GE Healthcare

UNICORN™ DAQ 1.0

User Manual for WAVE Bioreactor™

UNICORN

Table of Contents

1 Introducing UNICORN DAQ

Introduction

This chapter contains:

- A general overview of the UNICORN DAQ software.
- Information about the user documentation for UNICORN DAQ and how to use it.

In this chapter

This chapter contains these sections.

1.1 About UNICORN DAQ

Introduction

This section is a general overview of the UNICORN DAQ system.

What is UNICORN DAQ?

UNICORN DAQ 1.0 for WAVE Bioreactor is a complete package for supervision of WAVE Bioreactor systems. It also provides facilities for the evaluation of data from the cell culture.

It consists of software for acquisition and evaluation of data and data management. It also includes a converter unit for interfacing the monitoring PC to the WAVE Bioreactor instrument.

Note that the UNICORN DAQ 1.0 for WAVE Bioreactor software is used to monitor the operation of the WAVE Bioreactor system and to collect result data, but not to control the WAVE Bioreactor system.

The UNICORN software family includes specialized versions for a number of other applications apart from cell cultivation, including liquid chromatography, oligonucleotide synthesis and cross flow filtration. UNICORN software is used both in laboratories for analytical purposes and in the biochemical process industry.

UNICORN is a trademark of GE Healthcare.

Operating environment

UNICORN DAQ runs on a PC under Microsoft™ Windows™ XP (32-bit) or Windows 7 (32-bit). It is designed to run under English keyboard settings.

Windows functions

Most Windows functions are also available in UNICORN DAQ, including

- cut and paste
- right-click short-cut menus

Note: *Drag and drop is not available. File and folder handling in UNICORN DAQ also differ from the general Windows file manager standard.*

Compatible systems

UNICORN DAQ can be used with a number of WAVE Bioreactor cell culture systems ranging from the WAVE Bioreactor System 20/50 to the WAVE Bioreactor 500/1000.

Software modules

The UNICORN DAQ software consists of three integrated modules:

Module	Function
UNICORN Manager	File handling and administration, e.g. definition of systems and user profile etc.
System Control	To monitor and store data from the cell culture processes online, using a template based data acquisition method.
Evaluation	To evaluate and present stored data from the cell culture processes.

Note: *All modules are active when the program is operating, and are not closed when they are minimized. A minimized System Control unit will continue to collect data. All modules will normally open when the program is started. However, a user profile may be set up so that not all modules are available.*

Help functions

An online help utility is included in the UNICORN DAQ software. The table below describes how to access the help utility.

If you want to access...	Then...
the general help utility.	open the ***Help*** menu in any of the software modules.
context-specific help topics.	• click the ***Help*** button in the dialog box or • press the **F1** key on your keyboard.

Security

The table below describes the main security functions in UNICORN DAQ:

Feature	Function
Access Security	Only authorized users can access UNICORN DAQ. Each user is assigned an access level, which defines the functions that the user is permitted to use.
Connection Security	The data collection from a running cell culture instrument/system can only be controlled from one connection. Systems may be locked with a password to prevent other, un-authorized users from terminating the data acquisition or entering manual instructions in the run log.
Data Security	Result files from an ongoing cell culture run can be saved automatically at preset intervals to minimize data loss for example in case of a power failure. The results are saved locally if the network communication fails.
Electronic Signatures	Result files can be signed electronically for enhanced security and accountability.

1.2 About this manual

Document structure

The manual is divided into chapters. Each chapter starts with a brief overview that presents the contents and the headings for the sections that the chapter contains. Most sections begin with an introduction that summarizes the content. Some sections are divided into sub-sections.

A section is divided into blocks of information with separating lines. The blocks are identified by a label in the margin. This makes it easier for you to quickly scan a page to find the exact topic you are looking for.

Typographical representations

Menu commands, field names and other text items from the software are quoted exactly as they appear on the screen, in a bold italic typeface:

Example: ***Run***

Search paths are shown in a bold italic typeface with a separating colon between each level:

Example: ***View:Panes:Customize*** (i.e. the menu command ***Customize*** in the sub-menu ***Panes*** from the ***View***-menu).

Text entries that UNICORN DAQ generates or that the user must type is represented by a monotype typeface:

Example: `Connection change`

Prerequisites

The following prerequisites must be fulfilled before you can use this manual the way it was intended:

- You need to have a general understanding of how your PC and Windows works. In most cases universal computer functions will not be explained.
- UNICORN DAQ must be installed and configured correctly on your computer.

  This is described in *Chapter 3 Installation, on page 39*.
- You need to understand the concepts of cell cultivation. Terminology and functionalities will be explained only when they differ from normal practise.
- Before you try to operate a WAVE Bioreactor system you need to study and understand the safety information that is part of the system documentation.

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2 UNICORN DAQ concepts

Introduction

This chapter contains:

- Definitions and descriptions of some of the specific concepts that are presented in this manual.
- An overview of the UNICORN DAQ user interface.

Note: *General concepts and common cell culture terminology are not explained here.*

In this chapter

This chapter contains these sections.

2.1 Concept definitions

Introduction

This chapter contains explanations and definitions of a number of UNICORN DAQ concepts that are used in this manual.

The concepts are organized in alphabetical order.

Chromatogram

A chromatogram is a collection of data represented by a number of curves that have been created during a cell cultivation, including temperature, pH, etc.
Original raw data curves cannot be deleted or modified. They can be used as a basis for evaluation procedures and subsequent creation of new curves.

A chromatogram can also contain curves that have been created and saved during an evaluation session.

Curves

The monitor signals from the cell cultivation run, as well as data entered using the ***External value*** instruction, are displayed graphically as curves.

Note: *Log text entries and similar events from the run are treated as curve data in UNICORN DAQ even though they are not shown graphically as curves in the chromatogram.*

Method

The data acquisition instructions for a cell cultivation run are defined in a ***Method***. A ready-made template method is supplied for UNICORN DAQ.

Result files

UNICORN DAQ creates ***Result files*** from the data acquisition. The ***Result files*** contain:

- Run data from the monitors in the WAVE Bioreactor.
- Documentation from the run.

  Example: Logbook entries, manual instructions, etc.

- Saved results from evaluations of the run data.

Strategy

Part of the UNICORN software is specific for the system that it is set up to operate. The system specific part is usually referred to as the ***Strategy***. The ***Strategy*** defines available manual instructions, system settings, run data, curves and method templates.

Template

A ***Template*** is a basic method that is used as a starting point for developing runs for data acquisition.

Warnings

A ***Warning*** dialog may be displayed on the screen if an alarm is triggered by WAVE Bioreactor. This ***Warning*** must be acknowledged to close the dialog. The WAVE Bioreactor system will still continue the run and data will continue to be collected by UNICORN DAQ while the ***Warning*** is displayed. The event causing the ***Warning*** will be included in the log.

2.2 The UNICORN DAQ user interface

Introduction

This section is an overview of the three UNICORN DAQ modules with descriptions of some of the elements of the user interface. The section also contains a description of the search functions in UNICORN DAQ.

Note: *A user profile can be set up so that the user only has limited access to the modules described in this chapter. Only the available modules will open when the program is started.*

In this section

This section contains these sub-sections.

2.2.1 UNICORN Manager

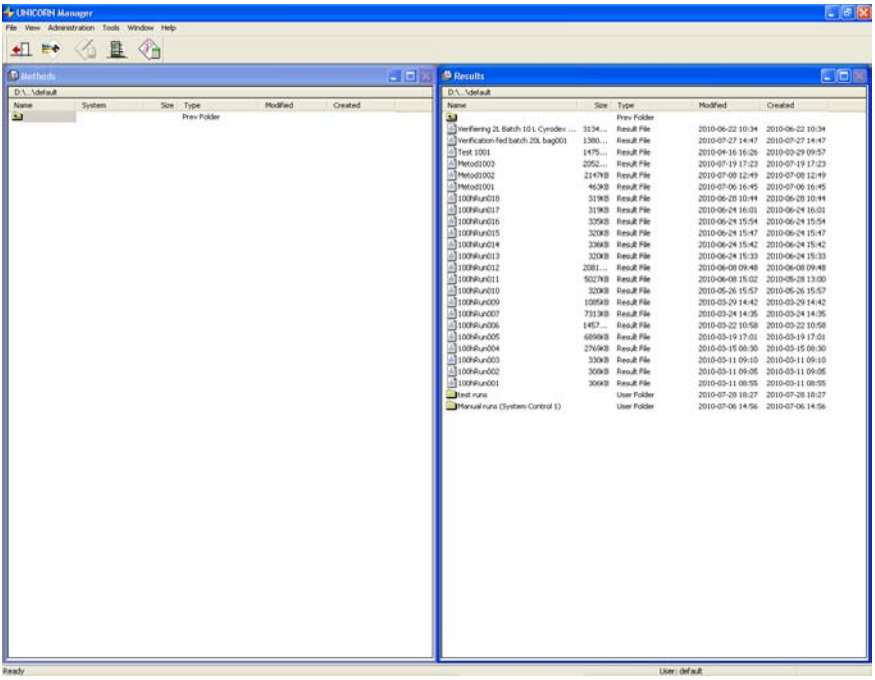
Introduction

The ***UNICORN Manager*** is mainly used for file and folder administration.

The UNICORN Manager windows

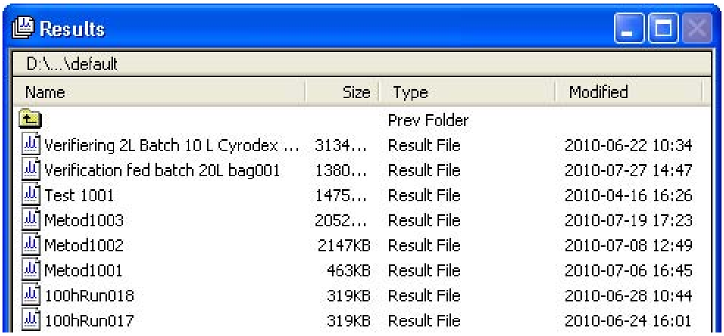
The module contains two windows, the ***Methods*** window and the ***Results*** window. UNICORN DAQ 1.0 for WAVE Bioreactor provides template methods for the data acquisition, but not the facility for the user to create or edit own methods. Consequently, the ***Methods*** window will not be used, and can be minimized to save space for the ***Results*** window.

