

# CONSENSYS USER GUIDE v2.4

Rev. a



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# WHAT'S NEW IN THIS RELEASE

*Consensys v2.2 brings a number of software updates and bug fixes*

## Updates via V2.0:

- No longer support SDLog firmware
- SDLog features are now part of LogandStream
- Shimmer 3R support
- 9DoF Calibration
- Lab Streaming Layer support
- Keyboard support

## Updates via V2.2:

- USB-C Support for Shimmer3R

# INTRODUCTION

*Consensys v2.0* 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 and Shimmer3R Units*

**Supported Firmware:** *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* – <https://www.shimmersensing.com/support/wireless-sensor-networks-documentation/>

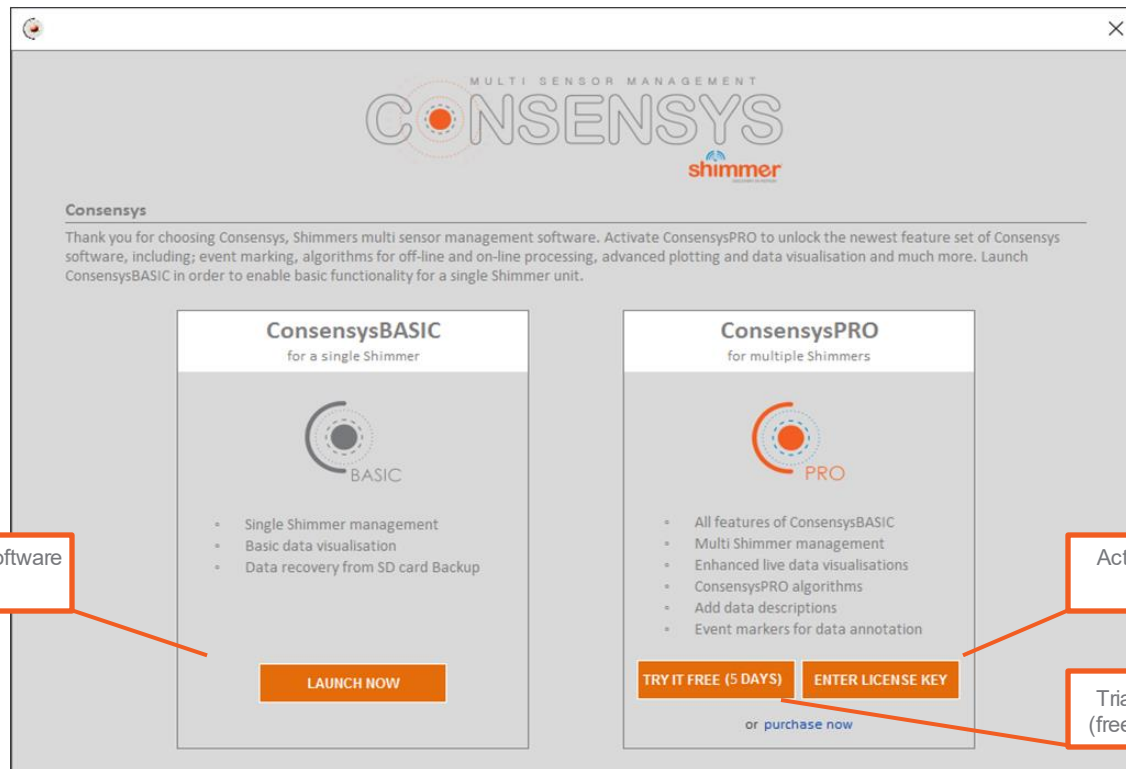


# CONSENSYSBASIC v CONSENSYSPRO

*Consensys v2.0* 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



Launch ConsensysBASIC software  
(free of charge)

Activate ConsensysPRO software  
(license key required)

Trial ConsensysPRO software  
(free of charge for 5 day period)

# INSTALL HARDWARE & SOFTWARE (1/8)

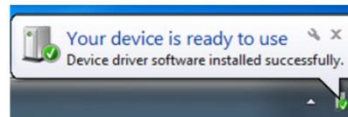
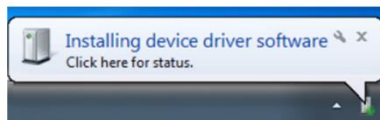
STEP 1 – Download the *Consensys* software from our [website](#)<sup>†</sup>.

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:



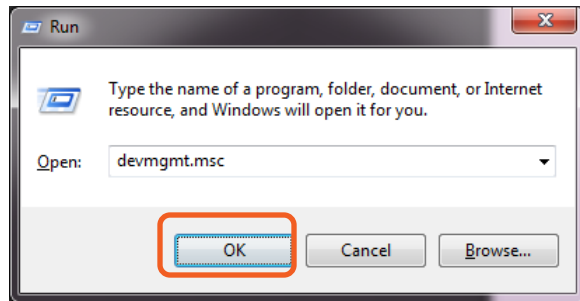
**N.B.** The driver installation can take up to a few minutes. In case you are not sure if the installation has finished, just go to the next STEP to verify the driver installation.

# INSTALL HARDWARE & SOFTWARE (2/8)

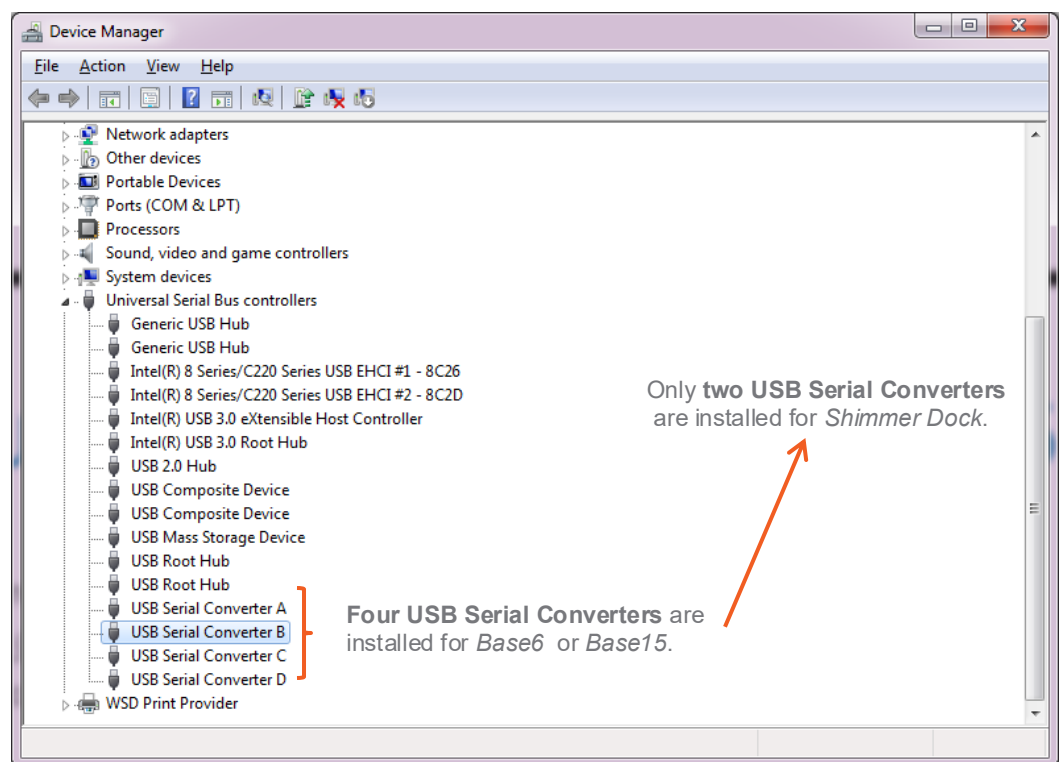
## STEP 6 – Verify driver installation:

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

**A**



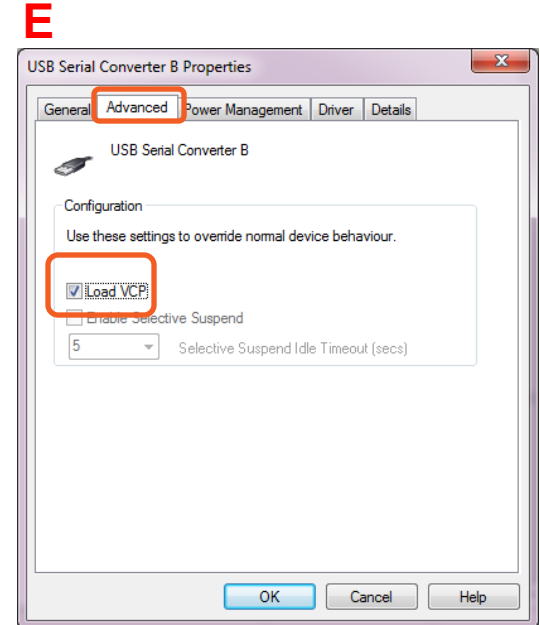
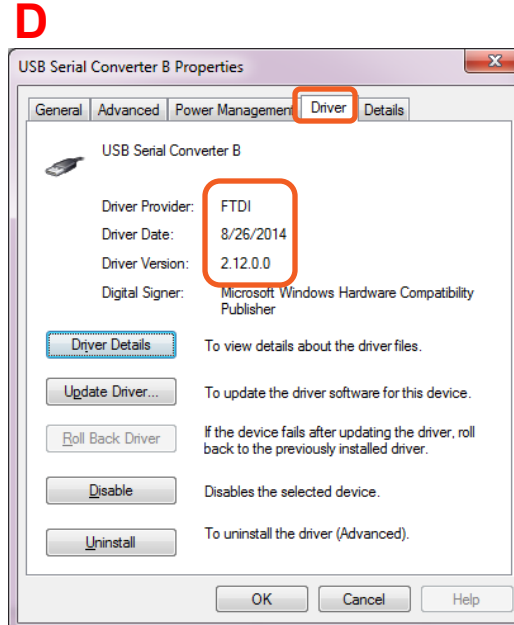
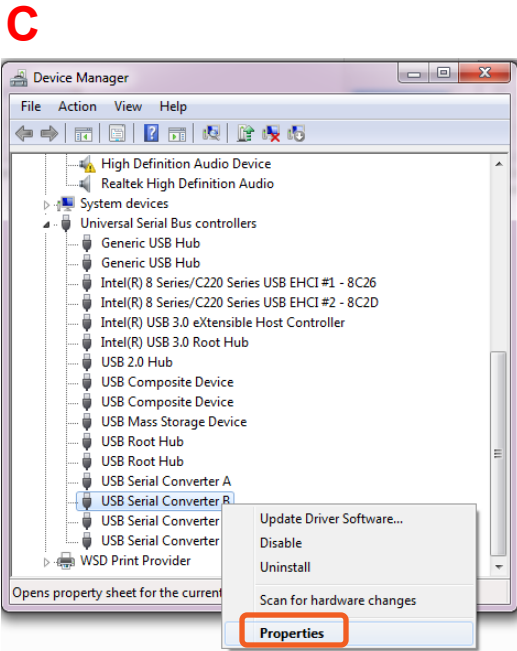
**B**



# 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**

Currently Supported VCP Drivers:

| Operating System        | Release Date | Processor Architecture   |                         |                        |                          |                          |                          |                          | Comments                                                                                                                                     |
|-------------------------|--------------|--------------------------|-------------------------|------------------------|--------------------------|--------------------------|--------------------------|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
|                         |              | x86 (32-bit)             | x64 (64-bit)            | PPC                    | ARM                      | MIPSII                   | MIPSIV                   | SH4                      |                                                                                                                                              |
| Windows*                | 2015-07-28   | <a href="#">2.12.06</a>  | <a href="#">2.12.06</a> | -                      | -                        | -                        | -                        | -                        | 2.12.06 WHQL Certified<br>Available as <a href="#">setup executable</a><br><a href="#">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<br>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> |                          |                          |                          |                                                                                                                                              |

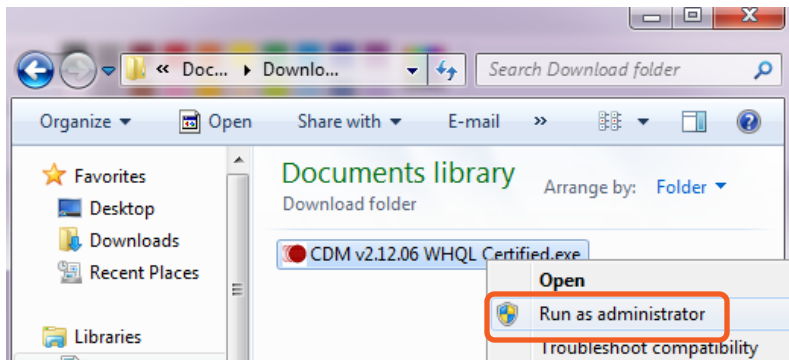
**B**

# INSTALL HARDWARE & SOFTWARE (5/8)

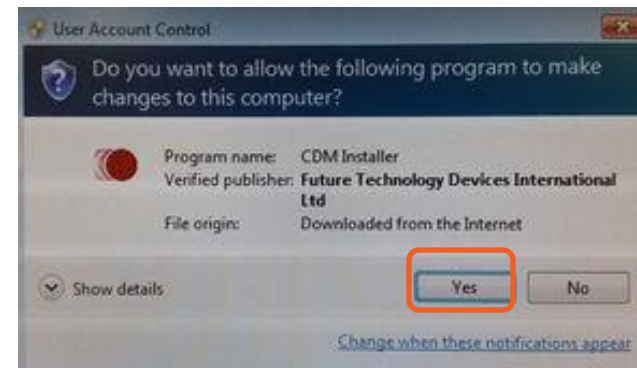
STEP 8 – Manual Driver installation:

Right-click the downloaded file;

“Run as administrator”:



Press “Yes” if this screen is shown:

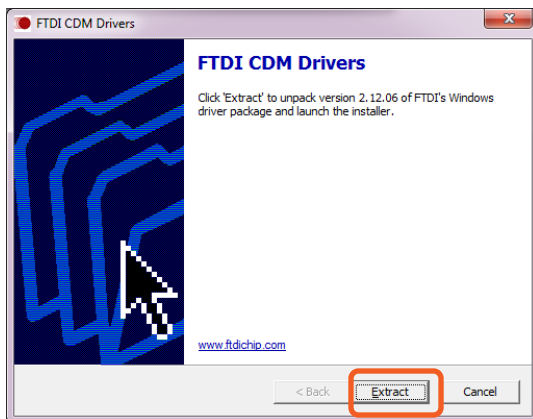


**N.B.** If a security warning pops up, click “Run”.

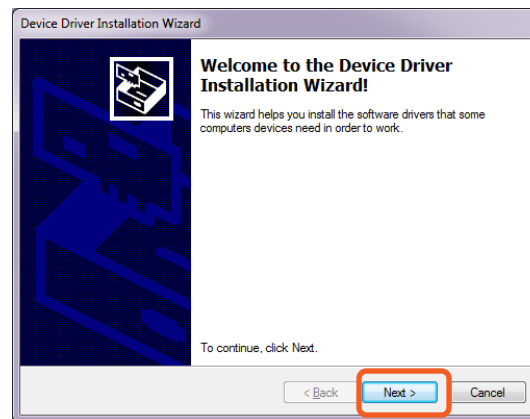
# INSTALL HARDWARE & SOFTWARE (6/8)

STEP 8 – Manual Driver installation - continued:

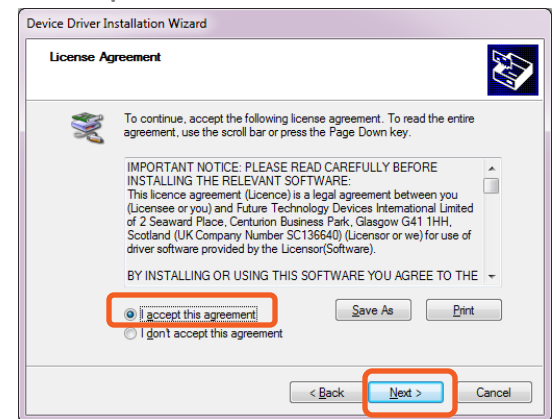
Click “Extract”:



Click “Next”:



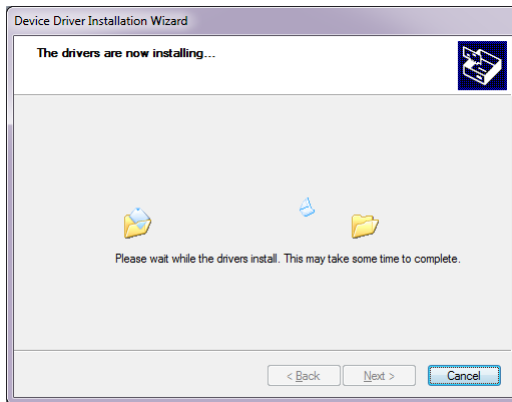
Accept and click “Next”:



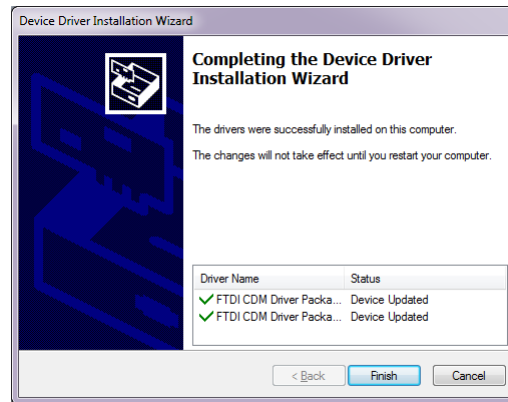
# INSTALL HARDWARE & SOFTWARE (7/8)

STEP 8 – Manual Driver installation - continued:

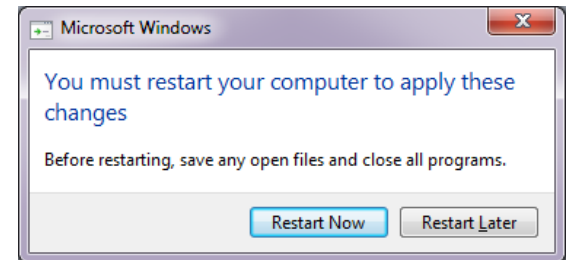
Drivers are installing:



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).

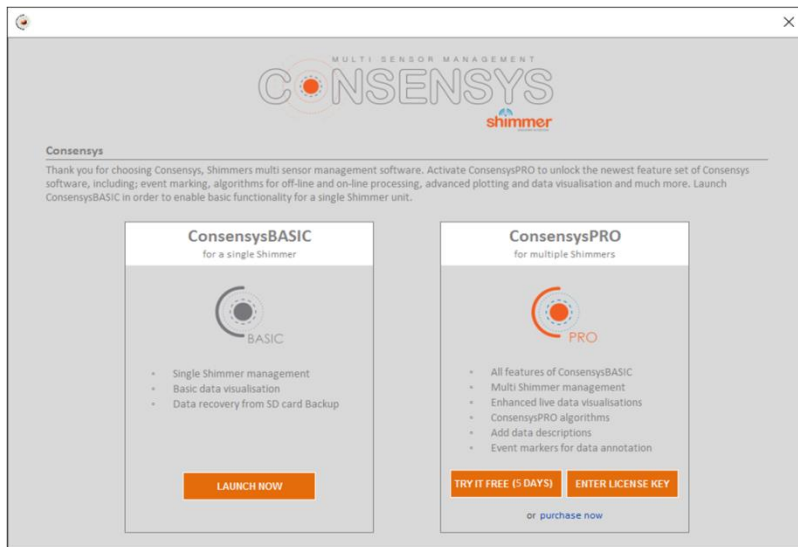
**Floating:** Floating licensing authorizes the use of ConsensysPRO with the given number of activations. The number of concurrent activations is tracked, and the total number of running sessions of the licensed application at any time is limited by the maximum allowed activations in the floating licenses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

**Trial:** You can try ConsensysPRO free of charge for a 5 day period after which you must purchase a license to continue to use ConsensysPRO or use ConsensysBASIC.

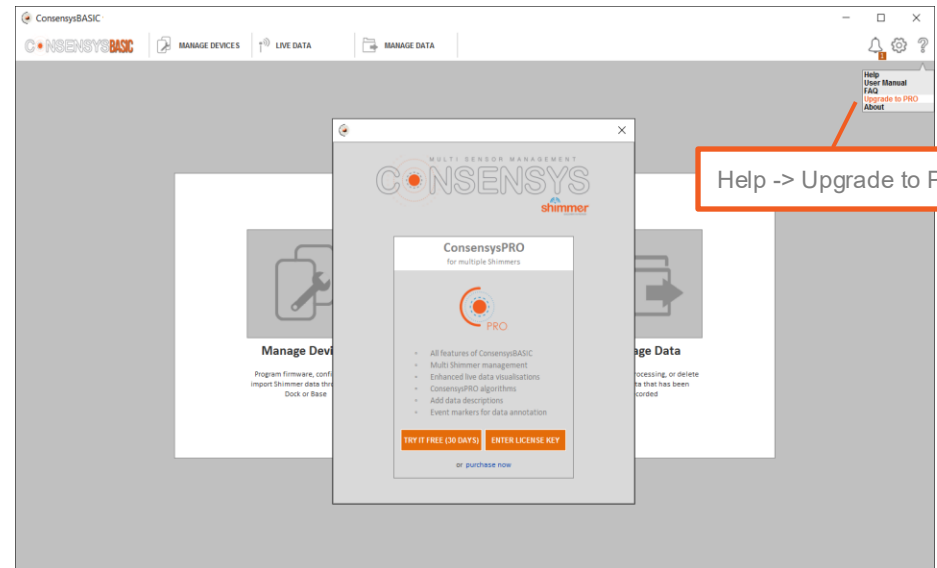
# LICENSING - ACTIVATION (2/3)

**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 5 day period or you can purchase a license by visiting <http://www.shimmersensing.com/menu/products/consensys>

# LICENSING - MANAGEMENT (3/3)

ConsensysPRO v0.4.6

MANAGE DEVICES | LIVE DATA | MANAGE DATA

Help User Manual FAQ Manage Licences About

**Manage Activations**

MULTI SENSOR MANAGEMENT  
**CONSENSYS**  
shimmer

**Manage Activations**

Review the license's details on the left and managing existing licensee activations on the right. You can only deactivate a license if it's assigned to this PC. To deactivate a license, select 'Deactivate' for the activation name you want to deactivate.

**License Details**

|                        |                                 |   |
|------------------------|---------------------------------|---|
| Customer:              | Ruaidhri                        | ⓘ |
| License Model:         | Subscription and Floating       | ⓘ |
| License Expiry:        | 2017/08/02 (363 days remaining) | ⓘ |
| Activations Purchased: | 2                               | ⓘ |
| Activations Active:    | 1                               | ⓘ |

**Licensee Activations**

| Name    | Action                     | Status | This PC |
|---------|----------------------------|--------|---------|
| rmolloy | <a href="#">Deactivate</a> | ✓      | ✓       |

DONE

License details

Licensee details

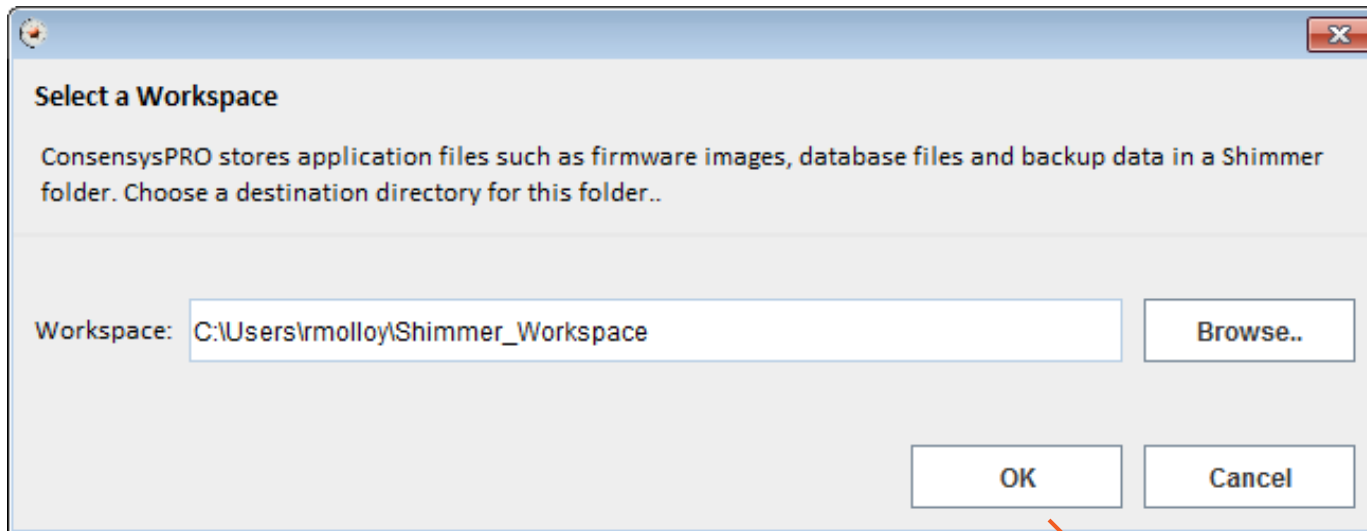
Help -> Manage Licenses

You can deactivate an activation for ConsensysPRO to free up an activation for another computer

**N.B.** You can only deactivate the license for the computer you are working on!

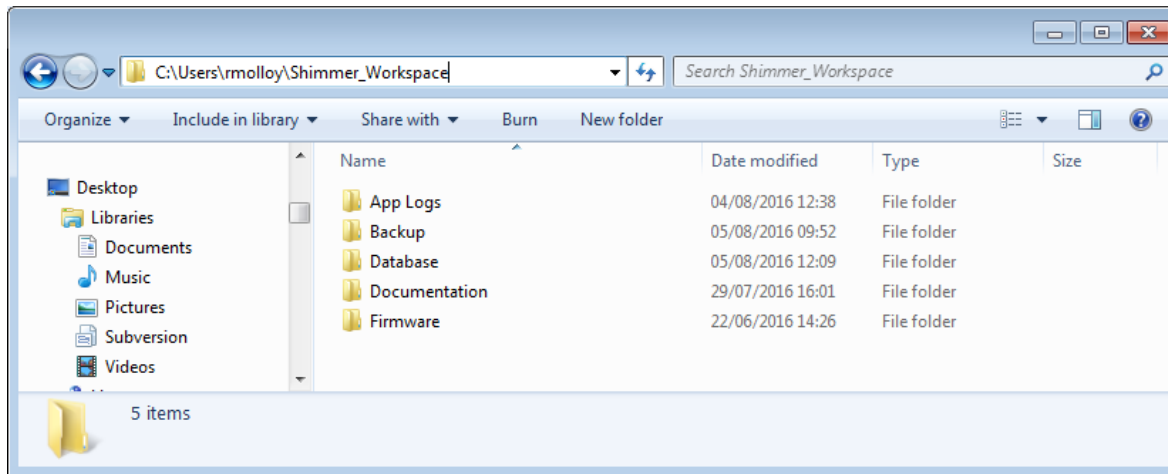
# CONSENSYS WORKSPACE (1/3)

**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.



Press OK to create the workspace in the default, recommended directory

# CONSENSYS WORKSPACE (2/3)



**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 and Shimmer3R firmware files which can be programmed onto Shimmers in Consensys software.

