Software Installation & Set-up Guide

Contents

1 Introduction

This guide describes the installation procedure for Mind-Body Training Tools biofeedback and neurofeedback software, and also the basics of how to get up and running. For most users the process is simple and involves running a single script, so please don't be put off by the length – much of the material you probably won't need to read.

The software is provided as a suite of applications. There is at least one application per biofeedback modality (muscle tension, heart rate variability, etc.), and the applications are grouped into modules which are sold separately.

The applications are started from a program called the Platform, which manages the running of the applications and the session data generated. You can generate session reports from the Platform once you exit an application.

The suite of biofeedback applications was developed using software called BioEra. BioEra is a visual design tool for processing and displaying physiological data in real time. Each application is implemented as a "design" within BioEra – a design is simply a particular way of gathering data, processing it and presenting it as feedback. BioEra is covered in more detail in section 4.6.

For many users, the software is provided on a USB memory stick, which also functions as a licence key for BioEra. You cannot run the BioEra applications without having this key plugged in – so be careful not to lose it!

Other users will download the software from the internet as a compressed (zipped) file. You'll need to extract all the files into a folder, then run the installation from there.

The applications cannot start without a valid signature file – this is simply a means of preventing unlawful copying of the software. If your software is provided on the BioEra stick, the signature files will be already correctly installed (on the stick). If you downloaded the software, the signature files will be sent separately and you'll have to copy them to the right place. See section 3.2 for details of how to do this.

A trial version of Mind-Body Training Tools is available. The installation and set-up of the trial version is almost the same as for the full version, with only minor differences. These are covered in section 3.5 below.

2 System Requirements

The most recent version of the software has been tested and works with Windows versions 10 and 7. It may also work with older versions of Windows. I recommend you have the latest service packs installed.

It requires at least a 1 GHz processor speed, a minimum of 512 MB of RAM, and approximately 2 GB of disk space.

If you have a BioEra dongle, you need an available USB port.

Of course you'll need a biofeedback device that the software supports. An up-to-date list of supported devices is available on the StressResilientMind.co.uk website.

3 Software Installation

The installation process involves (i) installing the Platform program, (ii) installing BioEra, (iii) copying the BioEra designs and associated files, and (iv) installing your BioEra signature files.

There is a script which automates the whole process. For most people there should be no need to be concerned with the details, but they are described here in case something goes wrong, or for those who wish to know.

If you're installing the full version after using the trial version, you should first uninstall the trial version – see sections 3.3 and 3.5 below.

3.1 Running the Installation Script

If your software is provided on a BioEra dongle, insert it into a free USB socket. You'll notice that when you first insert it, Windows recognises it as a memory device and you will see a new drive available from within Windows (e.g. from within Windows Explorer / File Explorer). I strongly recommend you preserve the files on the drive, in case you need to reinstall the software in the future.

The installation script is named "mbtt_installation" – it has the extension ".bat" as technically it is a windows batch file. If you're installing the trial version it's called "mbtt_trial_installation".

Run this script – for example by double-clicking on it from Windows Explorer.

The script opens its own window. When the script completes you'll see a message reporting "successful installation" and you can hit any key to close the window. There are several steps , some of which require your interaction, and these are described below.

3.1.1   Platform Installation

The first step for the installation script is to install the Platform program. This step opens its own window – follow the on-screen instructions. You'll need to agree to the licence terms.

The Platform requires a Microsoft component called the dot net framework. You may already have this installed on your computer but if not, or if the Platform needs a more up to date version, then the installer will attempt to download it from the internet. If your computer isn't connected to the internet you should be able to download it elsewhere and install it manually. (Specifically, you'll need the "dot net framework version 4 client profile". Enter this phrase into a search engine, and you'll find it – you'll be downloading it from Microsoft's website.)

This installation automatically creates a desktop icon and adds an entry to the 'All Programs' menu available from the windows start button. The Platform's icon is shown in figure 1.

3.1.2   BioEra Installation

Next the script runs the BioEra installation program, which you'll see appear as a separate window, and requires you to agree licence terms, select components to install, and select the destination folder. For these choices I recommend you accept the defaults.

The actual location of the BioEra installation depends on whether your computer system is 32 bit or 64 bit. In the former case, the location is:

   C:\Program Files\BioEraPro\

For 64 bit systems the location is:

   C:\Program Files (x86)\BioEraPro\

For convenience, hereafter I'll refer to this location as the "BioEra Root".

If you select a non-default location the rest of the script may not work properly, although it is possible to recover and carry out other steps manually.

The script is likely to also run a BioEra update program, which is similar to the first BioEra installation – requiring a few choices. Again I recommend accepting the defaults offered.

3.1.3　　Copying the Designs and Documentation, etc.

The Mind-Body Training Tools files relating to BioEra are copied to a single folder within the BioEra location, called 'YBF'. Its location will be:

>　　[BioEra Root]\design\YBF

Files copied to this folder include the designs (files associated with BioEra), documentation and training videos.

3.2 BioEra Signature Files

As mentioned, the applications require a valid signature file before they will start. There is one signature file for each module. If your software was provided on the BioEra stick, they will be already present and you don't need to take further action. Otherwise, the signature files will be sent separately, and you will need to copy them to the right location.

If you're installing the trial version of Mind-Body Training Tools, there are no signature files to install.

You have two choices as to where to copy the signatures to. The first option is the BioEra dongle – this is more convenient if you want to install the software on more than one computer. If you don't have a dongle (i.e. you bought a single-computer BioEra licence) then you only have one choice – the second.

The second choice is to copy the signature files to the 'config' folder of the BioEra installation, i.e.

>　　[BioEra Root]\config\

3.2.1　　Copying Signatures to the BioEra Dongle

The correct location on the dongle for the signature files is a folder called 'bioeralic' – but this folder is hidden, meaning you can't see it from Windows Explorer (File Explorer). The following describes how to copy them.

STEP 1:　Copy the signature files from where you downloaded them to, onto the BioEra drive (top level).

STEP 2:　Copy the files to bioeralic using a windows command prompt as follows:

STEP 2A:　Start up a windows command prompt. To do this, click the Windows Start button, then type "cmd" (into the search box) and hit return. If you have an older version of windows, you may have to click 'Run' first.

　　　　　You'll see a window appear, with a black background and a prompt saying something like "c:\windows\system32\>".

STEP 2B:　Go to the BioEra drive. Note the letter of your BioEra drive (as it appears in e.g. Windows Explorer). Say it has letter "E". Type "E:" and hit return. The prompt should change to "E:>".

STEP 2C:　Make sure your signatures are present. Type "dir *.bs". Hit return. You should see a listing of your signature files, having names like "ybfeeg.bs". If you don't, you didn't manage step 1 properly – try it again.

STEP 2D: Move the signature files. Type "move *.bs bioeralic" and hit return. You should see a message saying this step was successful. Now you can start the applications – as long as your dongle is inserted.