The ***UNICORN Manager*** is shown below:



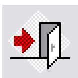
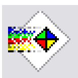
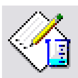
The Results window

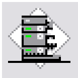
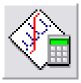
The ***Results*** window contains all the saved results and all the result folders.



Toolbar icons in the UNICORN Manager

The table below describes the toolbar icons in the module.

Icon	Function
	The ***Logon/Logoff*** icon is used to log on or log off the system. ***Note:*** *The arrow in the **Logoff** icon points away from the door.*
	The ***Instant Run*** icon immediately starts data acquisition from a cell cultivation run, using a selected template method.
	The ***New Method*** icon is not active for UNICORN DAQ. For other UNICORN applications, this icon opens the ***Method Editor*** module and displays the ***New Method*** dialog box. ***Note:*** *The **Method Editor** is not available for UNICORN DAQ 1.0 for WAVE Bioreactor. Template methods are supplied with the installation.*

Icon	Function
	The ***System Control*** icon activates the first connected ***System Control*** module and displays the ***Manual instruction*** dialog box. ***Note:*** *If no **System Control** module is connected, a module will be activated and the **System Connect** dialog will be displayed.*
	The ***Evaluation*** icon opens the ***Open Result*** dialog box. Select a result file and click ***OK*** to start the ***Evaluation*** module.

Limited access to the UNICORN Manager

Some user groups may be defined to have only a limited access to the ***UNICORN Manager*** functions. The available functions in the limited version are:

- ***Log off***
- ***Change User Attributes***
- ***Change Password***
- ***Quit Program***
- ***Help***

There is also a ***Cancel*** button which minimizes the dialog box. The illustration below shows the limited access version of the ***UNICORN Manager***.

Note: *For more information about how to change passwords and user attributes please refer to Section 4.3 How to change your passwords and user attributes, on page 75. For more information about how to log off and quit the program, please refer to Section 4.1 Log on routines and log off routines, on page 68.*

2.2.2 The System Control module

Introduction

The ***System Control*** module is used to monitor and start data collection from cell cultivation runs.

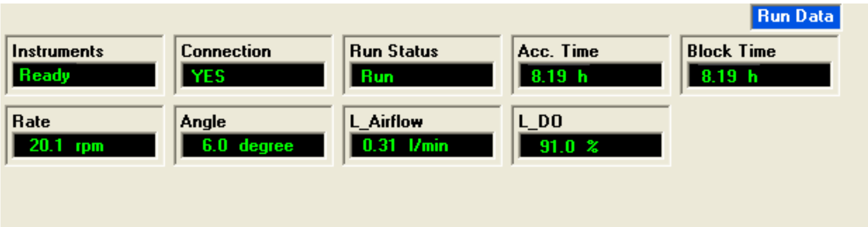
The System Control panes

The ***System Control*** module contains four different display panes that can be opened all at once or in any combination:

- The ***Run Data*** pane.
- The ***Curves*** pane.
- The ***Flow Scheme*** pane.
- The ***Logbook*** pane.

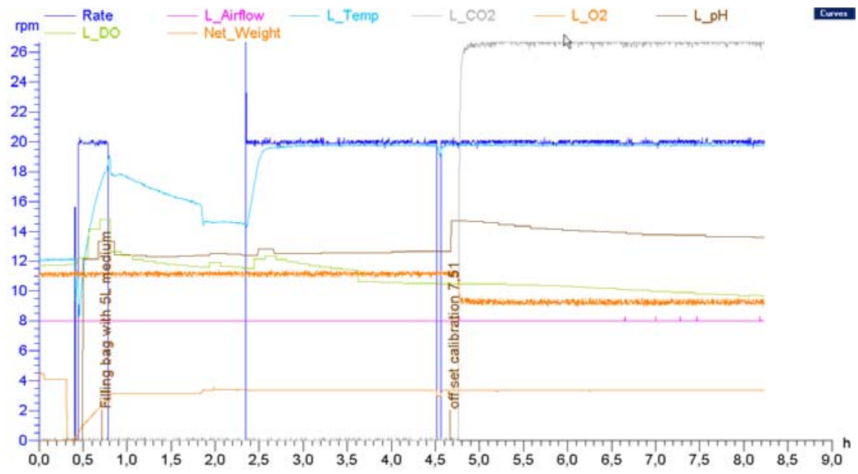
The Run Data pane

The ***Run Data*** pane displays the current values for the selected run parameters. The values are updated at regular intervals, which are defined in the system strategy. See the illustration below:



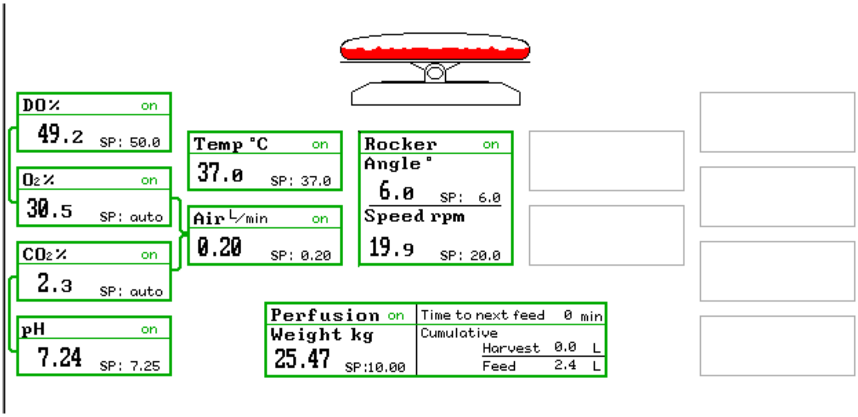
The Curves pane

The ***Curves*** pane displays monitor signal values graphically. See the illustration below:



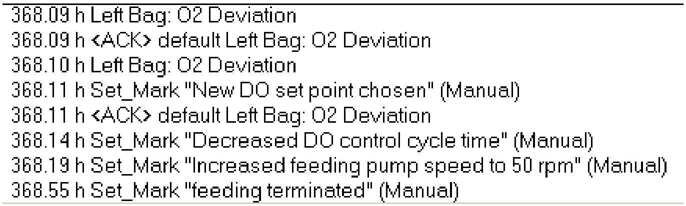
The Flow Scheme pane

The ***Flow Scheme*** is a graphical representation of the WAVE Bioreactor system. During a run, the ***Flow Scheme*** displays the system configuration and the status of the system components. Monitor signals are displayed numerically. See the illustration below:



The Logbook pane

The ***Logbook*** pane displays all recorded events during a cell cultivation run, e.g. data acquisition method start and end and manual instructions such as ***Set mark*** or ***External value***. See the illustration below:


368.09 h Left Bag: O2 Deviation
368.09 h <ACK> default Left Bag: O2 Deviation
368.10 h Left Bag: O2 Deviation
368.11 h Set_Mark "New DO set point chosen" (Manual)
368.11 h <ACK> default Left Bag: O2 Deviation
368.14 h Set_Mark "Decreased DO control cycle time" (Manual)
368.19 h Set_Mark "Increased feeding pump speed to 50 rpm" (Manual)
368.55 h Set_Mark "feeding terminated" (Manual)

The Status bar

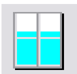
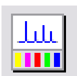
The ***Status bar*** in the bottom of the ***System Control*** module displays the current status of the cell cultivation run. See the illustration below:

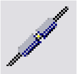
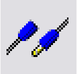
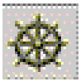
The current system status is represented by the colored dot:

- A green dot represents a running system.
- A white dot represents a system in an ***End*** state.

Toolbar icons in the System Control

The table below describes the toolbar icons in the module:

Icon	Function
Run	The ***Run*** icon starts the data acquisition from an ongoing cell cultivation run. ***Note:*** *The **Run** icon can be used only if* • *a template method has been chosen and used for a previous run, using the menu command **File:Instant Run** (or short-cut command **ctrl+I**)* *and* • *UNICORN DAQ has not been closed since the previous acquisition was ended.* *This is described further in Section 6.1 How to start the cell cultivation data acquisition, on page 96.*
End	The ***End*** icon terminates the method execution and puts the system into an ***End*** state.
	The ***Customize Panes*** icon opens the ***Customize Panes*** dialog box, which is used to select the display panes that are open.
	The ***View Documentation*** icon opens the documentation pages. Run notes can be entered in the ***Notes*** page and settings can be changed.
	The ***View Properties*** icon opens the ***Properties*** dialog box, which is used to control the data display in the ***System Control*** panes.

Icon	Function
	The ***Connect System*** icon is used to connect a WAVE Bioreactor system for data acquisition.
	The ***Disconnect System*** icon is used to disconnect the WAVE Bioreactor system.
	The ***Take Control of the System*** icon is used to leave the view mode for the system and change into a control mode, to perform manual instructions for the data collection.
	The ***Leave Control of the System*** icon is used to leave the control mode for the system and change into a view mode.

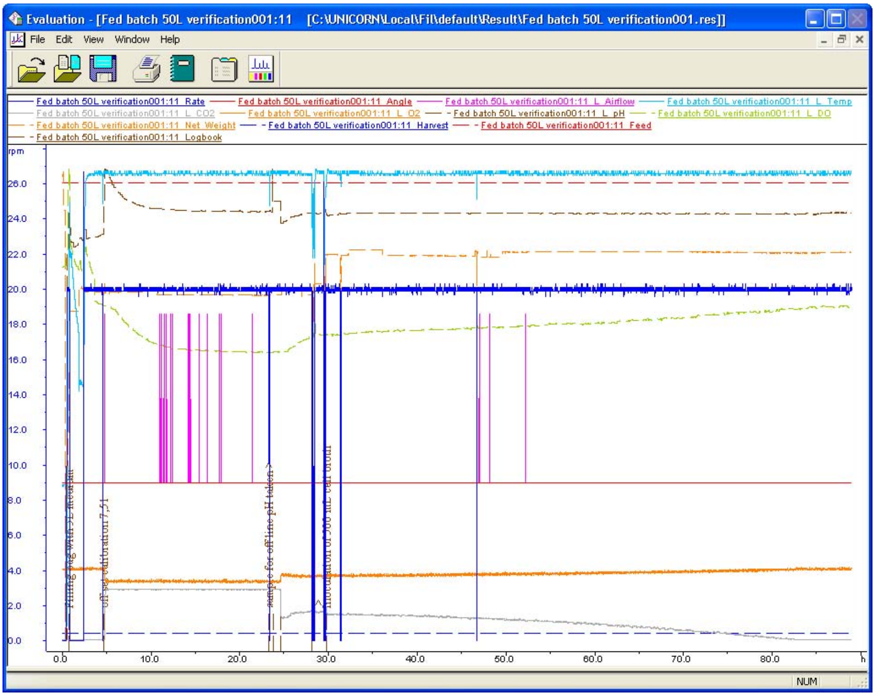
2.2.3 The Evaluation module

Introduction

The ***Evaluation*** module provides the necessary facilities to present and to evaluate curve data.

