STIMPOD NMS 450X

Intelli Cable Software:

NMShow

XM400-201A04 v1.0

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STIMPOD
NMS 450X

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Introduction

The New Stimpod Intelli cable allows a user to connect a Stimpod NMS450X to a PC with the new NMShow software (Windows only). This grants the user the options to either Live View a currently active session on a Stimpod or Archive options to review all data from any recorded session.

Installation Guide

Online: Go to www.xavant.com and navigate to Products > Stimpod NMS450X > Manuals & Support. Click the Download NMShow button. When the download is complete open the file to start installation. The installation should proceed automatically.

USB drive: Insert the supplied USB drive. Open the USB drive from the file manager and double click Nmshow.exe. The installation will proceed automatically.

Updating: Xavant will occasionally release updates to improve or fix the application. When this happens, the application will automatically update if run on a device which is connected to the internet. When the application is opened, it will attempt to connect to the internet to determine whether an update is available. If an update is available, it will be downloaded in the background and installed when the application is closed. When the application is reopened, it should be updated to the latest version. If the application is run on a device which is not connected to the internet, it is the users' responsibility to download the latest version of the software from the Xavant website and install it on the device by following the installation process as above.

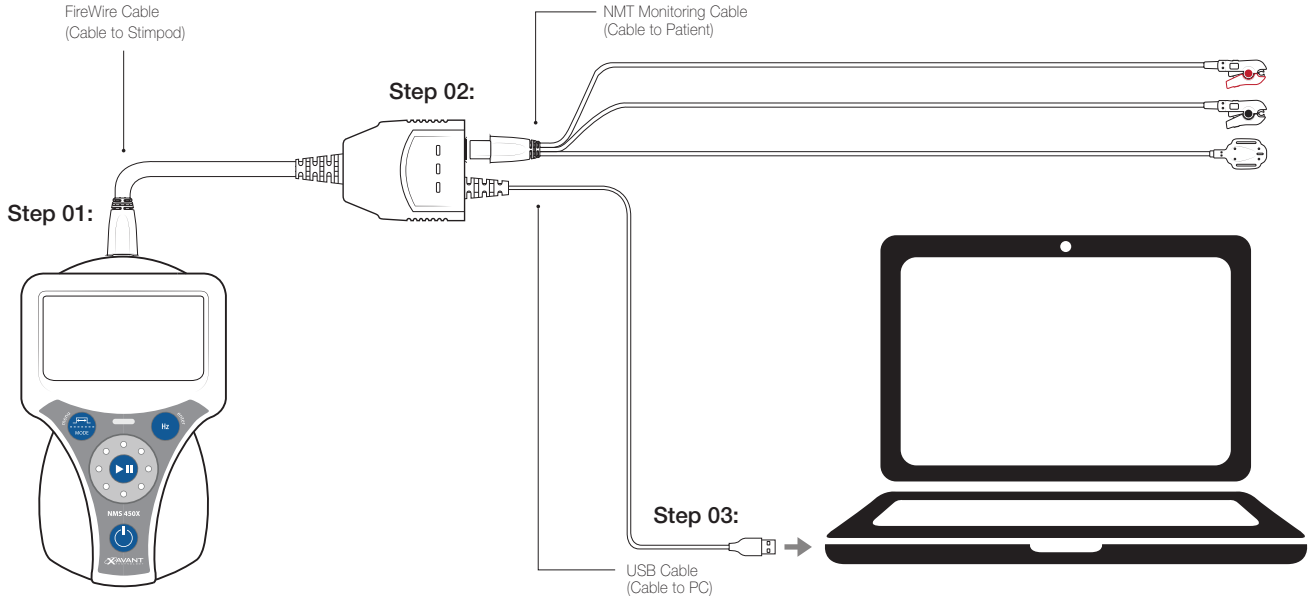
Connecting to a PC

Step 01: Plug the NMS450X Intelli cable into the FireWire port of the Stimpod.

Step 02: Plug the NMT Monitoring cable into the FireWire port of the Intelli cable.

Step 03: Plug the USB cable from the Intelli cable into the PC.

