calibration parameters

DATA DESCRIPTIONS (INSERT DESCRIPTIONS FOR TRIALS AND SESSIONS)

Config Live - 2015/11/12 14:20:48

SD Recording - Session 2

PC Recording - Session 1

PC Recording - Session 2

PC Recording - Session 4

Permanently delete selected data?

You are about to permanently delete the selected data. Are you sure you want to proceed?

DELETE File Format: CSV File Delimiter: tab (t) Timestamp Format: Unix Data Format: Calibrated EXPORT PROCESS

# MANAGE DATA – PROCESS (1/5)

## STEP 1 – Select data:

- Select data to process – e.g. “ECG\_LA\_RA\_24BIT” from Shimmer called: “Shimmer\_ECG”.
- Click “PROCESS”.

The screenshot shows the Consensys v0.40 software interface. The main window title is "Consensys v0.40". The top navigation bar includes "MANAGE DEVICES", "LIVE DATA", and "MANAGE DATA".

The "AVAILABLE DATA" section lists various recordings and sessions. A red 'A' highlights the "Shimmer\_ECG - 512.0Hz - 100%" entry under "Session 4".

NAME	SYNC	RTC	TIME	DURATION	SIZE
Config Live			2015/11/12 14:20:48	00:07:40	422.35 KB
SD Recording			2015/11/12 14:48:35	00:00:43	422.35 KB
Session 2			2015/11/12 14:48:35	00:00:43	54.04 KB
Shimmer_PPG - 256.0Hz - 100%			2015/11/12 14:48:35	00:00:43	368.31 KB
Shimmer_ECG - 512.0Hz - 100%			2015/11/12 14:48:35	00:00:43	368.31 KB
PC Recording			2015/11/12 14:48:49	00:00:35	N/A
Session 1			2015/11/12 14:48:49	00:00:35	N/A
Shimmer_PPG - 256.0Hz - 100%			2015/11/12 14:48:49	00:00:35	N/A
Shimmer_ECG - 512.0Hz - 100%			2015/11/12 14:48:49	00:00:35	N/A
Session 4			2015/11/12 14:48:49	00:00:21	N/A
Shimmer_PPG - 256.0Hz - 100%			2015/11/12 14:48:49	00:00:21	N/A
Shimmer_ECG - 512.0Hz - 100%			2015/11/12 14:48:49	00:00:21	N/A
EGG_EMG_Status1			2015/11/12 14:48:49	00:00:21	N/A
EGG_EMG_Status2			2015/11/12 14:48:49	00:00:21	N/A
ECG_LA_RA_24BIT			2015/11/12 14:48:49	00:00:21	N/A
EGG_LL_LA_24BIT			2015/11/12 14:48:49	00:00:21	N/A
EGG_LL_RA_24BIT			2015/11/12 14:48:49	00:00:21	N/A
EGG_Vx_RL_24BIT			2015/11/12 14:48:49	00:00:21	N/A
GS-v0.4.0			2015/11/12 14:48:49	00:00:21	N/A
PPG			2015/11/12 14:48:49	00:00:21	N/A
Sample90df_R			2015/06/18 09:07:35	00:00:01	N/A
Sample90df_W			2015/06/18 17:17:14	00:01:00	746.82 KB
SampleECG			2015/06/18 16:58:14	00:01:00	774.54 KB
SampleEMG			2015/06/15 15:38:46	00:01:00	1.81 MB
SampleGSPPG			2015/06/26 12:35:33	00:02:00	420.93 KB
SampleSync_SD			2015/06/23 14:17:28	00:02:00	183.84 KB
SD Recording			2015/10/02 15:58:12	00:02:25	3.17 MB
Session 1			2015/10/02 16:08:05	00:02:25	3.17 MB
Shimmer_36AD - 1024.0Hz - 98%			2015/10/02 16:08:05	00:02:00	1.06 MB
Shimmer_38D4 - 1024.0Hz - 98%			2015/10/02 16:08:14	00:02:00	1.06 MB
Shimmer_2BE0 - 1024.0Hz - 98%			2015/10/02 16:08:31	00:01:59	1.05 MB
Accel_WR_X (+/- 2g, 1344.0Hz)					
Accel_WR_Y (+/- 2g, 1344.0Hz)					
Accel_WR_Z (+/- 2g, 1344.0Hz)					

Below the table, a note says: "Channels with a \* after their name have been calibrated using default calibration parameters".

The "DATA DESCRIPTIONS" section contains four entries:

- Config Live - 2015/11/12 14:20:48
- SD Recording - Session 2
- SD Recording - Session 1 has been deleted.
- PC Recording - Session 1
- PC Recording - Session 4

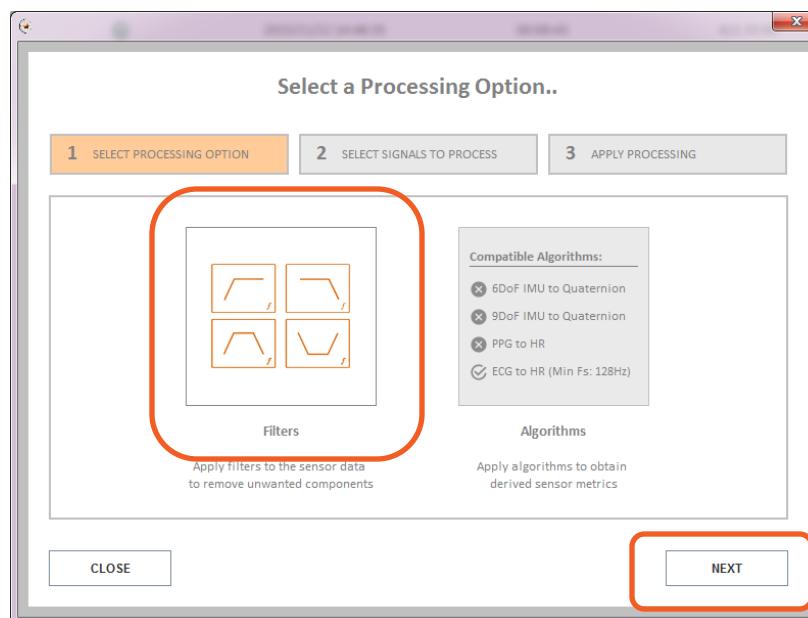
At the bottom right, there are buttons for "SAVE", "EXPORT", and a red-outlined "PROCESS" button.

