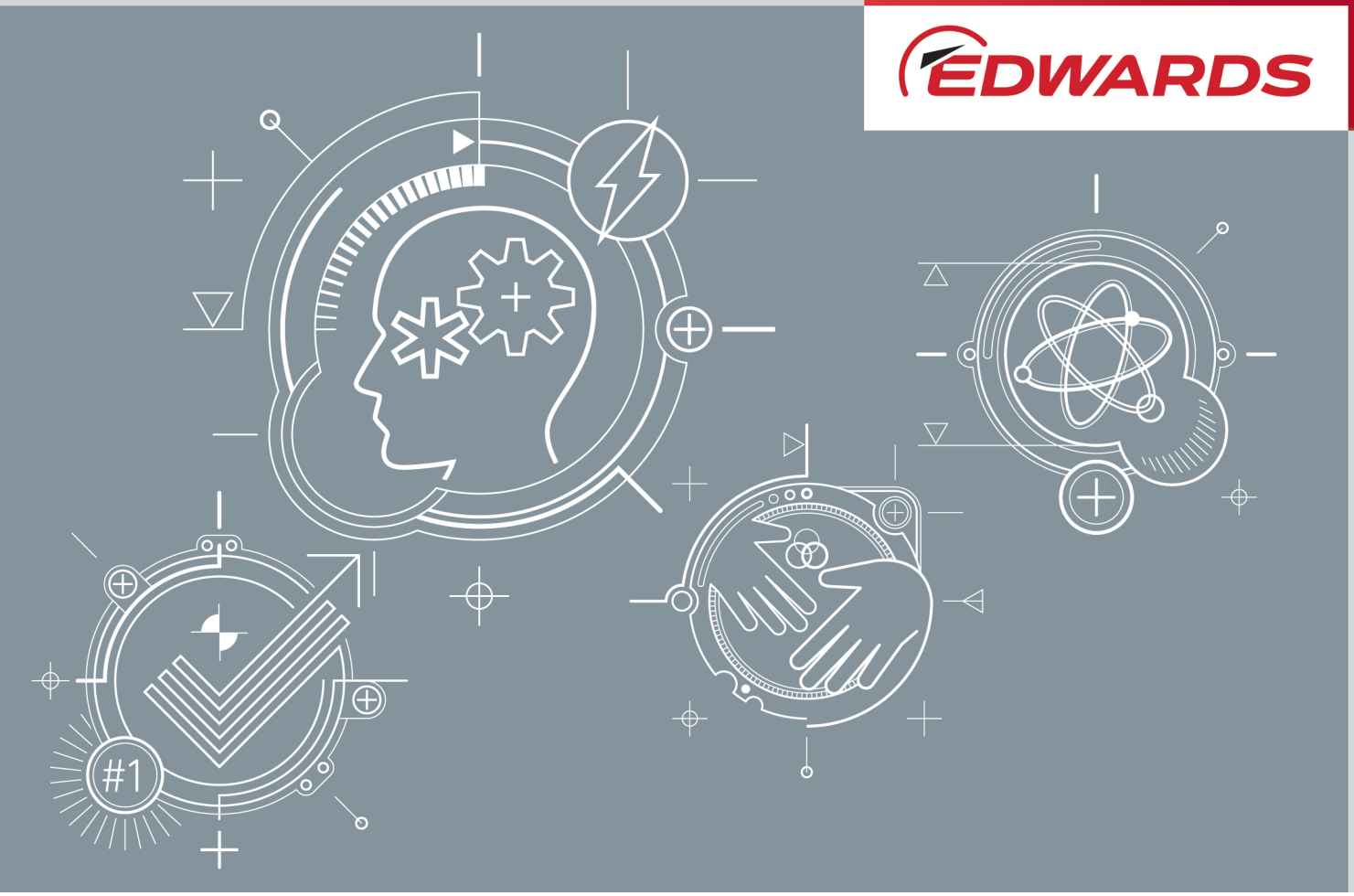


nST - nEXT AND nXDS SUPPORT TOOLKIT INSTRUCTION MANUAL

Publication Number: D396-49-880
Issue: A
Original Instructions

Copyright notice

Trademark credits

Contents

List of Figures

Safety and compliance

Definition of Warnings and Cautions

Important safety information is highlighted as WARNING and CAUTION instructions; these instructions must be obeyed.

The use of WARNINGs and CAUTIONs is defined below.

WARNING:

Warnings are given where failure to observe the instruction could result in injury or death to people. The actual symbol shown varies according to the hazard.

CAUTION:

Cautions are given where failure to observe the instruction could result in damage to the equipment, associated equipment or process.

General description

Overview

The nST software is a PC-based, Microsoft™ Windows 7 and Windows XP compatible program that allows a user to monitor, control, configure and update an Edwards nEXT turbo pump or nXDS scroll pump via the PC's COM port.

nST communicates with the USB service port of the nEXT85 and the RS232 / RS485 port of all of the following ranges of Edwards products:

nEXT85, nEXT240, nEXT300, nEXT400

nXDS6i, nXDS10i, nXDS15i, nXDS20i

Edwards may introduce additional members of the nEXT and nXDS pump families in the future. nST may need to be upgraded to allow access to some newer pump features.

Installation

Computer requirements

Minimum hardware and software are required to install and run nST with satisfactory performance.

Processor	1.5 GHz
Operating System	Microsoft™ Windows 7 or Windows XP (32-bit and 64 - bit versions supported)
RAM	2 GB RAM
Disk Space	5 GB
Graphics	XGA (1024 x 768)
Internet Explorer	Version 8

nST may work with Windows 8 or Windows 10 but has not been validated at time of publication of this manual. Edwards cannot provide support for any problems encountered running nST under Windows 8 or Windows 10.

nST does not support the following pre-Windows XP operating systems: Windows 3.x, Windows 9x, Windows ME, Windows NT, Windows 2000 or Windows Vista.

nST is not compatible with Apple™ MAC OS or any Android or Linux based devices.

Edwards cannot be held responsible for any problems resulting from the use of nST with an operating system other than Windows 7 or Windows XP.

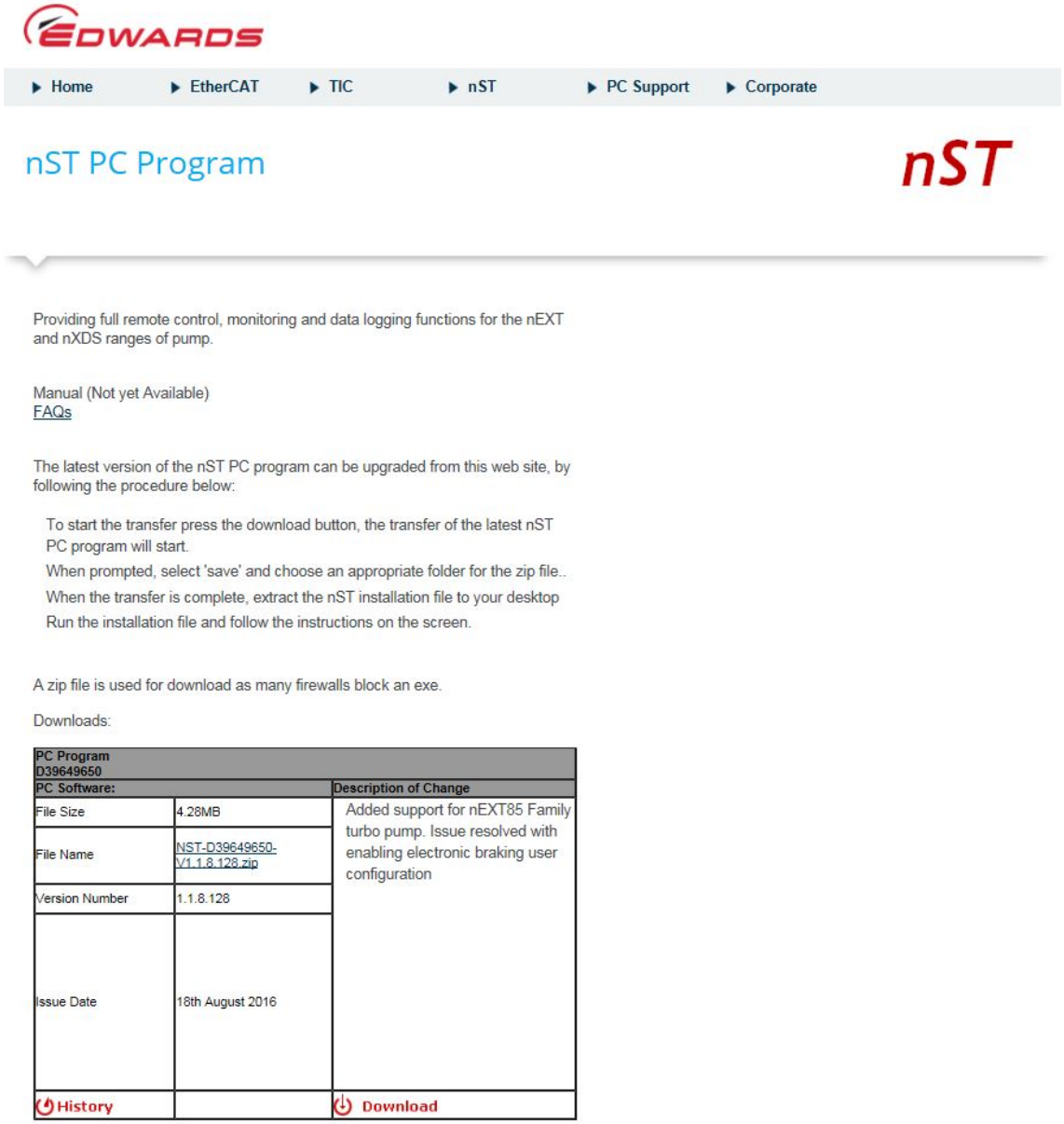
Installing the software application

To install and use nST, local administrator rights are required for the PC/laptop.

If in doubt please contact your IT department. This program requires a free activation code to run nST. Refer to *Registering and activating your product* on page 11.

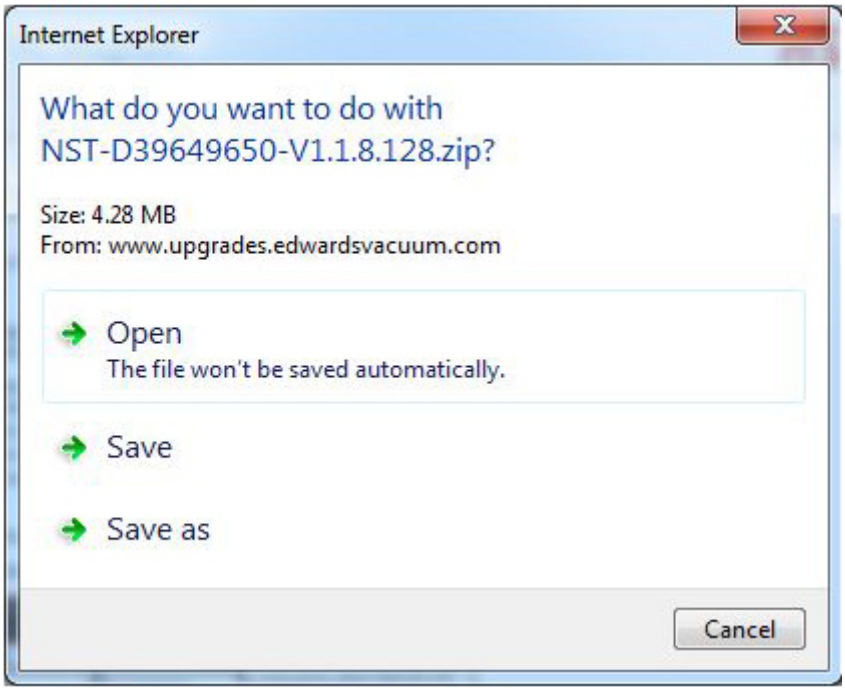
The nST PC program (D39649650) is only available by downloading it from the Edwards Product Support and Downloads web site: *http://www.upgrades.edwardsvacuum.com/producttemplate/en/nst.shtml*.

Figure 1 PC Program download screen



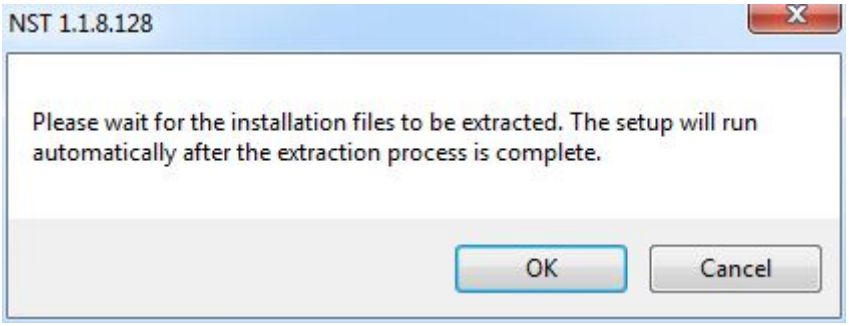
1. To install the software, press the **Download** button.
2. When prompted, press the **Save as** button and choose an appropriate destination folder on your PC for the zip file. The download may take 10 minutes or more, depending on your internet connection speed.