Fig. 1:



Starting NMShow

After the installation is complete the user can run the NMShow application from the desktop icon or the start menu item. The application will open and display the login screen.

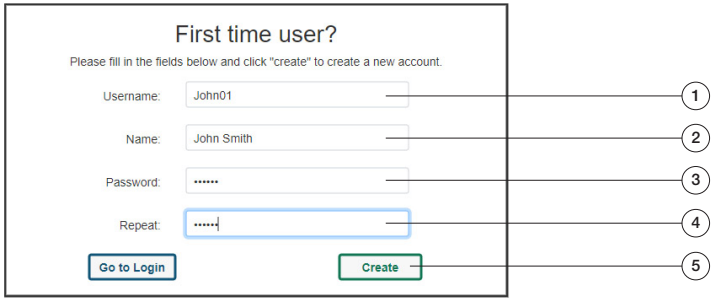
Fig. 2:

1. Click on Create new to create a new user account (First time users).
2. Click Login if you have already created a user account .

Creating a New User

To create a new user, follow the steps below or see the instructions onscreen. Firstly ensure that the Stimpod is on and the NMT Monitoring cable in inserted. Navigate to the screen as shown in the picture below by clicking the Create New button on the login screen. If a user has already been created, proceed to the Login section.

Fig. 3:



1. Enter a username in the Username field. The username should be at least 4 characters long and may not be the same as another user's username on the same device. When all the fields are filled in and the Create button is clicked, the application will check if the user already exists and inform the user if this is the case.
2. Enter your full name in the Name field. This field is not validated and optional.
3. Enter a password in the Password field. The password should be at least 6 characters long. Please be sure to keep the password in a safe place to ensure the user's data is secure as a password cannot be recovered.
4. Retype the password in the Repeat field.
5. Click the Create button. This will create and save the user before returning to the login screen.

User Login

If a user has been created, proceed to log in using the steps below. If a user has not been created yet, please see the Create a New User section. The Login Screen will display when the application is open. It can also be accessed from the Create User screen by clicking the Go to Login button

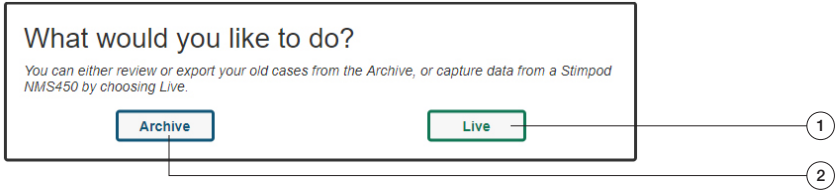
Fig. 4:

1. Enter a username. This is the unique identifier linking the user to the sessions recorded.
2. Enter a password.
3. Click the Login button. If the correct username and password combination has been entered, the user will be logged in and the Activity Selection screen will be displayed; if not, an error message will be displayed.

Activity Selection

The Activity Selection screen is a menu where the user can select whether to view old sessions in the Archive or Create a New Session to receive data from the Stimpod by using Live mode.

Fig. 05:

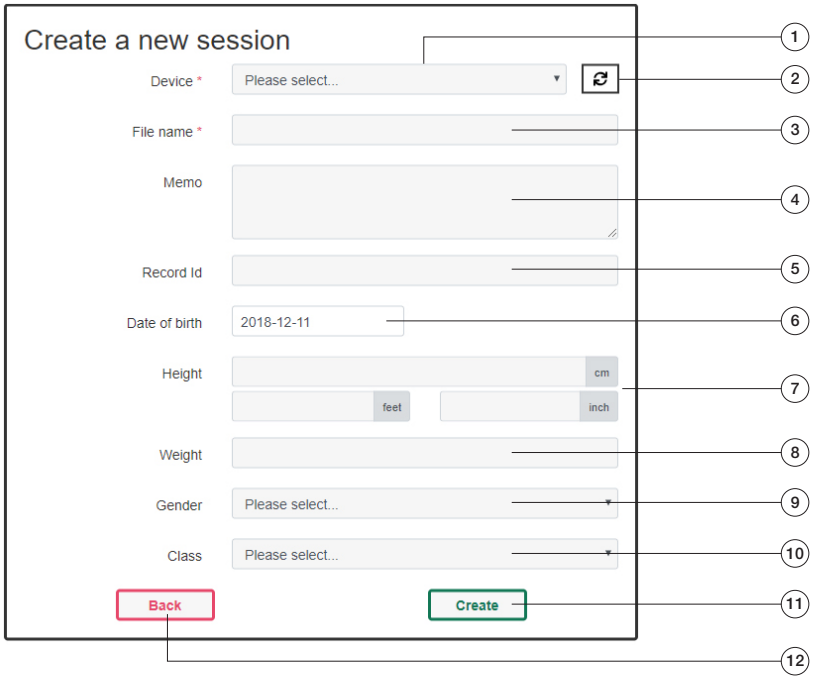


1. Archive - View any of your previous sessions.
2. Live - View data live from Stimpod

Creating a New Session

To view data live from the Stimpod, an NMS450X has to be connected to the host device via the NMS450X Intelli cable. Ensure that the NMT Monitoring cable is inserted. Click on Live from the Activity selection screen to initiate a new session. Several fields are available which will be attached to the session; however, only the Device and File name fields are required.

Fig. 6:

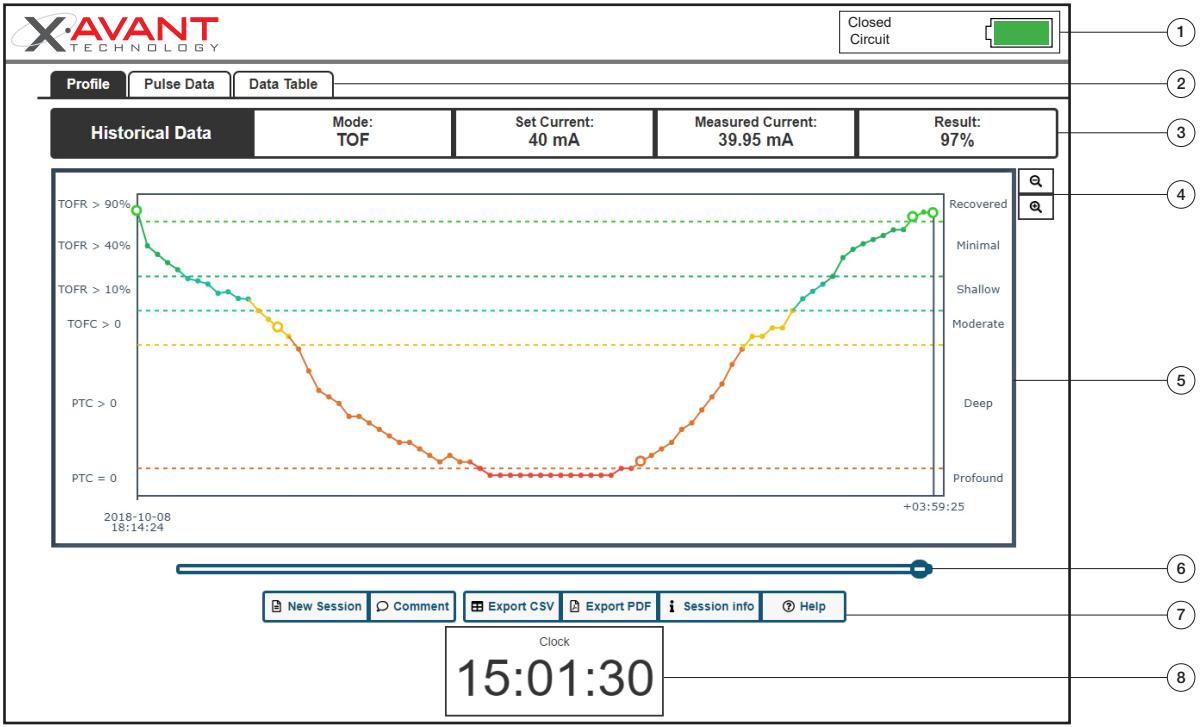


1. Device selection – This allows the user to select the NMS450X device to be linked from the list of devices connected to the PC.
2. Refresh button – Click this to refresh the list of devices connected to the PC.
3. File name – An identifier to help the user distinguish this session from other sessions when using the archives.
4. Memo (optional) – Any general notes or additional information to attach to the session.
5. Record ID (optional) – A internal record to which this session should be linked.
6. Date of birth (optional) – Date of birth of the patient.
7. Height (optional) – The height of the patient can be entered here, either in centimeters or in feet and inches. The centimeter field will automatically update from the feet and inches and vice versa.
8. Weight (optional) – The weight of the patient.
9. Gender (optional) – Insert patient's gender.
10. Class (optional) – The patient's ASA (American Society of Anesthetists) physical status classification.
11. Create button – When a device has been selected and a file name has been entered, and the user is satisfied with the information captured in the optional fields, clicking this button will create the session and open the Live data view screen.
12. Back Button - This button will clear all fields and return to the Activity selection screen.

Live View

The main components of the Live view are described below. Please note that this functionality works best with the Auto mode of the Stimpod NMS450X.

Fig. 7: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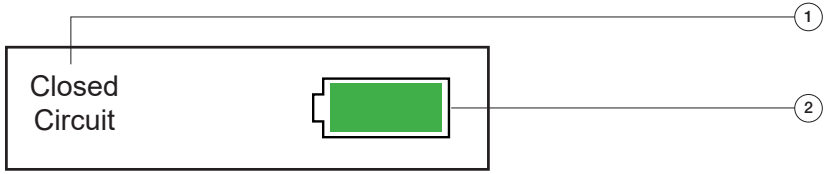
Closed Circuit
Profile
Pulse Data
Data Table
Historical Data
Mode: TOF
Set Current: 40 mA
Measured Current: 39.95 mA
Result: 97%
TOFR > 90%
TOFR > 40%
TOFR > 10%
TOFC > 0
PTC > 0
PTC = 0
Recovered
Minimal
Shallow
Moderate
Deep
Profound
2018-10-08 18:14:24
+03:59:25
New Session
Comment
Export CSV
Export PDF
Session info
Help
Clock
15:01:30
1
2
3
4
5
6
7
8

1. Stimpod Status – Indicates the battery level and whether a closed circuit has been detected.
2. Tab controls – Change the view to display either the session profile, single stimulation or stimulation data.
3. Stimulation details – Display details for the selected stimulation sequence.
4. Zoom controls – Investigate a smaller portion of the profile graph, or get a big picture overview.
5. Main display area – Displays either the profile graph, the stimulation graph or the stimulation data table.
6. Stimulation mode selector – Select the stimulation mode for which to display details.
7. Toolbar – Start a new session, add a comment or export data and more. See the Toolbar subsection for more info.
8. Clock – Displays the current time, a stopwatch or a timer indicating the time since the start of the session.

Stimpod Status

The closed circuit status and battery voltage is displayed at the top of the window. These will be grayed out if no communication has been received from the Stimpod.

Fig. 7.1:



1. Closed Circuit indicates whether a closed circuit configuration has been established
2. Indicates the Stimpod battery life.

Tab Controls

These controls change the contents of the main display area. Clicking the Profile tab control will display a graph to visualize the results of all the stimulations for the current session, showing the depth of the block in different zones. This presents the results of the session in a single view, allowing for an overview of the full procedure.

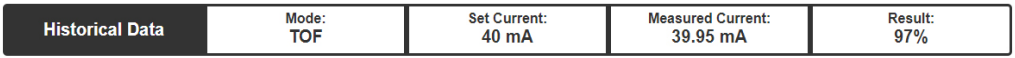
The user can click on the Pulse Data tab control to view the results of a single stimulation sequence. This will display the bars for each pulse of the selected stimulation as is displayed on the Stimpod.

The third tab controlis the Data Table and displays the data for each stimulation in tabular format, including a time stamp, measured and set current, the stimulation result and the stimulation mode.

Stimulation Details

The stimulation details bar indicates the result, set and measured currents and the mode for a selected stimulation sequence. This will be shown for both the profile and the pulse data graphs.

Fig. 7.2:



Zoom Controls

The zoom controls allow the user to show the profile graph in more detail. Click the magnifying glass with the plus or minus sign to zoom in or out. Please note that the zoom is relative and affected by the number of stimulation sequences which have been recorded.