N.B. ConsensysBASIC does not support off-line data processing

# MANAGE DATA – PROCESS (2/5)

## STEP 2 – Select a Processing Option:

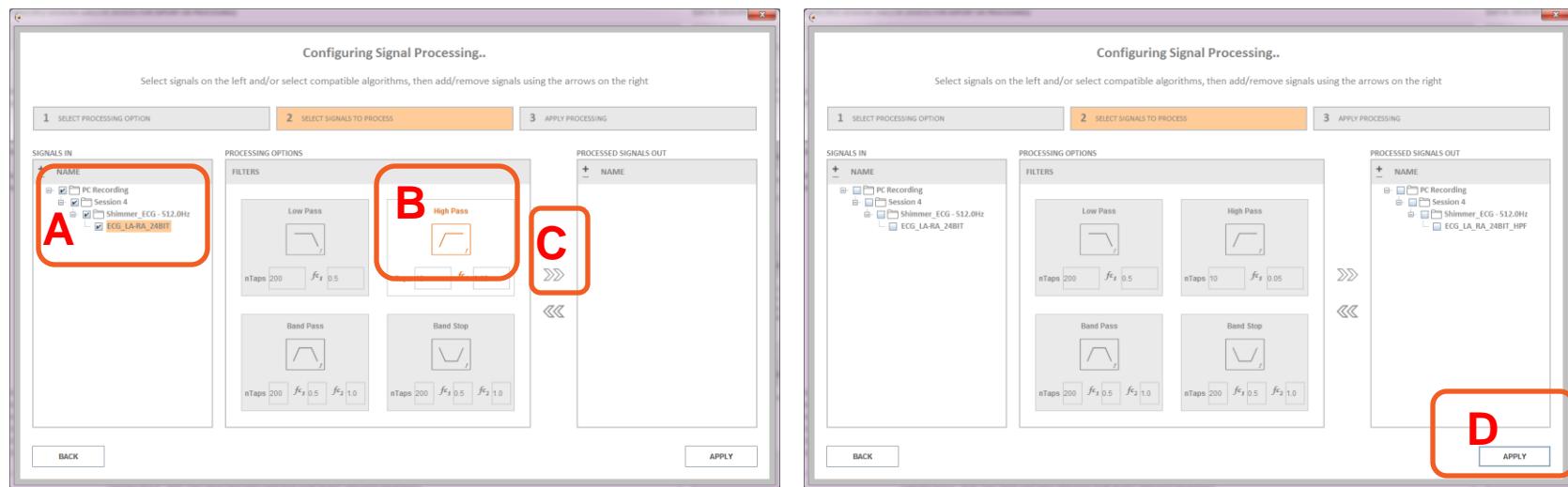
- A. Select **Filters** or **Algorithms** – only algorithms compatible with the selected data can be selected.
- B. Note that **Filters** only applies one filter operation to the selected signal(s). Follow STEPS 1 to 3 on the processed signal(s) to apply a successive filter operation.
- C. Click “NEXT”.



# MANAGE DATA – PROCESS (3/5)

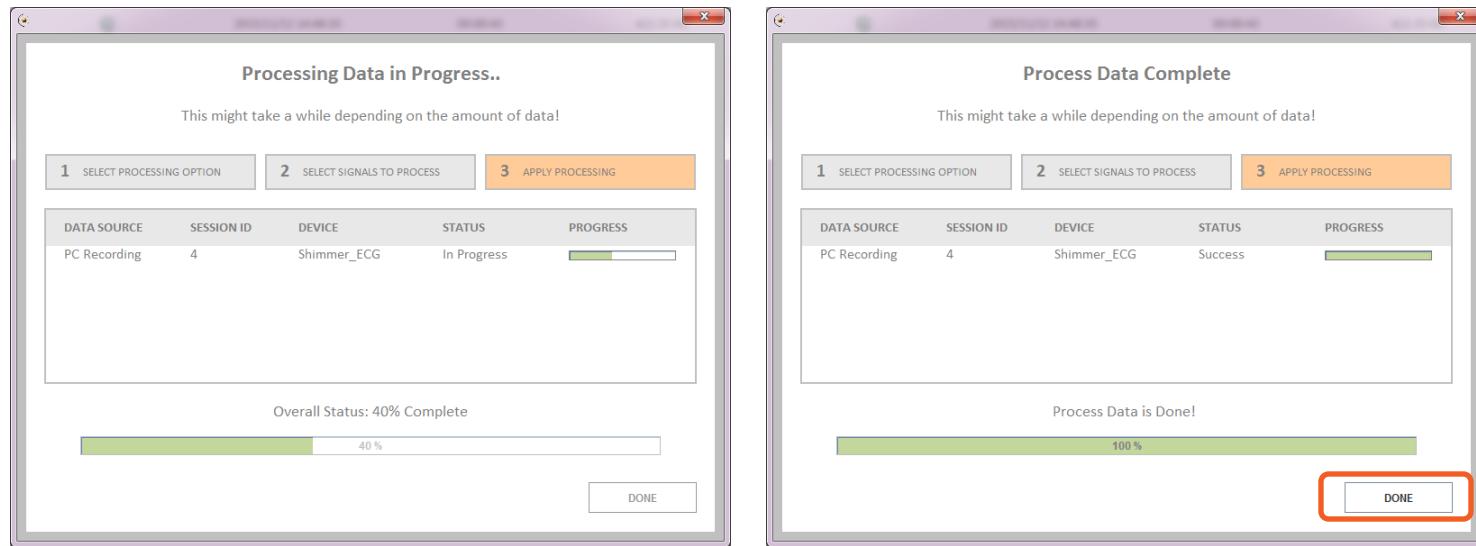
## STEP 3 – Configuring Signal Processing:

- A. Select signals to process. (In this example only one signal was selected, so there is nothing else to select.)
- B. Select filter parameters.
- C. Add to the “PROCESSED SIGNALS OUT” list for the next stage.
- D. Hit “Apply”.



# MANAGE DATA – PROCESS (4/5)

STEP 4 – Processing Data in Progress – Click “DONE” when complete:



# MANAGE DATA – PROCESS (5/5)

STEP 5 – Confirm processing has been applied:

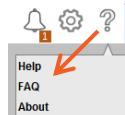
“ECG\_LA\_RA\_24BIT\_HPF” has been added to the session.

NAME	SYNC	RTC	TIME	DURATION	SIZE
Config Live			2015/11/12 14:20:48	00:07:40	422.35 KB
SD Recording					
Session 2			2015/11/12 14:48:35	00:00:43	422.35 KB
Shimmer, PPG - 256.0Hz - 100%			2015/11/12 14:48:35	00:00:43	54.04 KB
Shimmer, ECG - 512.0Hz - 100%			2015/11/12 14:48:35	00:00:43	368.31 KB
Session 1			2015/11/12 14:48:49	00:00:35	N/A
Shimmer, PPG - 256.0Hz - 100%			2015/11/12 14:48:49	00:00:35	N/A
Shimmer, ECG - 512.0Hz - 100%			2015/11/12 14:48:49	00:00:35	N/A
Session 4			2015/11/12 14:55:10	00:06:21	N/A
Shimmer, PPG - 256.0Hz - 100%			2015/11/12 14:55:10	00:06:21	N/A
Shimmer, ECG - 512.0Hz - 100%			2015/11/12 14:55:10	00:06:21	N/A
ECG_EMG_Status1					
ECG_EMG_Status2					
ECG_Device_24bit					
ECG_Device_24bit_HPF					
ECG_LA_RA_24BIT					
ECG_LA_RA_24BIT_HPF	<input checked="" type="checkbox"/>				
ECG_U_R_A_24BIT					
ECG_Vx_RL_24BIT					
GSv0.4.0					
PPG					
Sample9DoF_R					
Sample9DoF_W					
SampleECG					
SampleEMG					
SampleGSRPPG					
SampleSync_SD					
SD Recording					
Session 1			2015/10/02 16:08:05	00:02:25	3.17 MB
Shimmer, 36AD - 1024.0Hz - 98%			2015/10/02 16:08:05	00:02:00	1.05 MB
Shimmer, 38AD - 1024.0Hz - 98%			2015/10/02 16:08:14	00:02:00	1.05 MB
Shimmer, 2BE0 - 1024.0Hz - 98%			2015/10/02 16:08:31	00:01:59	1.05 MB
Accel_WR_X (+/- 2g, 1344.0Hz)					
Accel_WR_Y (+/- 2g, 1344.0Hz)					
Accel_WR_Z (+/- 2g, 1344.0Hz)					

Channels with a \* after their name have been calibrated using default calibration parameters

DELETE File Format: CSV File Delimiter: tab (t) Timestamp Format: Unix Data Format: Calibrated EXPORT PROCESS

# THINGS YOU MIGHT NEED TO KNOW

- The **green and blue LED** (in LED location B)
  1. Start *Consensys* and connect *Shimmer Dock or Base*.
  2. Place the Shimmer in the *Shimmer Dock or Base*.
  3. The Real Time Clock (RTC) of the Shimmer will be set.
  4. The blinking stops after the RTC has been set.
- **RTC:** If the “Real Time Clock” on the Shimmer is set, a relationship between “real-world time” and the local clock on the Shimmer is established, enabling synchronisation to a “common clock” among multiple Shimmer and external devices. **N.B.** Switching off Shimmers results in the loss of the RTC information. To set the RTC on the Shimmer, insert the Shimmer into a Shimmer Dock or Consensys Base while the Consensys software is running.
- Check out the Frequently Asked Questions (**FAQ**) for solutions to the most common problems.
- **Session:** A dataset containing data from one or more Shimmers belonging to the same **Trial**, i.e. configured at the same time.