3.3 Uninstalling and Reinstalling

If you wish to uninstall the software, you need to uninstall both the Platform program and BioEra. The platform can be uninstalled from the Windows control panel. BioEra has its own uninstall method – click the Start button, then Programs or All Programs, then find the BioEra Pro folder in the menu, then select "Uninstall". Uninstalling either the Platform or BioEra will not affect your user data files (see section 4.2.2) unless you created your base folder in the BioEra root area, which is not advisable.

To reinstall the software, simply re-run the installation script (mbtt_installation). Note, the script will not reinstall BioEra unless you have first uninstalled it.

If you install a BioEra update, then you'll also need to rerun the installation script.

Re-running the installation script will delete the YBF folder and then recreate it – so if you added any files to it for any reason, you may wish to back up your data.

3.4 Manual Installation

You may wish to carry out the steps of the installation manually, for example to recover from failures in the script. In the manual installation, you carry out the same steps as the installation script performs. In the following instructions, the files and folders I refer to are to be found amongst the installation files – either on your BioEra drive or in the folder you unzipped to.

- First install the Platform program. The installation files for the Platform are located in a folder called 'Platform'. Simply run the 'setup' application within this folder and follow the instructions that come up. For example Windows will ask your permission to make the change. You must agree the licence terms.

    This installation automatically creates a desktop icon and adds an entry to the 'All Programs' menu available from the windows start button. The Platform's icon is shown in figure 1.

- Second, run the installation application named 'bioera-pro-*-full-win' where * is a version number such as 3.004.

    Again you must agree to the licence terms in order to install.

    You will be offered a choice of components to install. I recommend you accept the default selection.

    You can choose where to install BioEra. I recommend you accept the default (which is detailed in section 2.1.1 above) and all other default selections offered to you by the installation application.

- Third, install an upgrade version of BioEra, if one is available.

    Run the installation application labelled 'bioera-pro-*-upgrade-win' where * is some version number such as 3.058. As in step 2 above, accept the default choices offered to you by the installer.

- Fourth, copy the BioEra designs and associated documentation.

  The files you need are all in a folder named 'YBF'. You will need to copy these files to the location where you installed BioEra. (Section 3.1.2 tells you the default location.) Copy the whole YBF folder to:

  [BioEra Root]\design\

  The designs will not run properly from any other location.

3.5 Trial Version Installation – Differences

As mentioned in the introduction, a trial version of Mind-Body Training Tools is available. It works with a trial version of BioEra, but if you already have the full version of BioEra it will work with that.

The trial version limits your sessions to one minute (with the BioEra trial version) or 90 seconds with the full version of BioEra.

The installation is almost exactly the same, but for the following minor differences:

1. The installation script is named "mbtt_trial_installation.bat".

2. The script by default will install the trial version of BioEra, but if you already have the full version of BioEra installed, it will ignore this step.

3. The set-up files for the Platform program are found in a folder called "platform_trial".

4. Some of the BioEra design file names in the YBF folder are slightly different.

5. If you're installing the trial version of BioEra, there are no updates to install.

6. There are never any signature files to install. All the applications will run, in trial version.

3.5.1 Installing The Full Version After You've Installed The Trial Version

If you decide to buy the full version after exploring with the trial version, you'll need to uninstall the trial version. That means uninstalling the Platform program trial version, and BioEra. See section 3.3 above. Strictly speaking you don't need to uninstall BioEra but you should make sure that the YBF folder is deleted from the BioEra location.

4 Running The Software

The starting point for running the biofeedback applications is the Platform program. The Platform manages the applications and the data they generate. Sections 4.1 to 4.5 below introduce you to working with the Platform.

BioEra is an independent program in itself. You can use it to run other (third-party) designs, or you can even use it to develop your own designs (though this is not for the technically faint-hearted). Section 4.6 of this guide gives a basic introduction to BioEra.

4.1 Starting the Platform Program

The Platform installation automatically adds an icon to your desktop (see figure 1). Double-click this icon to start it. If you don't want the icon on your desktop you can delete it, and instead launch the Platform by clicking your Windows start button. The exact sequence of steps depends on which version of Windows you have. You may need to click on 'Programs'. Scroll to the folder 'Mind-Body Training Tools' and inside here is an icon for 'Mind-Body Training Tools'.

Figure 1 – Mind-Body Training Tools desktop icon

I hope that once started, the Platform should be self-explanatory. Here is a brief summary.

- You'll see a set of tab buttons at the left side of the window, one for set-up and data management options, and then one for each biofeedback modality such as EMG (muscle tension).

- Within each modality tab you will find buttons to

   - start the biofeedback applications

   - generate and open summary reports of your sessions

   - open the User Guides (pdf documents)

   - link to online training material

- You'll also see a tab button for "Set-up" (in fact the Platform opens on this tab by default).

4.2 Before Starting the Applications

Before starting the applications you need to configure some options:

- device (amplifier) set-up

- user and data storage options.

These are accessed via buttons in the Set-up tab, labelled 1 and 2 in figure 2 below.
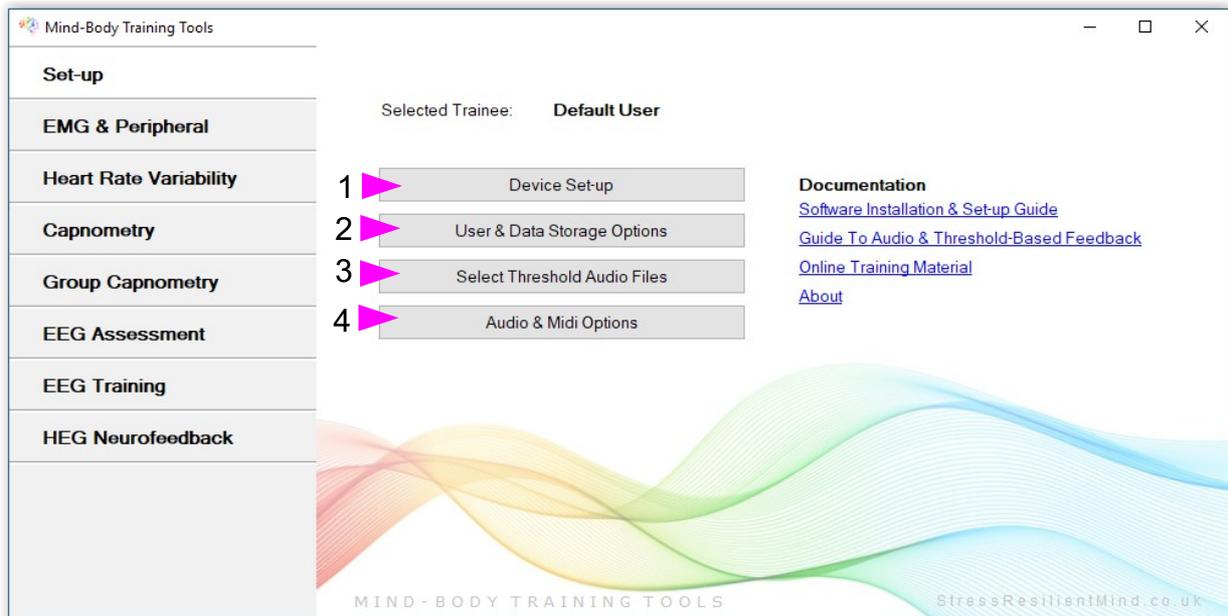
Figure 2 – Platform program's Set-up tab