# CONSENSYS WORKSPACE (3/3)

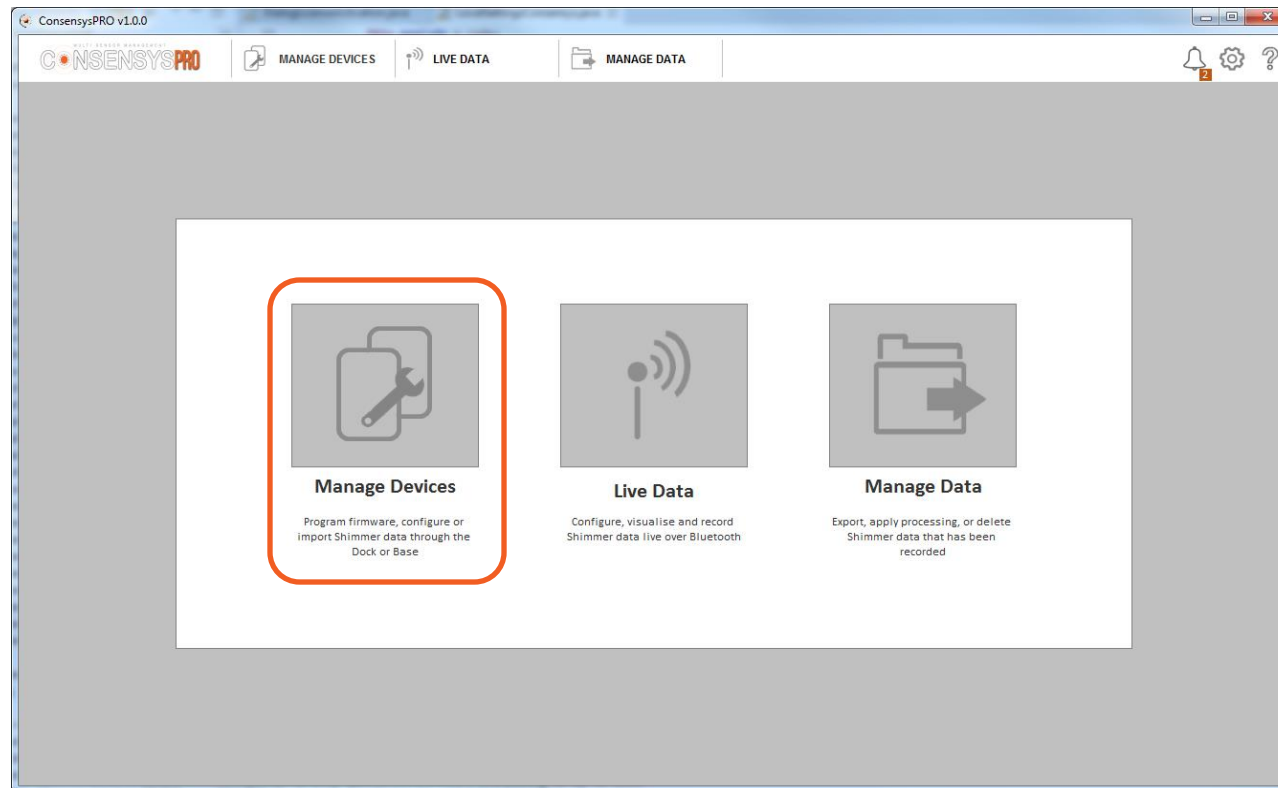
**Default Trial:** When using Verisense/Wrist Sensor (*experimental*), this folder is created as part of syncing and parsing the device. The binary file and parsed file (e.g. csv) can be found within the folder structure.

| > > Shimmer_Workspace > DefaultTrial > DefaultParticipant > B799 |                  |             |      |  |
|------------------------------------------------------------------|------------------|-------------|------|--|
| Name                                                             | Date modified    | Type        | Size |  |
| BinaryFiles                                                      | 4/9/2025 2:25 PM | File folder |      |  |
| ParsedFiles                                                      | 4/9/2025 2:25 PM | File folder |      |  |

# 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.

The screenshot displays the ConsensysPRO v1.0.5 software interface. The top navigation bar includes 'MANAGE DEVICES', 'LIVE DATA', and 'MANAGE DATA' tabs. The main content area is divided into two sections: 'AVAILABLE SHIMMERS' and 'HARDWARE VISUALISATION (6/6)'. The 'AVAILABLE SHIMMERS' section contains a table with columns for LOCATION, BT RADIO ID, EXPANSION, FIRMWARE, SD CARD, TIME, and BATTERY. The 'HARDWARE VISUALISATION' section shows a 3D model of the Base6U.01 device with six Shimmer modules, each with a green checkmark indicating successful firmware installation. A red box highlights the 'FIRMWARE' button at the bottom of the interface.

| LOCATION     | BT RADIO ID | EXPANSION         | FIRMWARE      | SD CARD             | TIME                | BATTERY |
|--------------|-------------|-------------------|---------------|---------------------|---------------------|---------|
| Base6U.01.01 | 964A        | GSR+              | SDLog v0.14.0 | 809.22 MB / 1.84 GB | 2017/05/08 09:40:04 | 100.0%  |
| Base6U.01.02 | 2C02        | ECG/EMG           | SDLog v0.14.0 | 2.00 MB / 1.83 GB   | 2017/05/08 09:40:06 | 99.7%   |
| Base6U.01.03 | E806        | None              | SDLog v0.14.0 | 0.25 MB / 7.39 GB   | 2017/05/08 09:39:48 | 75.8%   |
| Base6U.01.04 | 85CB        | Bridge Amplifier+ | SDLog v0.14.0 | 1.76 GB / 1.84 GB   | 2017/05/08 09:35:39 | 100.0%  |
| Base6U.01.05 | B8A0        | None              | SDLog v0.14.0 | 3.59 MB / 7.39 GB   | 2017/05/08 09:36:27 | 100.0%  |
| Base6U.01.06 | 36AD        | None              | SDLog v0.14.0 | 2.13 MB / 7.39 GB   | 2017/05/08 09:37:15 | 98.1%   |

Shimmer(s) with firmware highlighted in red text indicates that a newer version of that firmware is available

Base6U.01

shimmer

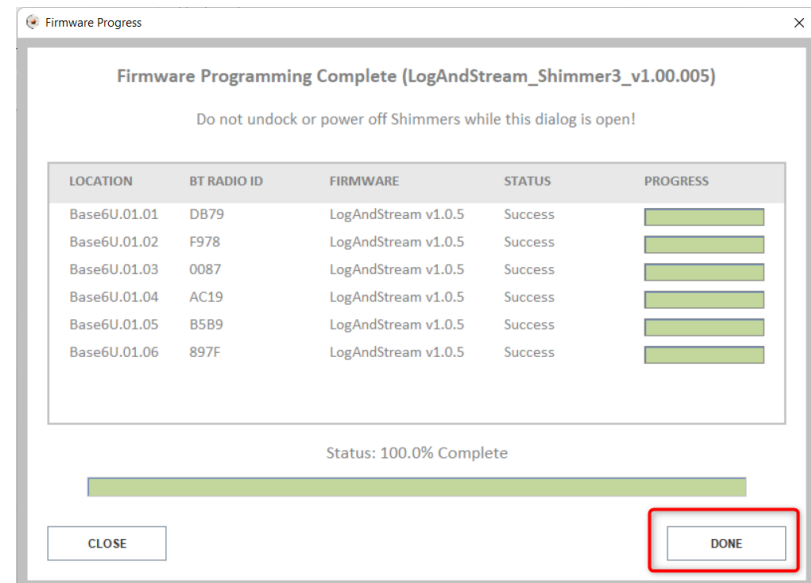
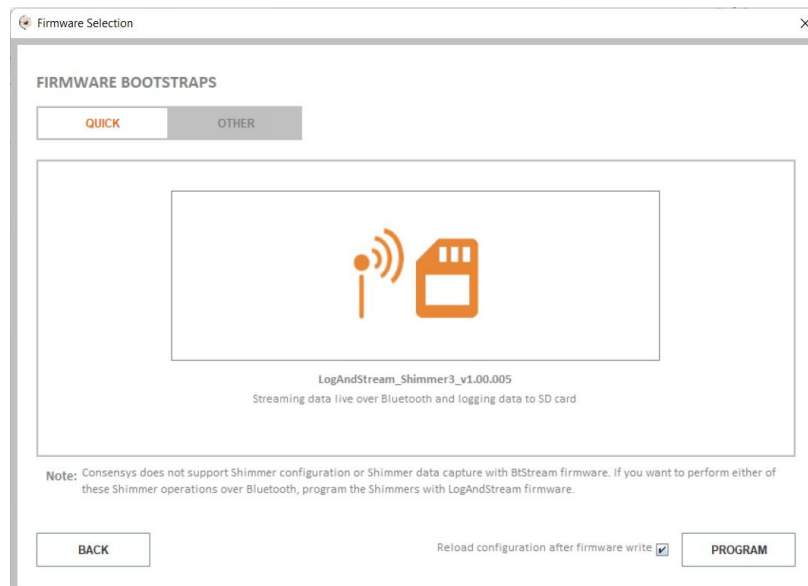
Docked Unknown Pending

FIRMWARE CONFIGURE IMPORT

# PROGRAM FIRMWARE (3/3)

STEP 6 – Program the Shimmer.

Select firmware file 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 *LogAndStream* firmware – see [Program Firmware](#).

**N.B.** In the Logging section of this guide recording option SD Log with Inter-device Sync is used. This option allows for synchronisation between multiple Shimmers when logging to the SD card.

# LOGGING – CONFIGURE TRIAL (1/8)

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

ConsensysPRO v2.0.10 - 64bit

MANAGE DEVICES LIVE DATA MANAGE DATA

AVAILABLE SHIMMERS (SELECT SHIMMERS FROM THE TABLE OR THE HARDWARE VISUALISATION)

| LOCATION                            | BT RADIO ID      | MODEL | EXPANSION    | FIRMWARE | SD CARD           | TIME                | BATTERY |
|-------------------------------------|------------------|-------|--------------|----------|-------------------|---------------------|---------|
| <input checked="" type="checkbox"/> | ase6U.01.06 AC1C | 3     | IMU          | v1.0.3   | 5.06 MB / 7.38 GB | 2025/08/06 15:02:20 | 79.1%   |
| <input checked="" type="checkbox"/> | ase6U.01.05 3E36 | 3     | GSR+         | v1.0.3   | 1.39 MB / 7.38 GB | 2025/08/06 15:02:17 | 100.0%  |
| <input checked="" type="checkbox"/> | ase6U.01.04 A358 | 3     | 200g Accel   | v1.0.3   | 0.79 MB / 7.38 GB | 2025/08/06 15:02:39 | 88.2%   |
| <input checked="" type="checkbox"/> | ase6U.01.03 68D0 | 3     | ECG/EMG/Resp | v1.0.3   | 1.86 MB / 7.38 GB | 2025/08/06 15:02:37 | 100.0%  |
| <input checked="" type="checkbox"/> | ase6U.01.02 BE92 | 3     | ECG/EMG/Resp | v1.0.3   | 1.05 MB / 7.38 GB | 2025/08/06 15:02:34 | 84.7%   |
| <input checked="" type="checkbox"/> | ase6U.01.01 813F | 3     | GSR+         | v1.0.3   | 0.52 MB / 7.38 GB | 2025/08/06 15:02:32 | 100.0%  |

Shimmer(s) with firmware highlighted in red text indicates that a newer version of that firmware is available.

HARDWARE VISUALISATION (6/6)

Base6U.01

shimmer

Docked Unknown Pending

CLEAR SD FIRMWARE CONFIGURE IMPORT

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

# LOGGING – CONFIGURE TRIAL (2/8)

## STEP 2 – Set Trial Details:

- A. Choose a Trial Name, Select SD Log with Inter-device Sync, Set Auto Stop (Mins) to zero if you do not have a trial duration

The screenshot shows the 'Configure Trial' screen in the Shimmer PRO software. The interface is divided into several sections:

- Top Bar:** Includes 'MANAGE DEVICES', 'LIVE DATA', and 'MANAGE DATA' tabs. The status bar shows 'ConsensysPRO v2.0.10 - 64bit'.
- Trial Configuration:** A section with a red border containing:
  - TRIAL NAME:** 'DefaultTrial' (with a dropdown arrow).
  - AUTO STOP (MINS):** '0' (with a dropdown arrow).
  - Recording Options:** Three icons: 'SD Log end/or Bluetooth Stream', 'SD Log Recording Only', and 'SD Log with Inter-device Sync' (selected).
  - Start/Stop Logging Method:** Two icons: 'User Button' and 'Unlock/Dock'.
- AVAILABLE SHIMMERS:** A table listing available devices. The first row is highlighted in orange.
- Sensors:** A grid of sensor configuration cards for 'Low-Noise Accelerometer', 'Wide-Range Accelerometer', 'Gyroscope', 'Magnetometer', 'Pressure & Temperature', 'Battery Voltage', 'External Expansion ADCs', 'Internal Expansion ADCs', and 'GSR'.
- Buttons:** 'BACK' and 'WRITE CONF...' buttons at the bottom.

| LOCATION     | BT RADIO ID | EXPANSION    | SHIMMER NAME |
|--------------|-------------|--------------|--------------|
| Base6U.01.01 | 813F        | GSR+         | Shimmer_813F |
| Base6U.01.02 | BE92        | ECG/EMG/Resp | Shimmer_BE92 |
| Base6U.01.03 | 68D0        | ECG/EMG/Resp | Shimmer_68D0 |
| Base6U.01.04 | A358        | 200g Accel   | Shimmer_A358 |
| Base6U.01.05 | 3E36        | GSR+         | Shimmer_3E36 |
| Base6U.01.06 | AC1C        | IMU          | Shimmer_AC1C |

# LOGGING – CONFIGURE TRIAL (3/8)

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

- A. Choose to start and stop logging with the User Button or by undocking/docking – User Button is used in this guide.

**N.B.** Log for at least one minute to ensure a data file is created.

ConsenSysPRO v2.0.10 - 64bit

MANAGE DEVICES | LIVE DATA | MANAGE DATA

TRIAL NAME: DefaultTrial | AUTO STOP (MINS): 0 | SHIMMER NAME: Shimmer\_813F | SAMPLING RATE (Hz): 51.20

Recording Options: SD Log and/or Bluetooth Stream, SD Log Recording Only, SD Log with Inter-device Sync

Start/Stop Logging Method: User Button, Undock/Dock

AVAILABLE SHIMMERS

| LOCATION     | BT RADIO ID | EXPANSION    | SHIMMER NAME |
|--------------|-------------|--------------|--------------|
| Base6U.01.01 | 813F        | GSR+         | Shimmer_813F |
| Base6U.01.02 | BE82        | ECG/EMG/Resp | Shimmer_BE82 |
| Base6U.01.03 | 68D0        | ECG/EMG/Resp | Shimmer_68D0 |
| Base6U.01.04 | A358        | 200g Accel   | Shimmer_A358 |
| Base6U.01.05 | 3E36        | GSR+         | Shimmer_3E36 |
| Base6U.01.06 | AC1C        | IMU          | Shimmer_AC1C |

SENSORS: Low-Noise Accelerometer, Wide-Range Accelerometer, Gyroscope, Magnetometer, Pressure & Temperature, Battery Voltage, External Expansion ADCs, Internal Expansion ADCs, GSR, GSR+, PPG

BACK | WRITE CONF...

# LOGGING – CONFIGURE TRIAL (4/8)

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

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

ConsenSysPRO v2.0.10 - 64bit

MANAGE DEVICES | LIVE DATA | MANAGE DATA

TRIAL NAME: DefaultTrial | AUTO STOP (MINS): 0 | SHIMMER NAME: Shimmer\_813F | SAMPLING RATE: 51.20

**A** **B**

**C**

**Recording Options**

- SD Log and/or Bluetooth Stream
- SD Log Recording Only
- SD Log with Inter-device Sync

Mode: Short (<3h)

**Start/Stop Logging Method**

- User Button
- Unlock/Dock

All config options above apply to each of the Shimmers listed in the table below

**AVAILABLE SHIMMERS** | Copy Configuration | Set Master

| LOCATION     | BT RADIO ID | EXPANSION    | SHIMMER NAME |
|--------------|-------------|--------------|--------------|
| Base6U.01.01 | 813F        | GSR+         | Shimmer_813F |
| Base6U.01.02 | BE82        | ECG/EMG/Resp | Shimmer_BE82 |
| Base6U.01.03 | 68D0        | ECG/EMG/Resp | Shimmer_68D0 |
| Base6U.01.04 | A358        | 200g Accel   | Shimmer_A358 |
| Base6U.01.05 | 3E36        | GSR+         | Shimmer_3E36 |
| Base6U.01.06 | AC1C        | IMU          | Shimmer_AC1C |

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

**SENSORS** | ALGORITHMS | CALIBRATION

- Low Noise Accelerometer
- Wide Range Accelerometer
- Gyroscope
- Magnetometer
- Pressure & Temperature
- Battery Voltage
- External Expansion ADCs
- Internal Expansion ADCs
- GSR | GSR+ | PPG

Range: ± 2g | Range: ± 500gps | Range: ± 0.1500a | Resolution: Low | Range: Auto Range | Channel: IIR A13

BACK | WRITE CONF...

# 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)

ConsensysPRO v2.0.10 - 64bit

MANAGE DEVICES | LIVE DATA | MANAGE DATA

TRIAL NAME: DefaultTrial | AUTO STOP (MINS): 0 | SHIMMER NAME: Shimmer\_813F | SAMPLING RATE (Hz): 51.20

Recording Options: SD Log and/or Bluetooth Stream, SD Log Recording Only, SD Log with Inter-device Sync (Mode: Short (c1hr))

Start/Stop Logging Method: User Button, Undock/Dock

Available Shimmers:

| LOCATION     | BT RADIO ID | EXPANSION    | SHIMMER NAME |
|--------------|-------------|--------------|--------------|
| BaseGU.01.01 | 813F        | GSR+         | Shimmer_813F |
| BaseGU.01.02 | BE92        | ECG/EMG/Resp | Shimmer_BE92 |
| BaseGU.01.03 | 68DD        | ECG/EMG/Resp | Shimmer_68DD |
| BaseGU.01.04 | A358        | 200g Accel   | Shimmer_A358 |
| BaseGU.01.05 | 3E36        | GSR+         | Shimmer_3E36 |
| BaseGU.01.06 | AC1C        | IMU          | Shimmer_AC1C |

Algorithms:

- Gyro on-the-fly Calibration (Threshold(deg/s): 1.2, BufferSize: 51)
- 9DOF: Low Noise Accel, Wide Range Accel (Quaternion\_9DOF: Off, Euler\_9DOF: Off)
- 6DOF: Low Noise Accel, Wide Range Accel (Quaternion\_6DOF: Off, Euler\_6DOF: Off)
- PPG-to-HR (with IBI): PPGtoHR
- Activity
- GSR Metrics

BACK | WRITE CONF...

**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

ConsensysPRO v2.0.10 - 64bit

MANAGE DEVICES LIVE DATA MANAGE DATA

TRIAL NAME: DefaultTrial AUTO STOP (MINS): 0 SHIMMER NAME: Shimmer\_813F SAMPLING RATE (Hz): 51.20

Recording Options: SD Log and/or Bluetooth Stream, SD Log Recording Only, SD Log with Inter-device Sync

Start/Stop Logging Method: User Button, Undock/Dock

IMU Calibration Parameters Review (Click icon to reset all to default calibration)

Low-Noise Accelerometer (Range: ± 2g) Time: N/A (not set)

| Offset (bx) | Sensitivity (Kx) | Alignment (Rx) |    |
|-------------|------------------|----------------|----|
| 2253        | 931              | 0              |    |
| 2253        | 0                | 91             |    |
| 2253        | 0                | 0              | 92 |

Gyroscope (Range: ±/ 500dps) Time: N/A (not set)

| Offset (bx) | Sensitivity (Kx) | Alignment (Rx) |
|-------------|------------------|----------------|
| 0           | 65.50            | 0.00           |
| 0.00        | 65.50            | 0.00           |
| 0           | 0.00             | 65.50          |

Wide-Range Accelerometer (Range: ± 2g) Time: N/A (not set)

| Offset (bx) | Sensitivity (Kx) | Alignment (Rx) |      |
|-------------|------------------|----------------|------|
| 0           | 1671             | 0              |      |
| 0           | 0                | 1671           |      |
| 0           | 0                | 0              | 1671 |

Magnetometer (Range: ±/- 49.132Ga) Time: N/A (not set)

| Offset (bx) | Sensitivity (Kx) | Alignment (Rx) |     |
|-------------|------------------|----------------|-----|
| 0           | 667              | 0              |     |
| 0           | 0                | 667            |     |
| 0           | 0                | 0              | 667 |

Calibration Review Color Code

- Custom Calibration: The sensor is using custom calibration parameters. This custom calibration may be accurate.
- Factory Default Calibration: The sensor is using factory default calibration parameters. Consider using 9DoF calibration software for more accurate sensor output.
- Invalid Calibration: The sensor is using invalid calibration parameters. Use the 9DoF calibration software to calibrate the sensor or set to default calibration using Consensys.

IMU Calibration Formula

$$c = R \cdot c^1 - K \cdot c^1 \cdot (x \cdot c - b)$$

Vector

bx = 3x1 offset vector

AVAILABLE SHIMMERS

| LOCATION     | BT RADIO ID | EXPANSION    | SHIMMER NAME |
|--------------|-------------|--------------|--------------|
| Base6U.01.01 | 813F        | GDR+         | Shimmer_813F |
| Base6U.01.02 | BE92        | ECG/EMG/Resp | Shimmer_BE92 |
| Base6U.01.03 | 68DD        | ECG/EMG/Resp | Shimmer_68DD |
| Base6U.01.04 | A358        | 200g Accel   | Shimmer_A358 |
| Base6U.01.05 | 3E36        | GDR+         | Shimmer_3E36 |
| Base6U.01.06 | AC1C        | IMU          | Shimmer_AC1C |

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

BACK WRITE CONF...

**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.

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

ConsensysPRO v2.0.10 - 64bit

MANAGE DEVICES | LIVE DATA | MANAGE DATA

TRIAL NAME: DefaultTrial | AUTO STOP (MINS): 0 | SHIMMER NAME: Shimmer\_BE92 | SAMPLING RATE (Hz): 51.20

Recording Options: SD Log and/or Bluetooth Stream | SD Log Recording Only | SD Log with Inter-device Sync (Mode: Short (1hr))

Start/Stop Logging Method: User Button | Undock/Dock

All config options above apply to each of the Shimmers listed in the table below

AVAILABLE SHIMMERS | Copy Configuration | Set Master

| LOCATION     | BT RADIO ID | EXPANSION    | SHIMMER NAME |
|--------------|-------------|--------------|--------------|
| Base6U.01.01 | 813F        | GSR+         | Shimmer_813F |
| Base6U.01.02 | BE92        | ECG/EMG/Resp | Shimmer_BE92 |
| Base6U.01.03 | 68DD        | ECG/EMG/Resp | Shimmer_68DD |
| Base6U.01.04 | A358        | 200g Accel   | Shimmer_A358 |
| Base6U.01.05 | 3E36        | GSR+         | Shimmer_3E36 |
| Base6U.01.06 | AC1C        | IMU          | Shimmer_AC1C |

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

BACK

SENSORS | ALGORITHMS | CALIBRATION

Low-Noise Accelerometer | Wide-Range Accelerometer | Gyroscope

Magnetometer | Pressure & Temperature | Battery Voltage

External Expansion ADCs: Ext A6, Ext A7, Ext A15

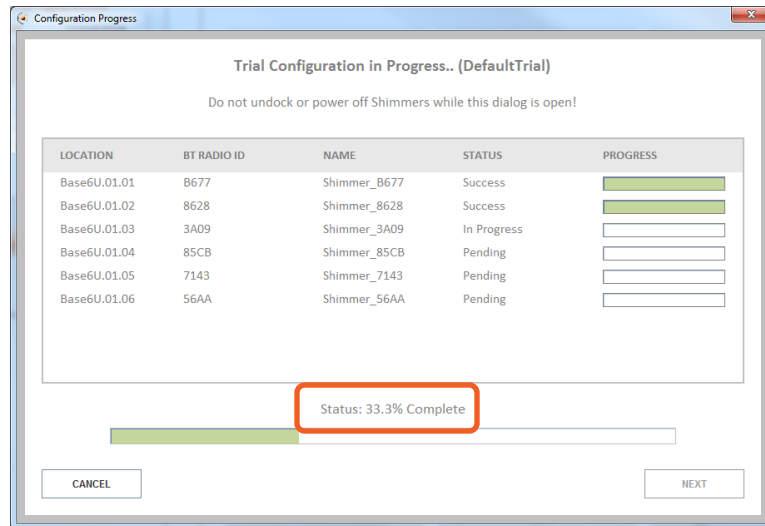
ECG/EMG: ECG, EMG, Respiration

WRITE CONF...