Main Display Area

Depending on the selection made using the tab controls, the content of the main display area is changed to either the profile graph, the pulse data graph or the stimulation data table.

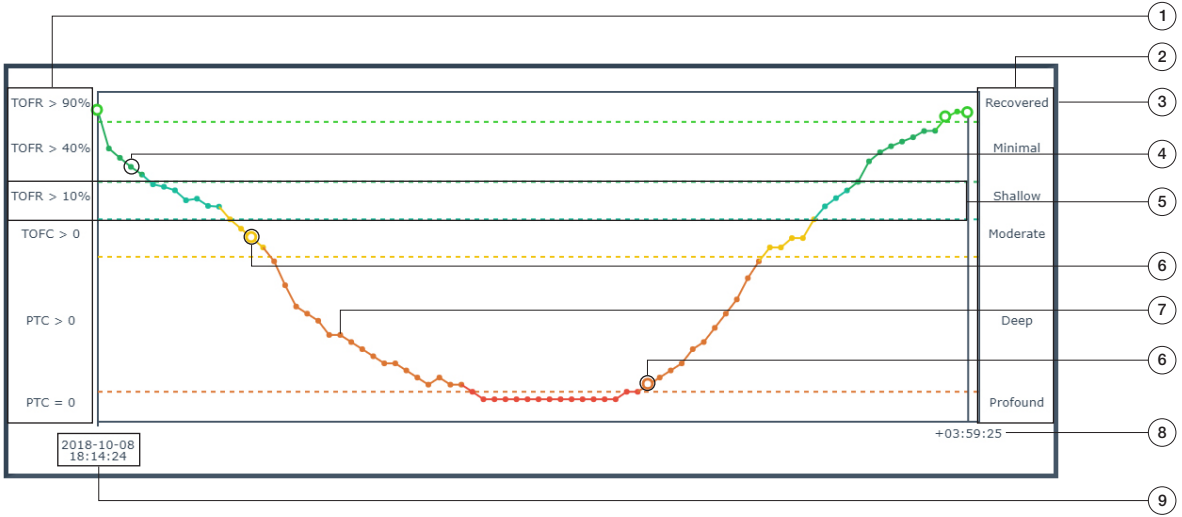
Profile Graph

The profile graph displays all stimulation results of the current session, indicating the result, the depth-of-block zone and the relative time from the start of the session. Only Auto, Train of Four (TOF) and Post Tetanus Count (PTC) modes are supported. Unsupported modes' results will be shown as a grayed-out dot on the graph. The graph is subdivided into the following six depth of block zones:

- Recovered – Train of four (TOF) ratios over 90% are classified as recovered.
- Minimal – TOF ratios between 40% and 90% are classified as a minimal block.
- Shallow – A shallow block corresponds to TOF ratios between 10% and 40%.
- Moderate – TOF counts between one and three are classified as a moderate block. TOF counts of four with a ratio less than 10% technically constitutes the boundary between Shallow and Moderate.
- Deep – A TOF count of zero, or a PTC of one or more are classified as deep.
- Profound – If a PTC of zero has been observed, the depth-of-block is classified as profound.

Please note that occasionally the communication may be interrupted due to either electromagnetic noise, user input or communication malfunction. Any failed stimulation sequence will be grayed out for this stimulation on the graph and the zone will be set to Failed.

Fig. 7.3:

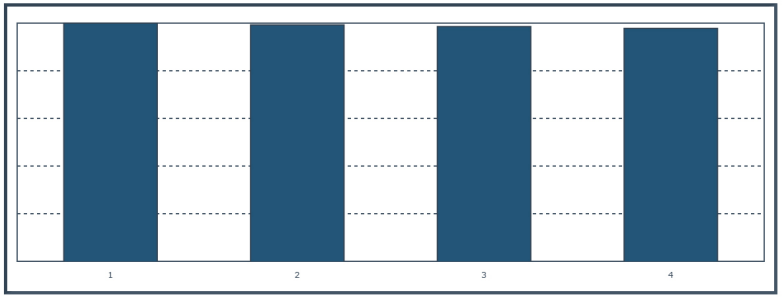


1. Depth-of-block zone explanations in terms of the mode and result.
2. Depth-of-block zone descriptions.
3. The depth-of-block zone for the latest stimulation.
4. The result of a single stimulation, in this case TOF.
5. A depth-of-block zone.
6. Commented stimulation sequences.
7. Bar indicating the currently selected stimulation. This will be the stimulation for which the details in the Stimulation details bar is applicable.
8. The relative time for the selected stimulation since the start of the session.
9. The start time of the session.