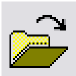
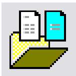
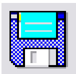
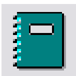
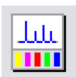
The module window

Opened result files are displayed in the ***Evaluation*** module window. See the illustration below:



Toolbar icons in the Evaluation module

The table below describes the toolbar icons in the module:

Icon	Function
	The ***Open*** icon displays all available result files and result folders in the ***Open Result*** dialog box.
	The ***Open Curves to Compare*** icon opens the ***Open Curves to Compare*** dialog box, which is used to select and open curves for comparison.
	The ***Save*** icon saves the edited result file.
	The ***Print*** icon opens the ***Print Chromatograms*** dialog box.
	The ***Report*** icon opens the ***Generate Report*** dialog box, which is used to select a report format.
	The ***View Documentation*** icon opens the ***Documentation*** dialog box, which is used to view and edit the result documentation.
	The ***Chromatogram Layout*** icon opens the ***Chromatogram Layout*** dialog box, which is used to select and format curves and display items in the chromatogram.

2.2.4 Search functions

Introduction

This section describes the general search functions that can be used to locate for example chromatograms, curves and text strings in UNICORN DAQ. These functions can be used in several program modules and dialog boxes.

Search the Folder list

The search will take place in the displayed folder only. To select another folder, click the ***Browse*** button and open the desired folder.

Search the Result list

- The search will take place in *all* result files within the selected folder as denoted by the asterisk (*). To select specific result file(s), click the ***Browse*** button and select the result file(s).
- You can use wildcard characters to search for chromatograms within result files with a specific name profile.
  - * represents any number of characters
  - ? represents any single character

Wildcard character examples:

`xyz` will search files named "xyz"

`xyz*` will search all files with names that begin with "xyz"

`*xyz` will search all files with names that end with "xyz"

`?xyz` will search only 4-character names that end with xyz

Search the Chromatogram list

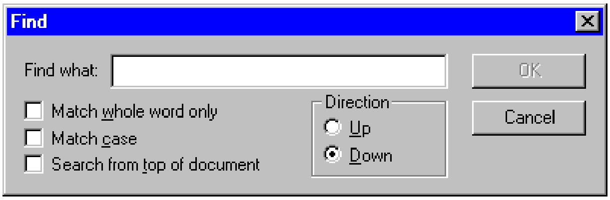
The asterisk (*) indicates that all chromatograms within a result file will be selected. Click ***Browse*** to select one or several specific chromatograms.

Search the Curve name list

The curves are identified by number. To search for all pH curves, select `*pH*` in the ***Curve name*** text field.

Find a text string

The ***Find*** command is used to search for text strings:



Field	Description
Find what	Type the text string you want to find.
Match whole word only	Select the check-box if you only want complete string matches, not partial matches.
Match case	Select the check-box if you only want matches which correspond according to upper-case and lower-case letters.
Search from top of document	Select the check-box to start the search from the top of the document, otherwise the search will start from the cursor position.
Direction	Choose whether to search upwards or downwards in the document.

Commands

Use the commands below to find more occurrences of a text string after you have found the first one:

- Press ***F3*** to search for the next occurrence of the string *or* right-click and choose ***Find next***.
- Right-click and choose ***Find previous*** to search for a previous occurrence.

General information about searches

- The default setting is to search in all result files or chromatograms.
- User-entered search filters (to a maximum of 10) will be saved in the drop-down menus for both ***Result*** and ***Chromatogram*** selections. More than one string can be used as a search delimiter (insert ";" between strings), and search filters are automatically saved and stored within user profiles.
- Click ***All*** to return to the default setting to search in all result files or chromatograms.

2.2.5 Help functions

Introduction

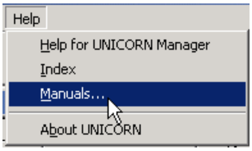
There are different ways to get help and instructions in the UNICORN DAQ application:

- From the ***Help*** menu in each module
- From the context-sensitive help in each dialog box
- By pressing the **F1** key

The Help menu

- By choosing the ***Help*** menu item from the ***Help*** menu in each module you can access the ***Help*** file.
- By choosing the ***Manuals*** menu item from the ***Help*** menu in each module you can access the installed manuals in PDF format.

The illustration below shows the ***Help*** menu of the ***UNICORN Manager*** module:



The Help file

The table below describes how to open and use the Help file:

Step	Action
1	Choose ***Help:Index***. *Result*: The Help file is displayed with the ***Index*** panel selected.

Step	Action
2	**Search for topic in the Help Index** • Type a keyword you want help on in the text box in the panel. *Result*: The alphabetically closest matches are displayed in the list. • Select a match and click the ***Display*** button. *Result*: The associated help text is displayed in the right pane. **Search for topic using text search** • Click the ***Search*** tab • Type one or more keywords you want help on in the keyword text box. *Result*: A number of topics containing the keywords are listed. • Select a match and click the ***Display*** button. *Result*: The associated help text is displayed in the right pane.
3	• You can also click the ***Contents*** tab to view the contents of the Help file divided into sections. • Click the plus signs to expand the tree structure. • Click a topic to read the associated help text.

Context-sensitive help

In each dialog box there is a ***Help*** button. If you press that button, either of the following will be displayed:

- A message box with relevant information, for example the dialog box options.
- The Help file, with relevant information displayed in the right pane.

2.2.6 Snapshots

Introduction

A ***Snapshot*** provides information about a cell cultivation run at a certain point in time. It contains monitor values at the selected point.

Snapshot functionality is available in

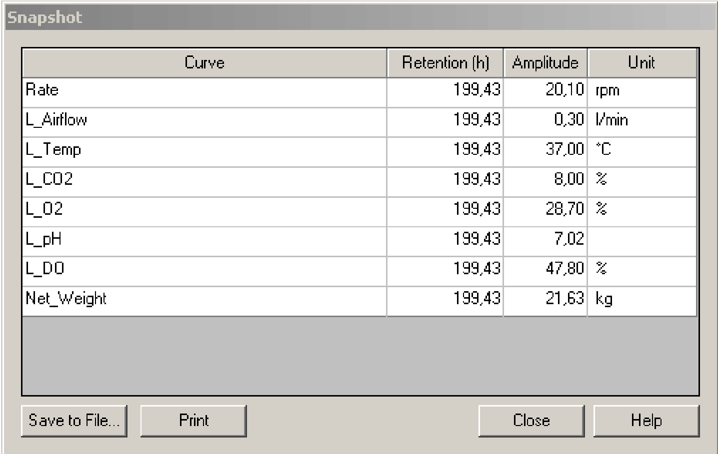
- the ***System Control*** module, where you can take Snapshots during a run using the Marker.
- the ***Evaluation*** module, where you can take Snapshots from a result file using the Marker.

How to take Snapshots during a cell cultivation run

The table below describes how to take Snapshots of the acquired data in the ***System Control*** module during a cell cultivation run:

Step	Action
1	A data acquisition is running and the ***System Control*** is displayed: • Right-click in the ***Curves*** pane and select ***Marker*** in the menu. *Result*: A vertical line is displayed.
2	Click the marker line and drag it to the desired point where you want to take a Snapshot.

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td>3</td><td>Right-click in the Curves pane and select Snapshot in the menu.
Result: The Snapshot is displayed in the Snap Shot dialog box.



</td></tr>
<tr><td>4</td><td>
Click the Save to File button if you want to save the information as an Excel file (.xls) or a tabbed text file (.txt).
You can also copy the information to the clipboard:

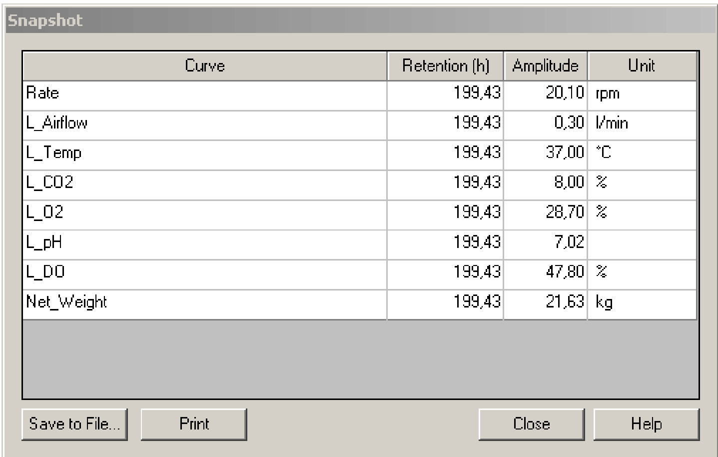
Click and drag the mouse in the table to select the information you want to copy.
Press CTRL+C.
The information can now be pasted in a text editor.

Click the Print button if you want to print the information.
Click the Close button.
</td></tr>
<tr><td>5</td><td>Repeat steps 2 to 4 if you want to view more Snapshots.</td></tr>
</table>

How to take Snapshots in the Evaluation module

The table below describes how to take Snapshots in the ***Evaluation*** module:

Step	Action
1	• Open a result file in the ***Evaluation*** module. • Right-click and select ***Marker*** in the menu. *Result*: A vertical line indicating a certain point is displayed.
2	Click the marker line and drag it to the desired point where you want to take a Snapshot.
3	Right-click and select ***Snapshot*** in the menu. *Result*: The Snapshot is displayed in the ***Snap Shot*** dialog box.



