Norden Lab Professional Guide

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Introduction

Welcome to Norden Lab Professional - Bioscreen C Edition 1.1 or higher.

Norden Lab Professional is a real-time scientific software package designed for the Bioscreen C Microbiology reader. The laboratory software system enables experiment management and design, private secure unattended measurement, observation over a network or internet, statistical analysis, graphical presentation and reporting for lab professionals (some features require additional optional software modules).

Norden Lab adds new features and functionality to the Bioscreen C device previously not available. The Microsoft Service based client/server design running on Windows 2000 and newer including all 64-bit versions of Microsoft Windows operating systems allows for secure, robust and unattended running of scientific experiments.

Norden Logic offers several software clients enabling the possibility to work with the experiment in the most convenient way possible (local client, network client, web client, mobile client). The email notification feature of Norden Lab Professional always keeps the user informed and allows full control over the experiment.

In addition to all of the new software features Norden Lab offers a special worth mentioning here are the interactive 2D and 3D graphics allowing the user to scroll into view the desired line or rotate a 3D graph into the right perspective as well as paging through the complete recorded graph history. The user can export the graphs and data in many formats during the measurement period of the experiment or work more extensively with the results after completion of the experiment in the Workshop module.

New in release 1.1:

- Complete update of all internal components to the latest versions
- Latest run-time C++ framework and C++ compiler used
- Native control support for Windows XP and Windows Vista
- Updated Graphics library; Statistics and new Curve Fitting tool
- Enhanced memory checking, including detection of low memory condition
- Many small updates and bug fixes
- New Drivers

Please find more specific information on all the software features and requirements in this guide.

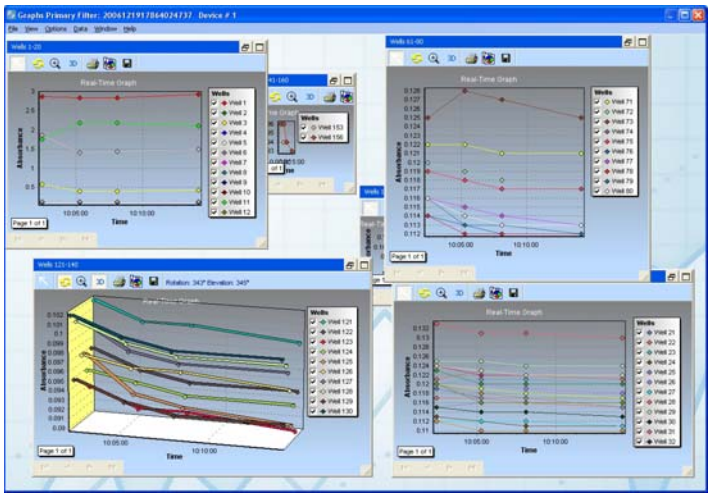
See also

Quick Features Overview

Requirements

For the latest news, support and downloads please visit Norden Logic at:
http://www.nordenlogic.com

Quick Features Overview



- Supports Windows 2000, XP, XP x64, Vista, Vista x64, *Mac OS X and **Linux
- TCP/IP network support
- Supports all current major web browsers (IE, Opera, Safari, Mozilla, Firefox…)
- Supports mobile browsers xhtml or WAP on mobile devices
- Embedded award winning SQLite 3.x SQL database
- Real-time 2D/3D graphs with industry standard calculations and formulas
- Graph and data workshop for result analyzes and presentation
- Extensive support for statistical analyzes in graphical format
- Support of up to 8 simultaneous connected Bioscreen C devices on one PC
- Project management
- Option for secure encrypted measurement data
- Scheduled and manually activated experiments
- Email progress and alert messages
- Ability to pause and continue an experiment
- User and contacts database
- Embeddable notes and descriptions
- 40 built-in shaking modes with pulse variation with real-time mode preview
- Visual shaking mode designer with real-time preview of designed mode
- Visual temperature settings
- Visual temperature variation settings
- Visual sample and well selection
- Visual user defined initial blank value selection
- Template support for quick start of popular experiments
- Printable experiment setup report
- Graph and Data export:

Data
- Text
- XML
- HTML Table
- Excel

Graph
- Bitmap
- Metafile
- PCX
- JPEG
- PDF
- PNG
- GIF
- VML
- SVG
- PostScript

- Bar code definition and printing utility
- Scientific conversion utility
- Calculator and Character map
- Database utilities (easy backup and restore)

* Running Microsoft Virtual PC 7.x for PowerPC Mac OS X 10.4 and Windows XP
or Intel Mac running BootCamp or VMWare Fusion.
** Running VMware 5.x or Parallels Workstation 2.1 and Windows XP

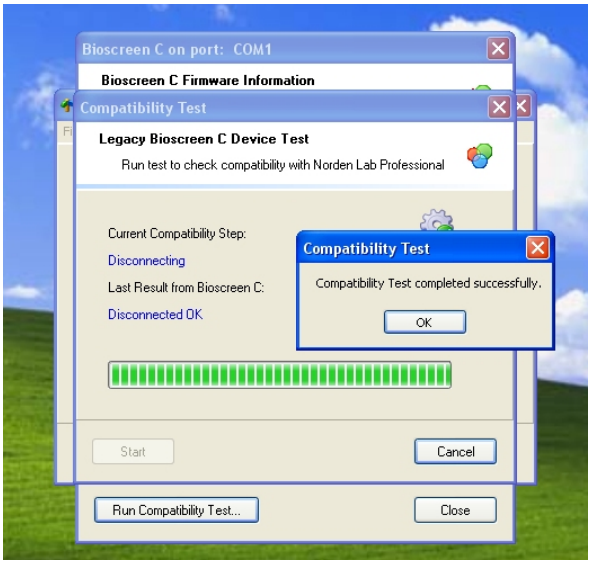
Requirements

Norden Lab Professional has the following hardware and software requirements:

OS: Microsoft Windows 2000/2003/XP/XP64/Vista/Vista64 and its variants
Processor: DualCore or QuadCore Processor Intel or AMD
Memory: 2GB or more
Drives: DVD/CD-ROM drive, 100GB hard disk or larger
Graphics: minimum 1024x768 resolution, minimum of 16-bit color (65K colors), 32-bit color recommended
I/O: RS-232 serial communications port (16550 UART or compatible), multi-I/O card such as MultiTech ISI multiport serial card, high speed serial RS232 to USB adapter/converter

Device: Bioscreen C MBR and RS-232 serial cable

If the Bioscreen C device is very old, please run our Compatibility Test program available from the download section at our web site at: http://www.nordenlogic.com.



Help Version

Help Document

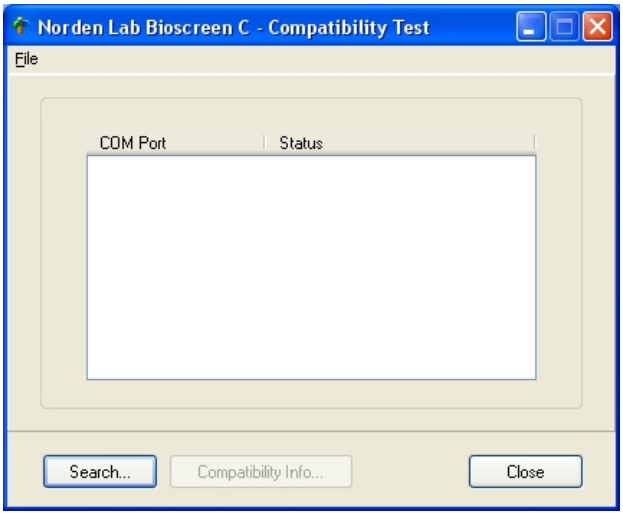
Title: Norden Lab Professional - Bioscreen C Edition
Version: 1.1.0.0
Date: April 2008
Author: Norden Logic Oy

Bioscreen C Compatibility Test

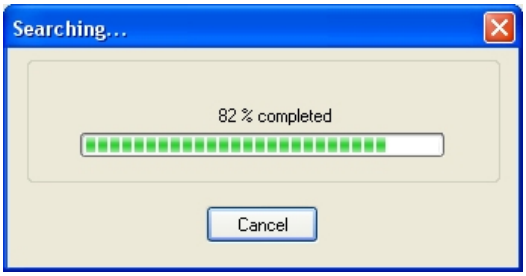
Compatibility Test

Some older Bioscreen C machines may not be compatible with Norden Lab Professional. Norden Logic developed a Compatibility Test program which is available from our web site free of charge. Follow the steps outlined below to install and run the test software successfully. The software can be found in the Bioscreen C download section at http://www.nordenlogic.com.

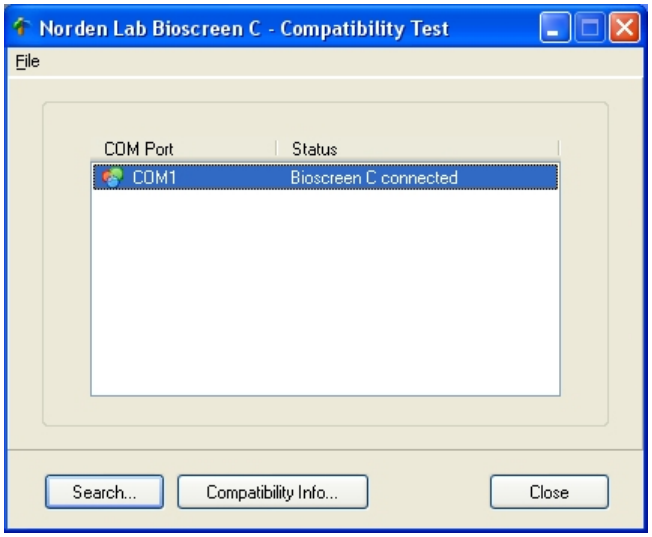
1. Download the installation ZIP file from Norden Logic.
2. Unzip the file into a folder of your choice.
3. Use the *Windows Explorer* or *Run...*to start the Compatibility Test program found in the folder where you unzipped the installation file (see example below).



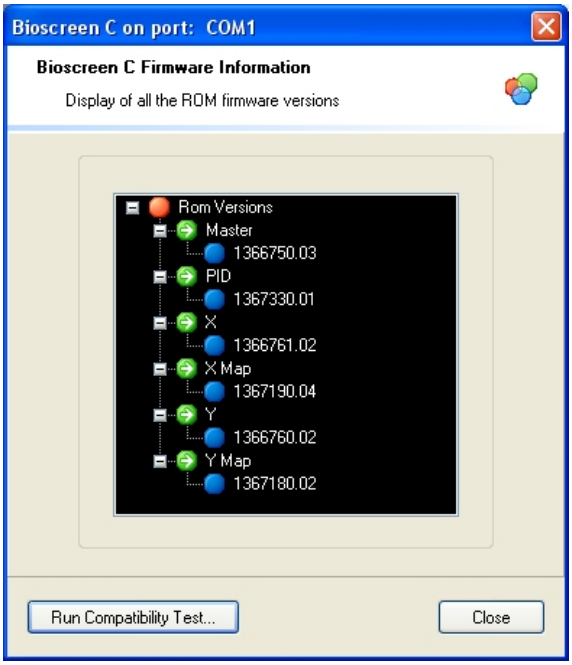
4. Make sure all your Bioscreen C devices are connected and powered on.
5. Select *Search* to active automatic discovery of the attached Bioscreen C devices.



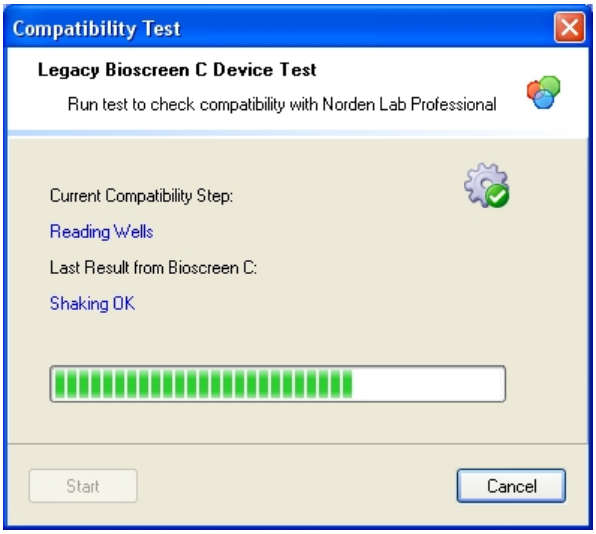
6. When the search is completed all found Bioscreen C devices are listed together with all RS-232 communications ports which do not have Bioscreen C devices attached to.



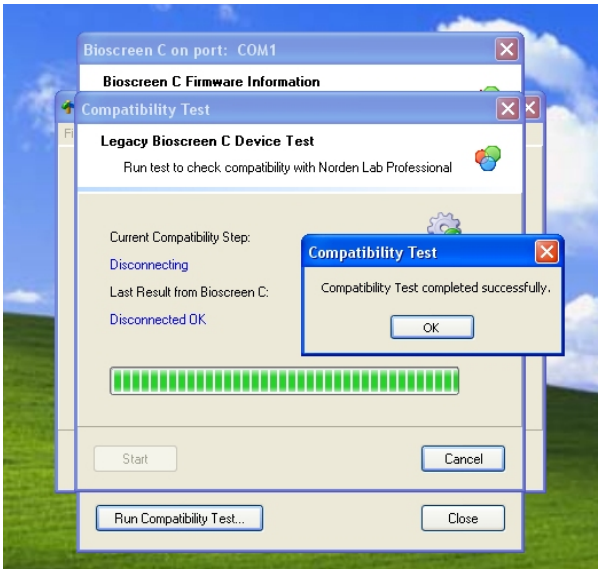
7. Select the Bioscreen C device you want to test. If a valid selection is selected *Compatibility Info* will be available. Click to view the information and to run the test.



8. If you want to run the compatibility test click on *Run Compatibility Test* to bring up the test dialog box and click on *Start*.



9. If the Bioscreen C device is 100% compatible with Norden Lab Professional a test result displaying a successful run will be shown. If an error was encountered during the run, please repeat the test. If the error persists, please contact your Bioscreen C distributor or Norden Logic for help.



Installing Norden Lab Professional

Installation and Setup

Installation and initial setup of Norden Lab Professional - Bioscreen C Edition is simple and straight forward. Please follow the steps outlined below. Make sure you have checked the Requirements section in this document and that your machine fulfills the listed items.

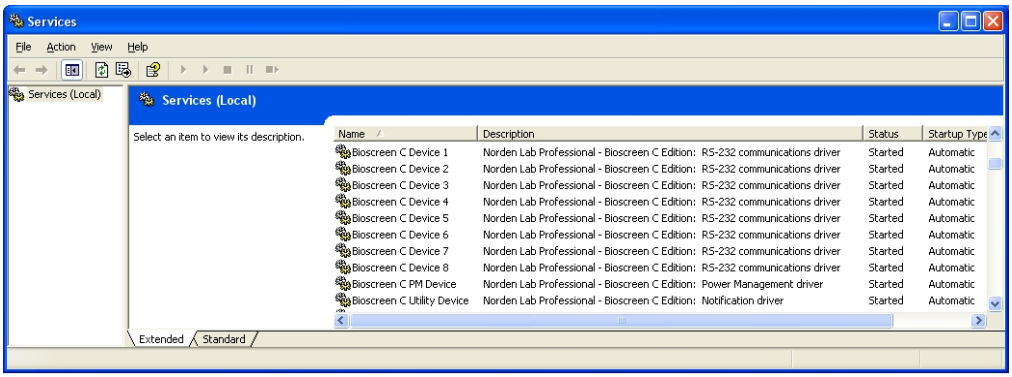
Important: Installation and Setup will only succeed if you have computer ***admin*** or ***local admin*** rights. Please also note that under Windows Vista additional steps may need to be taken in order to have the necessary rights to install new software. Please consult Microsoft's documentation for more information on installing new software under Windows Vista and consult your computer administrator.

Important: Ideally the users using Norden Lab Professional should have ***local admin*** rights when using the system. If that is not possible the users need to have ***full*** control access rights enabled for the Norden Lab Professional folder and sub-folders. Please consult with your computer administrator.

Installation

1. Start *Setup* from the distribution CD or from your download directory if you have downloaded Norden Lab Professional - Bioscreen C Edition from the web.
2. Make sure you have connected all cables to the Bioscreen C devices and that the machines are fully functional and powered on.
3. Follow the on-screen instructions during the setup process.
4. *Setup* will install the client and server components. After a successful installation your Services control module should have the following entries:

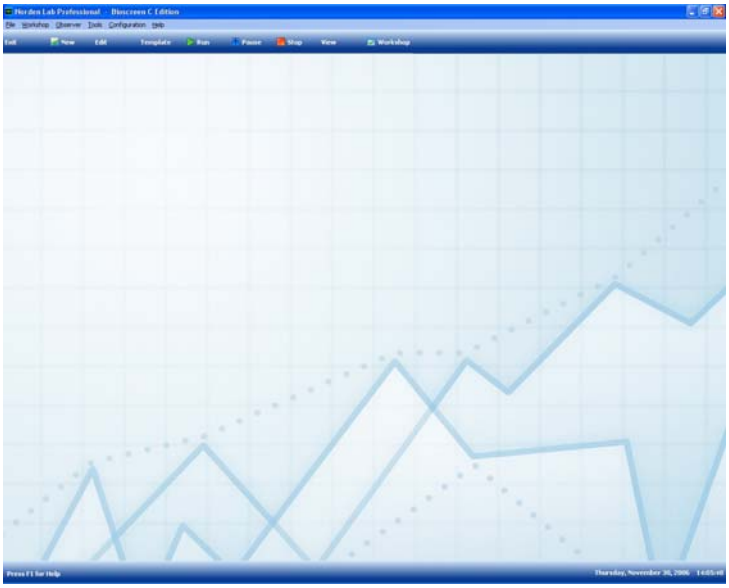
   Eight (8) Bioscreen C drivers, a Power Management driver to prevent hibernation and sleep modes of the host computer as well as a Notification driver which handles system popup and email notifications.



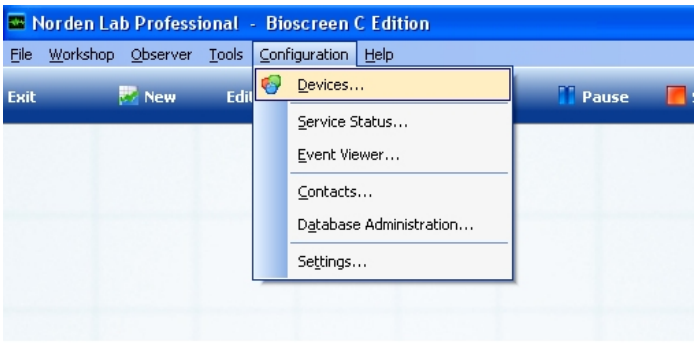
5. If you received **license keys** (*e.g. abc123.loc*) with the product please copy them to the same folder where Norden Lab Professional - Bioscreen C Edition resides in order to activate the software. For first time installations without a valid license key a **30 days evaluation period** will be activated.