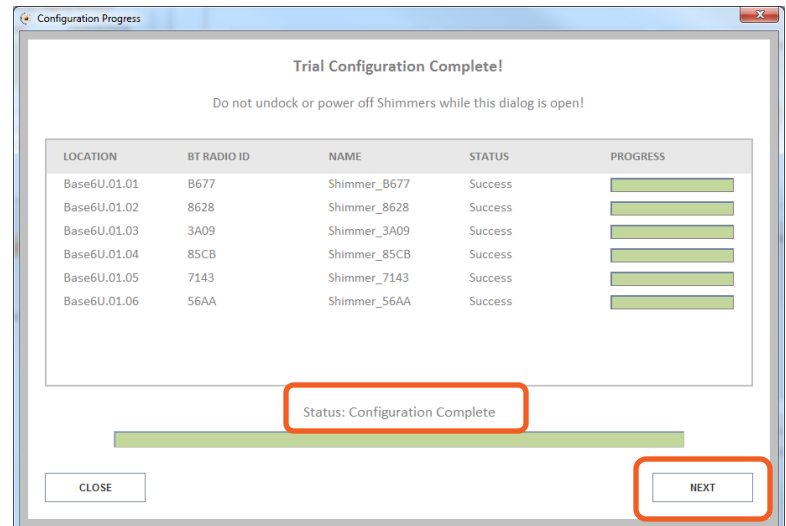
# LOGGING – CONFIGURE TRIAL (8/8)

## STEP 8 – WRITE CONFIG.

Wait until Trial Configuration is written:



Click “NEXT” to complete the configuration:



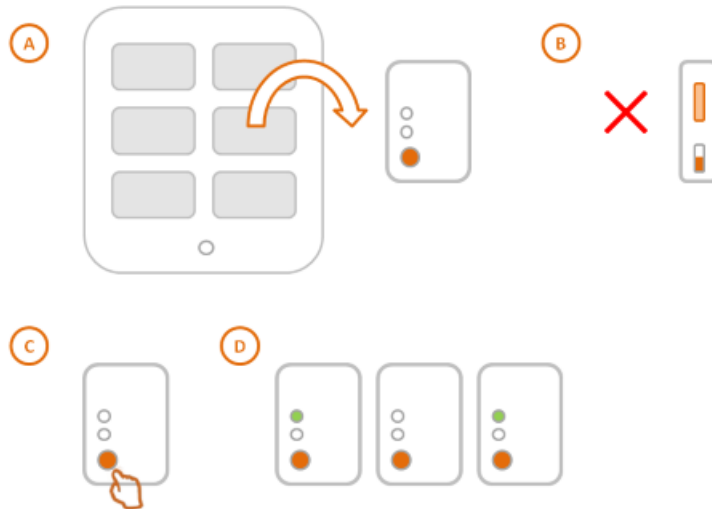
# LOGGING – CAPTURE DATA (1/2)

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)

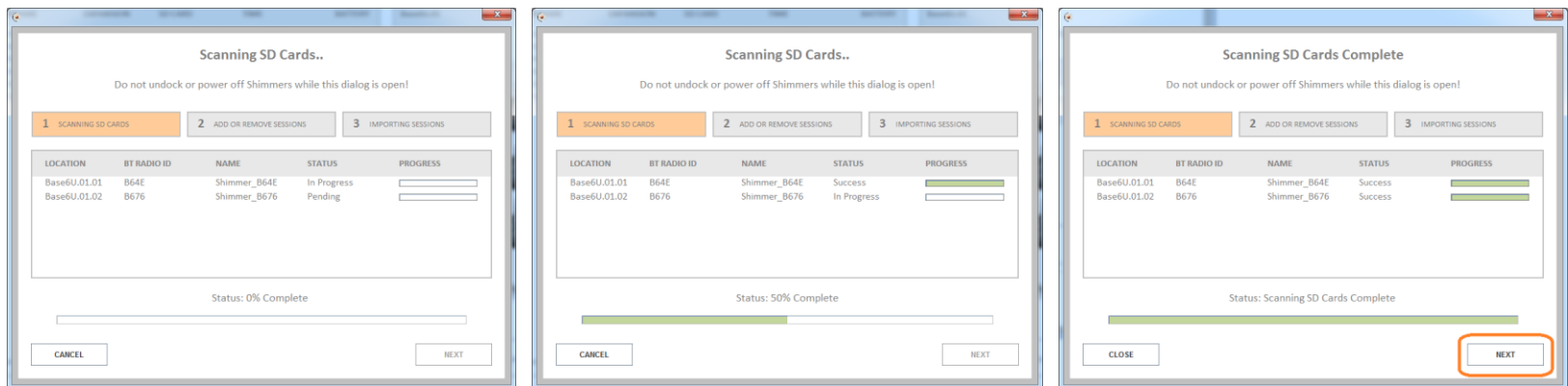
STEP 6 – The green LED will now turn on briefly once every two seconds. (B)



# LOGGING – IMPORT DATA (1/6)

## STEP 1 – Scanning SD Cards:

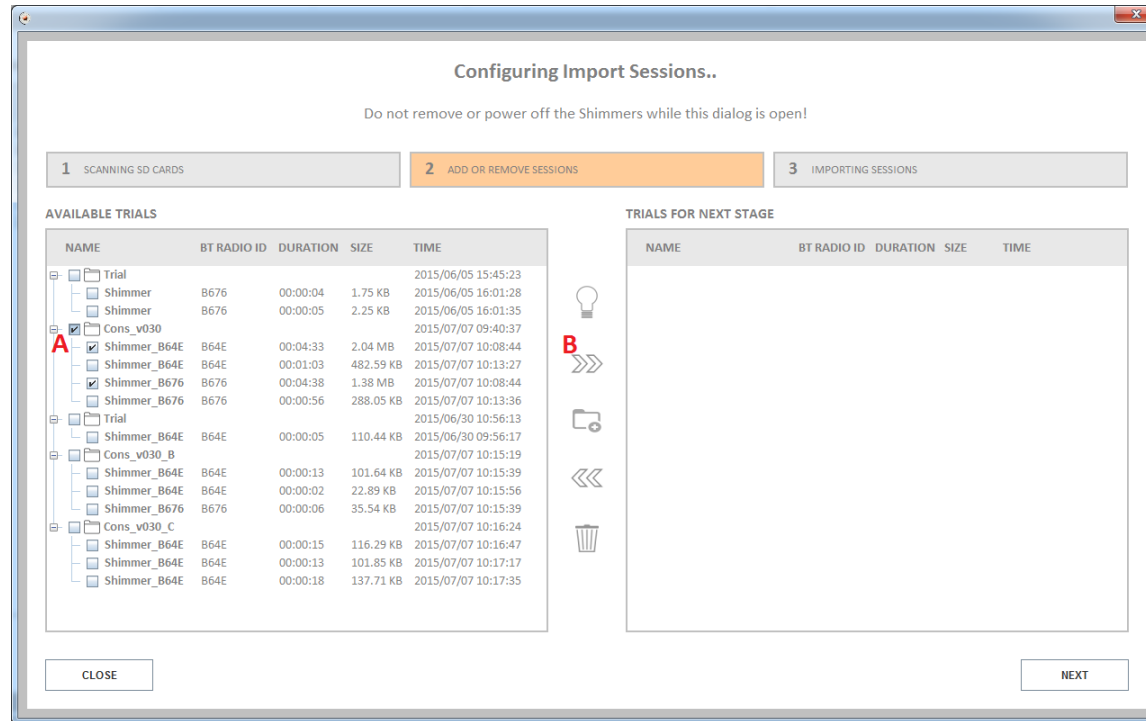
- Place the Shimmer(s) in the Base.
- Select the Shimmer(s) you want to import data from and click “IMPORT”.
- Hit “NEXT” when scanning is complete.



# LOGGING – IMPORT DATA (2/6)

## STEP 2 – Configuring Import Sessions:

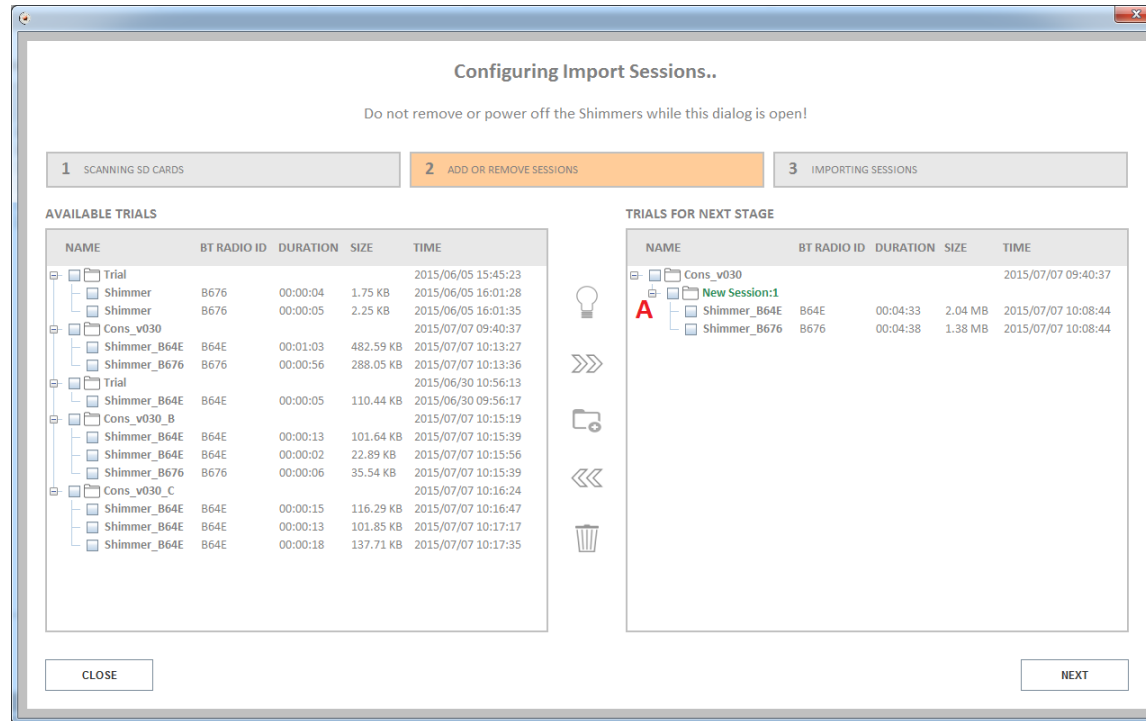
- A. Select data from one or more Shimmers.
- B. Click the button to add the data as new session to the list for the next stage.



# LOGGING – IMPORT DATA (3/6)

## STEP 2 – Configuring Import Sessions – continued:

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

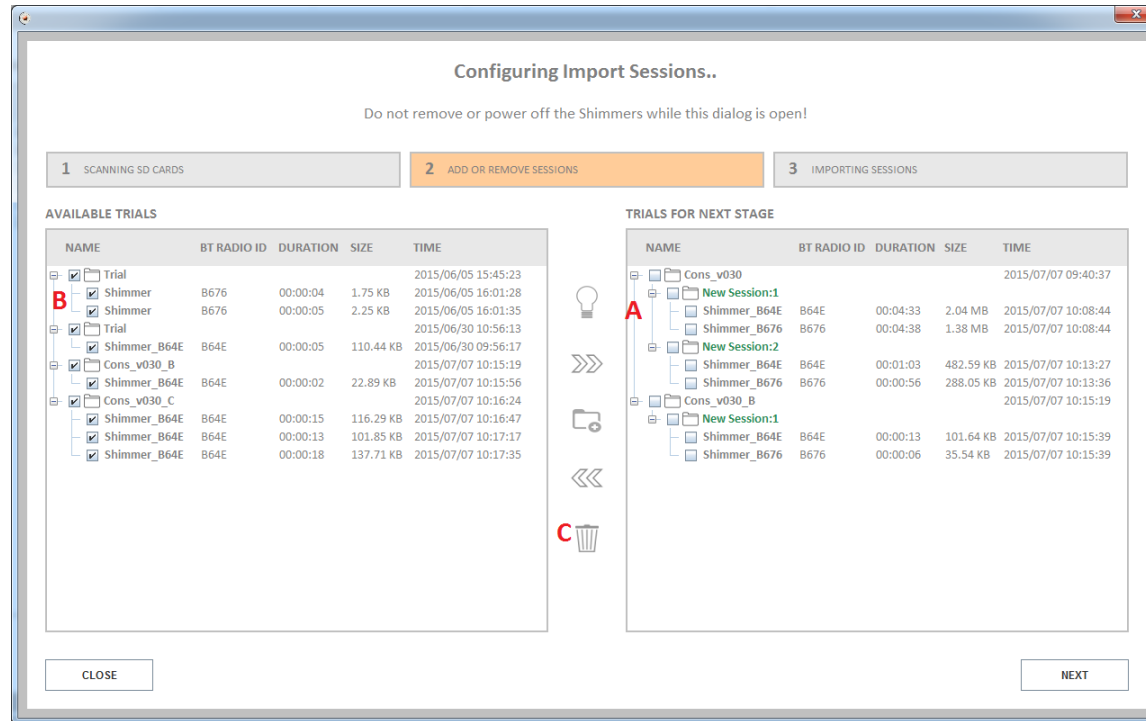




# LOGGING – IMPORT DATA (4/6)

## STEP 2 – Configuring Import Sessions – continued:

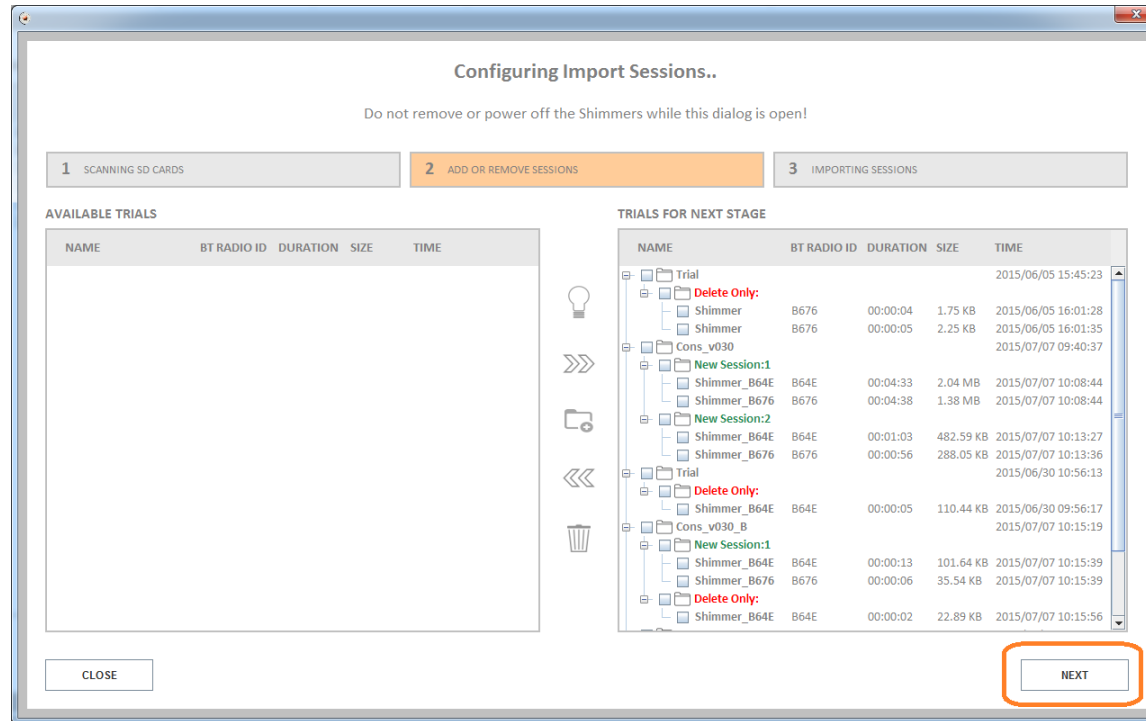
- A. In the same way data is added as “New Session:2” of trial “Cons\_v030” and “New Session:1” of “Cons\_v030\_B”.
- B. The remaining data on the SD cards of the selected Shimmers is selected.
- C. Clicking this button will mark the data selected in AVAILABLE TRIALS (B) to be deleted in the next stage.



# LOGGING – IMPORT DATA (5/6)

## STEP 2 – Configuring Import Sessions – continued:

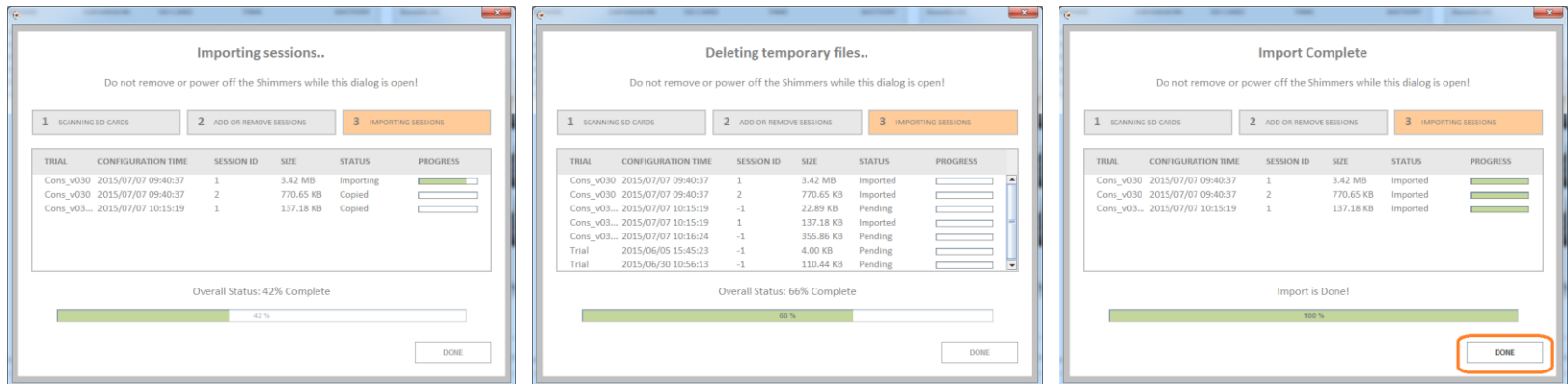
- A. Data not to be imported in the next stage is now listed to be deleted – marked “Delete Only”.
- B. Hit “NEXT” to continue to the next stage (and hit “YES” to confirm).



# 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.

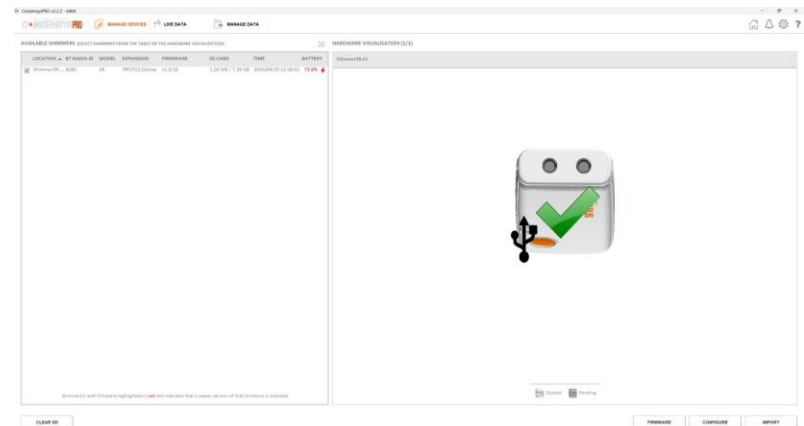
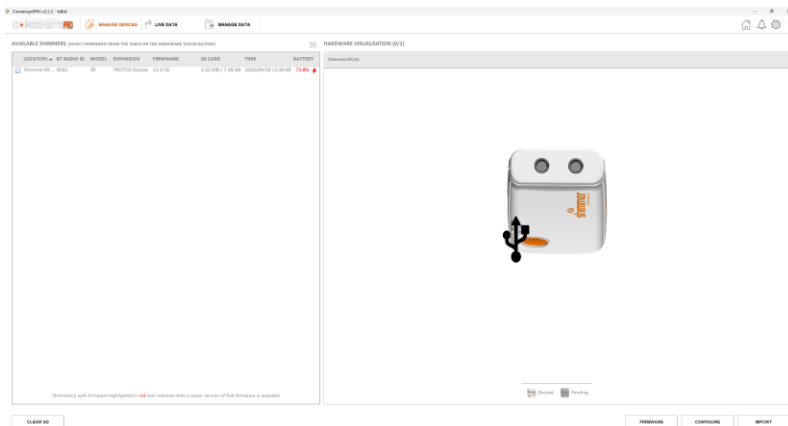
# SHIMMER3R USB-C SUPPORT

**Supported Hardware:** *Shimmer3R Units*

**Supported Firmware:** *LogAndStream >= v1.00.58*

When a Shimmer3R device is docked via USB-C, it will appear in **Manage Devices**. Select the device by clicking on its graphic. Once the device is selected, the following operations are supported over USB-C:

1. Program Firmware
2. Logging



# STREAMING

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

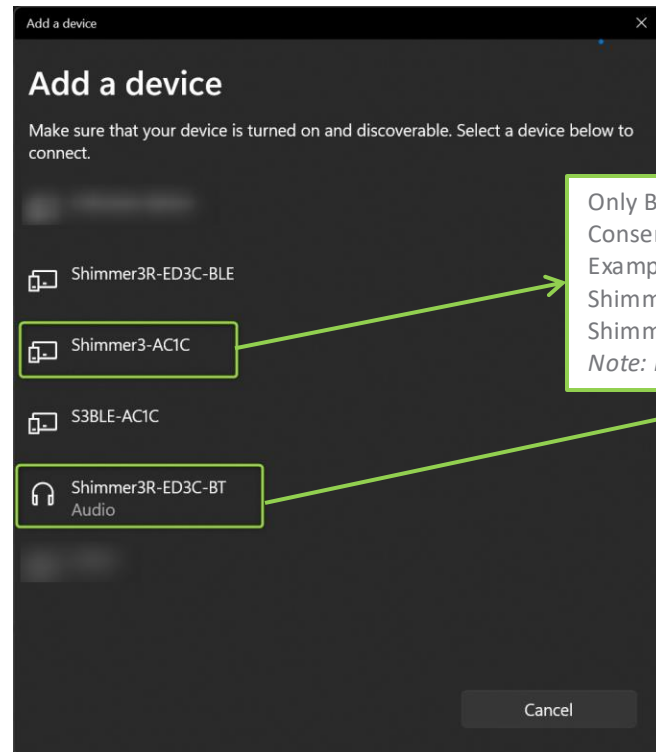
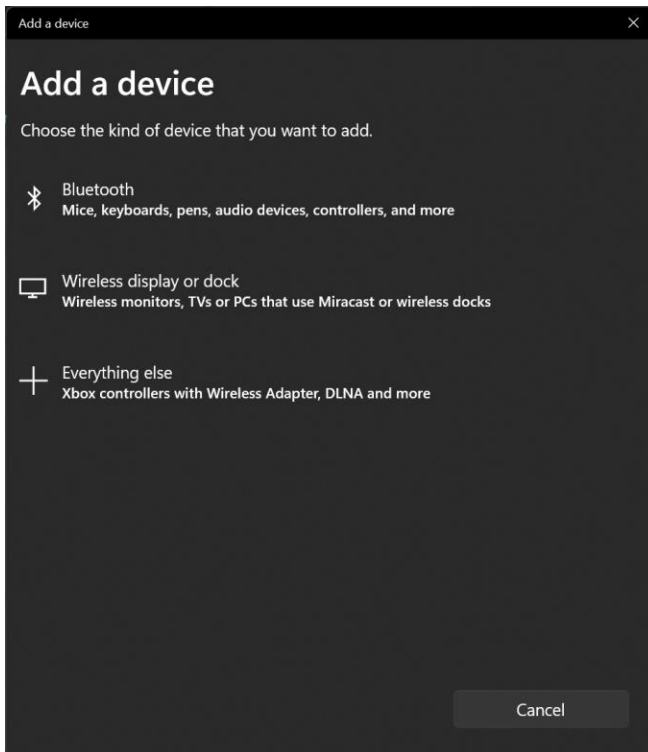
In this section:

- 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.