Step	Action
4	• Click the ***Save to File*** button if you want to save the information as an Excel file (***.xls***) or a tabbed text file (***.txt***). • You can also copy the information to the clipboard: - Click and drag the mouse in the table to select the information you want to copy. - Press **CTRL+C**. The information can now be pasted in a text editor. • Click the ***Print*** button if you want to print the information. • Click the ***Close*** button.
5	Repeat steps 2 to 4 if you want to view more Snapshots.

How to view recorded Snapshots

The table below describes how to view Snapshots which have been recorded during a method run using the ***Snapshot*** text instruction.

Step	Action
1	In the ***Evaluation*** module, • choose ***View:Documentation*** *or* • click the ***View Documentation*** icon. *Result*: the ***Documentation*** dialog box is displayed.
2	• Select the ***Result Information*** tab. • Select the ***Snapshots*** sub-tab. *Result*: The recorded Snapshot information for a chromatogram is displayed in a list.
3	You can • select other chromatograms in the ***Select chromatogram*** drop-down box. • select the ***Rows*** or ***Columns*** radio button to display each Snapshot as a row or a column.

Step	Action
4	To print the Snapshot information • click the ***Print*** button • select the ***Snapshot*** check box in the ***Print*** dialog box. • click ***OK***.
5	Click ***OK*** (or the ***Cancel*** button) to exit the ***Documentation*** dialog box.

2.3 Quick Start Guide

Introduction

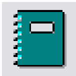
This guide is intended as a condensed instruction on how to use UNICORN DAQ 1.0 for WAVE Bioreactor and the supplied template method to monitor and acquire data from a cell cultivation, from start and ending with the optional creation of a summary report. The instructions assume that all installations were made according to the instructions, that the WAVE Bioreactor system is defined and is connected.

Quick Start instructions

The table below describes the easiest way to start data collection from the WAVE Bioreactor and generate a printed report.

Note: *This assumes that a report format has been defined and saved. If no report format is saved, you will have to proceed to create the report manually in the Evaluation module. This is described in* *Section 7.6.1 How to create and print a customized report, on page 151*.

Step	Action
1	In the ***System Control*** module: • Choose the ***File:Instant Run*** menu command *Result*: The ***Instant run*** dialog box opens.
2	• Select a system (if several WAVE Bioreactor are available). • Make sure that ***Template*** is selected. • Choose the template method in the ***Template*** list. • Click the ***Run*** button. *Result*: The ***Start Protocol*** opens.
3	• Enter information about the run in the ***Start Notes*** tab of the ***Notes*** page and click ***Next***. • Enter a result name in the ***Result Name*** page and click ***START***. *Result*: The data acquisition begins and can be monitored in the ***System Control*** module ***Curves*** pane.

Step	Action
4	Click the ***End*** icon in the ***System Control*** module to stop acquiring data from the cell cultivation. *Result*: A dialog opens asking you to confirm that you want to save the partial result.
5	Click the ***OK*** button to save the result.
6	In the ***Evaluation*** module: • Locate and select the corresponding result file in the ***Recent Runs*** list. • Click the ***Report*** icon:  • Choose a report format and click ***OK***. *Result*: The preformatted report is displayed in the ***Evaluation*** module.
7	Click the ***Print*** icon.  *Result*: The report is printed.

3 Installation

Introduction

This chapter describes how to install

- the external Converter 100 controller unit for WAVE Bioreactor systems.
- the UNICORN DAQ 1.0 for WAVE Bioreactor software.

In this chapter

This chapter contains these sections:

3.1 How to install the Converter 100

Introduction

The Converter 100 controller unit provides an interface between the WAVE Bioreactor system and the UNICORN DAQ computer where the data from the ongoing cell cultivation is acquired. It features an internal CU-960 controller unit with a Profibus interface, a standardized and efficient serial fieldbus which is optimized for process automation applications. The CU-960 is connected to two internal Modbus to Profibus adapter units, each with a special application for WAVE Bioreactor instruments.

How to connect the Converter 100

The table below describes how to connect the Converter 100.

Tip: The Converter 100 connections are described further in the *Converter 100 Instructions*, which is enclosed with the unit.

Note: *A network switch may be used if the computer is equipped with a single network interface card which is to be used both for the Converter 100 and the network connection. A network switch is also used if several Converter 100 are to be connected to a single UNICORN DAQ computer.*

NOTICE

Make sure that the UNICORN DAQ computer, all Converter 100 units and all other components are disconnected from the mains power before making the connections described below.

Step	Action
1	Connect an Ethernet cable from the Ethernet socket on the Converter 100 to the network interface card on the UNICORN DAQ computer.

Step	Action
2	Connect the WAVE Bioreactor base unit or WAVEPOD™ II to the appropriate Converter 100 port as shown in the table below:

Port	Connection
Primary	WAVEPOD II, WAVE Bioreactor 20/50, WAVE Bioreactor 200, WAVE Bioreactor500/1000.
Secondary	WAVEPOD II (second unit when a dual configuration is used)

Step	Action
3	Connect the power adaptor cable to the Converter 100, connect the mains and wait until the LEDs on the rear panel show that the Converter 100 has started. The LEDs should show, from the top to the bottom: • Power LED: On (steady light) • PC LED: Flashing • System LED: Flashing
4	Connect the mains power and start the WAVE Bioreactor system.
5	Connect the mains power and start the PC.

The LEDs on the Converter 100

There are three LEDs on the rear panel of the Converter 100, which can be in three different states:

- Off (no light)
- Flashing, with different flash rates
- On (steady light)

The table below describes what the state of each LED means.

LED	Off	Flashing	On
Power	Power off	Power on, BIT running or BIT not OK	Power on, BIT OK
PC	Power off	Power on, no PC communication	Contact with PC established
System	Power off	Power on. • Flash rate 2 Hz: No contact with WAVE Bioreactorsystem • Flash rate 0.5 Hz: No contact with Profibus system • Flash rate 1 Hz: No contact with both WAVE Bioreactor and Profibus systems	Contact with systems established

BIT = Built-in test

Note: *The system LED will flash while the system is scanning to identify all components. At the same time the run data instruments in the* ***System Control*** *module will read* ***Scanning****. When the scanning process is completed, the system LED will stop flashing and the instruments will read* ***Ready****. If any instrument component causes an error or is missing, this will be indicated in the UNICORN DAQ* ***System Control*** *module during the test.*

Connecting several WAVE Bioreactor systems

A UNICORN DAQ computer may have up to four WAVE Bioreactor systems connected locally, each with its own Converter 100. The Converter 100 can be connected via a standard network switch to a single UNICORN DAQ computer, as shown in the example below:

Example

The illustration shows three WAVEPOD II units, each connected to a WAVE Bioreactor system. Each of the WAVEPOD II units is connected to the primary port on a Converter 100. Also, a WAVE Bioreactor 200 system is connected directly to the primary port of a Converter 100. The uplink ethernet ports on the converters are connected to the network switch. The uplink port of the switch is connected to the network interface card of the UNICORN DAQ computer.

Note: *By default, the Converter 100 is set up to be the single, or the first, unit that is connected to the UNICORN DAQ computer, with the ID number 1. This ID number also determines the series of TCP ports that are used for the communication. The ID numbers and the TCP port numbers for all other converters connected via the network switch must be changed before they can be used. Contact GE Healthcare services for assistance.*

3.2 Software installation and system definition

Introduction

The instructions in this section describes how to install the UNICORN DAQ software, and how to define a WAVE Bioreactor system during the installation.

Note: *If the system is connected to the network and installed to support remote data acquisition, make sure that the same version of UNICORN DAQ is installed on all stations in the network.*

In this section

This section contains this topic:

3.2.1 Preparations before installing UNICORN DAQ

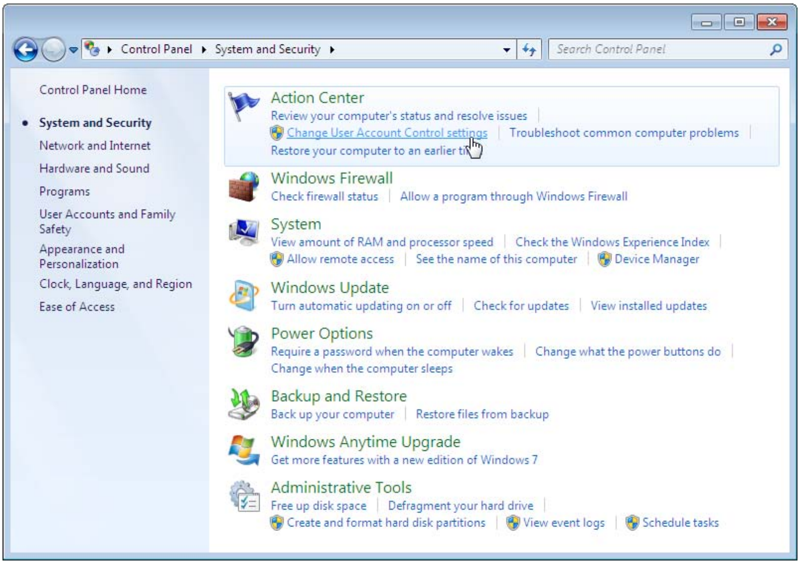
User Account Control on Windows 7

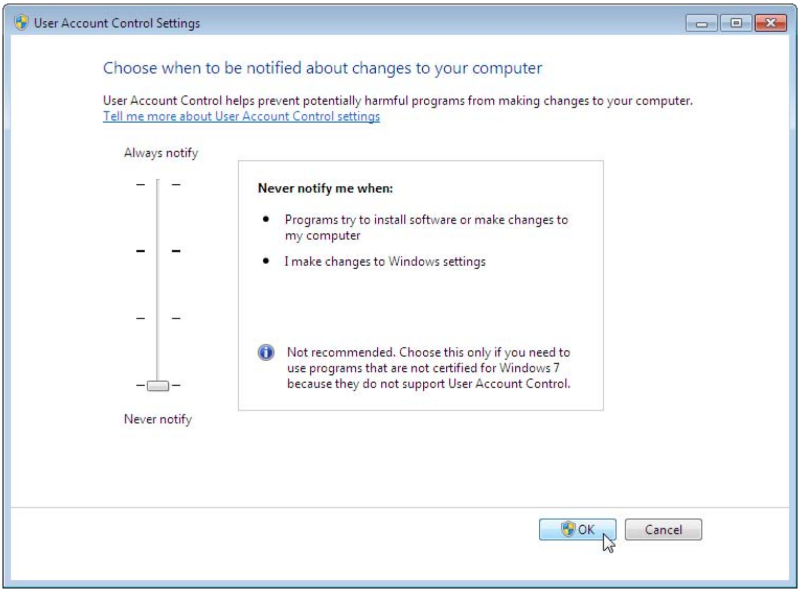
The User Account Control (UAC) feature in Windows 7 may cause problems during the UNICORN DAQ installation. If this is the case, the installation may work if the UAC is temporarily disabled. However, it is recommended that the UAC is restored immediately after the installation and system setup is completed.