Setup

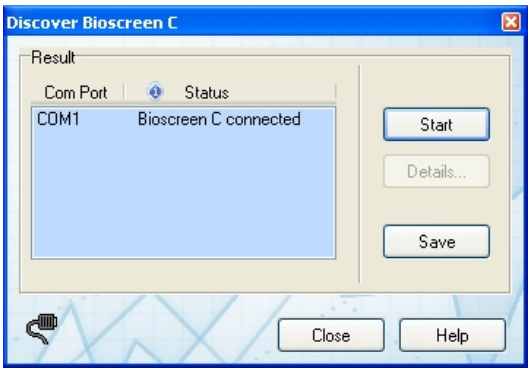
1. After a successful installation Norden Lab Professional needs to be configured.
2. Start Norden Lab Professional

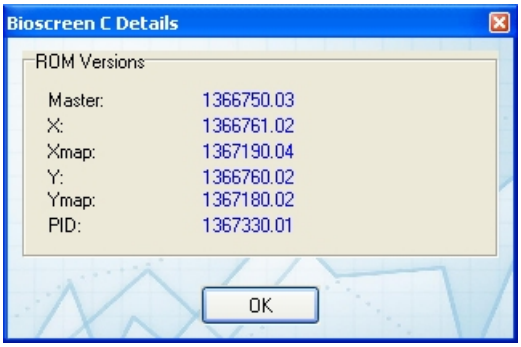


3. From the *Configuration* menu select *Devices*.

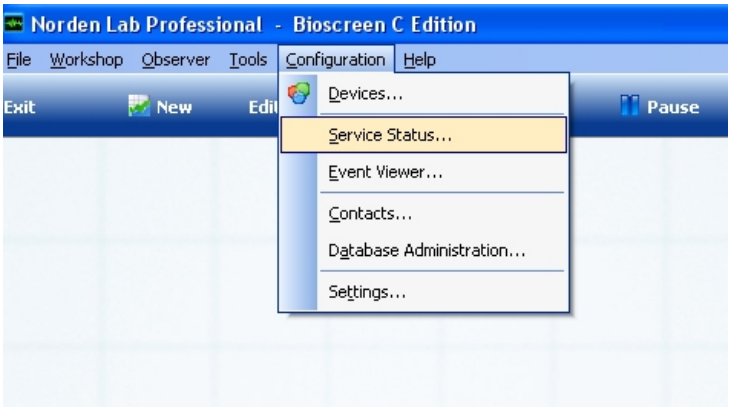


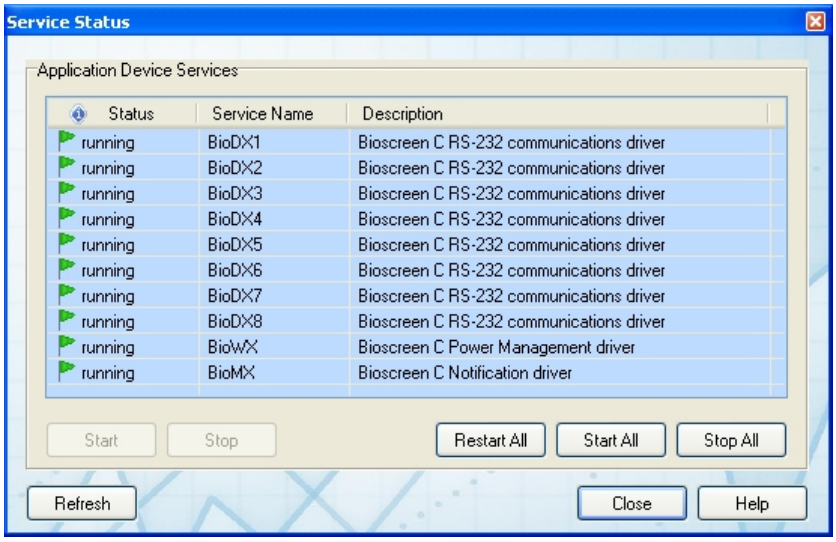
4. The *Device Configuration* dialog box provides you with two options. If you know on which RS-232 communications port the Bioscreen C machines are connected to, select *Manually Define Ports* and fill in the correct port number. Select *Save* to complete the operation. If you don't know the port number select *Automatic Discovery* and select start in the *Discover Bioscreen C* dialog box. All connected Bioscreen C devices will be found and displayed. If you want to find out more information about a particular Bioscreen C devices, select the device and click on *Details* (see examples below). The firmware versions of the chosen machine will be displayed in a separate dialog box. Make sure to click on *Save* and then return to the *Device Configuration* dialog box by clicking on *Close*. To complete the operation click also on *Close* in the *Device Configuration* dialog box.



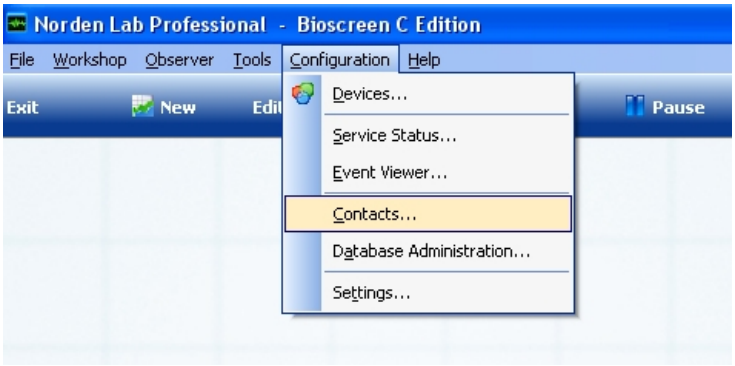


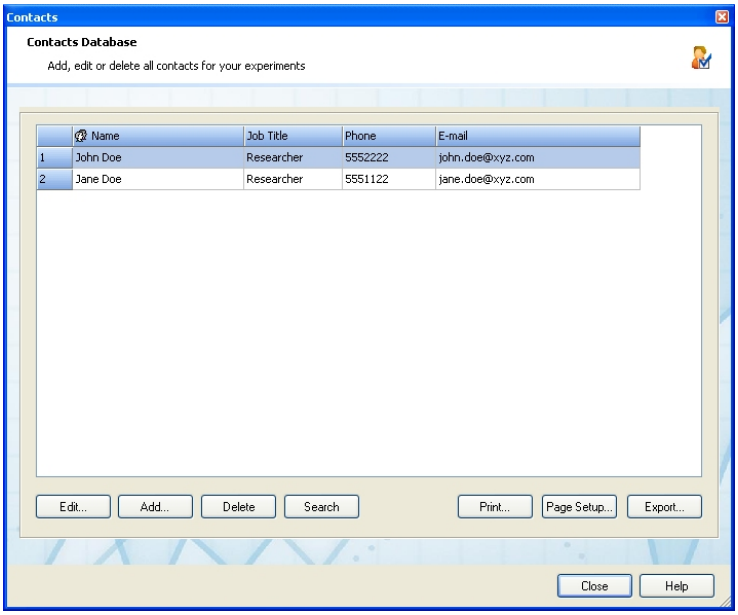
5. From the *Configuration* menu select *Service Status* to check if all the installed device drivers are available and running (see examples below).

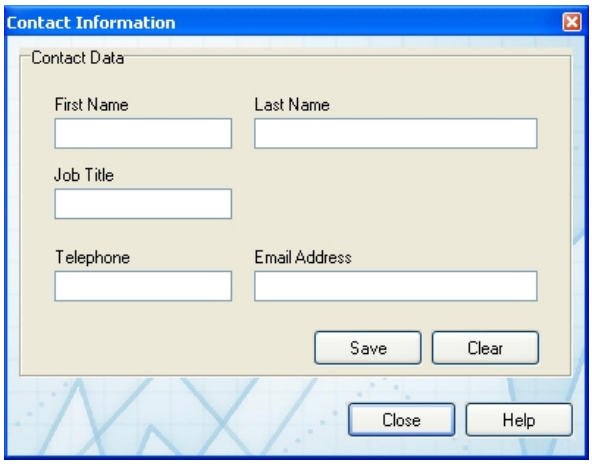




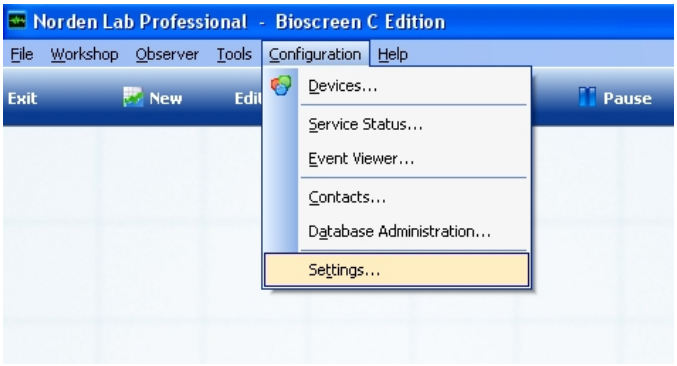
6. From the *Configuration* menu select *Contacts* to add some user information needed for experiment information as well as for notification. Click on *Add* in order to add a new user. Fill in all needed information in the *Contact Information* dialog box and click *Save* when done (see examples below).

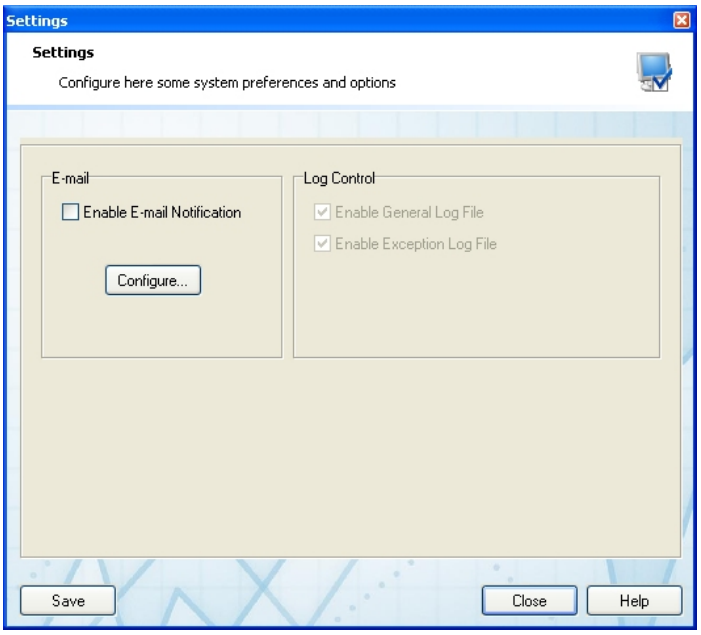


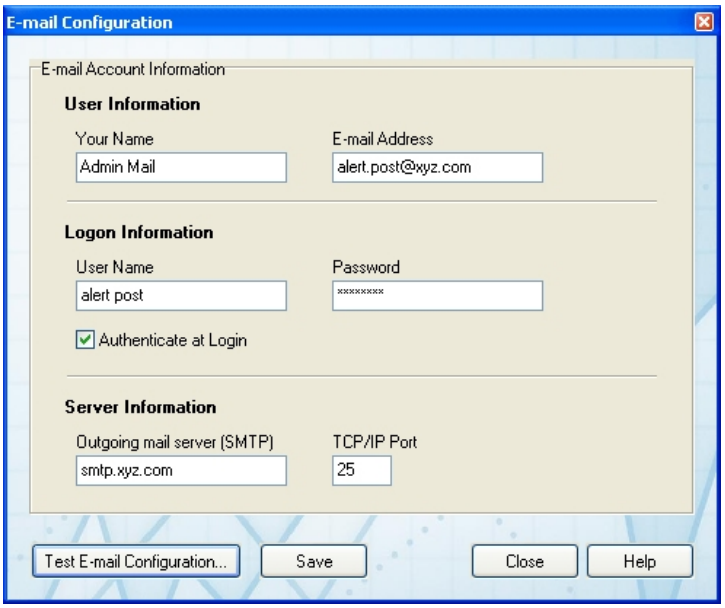




7. From the *Configuration* menu select *Settings* in order to configure additional options in particularly email notification support. In the *Settings* dialog box click on *Configure* to bring up the *E-mail Configuration* dialog box. You will need to have a valid email address and know how to configure SMTP email settings for your email environment. The email notification service is outgoing only. No incoming mail is processed. Make sure to test your mail setting by clicking on *Test E-mail Configuration*. Click on *Save* before closing the dialog box. Click on *Enable E-mail Notification* if you want to receive mail notifications and finally click on *Save* before closing the dialog box (see examples below).


Norden Lab Professional - Bioscreen C Edition
File Workshop Observer Tools Configuration Help
Exit
New
Pause
Devices...
Service Status...
Event Viewer...
Contacts...
Database Administration...
Settings...


Settings
Settings
Configure here some system preferences and options
E-mail
Enable E-mail Notification
Configure...
Log Control
Enable General Log File
Enable Exception Log File
Save
Close
Help


E-mail Configuration
E-mail Account Information
User Information
Your Name
Admin Mail
E-mail Address
alert.post@xyz.com
Logon Information
User Name
alert post
Password
Authenticate at Login
Server Information
Outgoing mail server (SMTP)
smtp.xyz.com
TCP/IP Port
25
Test E-mail Configuration...
Save
Close
Help

8. Norden Lab Professional is now ready for the first experiment.

See also

The First Experiment

Status Tray Application

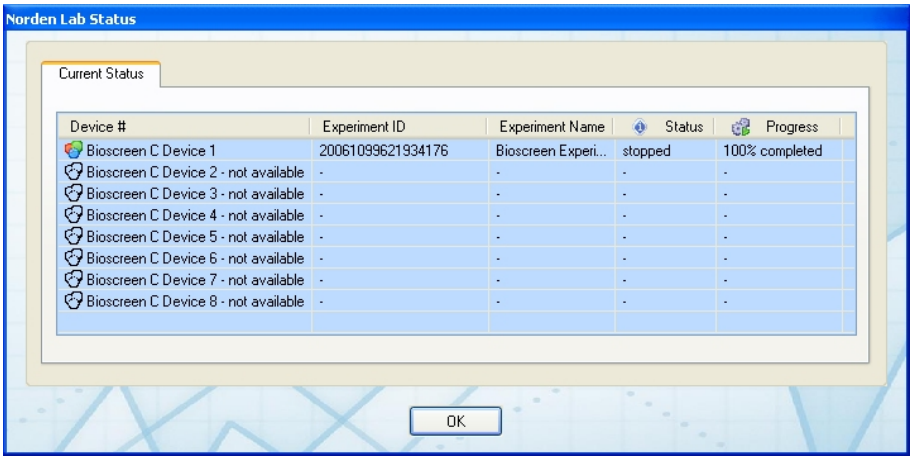
Norden Lab Status

Norden Lab Status is a small Windows tray application which is installed in your Startup menu folder during the setup process of Norden Lab Professional - Bioscreen C Edition and automatically starts up during your Desktop logon. It allows you to track the status and progress of your experiment without having to start Norden Lab Professioanl main client application.

Norden Lab Status is located on the Windows tray.

The following menu option are available by right clicking on the tray application icon, however to view the status just click on the icon with the left mouse button. If you want to exit the tray application, right click the application icon and select *Exit* from the menu.

The status dialog box lists all available Bioscreen C devices any current or last activity.

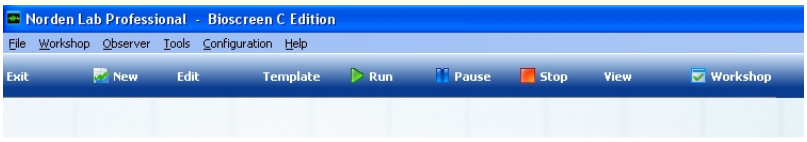

Norden Lab Status
Current Status
Device #
Experiment ID
Experiment Name
Status
Progress
Bioscreen C Device 1
20061099621934176
Bioscreen Experi...
stopped
100% completed
Bioscreen C Device 2 - not available
Bioscreen C Device 3 - not available
Bioscreen C Device 4 - not available
Bioscreen C Device 5 - not available
Bioscreen C Device 6 - not available
Bioscreen C Device 7 - not available
Bioscreen C Device 8 - not available
OK

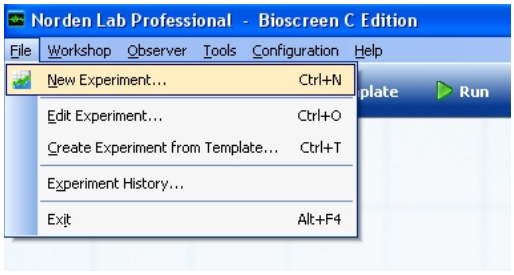
Running Your First Experiment

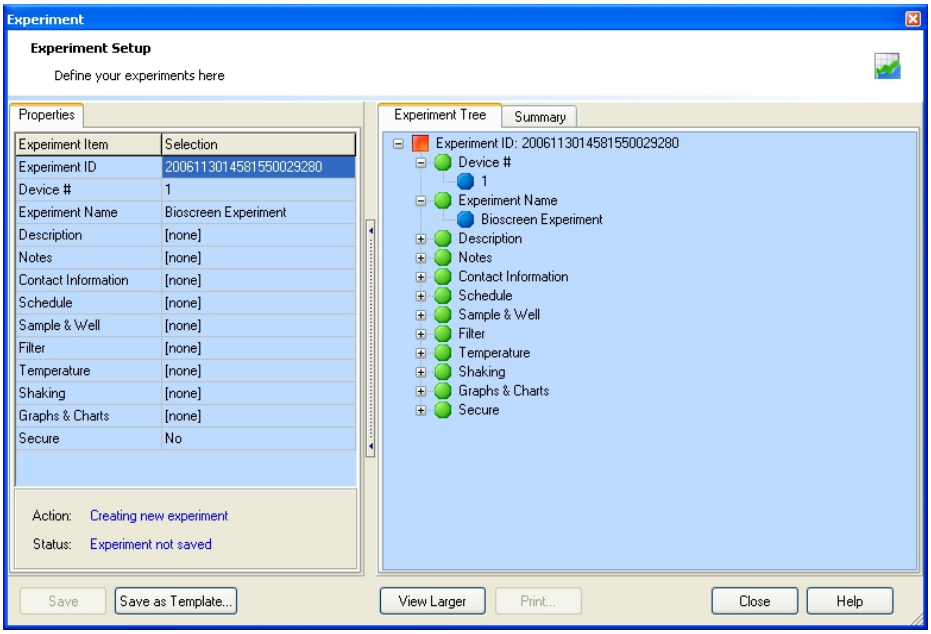
First Experiment

The text and examples below outline the typical steps to run an experiment.

1. To get started select from the *File* menu *New Experiment* alternatively click on *New* in the toolbar. The keyboard shortcut *CTRL+N* can also be used. Any of these actions will bring up the *Experiment* dialog box.







2. The *Experiment* dialog box is the starting point for every experiment. It has great many options. We will discuss here only the basics to guide you through completing creating your first experiment. Head on you can see that there are three information panes: *Properties*, *Experiment Tree* and *Summary*. You use the *Properties* to define your experiment attributes which are reflected in real-time in the *Experiment Tree* and in the *Summary*. Note however that one does not always have to start filling in all the required groups from scratch if a suitable template has been created previously and the template loaded. More on the *Template* feature later. Below a quick overview of the input groups of *Properties*:

    - Experiment ID
        - This is the serial number and unique identifier of your experiment.
        - It is generated automatically.

    - Device #
        - If you host computer has only one Bioscreen C device attached then the number will always default to 1.
        - If you have a configuration with multiple Bioscreen C devices then you will need to select from the drop down list the device you want this experiment to run on (e.g. If you have 3 Bioscreen C devices then the range of choice will be 1..3.).
        - We recommend that you label the Bioscreen C devices accordingly.

    - Experiment Name
        - A default name is generated automatically.
        - Enter the name you want to give this experiment by first moving to this field and then clicking on the button with the ellipsis.
        - In the *Experiment Name* dialog box enter a new name in the entry field or select from the display of existing names.

    - Description
        - This is not a mandatory entry, however it is a good place to be more specific about the experiment.
        - Enter the description by first moving to this field and then clicking on the button with the ellipsis.
        - In the *Description* dialog box enter a new description in the entry field or select from the display of existing descriptions.

    - Notes
        - This is not a mandatory entry, however it allows you to add textual information as well as to cut-and-paste from important

documents you want saved in the database together with the experiment.
    - Enter *Notes* by first moving to this field and then clicking on the button with the ellipsis.