# THINGS YOU MIGHT NEED TO KNOW

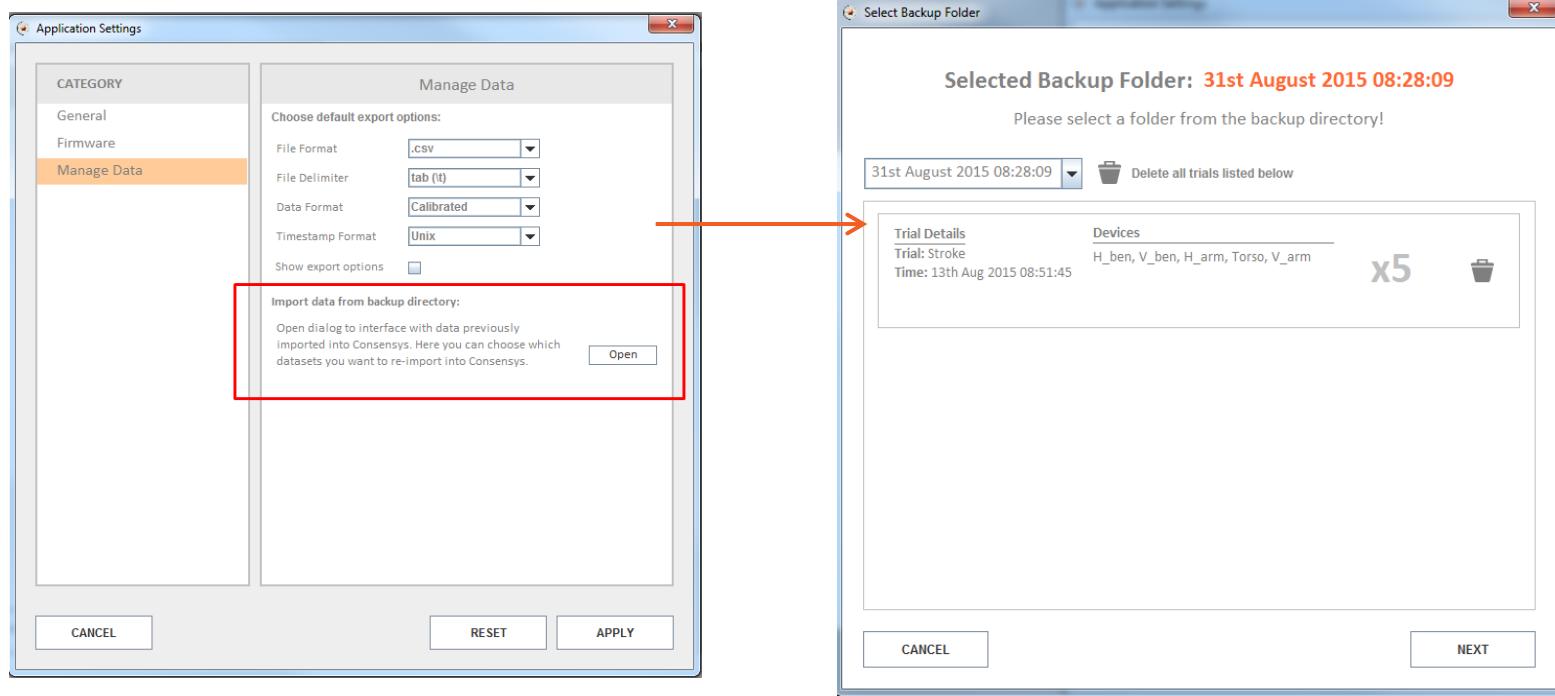
- To access the SD Card of a Shimmer inserted in a *Consensys Base*, right-click the Shimmer visualisation in MANAGE DEVICES; press “Open SD”:



- All **User Manuals / User Guides** for Shimmer hardware and software is available for download from our website. It is highly recommended that all new Shimmer users read the *Shimmer User Manual*. (<http://www.shimmersensing.com/menu/support/>)

# THINGS YOU MIGHT NEED TO KNOW

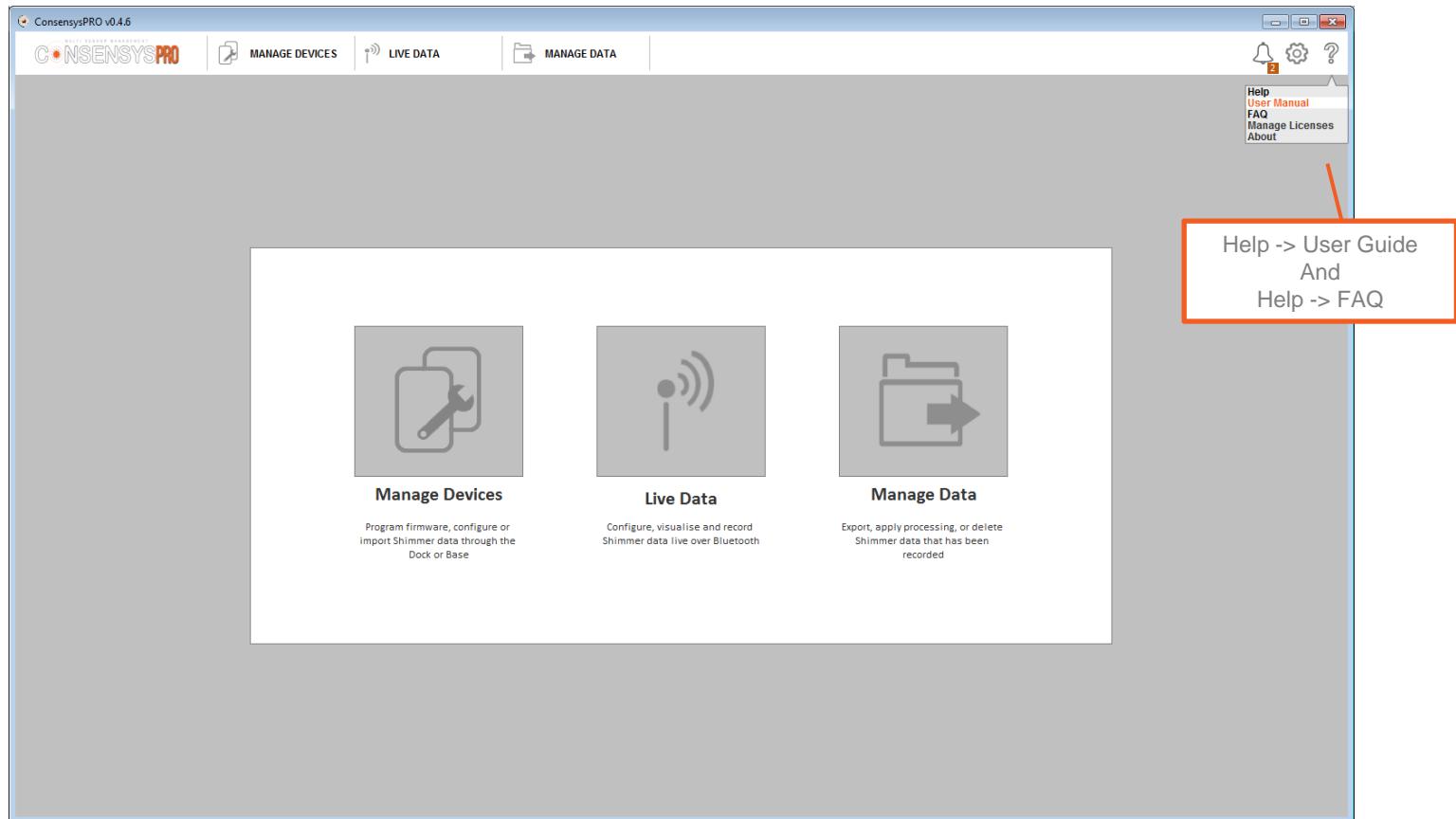
- To import data from the backup, you only need to open the *Manage Data* category in the Application Settings and click on *Open* the backup