4.2.1　Device Set-up

You need to register the type of biofeedback device you are using. Clicking button 1 (figure 2) opens up a dialog, shown in figure 3 below.
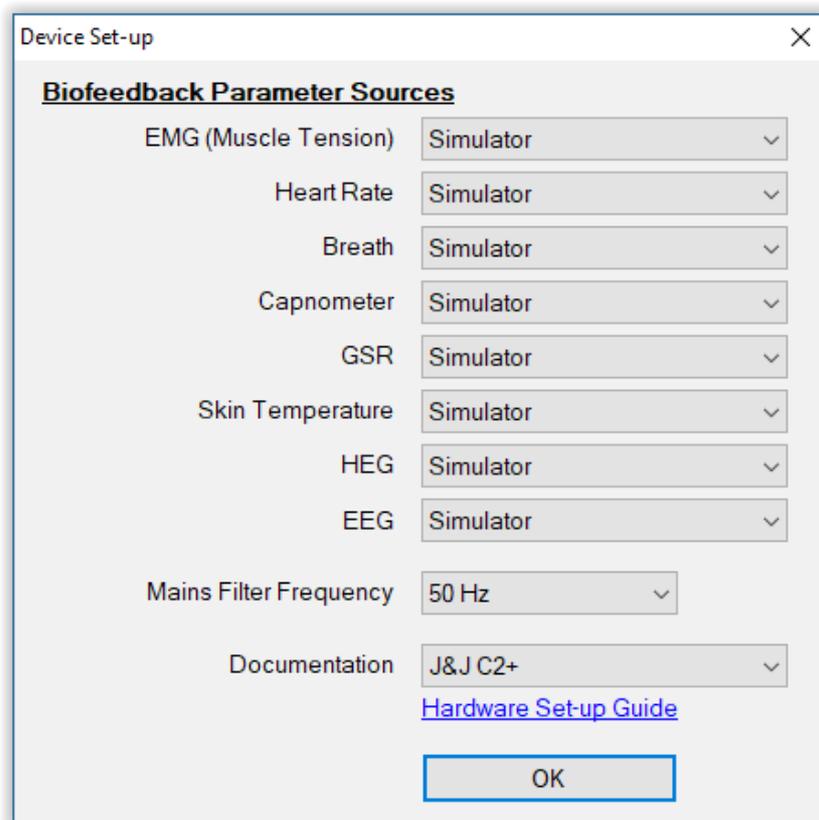

Figure 3 – Device set-up options

The software supports a number of different amplifiers, but not all these amplifiers can support every modality – for example J&J's C2+ device does not offer a HEG sensor. For this reason, there are different device options for each physiological parameter, as you see in figure 3.

Some of the applications can run using two different devices for particular biofeedback parameters (e.g. breath and heart rate in the HRV application) – so you don't necessarily need to select the same device for every parameter control.

One of the device options is 'simulator'. By selecting simulator, you can run the software without any device connected. This is a useful way of familiarising yourself with the applications. In simulator mode, a recorded session is played back.

Most of the source controls contain contain an option for "Session Replay". See section 4.4 below on replaying sessions for more on this.

From the same dialog you can set the frequency of your mains electricity. This setting is important for filtering out interference from the mains. It only takes effect for certain devices, e.g. the J&J C2+. Other devices set their mains filters automatically.

4.2.2   User and Data Storage Options

Running the applications generates session data, which the Platform manages so that you can generate session reports. You can set some options for data management. Although you can run the applications without doing so, no session data will be stored until you do so, and no session reports will be available.

4.2.2.1   Overview

All session data files and report files are stored in a folder called the Base folder. You select or create this folder.

You can choose between single user and multiple user operation. The latter allows you to store data separately for each person who runs biofeedback sessions, but has the added inconvenience that you must select a user each time you start the Platform.

Each user's data is stored in a sub-folder within the base folder. One of the users will automatically be "Default User". This user is selected automatically when you're operating in single-user mode.

Within each user folder is a set of sub-folders, one for each of the biofeedback applications in the suite. Session data and reports are automatically saved in these sub-folders depending on which application you've worked with.

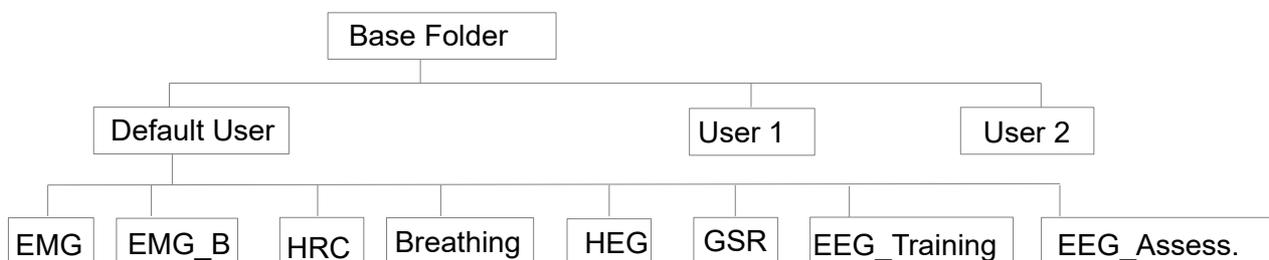Figure 4 below summarises the folder tree structure.

Figure 4 – User data folder tree

The EEG_Assessments and EEG_Training sub-folders are slightly different, as they have their own sub-folders – in the case of the EEG_Assessments folder, one for each assessment, and in the case of the EEG_Training folder, one for each training protocol.

4.2.2.2 Data Options Dialog

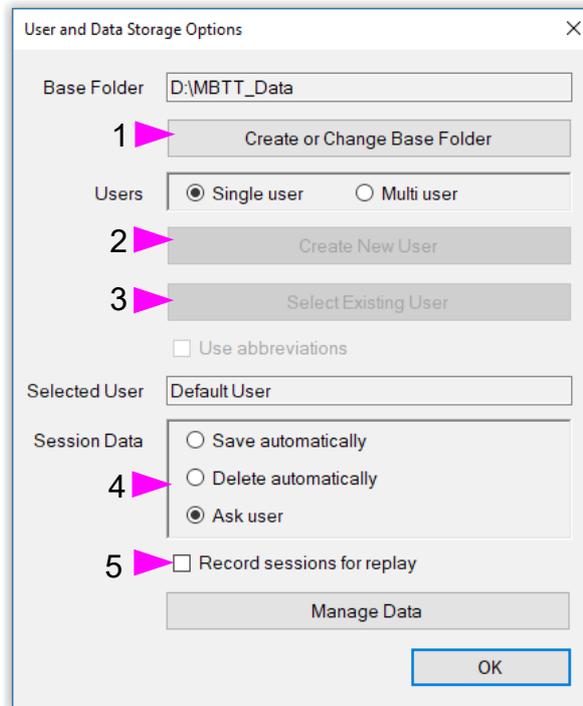Pressing button 2 (figure 2) opens a dialog, as shown in figure 5 below.