Figure 2 Download dialogue box



3. When the transfer is complete, extract (unzip) the nST installation file to your desktop.
4. Ensure that all other applications are closed and no error messages are present. If installing over a previous version of nST, it is recommended that you remove (uninstall) any previous version of the Edwards nST application. Refer to *Removing the software from your system* on page 10. Launch the nST installation by double-clicking.

Figure 3 Installation window



5. Select **OK** to automatically extract the installation files and follow the on-screen instructions. The installation may take 10 minutes or more to complete, depending on your PC's performance.

   Following the successful installation of relevant utilities, the nST application installation will commence. nST will install to a default sub-folder. The full path is:

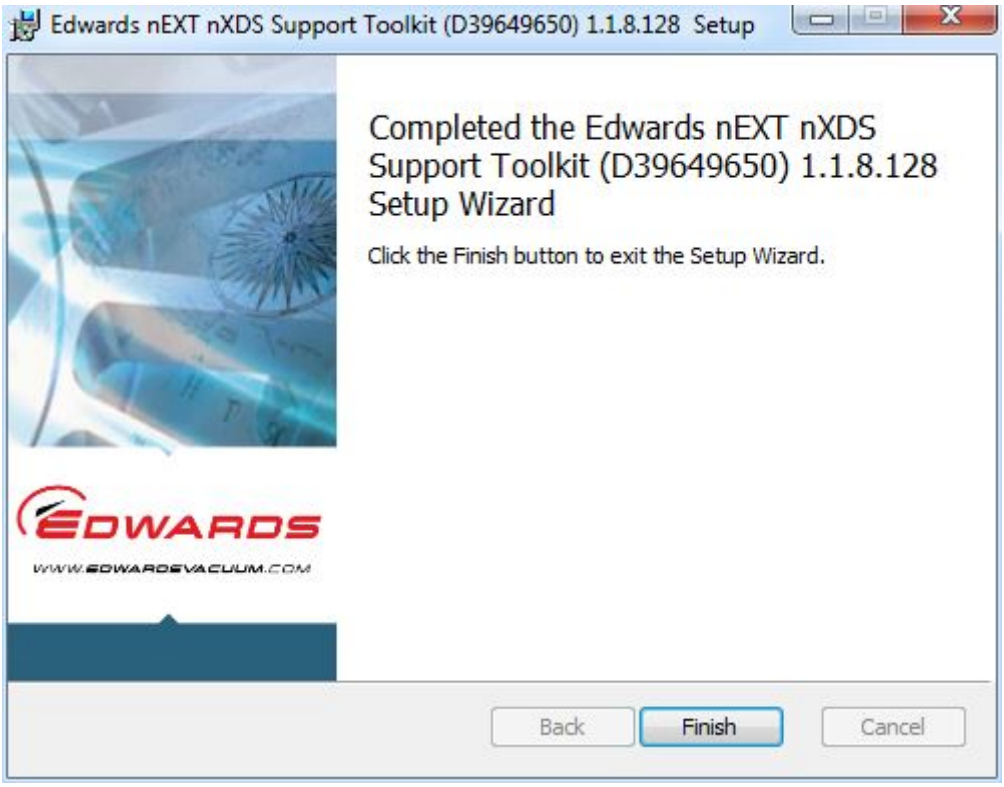
   - C:\Users\<USERNAME>\AppData\Local\Programs\Edwards\nEXT nXDS Support Toolkit (Windows 7)
   - C:\Program Files\Edwards\nEXT nXDS Support Toolkit (Windows XP)

CAUTION:

Do not change the default folder locations. Changing the folder structure will cause the software to function incorrectly.

6. Follow the on-screen instructions to complete the installation. On completion the following window is displayed.

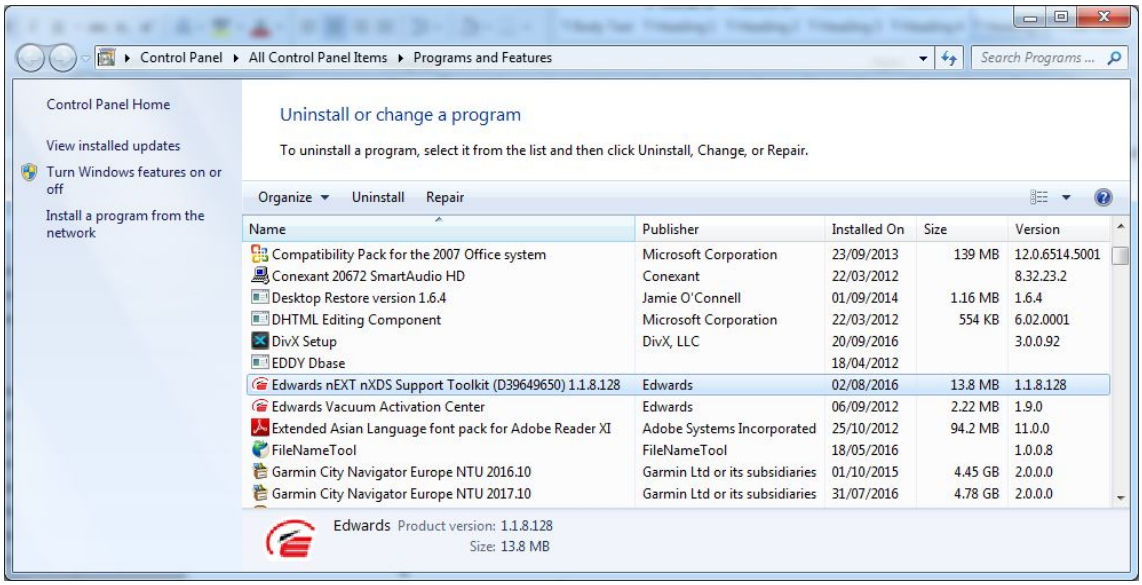
Figure 4 Installation complete window



Removing the software from your system

nST can be removed from your system via **Control Panel > Uninstall a program** (Windows 7) or **Control Panel > Add or Remove Programs** (Windows XP).

Figure 5 Removing nST from your system



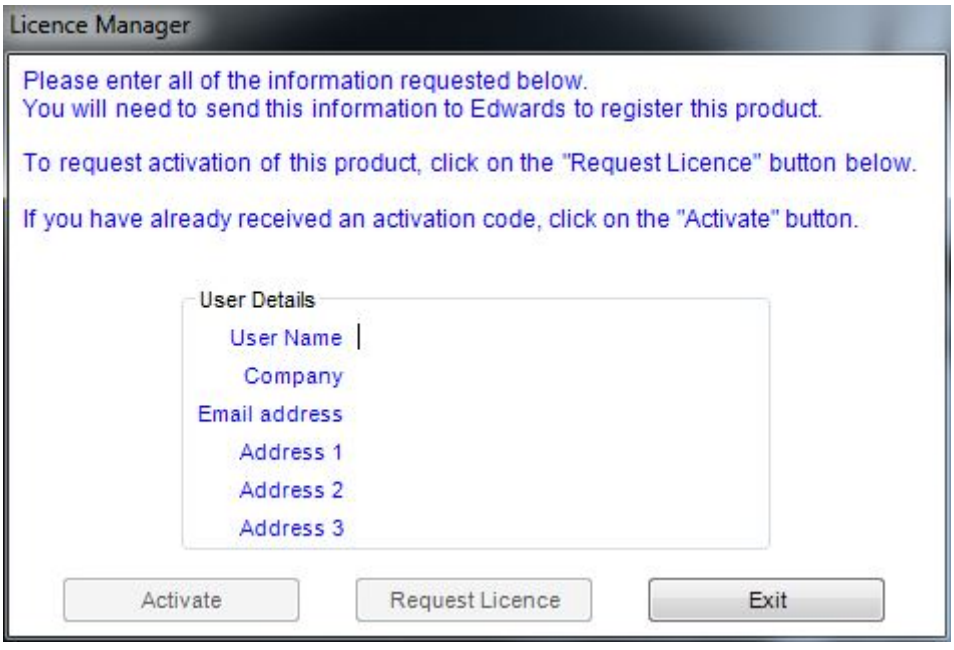
Registering and activating your product

Once installed and before being able to use the software, it must be registered and activated via email.

1. To register and activate your copy, launch nST, either by double-clicking the nEXT nXDS Support Toolkit icon on your desktop or by double-clicking the nEXT nXDS Support Toolkit entry under **Start > All Programs > Edwards** (Windows 7) or **Start > Programs > Edwards Applications** (Windows XP).

   On running the software for the first time, the following registration and activation sequence will be initiated:

Figure 6 Registration screen

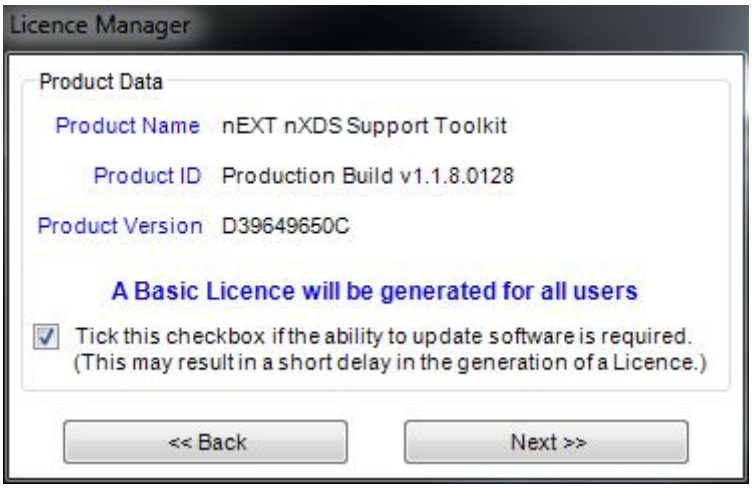


The registration screen requires the user to enter full address details. To enable the **Request Licence** button, every line of the address details must be completed. It is

important that the user name, email and address details are entered correctly as the information is used by Edwards to inform users of product updates.

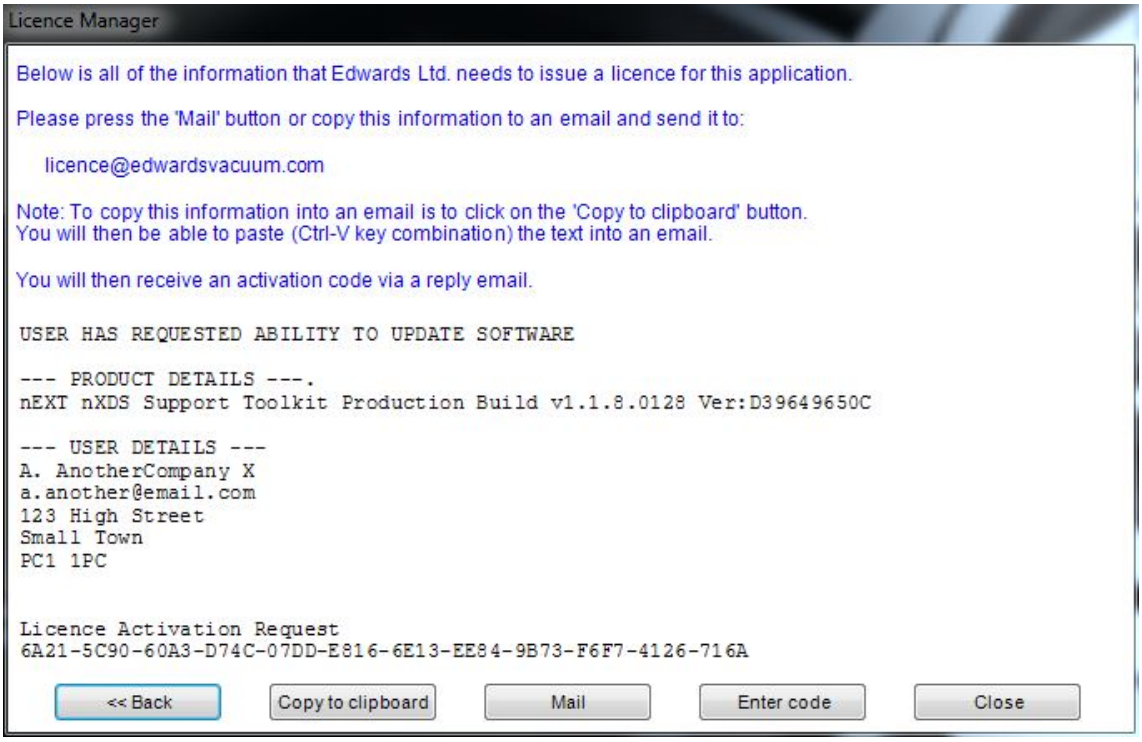
2. Press the **Request Licence** button to proceed.

Figure 7 Checkbox to request ability to update software



3. To use the nST software to update the software within nEXT or nXDS pumps, tick the **checkbox** and then press **Next** . All the information required for Edwards to activate nST will be displayed.

Figure 8 Mail details and security code



The bottom left-hand corner of the above screen shows the unique Licence Activation Request security number that has been generated by the nST Licence Utility.

If you are installing nST on a PC with email capability and connected to the internet, use the **Mail** button to email your registration details and security code to the Edwards Licence mailbox.