Disable UAC

The table below describes how to disable the Windows 7 User Account Control feature.

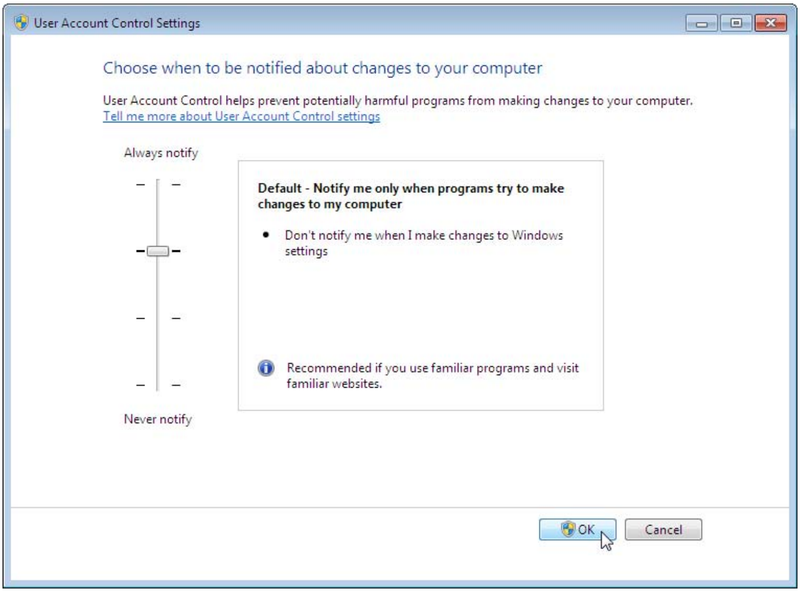
Step	Action
1	• Click the Windows ***Start*** button and • Choose the ***Control Panel***.
2	Click the ***Systems and Security*** heading.
3	Under the heading ***Action Center***, click the ***Change User Account Control settings*** option.



Step	Action
4	• Click and drag the slider control down to the position ***Never notify*** and • Click the ***OK*** button. 
5	• Acknowledge the change in the pop-up dialog, • close the Control Panel and • proceed with the UNICORN DAQ installation.

Restore UAC

After the UNICORN DAQ installation is completed, follow the instruction above again, this time to restore the UAC setting to the default state.



3.2.2 How to install UNICORN DAQ

Installation prerequisites

Before you start the installation procedure the following prerequisites have to be met:

- The operating system, Windows XP (with service pack 3) or Windows 7, must be correctly installed on your computer. See the operating system documentation for details.
- For network installations of UNICORN DAQ, the network must be correctly set up.

Installation notes

Also notice the following:

- Perform the UNICORN installation procedure on each computer in the network for a network installation.
- A warning message is issued if you install UNICORN to an existing UNICORN server. It is not possible for the Setup program to check which UNICORN version is installed on the server, so the warning is general:

  "Warning! You are installing UNICORN to an existing UNICORN server on the network. All computers connected to the same UNICORN server on the network have to be of the same version for the software to work correctly. Please check that all computers connected to the UNICORN server you are connecting to is of the correct version. If another version is detected on one of the other computers connected to the UNICORN server, those computers have to be upgraded to the same version you are currently installing."
- You can exit the installation at any point by clicking on either the ***Cancel*** button or the ***Exit*** button. If you do this, however, the installation will be incomplete and the software cannot be used.
- After the installation, the installed files are compared with the original files on the installation CD to make sure that no files have been corrupted during installation. The criteria used for the file comparison are name, size, version and checksum.

Do not copy the CD-ROM or decompress the files

UNICORN DAQ is supplied on a CD-ROM. Files on the CD-ROM are compressed and cannot simply be copied onto the hard disk. During the installation procedure, the required folder structure is created on the hard disk and the files are decompressed. Do *not* attempt to decompress the files using any other file decompression utility.

Step 1 - Insert the Setup CD

Follow the instructions in the table below to begin the installation:

Step	Action
1	For network installations, log on to the network and check that you have access to the server disk and folder where the UNICORN network components are to be installed.
2	• Insert the CD-ROM disk into the CD-ROM drive. The UNICORN DAQ Setup Program should start automatically. If not, • click the Windows ***Start*** button and select ***Run*** • type the command `d:\setup`, where `d:` is the unit for your CD-ROM drive. • click ***OK***.
3	The UNICORN DAQ Setup Program is launched. Continue the setup below.

Step 2 - Install prerequisite applications

Before the actual UNICORN DAQ installation can begin, a number of prerequisite applications must be installed if they are not previously installed. The applications are available in the folder *ISSetupPrerequistes* on the installation CD, but the installation will proceed automatically for each required application. The applications are listed in the table below.

Note: *Some of these applications will require a restart of the computer before the installations can proceed. This is noted in the table.*

When installing on...	Then the following applications are required:
Windows XP	• Microsoft Visual C++™ 2008 Redistributable Package (x86) • OPC Core Components Redistributable (x86) 101.2 • Windows Installer 4.5 for Windows XP SP2 and later (x86) *(Restart required)*
Windows 7	• Microsoft Visual C++ 2008 Redistributable Package (x86) • OPC Core Components Redistributable (x86) 101.2 • SetSystemPermissions *(Restart required)*

Note: *A version of Adobe™ Acrobat Reader™ is also distributed on the installation CD.*

Step 3 - License agreement and user information

This table describes how to complete step 3 of the UNICORN DAQ installation:

Step	Action
1	• The ***Welcome*** dialog box is displayed. • Click the ***Next*** button to continue.
2	• The ***UNICORN DAQ Software License Agreement*** dialog box is displayed. You must accept the license agreement to install UNICORN DAQ. • Click the ***Next*** button to continue.
3	• The ***User Information*** dialog box is displayed. Type your name, company and the product serial number of the software. The serial number can be found on a sticker on the back of the installation CD cover. • Click the ***Next*** button to continue.

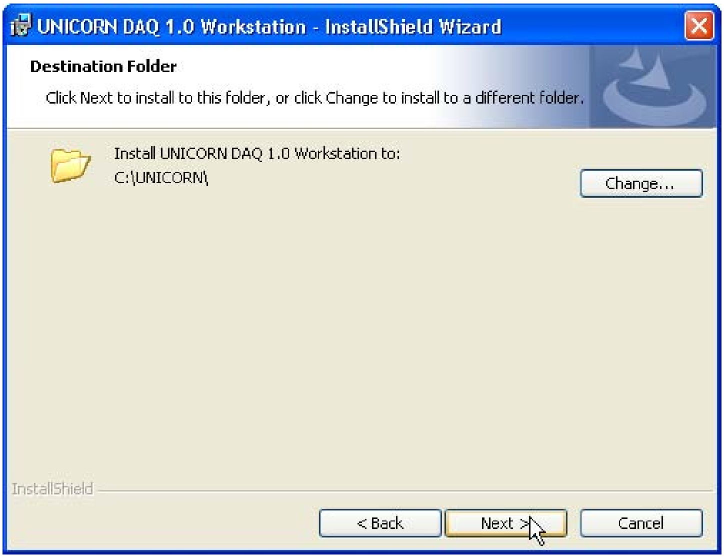
Step 4 - Select Destination Folder

In the ***Destination Folder*** dialog box you choose the installation folder for the UNICORN DAQ software. By default, this will be `C:\UNICORN\`.

- If this is suitable, click the ***Next*** button to proceed.

  or

- Follow the instruction below to choose another folder.

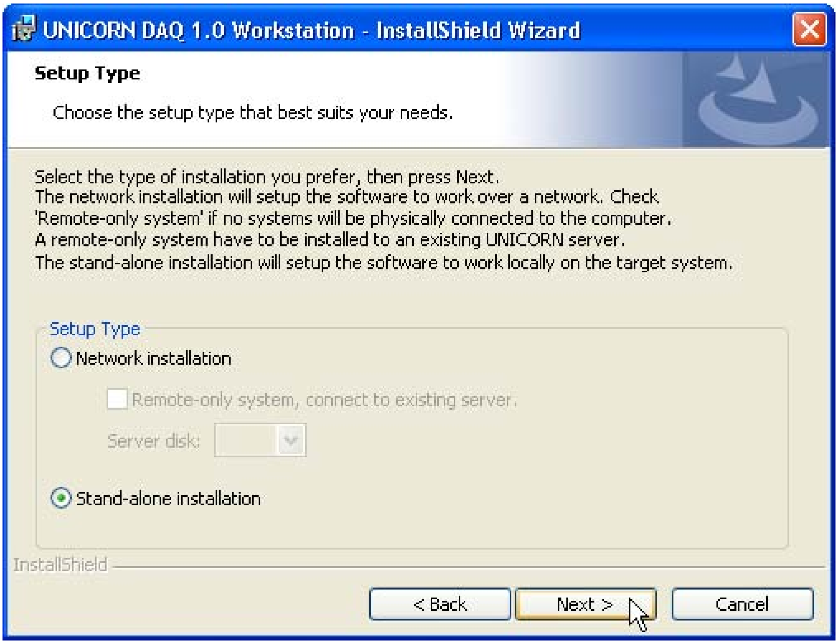


Follow the instructions in the table to select another destination folder:

Step	Action
1	Click the ***Change*** button to open a browse dialog.
2	Browse to and select the destination folder where the program is to be installed. This should be on a physical disk drive on the computer where you install UNICORN DAQ, not on a network disk drive.
3	• Click the ***OK*** button to continue. • Click the ***Yes*** button if asked whether Setup should create the UNICORN program folder.