Figure 5 – User and Data Storage Options Dialog

First you must create (or select) a folder for the session data files – this is known as the Base Folder. Press button 1 to do this. A standard windows dialog will open. (Don't create it in the BioEra folder as it will most likely be deleted if you uninstall or reinstall the software.)

If you select multi-user mode, buttons 2 and 3 will be enabled. You must then use these to either create a new user or select a user that you created before. Users are represented by their first and last names.

If you are a therapist or coach, you can check the 'Use abbreviations' box to prevent anyone sitting with you seeing a full list of your clients' names, when you press button 3 to select an existing client.

After each biofeedback session, the software will either automatically save the session data, or automatically delete it, or prompt you for a decision, depending on your selection in the radio button controls (labelled 4).

4.2.2.3 File Names

This short section is technical and is only relevant if you want to access the data outside of the Platform, for example to email reports to a third party.

Session and report file names are created automatically based on the date of the session and an incremental session number. For example, your first session using the Basic EMG application, run on say 20th March 2012, will create a session name of 'Session_001_20_03_2012' (assuming UK

date format). A session data file with this text string as part of its name will be created in the 'EMG' sub-folder. If you want to create a summary report for this session, then this session name will appear in a list that you'll select from, and the session name will be used to create both the report file name and image file names, stored in the same folder. See the individual application user guides for further information on session reports.

4.2.2.4   Recording Sessions for Replay

There is a check-box option to record your sessions for replay (labelled 5 in figure 5). See section 4.4 below for more information on replaying sessions. Recorded session files (which are in xdf format) are in addition to the standard data files used for generating session reports.

If this option is not checked, session files will not be available for replay. If you check the option, then session files are stored as long as you choose to save session data (see control labelled 4 in figure 5).

4.2.3   Audio Feedback, Threshold-based Feedback & Midi Options

Buttons 3 and 4 in figure 3 above relate to audio feedback. Audio feedback is described in a separate document, the Guide to Audio & Threshold-based Feedback.

You don't need to set anything here at this stage – there are default options relating to audio feedback which will work fine.

4.3 Starting & Stopping the Applications

The Platform application has a tab button for each of the main biofeedback modalities – EMG, Heart Rate Variability, etc. As an example, figure 7 shows the Heart Rate Variability tab.
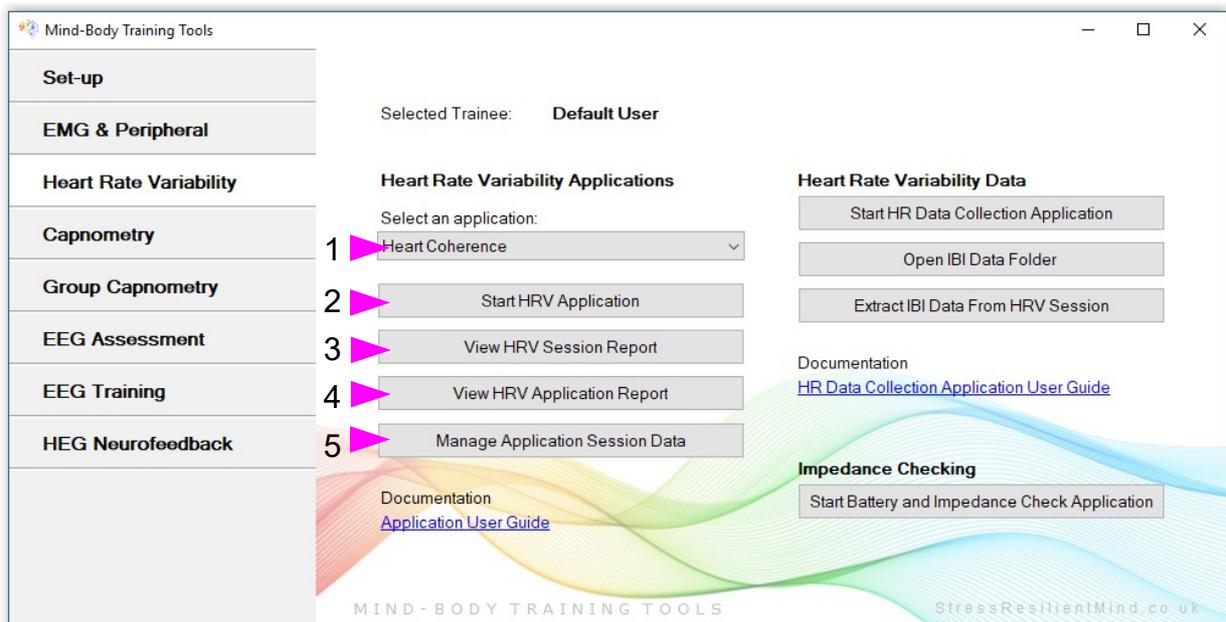

Figure 7 – Heart Rate Variability tab of the Platform program

To start an application, simply press one of the buttons, such as that labelled 2 in figure 7, which starts the main HRV application. In many of the tabs you can first select which application to run, using a drop-down list control such as that labelled 1 in figure 7.

Clicking the launch button will start BioEra, and after a few seconds you'll see one or sometimes

two windows appearing.

Within the BioEra application, you'll see a set of buttons, play, stop etc. in the top left corner of the window (if there are two windows, only one has these buttons). The play and stop buttons start and stop the flow of data from the biofeedback device.

To close the BioEra application (and return to the platform) simply use the standard windows exit button in the very top right corner ('X').

To use the applications with real-time data from your biofeedback device you obviously need to have your device and sensors connected. For more details, see the Hardware Set-up Guide (there is a link in the device options dialog to open this).

Each application is covered in its own user guide.

4.4 Controls Common To All BioEra Applications

There are some controls common to all the BioEra applications. The previous section mentioned the play and stop buttons, which start and stop the flow of data from the biofeedback device. There is also a session time display. Others are the freeze / unfreeze button, and the event marker button.

4.4.1 Freeze / Unfreeze

There is a button adjacent to play and stop (see figure 8) that works like a sort of pause, in that it freezes all the displays in the application (and then unfreezes them when you press it again). Actually everything is still working in the background, so when you unfreeze you'll see the data that you missed while the screen was frozen. This data is still written to the session files – freezing and unfreezing should not show up in your session reports, all the data will still be present.

Figure 8 – the freeze / unfreeze button (it toggles between red and green as you press it)

4.4.2 Event Marker

Adjacent to the freeze / unfreeze button is the event marker button. Its icon is a yellow asterisk, shown in figure 9. You can use it to mark events for later reference. 'Events' might be experiments or changes in session conditions or methods used, or adventitious happenings such as the arising of emotions. It is particularly useful for coaches and therapists. Events thus marked are represented, typically in the long-term chart of the application concerned, by a vertical white line. They are also recorded in the session data file and are shown in session report charts (as dotted vertical lines, labelled with a number) (see section 4.6 below).