If you do not have direct access to email from the nST host PC, use the **Copy to clipboard** button to paste the information into a text file. That text file can then be

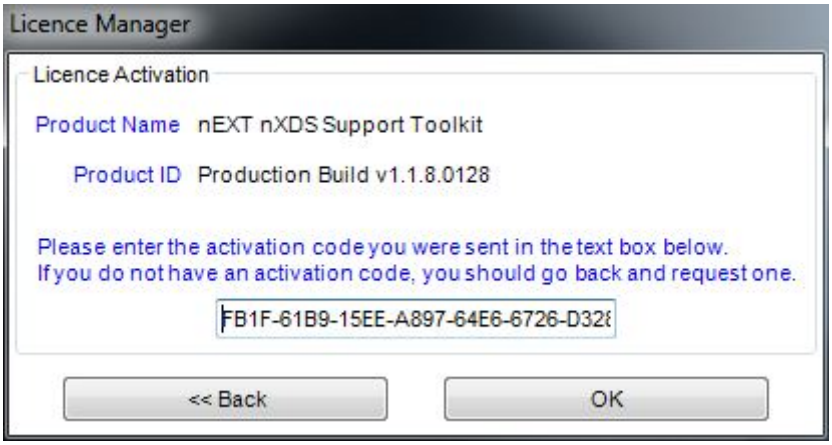
copied onto another PC and emailed to the Licence mailbox at your convenience, *mailto:Licence@edwardsvacuum.com*.

Note:

The Licence mailbox at Edwards is administered manually. A response to your request will usually be made within 24 hours but will take longer at weekends or when National Public Holidays occur.

4. On receiving the activation code from the Licence email account, copy the code to the PC's Clipboard, then press the **Enter code** button and paste the number into the Licence Activation space provided, then press **OK** .

Figure 9 Activation code window



Note:

The application will restart after the activation process is complete.

nST is now ready for use.

Establishing communications between the software and the equipment

A PC can be connected to an Edwards nEXT or nXDS pump via a USB connection using an Edwards nEXT / nXDS USB Interface Cable: part number D39801810. This three-way cable has:

- A 15-way female D-type socket that connects to the pump.
- A 15-way male D-type plug that connects to the pump's power supply.
- A USB Type A plug that is compatible with a PC's built-in USB COM port.

Further details of the USB interface cable can be found in the USB Interface Cable (Small GV Pumps) instruction manual: part number D39801880.

Alternatively, a PC can be connected to an Edwards nEXT or nXDS pump via an RS232 connection using an Edwards nEXT / nXDS Interface Cable: part number B80000808. This three-way cable has:

- A 15-way female D-type socket that connects to the pump.
- A 15-way male D-type plug that connects to the pump's power supply.
- A 9-way female D-type socket that is compatible with a PC's built-in RS232 COM port.

Further details of the RS232 interface cable can be found in the nEXT Pump Accessories instruction manual: part number B81100880.

An Edwards nEXT85 pump has an on-board Micro USB port, which can be used to connect directly to a PC using a standard USB A to Micro B cable. Further details of this onboard Micro USB interface cable can be found in the nEXT85 Turbomolecular Pumps instruction manual: part number B8G000880.

It is also possible for a PC to be connected to an Edwards nEXT or nXDS pump using a user-supplied commercial off-the-shelf USB-RS232 adapter in conjunction with the Edwards nEXT / nXDS Interface cable, B80000808. Edwards recommends USB-RS232 adapters based on the FTDI FT232R chip, which are available from many suppliers, such as the US232R-x series of adapters from FTDI.

Relevant USB drivers and the interface cable(s) should be installed before continuing with this section.

1. If using a USB adapter with a configurable Latency Timer then, to ensure reliable communications with an nEXT or nXDS pump, set the Latency Timer to 2 msec (two milliseconds). That can be done via **Start > Control Panel > System then selecting Device Manager > Ports (COM & LPT) > USB Serial Port (COMn)**, where 'COMn' represents the COM port number assigned by Windows to your particular USB-RS232 adapter.

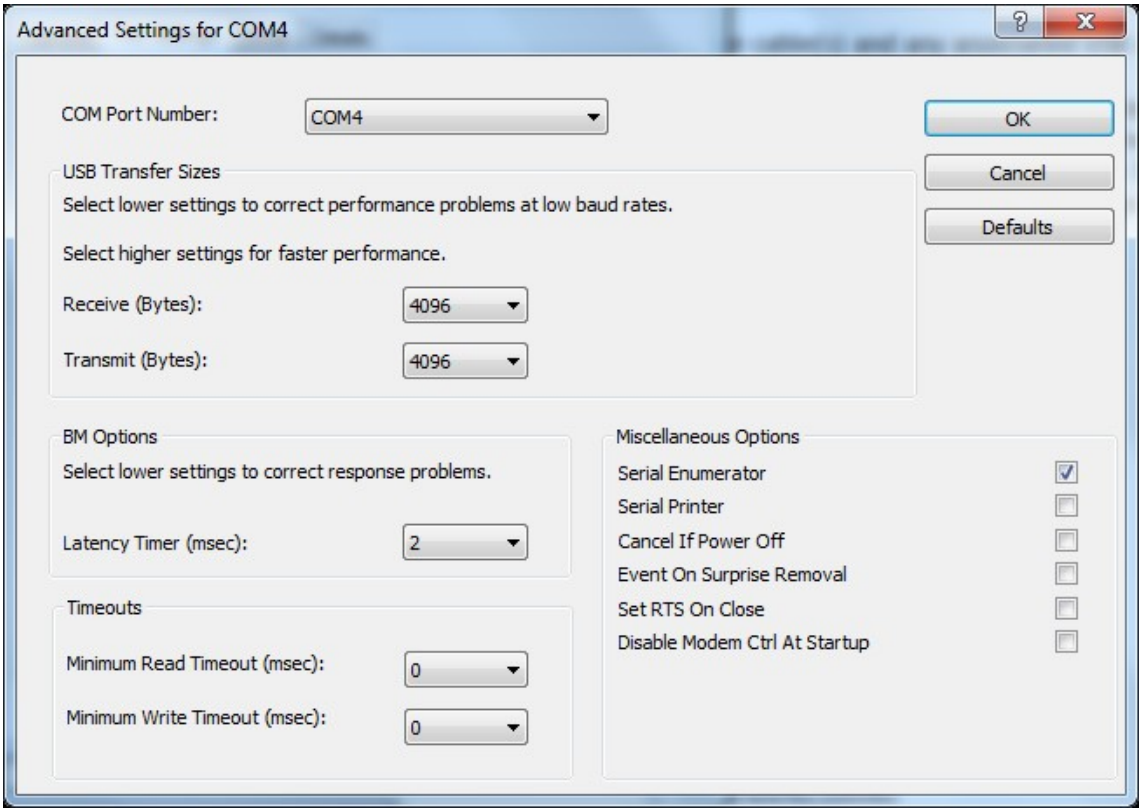
Figure 10 Device Manager ports

Note:

In the above example, a USB interface cable is being used and Windows has assigned it as serial port COM4. Your interface cable may be described differently and be assigned a different COM port number.

2. Double-click **USB Serial Port (COMx)**, select the **Port Settings** tab in the **Properties** window, then press **Advanced…** to access the Latency Timer, which can be set to 2 msec via the associated dropdown box. You may need to restart your computer before the change is effective.

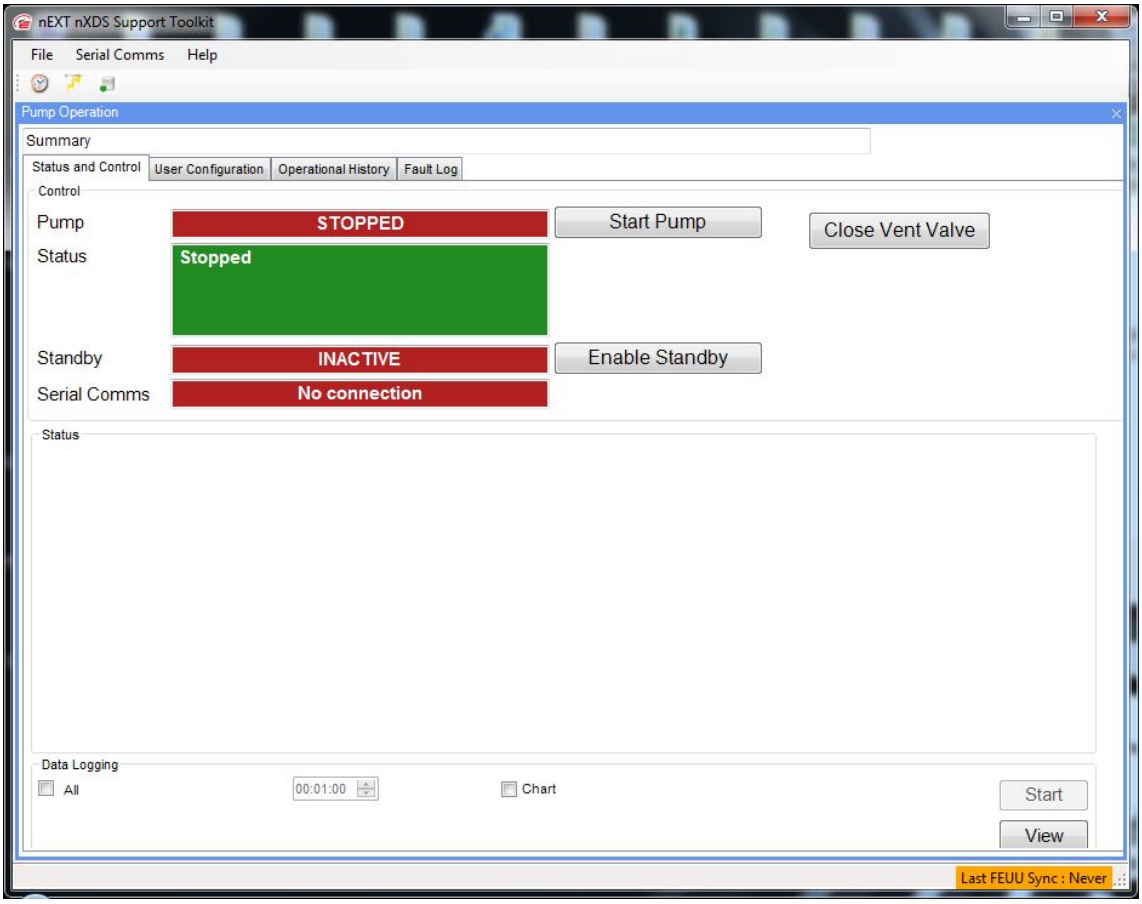
Figure 11 Serial Comms communications window



nST communicates with nEXT and nXDS pumps using the Modbus RTU serial data communications protocol, which supports a multi-drop network of individual nodes, each one with a unique Modbus address in the range of 1 to 247.

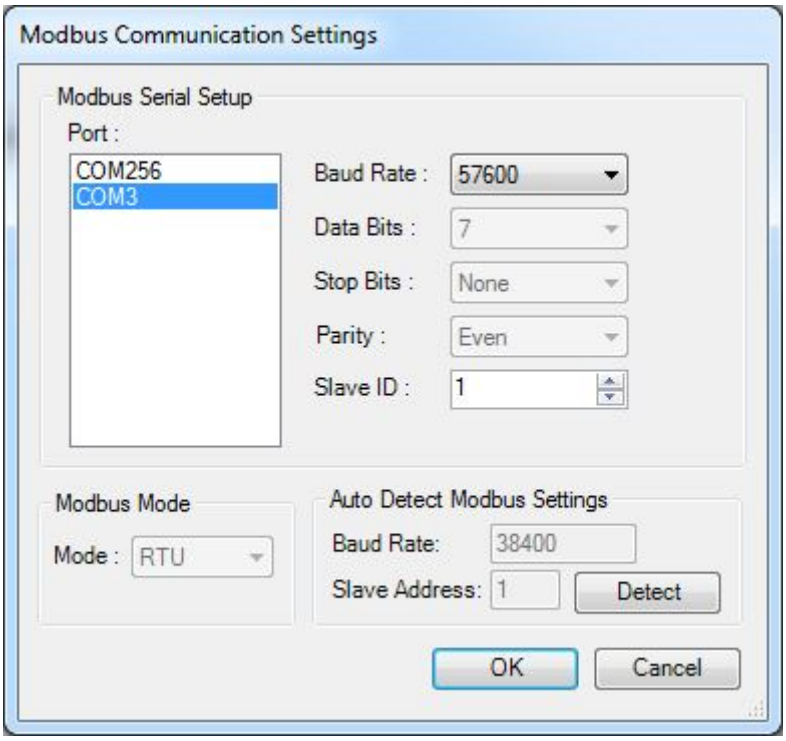
3. To configure nST communications, launch nST.

Figure 12 nST screen on launching for the first time



4. Select **Serial Comms** from the menu. Set Port to **COMn** , where ‘n’ is the COM port number corresponding to your RS232 or USB interface. Set the **Baud Rate** for the connected pump, the default will be **38400**. Also set **Slave ID** to the slave node address of the particular pump of interest.

