

SafeBoosC Software Manual

Version	Author(s)	Date	Changes	Approved by
1.0	Joan Riera Simon Hyttel-Sørensen	29.05.12	Initial Version	Gorm Greisen
1.1	Joan Riera	24.09.12	Minor software changes	Gorm Greisen
1.2	Simon Hyttel-Sørensen	12.11.12	More detailed directions for NIRS device - laptop connection	Gorm Greisen

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GENERAL DESCRIPTION

This software allows data interoperability with NIRs devices that will be used in SafeBoosC.

The software receives data from NIRs through RS232c port and calculates %hours values, shows trends in display, and provides a record system for interventions related to treatment guideline and protocol dataset.

CONDITIONS FOR THE SOFTWARE OPERATION

INSTALLATION OF THE SOFTWARE

- Turn on the computer
- Download setup file from the site:

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<http://db.tt/r7jR3Cw0>

- Launch setup file and follow screen instructions
- The software needs SlimDX library which is included in the setup
- City and country
- Maybe with some operating system versions (Vista or Windows 7) the software will need administrator privileges
- Secondary click in the SafeBoosC desktop shortcut -> Properties -> Compatibility -> Check "Run this program as an Administrator"
- The software is ready to run

CABLE CONNECTION

The NIRS device communicates with the laptop through a RS232C 9-pin serial cable.

Most new PCs do not have a serial port so an 'USB-to-Serial' converter could be needed (preferably a converter with a 'FTDI' chipset should be used, since the 'Prolific' chipset has caused problems with the connection to the SafeBoosC software). In Windows go to 'Control Panel' -> 'System and Security' -> 'System' -> 'Device Manager' - under 'Ports (COM & LPT)' the allocated COM port of the 'USB-to-Serial' converter is shown. In the menu 'Port Settings' 'Bits per second' must be set to '115200', 'Data bits' to '8', 'Parity' to 'none', 'Stop bits' to '1' and 'Flow Control' to 'none'.

Output settings for INVOS 5100: Go the menu 'Output Selection/Digital Output/PC Link/Output Format/Output Format 1'.

Output settings for NIRO 200nx: Go the menu 'Settings/RS Setting'. 'Output data type' must be set to 'Default' and the Data-transfer speed to '115.2' kbps.

Comment [SH1]: Dette er tilføjet

Set sample rate at 0.2Hz (5 sec.). Only required for the NIRO-200nx devices.

FIRST START

At first start it is strongly recommended to create a 'Study set' for each device.

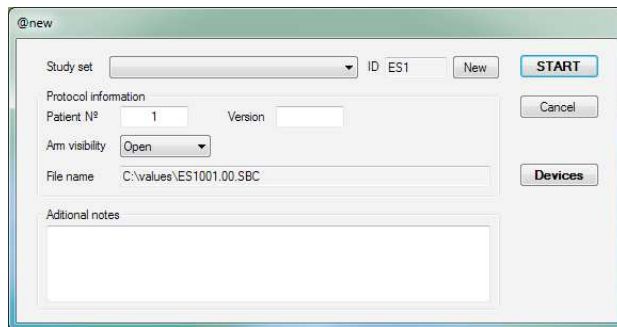
What does 'Study set' mean?: All parameters included into 'Device configuration window' can be saved in a 'study set' which are specific to the different devices. This allows 'predefined configurations' for a given device that can be selected in a dropdown list.

The software will load automatically the last study set used.

SOFTWARE OPERATION

Starting the software

Clicking twice the SafeBoosC shortcut in the desktop starts the software. The initial screen will be displayed.



Study configuration

It will be mandatory to fill in:

- Patient n°: Code number provided by CTU-website
- Arm visibility: Select the study visibility between:
 - Open
 - Blank
- **Twin Study: fill Version with A or B for each twin.**

It will be optional to fill in:

- Version number: Predefined value is 0; it represents different studies in a given case (only used in case of failure)
- Additional notes: Free text input

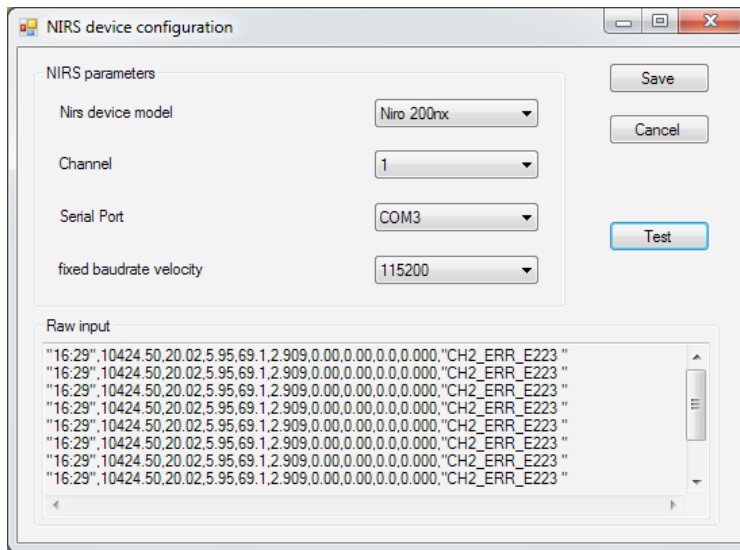
The field 'File name' refers to the study name and site, and will be generated automatically.