- Contact Information
    - Here you define who is involved with this experiment as well as who should get email notifications during the experiment.
    - Enter *Contact Information* by first moving to this field and then clicking on the button with the ellipsis.
    - In the dialog box select the users you want to participate. If you wish to add users not listed click the *Add New* button.

- Schedule
    - Norden Lab Professional has two operating modes: *manual activated* and *scheduled automatic activated*. You define here the one which is best suited for your experiment.
    - Enter *Schedule* by first moving to this field and then clicking on the button with the ellipsis.
    - The default is *manual activated* and in the dialog box you select the duration and the intervals between measurement cycles.
    - In order to schedule an experiment click the check box *Schedule* and selected the desired timings and the intervals between measurement cycles.

- Sample & Well
    - Here you define the wells you want to use in your experiment.
    - Enter *Well Selection* by first moving to this field and then clicking on the button with the ellipsis.
    - The dialog box is very interactive and there are several control elements available to make well selection fast and easy.

- Filter
    - Here you define which filter to use. The application support the usage of two filters during the experiment.
    - Enter *Filter Selection* by first moving to this field and then clicking on the button with the ellipsis.
    - Select the desired *Primary Filter*. In order to enable the usage of the second filter click the check box *Use Secondary Filter* and select the desired filter.

- Temperature

- Here you define desired incubation temperatures as well as possible temperature variations in later stages of the experiment.
- Enter *Temperature* by first moving to this field and then clicking on the button with the ellipsis.
- Make sure to select the proper preheating of the experiment if so desired.
- The temperature variation feature is only available if the duration of the experiment is at least 2 hours or longer.
- In order to enable the variation feature click the check box *Use Temperature Variation* and click the button *Variation*.
- Select the desired settings in the *Temperature Variation* dialog box. If you don't make any selection the following defaults will be used which can be seen in the *Experiment Tree*.

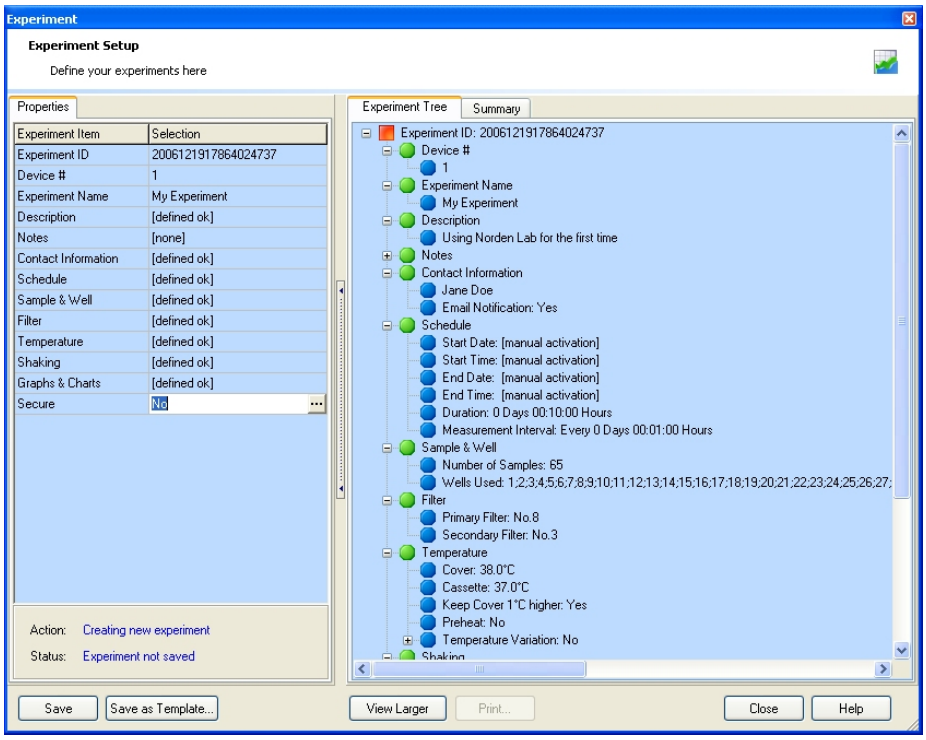
- Shaking
  - Here you define the type, timing, duration and intensity of shaking desired for the experiment.
  - Enter *Shaking* by first moving to this field and then clicking on the button with the ellipsis.
  - The system has 40 built-in types, each can have a variation of its own by enabling *Pulse Override*.
  - The *Mode Designer* for custom shaking type is also accessible from here.
  - All modes can be tested directly in real-time before being used in the experiment by clicking on *Test*, taking the guess work out of selecting the shaking mode.

- Graphs & Charts
  - Here you define your initial graph view including a custom graph window, special measurement options e.g. setting user defined blank values and last but not least you can add custom legends to each of the selected well graphs.
  - Enter *Graphs & Charts* by first moving to this field and then clicking on the button with the ellipsis.
  - Make your selections or if you are happy with the defaults, simply click the *OK* button.

- Secure
  - This is not a mandatory entry however it allows you to keep the results and the experiment private. When *Secure* is enabled the system will show either textual or graphically that the experiment is secure.
  - Enter *Security* by first moving to this field and then clicking on the button with the ellipsis.

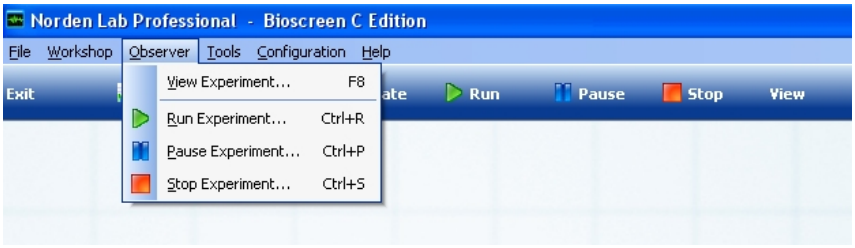
- You will need to enter a pass phrase of at least 32 characters long
- **Important**: You must remember your pass phrase to access the experiment. There are no back doors designed into the product. Norden Logic can not help in case the pass phrase has been forgotten or lost.

3. If you have filled all the mandatory entries then your *Experiment* dialog box might look something like below:

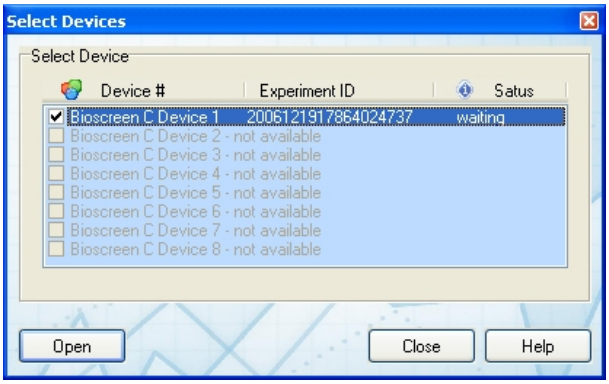


The *Save* button is enabled when all the mandatory entries have been filled. Note also that at any time during filling the *Experiment* dialog box you can save the settings as a *template* by clicking on *Save as Template* button. You can later use the template to repeat the exact settings time-after-time or modify the settings and saving the result again as a template under a different name.

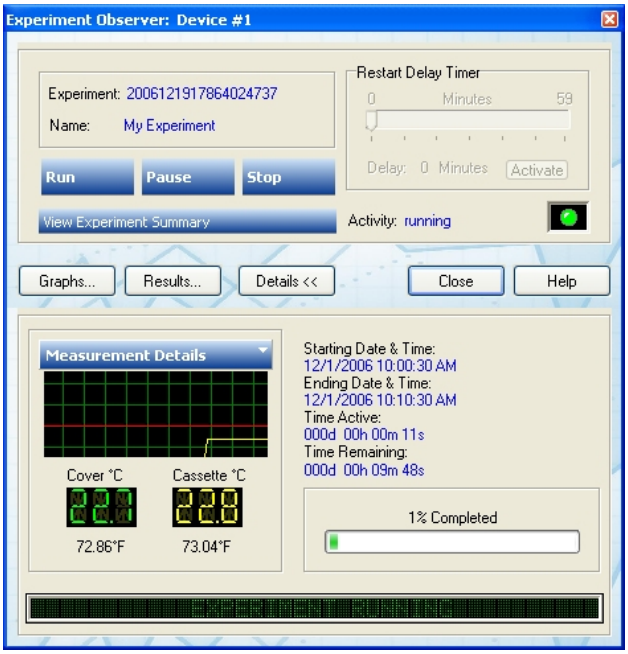
Click now the *Save* button and follow the on screen dialog boxes. When the *Would you like to go directly to the Observer module?* message box appears click on *OK*. If you want to do some other actions e.g. editing before going to the *Observer* module click on *Cancel*. You can always bring up the *Experiment Observer* module by selecting the toolbar buttons *Run (CTRL-R)*, *Pause (CTRL-P)*, *Stop (CTRL-S)* and *View (F8)* or the menu selections from the *Observer menu*.



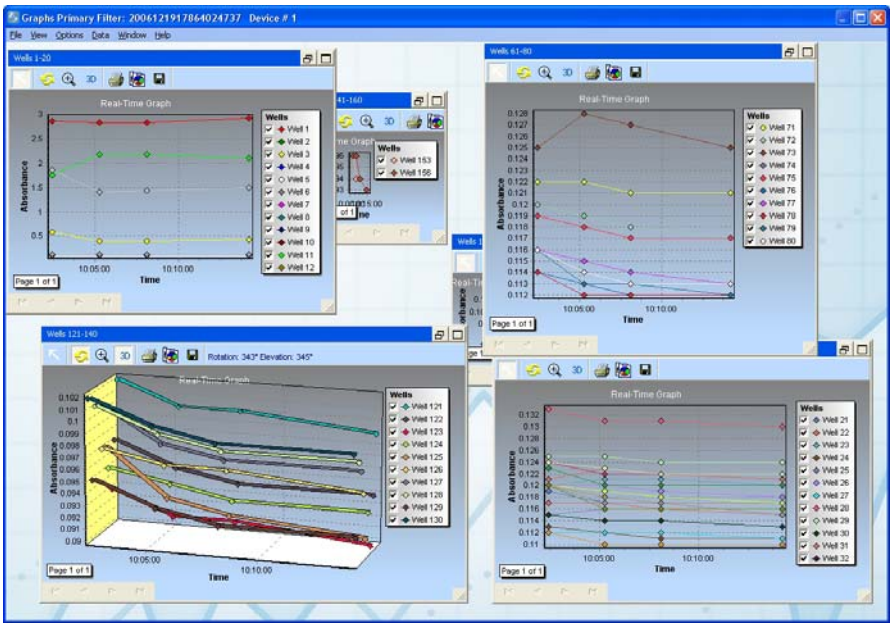
4. The *Select Devices* dialog box will list available experiments and devices for the *Experiment Observer*. Select the device and experiment you want to work with by clicking the check box and then the *Open* button. Note that you can work with several experiments at the same time if you have several Bioscreen C devices attached to the host computer.



After your selection the *Experiment Observer* will be ready to start your experiment. If you want to quickly review the experiment settings click the *View Experiment Summary* button. You are now ready to start running the experiment by clicking on the *Run* button.

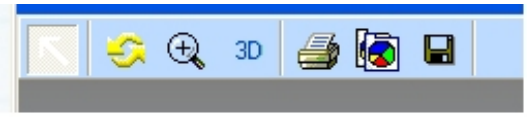


After the experiment is running you may if you wish exit the application and even log off your desktop. You can follow the progress of the experiment by clicking on the *Norden Lab Status* tray application. However, for this example will not exit but look at some of the features of the *Experiment Observer* such as the real-time graphs. In order to bring up the real-time graphs click on the *Graphs* button.



The *Graphs* window will show the initial graphs views as you have defined them in the *Graphs & Charts* option during the experiment setup. However, you can always change the view by selecting the menu *View* where you

can find some other additional options. In this example we leave all the defaults, which means also a real-time refresh of the graphs every 5 minutes. Please select some of the menu items so you get familiar with the available options. The graphs are interactive. You can click on them and scroll them by pressing and holding the right mouse button or with the mouse wheel. You can also zoom in and out by pressing and holding the left mouse button. Each graph window has a small toolbar for further manipulating each real-time graph window.

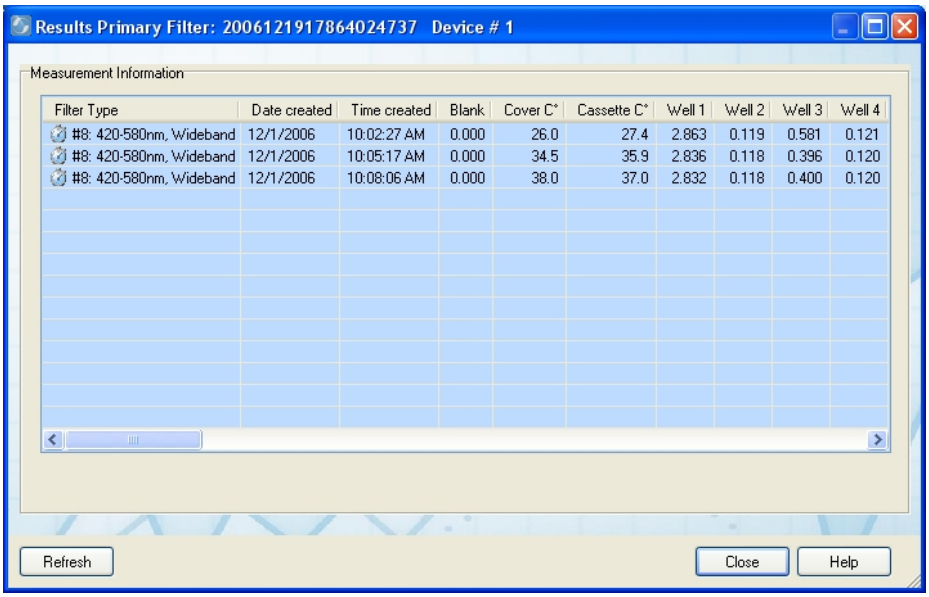


There are seven controls on the toolbar. You can hover over each to get some more information on what each does as well as a status message on the right side of the toolbar once the tool button is selected. The buttons have the following functions (from left to right):

- Normal - select this button to place the graph window in normal interactive mode e.g. after you have rotated a 3D graph.
- Rotate - allows you to rotate a 3D graph (this button automatically will place the graph into 3D mode).
- Zoom - allows you to zoom in and out of a 3D graph (this button automatically will place the graph into 3D mode).
- 3D - places the graph windows from 2D mode into 3D mode.
- Print - allows you to print the current graph including preview before printing.
- Copy - copies the current graph to the Windows clipboard enabling pasting into any other Windows application.
- Save - allows you to save your current graph to many popular formats.

The graph window legend is also interactive allowing you to de-select some of the curves you do not want to observe at any particular time. Note however that in order to click on the legend check box your toolbar needs to be in *Normal* mode (see explanation above).

In order to see the measurement values click on the *Results* button in the *Experiment Observer.*

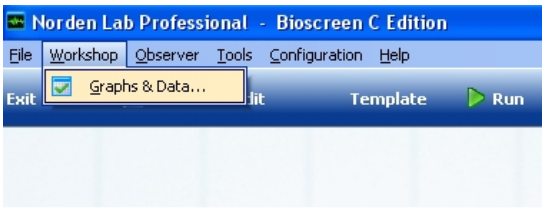


The results are read-only values. In order to work with the experiment data you need to use the *Workshop* which we will discuss shortly. A few words on some of the options and features available in the *Experiment Observer*:

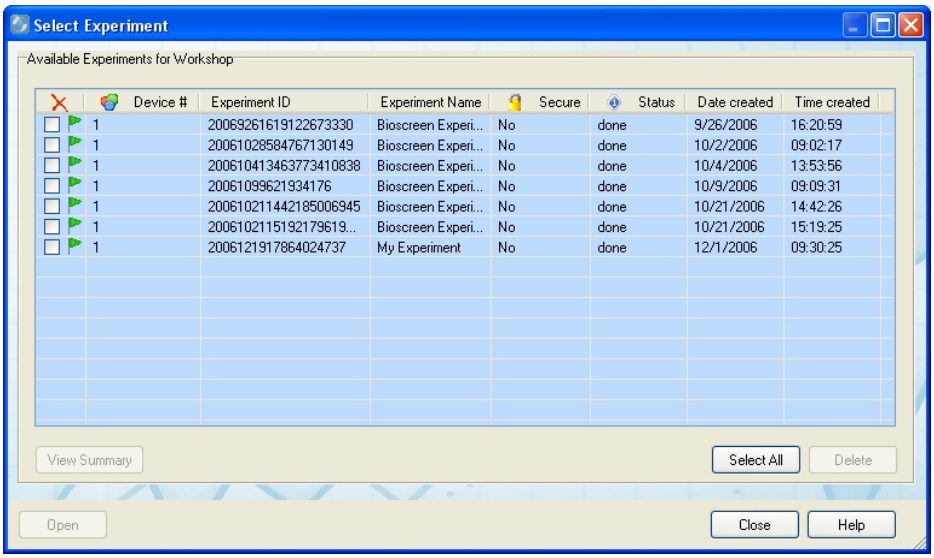
- In the details pane clicking the right hand arrow of *Measurement Details* give more information about experiment real-time data.
- As mentioned before you can have several *Experiment Observers* active at the same time. To reduce clutter click on the *Details* button to show or hide the details pane.
- You can pause the experiment at any stage by clicking the *Pause* button and allow restarting based on a timer for the system to settle and diminish any possibility of condensation.
- As indicated before the client does not need to be running for the experiment to be executed. You can return to the Experiment Observer at any stage of the experiment. You can use different client to follow the progress (e.g. web client).

At the completion of the experiment the system will notify you that the experiment has completed.

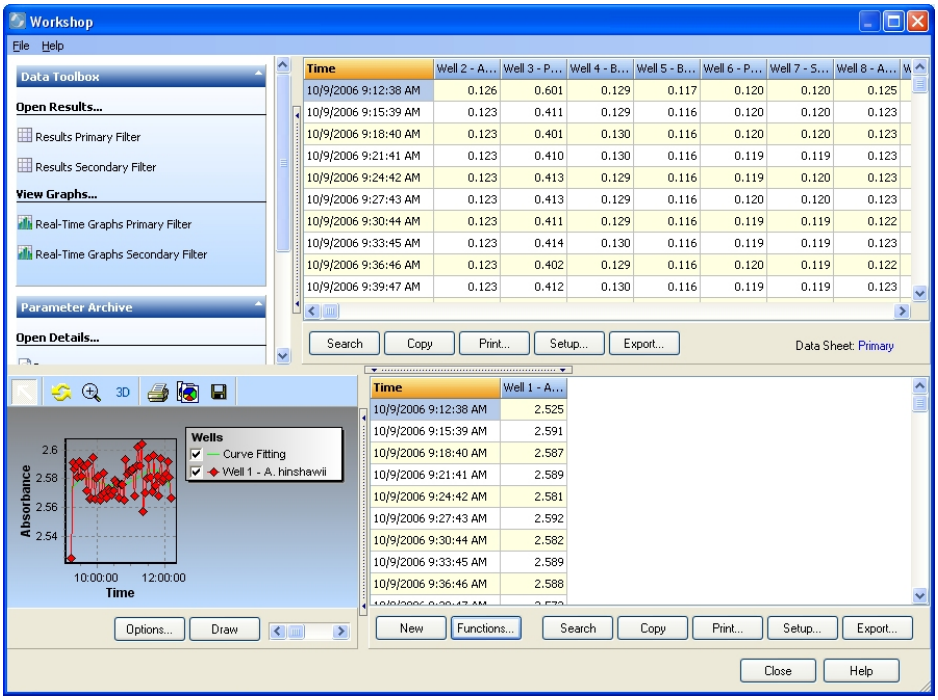
5. You are now ready to look at the experiment data more closely and work with individual results as well as export into different data formats important results. Close the *Experiment Observer* if it is still open. From the *Workshop* menu select *Graphs & Data* or click on the *Workshop* button on the toolbar.