Figure 9 – the event marker button

Note that pressing the escape key during a session has the same effect as clicking the yellow asterisk with your mouse (i.e. it is an alternative).

When you mark an event (via either method) the software offers you the opportunity to type a comment describing the event, e.g. "beginning of breathing technique". If you don't with to give a comment you can click ok or hit the return key. (The event will still be marked.) In the session report, comments are listed with numbers so that you can cross-reference them to charts (where the dotted lines marking events are also numbered).

4.5 Replaying Sessions

Most of the applications in Mind-Body Training Tools allow you to record your biofeedback sessions so that you can replay them afterwards. This feature will be mainly useful to professionals working with clients. Replay is only available if you select the option to save session files, as described in section 4.2.2.4 above.

First you would run a live session as normal – you would have selected your amplifier type as the parameter source (see device options described in section 4.2.1 above).

Assuming the session file is saved (depending on the options you've set) you would then go back to device options, and change the source setting for your parameter or parameters to "Session Replay".

Then go back to the button that would launch app (the same one you used to run the session in the first place). Now when you click this button, the software will ask you to choose a session to replay – a dialog window will appear. Select your session from the list. Then the application launches in the normal way – you need to press 'play' etc. as usual. The session is now replayed.

In the top right of the application main window, you'll see "Replay" displayed in place of the device name. Also there are two buttons (see figure 10) which allow you to move forward and backward in the recorded data. These "fast forward" and "rewind" functions are limited – clicking either of these buttons simply causes the application to jump over 20 seconds' worth of recorded data. Note, you will not see the missing data in the charts – there is simply a discontinuity. Also note that the discontinuity can cause some of the parameters to be miscalculated, e.g. breathing rate may jump up or down.
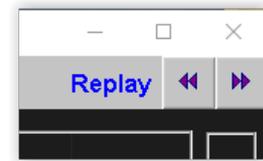

Figure 10 – replay controls

Note that if you changed any of the application's control settings, e.g. display ranges, during the initial session, these changes are not stored in the session, so they won't happen during the replay unless you explicitly make the same changes. If you needed to recalibrate to the signal, you'll need to explicitly do this again.

4.6 Viewing Session and Application Reports

As outlined in section 4.2 above, each time you run a session the software writes a data file which can be used to generate a report. Reports contain summary data and graphs showing the progression of the feedback parameters over the whole session.

To open a session report, there is a separate button for each application, for example button 2 in figure 7 above. Another button opens a report summarising all sessions for the application (for example button 3 in figure 7).

Reports are covered in more detail in each of the application user guides.

Appendices A and B give examples of session and application reports respectively, for the HRV application.

4.7 Managing Session Data

As explained in section 4.2 above, the software creates session data for use in generating reports, etc. Data files and report files are stored under the base folder that you set up. You can manage this data directly from the platform program. Most of the tabs have a button to "Manage Application Session Data", e.g. 5 in figure 7 above. Clicking this button opens a dialog offering several data management functions including:

- Delete selected sessions

- Delete report files for selected sessions (but preserve session data)

- Archive data for selected sessions (so they don't appear in session lists)

- Open data folder in Windows File Manager

- Email a report (as an attachment) – useful if you're a professional working with clients.

4.8 Documentation and Training Videos

Each application has its own user guide (except that the Basic HEG and the HEG video applications have a common user guide). There is a link to open these, on the relevant tab of the Platform program. For example you can see them as blue text in figure 7.

You can also access further material including training videos from the StressResilientMind.co.uk website. A link button on the Set-up tab will take you to the relevant page. You'll need an internet connection for this to work.

4.9 BioEra

This section describes BioEra in more detail, for those interested. If you simply want to run the Mind-Body Training Tools applications, then you can skip this section.

As already mentioned, BioEra is a visual design tool used to process and display physiological data in real time. Its main application is biofeedback. The Mind-Body Training Tools applications are a set of BioEra designs – a design is simply a particular way of gathering, processing and feeding back physiological data. I anticipate that most users will only use the designs provided, but you can also create your own.

BioEra runs in two modes: designer mode and runtime mode. The Platform program starts BioEra in runtime mode.

Running in designer mode allows you to create and edit designs – that is to make changes to the way that the measured physiological data is processed and presented (both as visual and as auditory feedback). However you cannot make changes to the Mind-Body Training Tools designs as they are password-protected.

When you run BioEra in either mode you'll see either one or two runtime windows, which contain start/stop buttons, etc. plus the graphical feedback and their associated controls. If you've already started the applications from the Platform, you'll be familiar with what these look like.

When you run BioEra in designer mode, you'll see an extra window, which is known as the designer window. This shows the design as a set of interconnected boxes. Each box represents a processing or display element of the design. The designer window also has a set of menus at the top: System, Element, Chart etc. A sample view of the designer window is shown in figure 11 below.

Further discussion of the use of BioEra to create designs is beyond the scope of this document. For more information, go to the BioEra website (www.bioera.net) and download the manuals. A warning: this endeavour is not for the technically faint-hearted.
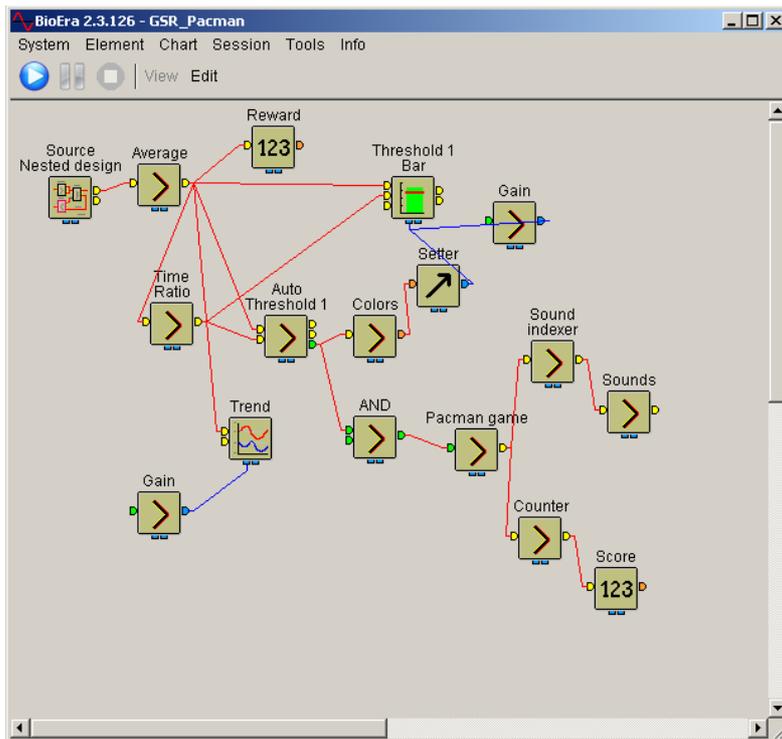
Figure 11 – BioEra designer window

5 Technical Support & Trouble-shooting

I sincerely hope that buyers of Mind-Body Training Tools will gain many benefits from the product, however unlimited technical support is not built into the pricing of the product. Whilst I can help with short questions and software bugs, extended technical support will be on a pro rata basis. The applications have user guides that can answer many questions, and there is video training material available on the StressResilientMind.co.uk website.