- After selecting a backup directory and clicking *Next*, you will be direct to the second step of the import process

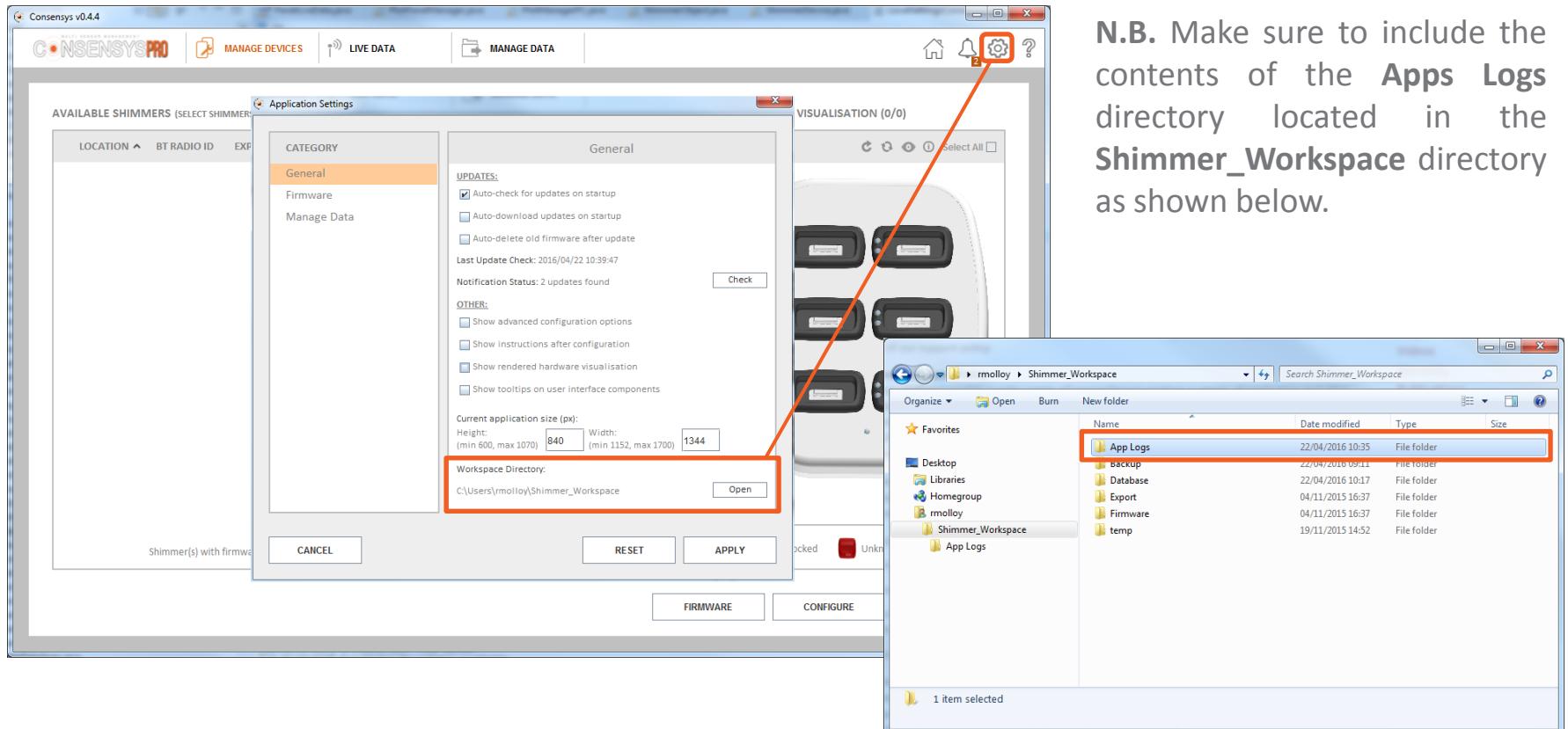
# THINGS YOU MIGHT NEED TO KNOW

- Consensys includes a link to this guide in the software and also a FAQ page. Please consult both documents if encountering an issue with the Consensys software or hardware