Step 5 - Setup Type

The ***Setup Type*** dialog box is displayed:



The table below describes how to select the setup type:

Step	Action
1	You can perform either a ***Stand-alone installation*** or a ***Network installation***. More information about the network option is shown in *Network Installation* below. ***Note:*** *If you perform a stand-alone installation and later want to connect the system to a network, you must remove the current installation and install the software with the appropriate settings.*
2	When you have made your selections, click the ***Next*** button to continue.

Network installation

A network installation can be either

- a local station

or

- a remote-only system.

You have to select these disk drives in a network installation:

- A local disk for the program files

  (This was determined in step 4 when the destination folder was selected)

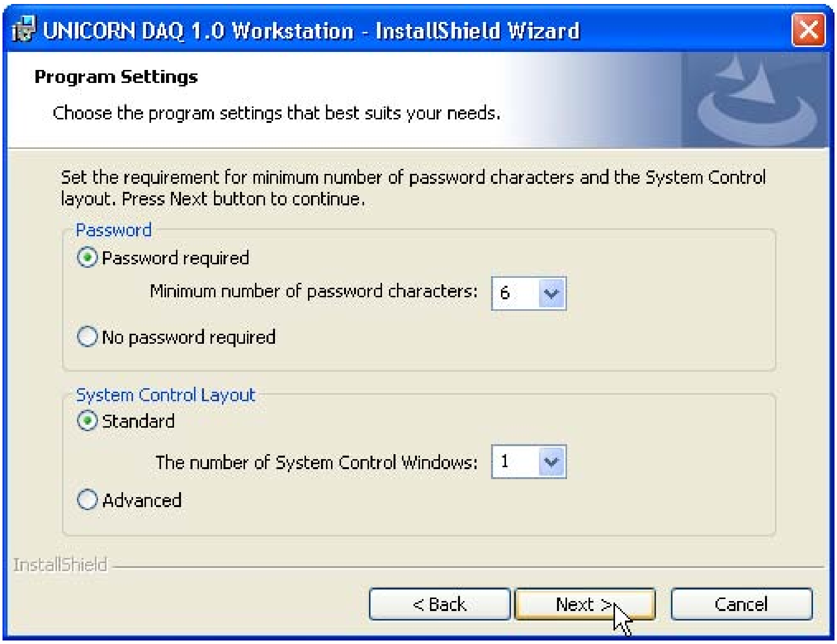
- A server disk for the server files

Select the ***Remote-only system*** check box to install a remote-only system, that being a computer to which no systems are physically connected.

Note: *When you perform a network installation, the necessary UNICORN software components will be copied automatically to the network server disk.*

Step 6 - Program Settings

Follow the instructions in the table below to set the required parameters for password and system control windows:

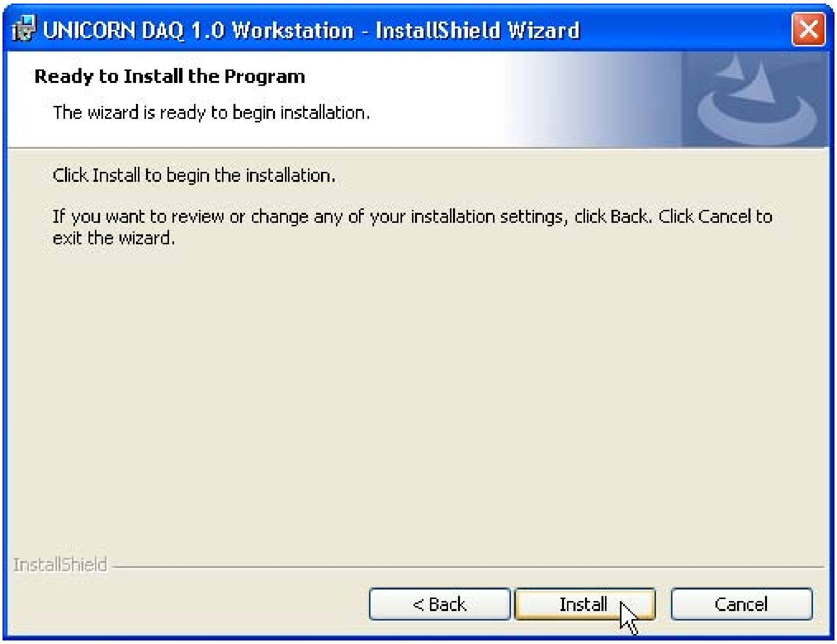


Step	Action
1	Select ***Password required*** and type the minimum number of characters required for passwords. Valid numbers of password characters are 3 -15. Select ***No password required*** if you do not require password protection. With this setting, users can be defined with or without passwords. ***Note:*** *Make sure that you enter the same password settings on each station in a network.*
2	Choose the number of ***System Control Windows*** that should be available in the installation. Maximum value is 4. or Choose the ***Advanced*** layout option for ***System Control***, where up to four WAVE Bioreactor systems can be monitored from a single ***System Control*** window. One system is viewed at a time. The system that is viewed in the ***Advanced*** layout is selected from a sidebar in the ***System Control***. ***Note:*** *This option cannot be selected if more than one type of WAVE Bioreactor instruments will be connected.*
3	Click the ***Next*** button to continue.

Step 7 - Perform the installation

The wizard is ready to perform the installation. If the settings are correct, click the ***Install*** button to copy the files.

Tip: If you want to make any changes you can click the ***Back*** button one or more times.



Note: *During the installation, traffic will be enabled on Port TCP 139 through the Windows Firewall. A warning dialog may be shown and must be accepted before the installation can be completed.*

Step 8 - Installation completed

The software installation wizard is now completed. Click the ***Finish*** button to close the wizard and re-start the computer.

Tip: Select the ***Launch Define System Wizard*** checkbox to proceed with system definitions as the next step.

Step 9 - Define system

The ***Define System*** wizard is displayed if you chose ***Launch Define System Wizard*** in the previous step.

Tip: If you choose not to define a system at this point, you can start the wizard and define a system at a later time. The wizard is started from the Windows ***Start:Programs*** menu by clicking

- ***GE Healthcare:UNICORN DAQ:Define system***

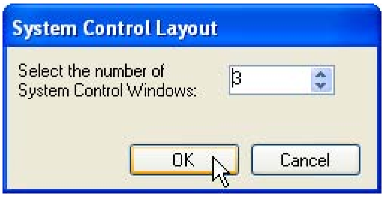
The table below describes how to define a WAVE Bioreactor system that is directly connected to the PC.

Step	Action

1

The first wizard dialog shows the number of ***System Control*** modules that have been selected in a previous installation step.

- Click the ***Change*** button to set up another number of ***System Control***.



- ***Note:*** *This option is not available if the* ***Advanced*** *layout was selected for* ***System Control****.*

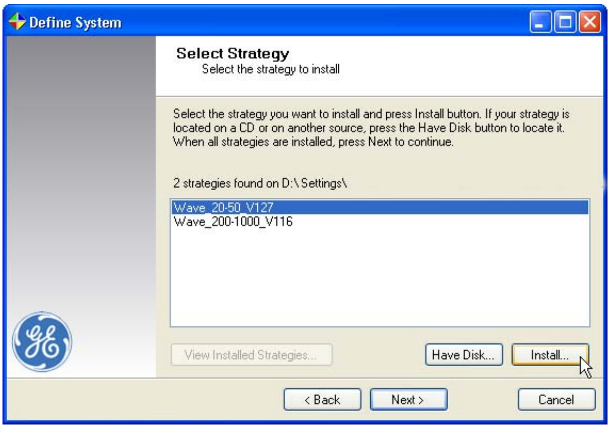
Click ***Next*** to proceed.

2

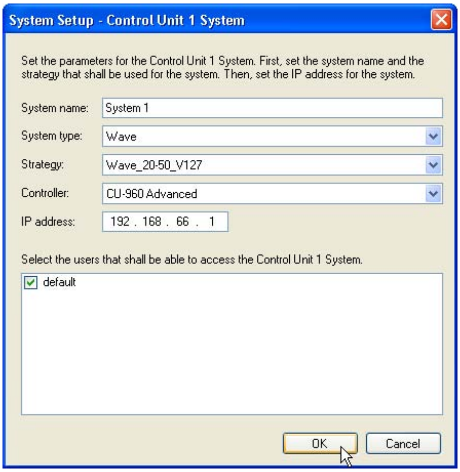
- Select the appropriate strategy for the WAVE Bioreactor system in the ***Strategies*** field.

  and

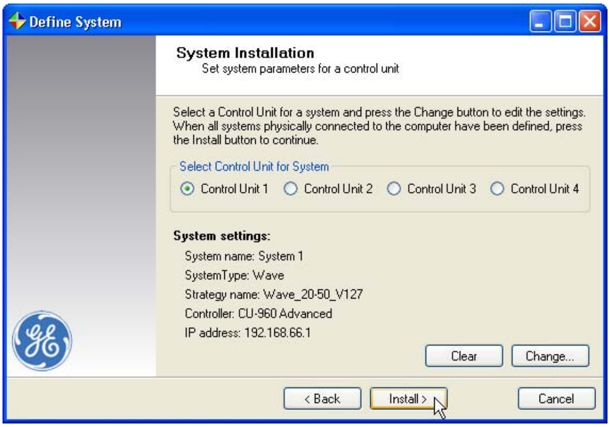
- Click the ***Install*** button



Step	Action
	Note: *If the strategy is not listed in the* ***Strategies*** *field, click the* ***Have Disc*** *button and browse to locate the strategy file on the strategy CD. Select the strategy folder and click* ***OK*** *to add the strategy to the wizard field. You will be asked to enter a name for the strategy before it is added to the list. At this point you can install all strategies that you will need if you plan to set up several different WAVE Bioreactor system types.* *The button* ***View Installed Strategies*** *will open a list of all strategies that have been installed previously.* • After installing the strategies, click the ***Next*** button to proceed. *Result:* The ***System Setup - Control Unit X System*** dialog opens.
3	• In the ***Select Control Unit for System*** field, select the control unit you wish to use for the WAVE Bioreactor system. and • Click the ***Change*** button. *Result:* The ***System Setup - Control Unit X System*** dialog opens.