From the *Select Experiment* dialog box select the experiment you want to work with.



You can always click on *View Summary* if you are unsure about which experiment to select. Select *Open* when you have found the desired experiment. The Workshop window will load your experiment and display results from the primary filter.



The *Workshop* has four panes. A selection pane with tools and results which can be found in the selection boxes *Data Toolbox* and *Parameter Archive*. Most selections are self explanatory however a couple of items should be mentioned here. When you select either *Results Primary Filter* or *Results Secondary Filter* the result values will be loaded into the *Data Sheet* work area to the right of the *Data Toolbox*. Another important point to include here is that you can save the experiment here as a template in order to use the exact same experiment parameters in future experiments by selecting *Save Experiment As Template* from the *Parameter Archive*.

In order to work with your results drag the desired well from the *Data Sheet* (the grid with all the results) by clicking the header of the column and holding the mouse button. Drag the column to the lower *Work Sheet* over any available column header (two green arrows will indicate that this is a valid area to drop). If this is the first well you dragging and dropping then you will drop it on the *Time* column header.

Once you have at least one well result in the *Work Sheet* all the functions are available to do result evaluation. If you wish to view the graphical curve of your result, click on *Draw* in the graph pane to the left of the *Work Sheet*. The graph pane's toolbar controls are identical to those of the real-time graphs explained earlier in this text. Also the available options by clicking on the *Options* button are identical to those available from the real-time graphs.

The *Work Sheet* has eight built-in statistical functions:

- Average
- Correlation
- Cumulative
- Curve Fitting
- Median
- Standard Deviation
- Subtract
- Variance

When you select any of these functions a graphical representation will be drawn automatically in the graph pane. You can view the numerical values of the function by clicking *Options* in the graph pane and selecting *Graph Data Sheet* from the resulting menu.

The *Work Sheet* as well as the *Data Sheet* allows you to export your data in six different formats by clicking on *Export*:

- Excel
- CSV
- ASCII
- RTF
- HTML
- XML

Select the formats applicable to your needs.

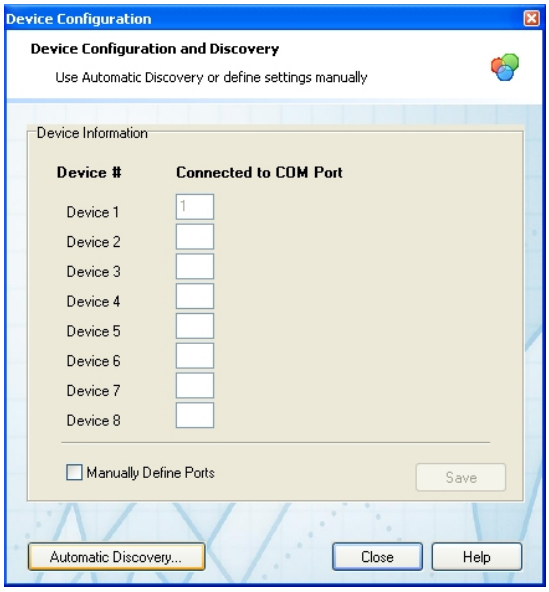
When are finished with working with your experiment simply click *Close*.

6. In order to exit Norden Lab Professional select *Exit* from the *File* menu option, press ALT-F4 or click on the *Exit* button on the toolbar.

Configuration

Device Configuration

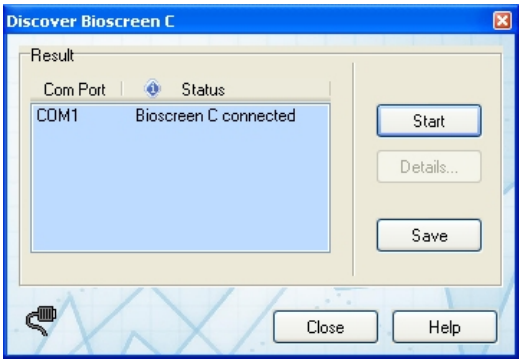
Before you can start using Norden Lab Professional you need to configure the system and tell it where the Bioscreen C devices can be found. If you know on which RS-232 communications port you can define the ports manually. If you prefer the system automatically to scan and find the devices select *Automatic Discovery*.



Manually Define Ports: Enables the fields for editing.
Save: If you have manually configured the communications ports you need to save the settings.
Automatic Discovery: Activates the *Discovery* dialog box.

Discover Bioscreen C

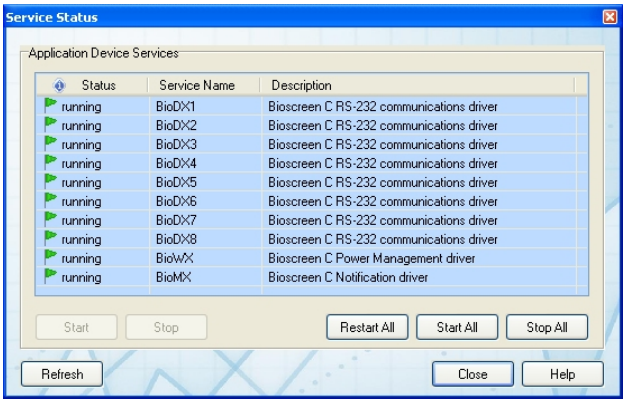
Automatic Discovery tries to find all Bioscreen C devices attached to the host computer.



Start: Activates the search for Bioscreen C devices. All RS-232 communications ports will be scanned.
Details: For all valid Bioscreen C devices machine information will be shown in a separate dialog box.
Save: Save the found settings to the configuration database.

Service Status

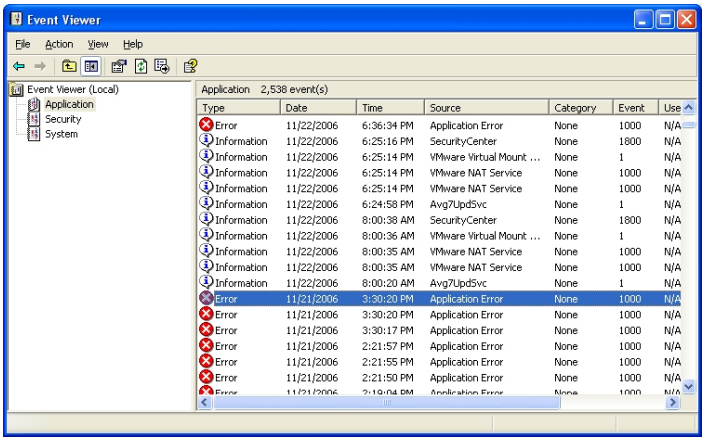
The service status allows you to view the current status of all running NT based services and control them from. However, please note that you need to have at least **local admin rights** in order to change the status of any of the services. If you don't your only option to e.g. restart a service is to reboot the computer.



Start: Allows you to start an individual service.
Stop: Allows you to stop an individual service.
Restart All: First stops all services and then restarts them.
Start All: Starts all services.
Stop All: Stops all services.
Refresh: Refreshes the displayed list.

Event Viewer

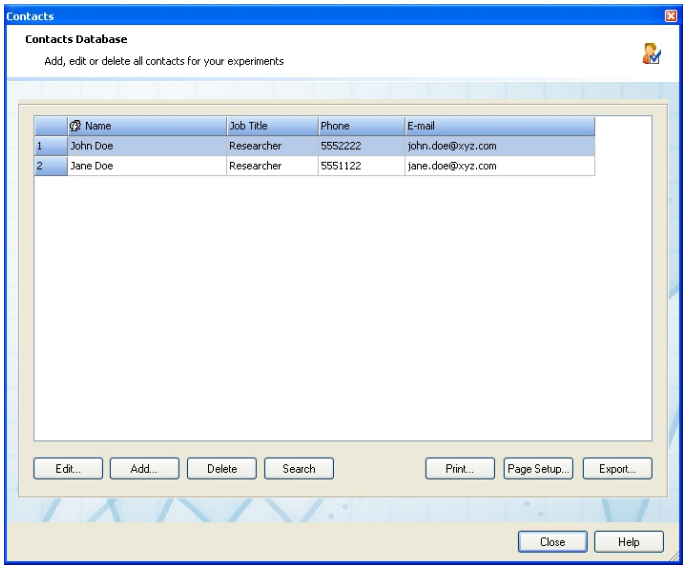
In case of an error the NT service based applications will place error and warning messages in the Windows *Event Viewer*.



In order to view errors and warnings of applications click on the *Application* in the *Event Viewer* tree.

Contacts

The contacts database allows you to define the users of the system as well as some of their additional properties such as email address and telephone number.

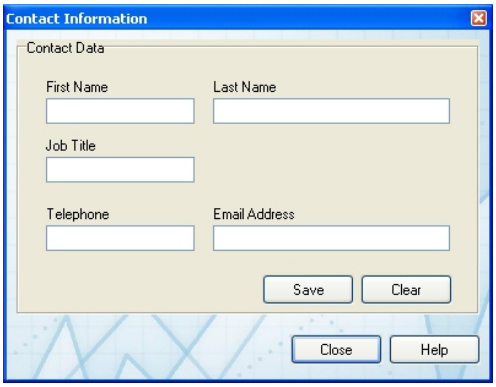


The main grid contains information entered about each user of the application. Besides the buttons you can also click your right mouse button to bring up a pop up menu.

Edit: Allows you to edit an existing entry. Click or scroll to the entry you want to edit and click *Edit*.
Add: Allows you to add a new user.
Delete: Delete a user by moving to the desired user to be deleted and click *Delete*.
Search: Will bring up a small search engine. When you are done searching you can close it by clicking the red exit box.
Print: Allows you to print the entries including print preview prior to printing.
Page Setup: Allows you to format the page for printing.
Export: Allows you to export the complete user database to a industry standard *.CSV* file.

Contact Information

Here you define the user details.

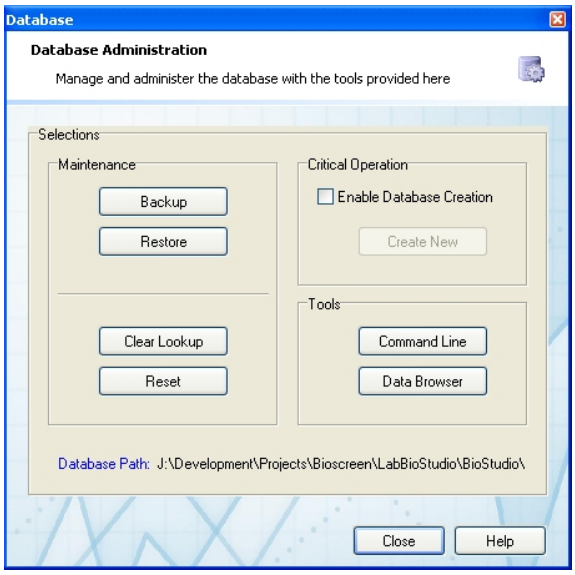


First Name: Enter the first name of the user.
Last Name: Enter the last name of the user.
Job Title: Define the job title of the user here.
Telephone: Enter the telephone number.
Email Address: In order to use the email notification feature of Norden Lab Professional you need to define a valid email address for this user.

Save: Save the entry to the database and return to the *Contacts* listing.
Clear: Clear all entered text.

Database Administration

Norden Lab Professional uses the award winning SQLite 3.x embedded database engine. The application ships with some tools for you to work successfully with the raw database.



Maintenance
Backup: Allows you to backup the database file to a different location e.g. to a different server.
Restore: Allows you to restore a backed up file.
Clear Lookup: Clear the three lookup tables: *Experiment Name*, *Description* and *Custom Legend*.
Reset: Resets the active experiment database tables. Please see also Hints and Tips.

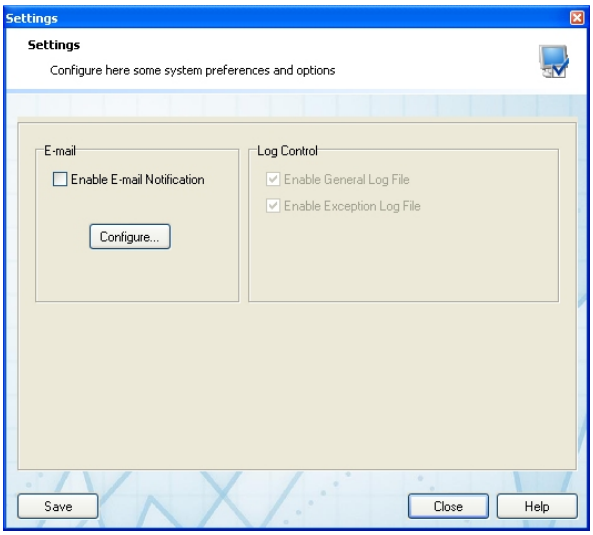
Critical Operation
Create New: At a certain point you may want to create a fresh empty database. Click on *Enable Database Creation* and then *Create New* to create a new database file.

Tools
Command Line: Creates a command line session with SQLite 3.x.
Data Browser: Activates the visual SQLite data explorer.

Note: Please use caution when using any of these tools since most of the actions are irreversible.

Settings

Please define some preferences here.

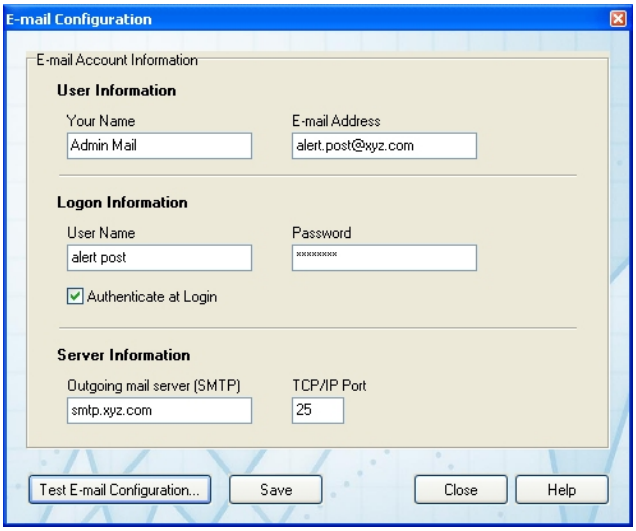


Enable E-mail Notification: If this item is selected email notification is activated. Make sure that you configure the email settings before enabling this option.
Configure: Activates the *E-mail Configuration* dialog box.
Save: Click *Save* to update the database with your settings.

Note: The settings under *Log Control* are read only and always enabled.

E-mail Configuration

Here you define all the necessary settings for the SMTP email notification feature. In order to complete these entries you will need a valid email account and understand the technical details of your email server.



User Information
Your Name: The name you want the email to display at the receiver's end.
E-mail Address: The originating email address you want the email to display at the receiver's end.

Logon Information
User Name: The email account user name.
Password: The email account password, if any.
Authenticate at Login: Some email server like to validate the user's credentials at login.

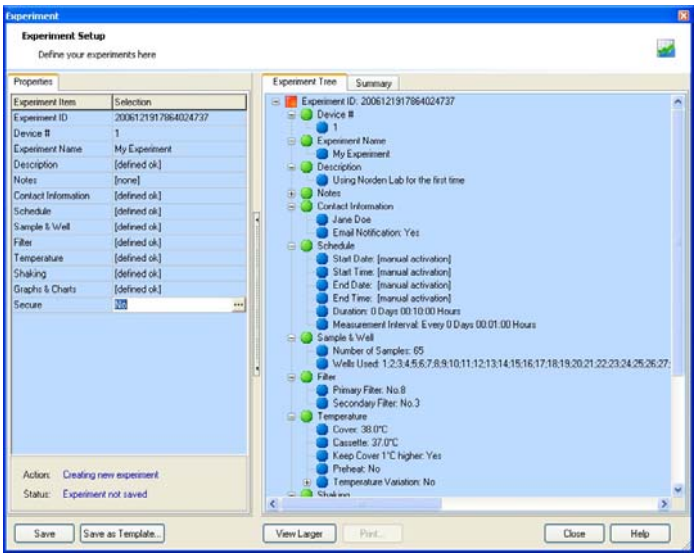
Server Information
Outgoing mail server (SMTP): The name of the sending/outgoing SMTP mail server.
TCP/IP Port: The SMTP TCP/IP port. Default is 25. Don't change the default unless you have good reason to do so.

Test E-mail Configuration: Allows you to test the entered email configuration on the spot.
Save: Click *Save* to update the configuration to the database.

Experiment

Experiment Setup

Here you define all the properties and activities of your experiment.



Properties

Experiment ID: This is the serial number and unique identifier of your experiment. It is generated automatically.

Device #: If you host computer has only one Bioscreen C device attached then the number will always default to 1. If you have a configuration with multiple Bioscreen C devices then you will need to select from the drop down list the device you want this experiment to run on (e.g. If you have 3 Bioscreen C devices then the range of choice will be 1..3.). We recommend that you label the Bioscreen C devices accordingly.

Experiment Name: A default name is generated automatically. Enter the name you want to give this experiment by first moving to this field and then clicking on the button with the ellipsis. In the *Experiment Name* dialog box enter a new name in the entry field or select from the display of existing names.

Description: This is not a mandatory entry, however it is a good place to be more specific about the experiment. Enter the description by first moving to this field and then clicking on the button with the ellipsis. In the *Description* dialog

box enter a new description in the entry field or select from the display of existing descriptions.

Notes: This is not a mandatory entry, however it allows you to add textual information as well as to cut-and-paste from important documents you want saved in the database together with the experiment. Enter *Notes* by first moving to this field and then clicking on the button with the ellipsis.

Contact Information: Here you define who is involved with this experiment as well as who should get email notifications during the experiment. Enter *Contact Information* by first moving to this field and then clicking on the button with the ellipsis. In the dialog box select the users you want to participate. If you wish to add users not listed click the *Add New* button.

Schedule: Norden Lab Professional has two operating modes: *manual activated* and *scheduled automatic activated*. You define here the one which is best suited for your experiment. Enter *Schedule* by first moving to this field and then clicking on the button with the ellipsis. The default is *manual activated* and in the dialog box you select the duration and the intervals between measurement cycles. In order to schedule an experiment click the check box *Schedule* and selected the desired timings and the intervals between measurement cycles.

Sample & Well: Here you define the wells you want to use in your experiment. Enter *Well Selection* by first moving to this field and then clicking on the button with the ellipsis. The dialog box is very interactive and there are several control elements available to make well selection fast and easy.

Filter: Here you define which filter to use. The application support the usage of two filters during the experiment. Enter *Filter Selection* by first moving to this field and then clicking on the button with the ellipsis. Select the desired *Primary Filter*. In order to enable the usage of the second filter click the check box *Use Secondary Filter* and select the desired filter.

Temperature: Here you define desired incubation temperatures as well as possible temperature variations in later stages of the experiment. Enter *Temperature* by first moving to this field and then clicking on the button with the ellipsis. Make sure to select the proper preheating of the experiment if so desired. The temperature variation feature is only available if the duration of the experiment is at least 2 hours or longer. In order to enable the variation feature click the check box *Use Temperature Variation* and click the button *Variation*. Select the desired settings in the *Temperature Variation* dialog box. If you don't make any selection the following defaults will be used which can be seen in the *Experiment Tree*.

Shaking: Here you define the type, timing, duration and intensity of shaking desired for the experiment. Enter *Shaking* by first moving to this field and then

clicking on the button with the ellipsis. The system has 40 built-in types, each can have a variation of its own by enabling *Pulse Override*. The *Mode Designer* for custom shaking type is also accessible from here. All modes can be tested directly in real-time before being used in the experiment by clicking on *Test*, taking the guess work out of selecting the shaking mode.