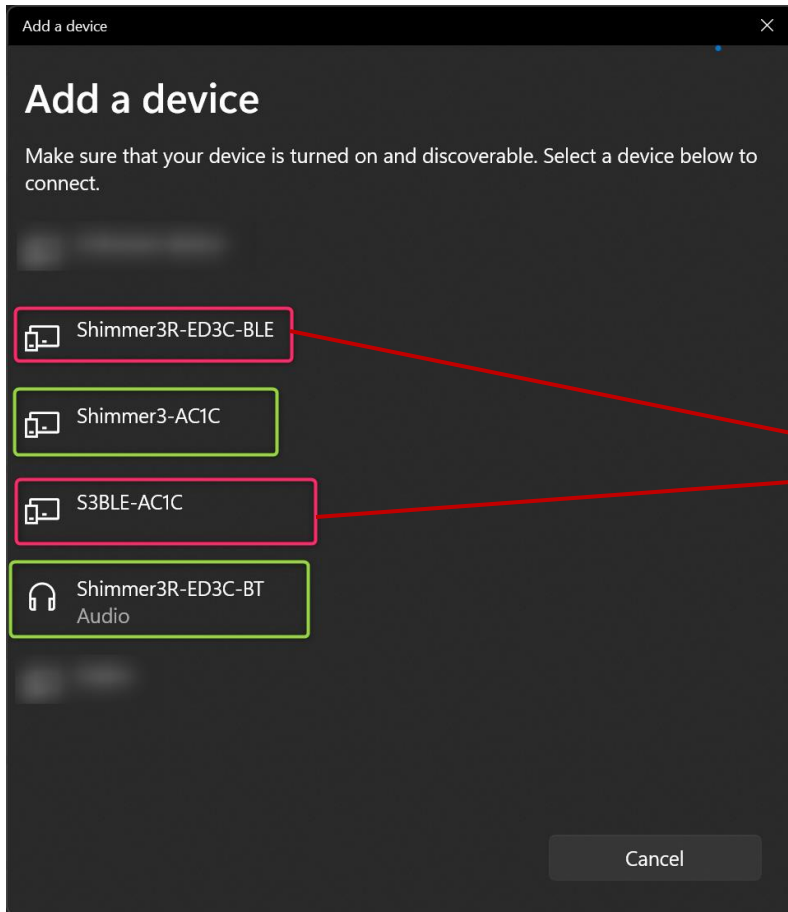
# STREAMING – PAIR SHIMMER (1/2)

Go to Windows → Settings → Bluetooth & devices → Add Device → Bluetooth



Only Bluetooth Classic is supported in Consensus (Windows)  
Example:-  
Shimmer3-XXXX  
Shimmer3R-XXXX-BT  
*Note: Pairing Key is no longer required*

# STREAMING – PAIR SHIMMER (2/2)

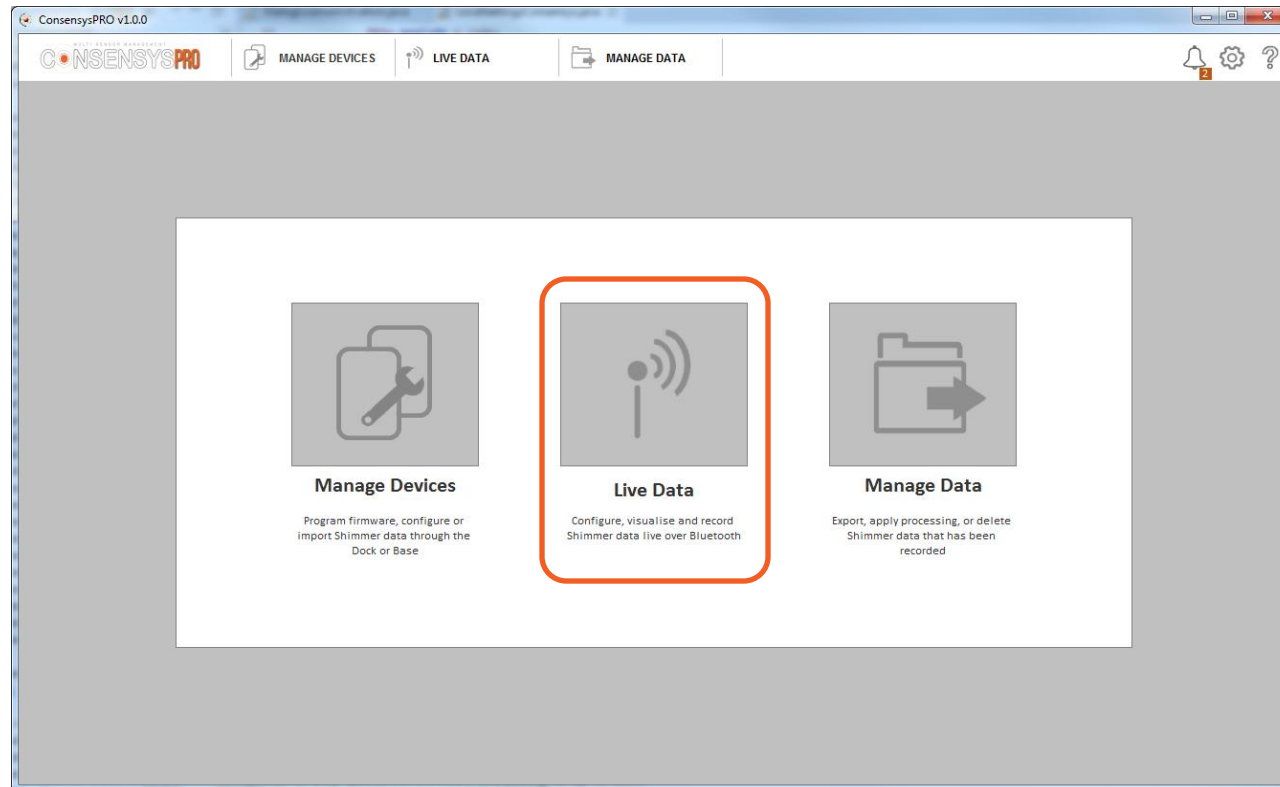


BLE (Bluetooth Low Energy) is not supported in Consensus (Windows)  
Example:-  
S3BLE-XXXX  
Shimmer3R-XXXX-BLE

If the device is paired over both BT Classic and BLE, please unpair both, and redo the BT Classic pairing, to allow the device to continually work with Consensus (Windows)

# STREAMING – CONNECT (1/5)

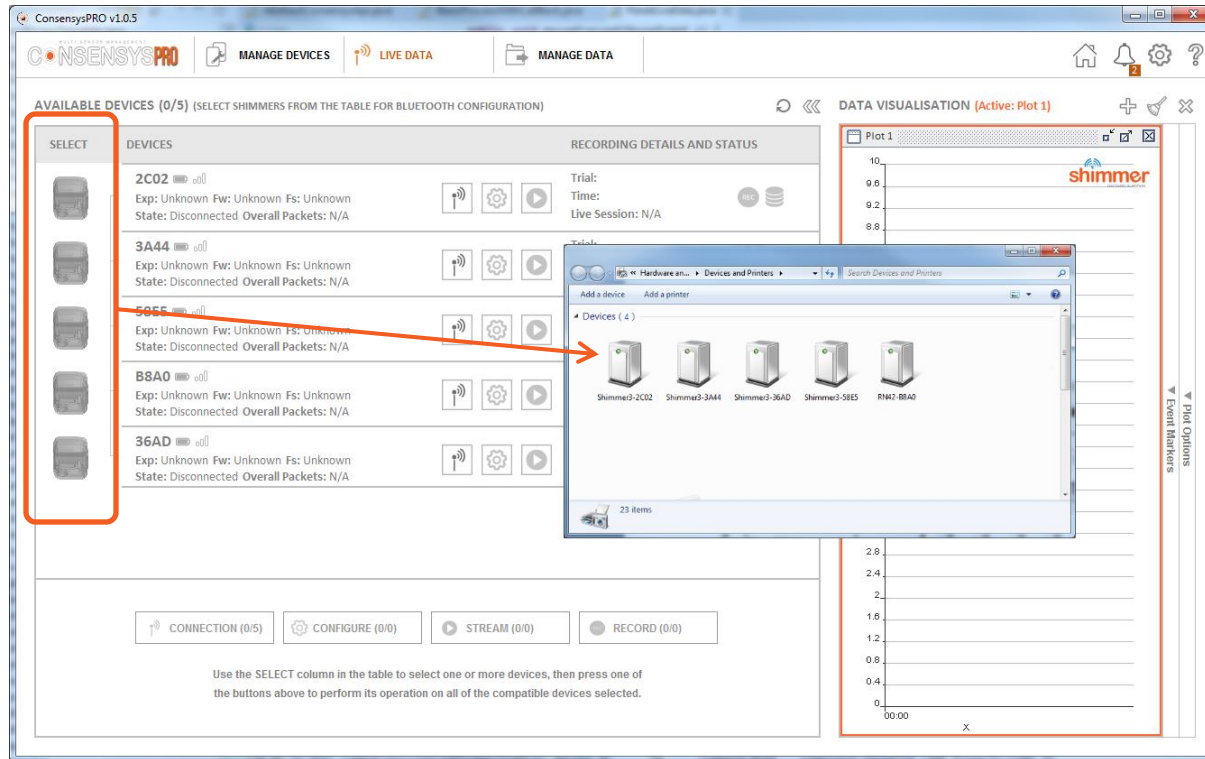
STEP 1 – Go to “LIVE DATA”:





# 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):

The screenshot displays the ConsensysPRO v1.0.5 software interface. The top navigation bar includes 'MANAGE DEVICES', 'LIVE DATA', and 'MANAGE DATA'. The main section is titled 'AVAILABLE DEVICES (0/5) (SELECT SHIMMERS FROM THE TABLE FOR BLUETOOTH CONFIGURATION)'. It contains a table with columns 'SELECT', 'DEVICES', and 'RECORDING DETAILS AND STATUS'. The table lists five Shimmer devices: 2C02, 3A44, 58E5, B8A0, and 36AD. The 36AD device is highlighted with a red box, and a red arrow points to its 'CONNECT' button (a blue square with a white signal icon). Another red box highlights the 'SELECT' column, with a red arrow pointing to the 36AD device's 'SELECT' checkbox. A third red box highlights the 'CONNECT' button, with a red arrow pointing to it. A text box at the top right states: 'Images are shown for previously connected Shimmers, with indication whether they are docked.' A text box at the bottom right states: 'Click to connect to “36AD”.' Below the table are buttons for 'CONNECTION (0/5)', 'CONFIGURE (0/0)', 'STREAM (0/0)', and 'RECORD (0/0)'. A note at the bottom reads: 'Use the SELECT column in the table to select one or more devices, then press one of the buttons above to perform its operation on all of the compatible devices selected.' On the right side, there is a 'Plot 1' graph showing a signal over time, with a 'shimmer' logo and 'Event Markers' on the right.

| SELECT                   | DEVICES                                                                                                               | RECORDING DETAILS AND STATUS                                          |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| <input type="checkbox"/> | <b>2C02 (Shimmer_2C02)</b><br>Exp: ECG/EMG Fw: v0.7.10 Fs: 51.2Hz<br>State: Disconnected Overall Packets: N/A         | Trial: DefaultTrial<br>Time: 2017/05/05 15:43:08<br>Live Session: N/A |
| <input type="checkbox"/> | <b>3A44</b><br>Exp: Unknown Fw: Unknown Fs: Unknown<br>State: Disconnected Overall Packets: N/A                       | Trial:<br>Time:<br>Live Session: N/A                                  |
| <input type="checkbox"/> | <b>58E5 (Shimmer_58E5)</b><br>Exp: PROTO3 Deluxe Fw: v0.7.10 Fs: 1024.0Hz<br>State: Disconnected Overall Packets: N/A | Trial: PC_Record<br>Time: 2017/05/04 15:35:20<br>Live Session: N/A    |
| <input type="checkbox"/> | <b>B8A0 (Shimmer_B8A0)</b><br>Exp: None Fw: v0.7.10 Fs: 51.2Hz<br>State: Disconnected Overall Packets: N/A            | Trial: DefaultTrial<br>Time: 2017/05/05 15:43:08<br>Live Session: N/A |
| <input type="checkbox"/> | <b>36AD (Shimmer_36AD)</b><br>Exp: None Fw: v0.7.10 Fs: 51.2Hz<br>State: Connecting Overall Packets: N/A              | Trial: DefaultTrial<br>Time: 2017/05/05 15:43:08<br>Live Session: N/A |

CONNECTION (0/5) CONFIGURE (0/0) STREAM (0/0) RECORD (0/0)

Use the SELECT column in the table to select one or more devices, then press one of the buttons above to perform its operation on all of the compatible devices selected.

Plot 1

shimmer

Event Markers

Pid Options

# STREAMING – CONNECT (4/5)

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

The screenshot displays the ConsensysPRO v1.0.3 software interface. The top navigation bar includes 'MANAGE DEVICES', 'LIVE DATA', and 'MANAGE DATA'. The main area is divided into two panels: 'AVAILABLE DEVICES (0/5)' and 'DATA VISUALISATION (Active: Plot 1)'. The 'AVAILABLE DEVICES' panel contains a table of devices with columns for 'SELECT', 'DEVICES', and 'RECORDING DETAILS AND STATUS'. The '2C02 (Shimmer\_2C02)' device is highlighted with a red box and an arrow pointing to its 'SELECT' checkbox. The 'DATA VISUALISATION' panel shows a plot titled 'Plot 1' with a y-axis ranging from 0 to 10 and an x-axis labeled 'x'.

| SELECT                   | DEVICES                                                                                                       | RECORDING DETAILS AND STATUS                                          |
|--------------------------|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| <input type="checkbox"/> | <b>2C02 (Shimmer_2C02)</b><br>Exp: ECG/EMG Fw: v0.7.10 Fs: 51.2Hz<br>State: Disconnected Overall Packets: N/A | Trial: DefaultTrial<br>Time: 2017/05/05 15:43:08<br>Live Session: N/A |
| <input type="checkbox"/> | <b>36AD (Shimmer_36AD)</b><br>Exp: None Fw: v0.7.10 Fs: 51.2Hz<br>State: Ready Overall Packets: N/A           | Trial: DefaultTrial<br>Time: 2017/05/05 15:43:08<br>Live Session: N/A |
| <input type="checkbox"/> | <b>3A44</b><br>Exp: Unknown Fw: Unknown Fs: Unknown<br>State: Disconnected Overall Packets: N/A               | Trial:<br>Time:<br>Live Session: N/A                                  |
| <input type="checkbox"/> | <b>58E5</b><br>Exp: Unknown Fw: Unknown Fs: Unknown<br>State: Disconnected Overall Packets: N/A               | Trial:<br>Time:<br>Live Session: N/A                                  |
| <input type="checkbox"/> | <b>B8A0 (Shimmer_B8A0)</b><br>Exp: None Fw: v0.7.10 Fs: 51.2Hz<br>State: Disconnected Overall Packets: N/A    | Trial: DefaultTrial<br>Time: 2017/05/05 15:43:08<br>Live Session: N/A |

At the bottom of the 'AVAILABLE DEVICES' panel, there are buttons for 'CONNECTION (0/5)', 'CONFIGURE (0/1)', 'STREAM (0/1)', and 'RECORD (0/1)'. Below these buttons, a note states: 'Use the SELECT column in the table to select one or more devices, then press one of the buttons above to perform its operation on all of the compatible devices selected.'

# STREAMING – CONNECT (5/5)

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

The screenshot displays the ConsensysPRO v1.0.5 software interface. The top navigation bar includes 'MANAGE DEVICES', 'LIVE DATA', and 'MANAGE DATA'. The main window is divided into two sections: 'AVAILABLE DEVICES (0/5)' and 'DATA VISUALISATION (Active: Plot 1)'. The 'AVAILABLE DEVICES' section contains a table of devices, with the first two, '2C02 (Shimmer\_2C02)' and '36AD (Shimmer\_36AD)', highlighted by a red box. The 'DATA VISUALISATION' section shows a plot area with a y-axis ranging from 0.0 to 10.0 and an x-axis labeled 'X'.

**AVAILABLE DEVICES (0/5) (SELECT SHIMMERS FROM THE TABLE FOR BLUETOOTH CONFIGURATION)**

| SELECT                              | DEVICES                                                                                                                                                                                                                                                                                                                             | RECORDING DETAILS AND STATUS                                          |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| <input checked="" type="checkbox"/> | <b>2C02 (Shimmer_2C02)</b><br>Exp: ECG/EMG Fw: v0.7.10 Fs: 51.2Hz<br>State: Ready Overall Packets: N/A<br><input type="checkbox"/> Device Properties<br><input type="checkbox"/> Low-Noise Accelerometer<br><input type="checkbox"/> Gyroscope<br><input type="checkbox"/> Magnetometer<br><input type="checkbox"/> Battery Voltage | Trial: DefaultTrial<br>Time: 2017/05/05 15:43:08<br>Live Session: N/A |
| <input checked="" type="checkbox"/> | <b>36AD (Shimmer_36AD)</b><br>Exp: None Fw: v0.7.10 Fs: 51.2Hz<br>State: Ready Overall Packets: N/A<br><input type="checkbox"/> Device Properties<br><input type="checkbox"/> Low-Noise Accelerometer<br><input type="checkbox"/> Gyroscope<br><input type="checkbox"/> Magnetometer<br><input type="checkbox"/> Battery Voltage    | Trial: DefaultTrial<br>Time: 2017/05/08 10:20:42<br>Live Session: N/A |
| <input type="checkbox"/>            | <b>3A44</b><br>Exp: Unknown Fw: Unknown Fs: Unknown<br>State: Disconnected Overall Packets: N/A                                                                                                                                                                                                                                     | Trial:<br>Time:<br>Live Session: N/A                                  |
| <input type="checkbox"/>            | <b>58E5</b><br>Exp: Unknown Fw: Unknown Fs: Unknown<br>State: Disconnected Overall Packets: N/A                                                                                                                                                                                                                                     | Trial:<br>Time:<br>Live Session: N/A                                  |
| <input type="checkbox"/>            | <b>B8A0 (Shimmer_B8A0)</b><br>Exp: None Fw: v0.7.10 Fs: 51.2Hz<br>State: Disconnected Overall Packets: N/A                                                                                                                                                                                                                          | Trial: DefaultTrial<br>Time: 2017/05/05 15:43:08<br>Live Session: N/A |

Use the SELECT column in the table to select one or more devices, then press one of the buttons above to perform its operation on all of the compatible devices selected.

**DATA VISUALISATION (Active: Plot 1)**

Plot 1

Y-axis: 0.0 to 10.0  
X-axis: 01:00:00 to X

# STREAMING – CONFIGURE TRIAL (1/7)

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

The screenshot displays the ConsensysPRO v1.0.5 software interface. The top navigation bar includes 'MANAGE DEVICES', 'LIVE DATA', and 'MANAGE DATA'. The main window is divided into two primary sections: 'AVAILABLE DEVICES' on the left and 'DATA VISUALISATION' on the right.

**AVAILABLE DEVICES (0/5)** (SELECT SHIMMERS FROM THE TABLE FOR BLUETOOTH CONFIGURATION)

| SELECT                                                                                                                                    | DEVICES                                                                                                                                                                                                                                                                                                                                                                  | RECORDING DETAILS AND STATUS                                                                    |
|-------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| <div><input type="checkbox"/> Select All<br/><input type="checkbox"/> Show Advanced All<br/><input type="checkbox"/> Toggle LED All</div> | <div><b>02 (Shimmer_2C02)</b> </div> <div>ECG/EMG Fw: v0.7.10 Fs: 51.2Hz<br/>State: Ready Overall Packets: N/A</div> <div><input type="checkbox"/> Device Properties<br/><input type="checkbox"/> Low-Noise Accelerometer<br/><input type="checkbox"/> Gyroscope<br/><input type="checkbox"/> Magnetometer<br/><input type="checkbox"/> Battery Voltage</div>            | <div>Trial: DefaultTrial<br/>Time: 2017/05/05 15:43:08<br/>Live Session: N/A</div> <div> </div> |
| <div><input type="checkbox"/></div>                                                                                                       | <div><b>36AD (Shimmer_36AD)</b> </div> <div>Exp: None Fw: v0.7.10 Fs: 51.2Hz<br/>State: Ready Overall Packets: N/A</div> <div><input type="checkbox"/> Device Properties<br/><input type="checkbox"/> Low-Noise Accelerometer<br/><input type="checkbox"/> Gyroscope<br/><input type="checkbox"/> Magnetometer<br/><input type="checkbox"/> Battery Voltage</div>        | <div>Trial: DefaultTrial<br/>Time: 2017/05/05 15:43:08<br/>Live Session: N/A</div> <div> </div> |
| <div><input type="checkbox"/></div>                                                                                                       | <div><b>3A44</b> </div> <div>Exp: Unknown Fw: Unknown Fs: Unknown<br/>State: Disconnected Overall Packets: N/A</div> <div><input type="checkbox"/> Device Properties<br/><input type="checkbox"/> Low-Noise Accelerometer<br/><input type="checkbox"/> Gyroscope<br/><input type="checkbox"/> Magnetometer<br/><input type="checkbox"/> Battery Voltage</div>            | <div>Trial: DefaultTrial<br/>Time: 2017/05/05 15:43:08<br/>Live Session: N/A</div> <div> </div> |
| <div><input type="checkbox"/></div>                                                                                                       | <div><b>58E5</b> </div> <div>Exp: Unknown Fw: Unknown Fs: Unknown<br/>State: Disconnected Overall Packets: N/A</div> <div><input type="checkbox"/> Device Properties<br/><input type="checkbox"/> Low-Noise Accelerometer<br/><input type="checkbox"/> Gyroscope<br/><input type="checkbox"/> Magnetometer<br/><input type="checkbox"/> Battery Voltage</div>            | <div>Trial: DefaultTrial<br/>Time: 2017/05/05 15:43:08<br/>Live Session: N/A</div> <div> </div> |
| <div><input type="checkbox"/></div>                                                                                                       | <div><b>B8A0 (Shimmer_B8A0)</b> </div> <div>Exp: None Fw: v0.7.10 Fs: 51.2Hz<br/>State: Disconnected Overall Packets: N/A</div> <div><input type="checkbox"/> Device Properties<br/><input type="checkbox"/> Low-Noise Accelerometer<br/><input type="checkbox"/> Gyroscope<br/><input type="checkbox"/> Magnetometer<br/><input type="checkbox"/> Battery Voltage</div> | <div>Trial: DefaultTrial<br/>Time: 2017/05/05 15:43:08<br/>Live Session: N/A</div> <div> </div> |

**DATA VISUALISATION (Active: Plot 1)**

Plot 1: A line graph with a y-axis ranging from 0 to 10 and an x-axis labeled 'X' with a value of 01.00.00. The graph area is currently empty.

**Annotations:**

- A red box highlights the 'SELECT' column header and the 'Select All' button in the 'AVAILABLE DEVICES' table.
- A red box highlights the Shimmer icons in the 'AVAILABLE DEVICES' table, with a text overlay: "Click on the Shimmer icons to (de)select individual Shimmers."

Use the SELECT column in the table to select one or more devices, then press one of the buttons above to perform its operation on all of the compatible devices selected.

# STREAMING – CONFIGURE TRIAL (2/7)

STEP 2 – Selecting Shimmers enables Group Buttons:

The screenshot displays the ConsensysPRO v1.0.3 software interface. The top navigation bar includes 'MANAGE DEVICES', 'LIVE DATA', and 'MANAGE DATA'. The main area is divided into 'AVAILABLE DEVICES (5/5)' and 'DATA VISUALISATION (Active: Plot 1)'. The 'AVAILABLE DEVICES' section lists five Shimmer devices: 2C02, 36AD, 3A44, 58E5, and B8A0. The first two are connected, while the others are disconnected. The 'DATA VISUALISATION' section shows a plot area with the Shimmer logo. Red boxes and arrows highlight specific features: a box around the first two devices with the text 'All 5 selected, only 2 are connected.'; a box around the 'CONNECT', 'CONFIGURE', 'STREAM', and 'RECORD' buttons with the text 'For all selected Shimmers: Connect; Configure; Start streaming; Record.'; a box around the 'CONNECT', 'CONFIGURE', and 'STREAM' buttons for the first two devices with the text 'For individual Shimmers: Connect; Configure; Start streaming.'; and a box around the '3A44' and '58E5' devices with the text 'Not connected.'

AVAILABLE DEVICES (5/5) (SELECT SHIMMERS FROM THE TABLE FOR BLUETOOTH CONFIGURATION)

| SELECT                              | DEVICES                                                                                                                                                                                                                                                                                                     | RECORDING DETAILS AND STATUS                                          |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| <input checked="" type="checkbox"/> | <b>2C02 (Shimmer_2C02)</b><br>Exp: ECG/EMG Fw: v0.7.10 Fs: 51.2Hz<br>State: Ready Overall Packets: N/A<br>Device Properties:<br><input type="checkbox"/> Low-Noise Accelerometer<br><input type="checkbox"/> Gyroscope<br><input type="checkbox"/> Magnetometer<br><input type="checkbox"/> Battery Voltage | Trial: DefaultTrial<br>Time: 2017/05/05 15:43:08<br>Live Session: N/A |
| <input checked="" type="checkbox"/> | <b>36AD (Shimmer_36AD)</b><br>Exp: None Fw: v0.7.10 Fs: 51.2Hz<br>State: Ready Overall Packets: N/A<br>Device Properties:<br><input type="checkbox"/> Low-Noise Accelerometer<br><input type="checkbox"/> Gyroscope<br><input type="checkbox"/> Magnetometer<br><input type="checkbox"/> Battery Voltage    | Trial: DefaultTrial<br>Time: 2017/05/08 10:20:42<br>Live Session: N/A |
| <input type="checkbox"/>            | <b>3A44</b><br>Exp: Unknown Fw: Unknown Fs: Unknown<br>State: Disconnected Overall Packets: N/A                                                                                                                                                                                                             | Trial:<br>Time:<br>Live Session: N/A                                  |
| <input type="checkbox"/>            | <b>58E5</b><br>Exp: Unknown Fw: Unknown Fs: Unknown<br>State: Disconnected Overall Packets: N/A                                                                                                                                                                                                             | Trial:<br>Time:<br>Live Session: N/A                                  |
| <input type="checkbox"/>            | <b>B8A0 (Shimmer_B8A0)</b><br>Exp: None Fw: v0.7.10 Fs: 51.2Hz<br>State: Disconnected Overall Packets: N/A                                                                                                                                                                                                  | Trial: DefaultTrial<br>Time: 2017/05/05 15:43:08<br>Live Session: N/A |

DATA VISUALISATION (Active: Plot 1)

Plot 1

shimmer

Event Markers

Plot Options

CONNECTION (5/5) CONFIGURE (2/2) STREAM (2/2) RECORD (2/2)

CONNECT (3/3) DISCONNECT (2/2)

For all selected Shimmers:  
Connect;  
Configure;  
Start streaming;  
Record.

For individual Shimmers:  
Connect;  
Configure;  
Start streaming.

Not connected.

All 5 selected, only 2 are connected.