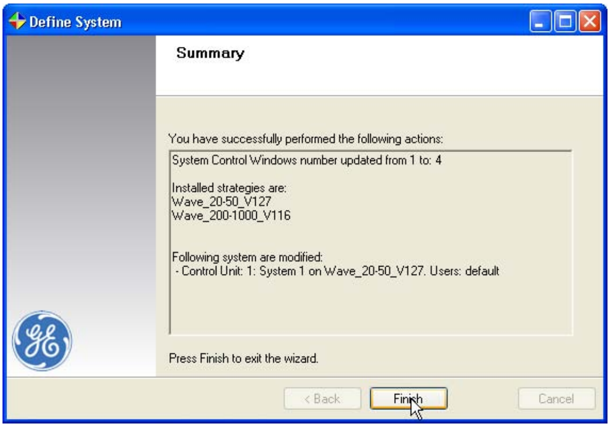
Step	Action
4	• Enter a system name in the ***System name*** field. • System type, the strategy you selected in the wizard page and the controller type will all be shown in the corresponding fields. If this is not correct, choose the appropriate entries from the menus. • Enter the IP address for the controller unit. This address is printed on the back of the unit. • Select the users that are to have access to this system. • Click the ***OK*** button to close the dialog and proceed. *Result:* The selected settings are shown in the ***System settings*** field of the wizard page.



Step	Action
5	If there is more than one system to define, repeat steps 3 to 4 for each system. ***Note:*** *By default, the Converter 100 controllers are set up to be used as* ***Control Unit 1****. If you set up more systems than one, you will need Converter 100 units which have been reset to the correct control unit number by GE Healthcare field services. The Converter 100 control unit number is written on the IP address label on the rear panel of the Converter 100.*

Step	Action
6	Click the ***Install*** button.

Result: The system is set up with the selected settings and a ***Summary*** page is displayed showing the options you have chosen. If several systems were selected all will be set up and the options are shown in the summary.



Note: *If you installed more than one system, make a note of which system is connected to which control unit. This information will be useful when you set up the system table or if you must reinstall UNICORN in the future.*

Step	Action
7	When all systems that are connected to the station have been defined, click the ***Finish*** button.

Note: *At this point, the computer will automatically reboot. A warning is displayed prompting you to shut down all other applications before acknowledging the warning. When the warning is acknowledged, the reboot will be performed.*

3.2.3 Windows 7 post-installation settings

Introduction

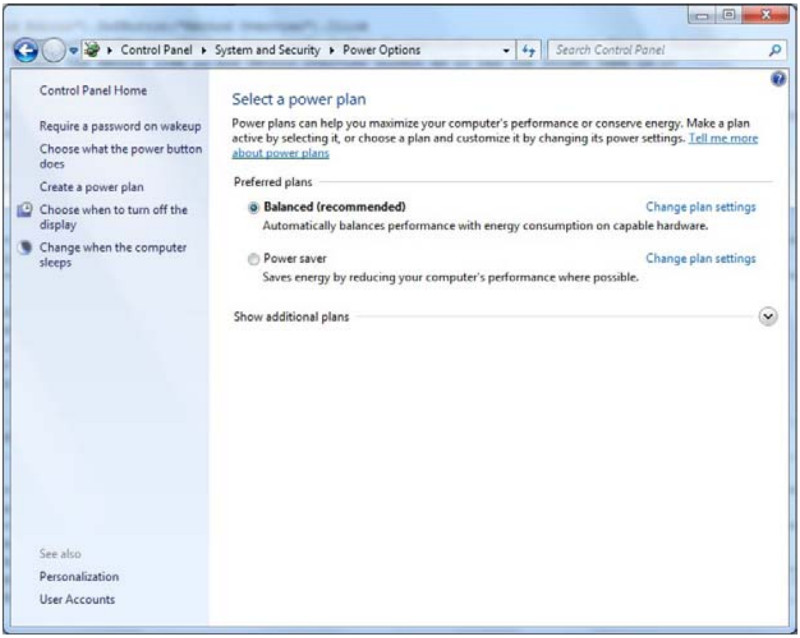
Power save settings in the default Windows 7 ***Power Options*** may interfer with the performance of UNICORN DAQ. It is essential to ensure that Windows will not put either the computer, or the computer network interface cards to sleep while a run is in progress. This section describes how to disable power save settings that are in conflict with UNICORN DAQ operations.

Disable the computer power save setting

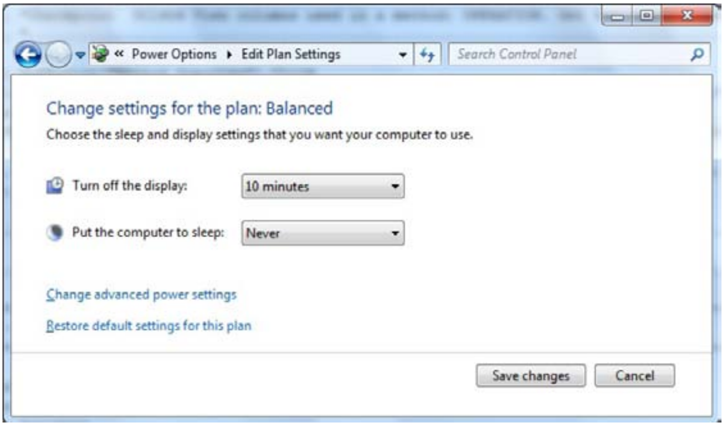
The table below describes how to disable the Windows 7 power save settings.

Step	Action
1	• Click the Windows ***Start*** button and • Choose the ***Control Panel***.
2	Click the ***Systems and Security*** heading.
3	Click the ***Power Options*** heading.

Step	Action
4	Click ***Change plan settings*** for the selected power plan.



Step	Action
5	• Choose the option ***Never*** for the setting ***Put the computer to sleep*** and • click the ***Save changes*** button.

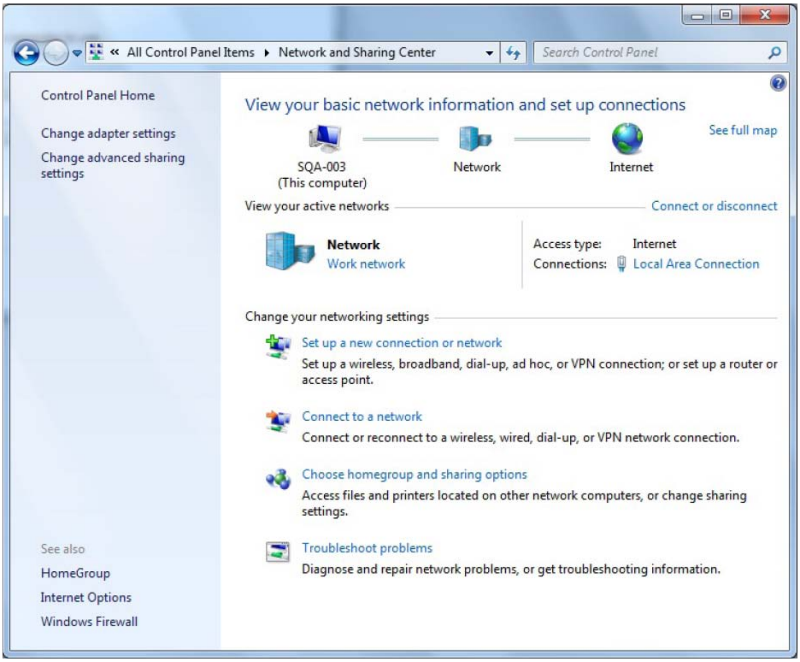


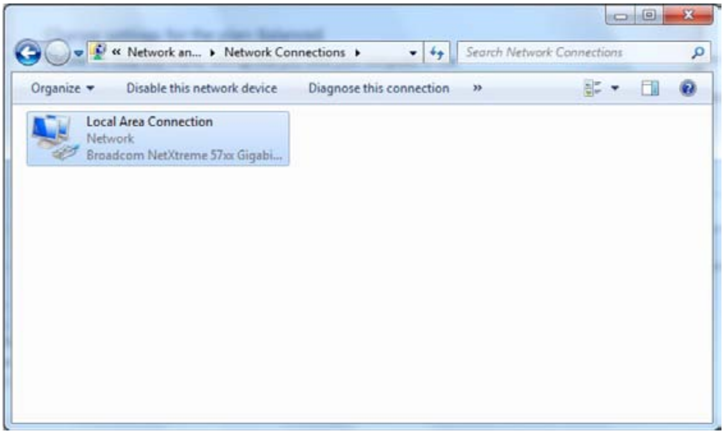
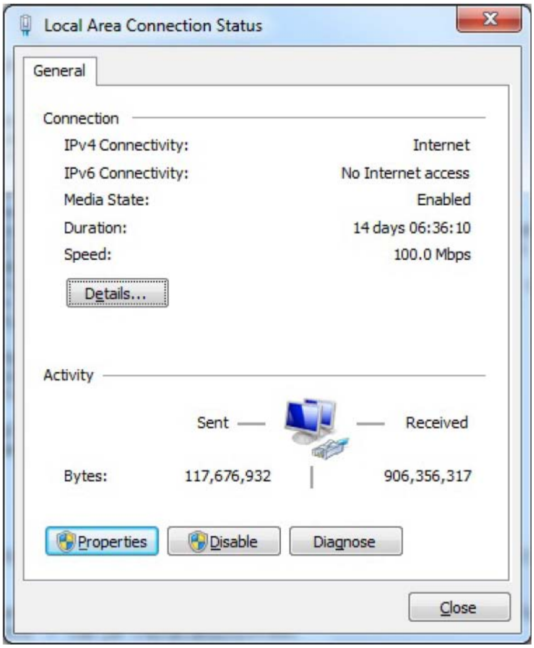
Step	Action
6	Close the ***Control Panel***.