Graphs & Charts: Here you define your initial graph view including a custom graph window, special measurement options e.g. setting user defined blank values and last but not least you can add custom legends to each of the selected well graphs. Enter *Graphs & Charts* by first moving to this field and then clicking on the button with the ellipsis. Make your selections or if you are happy with the defaults, simply click the *OK* button.

Secure: This is not a mandatory entry however it allows you to keep the results and the experiment private. When *Secure* is enabled the system will show either textual or graphically that the experiment is secure. Enter *Security* by first moving to this field and then clicking on the button with the ellipsis. You will need to enter a pass phrase of at least 32 characters long. **Important**, you must remember your pass phrase to access the experiment. There are no back doors designed into the product. Norden Logic can not help in case the pass phrase has been forgotten or lost.

Experiment Tree

The *Experiment Tree* is a real-time reflection of your experiment data and allows you to browse the complete experiment data by navigating through the tree and sub-branches and expanding them. It is an easy way to follow the experiment setup while you are building up the parameters.

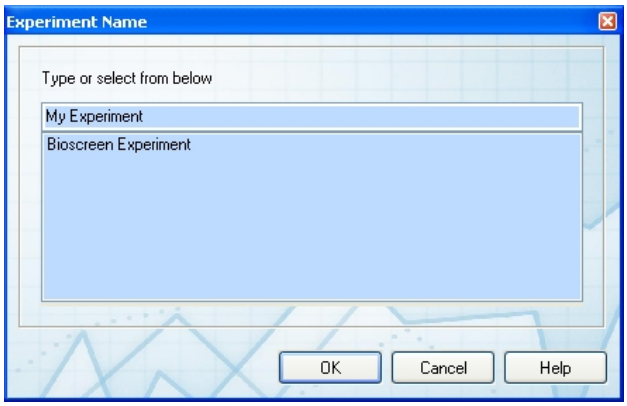
Summary

The *Summary* is a real-time dynamic printable report with all your selected settings. Use the *Print* button to print the report. Alternatively you can right click your move on the report and either select *Copy* or *Save* from the resulting pop up menu. *Copy* will copy the report to the Windows clipboard and *Save* allows you to save the report to a Word compatible file.

Save: Saves the experiment setup to the database ready for activation or if it was scheduled, ready for automatic invocation.
Save as Template: Allows you to save your experiment data as a template at any stage during the building of the experiment setup data.
View Larger: In case you have a very high resolution display and the fonts simply are too small to view click *View Larger* to enable a larger font.
Print: When you are in the Summary pane this button is enabled and allows you to print the experiment summary report.

Experiment Name

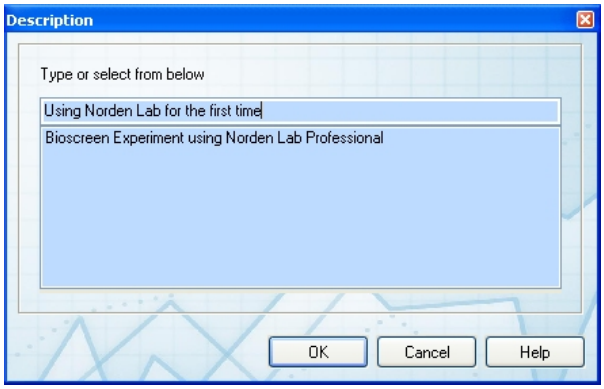
Here you enter a new experiment name for your experiment or select from the drop down list. *Experiment Name* is a lookup table and it will save your entry for any following experiment setups.



Note: All lookup tables can be cleared using the Database Administration tools, in particular the *Clear Lookup* function.

Description

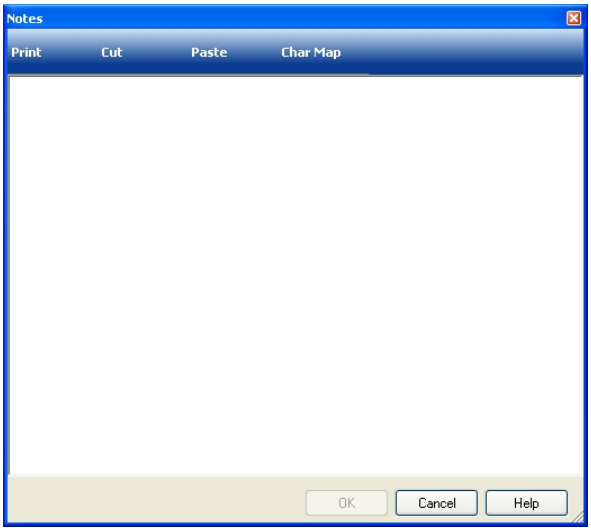
Here you enter a new description of your experiment or select from the drop down list. *Description* is a lookup table and it will save your entry for any following experiment setups.



Note: All lookup tables can be cleared using the Database Administration tools, in particular the *Clear Lookup* function.

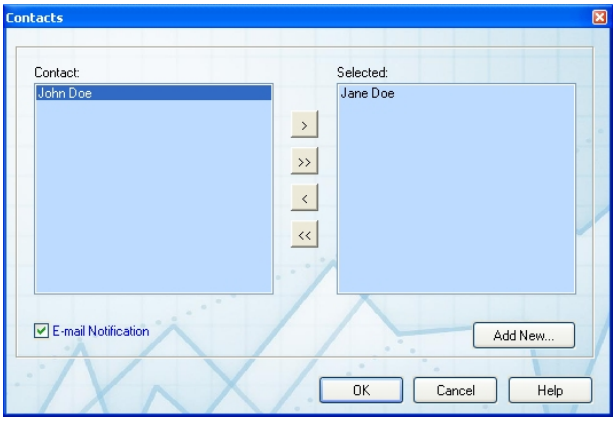
Notes

Allows you to enter more details information about your experiment as well as cut and paste from more official text to the editor to save together with the experiment.



Select Contact

All available users of the system are available for selection here. If email notification is enabled and configured in the system via Settings then also the *E-mail Notification* flag will be available for selection. If you don't see a user in the selection you can add him by selecting *Add New*.

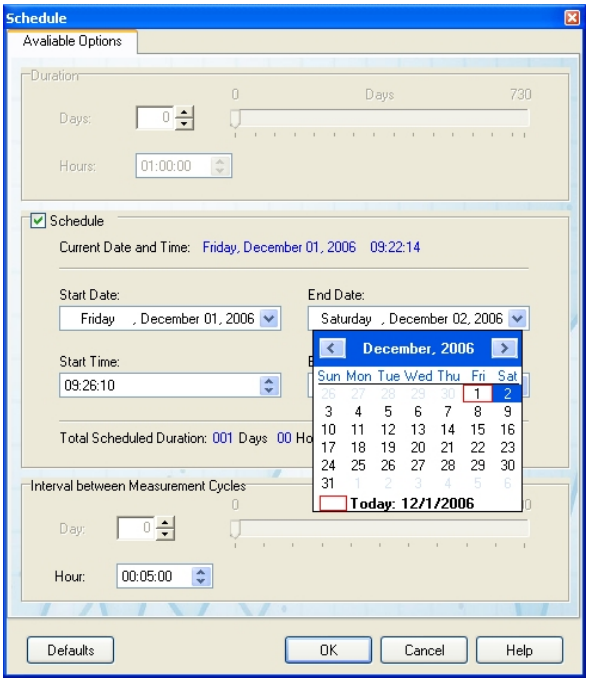


Available contacts are in the *Contact* list and selected contacts are listed in *Selected*.

E-mail Notification: Check this selection if you want email notification.
Add New: Allows access to the contacts database in order to add a new user.

Schedule

Here you define three distinct areas related to your experiment. *Duration*, *Schedule* and *Interval between Measurement Cycles*. The duration is used for manually activated experiments, meaning you will control when the experiment actually begins by activating the experiment. The schedule allows you to define the start and end of the experiment and leave it up to the system to start the experiment on the defined time and end at the defined time. Independent if you have a manually activated or scheduled experiment you need to define the time between the measurement cycles, meaning the frequency of measurements.



Duration
Days: Set the amount of days you want the experiment to last. Use the spinning control or the sliding control to set the amount of days.

Hours: Set the amount of hours, minutes and seconds also in combination with *Days*.

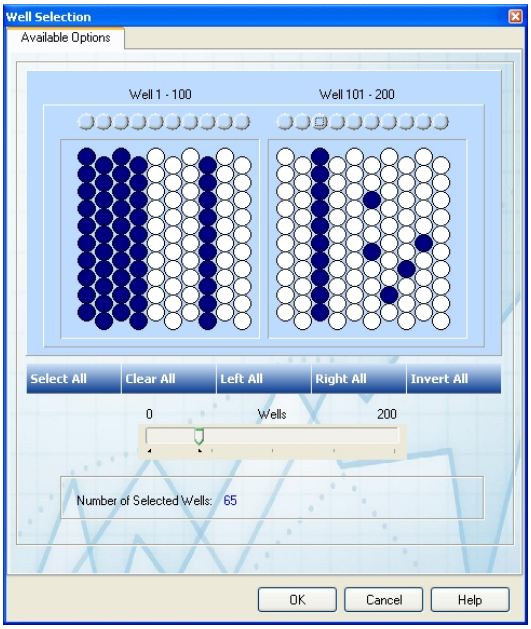
Schedule
Schedule: You need to check *Schedule* in order to enable the scheduling function. Duration will be disabled.
Start Date: Select the start date by using the drop down calendar. Note that you can change the month and year by clicking directly on them.
Start Time: Select the starting time for the experiment.
End Date: Select the end date for the experiment. Note that you can change the month and year by clicking directly on them.
End Time: Select the end time for the experiment.

Interval between Measurement Cycles
Day: If you want to have a granularity of days in between cycles, select them with the spinner control or the sliding control.
Hour: Enter the hours, minutes and seconds between measurement cycles. Works also in combination with the *Day* settings.

Defaults: In case you made a mistake and want to start over, click on *Defaults* to reset the dialog values to start up values.

Well Selection

Here you can define the wells you will be using during the experiment. There are two fields representing the wells in the instrument. The fields are labeled *Well 1 - 100* and *Well 101 - 200*. You can directly click each well in order to select it. On the top row are round buttons allowing you to select and de-select an entire column. You can also use the dedicated buttons or the slider to control selection.

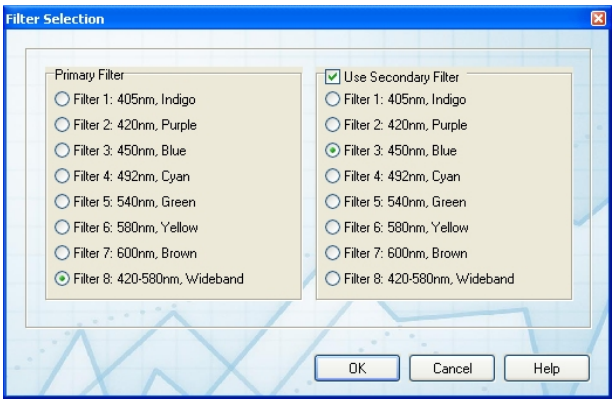


Select All: Selects all wells in the well map.
Clear All: Clears all wells in the well map.
Left All: Selects wells 1 - 100.
Right All: Selects wells 101 - 200.
Invert All: Inverts your selection.

Round Button Row: Selects or de-selects complete column.
Slider: Use slider to progressively select wells. Sliding to the right selects, to the left de-selects.

Filter Selection

Bioscreen C supports eight different filters. Select the one most suitable for your experiment.

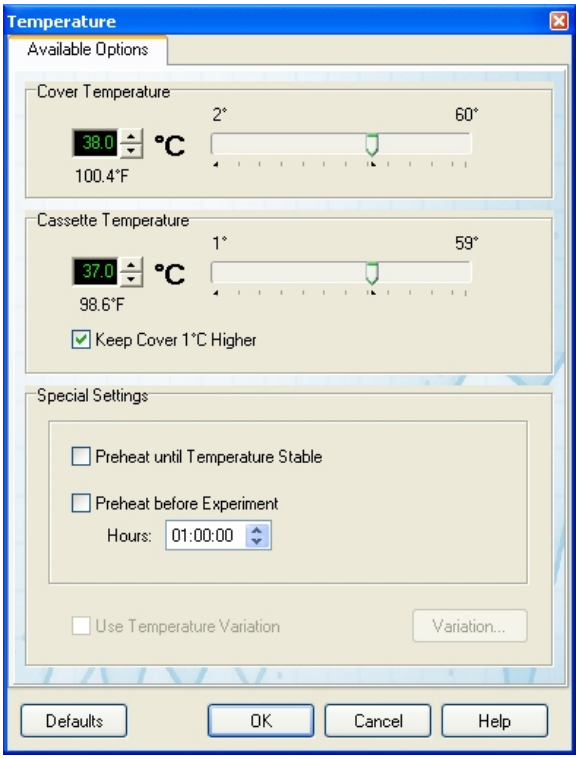


Primary Filter: Select the correct filter for your experiment.
Use Secondary Filter: Check the secondary filter check box and select the filter you want to use.

Note: Norden Lab Professional allows you to run an experiment with two filters.

Temperature

Define here the temperature desired for the experiment. Bioscreen C allows you to define temperatures for the cover and cassette. Norden Lab Professional can keep the cover one degree above the cassette to avoid condensation.



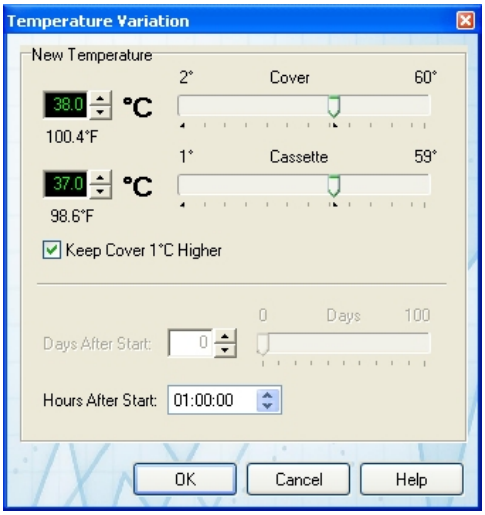
Cover Temperature: Use the slider or the spinner control to set the desired temperature. If *Keep Cover 1°C Higher* the cassette temperature is also automatically adjusted.
Cassette Temperature: Use the slider or the spinner control to set the desired temperature. If *Keep Cover 1°C Higher* the cover temperature is also automatically adjusted.
Keep Cover 1°C Higher: If you desire to set the cover and cassette independently from one another un-check this check box. Note however that the cover should always be at least a minimum of one degree Celsius and a maximum of three degrees Celsius higher than the cassette.
Preheat until Temperature Stable: Use this option if you want Norden Lab Professional to preheat the experiment and only start execution of the experiment cycle once the target temperature has been reach and is remaining stable.
Preheat before Experiment: Use this option to preheat for a certain amount of time. Experiment may start even if the target temperature was not reached during the specified time period.
Use Temperature Variation: If your experiment is long enough to support temperature variation then this option will be available. Check the check box and click on *Variation* to define the temperature variation you desire and the timing. If you check the check box but do not define more in detail what type of variation is needed, a system default will be used. You can view the set default in the *Experiment Tree*.
Variation: Activates the *Temperature Variation* dialog box.

See also

Temperature Variation

Temperature Variation

Define here the new temperature you desire after a set amount of time.

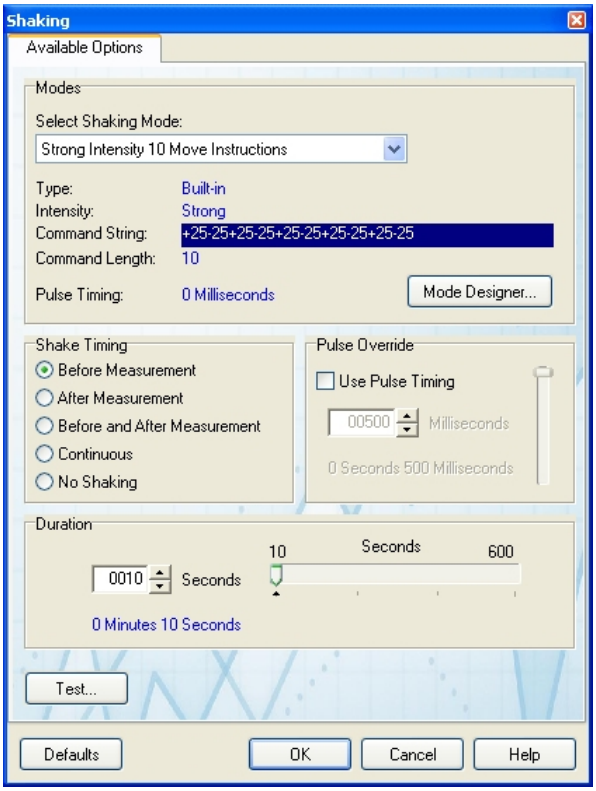


Cover Temperature: Use the slider or the spinner control to set the desired temperature. If *Keep Cover 1°C Higher* the cassette temperature is also automatically adjusted.
Cassette Temperature: Use the slider or the spinner control to set the desired temperature. If *Keep Cover 1°C Higher* the cover temperature is also automatically adjusted.
Keep Cover 1°C Higher: If you desire to set the cover and cassette independently from one another un-check this check box. Note however that the cover should always be at least a minimum of one degree Celsius and a maximum of three degrees Celsius higher than the cassette.
Days After Start: If the duration of the experiment is long enough than this option is enabled and allows you to set the days after the start of the experiment you want the temperature to change.

Hours After Start: Set the time in hours, minutes and seconds after the start you want the temperature to change. Works also in conjunction with *Days After Start*.

Shaking

Define here the type of shaking you desire to use during your experiment. There are 40 built-in types which you can further customize by using the pulse timing property. Any custom shake type you have developed will also by available for selection.



Modes

Select Shaking Mode: Select from the drop down list box the shaking mode you want to use in your experiment. After selecting the type the modes attributes are displayed such as Type, Intensity, Command String, Command Length, Pulse Timing. Note that built-in type do not have pulse timing however, even when a custom type has pulse timing in the attribute you can still override the timing with the *Pulse Override* setting.

Shake Timing

Before Measurement: Will shake the samples using the specified shaking mode for the duration indicated before the measurement cycle.
After Measurement: Will shake the samples using the specified shaking mode for the duration indicated after the measurement cycle.
Before and After Measurement: Will shake the samples using the specified shaking mode for the duration indicated before and after the measurement cycle.
Continuous: Will shake the samples using the specified shaking mode continuous.
No Shaking: No shaking during the experiment.

Pulse Override
Use Pulse Timing: Enables pulsing by having a small set interval during the shake process. You can vary to an infinite degree all available shaking modes using this option. Use the spinner or slider control to set pulse timing in milliseconds.

Duration
Seconds: Allows you to set the duration of the shaking. Use the spinner or sliding control to set the duration time in seconds.

Mode Designer: Activates the *Shaking Mode Designer* dialog box.
Test: Allows you to test in real-time your shaking mode.
Defaults: Resets the dialog to initial start-up values.

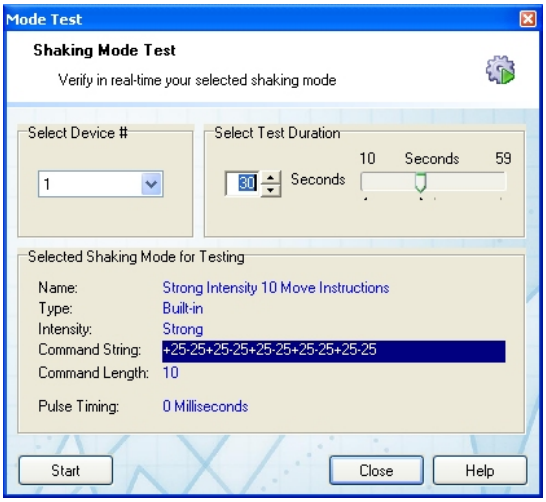
See also

Shaking Mode Designer

Shaking Mode Test

Shaking Mode Test

The shaking mode test allows you to test in real-time your current designed or selected shaking mode.