# TROUBLESHOOTING – DOCK/BASE ISSUES

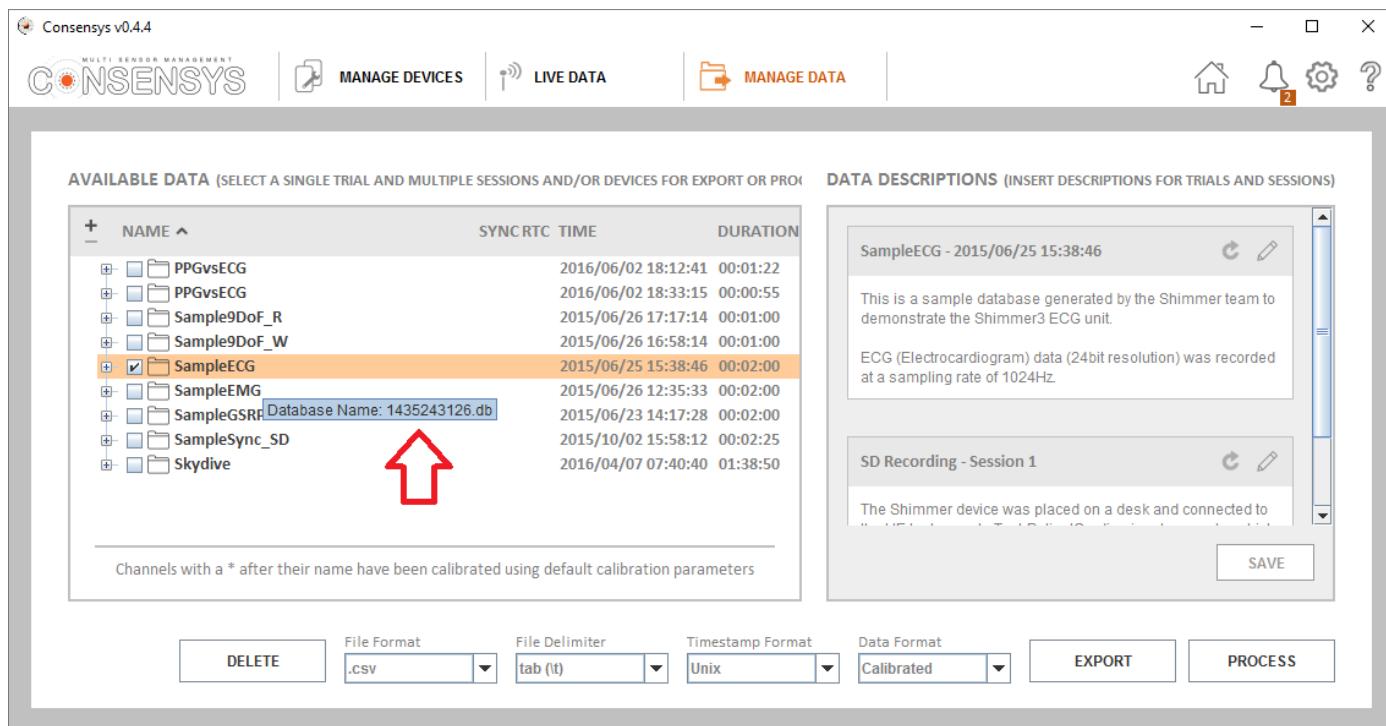
- If you experience any issue while installing or using the Shimmer Dock or Consensys Base, please consult the relevant sections of this guide and the Consensys FAQ first. If the issue has not been resolved, please submit a support query through the support section of our [website](#)<sup>1</sup>.



**N.B.** Make sure to include the contents of the **Apps Logs** directory located in the **Shimmer\_Workspace** directory as shown below.