File name represents the output file. Always in "C:\Values" folder.

Device-related parameter setting

Clicking button 'Devices' in the initial screen will display 'Nirs device configuration' screen. Selection of a given option will depend on the instrument we are operating:

- NIRs device model
- Channel to be used
- Nirs device serial port (port number)
- Fixed baudrate velocity (in the Nirs device configuration)



Once configuration is settled, connexion can be tested by means of button 'Test': communication will be displayed in the corresponding window ('Raw input').

Study set creation

Once the configuration of device is set up we can create a 'Study set' that will recall the parameters, therefore there is no need to enter them again.

In case of more than one devices are to be used in a given centre, the corresponding configurations can be saved.

The software will load automatically the last study set used.

Click 'NEW' button in the start window, give a name and save. The study set is ready to be recalled in the Study set dropdown list.

Study set selection

The dropdown list in the 'Study set' will display the different 'study sets' that has been saved.

Main screen

Once the study has been named data acquisition will start by clicking button 'START' in the initial screen. The main screen will be displayed.



- **Trends** and last value:
 - rSto2: The actual patient's rSto2. The upper (85%) and lower (55%) thresholds are represented as an orange line
- **Status bar:** the green bar goes forward with each new rStO2 data entry
- **Lower panel:**
 - Time-related section:
 - Elapsed time: time from the study start
 - Event review: countdown indicating time to review an action/event
 - Dataset: countdown indicating time to introduce new dataset
 - Alarms paused (mm:ss): Countdown of silenced "Error Alarm".
 - Action section:
 - Silence window: only active when any action/dataset window is open. This button will silence the alarm and only one beep per min will sound.

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- Event button: create new event (user created and non protocol related)
 - Additional data: allows new data entry at any time (user created and non protocol related)
 - NIRS resiting: this button creates an event anytime the NIRS optodes are resited
- **Upper panel:** the following menus are included
- File: Actual recording related actions.
 - Stop: End of recording and data file generation.
 - Exit: Exit the program.
 - View: Chart parameter configuration.
 - Time span: a window is open to that allow changes in the chart time
 - Pause error alarm:
 - 3 min.
 - 10 min.

Action window

This window will be displayed either when clicking 'event button' or automatically per protocol.

The type of alarm and the last two actions will be displayed at the top of the window.

MANDATORY	Optional	
<input type="text"/> Heart Rate	<input type="text"/> pH	<input type="text"/> BE (mmol/L)
<input type="text"/> SaO2 (%)	<input type="text"/> pO2 (mmHg)	<input type="text"/> HB (g/dL)
<input type="text"/> MBP (mmHg)	<input type="text"/> pCO2 (mmHg)	<input type="text"/> Glyc (mg/dL)
<input type="text"/> MAP (cmH2O)	<input type="text"/> Lact (mmol/L)	<input type="text"/> Sample
<input type="text"/> FIO2 (%)		

This window holds 2 dropdown lists related to: the action that will be implemented; details related to decided action. Additional data can be entered in the free text window.

Periodical data window

This window is displayed when clicking 'additional data' button, after the 'action window', at 30 and 60 min of an action (whenever rStO2 is within range), and every 6 hours, as per protocol.

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Periodical data form

Periodical dataset poll (every 6 hours)

Please fill in the fields

MANDATORY	MANDATORY	
<input type="text"/> Heart Rate	<input type="text"/> pH	<input type="text"/> BE (mmol/L)
<input type="text"/> SaO2 (%)	<input type="text"/> pO2 (mmHg)	<input type="text"/> HB (g/dL)
<input type="text"/> MBP (mmHg)	<input type="text"/> pCO2 (mmHg)	<input type="text"/> Glyc (mg/dL)
<input type="text"/> MAP (cmH2O)	<input type="text"/> Lact (mmol/L)	<input type="text"/> Sample
<input type="text"/> FIO2 (%)		

This window will ask for several mandatory or optional parameters. In case mandatory parameters are not fulfilled the window cannot be closed. In case the introduced value is wrong, the back colour will be red.

In case a mandatory value is not available, please introduce NaN.

Alarms

There are four different alarms:

- NO DATA: The warning represent that there is no data input in the last 10 seconds. The rStO2 value will be displayed as 'NO DATA' and the frame will be red-coloured. The sound can be muted by means of 'pause error alarm' in the upper panel.
- Wrong value: This warning indicates that NIRs value is wrong or has poor quality. The rStO2 and quality value will be displayed as 'NaN' and the frame will be red-coloured. The 'Status bar' will show error description. The sound can be muted by means of 'pause error alarm' in the upper panel.
- Periodical data set & Event review: This warning indicates the end of each countdown (Periodical data set or Event review) or when rStO2 is out of range (burden alarm). The corresponding window will be automatically displayed. The sound can be muted by means of 'silence window' button in the lower panel or filling the form.

Concealed arm

The concealed arm will only show the quality value. The rStO2 value will be displayed as 'OK' in case of good data, or as 'NaN' in case of wrong data.

Only the warnings 'NO DATA', 'Wrong value' and 'Periodical data set' are activated.

Troubleshooting

In case the program drops down or cannot create the output file, the folder [c:\program files\SafeBoosC\Studies\] will hold the last 5 recordings uncompressed. In that case, please save the corresponding folder in a zip file that will be sent as the other files.

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