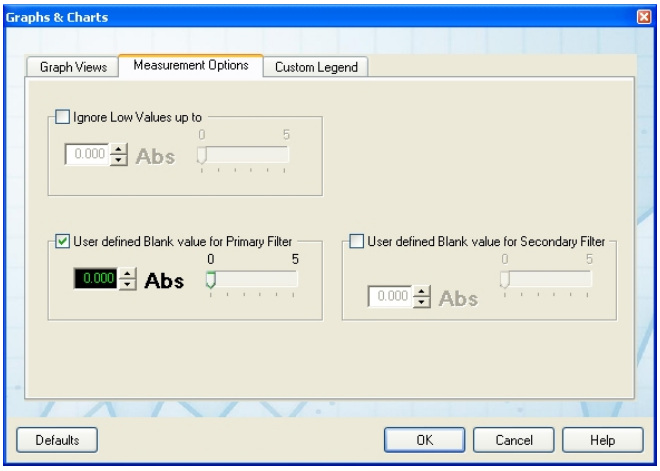


Select Device #: Select the target device where you want to test the shaking.
Select Test Duration: Set the duration of the shaking test.
Selected Shaking Mode for Testing: Display of the attributes of the shaking mode to be tested.

Start: Activates the shaking test.

Graphs and Charts

Here you define some basic properties of the graphs as well as settings that affect the way the gathered measurement results are interpreted. There are three groups in this dialog box organized by the tabs: Graph Views, Measurement Options, Custom Legends.



Graph Views

Use Custom Graph View: Check the check box and click on Select Wells to activate the well selection dialog box showing the available well of the experiment for selection. If you want a custom view to follow certain well during the experiment in their own window you need to define it here.
View in Groups of 20 Wells: Only affects the initial display view of the real-time graphs. Can be changed also at run-time.
View All-in-One: Only affects the initial display view of the real-time graphs. Can be changed also at run-time.

Measurement Options
Ignore Low Values up to: Check the check box and define here using the spinner or slider control at what absorption level you want the experiment to start recording. Lower values will be ignored and entered as 0 into the database.
User defined Blank value for Primary Filter: Allows you to define your own blank reference value and override the machine blank value.
User defined Blank value for Secondary Filter: Allows you to define your own blank reference value and override the machine blank value.

Custom Legend
Legend Editor: Shows all available wells of the experiment. In order to assign a custom legend title move first to the *Legend Title* column field and then clicking on the button with the ellipsis. This will activate the *Legend* dialog box.

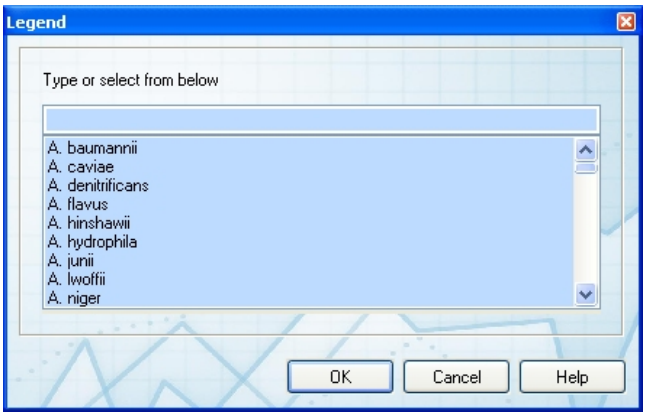
Defaults: Resets the dialog box and all the options to initial values.

See also

Legend

Legend

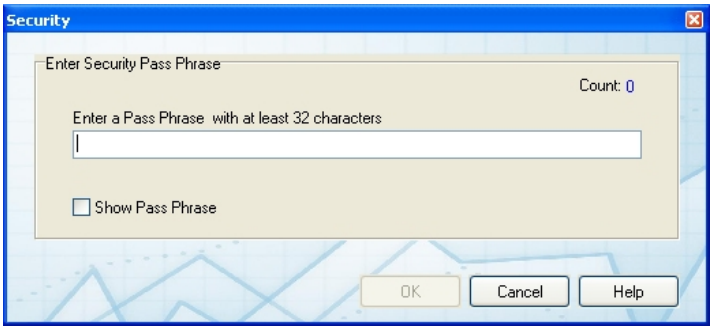
Here you enter a new legend name for the selected well or select from the drop down list. *Legend* is a lookup table and it will save your entry for any following experiment setups. Norden Lab Professional has a large number of pre-installed selections for you to pick from.



Note: All lookup tables can be cleared using the Database Administration tools, in particular the *Clear Lookup* function.

Secure

In order to protect and keep experiment data secret use the Secure option. A very strong encryption algorithm is used together with a long pass phrase to ensure maximum protection.

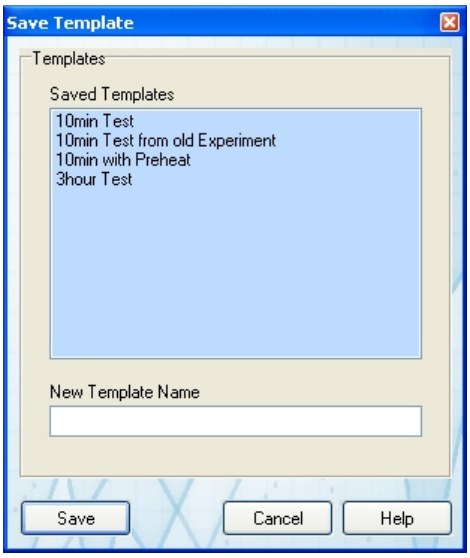


Enter a Pass Phrase with at least 32 character: Please enter any pass phrase of a minimum size of 32 characters into the input field. A character counter in the top right corner is there for your convenience. The *OK* button will be available once you have reached the minimum entry length.
Show Pass Phrase: In case you would like to view what you type check the Show Pass Phrase check box. It will display what your are typing or what you have typed. It will revert back to secure hidden password characters after a preset time-out.

Note: You must remember your pass phrase to access the experiment. There are no back doors designed into the product. Norden Logic can not help in case the pass phrase has been forgotten or lost.

Save Template

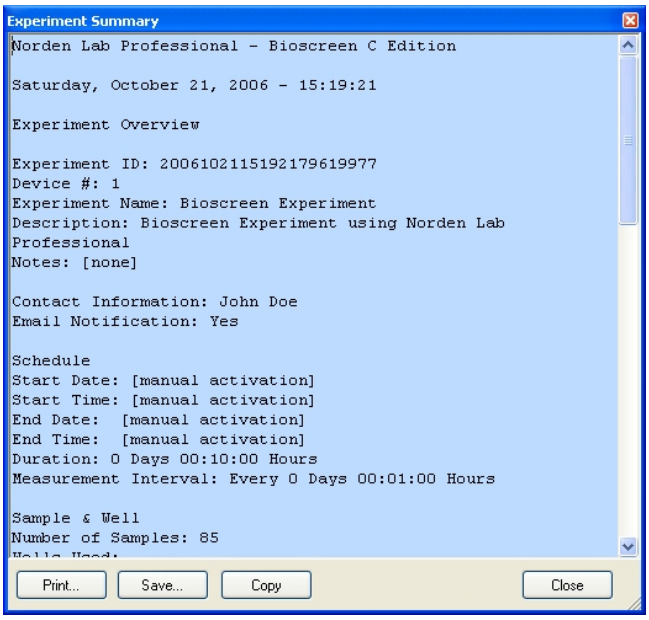
You can save a template at any stage of your experiment definition.



Save: Enter a new name in *New Template Name* or select an existing name from the template list to overwrite the existing template and click this button.

Summary

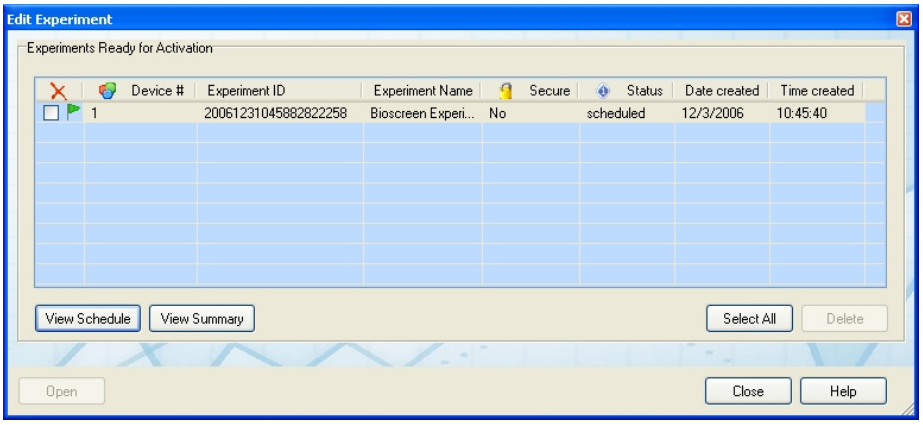
Every experiment has a summary which can be viewed.



Print: Allows you to print the summary.
Save: Allows you to save the summary to a file.
Copy: Copies the summary to the Windows clipboard.

Edit Experiment

If you need to edit or simply want to quickly see the summary this dialog box gives you access to the experiment.



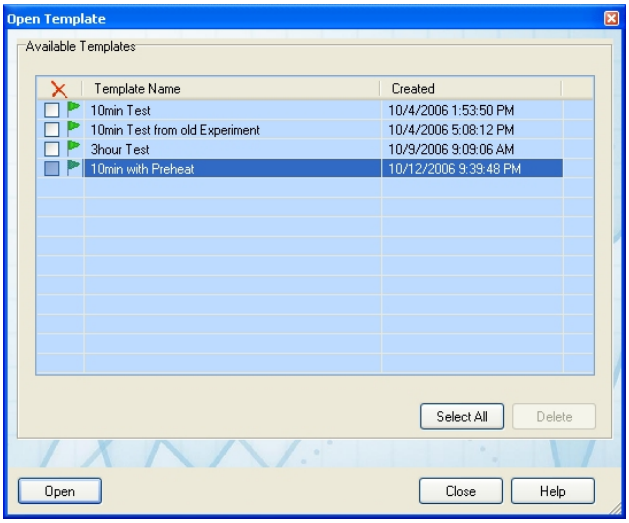
View Schedule: If the experiment is of type scheduled you can view scheduled information. Select the experiment by moving the selection bar to the desired experiment and click this button.

View Summary: All experiments either manually activated or scheduled have a summary which can be viewed. If the experiment is secure you will need to give the pass phrase to access the summary.
Select All: In order to make the deletion action faster if you want to delete all listed experiments click this button. It will set a check mark in the first column of all experiments.
Delete: Set a check mark in the check box in the first column of the experiment you want to delete and press this button. If the experiment is secure you will need to give the pass phrase.
Open: Select the experiment to open by moving the selection bar to the desired experiment e.g. click the row or scrolling the bar with the keyboard and click this button. If the experiment is secure you will need to give the pass phrase.

Note: Scheduled experiments can not be edited. You can view their scheduling information and summary, however, if you want to change settings you will first need to delete the current scheduled experiment and then create a new one. This limitation is due to multi-user and multi-tasking design of the system.

Open Template

Select from the list the template you would like to open. Here you can also delete unwanted or old templates.

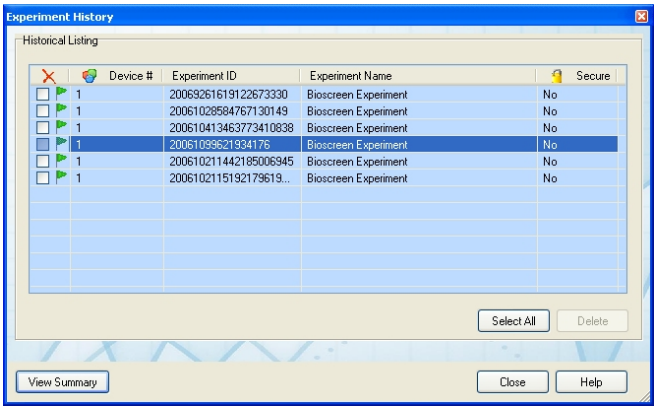


Select All: In order to make the deletion action faster if you want to delete all listed templates click this button. It will set a check mark in the first column of all experiments.

Delete: Set a check mark in the check box in the first column of the template you want to delete and press this button.
Open: Select the template to open by moving the selection bar to the desired template e.g. click the row or scrolling the bar with the keyboard and click this button.

Experiment History

Past experiments are listed here even if the actual results have been deleted from the database. However, only the summaries are available as record of the experiment.

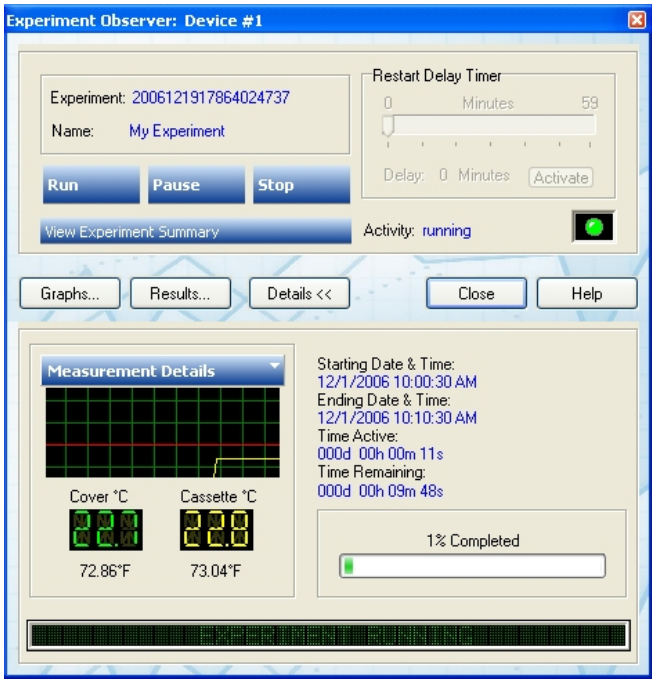


Select All: In order to make the deletion action faster if you want to delete all listed experiments click this button. It will set a check mark in the first column of all experiments.
Delete: Set a check mark in the check box in the first column of the experiment you want to delete and press this button. If the experiment is secure you will need to give the pass phrase.
View Summary: Select the experiment to open by moving the selection bar to the desired experiment e.g. click the row or scrolling the bar with the keyboard and click this button. If the experiment is secure you will need to give the pass phrase.

Running Experiment

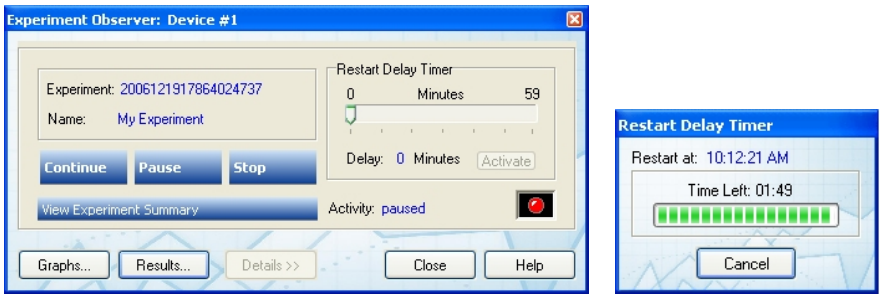
Experiment Observer

The observer allows you to follow and control your experiment. In the details pane all relevant information about the ongoing experiment can be viewed. The scrolling LED status banner indicates current activity. You don't have to have the observer active at all time for the experiment to run. After it is activated you can exit and follow the progress with Norden Lab Status or with other available remote clients.



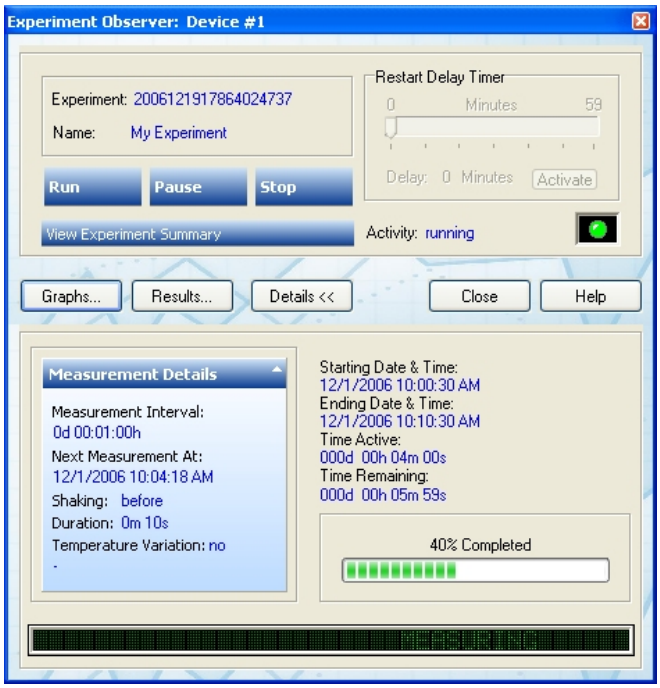
Run: When you are ready to start the experiment and you have filled all wells and closed the machine press this button to start the experiment. The activity LED will show green when running.
Pause: If you need for whatever reason to pause the experiment, click this button. If you have paused you may click *Continue* or use the *Restart Delay Timer* to automatically restart the experiment at your defined time. The activity LED will blink red/green when paused. **Important**: The machine will keep the experiment set temperature while pausing to avoid the possibility of condensation.
Stop: Click this button to stop the experiment in case you want to end before the experiment set duration. The activity LED will show red when stopped.

View Experiment Summary: In case you need to verify some experiment data click this button to view a complete summary of the experiment.



Restart Delay Timer
Activate: Select the duration in minutes with the slider control and press this button to activate the restart delay.

Graphs: Activates the window with the real-time graphs. If you have set up your experiment to have two filters then select from the resulting pop up menu the corresponding filter you want to view.
Results: Activates the dialog box with read-only results. If you have set up your experiment to have two filters then select from the resulting pop up menu the corresponding filter you want to view.
Details: Allows you to expand or shrink the details view pane.

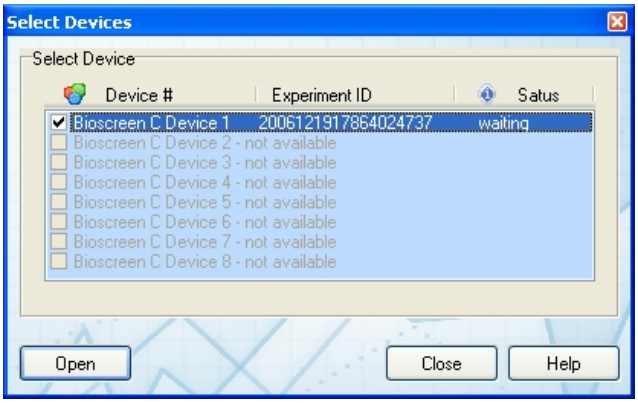


Measurement Details: Click on the little expand triangle in the right corner of *Measurement Details* to view some more details on the experiment run.

Note: If the experiment is a secure experiment a lock symbol will be displayed to the left of the activity LED.