5.1 Frequently Encountered Problems

Probably the most common installation problem is that your computer blocks the running of one of the program installations because it thinks it is suspicious. Sometimes Windows itself does this – more commonly it is security software.

The most likely installation step to be blocked is the BioEra update. (In section 3.4 above, this is step 3.)

If windows blocks this installation, you may see something like the window shown in figure 12 below.
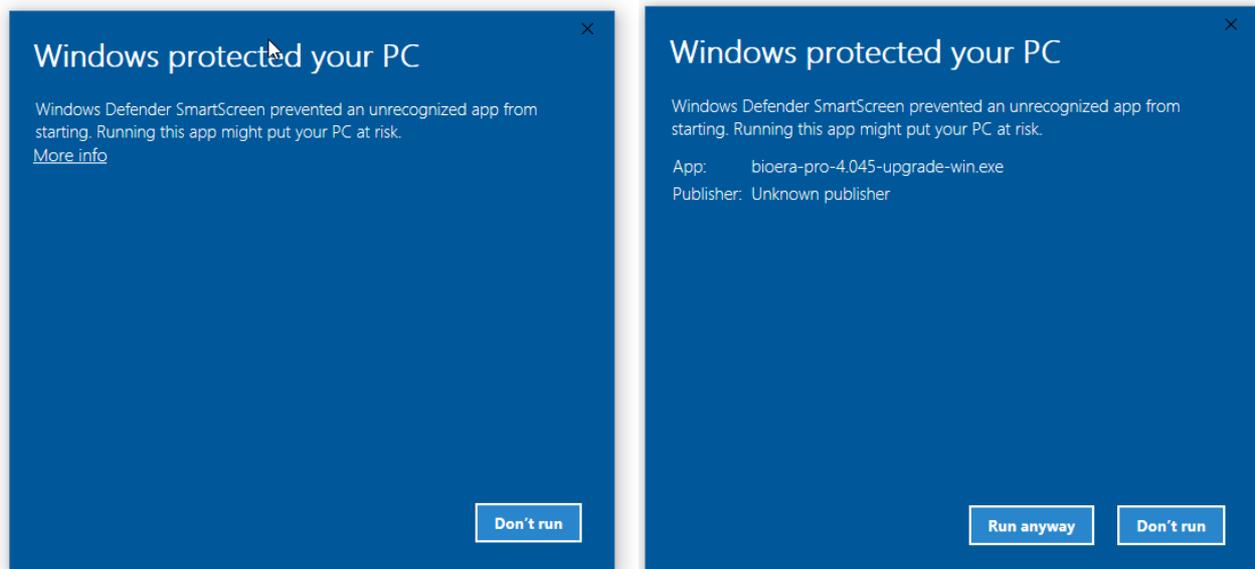
Figure 12 – Windows blocking BioEra installation

If you see this window (initially, the one on the left of figure 12) click "More info". This causes a new button to appear which you see on the right, "Run anyway". Click this button to allow the installation to proceed.

If your security software (e.g. Norton) blocks the installation, you need to find a way to whitelist the BioEra installation, i.e. you tell the security software to run the installation anyway.

5.1.1 General FAQ

Q   I tried running the installation script and it failed.

A   You need to go through the installation steps manually. See section 3.4 above.

Q   When I press 'play' in one of the applications, nothing happens.

A   Check the device status in the top right corner of the application. Have you selected the right device type?

If the red square doesn't turn green when you press play, it means BioEra is not establishing a connection to your device. Check it is connected and if appropriate check the batteries.

Q   The software appears to work normally but the sensor doesn't seem to be measuring properly. e.g. the HRV application doesn't detect heart rate.

A   If your amplifier runs on batteries, check the batteries are fully charged.

5.2 Software Bugs

If you encounter a bug when running the software, the Platform programme should write error messages to a log file. Viewing this log file may give you some clues as to what is going wrong. This file is written to your selected base folder (nothing will be written if you haven't selected one) and has the name 'ErrorLog.txt'. Failures coming from within the BioEra applications won't make it to this error log.

I will do my best to fix bugs – please email me with a description of the problem, and include the log file where possible.
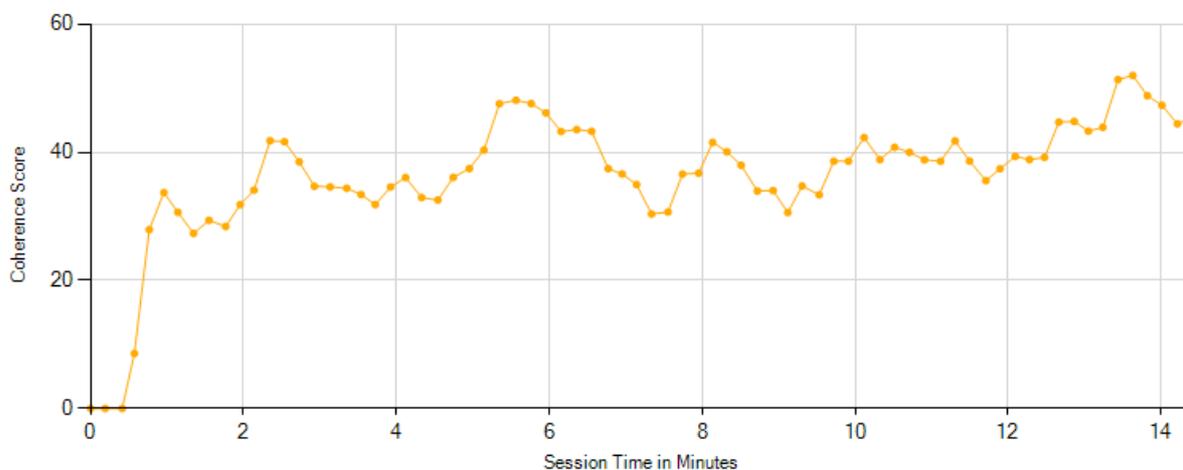
Appendix A – Sample Session Report