# STREAMING – CONFIGURE TRIAL (3/7)

STEP 3 – Selecting Shimmers enables Group Buttons – continued:

The screenshot displays the ConsensysPRO v1.0.5 software interface. The top navigation bar includes 'MANAGE DEVICES', 'LIVE DATA', and 'MANAGE DATA'. The main area is divided into 'AVAILABLE DEVICES (5/5)' and 'DATA VISUALISATION (Active: Plot 1)'. The 'AVAILABLE DEVICES' section lists five Shimmer devices: 2C02 (Shimmer\_2C02), 36AD (Shimmer\_36AD), 3A44, 58E5, and B8A0 (Shimmer\_B8A0). Each device has a status icon (green checkmark for connected, grey for disconnected) and a list of available sensors. The 'DATA VISUALISATION' section shows a plot area with the Shimmer logo. At the bottom, the 'CONNECTION (5/5)' section displays group buttons for 'CONFIGURE (2/2)', 'STREAM (2/2)', 'RECORD (2/2)', 'CONNECT (3/3)', and 'DISCONNECT (2/2)'. Red boxes and arrows highlight specific elements: a box on the left notes 'All 5 selected, only 2 are connected.' pointing to the device selection checkboxes; a box on the right notes 'For all connected Shimmers: Configure; Start Streaming; Start Recording;' pointing to the 'CONFIGURE', 'STREAM', and 'RECORD' buttons; and another box on the right notes 'Connect disconnected Shimmers; Disconnect connected Shimmers.' pointing to the 'CONNECT' and 'DISCONNECT' buttons.

ConsensysPRO v1.0.5

MANAGE DEVICES | LIVE DATA | MANAGE DATA

AVAILABLE DEVICES (5/5) (SELECT SHIMMERS FROM THE TABLE FOR BLUETOOTH CONFIGURATION)

DATA VISUALISATION (Active: Plot 1)

Plot 1

shimmer

Event Markers

Plot Options

CONNECTION (5/5)

CONFIGURE (2/2) | STREAM (2/2) | RECORD (2/2)

CONNECT (3/3) | DISCONNECT (2/2)

All 5 selected, only 2 are connected.

For all connected Shimmers:  
Configure;  
Start Streaming;  
Start Recording;

Connect disconnected Shimmers;  
Disconnect connected Shimmers.

# STREAMING – CONFIGURE TRIAL (4/7)

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

The screenshot displays the ConsensysPRO v1.0.5 software interface. The top navigation bar includes 'MANAGE DEVICES', 'LIVE DATA', and 'MANAGE DATA'. The main area is divided into 'AVAILABLE DEVICES (5/5)' and 'DATA VISUALISATION (Active: Plot 1)'. The 'AVAILABLE DEVICES' section lists five Shimmer devices: 2C02, 36AD, 3A44, 58E5, and B8A0. Each device entry shows its name, status, and a list of available sensors (e.g., ECG/EMG, Low Noise Accelerometer, Gyroscope, Magnetometer, Battery Voltage). A red box highlights the 'CONFIGURE (2/2)' button at the bottom of the device list. A red arrow points from this box to a text box that reads: "N.B. Colour identification is different for Shimmers that NOT belong to the same Trial." The 'DATA VISUALISATION' section shows a plot area with a red box containing the text: "N.B. Only Shimmers configured simultaneously belong to the same trial and have the same colour identification." The bottom status bar shows 'CONNECTION (5/5)', 'CONFIGURE (2/2)', 'STREAM (2/2)', and 'RECORD (2/2)'.

AVAILABLE DEVICES (5/5) (SELECT SHIMMERS FROM THE TABLE FOR BLUETOOTH CONFIGURATION)

SELECT DEVICES RECORDING DETAILS AND STATUS

2C02 (Shimmer\_2C02) Exp: ECG/EMG Fw: v0.7.10 Fs: 51.2Hz State: Ready Overall Packets: N/A

36AD (Shimmer\_36AD) Exp: None Fw: v0.7.10 Fs: 51.2Hz State: Ready Overall Packets: N/A

3A44 Exp: Unknown Fw: Unknown Fs: Unknown State: Disconnected Overall Packets: N/A

58E5 Exp: Unknown Fw: Unknown Fs: Unknown State: Disconnected Overall Packets: N/A

B8A0 (Shimmer\_B8A0) Exp: None Fw: v0.7.10 Fs: 51.2Hz State: Disconnected Overall Packets: N/A

CONNECTION (5/5) CONFIGURE (2/2) STREAM (2/2) RECORD (2/2)

CONNECT (3/3) DISCONNECT (2/2)

Plot 1

shimmer

N.B. Only Shimmers configured simultaneously belong to the same trial and have the same colour identification.

N.B. Colour identification is different for Shimmers that NOT belong to the same Trial.



# STREAMING - CONFIGURE TRIAL (5/7)

## STEP 5 – Set TRIAL NAME:

- A. Choose TRIAL NAME, and AUTO STOP, set to 0 for indefinite trial duration
- B. Start/Stop Logging Method cannot be changed when connected over Bluetooth.

**A**

**B**

Change in MANAGE DEVICES if required.

ConsenysPRO v2.0.11-64bit

MANAGE DEVICES LIVE DATA MANAGE DATA

TRIAL NAME: DefaultTrial ✓ AUTO STOP (MINS): 0 ✓ SHIMMER NAME: Shimmer\_84AB ✓ SAMPLING RATE (Hz): 51.20 ✓

Recording Options

- SD Log and/or Bluetooth Stream
- SD Log Recording Only
- SD Log with Inter-device Sync

Start/Stop Logging Method

- User Button
- Unlock/Dock

AVAILABLE SHIMMERS

| LOCATION | BT RADIO ID | EXPANSION    | SHIMMER NAME |
|----------|-------------|--------------|--------------|
| COM10    | 84AB        | ECG/EMG/Resp | Shimmer_84AB |
| COM6     | ED3C        | GSR+         | Shimmer_ED3C |
| COM4     | AC1C        | IMU          | Shimmer_AC1C |

BACK WRITE CONF...

# STREAMING - CONFIGURE TRIAL (6/7)

STEP 6 – Set parameters for **each** Shimmer:

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

ConsenSysPRO v2.0.11 - 64bit

MANAGE DEVICES | LIVE DATA | MANAGE DATA

TRIAL NAME: DefaultTrial | AUTO STOP (MINS): 0 | SHIMMER NAME: Shimmer\_84AB | SAMPLING RATE (Hz): 51.20

Recording Options: SD Log and/or Bluetooth Stream, SD Log Recording Only, SD Log with Inter-device Sync, Start/Stop Logging Method, User Button, Undock/Dock

AVAILABLE SHIMMERS

| LOCATION | BT RADIO ID | EXPANSION    | SHIMMER NAME |
|----------|-------------|--------------|--------------|
| COM10    | 84AB        | ECG/EMG/Resp | Shimmer_84AB |
| COM6     | ED3C        | GER+         | Shimmer_ED3C |
| COM4     | AC1C        | IMU          | Shimmer_AC1C |

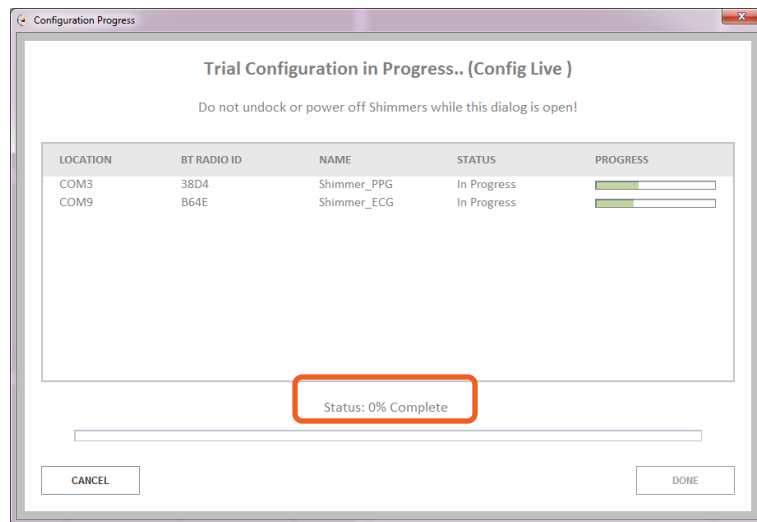
BACK

WRITE CONF...

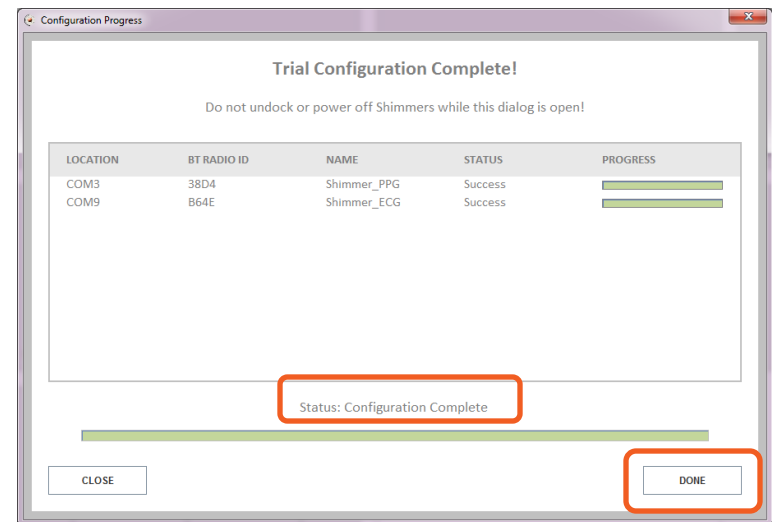
# STREAMING - CONFIGURE TRIAL (7/7)

## 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:

The screenshot displays the ConsensysPRO v1.0.5 software interface. The top navigation bar includes tabs for 'MANAGE DEVICES', 'LIVE DATA', and 'MANAGE DATA'. The main area is divided into two sections: 'AVAILABLE DEVICES (5/5)' and 'DATA VISUALISATION (Active: Plot 1)'. The 'AVAILABLE DEVICES' section lists five Shimmer devices: 2C02 (Shimmer\_2C02), 36AD (Shimmer\_36AD), 3A44, 58, and B8. Each device entry shows its status (e.g., 'Ready', 'Disconnected'), trial information, and a list of sensors (e.g., 'Low Noise Accelerometer', 'Gyroscope', 'Magnetometer', 'Battery Voltage'). A red box highlights the '36AD (Shimmer\_36AD)' entry, with a red arrow pointing to it from a text box that reads 'Shimmer configured in same trial have same colour identification.' The 'DATA VISUALISATION' section on the right shows a plot titled 'Plot 1' with a y-axis ranging from 0 to 10 and an x-axis showing time from 01:00:00 to 01:00:00. The Shimmer logo is visible in the top right corner of the plot area.

# STREAMING - STREAM & PLOT (2/5)

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

The screenshot displays the ConsensysPRO v1.0.5 software interface. The top navigation bar includes 'MANAGE DEVICES', 'LIVE DATA', and 'MANAGE DATA'. The main area is divided into 'AVAILABLE DEVICES (5/5)' and 'DATA VISUALISATION (Active: Plot 1)'. The 'AVAILABLE DEVICES' section lists five Shimmer devices with their properties and recording status. The 'DATA VISUALISATION' section shows a plot area with a 'Plot 1' tab and a 'shimmer' logo. A 'Plot Options' sidebar is visible on the right.

**AVAILABLE DEVICES (5/5) (SELECT SHIMMERS FROM THE TABLE FOR BLUETOOTH CONFIGURATION)**

| SELECT                              | DEVICES                                                                                                                                                                                                                                                                                                     | RECORDING DETAILS AND STATUS                                          |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| <input checked="" type="checkbox"/> | <b>2C02 (Shimmer_2C02)</b><br>Exp: ECG/EMG Fw: v0.7.10 Fs: 51.2Hz<br>State: Ready Overall Packets: N/A<br>Device Properties:<br><input type="checkbox"/> Low-Noise Accelerometer<br><input type="checkbox"/> Gyroscope<br><input type="checkbox"/> Magnetometer<br><input type="checkbox"/> Battery Voltage | Trial: DefaultTrial<br>Time: 2017/05/08 10:32:09<br>Live Session: N/A |
| <input checked="" type="checkbox"/> | <b>36AD (Shimmer_36AD)</b><br>Exp: None Fw: v0.7.10 Fs: 51.2Hz<br>State: Ready Overall Packets: N/A<br>Device Properties:<br><input type="checkbox"/> Low-Noise Accelerometer<br><input type="checkbox"/> Gyroscope<br><input type="checkbox"/> Magnetometer<br><input type="checkbox"/> Battery Voltage    | Trial: DefaultTrial<br>Time: 2017/05/08 10:32:09<br>Live Session: N/A |
| <input checked="" type="checkbox"/> | <b>3A44</b><br>Exp: Unknown Fw: Unknown Fs: Unknown<br>State: Disconnected Overall Packets: N/A                                                                                                                                                                                                             | Trial:<br>Time:<br>Live Session: N/A                                  |
| <input checked="" type="checkbox"/> | <b>58E5</b><br>Exp: Unknown Fw: Unknown Fs: Unknown<br>State: Disconnected Overall Packets: N/A                                                                                                                                                                                                             | Trial:<br>Time:<br>Live Session: N/A                                  |
| <input checked="" type="checkbox"/> | <b>B8A0 (Shimmer_B8A0)</b><br>Exp: None Fw: v0.7.10 Fs: 51.2Hz<br>State: Disconnected Overall Packets: N/A                                                                                                                                                                                                  | Trial: DefaultTrial<br>Time: 2017/05/05 15:43:08<br>Live Session: N/A |

**DATA VISUALISATION (Active: Plot 1)**

Plot 1

**NOTE:** Each plot can show multiple signals/device properties of multiple Shimmers.

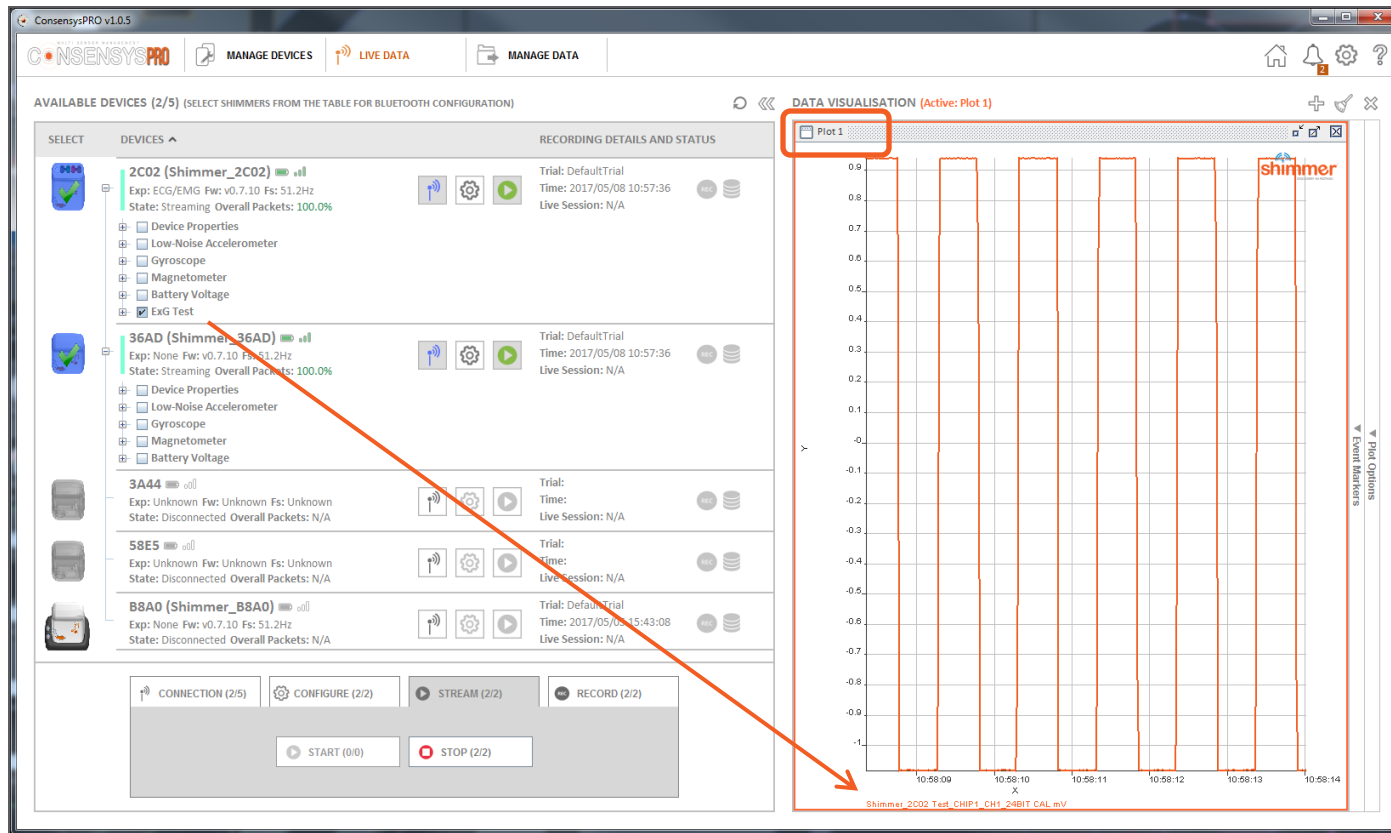
**STREAMING CONTROLS:**

CONNECTION (5/5) CONFIGURE (2/2) **STREAM (2/2)** RECORD (2/2)

START (2/2) STOP (0/0)

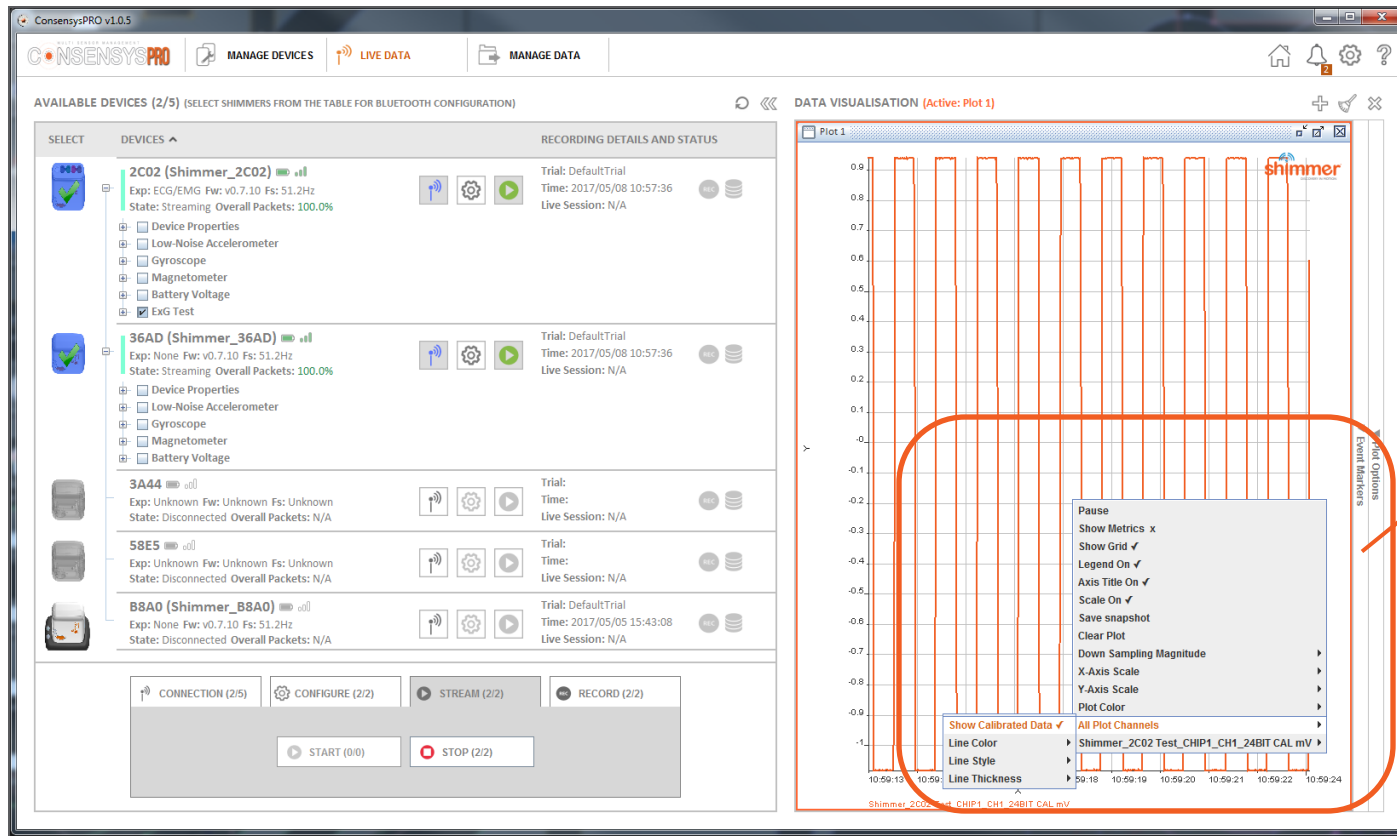
# STREAMING - STREAM & PLOT (3/5)

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

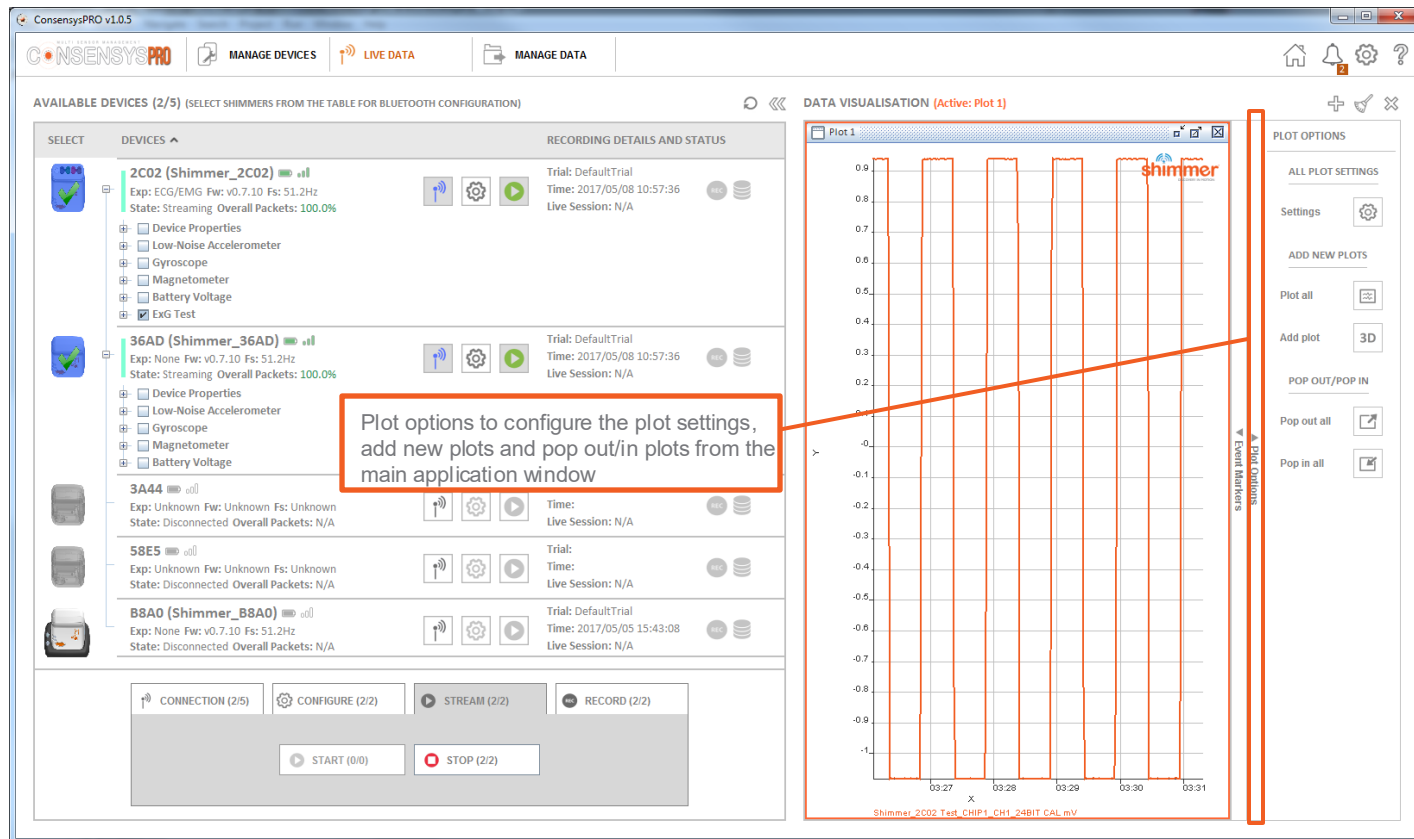


# STREAMING - STREAM & PLOT (4/5)

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”:

The screenshot displays the ConsensysPRO v1.0.5 software interface. The top navigation bar includes tabs for MANAGE DEVICES, LIVE DATA, and MANAGE DATA. The main window is divided into two primary sections: AVAILABLE DEVICES (5/5) and DATA VISUALISATION (Active: Plot 1).

**AVAILABLE DEVICES (5/5):** This section lists three Shimmer devices: 2C02 (Shimmer\_2C02), 36AD (Shimmer\_36AD), and a third device (partially visible). Each device entry includes a status icon, device name, expansion (Exp), firmware (Fw), sampling rate (Fs), and streaming status. The 2C02 and 36AD devices are shown as 'Streaming Overall Packets: 100.0%'. The third device is 'Disconnected Overall Packets: N/A'. Below the device list, there are checkboxes for various sensors: Low-Noise Accelerometer, Gyroscope, Magnetometer, Battery Voltage, and ExG Test. The 2C02 device has the ExG Test checkbox checked.