Figure 13 nST Modbus communication settings

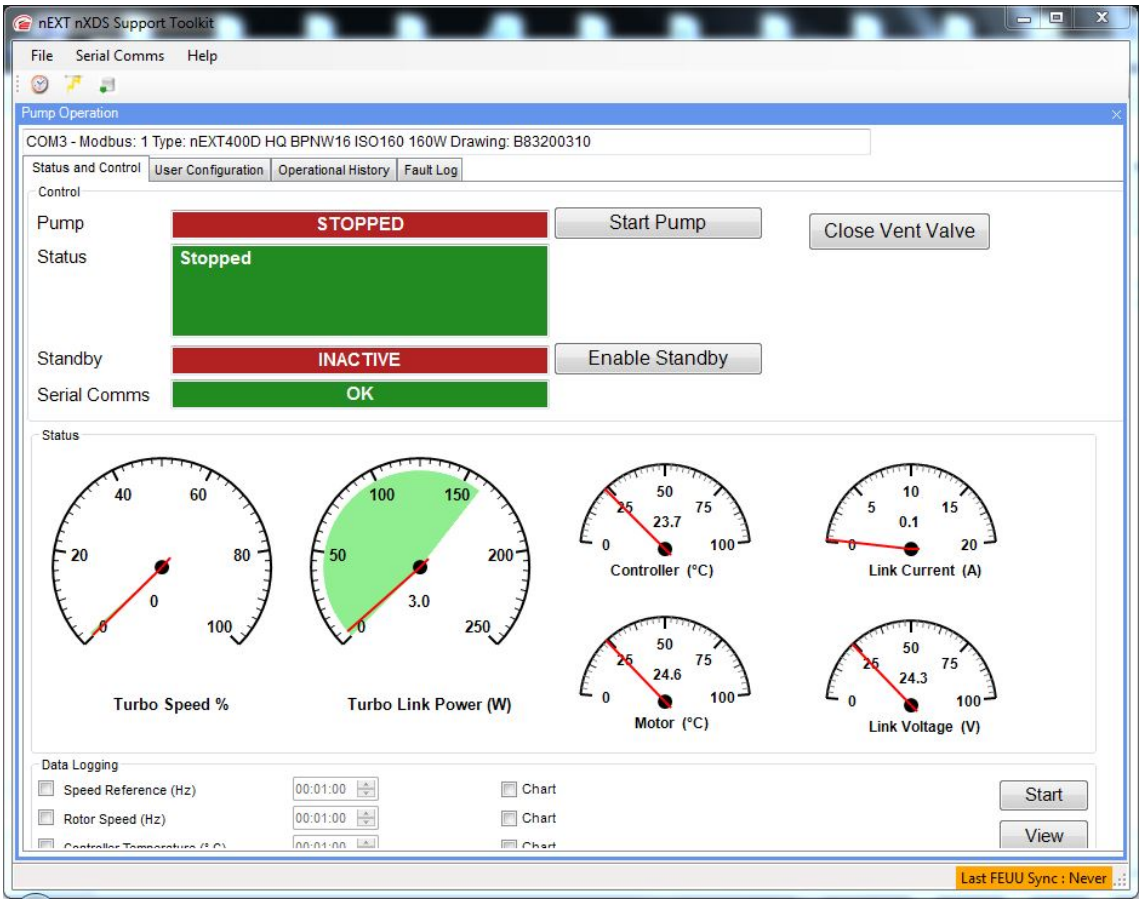


Note:

nEXT and nXDS pumps leave the factory with a default Modbus slave node address of 1, i.e. Slave ID is 1.

If a nEXT or nXDS pump is correctly connected to a suitable power supply and to the PC running nST, and if all the communication settings are correctly configured, then nST will start communicating with the pump and the **Serial Comms** status, as reported on the **Status and Control** tab of nST, will change from **No connection** to **OK** .

Figure 14 nST with serial communications connected to a pump



5. If the interface cable(s) and power supply are all correct but the connection status does not show as **OK** , then it is likely that at least one of the Modbus Serial Setup settings is not valid. In that case, select **Serial Comms** via the nST menu and then press the **Detect** button. nST will then attempt to auto-detect the connected pump(s) using default communication settings at Slave ID Addresses from 1 to 247. The auto-detection process will cease once communication has been established with the pump.

Operation

Main features

nST is a PC based software application program, running under Microsoft™ Windows, which can communicate with Edwards nEXT and nXDS families of vacuum pumps.

The main features are:

Feature	Reference
Serial communications configuration for the interface between the PC and the pump.	*Establishing communications between the software and the equipment* on page 13
Monitoring and controlling the status of the connected pump (start / stop / standby) and, if fitted, manually close an associated vent valve.	*Status and control* on page 21
Logging of selected parameters and subsequently viewing them in a table or a chart.	*Logging and charting* on page 21
Reading, editing, loading and writing pump configuration settings.	*Reading, editing, loading and writing pump configuration settings* on page 25
Saving pump configurations to a User Config file.	*Saving configuration files* on page 26
Reading, editing, loading and writing the operational history of the pump.	*Operational history* on page 26
Reading and saving the fault log from the connected pump.	*Fault logs* on page 28
Synchronise the internal database of the nST with an external master database of the software versions available for each pump type.	*Synchronising the nST built-in database* on page 29
Use the internal database of the nST to update the main software within the connected pump.	*Updating the pump software and parameter sets* on page 31
Check the version of nST and its own software components.	*About* on page 34
Manage the software licence of the nST (activate / deactivate / change / renew).	*Licence Manager* on page 35

User interface

nST has three menu headings:

- File
- Serial Comms
- Help

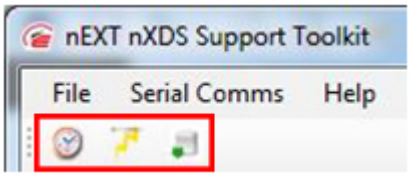
Figure 15 nST top-level menu

The sub-menus are:

File | Exit Serial Comms	Press Exit to terminate nST, which is the same as pressing the **Exit** icon. Press **Serial Comms** to directly display the Modbus Communication Settings window. Refer to *Figure 13* on page 16.
Help | About	Press About to view version information about nST and its component DLLs. Use **Copy version info to clipboard** if you need to export that information from nST.
Help | Licence	Press **Licence Manager** to activate, change, renew or deactivate the nST licence.

nST has three toolbar icons:

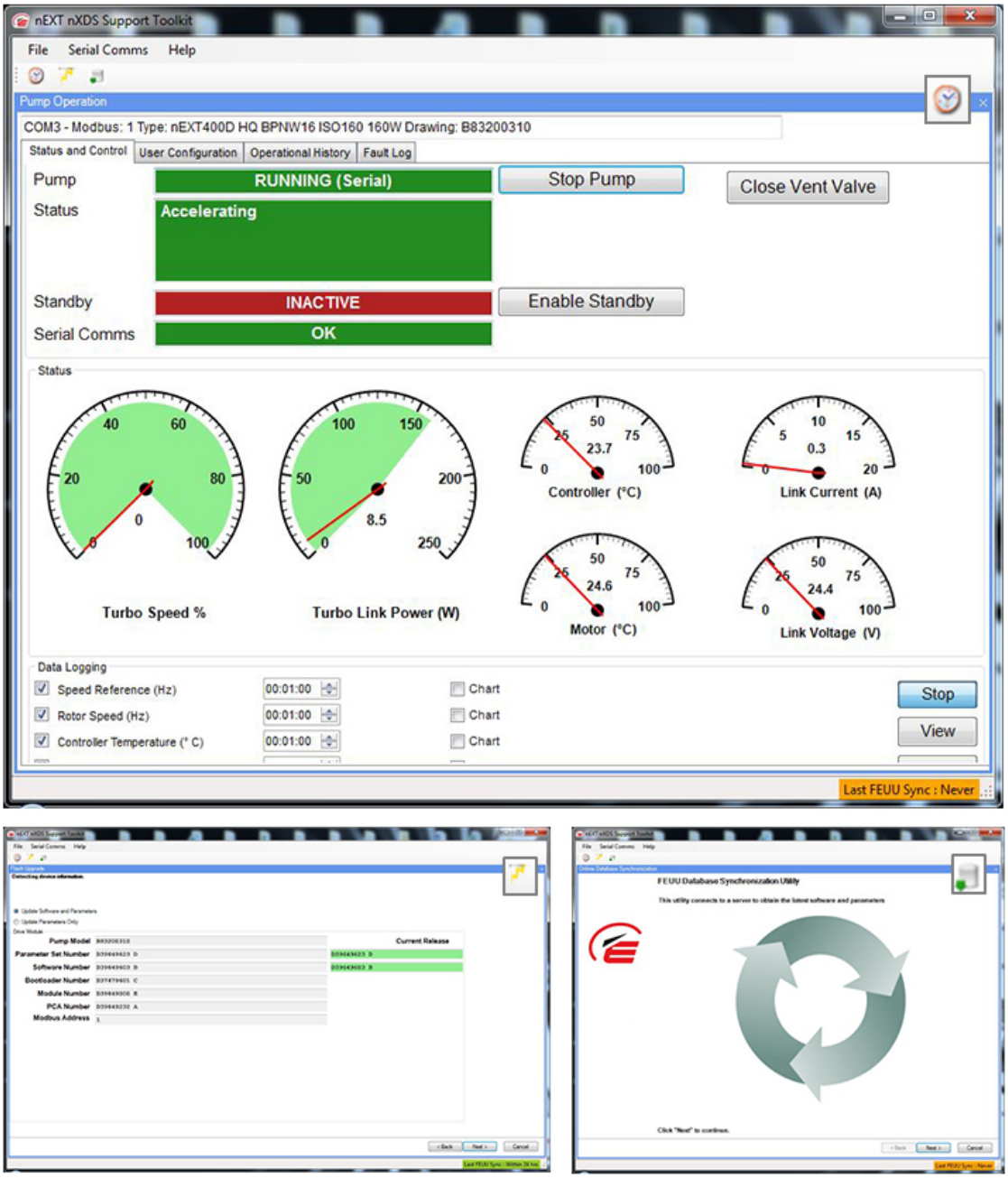
Figure 16 nST navigation toolbar icons



The toolbar icons are:

	Press to display the control & monitor, logging, configuration, operational history and fault log utilities in the main nST display area, which is the default view when nST is launched.
	Press to display the flash update utility. That is used to change the software in the pump.
	Press to display the database synchronization utility in the main nST display area. That is used to ensure the local nST database has the latest software available for the various pump types.

Figure 17 Main nST display after pressing each of three toolbar icons



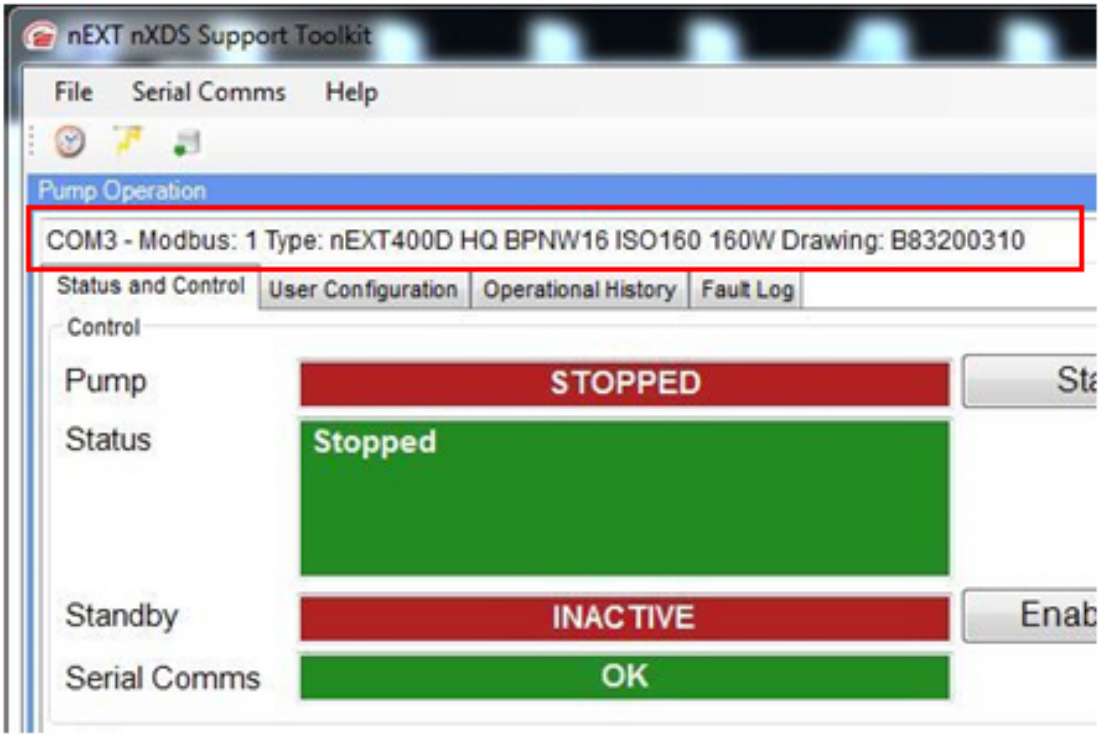
Monitoring and controlling

If the default status monitoring and control view (refer to *Figure 14* on page 17) is not visible in the main display area of nST then press the **Manage and Monitor the Pump** toolbar icon.

Status and control

If nST has successfully established communication with a pump then the main display area shows a summary of the COM port and the connected pump.

Figure 18 Details of the connected pump



Functionality available through the Status and control:

1. To start the pump, if it is not already running, press the **Start Pump** button.
2. To stop the pump, if it is already running, press the **Stop Pump** button.
3. To enable the standby speed, if not already enabled, press the **Enable Standby** button.
4. To disable the standby speed, if not already disabled, press the **Disable Standby** button.
5. To manually close an associated vent valve, if a nEXT pump is connected, press the **Close Vent Valve** button.