Select Devices

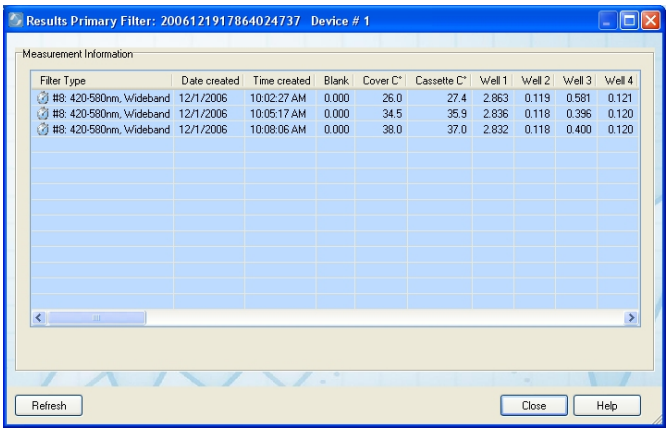
Selecting Run, Pause, Stop or View you will be prompted with this dialog box. Norden Lab Professional can control up to 8 Bioscreen C devices at the same time. You can also monitor and follow up to 8 experiments at the same time. Select the experiment you want to follow by checking the check box on the desired experiments and click *Open*.



Note: For multi-user reasons the system will check after the first 30 seconds the status of selection every 10 seconds and clear selection if the dialog box remains open.

Results

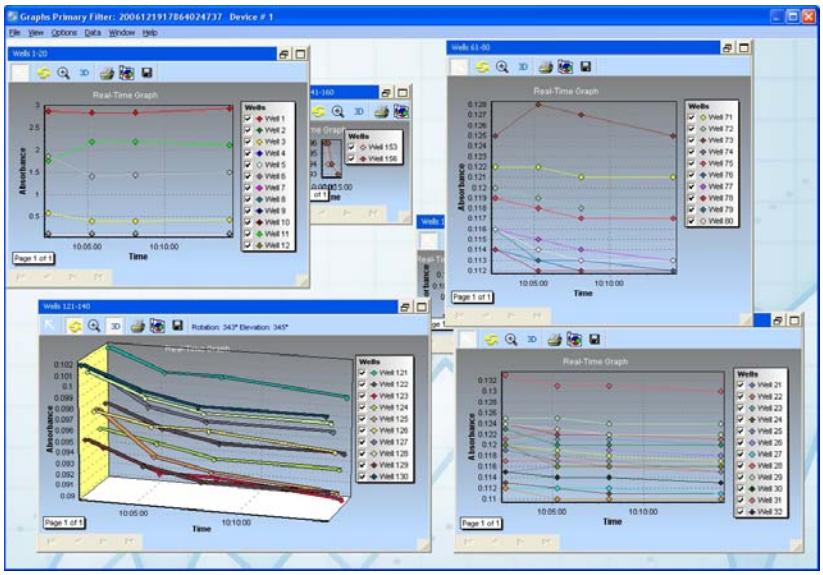
The values displayed are read-only and for information only. If you want to work the data user the Workshop when the experiment has completed.

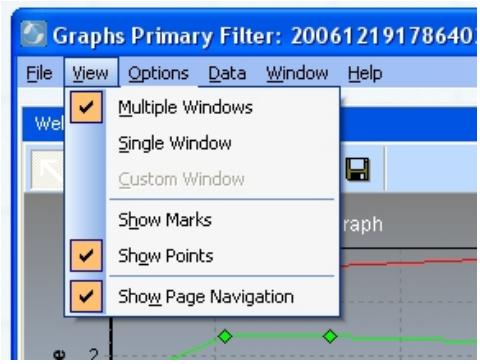


Refresh: Refreshes the values during the experiment if you leave the dialog open.

Real-Time Graphs

The graphs window allows you to follow the progress of your experiment in real-time.

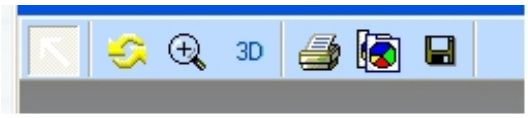




The *Graphs* window will show the initial graphs views as you have defined them in the *Graphs & Charts* option during the experiment setup. However, you can always change the view by selecting the menu *View* where you can find some other additional options.

Multiple Windows: Shows all available wells in small windows. Each window shows a maximum of 20 wells.
Single Window: Shows all wells in one window.
Custom Window: This option is available if it was defined during experiment setup. The graph window will show the defined custom view of the wells.
Show Marks: Shows the numerical value of a point.
Show Points: Shows graphically the exact location of a point.
Show Page Navigation: Displays a navigation bar allowing easy navigation forward and backwards through the graphical data.
Select Theme: Activates the theme selection dialog box which allows temporarily the change of the appearance of the graph windows.

Group: Groups the graph windows side-by-side when the graph window is in *Multiple Windows* mode.
Cascade: Cascades the graph windows one on top of another with a slight offset when the graph window is in *Multiple Windows* mode.



The graphs are interactive. You can click on them and scroll them by pressing and holding the right mouse button or with the mouse wheel. You can also zoom in and out by pressing and holding the left mouse button. Each graph window has a small toolbar for further manipulating each real-time graph window.

There are seven controls on the toolbar. You can hover over each to get some more information on what each does as well as a status message on the right side of the toolbar once the tool button is selected. The buttons have the following functions (from left to right):

Normal: Select this button to place the graph window in normal interactive mode e.g. after you have rotated a 3D graph.
Rotate: Allows you to rotate a 3D graph (this button automatically will place the graph into 3D mode).
Zoom: Allows you to zoom in and out of a 3D graph (this button automatically will place the graph into 3D mode).
3D: Places the graph windows from 2D mode into 3D mode.
Print: Allows you to print the current graph including preview before printing.
Copy: Copies the current graph to the Windows clipboard enabling pasting into any other Windows application.
Save: Allows you to save your current graph to many popular formats.

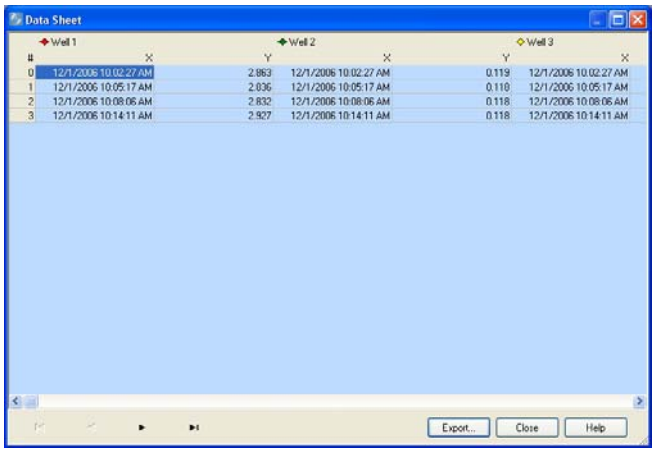
The graph window legend is also interactive allowing you to de-select some of the curves you do not want to observe at any particular time. Note however that in order to click on the legend check box your toolbar needs to be in *Normal* mode (see explanation above).

Note: In order to exit the graphs window select *File* and then *Exit* or click on the close window icon.

Important: In *Multiple Windows* view to view all legend items maximize the graph windows of interest. The *Custom* and *Single Window* views have a special legend scroll control for your convenience.

Data Sheet

The grid shows the numeric values used in the graphs. You can export the values as a CSV file for use in your spreadsheet.

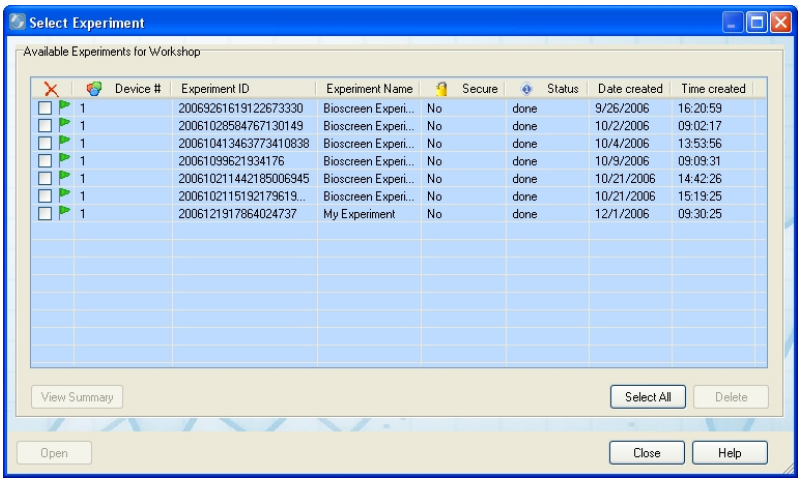


Export: Allows you to export the numeric values used in the graphs as a CSV file.

Workshop

Select Experiment

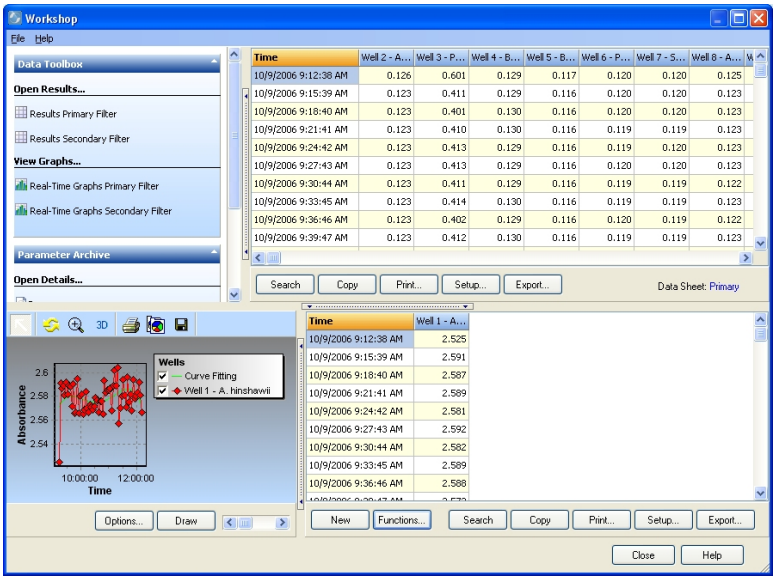
Select here the experiment you want to work with in the *Workshop*.



View Summary: All experiments have a summary which can be viewed. If the experiment is secure you will need to give the pass phrase to access the summary.
Select All: In order to make the deletion action faster if you want to delete all listed experiments click this button. It will set a check mark in the first column of all experiments.
Delete: Set a check mark in the check box in the first column of the experiment you want to delete and press this button. If the experiment is secure you will need to give the pass phrase.
Open: Select the experiment to open by moving the selection bar to the desired experiment e.g. click the row or scrolling the bar with the keyboard and click this button. If the experiment is secure you will need to give the pass phrase.

Workshop

Here you can work with the collected data.



The *Workshop* has four panes. A selection pane with tools and results which can be found in the selection boxes *Data Toolbox* and *Parameter Archive*. Most selections are self explanatory however a couple of items should be mentioned here. When you select either *Results Primary Filter* or *Results Secondary Filter* the result values will be loaded into the *Data Sheet* work area to the right of the *Data Toolbox*. Another important point to include here is that you can save the experiment here as a template in order to use the exact same experiment parameters in future experiments by selecting *Save Experiment As Template* from the *Parameter Archive*.

Important: In order to work with your results drag the desired well from the *Data Sheet* (the grid with all the results) by clicking the header of the column and holding the mouse button. Drag the column to the lower *Work Sheet* over any available column header (two green arrows will indicate that this is a valid area to drop). If this is the first well you dragging and dropping then you will drop it on the *Time* column header.

Once you have at least one well result in the *Work Sheet* all the functions are available to do result evaluation. If you wish to view the graphical curve of your result, click on *Draw* in the graph pane to the left of the *Work Sheet*. The graph pane's toolbar controls are identical to those of the real-time graphs explained earlier in this text. Also the available options by clicking on the *Options* button are identical to those available from the real-time graphs.

The *Work Sheet* has eight built-in statistical functions:

- Average
- Correlation
- Cumulative

- Curve Fitting
- Median
- Standard Deviation
- Subtract
- Variance

When you select any of these functions a graphical representation will be drawn automatically in the graph pane. You can view the numerical values of the function by clicking *Options* in the graph pane and selecting *Graph Data Sheet* from the resulting menu.

The *Work Sheet* as well as the *Data Sheet* allows you to export your data in six different formats by clicking on *Export*:

- Excel
- CSV
- ASCII
- RTF
- HTML
- XML

Data Toolbox
Results Primary Filter: Loads the results of the primary filter into the data sheet.
Results Secondary Filter: Loads the results of the secondary filter into the data sheet.
Real-Time Graphs Primary Filter: Displays the original real-time graphs of the primary filter.
Real-Time Graphs Secondary Filter: Displays the original real-time graphs of the secondary filter.

Statistical Toolbox
Statistical Report: Shows statistical values of all of the wells used in the experiment.
Curve Fitting: Advanced curve fitting tool.

Parameter Archive
Summary: Shows the experiment summary.
Notes: Displays any notes that were added for this experiment.
Experiment Tree: Shows all experiment parameters in a tree format.
Save Experiment as Template: Allows you to save the experiment parameters as a template for re-use.

Data Sheet
Search: Allows you to search for numerical values in the data sheet.

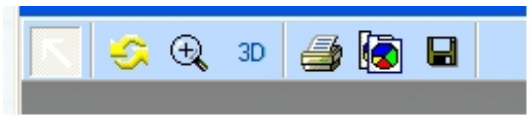
Copy: Copies the entire data sheet to the Windows clipboard in Excel compatible format.
Print: Allows you to print preview and print the data sheet.
Setup: The resulting pop up menu will have *Page Setup* which allows you to format the page with your preferences for printing and *HTML Setup* which allows you to specify your preferred HTML appearance of an exported HTML page.
Export: The resulting pop up menu will have six export formats which are *Excel Format*, *CSV Format*, *ASCII Format*, *RTF Format*, *HTML Format* and *XML Format*. Select the ones most appropriate for your needs.

Work Sheet
New: Clears the work sheet, the graph and resets the data sheet with the experiment results you had loaded.
Functions: The resulting pop up menu will have eight statistical functions which are *Average*, *Correlation*, *Cumulative*, *Curve Fitting*, *Median*, *Standard Deviation*, *Subtract*, *Variance*. Not all functions are available if more than one well is loaded into the work sheet. When a function is selected the graphical representation will be drawn in the graph pane. The actual numeric values can be found from the graph pane by clicking the *Options* button and selecting *Graph Data Sheet* from the resulting pop up menu.
Search: Allows you to search for numerical values in the work sheet.
Copy: Copies the entire work sheet to the Windows clipboard in Excel compatible format.
Print: Allows you to print preview and print the data sheet.
Setup: The resulting pop up menu will have *Page Setup* which allows you to format the page with your preferences for printing and *HTML Setup* which allows you to specify your preferred HTML appearance of an exported HTML page.
Export: The resulting pop up menu will have six export formats which are *Excel Format*, *CSV Format*, *ASCII Format*, *RTF Format*, *HTML Format* and *XML Format*. Select the ones most appropriate for your needs.

Graph
Options: The resulting pop up menu will have five menu selections which are *Show Marks*, *Show Points*, *Show Page Navigation*, *Select Theme* and *Graph Data Sheet*.

> *Show Marks*: Shows the numerical value of a point.
> *Show Points*: Shows graphically the exact location of a point.
> *Show Page Navigation*: Displays a navigation bar allowing easy navigation forward and backwards through the graphical data.
> *Select Theme*: Activates the theme selection dialog box which allows temporarily the change of the appearance of the graph windows.
> *Graph Data Sheet*: Activates the data sheet holding the numerical values used by the graphs.

Draw: Draws or updates the graph with the data from the work sheet.



The graphs are interactive. You can click on them and scroll them by pressing and holding the right mouse button or with the mouse wheel. You can also zoom in and out by pressing and holding the left mouse button. Each graph window has a small toolbar for further manipulating each real-time graph window.

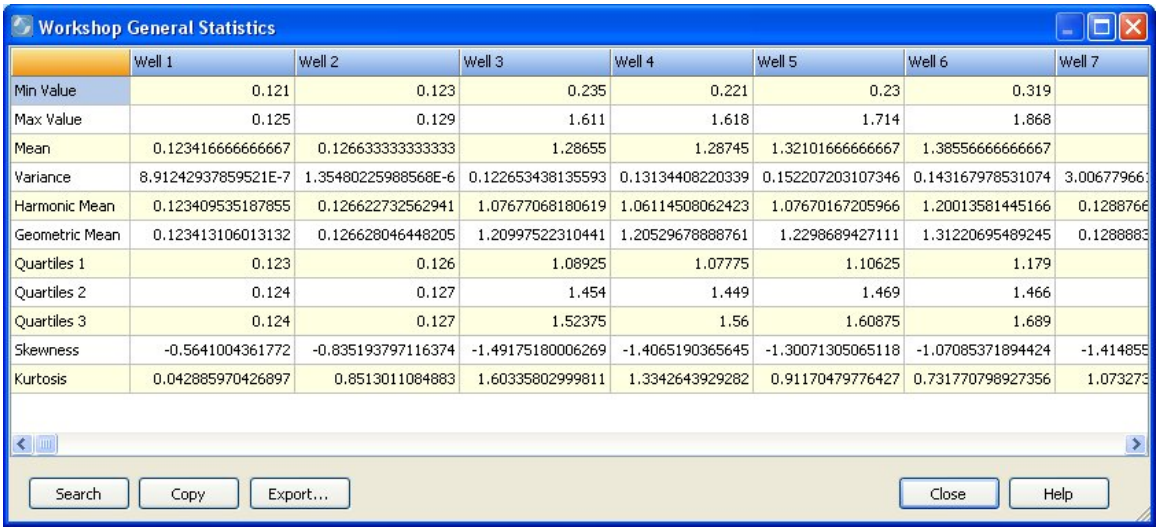
There are seven controls on the toolbar. You can hover over each to get some more information on what each does as well as a status message on the right side of the toolbar once the tool button is selected. The buttons have the following functions (from left to right):

Normal: Select this button to place the graph window in normal interactive mode e.g. after you have rotated a 3D graph.
Rotate: Allows you to rotate a 3D graph (this button automatically will place the graph into 3D mode).
Zoom: Allows you to zoom in and out of a 3D graph (this button automatically will place the graph into 3D mode).
3D: Places the graph windows from 2D mode into 3D mode.
Print: Allows you to print the current graph including preview before printing.
Copy: Copies the current graph to the Windows clipboard enabling pasting into any other Windows application.
Save: Allows you to save your current graph to many popular formats.

The graph window legend is also interactive allowing you to de-select some of the curves you do not want to observe at any particular time. Note however that in order to click on the legend check box your toolbar needs to be in *Normal* mode (see explanation above).

General Statistics

The General Statistics shows numerical data of each well.