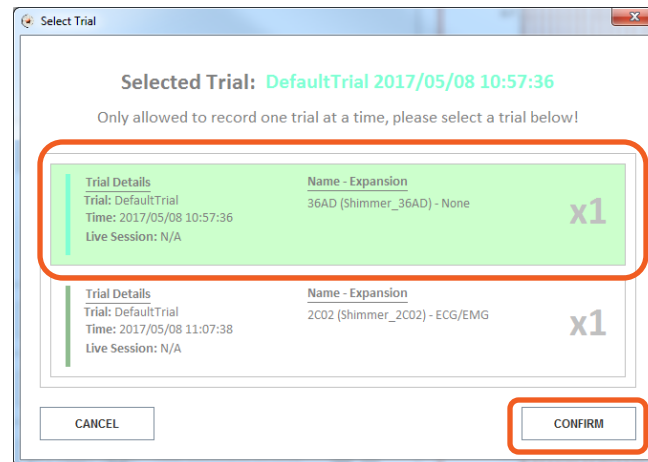
**RECORDING DETAILS AND STATUS:** This section provides details for the selected device, including Trial (DefaultTrial), Time (2017/05/08 11:07:38), and Live Session (N/A). It also includes a 'RECORD' button.

**DATA VISUALISATION (Active: Plot 1):** This section displays a plot of the recorded data. The plot shows a series of sharp, periodic spikes, indicating a high-frequency signal. The x-axis represents time, ranging from 11:07:58 to 11:08:09. The y-axis represents the signal amplitude, ranging from -1.0 to 0.9. The plot is titled 'Shimmer\_2C02 Test\_CHIP1\_CH1\_24BIT CAL mv'.

**RECORD TAB:** The bottom of the interface features a 'RECORD' tab with several buttons: START TO SD (2/2), STOP TO SD (0/0), START TO PC (2/2), and STOP TO PC (0/0). The 'START TO PC (2/2)' button is highlighted with a red box, and an arrow points to it from a text box that says 'This option is chosen in this guide.' Another arrow points from a text box that says 'Starts recording to SD cards of the Shimmers belonging to the same trail; having the same colour identification.' to the 'START TO SD (2/2)' button.

# 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:

The screenshot displays the ConsensysPRO v1.0.5 software interface. The left panel, titled 'AVAILABLE DEVICES (5/5)', lists four Shimmer devices: 2C02 (Shimmer\_2C02), 36AD (Shimmer\_36AD), 3A44, and 58E5. The 2C02 device is selected, and its properties are shown in the 'RECORDING DETAILS AND STATUS' panel. A red box highlights the 'STOP TO PC (1/1)' button in the bottom control bar. A red arrow points from the 'STOP TO PC (1/1)' button to the 'Database buffer condition.' label. The right panel, titled 'DATA VISUALISATION (Active)', shows three plots: Plot 1 (Shimmer\_2C02 Test\_CHIP1\_CH1\_24BIT CAL mV), Plot 2 (Shimmer\_36AD Accel\_LN\_Y CAL m/s^2, Shimmer\_36AD Accel\_LN\_Z CAL m/s^2, Shimmer\_2C02 Accel\_LN\_Z CAL m/s^2, Shimmer\_36AD Accel\_LN\_X CAL m/s^2, Shimmer\_2C02 Accel\_LN\_X CAL m/s^2, Shimmer\_2C02 Accel\_LN\_Y CAL m/s^2), and Plot 3 (Shimmer\_2C02 Gyro\_X CAL deg/s, Shimmer\_2C02 Gyro\_Y CAL deg/s, Shimmer\_2C02 Gyro\_Z CAL deg/s). A red box highlights the 'STOP TO PC (1/1)' button in the bottom control bar. A red arrow points from the 'STOP TO PC (1/1)' button to the 'Database buffer condition.' label. A red box highlights the 'STOP TO PC (1/1)' button in the bottom control bar. A red arrow points from the 'STOP TO PC (1/1)' button to the 'Database buffer condition.' label.

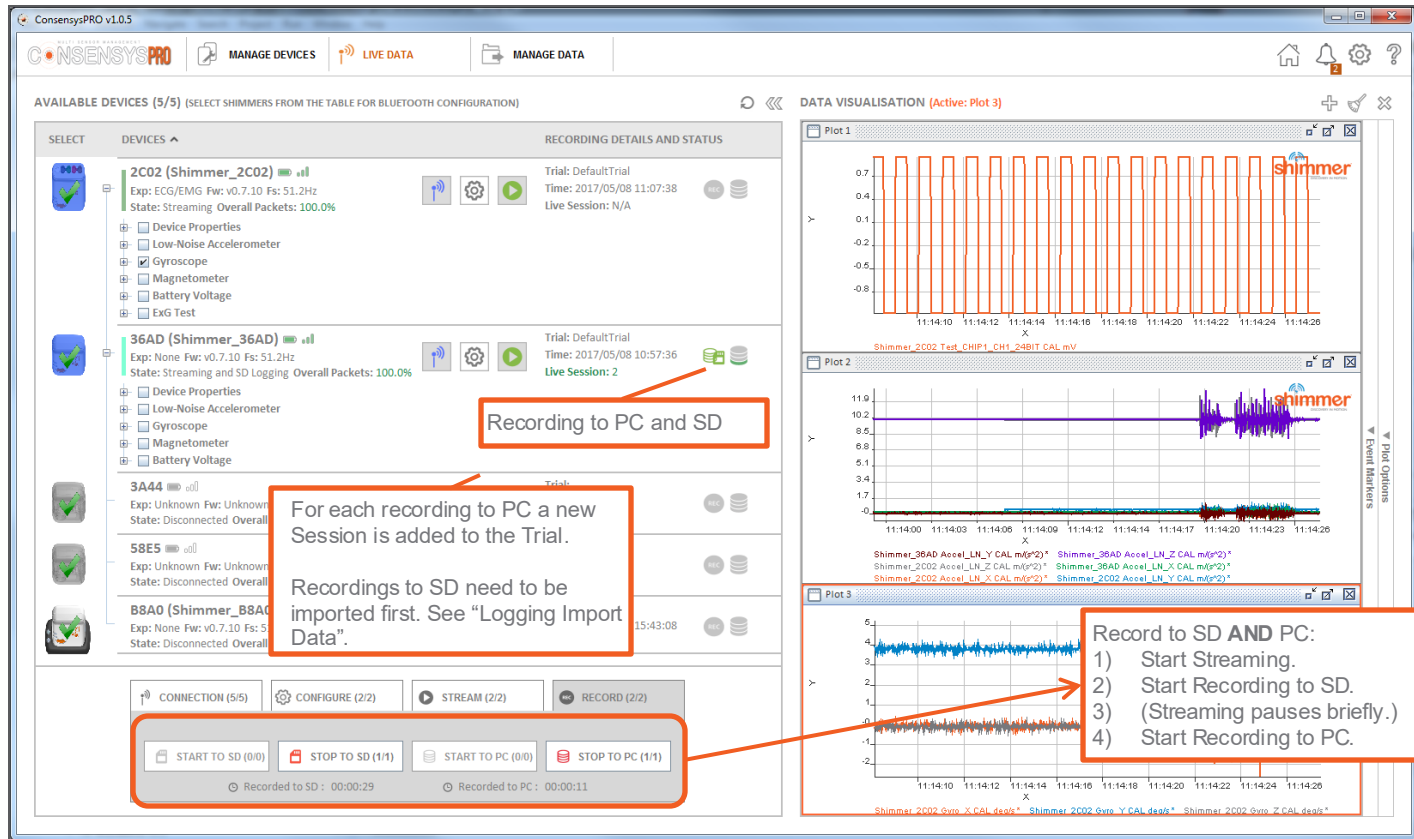
Each plot can show multiple signals/device properties from multiple Shimmers.

For each recording a new Session is added to the Trial. (1st recording in this example).

Database buffer condition.

# STREAMING - RECORD (4/4)

#### STEP 4 – To record simultaneously to SD and 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:

The screenshot displays the ConsensysPRO v1.0.5 software interface. The 'Event Markers' panel is open, showing a table of existing markers and options to create new ones. The panel is titled 'Event Markers' and includes the instruction 'Add, Edit or Delete event markers to annotate data'. The table lists two markers: 'Pulse' and 'Toggle'. The 'Pulse' marker has a description: 'Pulse event marker generates a pulse. The duration of the pulse is 1 sample.' The 'Toggle' marker has a description: 'Toggle event marker generates a toggle. The duration of the toggle is user dependent.' The panel also includes a 'DONE' button and a 'CANCEL' button. The background shows the main software interface with various data visualization plots and device status indicators.

Slide out event marker panel

Create or edit event markers

Edit or delete an existing event marker

| SHOW                                | NAME   | TYPE | DESCRIPTION                                                                           | EDIT | DELETE |
|-------------------------------------|--------|------|---------------------------------------------------------------------------------------|------|--------|
| <input checked="" type="checkbox"/> | Pulse  |      | Pulse event marker generates a pulse. The duration of the pulse is 1 sample.          |      |        |
| <input checked="" type="checkbox"/> | Toggle |      | Toggle event marker generates a toggle. The duration of the toggle is user dependent. |      |        |

Event Markers

DefaultTrial

Total Number: 2 Hidden Number: 0

Show all: Add new:

Cancel Done

**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.

The screenshot displays the ConsensysPRO v1.0.5 software interface. The top navigation bar includes 'MANAGE DEVICES', 'LIVE DATA', and 'MANAGE DATA'. A red box labeled 'Slide out event marker panel' points to the 'EVENT MARKERS' panel on the right side of the interface. This panel contains a dropdown menu set to 'DefaultTrial' and two buttons: 'Pulse' and 'Toggle'. The main area is divided into two sections: 'AVAILABLE DEVICES (5/5)' on the left and 'DATA VISUALISATION (Active Plot 2)' on the right. The 'AVAILABLE DEVICES' section lists five Shimmer devices: 2C02 (Shimmer\_2C02), 36AD (Shimmer\_36AD), 3A44, 58E5, and B8A0 (Shimmer\_B8A0). Each device entry shows its status (e.g., 'Streaming', 'Disconnected') and a list of available sensors. The 'DATA VISUALISATION' section contains two plots: 'Plot 1' (a square wave plot) and 'Plot EventMarker' (a plot showing event markers as vertical lines). A red box labeled 'Event marker plot' points to the 'Plot EventMarker' plot. Another red box labeled 'Event marker buttons, press to fire the event' points to the 'Pulse' and 'Toggle' buttons in the 'EVENT MARKERS' panel.

**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.

The screenshot shows the ConsensysPRO v0.4.6 software interface. The top navigation bar includes 'MANAGE DEVICES', 'LIVE DATA', and 'MANAGE DATA'. The main area is divided into two panels: 'AVAILABLE DATA' and 'DATA DESCRIPTIONS'. The 'AVAILABLE DATA' panel contains a table with columns: NAME, SYNC, RTC, TIME, DURATION, and SIZE. The table lists various datasets such as BU\_LNWRAccel, DefaultTrial, Fitbit, Pounder8g, Sample9Dof\_R, Sample9Dof\_W, SampleECG, SampleEMG, SampleEvents, SampleGSRPPG, SampleResp, SampleSync\_SD, and case1356. Below the table, there are two large buttons: 'APPLY' (with a play icon) and 'SKIP' (with a right arrow icon). An orange arrow points from a text box to the 'APPLY' button. The 'DATA DESCRIPTIONS' panel on the right shows a message: 'No Trial Selected!'. At the bottom of the interface, there are buttons for 'DELETE', 'EXPORT', and 'PROCESS'.

| NAME          | SYNC | RTC | TIME                | DURATION | SIZE      |
|---------------|------|-----|---------------------|----------|-----------|
| BU_LNWRAccel  |      |     | 2016/06/14 12:19:36 | 00:07:32 | N/A       |
| BU_LNWRAccel  |      |     | 2016/07/19 16:00:53 | 00:02:51 | N/A       |
| DefaultTrial  |      |     | 2016/07/18 12:11:14 | 00:02:12 | N/A       |
| DefaultTrial  |      |     | 2016/07/19 09:24:18 | 00:02:16 | N/A       |
| Fitbit        |      |     | 2016/07/21 10:37:57 | 00:01:01 | 36.32 KB  |
| Pounder8g     |      |     | 2016/07/11 22:14:14 | 00:00:48 | 772.50 KB |
| Sample9Dof_R  |      |     | 2015/06/26 17:17:14 | 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 | 00:02:00 | 420.93 KB |
| SampleEvents  |      |     | 2016/04/27 08:15:52 | 00:01:35 | 37.60 KB  |
| SampleGSRPPG  |      |     | 2015/06/23 14:17:28 | 00:02:00 | 183.84 KB |
| SampleResp    |      |     | 2016/07/12 10:41:21 | 00:02:23 | N/A       |
| SampleSync_SD |      |     | 2016/07/02 15:58:12 | 00:00:10 | 3.17 MB   |
| case1356      |      |     | 2016/07/14 10:04:12 | 00:00:10 | N/A       |

**APPLY**  
Apply event markers to recorded datasets

**SKIP**  
Skip to the MANAGE DATA panel

**No Trial Selected!**

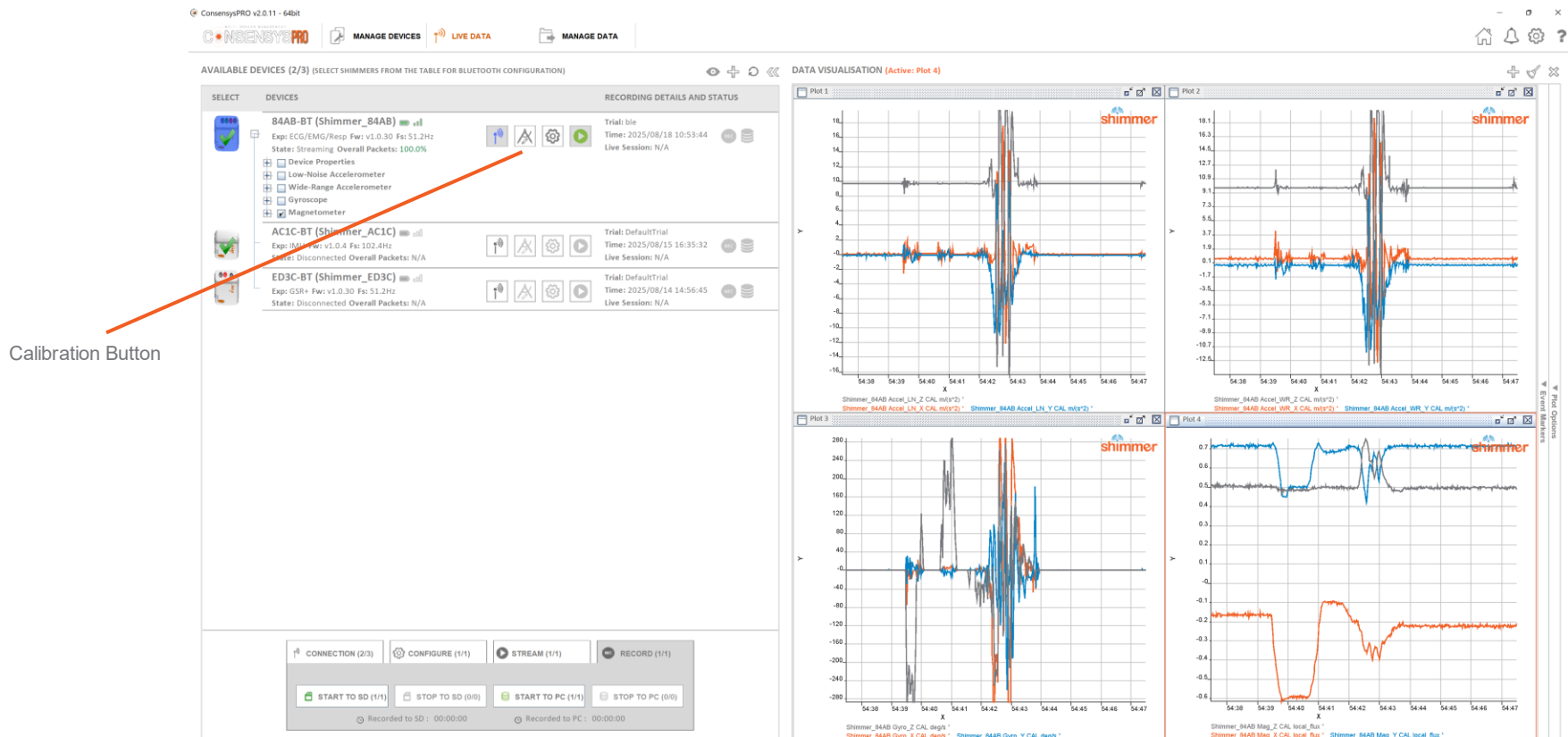
Select a trial or a session from the table to view/edit descriptions

**DELETE** **EXPORT** **PROCESS**

Press the 'APPLY' button to apply The events to the associated datasets

# CALIBRATION

- When you start streaming LN Accel, WR Accel, Gyroscope and Magnetometer at 51.2Hz you will see the calibration button enabled





# CALIBRATION

ConsensysPRO v2.0.11 - Factory - 64bit

MANAGE DEVICES LIVE DATA MANAGE DATA

CALIBRATE SHIMMER

LN ACCEL GYRO WR ACCEL MAG

FOLLOW STEPS BELOW FOR LOW-NOISE ACCELEROMETER CALIBRATION

Selected Range:  $\pm 2g$

Shimmer\_M4AB

Reset

CLICK TO SEE CALIBRATION INSTRUCTIONS

X+g X-g Y+g Y-g Z+g Z-g

Co-ordinate System for Shimmer3: + -

APPLICATION

Low-Noise Accelerometer (Range:  $\pm 2g$ )

| Offset (ls) |      | Sensitivity (Ks) |      | Alignment (Ks) |       |
|-------------|------|------------------|------|----------------|-------|
| 0           | 1872 | 0                | 0    | 1.000          | 0.000 |
| 0           | 0    | 0                | 1872 | 0.000          | 1.000 |
| 0           | 0    | 0                | 0    | 0.000          | 0.000 |

Time: N/A (not set)

Save to Shimmer

SHIMMER

Low-Noise Accelerometer (Range:  $\pm 2g$ )

| Offset (ls) |      | Sensitivity (Ks) |      | Alignment (Ks) |       |
|-------------|------|------------------|------|----------------|-------|
| 0           | 1872 | 0                | 0    | 1.000          | 0.000 |
| 0           | 0    | 0                | 1872 | 0.000          | 1.000 |
| 0           | 0    | 0                | 0    | 0.000          | 0.000 |

Time: N/A (not set)

SAVE ALL

Select sensor you want to calibrate

Further instructions for each procedural step can be found here

Procedural steps to follow

New calibration parameters

Save calibration parameters to shimmer device once you've executed the calibration procedural steps

Saved calibration parameters on shimmer device

# KEYBOARD

Keyboard can now be added via the following. The keyboard can be used to event mark when recording, and to even stream keystrokes via Lab Streaming Layer

ConsensysPRO v2.0.11 - 64bit

MANAGE DEVICES LIVE DATA MANAGE DATA

AVAILABLE DEVICES (0/3) (SELECT SHIMMERS FROM THE TABLE FOR BLUETOOTH CONFIGURATION)

| SELECT | DEVICES                                                                                                               | RECORDING DETAILS AND STATUS                                              |
|--------|-----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
|        | <b>84AB-BT (Shimmer_84AB)</b><br>Exp: ECG/EMG/Resp Fw: v1.0.30 Fs: 51.2Hz<br>State: Disconnected Overall Packets: N/A | <br>Trial: testIGS3mast<br>Time: 2025/08/21 10:19:37<br>Live Session: N/A |
|        | <b>ED3C-BT (Shimmer_ED3C)</b><br>Exp: ECG/EMG/Resp Fw: v1.0.30 Fs: 51.2Hz<br>State: Disconnected Overall Packets: N/A | <br>Trial: testIGS3mast<br>Time: 2025/08/21 10:19:37<br>Live Session: N/A |
|        | <b>Keyboard</b><br>Exp: Unknown Fw: Unknown Fs: Unknown<br>State: Disconnected Overall Packets: N/A                   | <br>Trial:<br>Time:<br>Live Session: N/A                                  |

CONNECTION (0/3) CONFIGURE (0/0) STREAM (0/0) RECORD (0/0)

Use the SELECT column in the table to select one or more devices, then press one of the buttons above to perform its operation on all of the compatible devices selected.

DATA VISUALISATION (Active: Plot 1)

Plot 1

shimmer

Y Plot Options  
X Event Markers

# LAB STREAMING LAYER

Application Settings

CATEGORY

- General
- Firmware
- Manage Data
- Lab Streaming Layer

Lab Streaming Layer

Choose default Lab Streaming Layer options:

☐ Enable Lab Streaming Layer

Set LSL Clock Offset  ms

CANCEL RESET APPLY

Use this to enable Lab Streaming Layer

The offset is to account for latency, e.g. typically Bluetooth latency is approximately 100ms. Setting the value to 100ms will do the following `Isl_clock() - 0.1s`.

# 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

Consensys v0.4.0

MANAGE DEVICES LIVE DATA MANAGE DATA

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

Imported logged data.

Recorded through Bluetooth interface of "LIVE DATA."

Recorded streamed data.

Imported logged data from one Session of a Trial with three Shimmers with 'SD Log with Inter-device Sync' recording option configured

- "M" indicates the Master Shimmer.
- The post-process synchronisation has been successful, indicated by the green ticks in the SYNC column.

(Details on the synchronisation process for logging trials can be found in the *SDLog* firmware user manual.)

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

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 when the data have been synchronised.

PC Recording - Session 2

For this session the data cannot be synchronised, because the recording lasted only 11 seconds.

PC Recording - Session 4

SAVE

DELETE EXPORT PROCESS

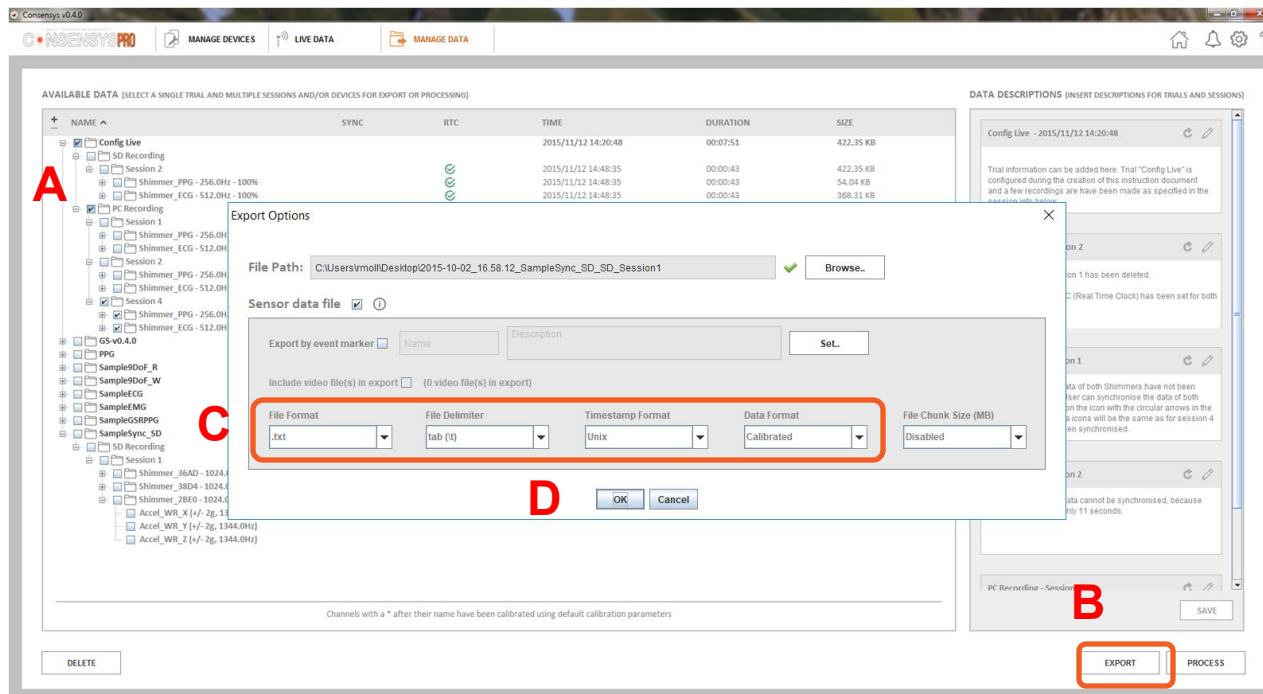
| NAME                          | SYNC | RTC | TIME                | DURATION | SIZE      |
|-------------------------------|------|-----|---------------------|----------|-----------|
| Config Live                   |      |     | 2015/11/12 14:20:48 | 00:07:51 | 422.35 KB |
| SD Recording                  |      |     | 2015/11/12 14:48:35 | 00:00:43 | 422.35 KB |
| PC Recording                  |      |     | 2015/11/12 14:48:48 | 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 | 00:06:21 | 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                     |      |     | 2015/11/11 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 17:17:14 | 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 16:08:14 | 00:02:00 | 1.06 MB   |
| Shimmer_38D5 - 1024.0Hz - 98% |      |     | 2015/10/02 16:08:14 | 00:01:59 | 1.05 MB   |

N.B. ConsensysBASIC does not support DATA DESCRIPTIONS!