   The effects of those control actions can be observed through the various alphanumeric and graphical gauge displays.

Logging and charting

nEXT or nXDS pump parameter values can be sampled at regular intervals and logged into a data file.

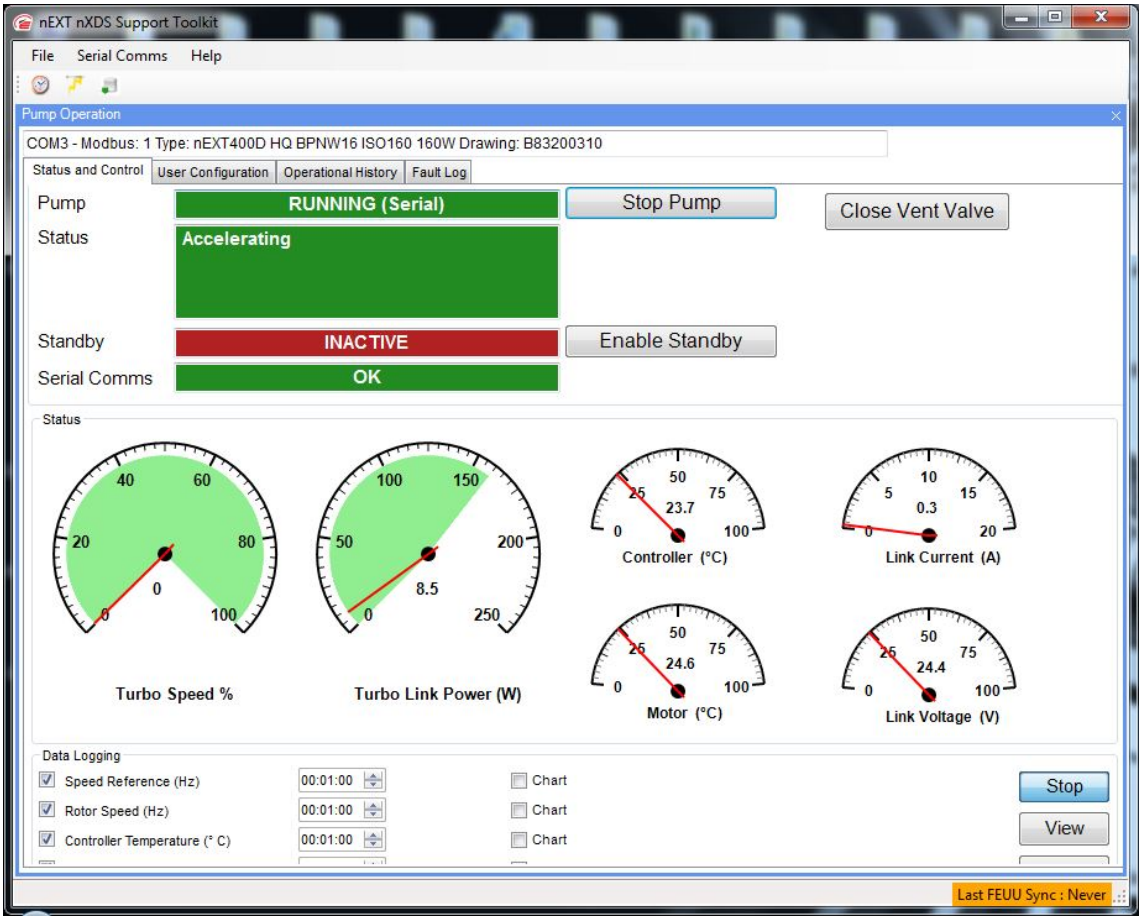
1. Before data logging can be started, first select which parameters are of interest by clicking the associated checkbox and, if required, set their individual logging rate. Clicking the checkbox labelled **All** will select all parameters and can be used to adjust the logging rate of all parameters to be the same value.

Note:

The default logging rate for each parameter is once per minute but the user may change it using the associated timer settings.

2. When the parameters of interest have been selected, start logging by clicking the **Start** button. The selected parameters will be logged to a text file. Each new set of readings is appended to that file as a new row, where each row represents a time-stamped set of parameters using a CSV (Comma Separated Variable) format.
3. To stop logging, click the **Stop** button.

Figure 19 Data logging in progress



4. At any time, either while parameters are being logged or long after a particular logging session has been stopped, the user may select a CSV file and display its contents by pressing the **View** button. If the user selects the CSV file that is still being logged to, then the displayed contents of that CSV log file will be updated in real-time.

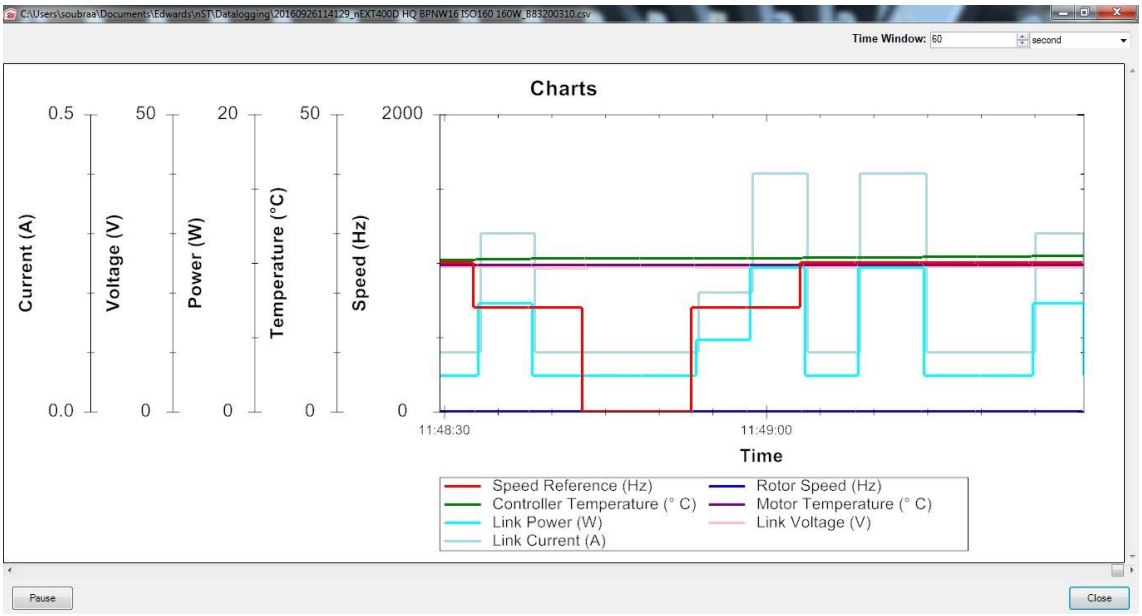
Figure 20 Viewing a logged CSV file

C:\Users\soubraa\Documents\Edwards\nST\Datalogging\20160926114129_nEXT400D HQ BPNW16 ISO160 160W_B83200310.csv

Time	Speed Reference (Hz)	Rotor Speed (Hz)	Controller Temperature (° C)	Motor Temperature (° C)	Link Power (W)	Link Voltage (V)	Link Current (A)	Fault Count	System Status
Time	Speed Reference (Hz)	Rotor Speed (Hz)	Controller Temperature (° C)	Motor Temperature (° C)	Link Power (W)	Link Voltage (V)	Link Current (A)	Fault Count	System Status
2016-09-26 11:41:32	1000	0	24.6	24.6	7.3	24.2	0.3	226	0442 0301 0000 0000 0000
2016-09-26 11:41:38	1000	0	24.6	24.6	4.8	24.1	0.2	226	0442 0101 0000 0000 0000
2016-09-26 11:41:43	1000	0	24.6	24.6	9.8	24.4	0.4	226	0442 0301 0000 0000 0000
2016-09-26 11:41:48	1000	1	24.7	24.6	2.4	24.3	0.1	226	0442 0101 0000 0000 0000
2016-09-26 11:41:53	1000	0	24.7	24.6	9.7	24.2	0.4	226	0442 0301 0000 0000 0000
2016-09-26 11:41:58	1000	1	24.7	24.6	2.4	24.4	0.1	226	0442 0101 0000 0000 0000
2016-09-26 11:42:03	1000	0	24.8	24.6	7.3	24.2	0.3	226	0442 0101 0000 0000 0000
2016-09-26 11:42:08	1000	1	24.8	24.6	2.4	24.2	0.1	226	0442 0101 0000 0000 0000
2016-09-26 11:42:13	1000	0	24.8	24.6	0.0	24.4	0.0	226	0442 0101 0000 0000 0000
2016-09-26 11:42:18	1000	0	24.9	24.6	7.3	24.2	0.3	226	0442 0301 0000 0000 0000
2016-09-26 11:42:23	1000	0	24.9	24.6	4.8	24.1	0.2	226	0442 0101 0000 0000 0000
2016-09-26 11:42:28	1000	0	24.9	24.6	9.7	24.2	0.4	226	0442 0301 0000 0000 0000
2016-09-26 11:42:33	1000	1	24.9	24.6	4.8	24.2	0.2	226	0442 0101 0000 0000 0000
2016-09-26 11:42:38	1000	0	25.0	24.6	9.7	24.2	0.4	226	0442 0301 0000 0000 0000

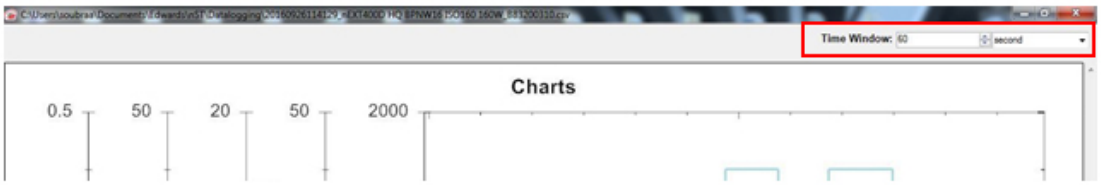
5. If the user wishes to view the parameters on a chart (time-based line graph) then, first, click the relevant parameter's **Chart** checkboxes. Clicking the **Chart** checkbox labelled **All** will select all parameters to be viewed on a chart.
6. At any time, either while parameters are being logged or long after a particular logging session has been stopped, the user may select a CSV file and display it as a chart by pressing the **Chart** button. If the user selects the CSV file that is still being logged to, then the chart will be updated in real-time.

Figure 21 Viewing a chart file



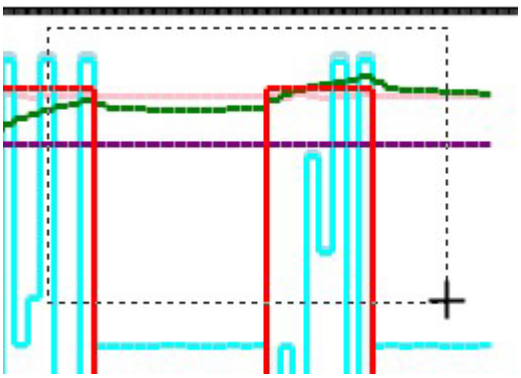
7. The user may adjust the horizontal timescale axis using the **Time Window** settings.

Figure 22 Adjusting the chart horizontal scroll



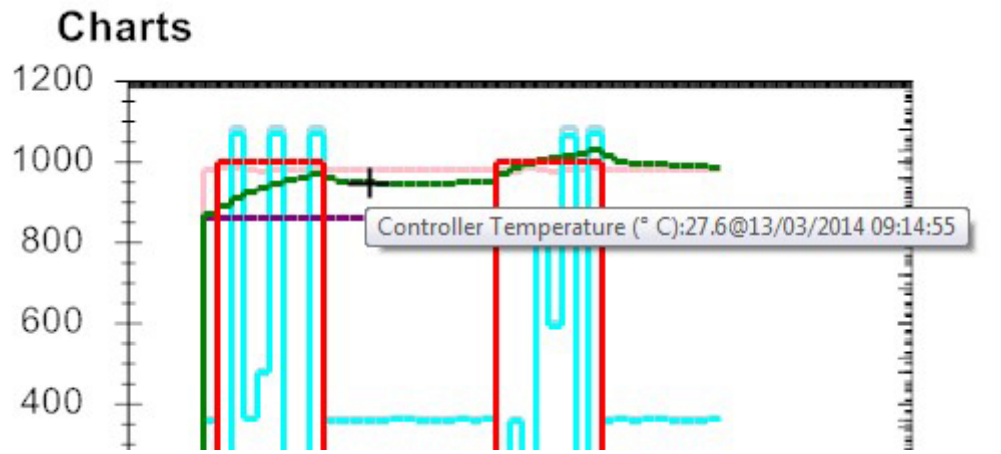
8. The user may also click and drag an area of the chart to zoom into a particular time period of interest.