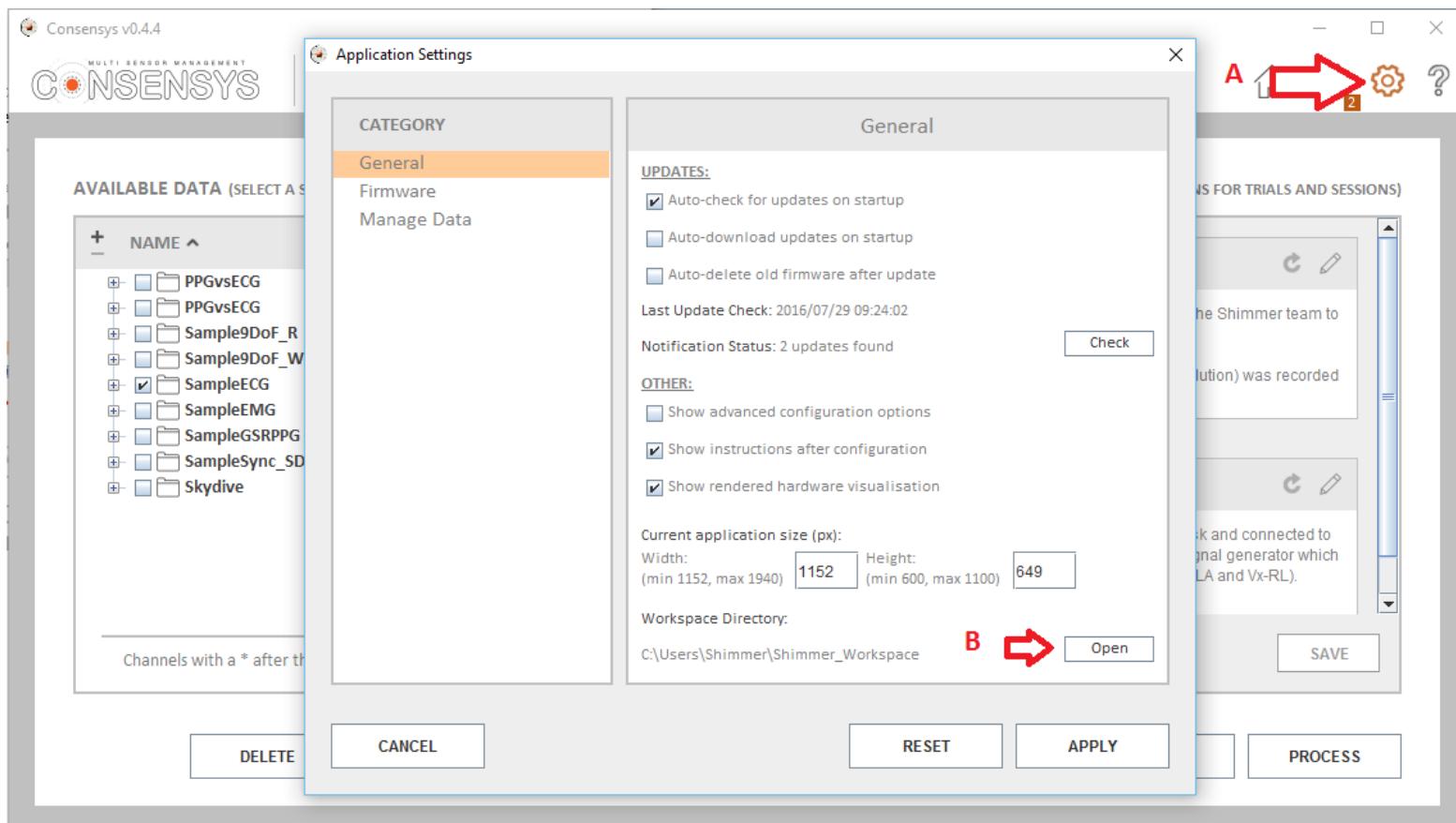
# TROUBLESHOOTING – RECORDED DATA

- If you experience an error with your recorded data in Consensys ‘Manage Data’, please consult this document and the Consensys FAQs first. If the issue has not been resolved, please submit a support query through the support section of our [website](#)<sup>1</sup>. **N.B.** please include the relevant **Database File(s)** from the Database directory and **Binary File(s)** from the Backup directory as outlined in this section.
- To identify the appropriate database file, hover your mouse over the trial in the Consensys ‘Manage Data’ tab. The file name will be a set of digits (e.g., ‘1435243126.db’) as below.



# TROUBLESHOOTING – RECORDED DATA

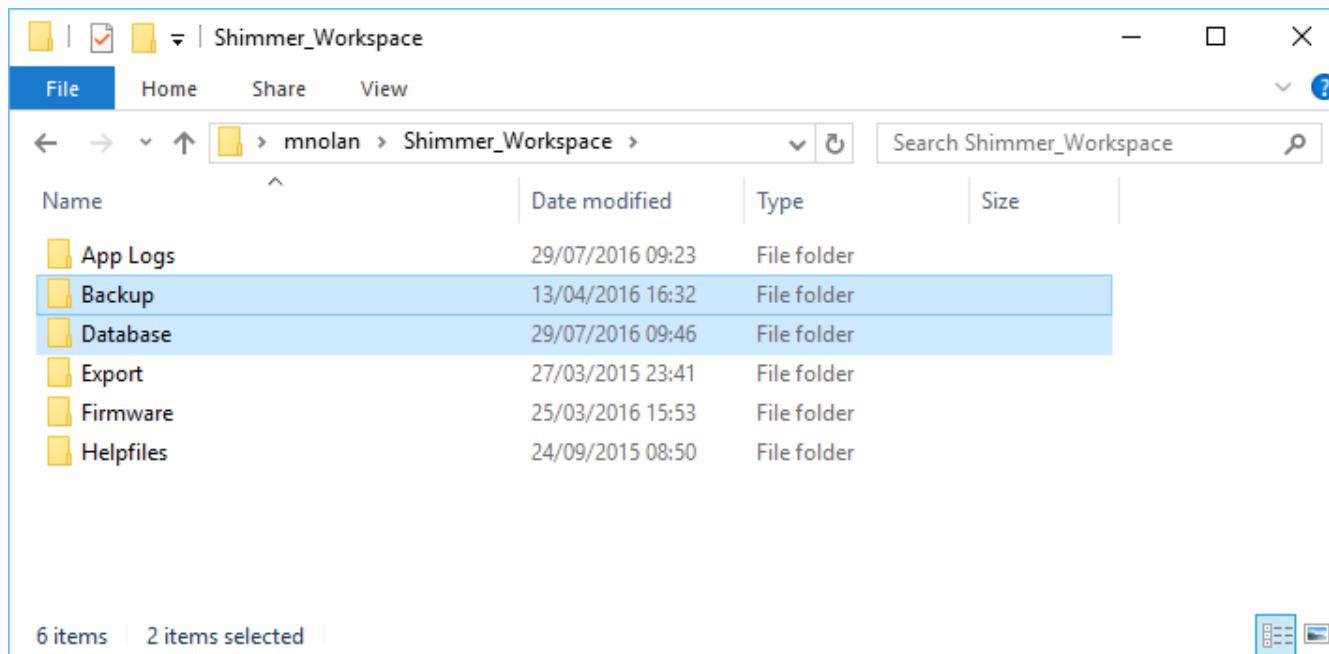
2. To navigate to the **Shimmer\_Workspace** directory:
  - A. Click on the Consensys ‘Application Settings’ menu
  - B. Click on the ‘Open’ button to open the workspace directory



# TROUBLESHOOTING – RECORDED DATA

3. The Shimmer Workspace will appear as below. The important directories to note are the ‘Backup’ and ‘Database’ directories - as highlighted.