# MANAGE DATA – EXPORT (1/2)

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

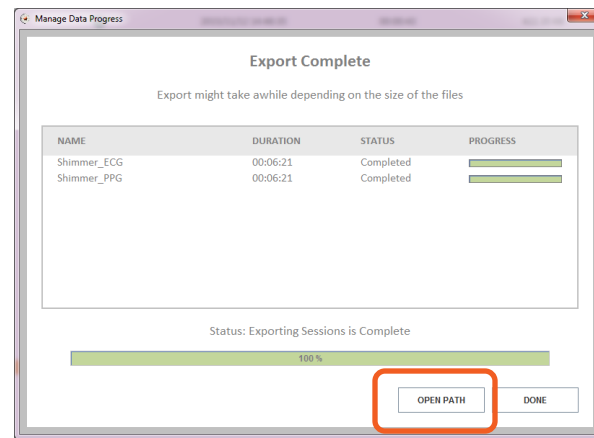
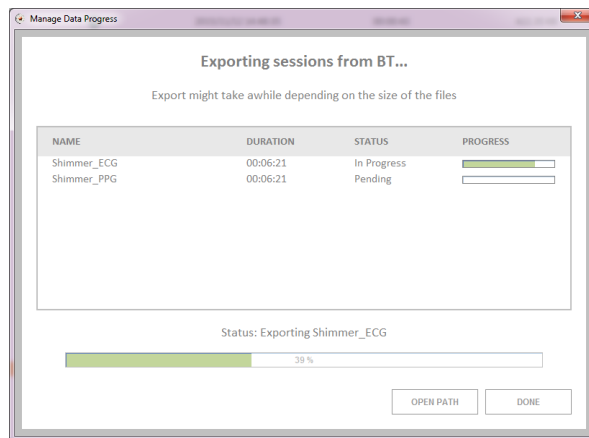
- Select one or more sessions from one trial.
- Hit “Export” to export the selected data to a file in the requested format.
- Select “File Delimiter”, “File Format”, “Timestamp Format”, “Data Format”.
- Press “Ok”



# MANAGE DATA – EXPORT (2/2)

## STEP 2 – EXPORT – Export the data:

- A. When Export is complete, click “OPEN PATH” to navigate to the exported file(s).
- B. 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).

**ConsenSys v0.4.0**

**MANAGE DATA**

**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                  |      |     |                     |          |           |
| 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 |
| PC Recording                  |      |     |                     |          |           |
| 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 | 00:06:21 | N/A       |
| Shimmer_PPG - 256.0Hz - 100%  |      |     |                     |          | N/A       |
| Shimmer_ECG - 512.0Hz - 100%  |      |     |                     |          | N/A       |
| GS-v0.4.0                     |      |     |                     |          |           |
| PPG                           |      |     |                     |          | 97.25 KB  |
| SampleDof_R                   |      |     |                     |          | 96.82 KB  |
| SampleDof_W                   |      |     |                     |          | 74.54 KB  |
| SampleECG                     |      |     |                     |          | 1.84 MB   |
| SampleEMG                     |      |     | 2015/06/26 12:35:33 | 00:02:00 | 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                  |      |     |                     |          |           |
| 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) |      |     |                     |          |           |

**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 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 when the data have been synchronised.

**PC Recording - Session 2**

For this session the data cannot be synchronised, because the recording lasted only 11 seconds.

**PC Recording - Session 4**

SAVE

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

DELETE

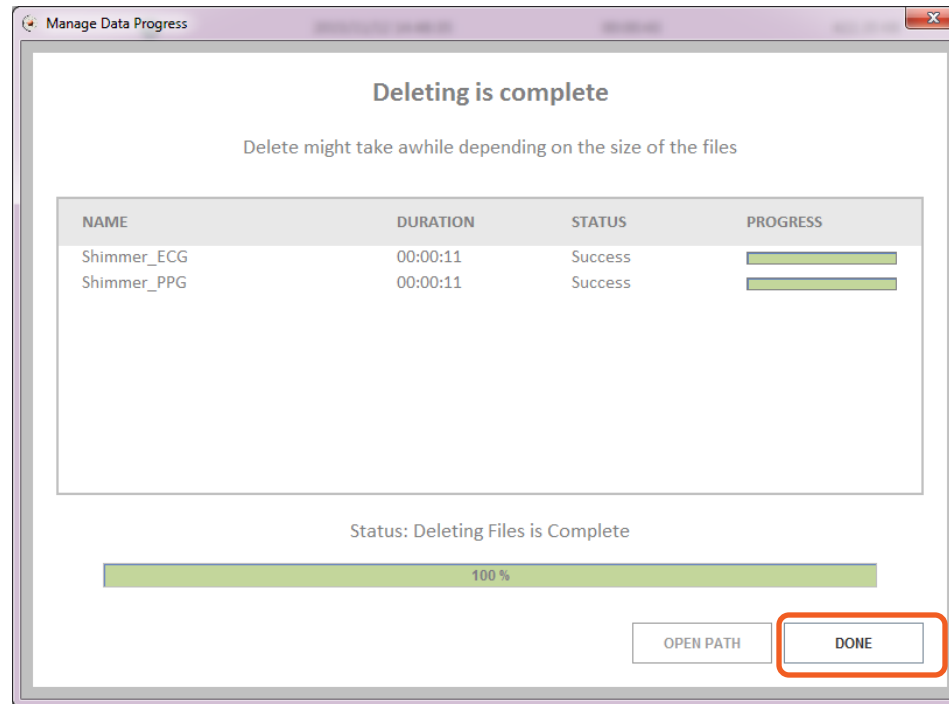
EXPORT

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:

Consensys v0.4.0

MANAGE DEVICES | LIVE DATA | MANAGE DATA

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                  |      |     |                     |          |           |
| Session 2                     |      |     |                     |          |           |
| Shimmer_PPG - 256.0Hz - 100%  |      | ✓   | 2015/11/12 14:48:35 | 00:00:43 | 422.35 KB |
| Shimmer_ECG - 512.0Hz - 100%  |      | ✓   | 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 |
| PC Recording                  |      |     |                     |          |           |
| Session 1                     |      |     |                     |          |           |
| 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                     |      |     |                     |          |           |
| 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       |
| GS-v0.4.0                     |      |     |                     |          |           |
| PPG                           |      |     |                     |          |           |
| Sample9Dof_R                  |      |     |                     |          |           |
| SampleECG                     |      |     |                     |          |           |
| SampleEMG                     |      |     |                     |          |           |
| SampleGSPPG                   |      |     |                     |          |           |
| 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% | M    | ✓   | 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   |
| Accel_WR_X (+/- 2g, 1344.0Hz) |      | ✓   | 2015/10/02 16:08:31 | 00:01:59 | 1.05 MB   |
| 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

DELETED

PERMANENTLY DELETE SELECTED DATA?

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

Yes No

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 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 when the data have been synchronised.

PC Recording - Session 2

For this session the data cannot be synchronised, because the recording lasted only 11 seconds.

PC Recording - Session 4

SAVE

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 v0.4.0 software interface. The 'MANAGE DATA' tab is active. The 'AVAILABLE DATA' table lists various recording sessions and data files. A red 'A' highlights the 'Shimmer\_ECG - 512.0Hz - 100%' session. The 'DATA DESCRIPTIONS' panel on the right shows details for 'Config Live' and 'SD Recording - Session 2'. A red 'B' highlights the 'PROCESS' button at the bottom right.

| 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 |
| PC Recording                  |      |     |                     |          |           |
| 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_LA_RA_24BIT               |      |     |                     |          |           |
| ECG_LL-LA_24BIT               |      |     |                     |          |           |
| ECG_LL-RA_24BIT               |      |     |                     |          |           |
| ECG_Vx-RL_24BIT               |      |     |                     |          |           |
| GS-v0.4.0                     |      |     | 2015/10/11 12:34:37 | 00:01:38 | 67.25 KB  |
| PPG                           |      |     | 2015/10/15 09:07:35 | 00:00:03 | N/A       |
| SampleSDof_R                  |      |     | 2015/06/26 17:17:14 | 00:01:00 | 766.82 KB |
| SampleDof_W                   |      |     | 2015/06/25 15:58:14 | 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 | 00:02:00 | 420.93 KB |
| SampleCSPPG                   |      |     | 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                  |      |     |                     |          |           |
| 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_28E5 - 1024.0Hz - 98% |      |     | 2015/10/02 16:08:31 | 00:01:59 | 1.05 MB   |
| Accel_WRL_X (x/-2g, 1344.0Hz) |      |     |                     |          |           |
| Accel_WRL_Y (y/-2g, 1344.0Hz) |      |     |                     |          |           |
| Accel_WRL_Z (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

Trial information can be added here. Trial "Config Live" is configured during the creation of this instruction document and a few recordings 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 when the data have been synchronised.

PC Recording - Session 4

Insert Session Description Here.

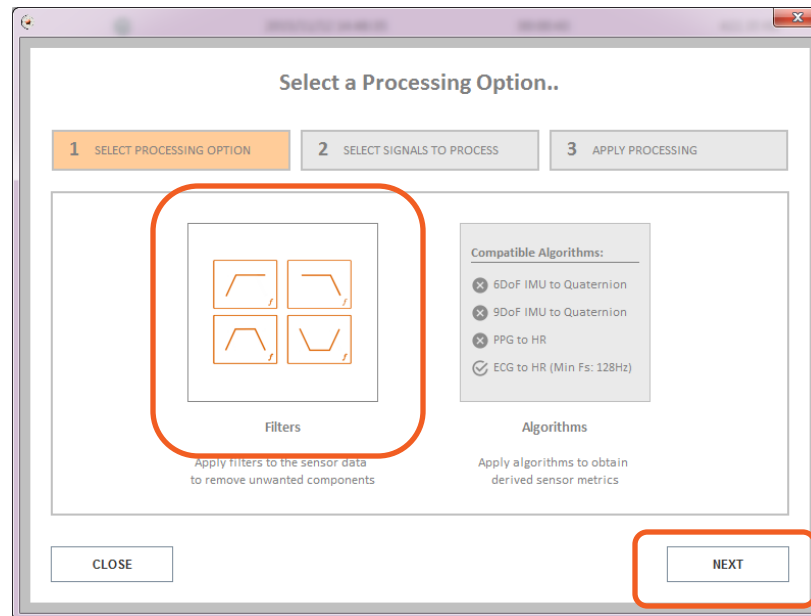
DELETE EXPORT PROCESS

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

# MANAGE DATA – PROCESS (2/5)

## STEP 2 – Select a Processing Option:

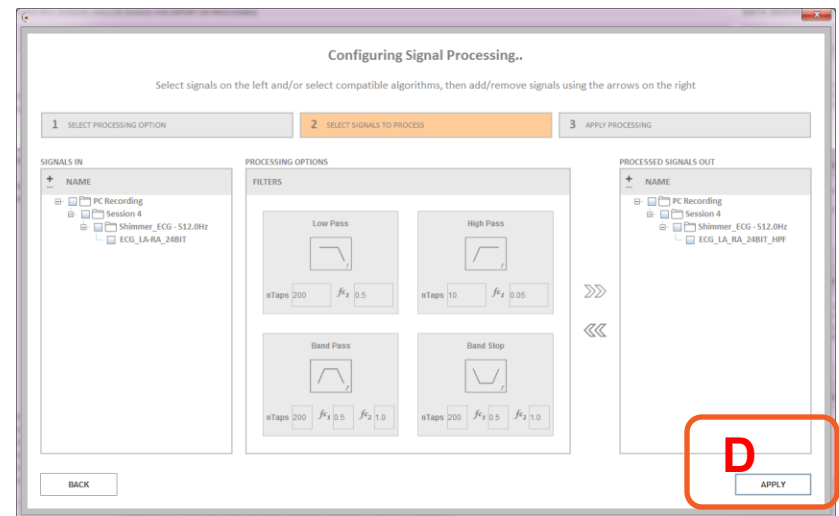
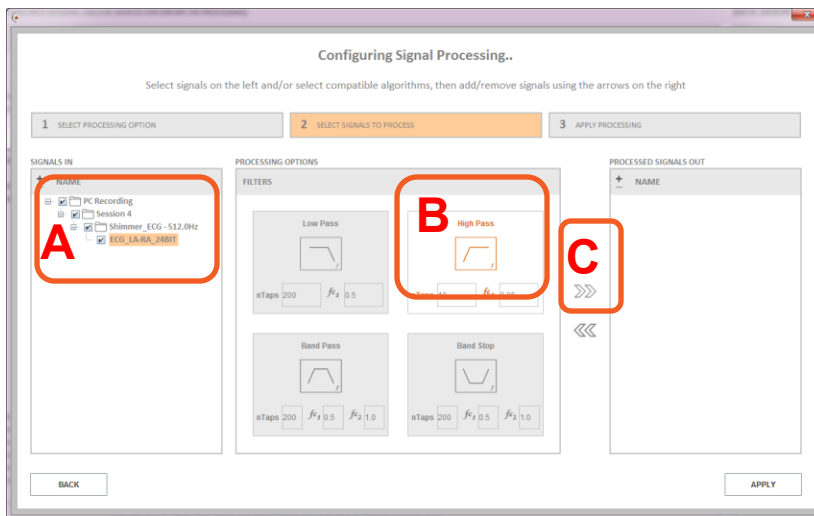
- A. Select **Filters** or **Algorithms** – only algorithms compatible with the selected data can be selected.
- B. Note that **Filters** only applies one filter operation to the selected signal(s). Follow STEPS 1 to 3 on the processed signal(s) to apply a successive filter operation.
- C. Click “NEXT”.



# MANAGE DATA – PROCESS (3/5)

## STEP 3 – Configuring Signal Processing:

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



# MANAGE DATA – PROCESS (4/5)

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

**Processing Data in Progress..**

This might take a while depending on the amount of data!

1 SELECT PROCESSING OPTION 2 SELECT SIGNALS TO PROCESS 3 APPLY PROCESSING

| DATA SOURCE  | SESSION ID | DEVICE      | STATUS      | PROGRESS               |
|--------------|------------|-------------|-------------|------------------------|
| PC Recording | 4          | Shimmer_ECG | In Progress | <div><div></div></div> |

Overall Status: 40% Complete

40 %

DONE

**Process Data Complete**

This might take a while depending on the amount of data!

1 SELECT PROCESSING OPTION 2 SELECT SIGNALS TO PROCESS 3 APPLY PROCESSING

| DATA SOURCE  | SESSION ID | DEVICE      | STATUS  | PROGRESS               |
|--------------|------------|-------------|---------|------------------------|
| PC Recording | 4          | Shimmer_ECG | Success | <div><div></div></div> |

Process Data is Done!

100 %

DONE

# MANAGE DATA – PROCESS (5/5)

STEP 5 – Confirm processing has been applied:

Consensys v0.4.0

MANAGE DEVICES | LIVE DATA | MANAGE DATA

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 | 00:07:40 | 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 |
| PC Recording                  |      |     |                     |          |           |
| 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_LA_RA_24BIT_HPF           |      |     |                     |          |           |
| ECG_LL-RA_24BIT               |      |     |                     |          |           |
| ECG_Vx-RL_24BIT               |      |     |                     |          |           |
| GS-v0.4.0                     |      |     | 2015/11/11 12:34:37 | 00:01:38 | 67.25 KB  |
| PPG                           |      |     | 2015/10/15 09:07:35 | 00:00:03 | N/A       |
| SampleDof_R                   |      |     | 2015/06/26 17:17:14 | 00:01:00 | 766.82 KB |
| SampleDof_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 | 00:02:00 | 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                  |      |     |                     |          |           |
| 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_3804 - 1024.0Hz - 98% |      |     | 2015/10/02 16:08:14 | 00:02:00 | 1.06 MB   |
| Shimmer_2810 - 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

EXPORT PROCESS

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 has been set for both Shimmers.

PC Recording - Session 1

For this session the data of both Shimmers has 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 afterwards.

PC Recording - Session 4

Insert Session Description Here.

SAVE

# THINGS YOU MIGHT NEED TO KNOW (1/5)

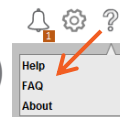
- The **green** and **blue** LED (in LED location B)

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.



are **blinking rapidly**.

- **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 (2/5)

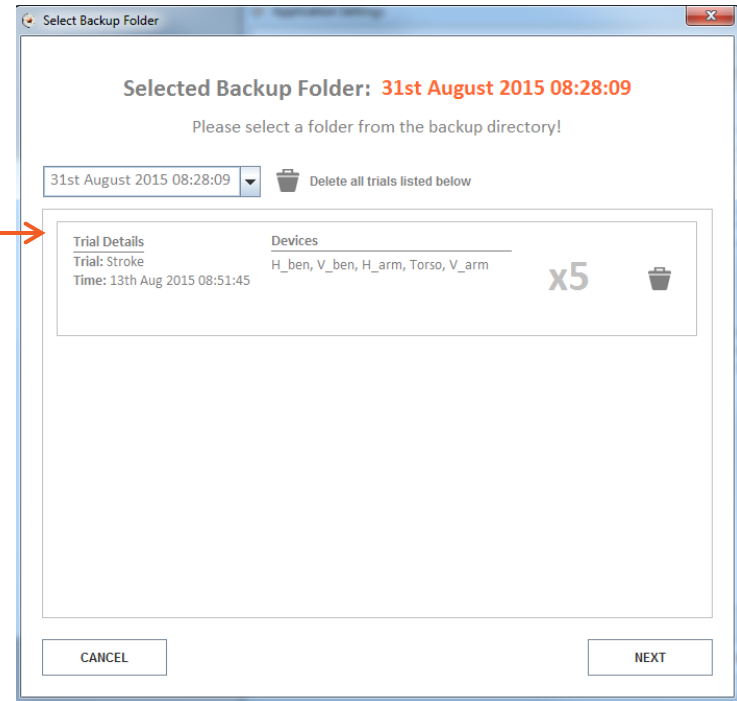
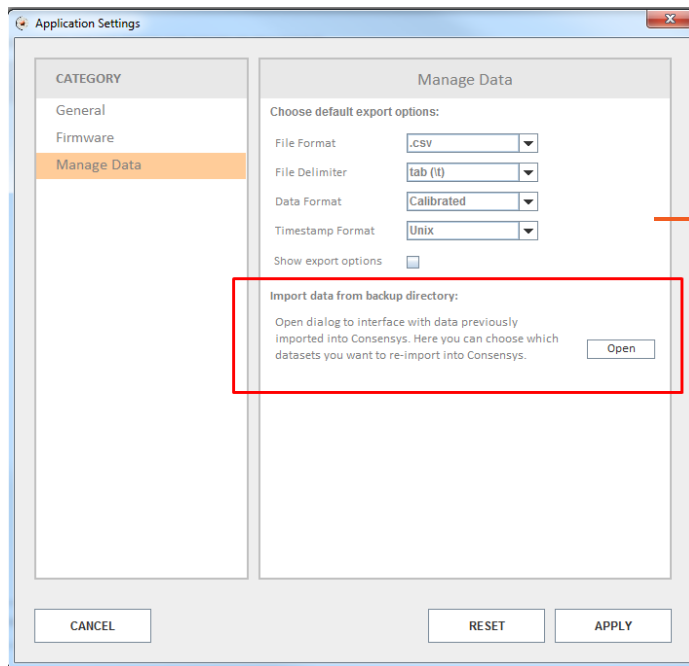
- To access the SD Card of a Shimmer inserted in a *Consensys Base*, right-click the Shimmer visualisation in MANAGE DEVICES; press “Open SD”:



- 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*. (<https://www.shimmersensing.com/support/wireless-sensor-networks-documentation/>)

# THINGS YOU MIGHT NEED TO KNOW (3/5)

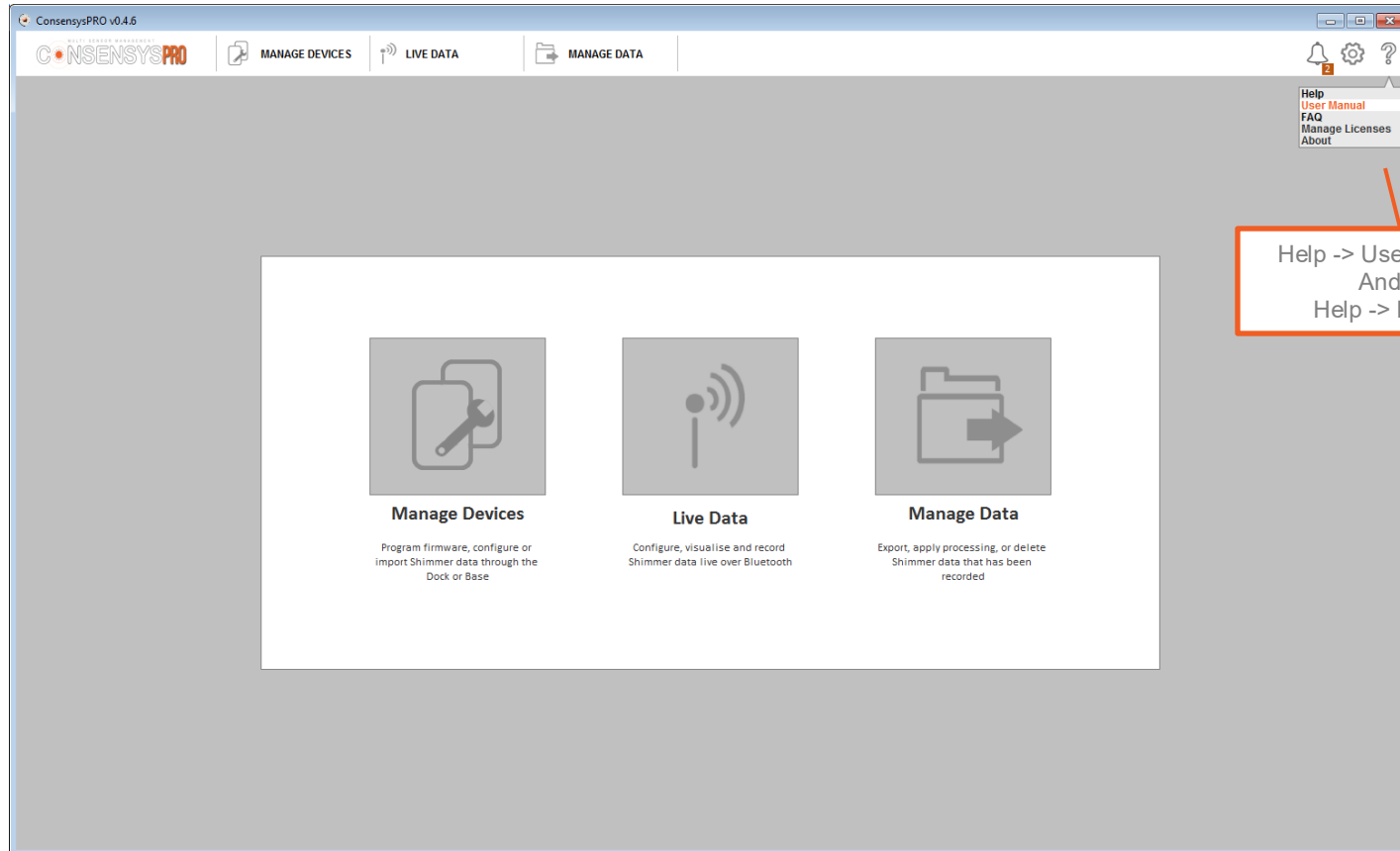
- To import data from the backup, you only need to open the *Manage Data* category in the Application Settings and click on *Open* the backup



- 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 (4/5)

- 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



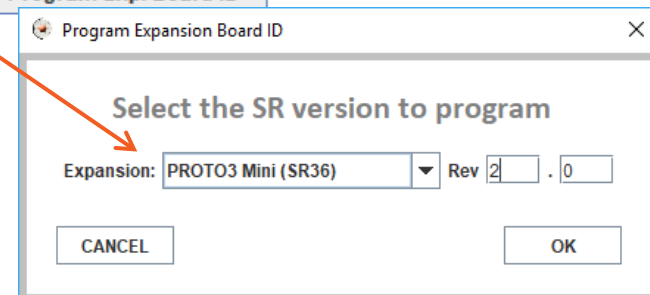
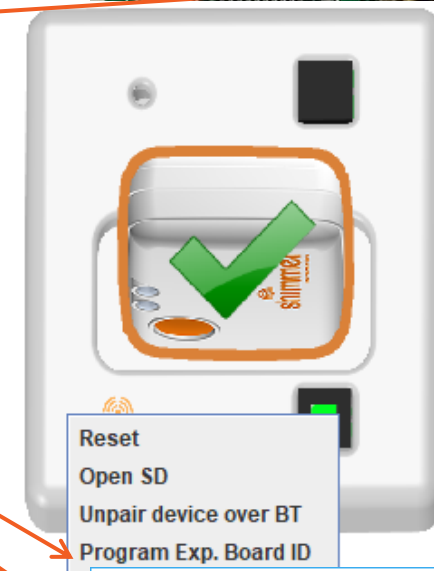
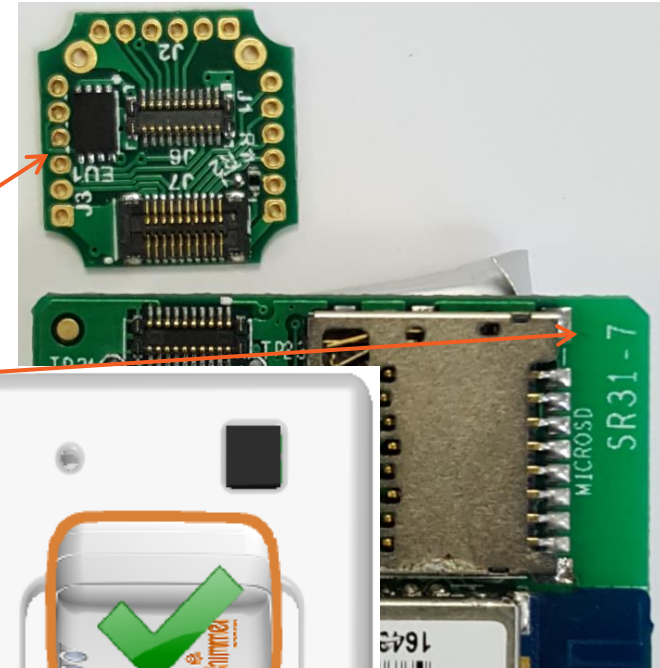
# THINGS YOU MIGHT NEED TO KNOW (5/5)

## PROTO3 MINI USERS

Customers attaching the Proto3 Mini to newer versions of the Shimmer3 IMU unit (*i.e.*, the SR31-7) need to update the board version for the device to function correctly in Consensys.