This report derives from the HRV application. Please note, the formatting of the report has been changed slightly to fit this document.
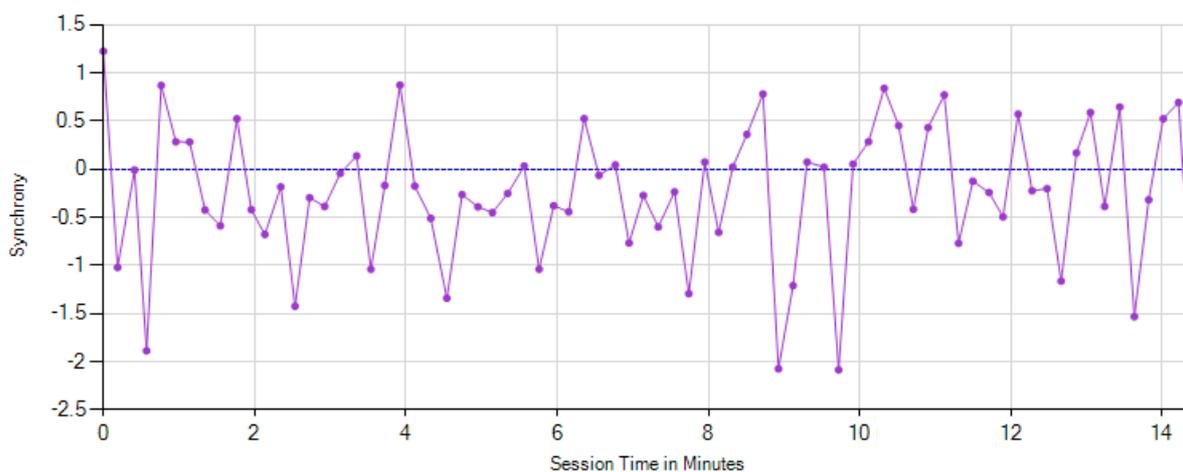
Training Session Report

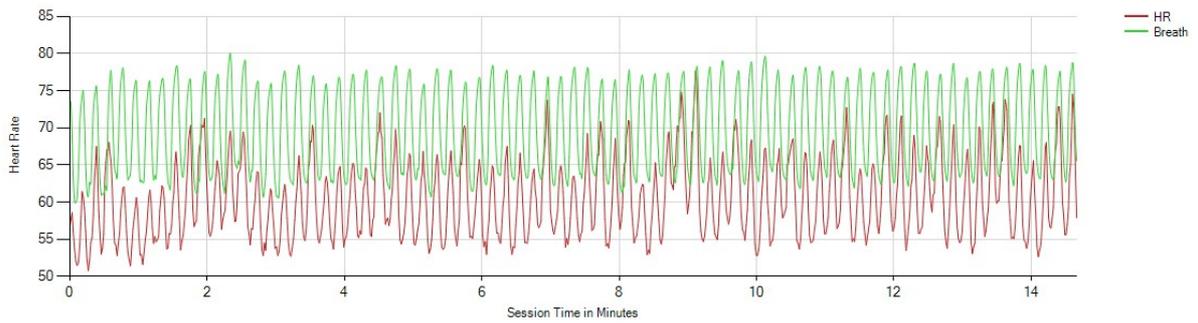|	
Training Application	Heart Rate Variability
User Name	Default User
Session Date	23/03/12 08:24

Heart Rate Coherence Score

Synchrony
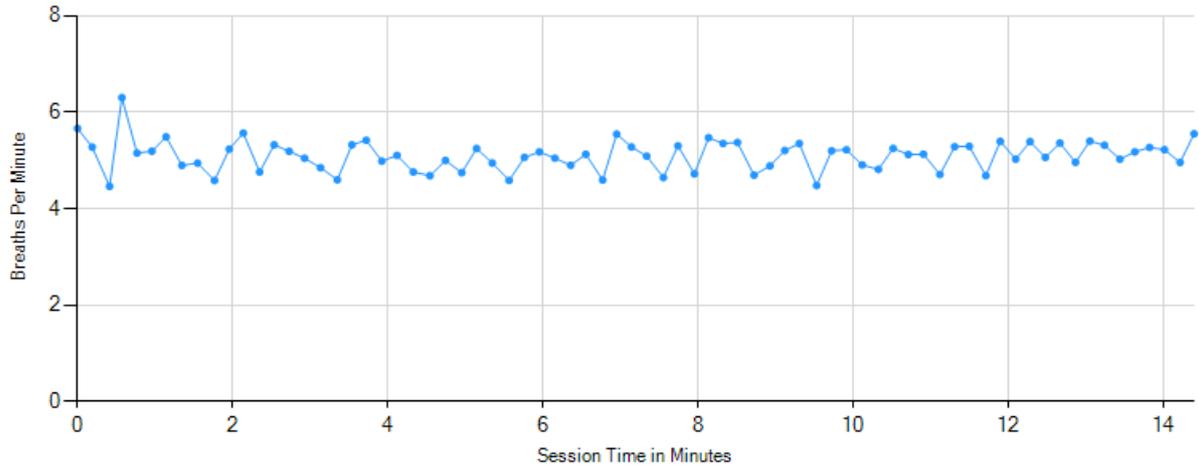
Breathing Rate

Inhalation to Exhalation Ratio
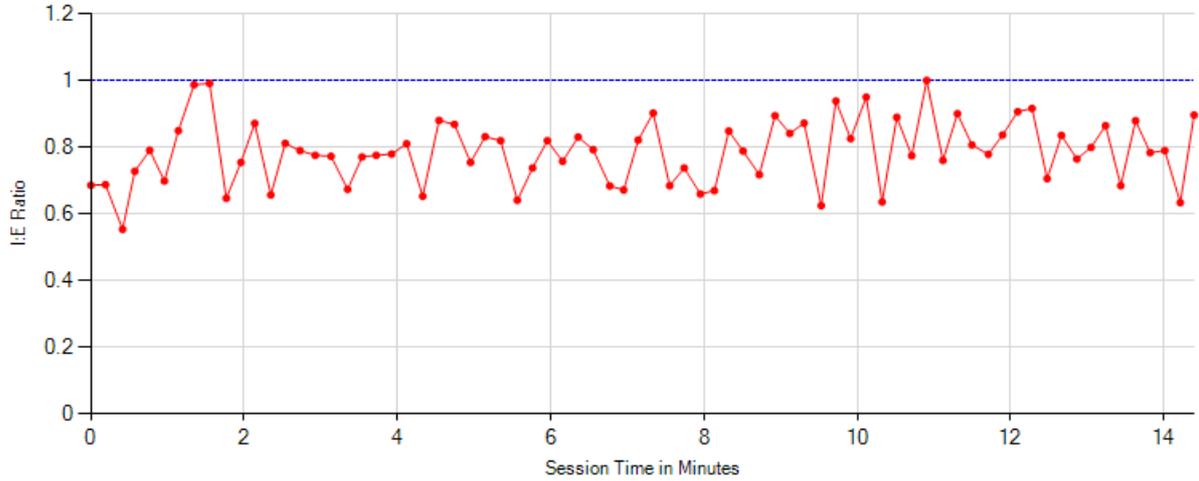
Heart Rate and Breath

HRC & Breathing Summary Data

Parameter	Mean	Max	Min	S.D.
HRC Score	36.4	52.0	0.0	9.9
Synchrony	-0.25 S	1.22 S	-2.09 S	0.71 S
Abs. Synchrony	0.58 S	-	-	-
Breathing Rate	5.1 bpm	6.3 bpm	4.5 bpm	0.3 bpm
I:E Ratio	0.79	1.00	0.56	0.10

Heart Rate Summary Data

| Parameter	Value
Mean HR	60.5 bpm
Max HR	77.6 bpm
Min HR	50.8 bpm
SDNN	84.7 mS
RMSSD	42.3 mS

Appendix B – Sample Application Report

This report derives from the HRV application. Please note, the formatting of the report has been changed slightly to fit this document.