Figure 23 Zooming on a part of the chart



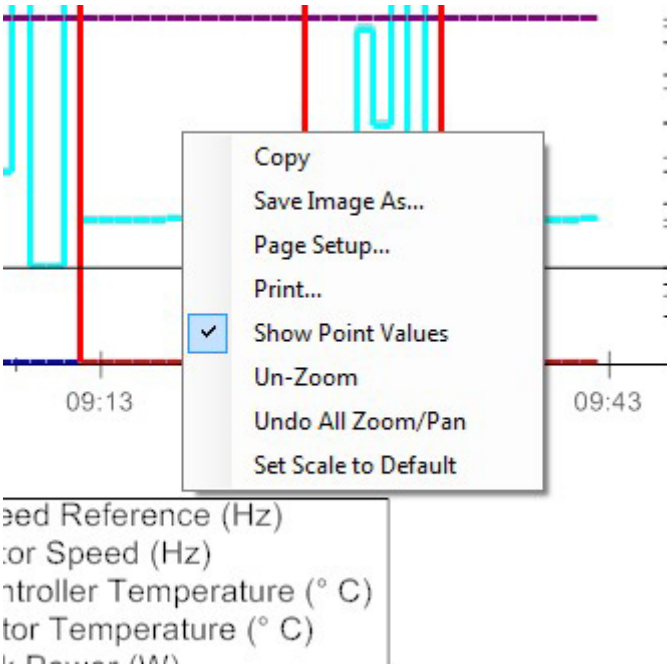
9. The user may check the actual value of a parameter at any point on the chart by using the mouse to hover over any part of the chart traces.

Figure 24 Checking the actual value on one of the chart traces



10. The user may right-click on the chart to display a menu with further chart options.

Figure 25 Menu of further chart options



Configurations

nEXT and nXDS pumps leave the Edwards factory loaded with default settings. Those defaults allow the pumps to be used in a wide range of applications without needing any further configuration by the user.

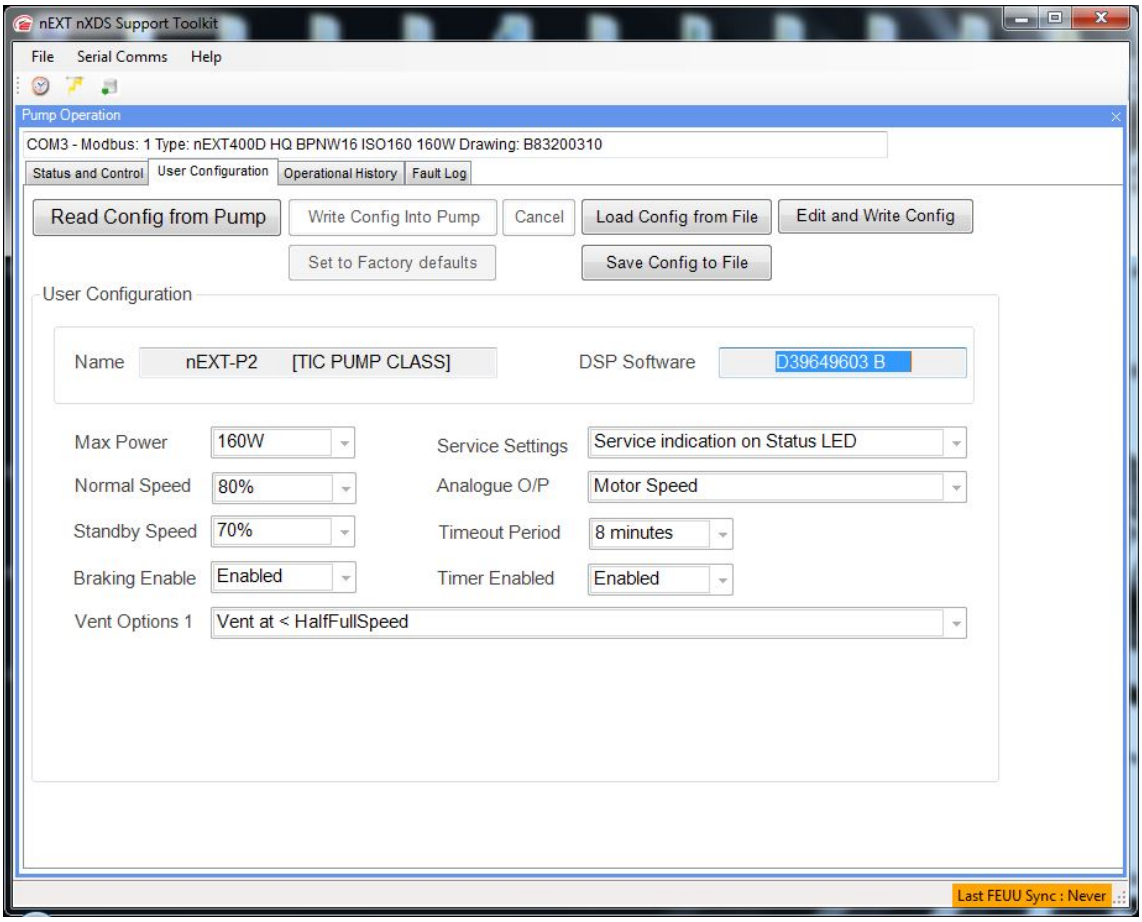
However, nST provides a User Configuration tab, which allows the user to:

- Read the configuration settings from the pump.
- Edit and write configuration setting back to the pump.
- Load a pump with configuration settings from a previously saved file.
- Save configurations settings to a file.
- Reset the pump to the factory default configuration settings.

Reading, editing, loading and writing pump configuration settings

1. Press the **Read Config from Pump** button, which will display the main configuration settings of the connected pump.

Figure 26 Configuration settings read and displayed from the pump



2. To edit the configuration settings, press the **Edit and Write Config** button and then confirm (or cancel) by pressing the **Yes** (or **No**) button. Pressing **Yes** will allow the user to change any of the configuration settings. The user may then select one or more different configuration settings from the associated drop-down boxes.
3. Alternatively, the user may press the **Set to Factory defaults** button to return all configurable settings to the value originally set in the factory.
4. Alternatively, pressing the **Load Config from File** button allows the user to load configuration settings from a previously saved “User Config” file (refer to *Saving configuration files* on page 26 for how to save configuration settings to a “User Config” file).

Note:

*No configuration settings are actually changed in the pump until the **Write Config Into Pump** button is pressed.*

5. Pressing the **Write Config Into Pump** button allows the changed configuration settings to be written back into the pump. The user is prompted to confirm (or cancel) by pressing the **Yes** (or **No**) button before proceeding.

Saving configuration files

After the configuration settings have been read from a pump, the user may choose to save them to a “User Config” file by pressing the **Save Config to File** button.

A unique, self-identifying filename is created every time that button is pressed. These User Configuration files are stored in the “**Edwards\nST\UserConfiguration**” folder which can be found under the user’s (Windows 7) **Documents** or (Windows XP) **My Documents** folder.

Note:

*The **Save Config to File** button only saves the configuration settings actually read back from the pump. If the user reads configuration settings from the pump, then edits them but does not write them back to the pump, then pressing the **Save Config to File** button does not save the edited settings - it will only save the settings as read from the pump. To save the edited settings, the user must first write them back into the pump.*

Operational history

nST provides an Operational History tab, which allows the user to:

- Read and save the operational history from the connected pump and the drive.
- Edit and write pump operational history back to the pump (but not drive operational history).
- Load a pump with operational history information from a pre-defined and saved file.
- Reset a service interval after carrying out routine maintenance.

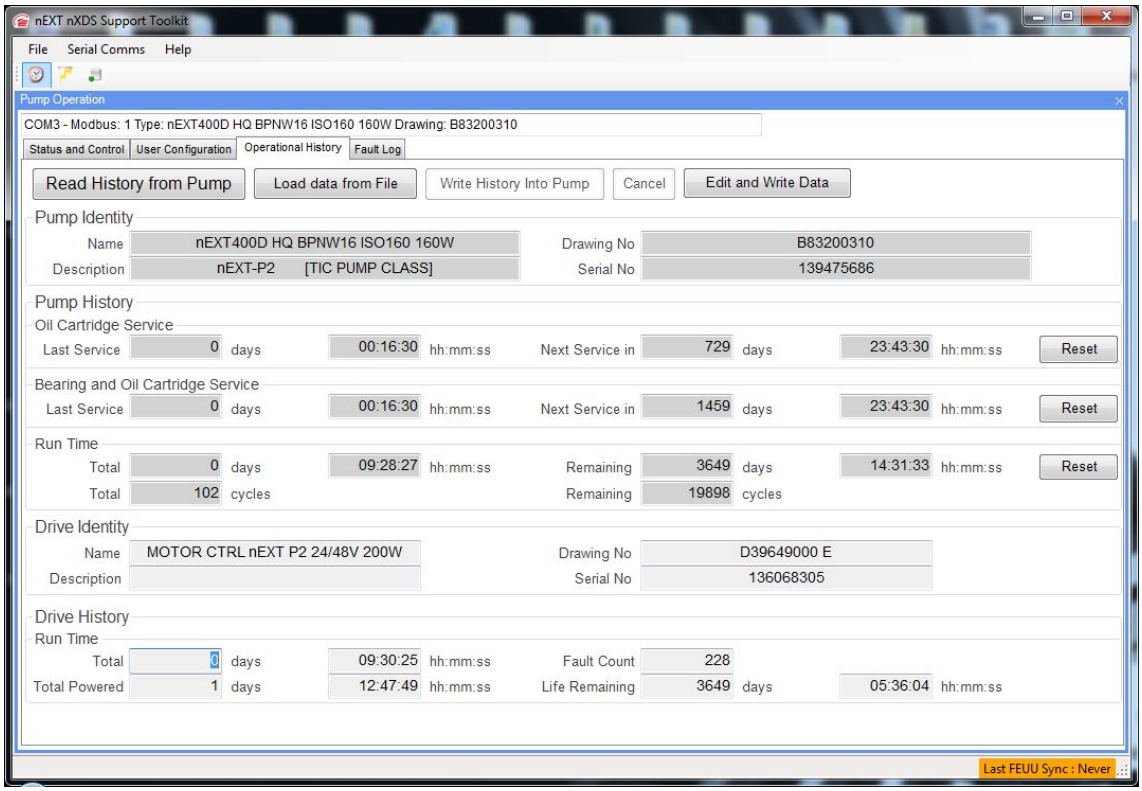
Note:

The ability to edit and write operational history, or to load a pump with operational history from a save file, is restricted and only enabled for certain licence levels. A standard user will only have the ability to read and save the operational history and reset a service interval from the connected pump and drive.

Reading and saving pump operational history

Press the **Read History from Pump** button, which will display the operational history and identity of the connected pump.

Figure 27 Operation history read and displayed from the pump



Note:

*Every time the **Read History from Pump** button is pressed nST automatically saves the operational history to a unique, self-identifying filename. These operational history files are stored in the "**Edwards\nST\History**" folder which can be found under the user's (Windows 7) **Documents** or (Windows XP) **My Documents** folder.*

Editing, loading and writing pump operational history

1. To edit the pump's operational history and identity information, press the **Edit and Write Data** button and then confirm (or cancel) by pressing the **Yes** (or **No**) button. Pressing **Yes** will allow the user to change any of the pump operational history or identity. The user may then edit any of the pump's operational history or identity information by typing into the text boxes associated with the pump.
2. Alternatively, pressing the **Load data from File** button allows the user to load pump operational history and identity information from a pre-defined and saved file. This feature facilitates conducting a drive swap and transferring the connected pump's operational history and identity from the old drive to the new, replacement one.
3. Pressing the **Write History Into Pump** button allows the edited or loaded information to be written back into the pump. The user is prompted to confirm (or cancel) by pressing the **Yes** (or **No**) button before proceeding.

Note:

Only the pump's operational history and identity can be edited or written. The drive's operational history and identity is locked and cannot be edited or written.

Resetting a pump service interval

To reset the service interval for the connected pump, press the **Reset** button for the particular service interval and then confirm (or cancel) by pressing the **OK** (or **Cancel**) button. Pressing **OK** will reset the particular service interval back to its default value. Once the reset has been completed, press the **Read History from Pump** button, which will display the updated operational history and service intervals of the connected pump.

Note:

Each pump type has different service intervals governing what routine or preventative maintenance needs to be conducted. See pump instruction manual for more information on pump maintenance and service intervals.