Pulse Data Graph

The pulse data graph displays the results of the selected stimulation sequence. It will display bars indicating the magnitude of the accelerometer response in a similar way as on the Stimpod.

Fig. 8:



Stimulation Data Table

The stimulation data table displays the stimulation results, set and measured currents, the depth-of-block zone, stimulation mode and timestamp for each stimulation sequence. A stimulation can be selected by clicking it once, after which the pulse data graph will be displayed by clicking the selected stimulation result again.

Fig. 9:

Profile | Pulse Data | Data Table

Mode	Stim No.	Set Current	Measured Current	Result	Zone	Timestamp
TOF	1	4000 mA	39.94 mA	100%	Recovered	2018-10-08 18:14:24
TOF	2	4000 mA	40.06 mA	72%	Minimal	2018-10-08 18:15:49
TOF	3	4000 mA	39.99 mA	63%	Minimal	2018-10-08 18:17:14
TOF	4	4000 mA	39.98 mA	54%	Minimal	2018-10-08 18:18:39
TOF	5	4000 mA	40.09 mA	47%	Minimal	2018-10-08 18:20:04

Stimulation Selector

The selected stimulation can be changed by either using the slider below the main display area, scrolling the mouse wheel on one of the graphs or by using the data table as mentioned above.

Fig. 7.4:

Toolbar

The toolbar consists of some essential functions the user can perform. These functions are described as the following:

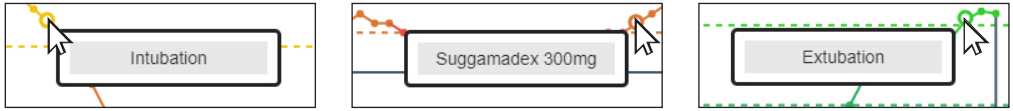
Fig. 7.5:

1. New Session - This button will open the Activity selection screen, from which the user can once again choose to use the Archive or start a new Live session.
2. Comment - Add a comment to the current stimulation. See the Adding comments sub-section below.
3. Export CSV - Export all the session data on a pulse level to a csv (comma separated value) file, which can be opened with a text editor or Microsoft Excel. No additional user input is required.
4. Export PDF - Open this pop-up window and find the Exporting to PDF sub-section below.
5. Session info - Open a pop-up window displaying information captured on the Create a Session window.
6. Help - Initiate a tour of the Live window explaining different sections on the screen.

Adding Comments

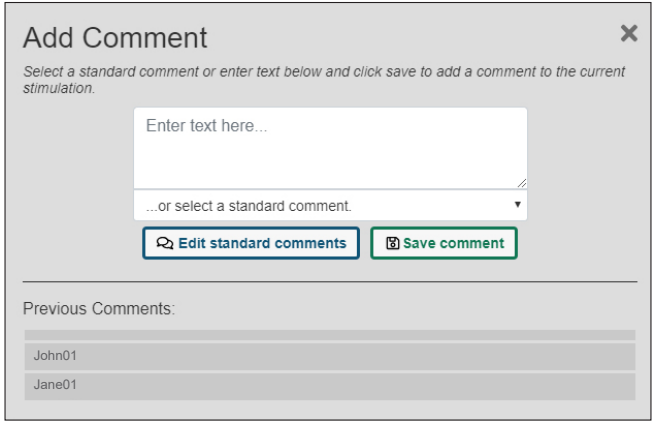
One or more comments may be added to each stimulation. Comments will be indicated on the profile graph as an empty circle. Hovering the mouse pointer over these empty circles will display the comment text.