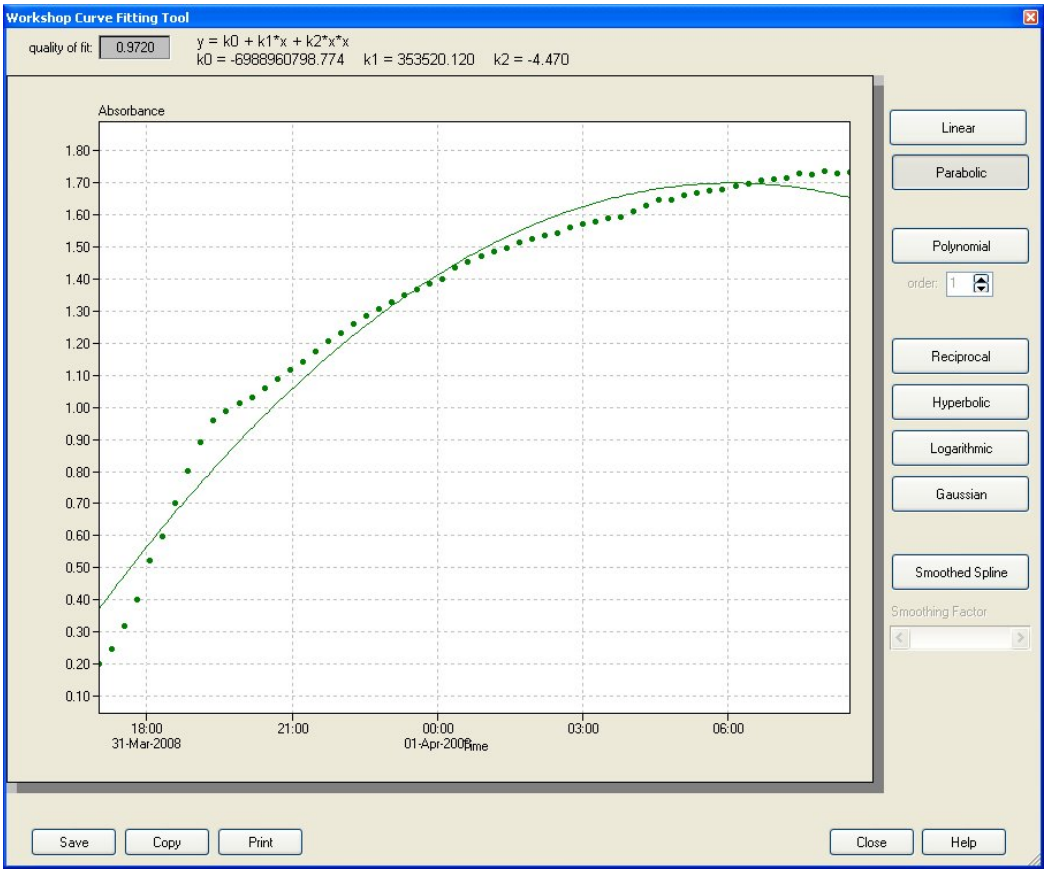
	Well 1	Well 2	Well 3	Well 4	Well 5	Well 6	Well 7
Min Value	0.121	0.123	0.235	0.221	0.23	0.319	
Max Value	0.125	0.129	1.611	1.618	1.714	1.868	
Mean	0.123416666666667	0.126633333333333	1.28655	1.28745	1.32101666666667	1.38556666666667	
Variance	8.91242937859521E-7	1.35480225988568E-6	0.122653438135593	0.13134408220339	0.152207203107346	0.143167978531074	3.00677966
Harmonic Mean	0.123409535187855	0.126622732562941	1.07677068180619	1.06114508062423	1.07670167205966	1.20013581445166	0.1288766
Geometric Mean	0.123413106013132	0.126628046448205	1.20997522310441	1.20529678888761	1.2298689427111	1.31220695489245	0.1288883
Quartiles 1	0.123	0.126	1.08925	1.07775	1.10625	1.179	
Quartiles 2	0.124	0.127	1.454	1.449	1.469	1.466	
Quartiles 3	0.124	0.127	1.52375	1.56	1.60875	1.689	
Skewness	-0.5641004361772	-0.835193797116374	-1.49175180006269	-1.4065190365645	-1.30071305065118	-1.07085371894424	-1.414855
Kurtosis	0.042885970426897	0.8513011084883	1.60335802999811	1.3342643929282	0.91170479776427	0.731770798927356	1.073273

The following operations are supported:

Search: Allows you to search for numerical values in the data sheet.
Copy: Copies the entire data sheet to the Windows clipboard in Excel compatible format.
Export: The resulting pop up menu will have six export formats which are *Excel Format*, *CSV Format*. Select the one most appropriate for your needs.

Curve Fitting Tool

This is an advanced curve fitting tool.



Save: Allows you to save the graph as a bitmap (bmp) file.
Copy: Copies the entire graph to the Windows clipboard.
Print: Allows you to print the graph.

The tool allows the calculation of:

Linear

Estimates the best fit of a straight line to a sample of two-dimensional data points using linear regression. The line is defined by the equation

$y = kx + d$.

A minimum number of 2 values is required. k and d define the slope and the offset of the line, and FitQual returns the goodness of fit of the regression. FitQual equals the square of the correlation coefficient. A good representation of the data samples yields a value near to 1.0 for FitQual

Parabolic

Calculates the best fitting parabola for a given set of data. The parabola is determined by the equation

$$y = k_0 + k_1 x + k_2 x^2$$

The values of x and y are given by the data samples, the parameters k0, k1, and k2 are estimated by Parabolic using a least squares approximation.

Polynomial

Calculates the best fit for a polynomial of order nOrder. The order of the polynomial is restricted to values between 1 and 10. Higher orders will result in numerical instabilities.

Numerical instabilities which may arise from near-singular equations. In this case the calculated polynomial coefficients should not be used.

Reciprocal

Calculates the best fitting reciprocal line curve for a given set of data. The curve is determined by the equation

$$y = \frac{1}{k_0 + k_1 x}$$

The values of x and y are given by the data samples, the parameters k0, and k1 are estimated by Reciprocal using a least squares approximation.
A minimum number of 3 values is required in order to apply Reciprocal.

Hyperbolic

Calculates the best fitting hyperbola for a given set of data. The hyperbola is determined by the equation

$$y = k_0 + \frac{k_1}{x}$$

The values of x and y are given by the data samples, the parameters k0, and k1 are estimated by Hyperbolic using a least squares approximation.
A minimum number of 3 values is required in order to apply Hyperbolic.

Logarithmic

Calculates the best fitting logarithmic curve for a given set of data. The curve is determined by the equation
$y = k0 + k1 * \ln(x)$

The values of x and y are given by the data samples, the parameters k0 and k1 are estimated by Logarithmic using a least squares approximation.
A minimum number of 3 values is required in order to apply Logarithmic.

Gaussian

Calculates the best fitting Gaussian curve (normal distribution) for a given set of data. The curve is determined by the equation

$$y = k_0 e^{-\frac{(x-k_1)^2}{k_2}}$$

The values of x and y are given by the data samples, the parameters k0, k1, and k2 are estimated by Gaussian using a least squares approximation.
A minimum number of 3 values is required in order to apply Gaussian.

Smoothed Spline

Splines are normally used for the interpolation between known data points. The resulting function runs through the data points and has a smooth first derivative and a continuous second derivative. However, splines exhibit a major drawback if the data points are subject to noise. In such circumstances one may have the need for a smoothed interpolation.
The method SmoothedSpline implements such a smoothed interpolation.
The degree of smoothing may be controlled which may assume values between 0.0 and 1.0.
A value of 0.0 means no smoothing, a value of 1.0 creates a linear least squares fit.

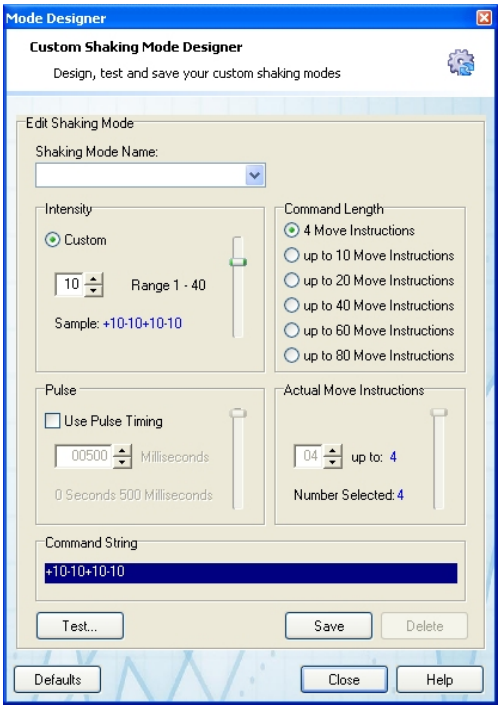
Tools

Find Files

Find Files is provided as a quick way to access the Windows file search window. It allows you to quickly search for external files. Refer to Microsoft help on the tool specifics.

Shaking Mode Designer

The shaking mode designer allows you to design and test in real-time a new mode.
You can access the designer from the *Tools* menu or from within the *Shaking* dialog box in the *Experiment* setup.



Shaking Mode Name: Enter the name of your new mode.
Intensity: Indicates the length of each step in the shaking process (shortest is 1 largest 40).
Command Length: Sets the maximum length of the command block send to the Bioscreen C device.
Pulse: Enables pulsing by having a small set interval during the shake process.

Actual Move Instructions: The actual number of move instructions in the command string.
Command String: The actual command string with the command. In version 1.00 only even commands can be designed.

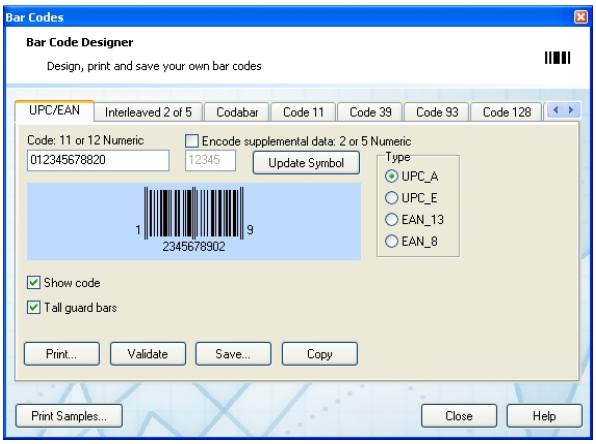
Test: Allows you to test your designed mode before saving.
Save: Adds your custom mode to the database.
Delete: Allows you to delete a custom mode from the database.
Defaults: Resets all controls to defaults.

See also

Shaking Mode Test

Bar Code Designer

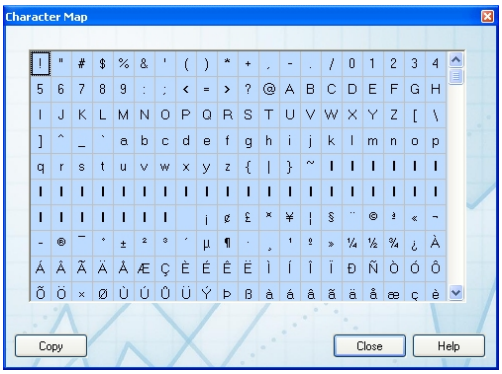
The bar code designer allows you to create bar codes for your experiments. You can print them, save them to disk as BMP files as well as cut and past it to the Windows clipboard. Several industry standard bar code types are available. Select the one you need from the tabs.



Update Symbol: Updates the bar code symbol with your input.
Print: Allows you to print your bar code.
Validate: Validates the bar code if the input is according to the selected type.
Save: Allows you to save your bar code as a Windows *.bmp file.
Copy: Allows you to copy your graphical bar code to the Windows clipboard.
Print Samples: Prints examples of all the bar code types available.

Character Map

There may be occasion were you may need special character in your experiment documentation or notes. Use the character map to provide the characters and copy them to the desired place.



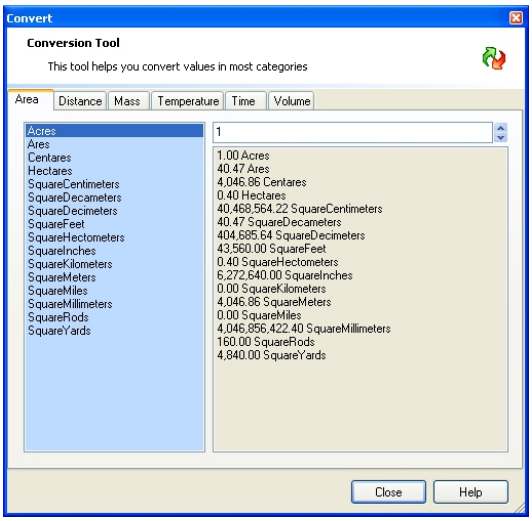
Copy: Allows you to copy the selected character to the Windows clipboard.

Calculator

You can find also a calculator in the provided tools. Select *Calculator* from the *Tools* menu.

Conversion Tool

The conversion tool allows fast access to a vast amount of conversion types. The main conversion groups are area, distance, mass, temperature, time, volume.



Select the conversion group you want to work with. Select in the left blue list what the unit is you want to convert from. Enter the value you want to convert into the entry field. The results will be shown dynamically in the right gray list.

General

Hints and Tips

Please find in this section some useful information not found elsewhere in the documentation.

Fault Information for Technical Support

Norden Lab Professional has built-in diagnostics in order to help technical support identify and fix software problems.
When a fault occurs Norden Lab will generate an entry in the *BioException.txt* file located in the Norden Lab Professional application folder. The program will also make a screen shot of the instance when the fault occurred and save if in a subfolder with the name *LabBioStudio*.

Below is an example of an entry in the BioException.txt:

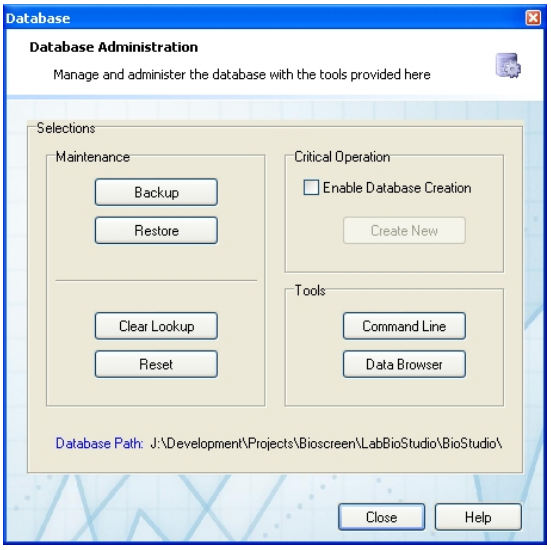
```
###################### exception log header
ExeModule= J:\LabBioStudio\LabBioStudio.exe
OSPlatform= Windows XP
CPUKind= 15
CPUName=              Intel(R) Pentium(R) D CPU 2.80GHz
TotalPhys= 2146664448
AvailPhys= 1608065024
TotalPageFile= 3596181504
AvailPageFile= 3247185920
TotalVirtual= 2147352576
AvailVirtual= 2070007808
ColorDepth= 32
SystemFont=SmallFont
VRefreshRate= 60
GraphicResolution= 1280x1024
###################### exception log header end
Exception class= EAccessViolation
ExceptAddr= 0069B1A8
Computer= P5D920
User= Admin
Datetime= 12/3/2006  7:54:21 AM
ExceptionMessage= Access violation at address 0069B1A8 in module 'LabBioStudio.exe'. Read of address 028A7F1C
```

Resetting the Experiment Database Entries

Though all effort has been made to create a fault tolerant system in the event of an unforeseen error were the system can not run an experiment you may have to

reset the application experiment tables. Follow the following steps to successfully reset the application.

1. Select the *Database Administration* from the *Configuration* menu.

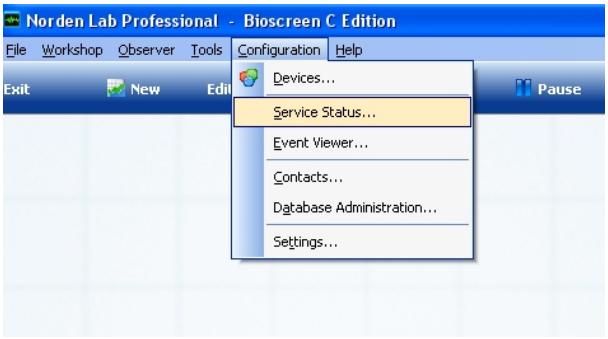


2. Select *Reset* in order to clear any active or pending experiments in the experiment tables of the database.

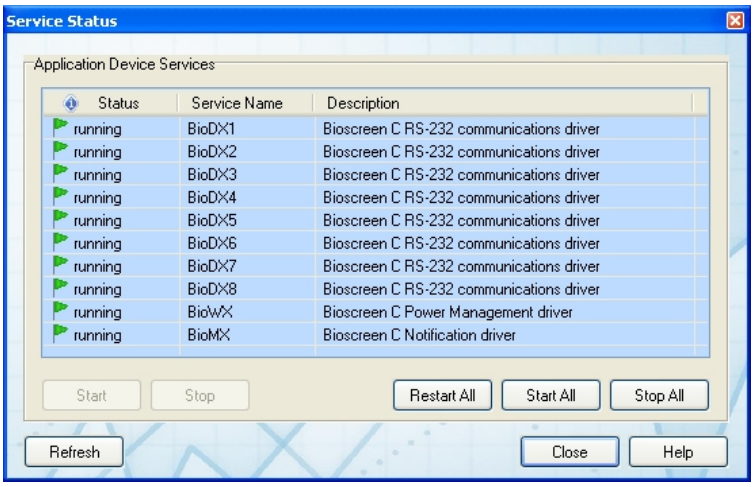
Restarting Services

If an exceptional error occurs the NT services components will alert you and in general they try to stop themselves to prevent system instability. However, a clean shutdown is not always possible. In any of these circumstances please restart the offending service.

1. Select *Service Status* from the *Configuration* menu.



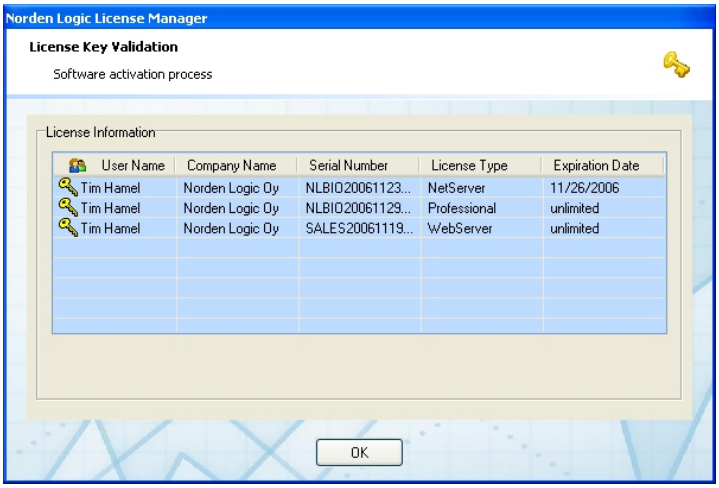
2. In the *Service Status* dialog box select the service you want to control. Click Stop and then click Start.



Note: You need to have at least **local admin** rights to complete these operations.

License Manager

Here you can find the current status of your software licenses and activation keys.



If you have a time limited key be aware that this type of key is for evaluation purpose only and does not entitle to any product support and upgrades.

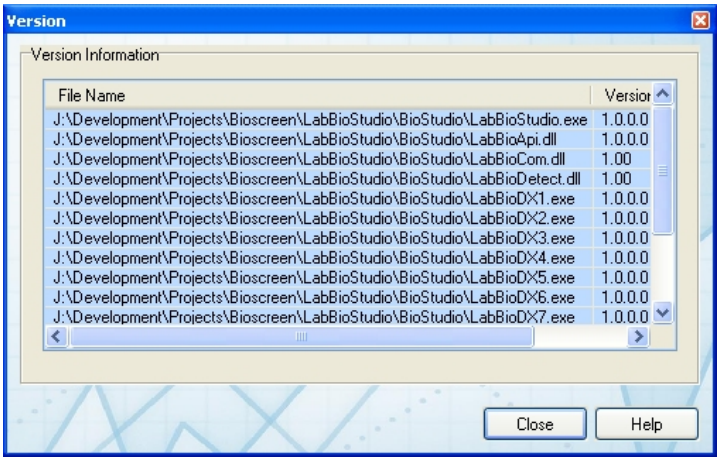
Important: If you received **license keys** (*e.g. abc123.loc*) copy them to the same folder where Norden Lab Professional - Bioscreen C Edition resides in order to activate the software.

Software Updates

Please visit our web site for software updates by selecting *Software Updates* from the *Help* menu.

Version Information

In case version information of the running components is needed scroll through the list and view the displayed version numbers of each component.



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