Fault logs

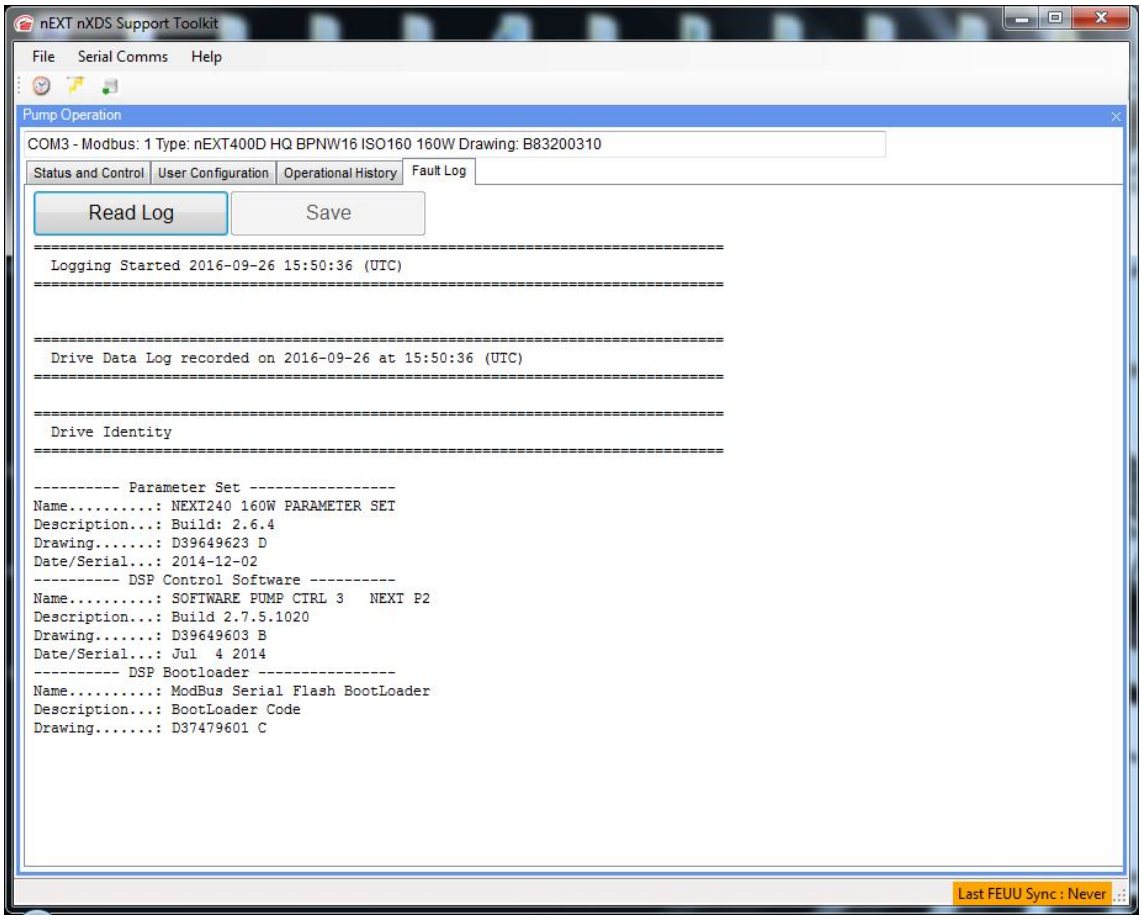
nST provides a Fault Log, which allows the user to:

- Read the fault log from the connected pump and the drive.
- Save the fault log to a file.

Reading the fault log

Press the **Read Log** button, which will display the fault log contained within the connected pump.

Figure 28 Fault log read and displayed from the pump



Use the vertical scroll bar to browse the contents of the displayed fault log.

Saving the fault log

Press the **Save** button to save the fault log to a text file that can be reviewed later, without nST running, and sent to others for analysis.

A unique, self-identifying filename is created every time that button is pressed. These fault log files are stored in the "**Edwards\nST\FaultLog**" folder which can be found under the user's (Windows 7) **Documents** or (Windows XP) **My Documents** folder.

Updating the pump software

nST contains a database that holds copies of the software and parameter sets contained within the pump. The database relates the part number of the pump's drive to the part number of the latest version of the relevant software file and parameter set.

nST also contains a built-in software utility called "FEUU" ("Flash EPROM Update Utility). FEUU is used to load software and/or a parameter set into a pump.

Synchronising the nST built-in database

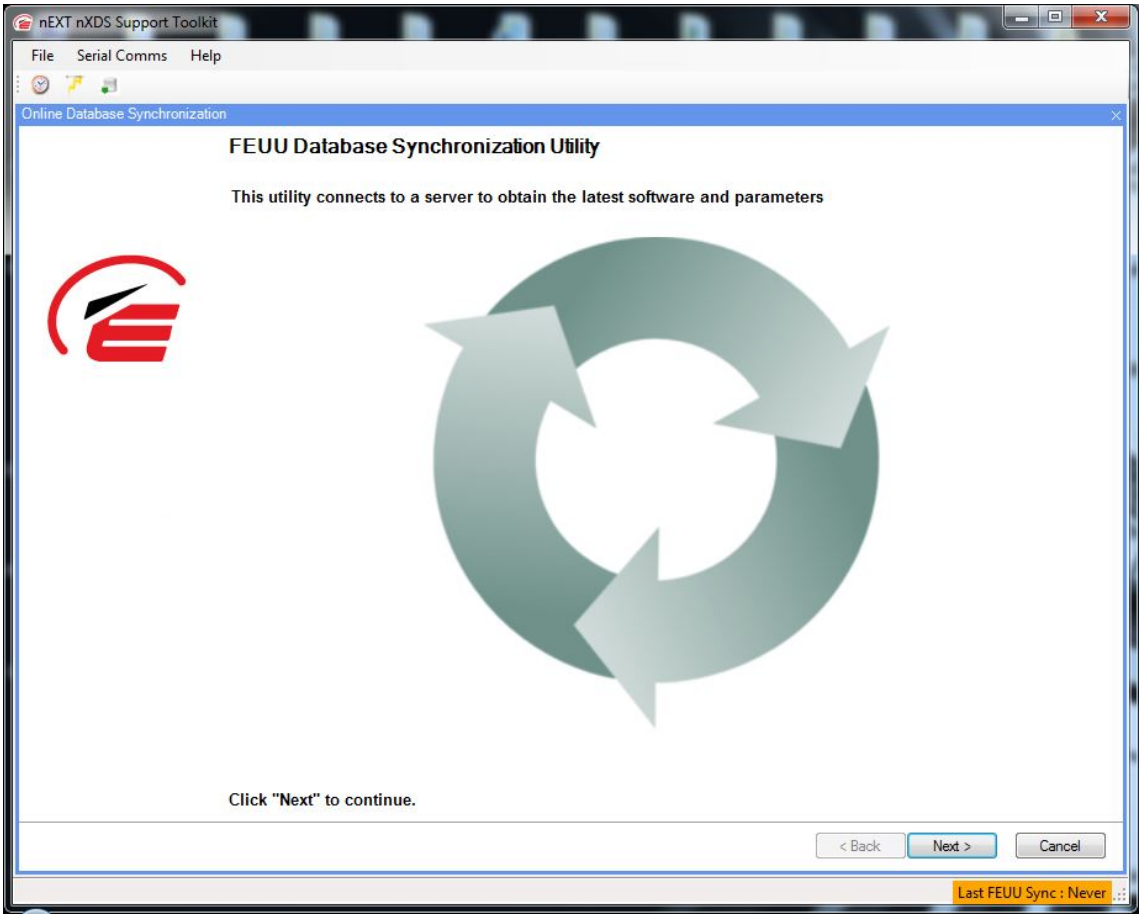
The built-in database of nST contains a record of each type of pump and drive known to nST and the associated software and parameter sets compatible with those pumps.

Note:

Before attempting to use the FEUU of the nST to update the pump's software or parameter sets, make sure that your copy of nST has the most up-to-date database. That is achieved by a process of synchronisation, which requires the PC running nST to have a live internet connection.

1. Press the **Show the tool to sync the FEUU Database** toolbar icon located near the top of the nST window, below the main menu.

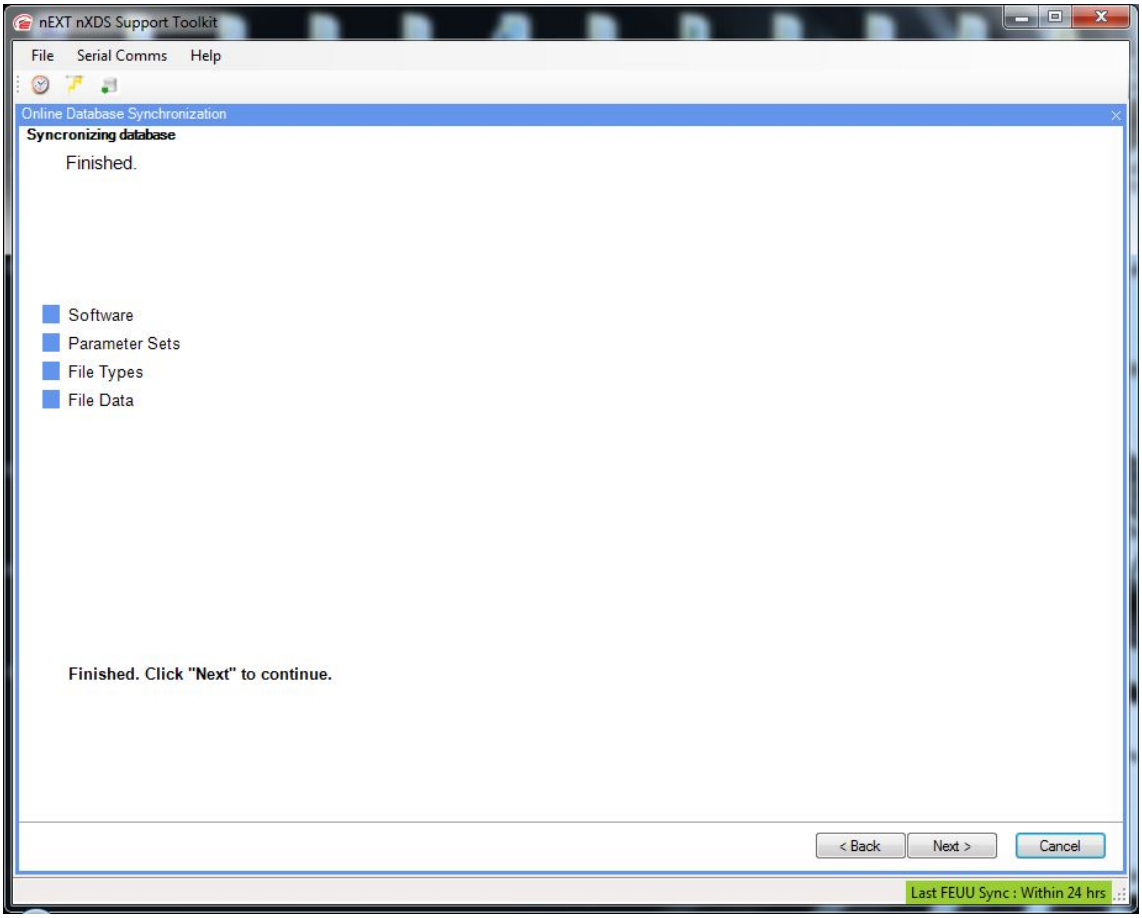
Figure 29 FEUU database synchronisation



2. Press the **Next** button and nST will check there is a live internet connection. Follow the on-screen instructions to proceed with the nST database synchronisation process.

   On successful completion, this screen is displayed:

Figure 30 FEUU database synchronisation completed



3. Press the **Next** button to display details of the updated files and then press the **Finish** button.

Updating the pump software and parameter sets

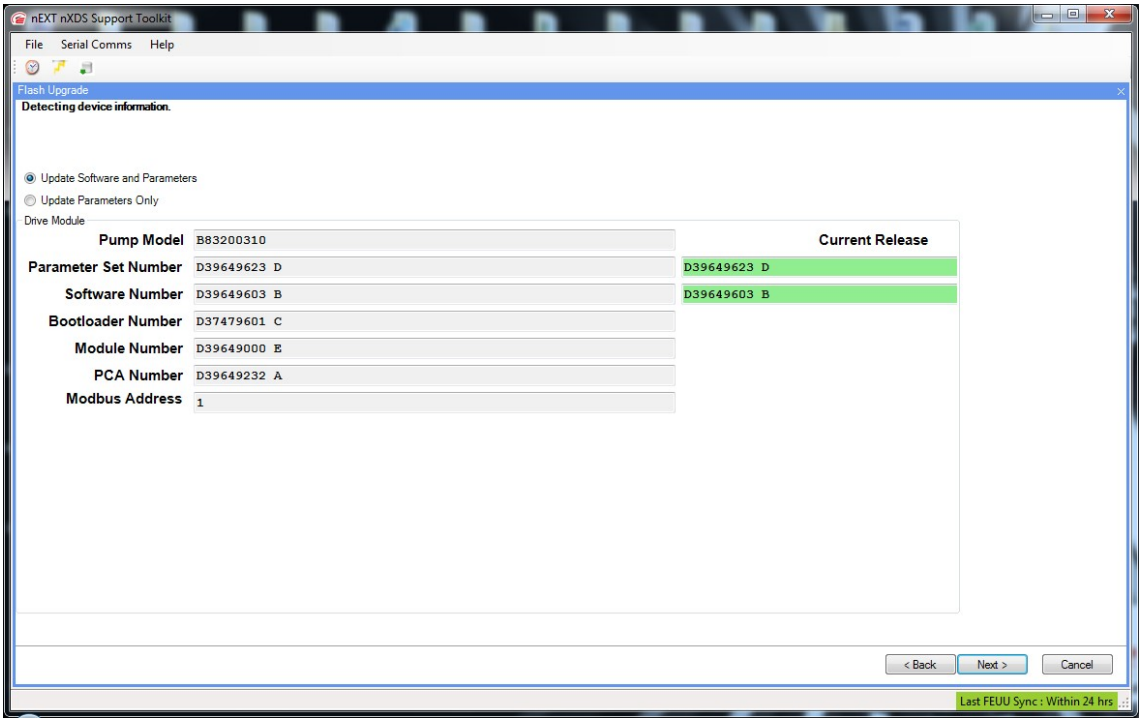
1. Check the "**Last FEUU Sync** " message displayed in the bottom right hand corner of the nST window.

Note:

*If "**Last FEUU Sync** " message indicates that the nST database has not been synchronised recently then perform an FEEU sync operation by referring back to* *Synchronising the nST built-in database on page 29.*

2. Press the **Update the pump software and parameter set** toolbar icon located near the top of the nST window, below the main menu.