Fig. 7.6:



Alternatively, previous comments will also be displayed on the Add Comment screen. Custom comments can be added on the Add Comment screen by entering text into the text area and clicking the Save comment button. Standard comments can be selected from a dropdown menu, after which it can be customized in the text area before saving it using the Save comment button.

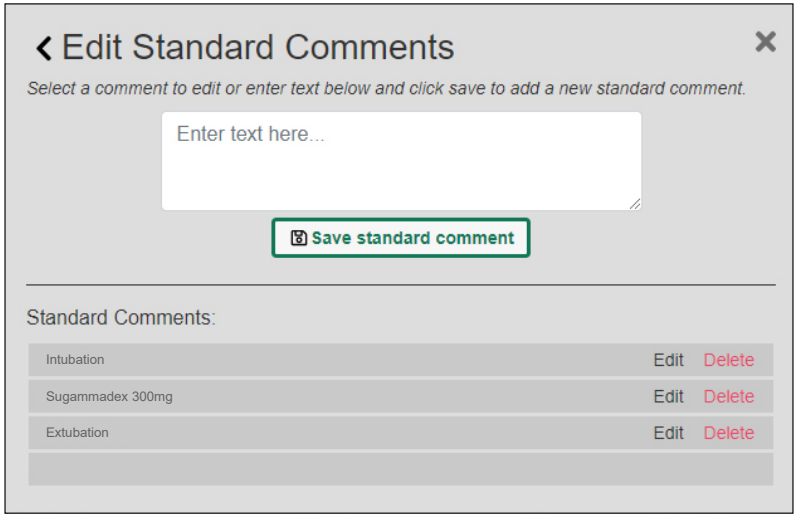
Fig. 10:



Standard comments can be added, edited or deleted using the Edit Standard Comments screen, which is opened from the Add Comment screen. Simply enter text into the text area and click Save standard comment to add a new standard comment. To edit a standard comment, click the Edit link on the appropriate comment from the list. This will populate the text area, where it can be changed. Remember to save after any changes have been made. Clicking the delete link will remove that comment after confirmation.

Please note that standard comments are shared between all users using the NMShow application on a single host device.

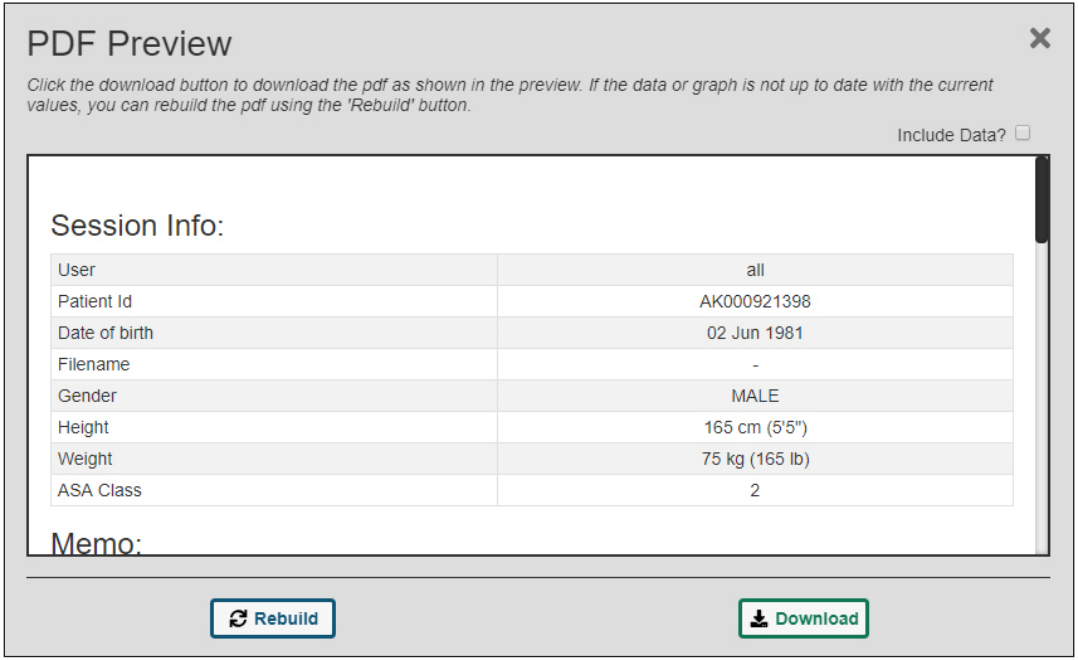
Fig. 11:



Exporting to PDF

A report can be generated from the session data, including the captured session information, statistics, the profile graph, comments and optionally all the stimulation data as on the data table. Click the Download button to save this report as a PDF file.