Application Analysis Report

Training Application	Heart Rate Variability
User Name	Default User

Heart Rate Coherence Score

Synchrony

Breathing Rate

Inhalation to Exhalation Ratio
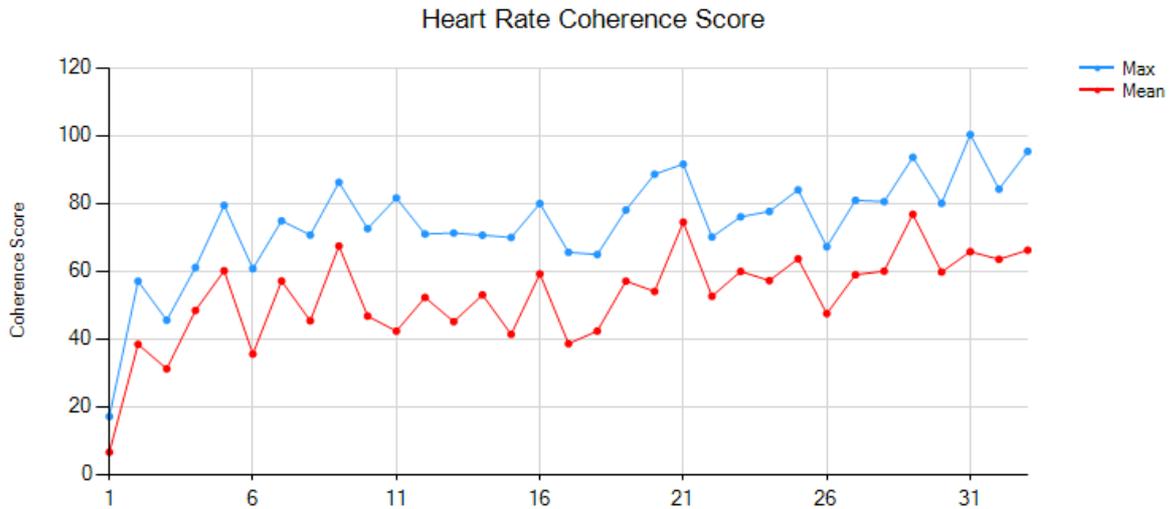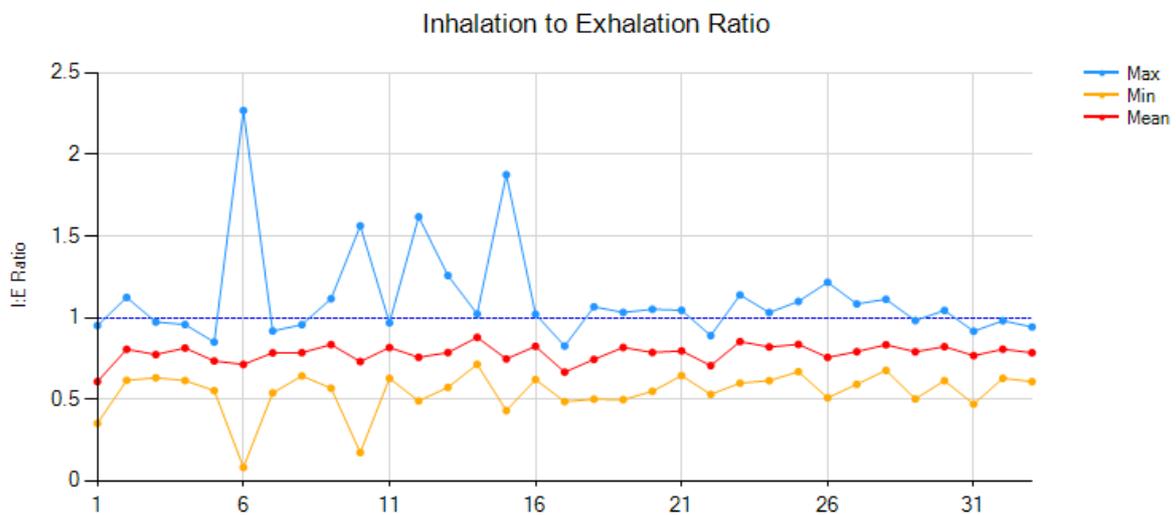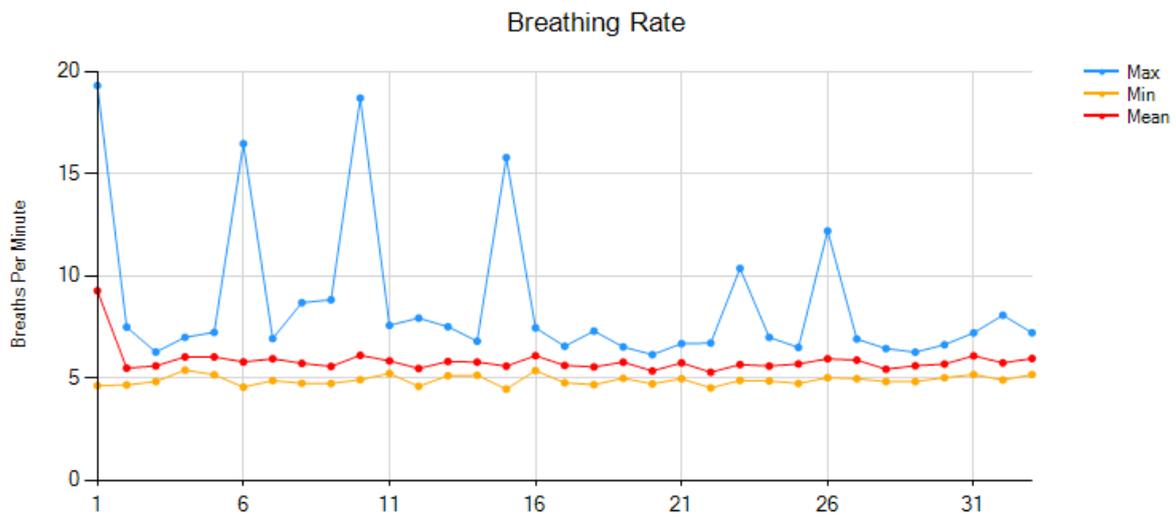
HRV Session Averages

Parameter	Mean	Max	Min
Cohrence Score	52.41	74.21	0
Synchrony	-0.52	1.56	-1.87
Breathing Rate	5.85	8.63	4.9
I:E Ratio	0.78	1.12	0.54