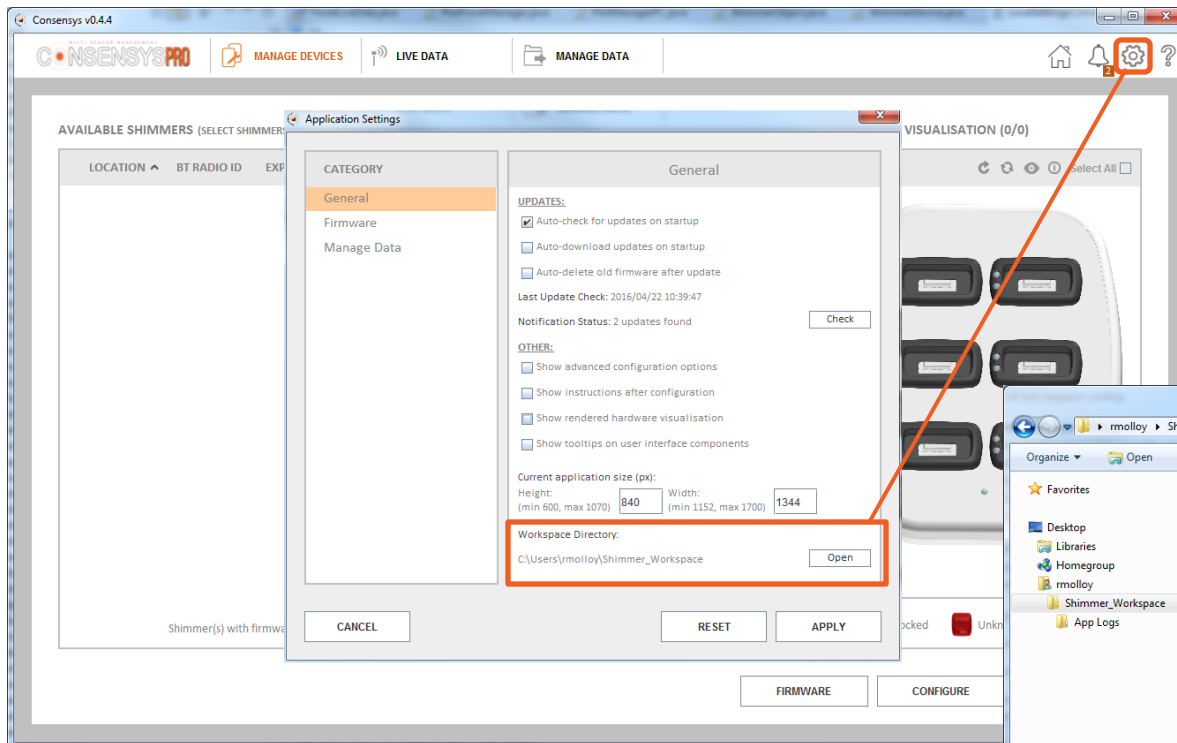
- Attach the Proto3 Mini to the SR31-7 by following instructions described in the Proto3 User Guide.
- Dock the Shimmer and program it with LogAndStream v0.10.0 (or greater).
- Hold the Ctrl+Alt+Shift keys and right click on the Shimmer image in the Dock or Base (using Consensys v1.5.0 or greater).
- Select the right click menu option titled “Program Exp. (Expansion) Board ID”.
- Select “Proto3 Mini (SR36)” from the drop-down menu, enter a Rev of “2” and click “OK”.

To return the Shimmer to normal operation if the Proto3 Mini is disassembled from the IMU, repeat the procedure but instead select the option “Shimmer3 (SR31)” from the drop-down menu and a Rev of “7”.

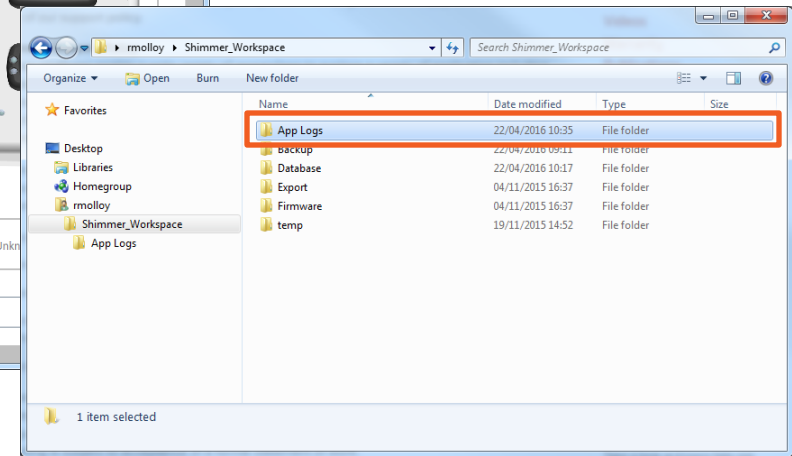


# TROUBLESHOOTING –DOCK/BASE ISSUES

- 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](http://www.shimmersensing.com/menu/support/)<sup>1</sup>.

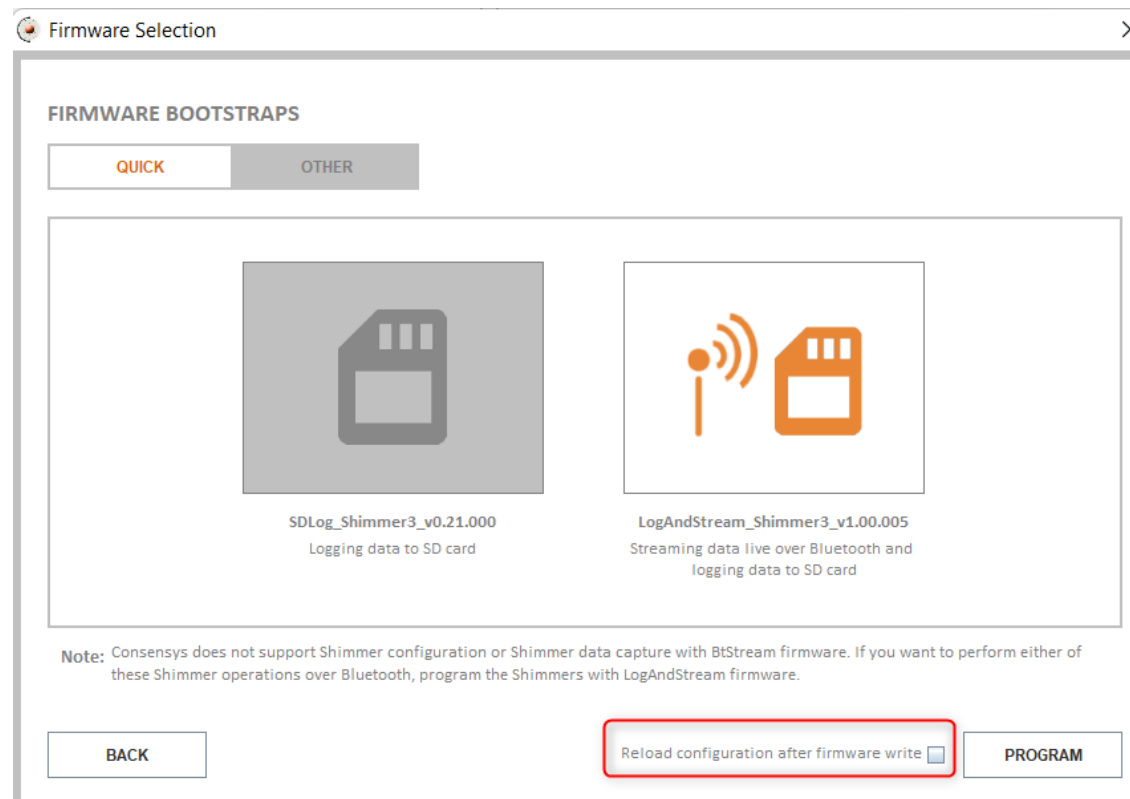


**N.B.** Make sure to include the contents of the **Apps Logs** directory located in the **Shimmer\_Workspace** directory as shown below.



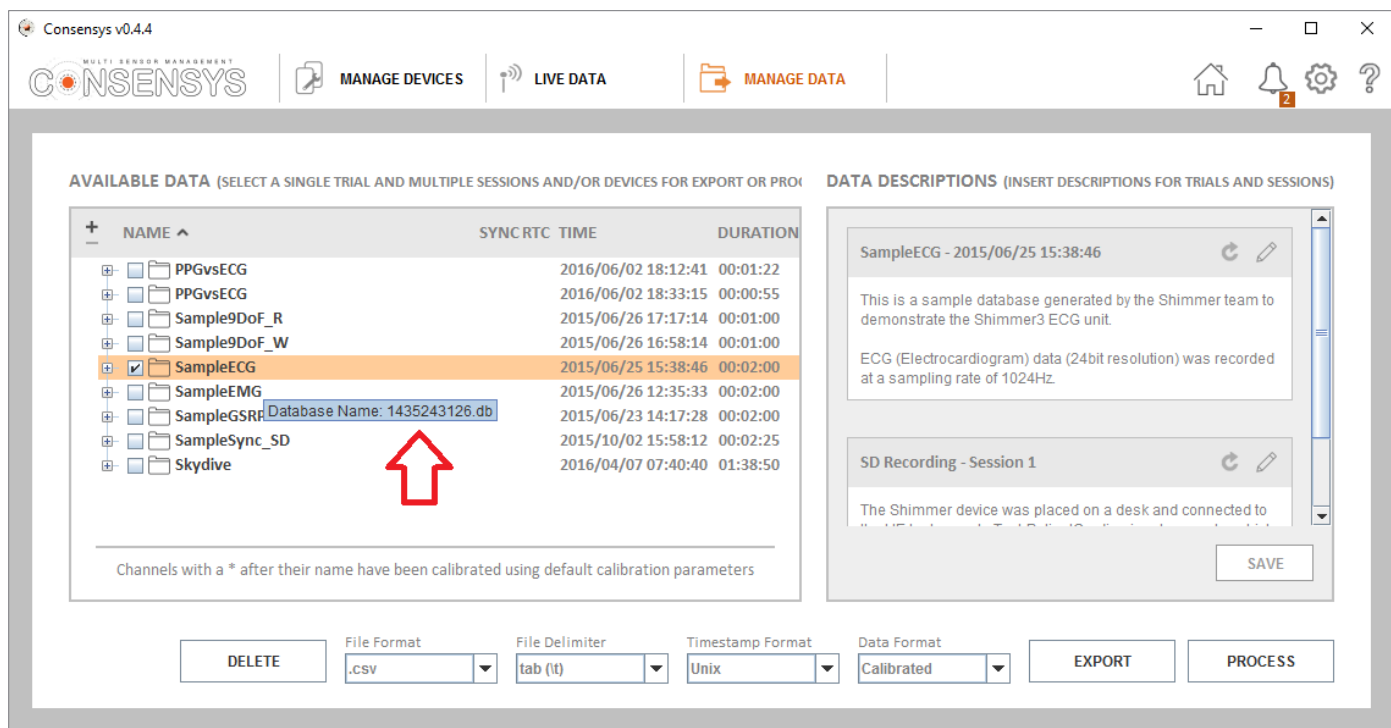
# TROUBLESHOOTING – SHIMMER RECOVERY

- If your Shimmer is experiencing odd behaviour or is locked up on boot, carry out the subsequent steps. This will reset the sensor back to factory default settings and can help to recover it.
- Follow Steps 1-3 in the Program Firmware section, making sure the “Reload configuration after firmware write” checkbox is unticked (as follows).



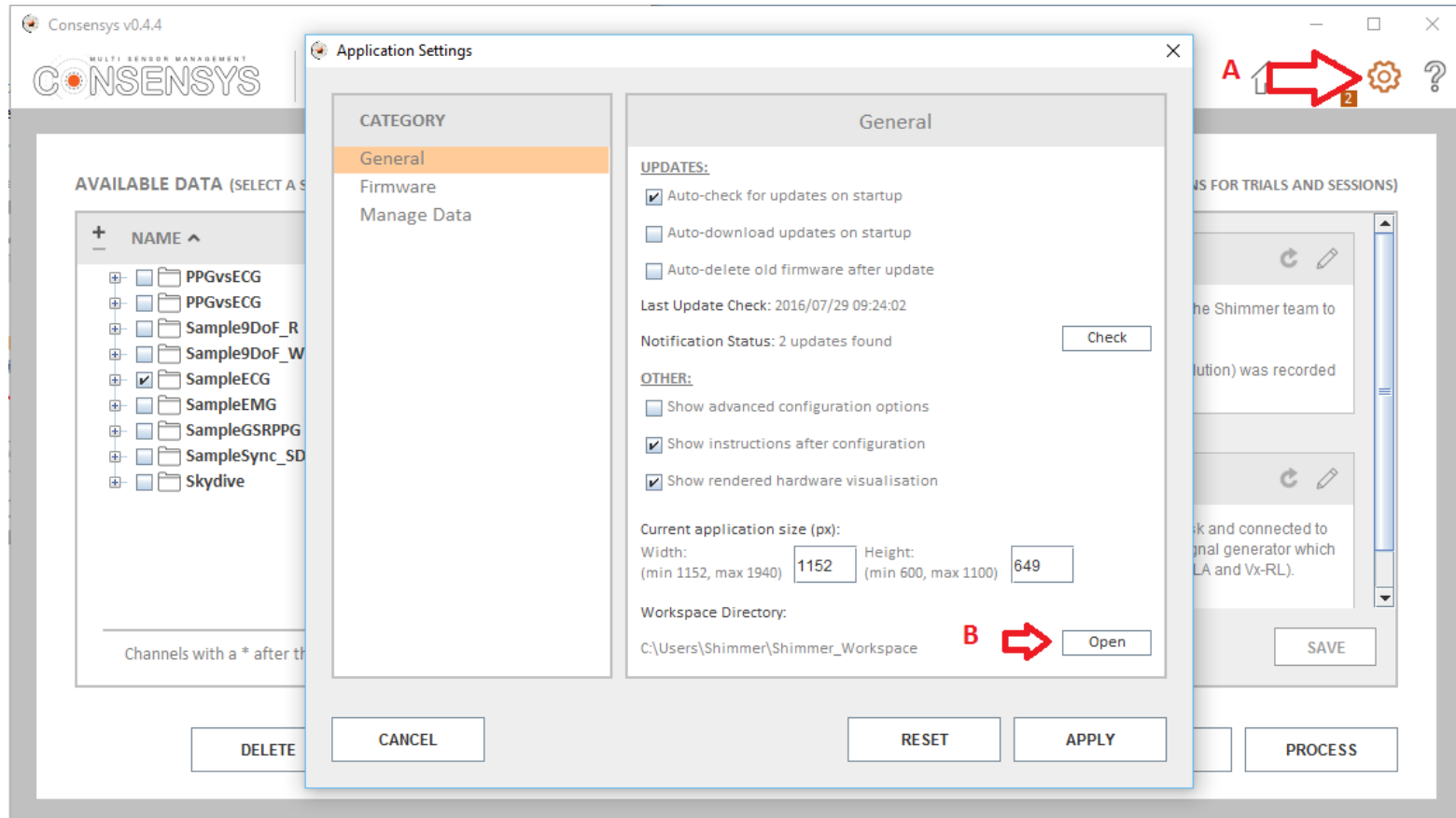
# TROUBLESHOOTING – RECORDED DATA

- 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](http://www.shimmersensing.com/menu/support/)<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.
1. 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

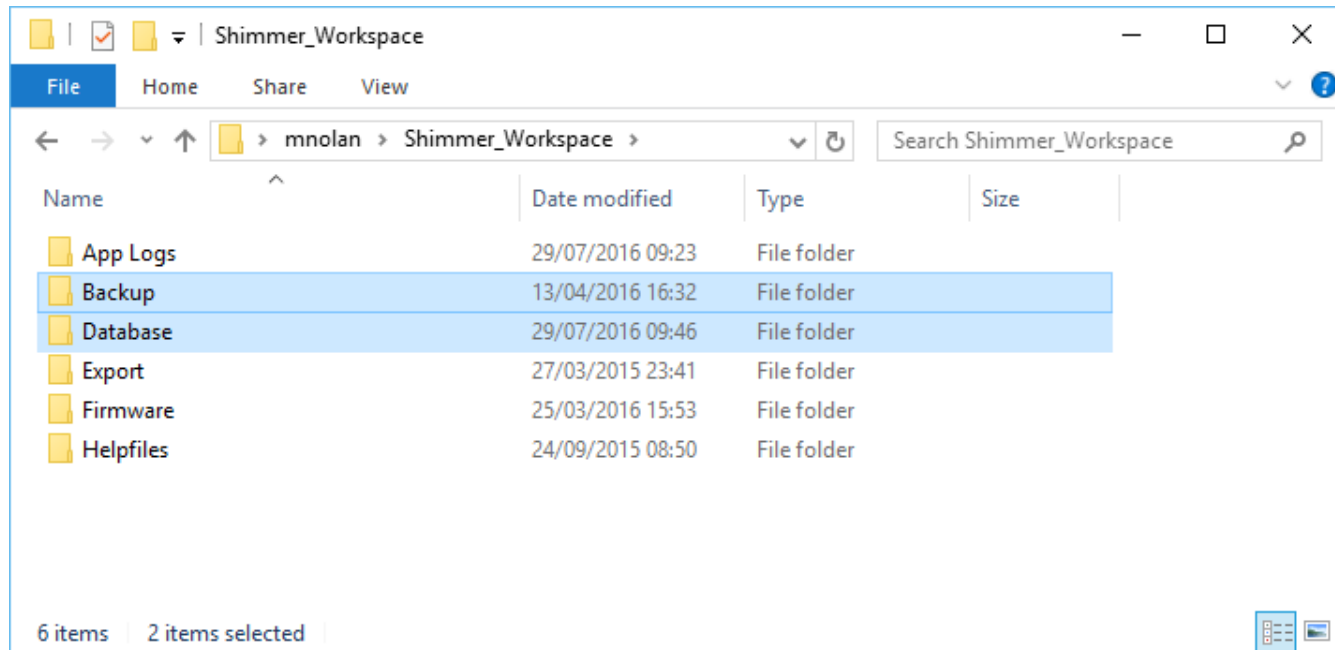




# TROUBLESHOOTING – RECORDED DATA

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

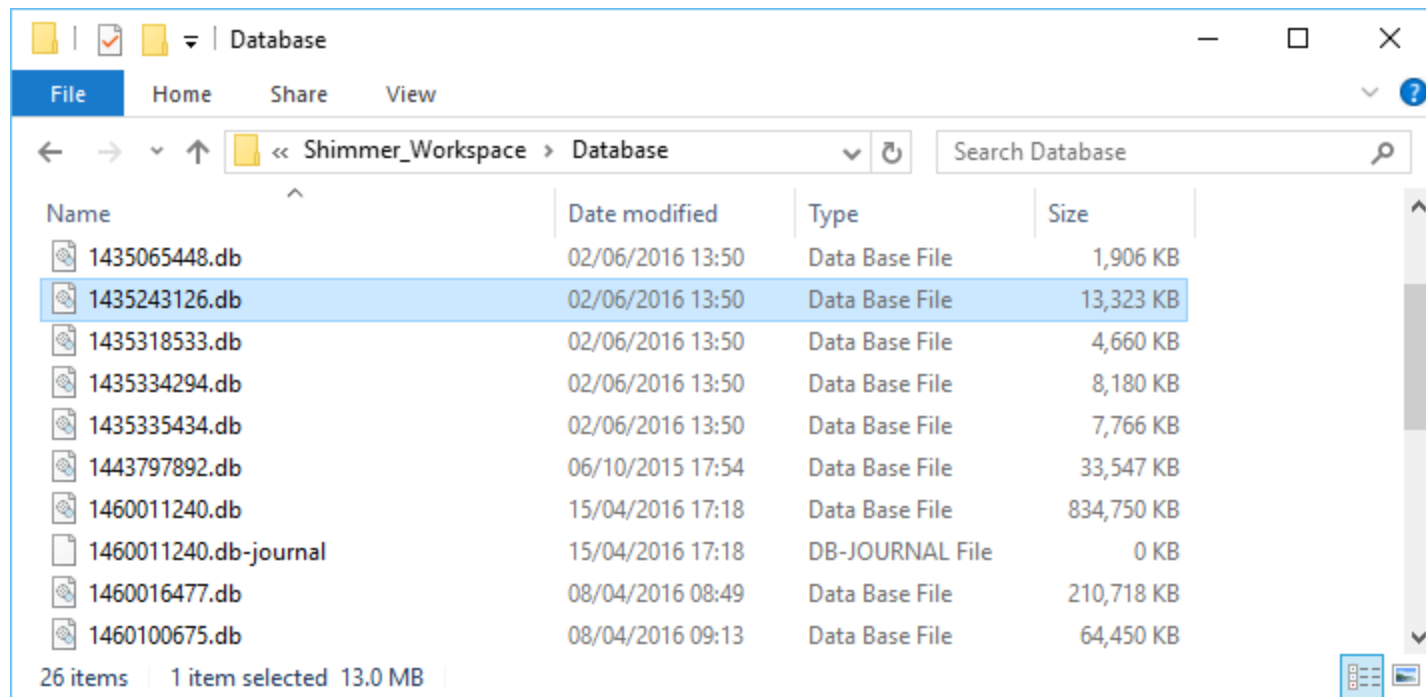
The 'Backup' directory is only relevant if data was imported from the Shimmer's SD card and is not used if data is solely recorded over a Bluetooth connection.



# 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](#)).



# 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'.

**Level 1** Consensys import date

**Level 2** Bluetooth MAC address per Shimmer

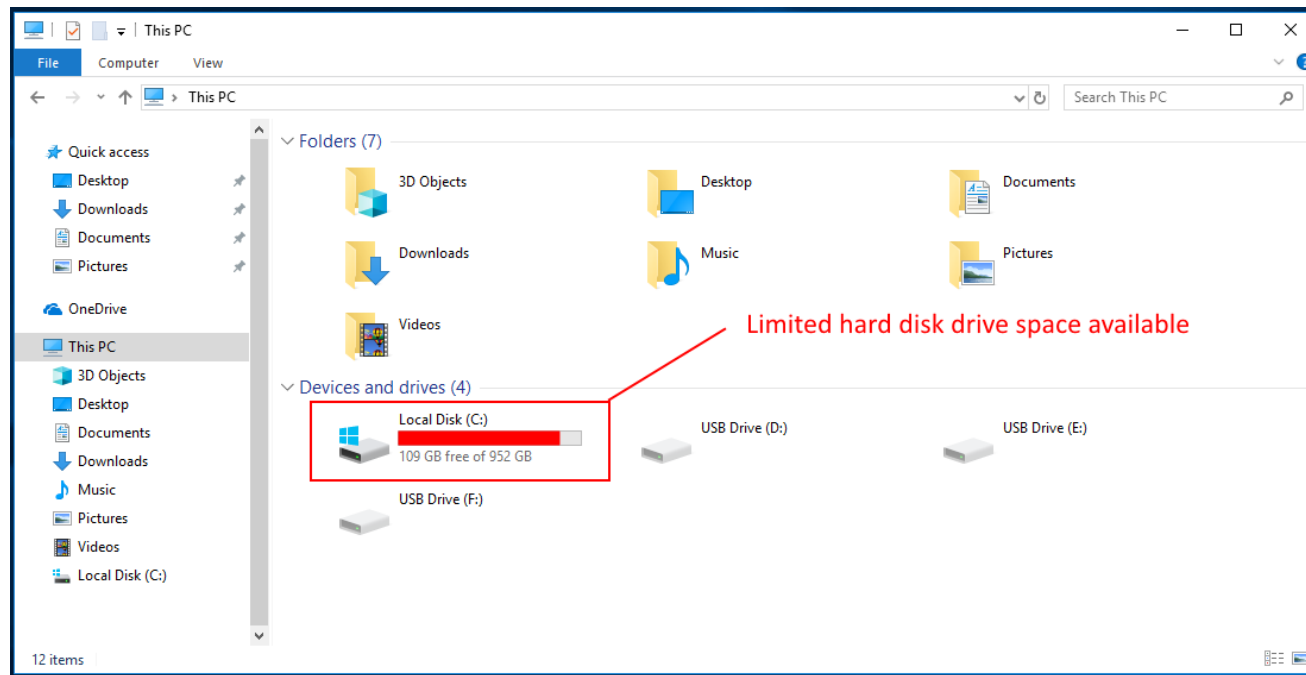
**Level 3** 'data' directory as copied directly from each Shimmer's SD card

**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)

**Level 5** Shimmer name (i.e. 'Shimmer') and the recorded session number (i.e., 000)

# TROUBLESHOOTING – LIMITED FREE HARD DISK DRIVE SPACE (P1)

1. If recording a significant amount of data in Consensys you may find the available memory on the hard disk drive nearing capacity which will limit the ability to record further data (see below for illustration of hard disk drive nearing capacity)
2. If step 1. above is observed, Consensys datasets should be moved from the hard disk drive to a secure external location, example procedural steps to follow on the [next page](#).



# TROUBLESHOOTING – LIMITED FREE HARD DISK DRIVE SPACE (P2)

## Example procedure to free-up hard disk drive space

1. Choose the Consensys datasets that you would like to archive from the 'Manage Data' tab.
2. Identify the dataset's database name (a set of ten digits e.g., '1435243126.db'). See [page 84](#) for how to do this.
3. Locate the corresponding folder (name of the folder is same as the database name e.g., '1435243126') in the 'Database' directory.
4. Make sure this folder has a database file (.db)
5. Move this folder safely to a secure location e.g. an external hard disk drive (Do not rename the folder.)
6. Once you restart the software, you will no longer find the dataset in the 'Manage Data' tab

## A few points to keep in mind..

- Once archived, for your convenience maintain a document with the dataset's details such as the trial name, database name, study details etc.
- If you would like to view the archived data in Consensys, please copy the dataset's folder to the 'Database' directory of the PC running Consensys and restart the software.
- Store the archived data in secure location.

# FURTHER QUESTIONS?

Why not reach out to us through our online ticketing support system?

<http://shimmersensing.com/support/wearable-sensing-support/>

Or contact us through one of our social media channels