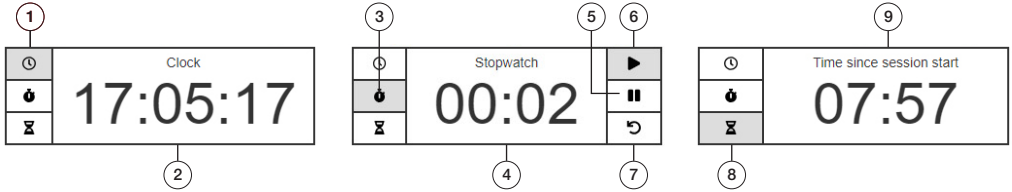
Fig. 12:



Clock

The clock can be used as either a real time clock, a stopwatch or as a timer indicating the time since the start of the session.

Fig. 13:

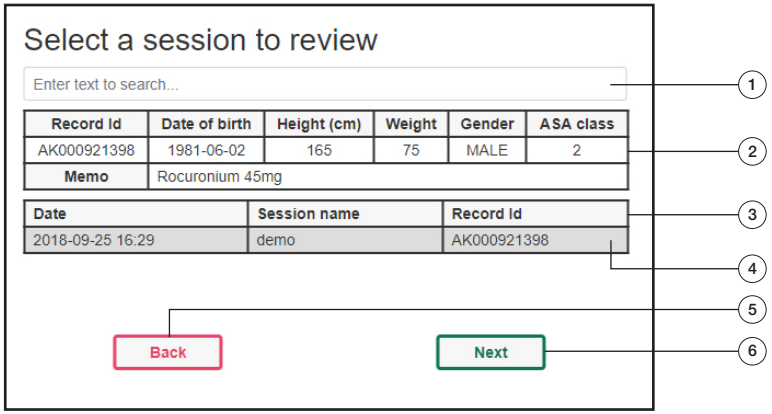


1. Select the clock.
2. The current local time.
3. Select the stopwatch.
4. The stopwatch time.
5. The pause button. This will prevent the stopwatch from counting up while keeping the current stopwatch value.
6. The start button. When clicked, this will cause the stopwatch to continue counting up from the current value (00:00 initially). The start button will have a grey background if the stopwatch is running.
7. The reset button will clear the current stopwatch value (set to 00:00).
8. Select the session timer.
9. The time since the session was created.

Review a Session

You can view any of your previous sessions by using the archive functionality from the Activity selection screen. Clicking on Archive from the Activity selection screen will open the Session select view as shown below.

Fig. 14:



1. Search input – Typing text into this box will filter sessions by any text field of the captured information for each session containing a match to the search input. These fields include the session name, record id, memo and gender.
2. Session information – Displays the captured information for the selected session.
3. Sessions – Either display the filtered results if a search keyword was typed in or all sessions. Please note that only sessions linked to the current user will be displayed.
4. Selected session – Click on a session to select it. The captured information for the selected session will show in the session information section and selecting a session is required to open it by clicking the Next button.

5. Back button – Click the Back button to return to the Activity selection screen.
6. Next button – Click the Next button to open the selected session in the Archive view.

Archive View

The Archive View displays the graphs and data of any previous session. The functionality of this screen is the same as the Live view except for the following:

1. The device status is not shown, since the device might not be connected and is not relevant to the archived session.
2. There is no live settings bar for the same reason as above.
3. Only a simple clock is displayed, i.e. no stopwatch and no session timer.
4. Graphs and tables do not update, since the archived session is static.

Please see the Live view section for information on how to use the Archive View. Comments can still be added, and information and data can still be exported as a csv or pdf.

List of Figures

Notes

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