Figure 31 Flash update initial screen



That first screen of the flash update “wizard” displays the current versions of the main elements of the connected pump.

Note:

There are three distinct pieces of information relating to the hardware part numbers and their revisions: (i) the overall pump; (ii) the electronics module at the base of the pump; (iii) the PCA (Printed Circuit Assembly) within the electronics module.

Note:

For all pump types, there are three distinct pieces of information relating to the software and data-set part numbers and their revisions: (i) the software, i.e. the main application program; (ii) the bootloader, i.e. the small piece of code in the pump that is used to load new application software; (iii) the parameter set, i.e. the data that relates to configurable parameters used by the application software to adjust the behavior of the pump.

Note:

For an nXDS pump, there is a second section with two extra pieces of information relating to the customer interface module software and their revisions: (i) the customer interface software, i.e. the main application program; (ii) the customer interface bootloader, i.e. the small piece of code in the pump that’s used to load new application software.

That screen also confirms whether the currently installed version of the main pump software, associated parameter set and customer interface software (nXDS only) are up-to-date. The **Current Releases** contained within the nST database are clearly displayed to the right of the screen.

- If they match the versions of the connect pump, they are highlighted with a green background and are up-to-date; indicating that an update is not essential.
- If any of them are out-of-date, they are highlighted with a red background; indicating that an update is required.

Refer to *http://upgrades.edwardsvacuum.com* to see if Edwards has publicly released any software or parameter set updates for the particular family or type of pump of interest to the user.

The **Update Software and Parameters** and **Update Parameters Only** radio buttons are provided to allow the nST user to update both the software and parameters in the connected pump or, if only the parameters are out-of-date, to update the parameters only.

3. To proceed with the update process, press the **Next** button.

WARNING:

Do not interrupt the serial communication between the PC and pump whilst flash updating as it may render the pump inoperable. For example:

- **Do not exit the nST Support Toolkit**
- **Do not interrupt power to the PC**
- **Do not interrupt power to the pump**
- **Do not disconnect the serial interface cable between the PC and pump**

Always wait for the Update complete or Parameter Set updated messages before proceeding.

For certain licence levels, a parameter set option screen is offered after the main pump software, and customer interface software for an nXDS, has finished updating. This enables the user to change the type of parameter set for the connected pump. The parameter set highlighted is the recommended one for the connected pump, but a different one can be selected if the pump type needs to be changed. Select the parameter set that corresponds to the required pump type and press **Next** to continue with the update process.

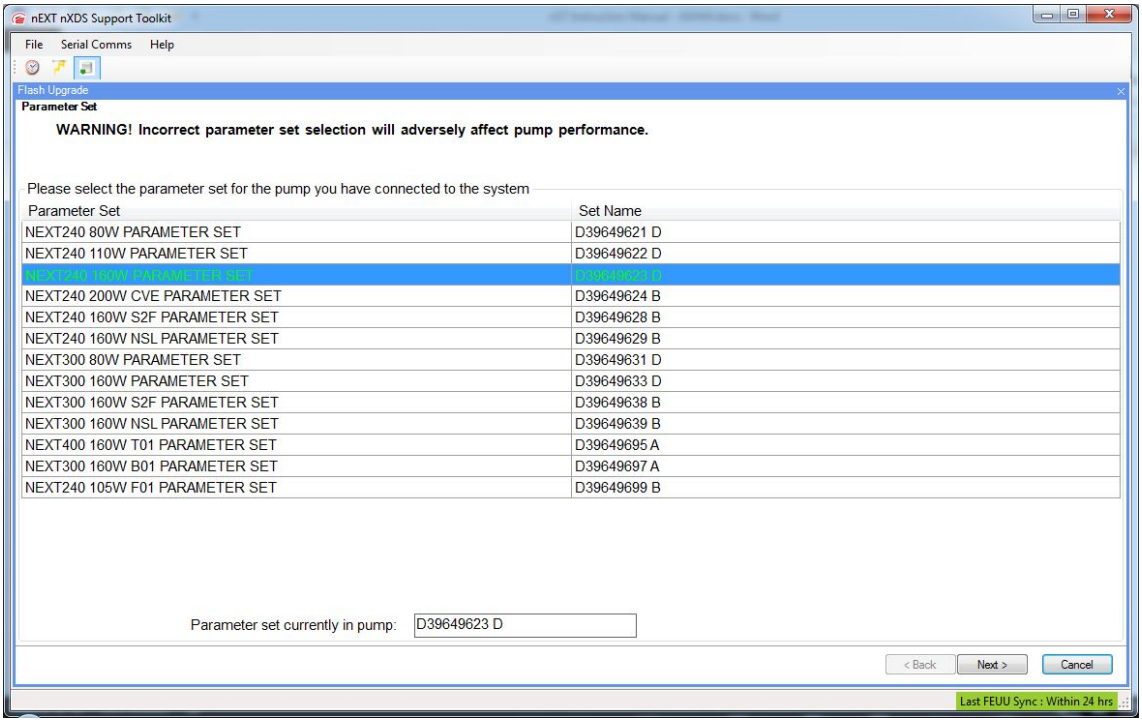
Note:

The ability to change the parameter set type of the connected pump is restricted and only enabled for certain licence levels. A standard user will not have the ability to change the parameter set type.

Note:

Changing the parameter set type can have an adverse effect of the performance or reliability of the product. Ensure that the correct type of parameter set is selected for the connected pump.

Figure 32 Parameter set option screen



4. Once the updating process is complete, press **Finish** to return to the flash update initial screen and confirm that the connected pump is now fully up to date.

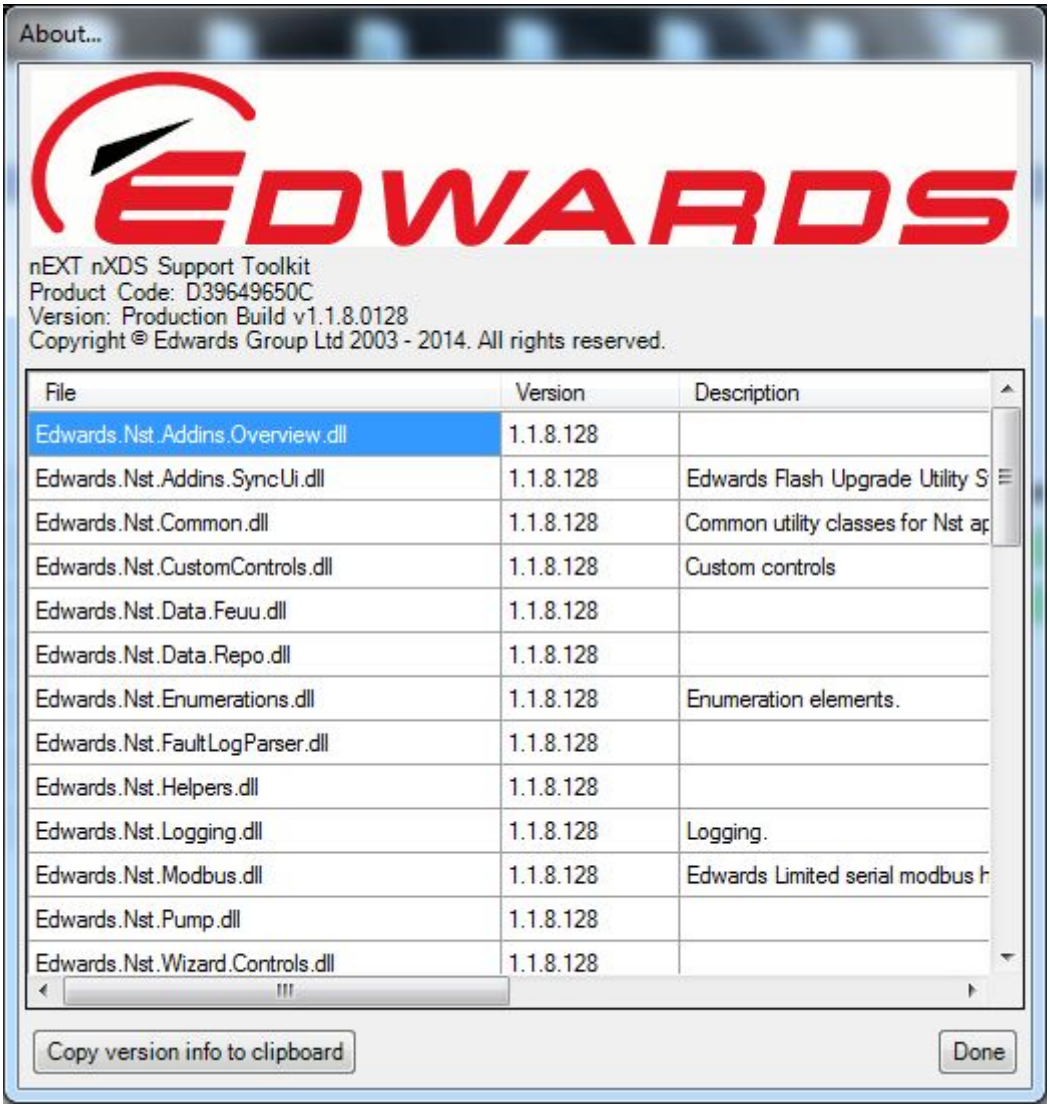
nST version and licence manager

The Help menu of the nST allows the user to check the version of software and to access the Licence Manager.

About

1. Select **Help** then **About** from the nST main menu bar.

Figure 33 About screen



The nST software part number, revision and build code numbers are displayed near the top of the window. The contents of that window display the version numbers of individual software components of the nST.

2. Press the **Copy version info to clipboard** button to save that version information for later use.
3. Press the **Done** button to continue using nST.

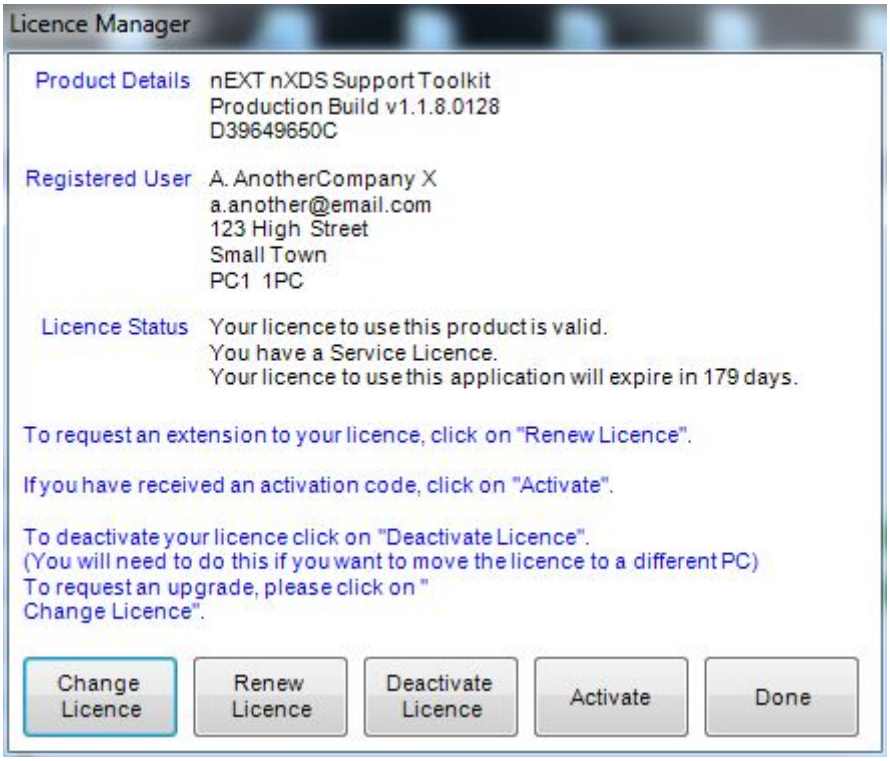
Note:

nST does not automatically check for updates to the nST application software. Refer to http://upgrades.edwardsvacuum.com to see if Edwards has released a newer version of nST.

Licence Manager

1. Select **Help** then **Licence Manager** from the nST main menu bar.

Figure 34 Licence Manager



Those buttons are typically only used when first requesting an activation code from Edwards and on receipt of an activation code from Edwards.

2. To prevent nST from being used on that PC, press the **Deactivate Licence** button.
3. Press the **Done** button to continue using nST.

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Return the equipment or components for service

Before you send your equipment to us for service or for any other reason, you must send us a completed Declaration of Contamination of Vacuum Equipment and Components – Form HS2. The HS2 form tells us if any substances found in the equipment are hazardous, which is important for the safety of our employees and all other people involved in the service of your equipment. The hazard information also lets us select the correct procedures to service your equipment.

We provide instructions for completing the form in the Declaration of Contamination of Vacuum equipment and Components – Procedure HS1.

If you are returning a vacuum pump, note the following:

- If a pump is configured to suit the application, make a record of the configuration before returning the pump. All replacement pumps will be supplied with default factory settings.
- Do not return a pump with accessories fitted. Remove all accessories and retain them for future use.
- The instruction in the returns procedure to drain all fluids does not apply to the lubricant in pump oil reservoirs.

Download the latest documents from www.edwardsvacuum.com/HSForms/, follow the procedure in HS1, fill in the electronic HS2 form, print it, sign it, and return the signed copy to Edwards.

Note: *If we do not receive a completed HS2 form, we will not accept the return of the equipment.*

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