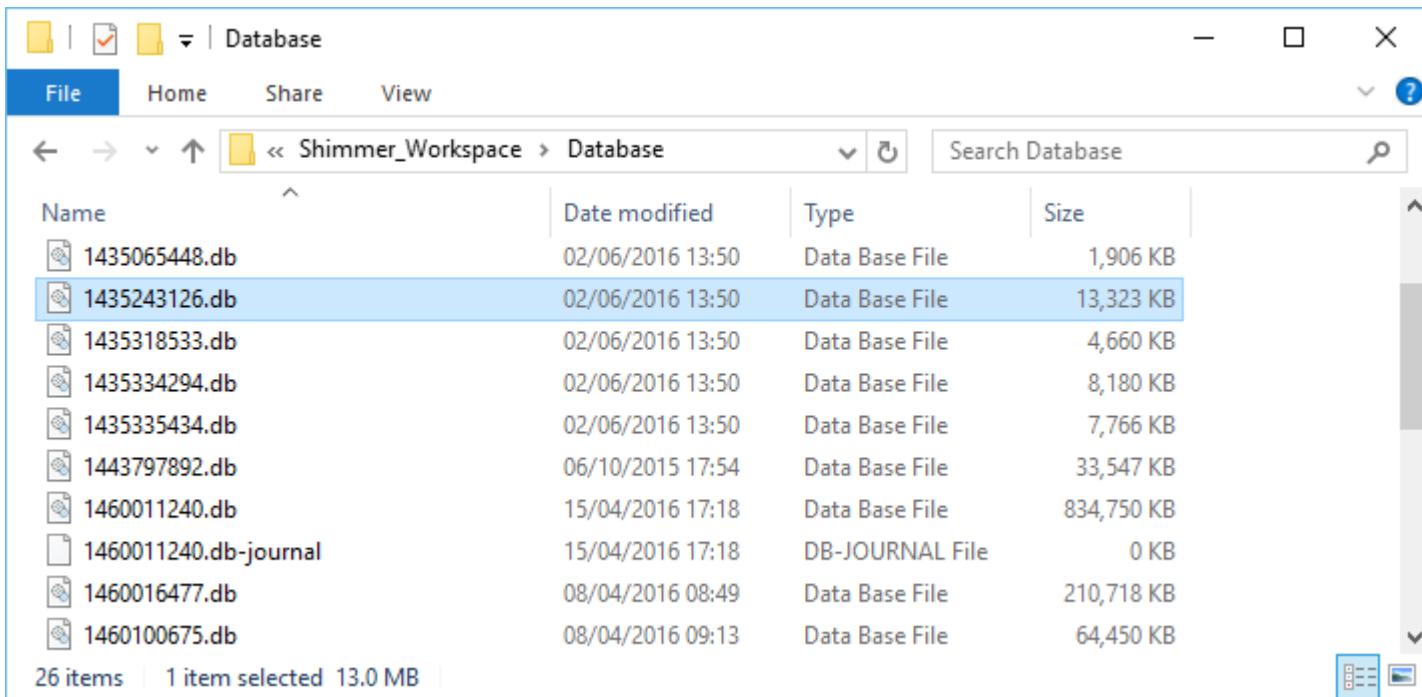
The ‘Backup’ directory is only relevant if data was imported from the Shimmer’s SD card and is not used if data is solely recorded over a Bluetooth connection.



# TROUBLESHOOTING – RECORDED DATA

## 4. 'Database' Directory:

This directory stores a database file per 'trial' whereby the database filename is the trial configuration time in Unix Timestamp format. For example, the selected database below, '1435243126.db', corresponds to the 'SampleEMG' trial shown in step 1 which was configured on the '*25th June 2015 at 15:38.46 GMT+1*' (online converter example [here](#)).



Name	Date modified	Type	Size
1435065448.db	02/06/2016 13:50	Data Base File	1,906 KB
1435243126.db	02/06/2016 13:50	Data Base File	13,323 KB
1435318533.db	02/06/2016 13:50	Data Base File	4,660 KB
1435334294.db	02/06/2016 13:50	Data Base File	8,180 KB
1435335434.db	02/06/2016 13:50	Data Base File	7,766 KB
1443797892.db	06/10/2015 17:54	Data Base File	33,547 KB
1460011240.db	15/04/2016 17:18	Data Base File	834,750 KB
1460011240.db-journal	15/04/2016 17:18	DB-JOURNAL File	0 KB
1460016477.db	08/04/2016 08:49	Data Base File	210,718 KB
1460100675.db	08/04/2016 09:13	Data Base File	64,450 KB

26 items | 1 item selected 13.0 MB

# TROUBLESHOOTING – RECORDED DATA

## 5. 'Backup' Directory:

This directory contains the binary data files copied from the Shimmer during the import of data that was recorded to the Shimmer's on-board SD card. The structure of the directory is as shown below. If sending this data to Shimmer Support, it is sufficient to just identify the import date, create a ZIP of that directory and send that to Shimmer support'.

The screenshot shows five overlapping Windows File Explorer windows illustrating the directory structure of recorded data:

- Level 1: Consensys import date** (Top window): Shows a list of file folders with names like "2015-06-11\_10.51.36", "2015-06-12\_09.55.08", and "2015-06-25\_10.29.10". The folder "2015-06-25\_10.29.10" is selected.
- Level 2: Bluetooth MAC address per Shimmer** (Second window): Shows the contents of the "2015-06-25\_10.29.10" folder, which includes a single file folder named "00066646b8b6".
- Level 3: 'data' directory as copied directly from each Shimmer's SD card** (Third window): Shows the contents of the "00066646b8b6" folder, which contains a single file folder named "data".
- Level 4: Trial name (e.g., 'Shimmer\_cal1') and configuration time in Unix format (e.g., '1435224503' or 25<sup>th</sup> June 2015 09:28:23 GMT)** (Fourth window): Shows the contents of the "data" folder, which contains a single file folder named "Shimmer\_cal1\_1435224503".
- Level 5: Shimmer name (i.e. 'Shimmer') and the recorded session number (i.e., 000)** (Bottom window): Shows the contents of the "Shimmer\_cal1\_1435224503" folder, which contains a single file folder named "Shimmer-000".