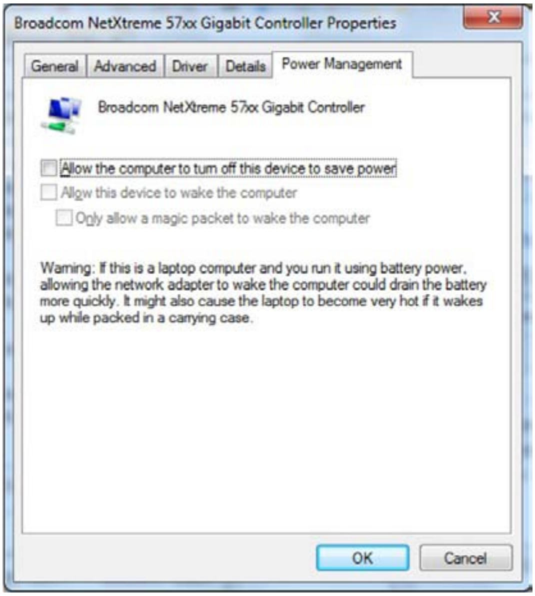
Disable the network interface card power save setting

The table below describes how to disable the network interface card power save settings.

Step	Action
1	• Click the Windows ***Start*** button and • Choose the ***Control Panel***.
2	Click the ***Network and Sharing Center*** heading. *Result:* The Network and Sharing Center opens.



Step	Action
3	Click the ***Change adapter settings*** link. *Result:* The **Network Connections** dialog opens. 
4	Double-click the network interface card you need to change. *Result:* The **Network Connections** dialog opens. 

Step	Action
5	Click the ***Properties*** button. *Result:* The ***Properties*** dialog opens. 
6	• Choose the ***Power Management*** tab, • uncheck the ***Allow the computer to turn off this device to save power*** option and • click the ***OK*** button.
7	Close all dialogs.

4 General system operations

Introduction

This chapter describes how to start the program, assign user properties and set up the system.

In this chapter

This chapter contains these sections.

4.1 Log on routines and log off routines

Introduction

This section describes how to start and quit the UNICORN DAQ program, and how to log on and log off.

Username and password

Normally the system administrator defines the users and creates your first password. The program can also be set up so you can log on without a password.

Note: *The first time after UNICORN DAQ has been installed, you need to log on as a default user and create a user profile. This process is described in* *Section 4.2 How to create a new user, on page 72*.

How to start the program

Note: *If UNICORN DAQ is already started by a previous user, proceed to How to log on.*

There are two ways to start the program:

If you start with...	Then...
a UNICORN icon on your desktop	double-click the icon 
the Windows Start menu in Windows XP	locate the program under ***All programs:Unicorn*** and click the ***UNICORN*** logo
the Windows Start menu in Windows 7	locate the program under ***All programs:Unicorn*** and click the ***UNICORN*** logo

How to log on

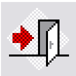
The table below describes how to log on to UNICORN DAQ.

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td>1</td><td>

- Select ***Tools:Logon*** in the ***UNICORN Manager*** module

or

- Click the ***Logon/Logoff*** icon in the ***UNICORN Manager*** module



Result: the ***Logon*** dialog box is displayed.

Note: *You do not have to perform this step if you start up UNICORN DAQ. When you start UNICORN DAQ the **Logon** dialog box is automatically displayed.*

</td></tr>
<tr><td>2</td><td>Select your username from the list.</td></tr>
<tr><td>3</td><td>Type your password (optional).</td></tr>
<tr><td>4</td><td>Click OK.</td></tr>
</table>

The program modules

The program has three modules. When you start the program and log on you work in the ***UNICORN Manager*** module. UNICORN DAQ also automatically opens the ***System Control*** and the ***Evaluation*** modules. These modules are minimized until you activate them. Up to four ***System Control*** module windows may open if UNICORN DAQ was set up to control more than one system at the installation.

Unlike other versions of UNICORN DAQ, a ***Method Editor*** module is not activated for UNICORN DAQ 1.0 for WAVE Bioreactor. A template method for data acquisition is supplied with the WAVE Bioreactor strategy and should be selected when a cell cultivation run is started, to collect data from the run in the ***System Control*** module.

Note: *If the access rights are limited to only some modules, the other modules will not open.*

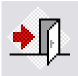
Log off after you are finished

Always log off when you leave the computer to prevent others from accidentally changing or deleting your files, or disturbing your UNICORN DAQ runs. There are two ways to log off in the ***UNICORN Manager***:

- Select ***Tools:Logoff***

or

- Click the ***Logon/Logoff*** icon.



Note: *In case your access to the **UNICORN Manager** is restricted you will still be able to log off.*

Unlocked Log off

It is not recommended that you log off and leave a running UNICORN DAQ system unlocked. This means that another user may accidentially interrupt the data collection of the cell cultivation in progress.

Automated workstation lock or logout

The system administrator may set an automatic workstation lock or log off after a specified time for a user. If there are no keyboard entries or mouse movements within the time limit, the workstation will be locked or logged off.

Note: *A locked workstation can be activated again only by the previous user if the regular log in password is entered. If another user wants to log on and use the workstation the previous user can be logged off without entering the correct password. The previous user's files will be closed and the new user will only have access to his own files.*

Systems locked by other users

You can unlock a system that has been locked by another user if you have the correct password.

You may still be able to unlock a system even if you do not have the password. Any user with ***Unlock locked systems*** authorization can override another user's lock by entering his or her own logon password. However, it is recommended that this authorization is limited to only a few users.

How to quit UNICORN DAQ

UNICORN DAQ will still be open after you have logged off. To close the program you must log in again and quit UNICORN DAQ (you cannot quit the program if you are not logged in). The table below describes how to do this.

Step	Action
1	• Select the ***File:Quit Program*** menu command in the ***UNICORN Manager*** module. *or* • Click the close icon in the top right-hand corner of the program window. *Result*: A confirmation box opens.
2	Click ***Yes*** to confirm that you want to quit.
3	A ***Warning*** opens if you have any unsaved data in the ***Evaluation*** module. • Click ***Yes*** to continue to close the program. Your unsaved data will be lost when the program is closed. • Click ***No*** to return to the program and save your data.

Note: *Do not shut down Windows or turn off the computer if you quit UNICORN DAQ while a cell cultivation run is in progress.*

In case your access to the ***UNICORN Manager*** is restricted you will still be able to quit the program.

4.2 How to create a new user

Introduction

This section describes how to create a new user and assign a home folder for the user's methods and results.

Default user

A default user is created when the system is installed. The default user has unrestricted access to all UNICORN functions. You log on with this profile when you access a newly installed system for the first time.

The table below describes how to log on as the default user.

Step	Action
1	Select user ***default*** from the user drop-list.
2	Type password `default` if necessary. *Note*: The ***default*** user is the only user that is allowed to use the user name as password.
3	Click ***OK*** or press the ***Enter*** key.

Note: We recommend that the default user is deleted when regular user profiles are created.

How to open User Setup

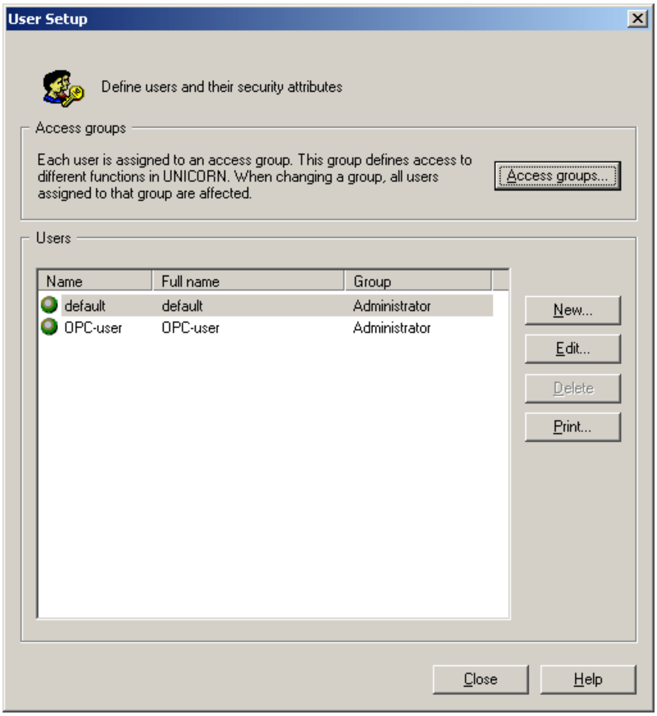
All user administration is performed in the ***User Setup*** dialog box in the ***UNICORN Manager*** module. It is accessible only to authorized users (and the default user).

User Setup is found on the ***Administration*** menu.

- Choose ***Administration:User Setup***.

The User Setup dialog box

The illustration below shows the ***User Setup*** dialog box.



How to create a new user

The table below describes how to create a new user.

Step	Action
1	Click the ***New*** button in the ***User Setup*** dialog box. *Result*: The ***Create New User*** dialog box opens.
2	Enter a user name in the ***User name*** text box.
3	Enter the full name of the user in the ***Full name*** text box.
4	Enter the job position of the user in the ***Position*** text box.
5	Select or create a ***Home folder***: • Select a ***Drive*** and a folder from the ***Name*** drop-list and proceed to step 9. or • If you need to create a new home folder, proceed with step 6.
6	Click ***New***. *Result*: the ***Create New Folder*** dialog box opens.
7	Select a ***Drive*** and type a folder name.
8	Click ***OK*** to create the folder and return to the ***Create New User*** dialog box.
9	Click ***OK***. *Result*: The new user is created and added to the ***User Setup*** list.
10	• Click ***Close***. or • Click the ***New*** button and repeat steps 1 - 9 to create more users.

Home folders

Each user must be assigned to a home folder. The ***Default*** folder can be used if you do not want to assign an individual home folder.

Note: *If you create a home folder on the C: (local) drive it will not be accessible from other computers. If you select a network, make sure that is addressed by the same drive letter from all computers in the network.*

4.3 How to change your passwords and user attributes

Introduction

Every user can change his or her passwords and some user attributes even if user administration is handled exclusively by the system administrator. The changes are made in the ***UNICORN Manager***.

How to change passwords

The table below describes how to change your logon and signature passwords.

Step	Action
1	Select ***Administration:Change Password***. *Result*: The ***Change Password*** dialog box opens.
2	Type your old logon password in the ***Old*** text box. ***Note:*** *Your passwords will only be shown as asterisks.*
3	Type a new password in the ***New*** text box.
4	Repeat the new password exactly in the ***Confirm*** text box.
5	Repeat steps 2 to 4 in the ***Signature password*** section if necessary.
6	Click ***OK***.

About passwords

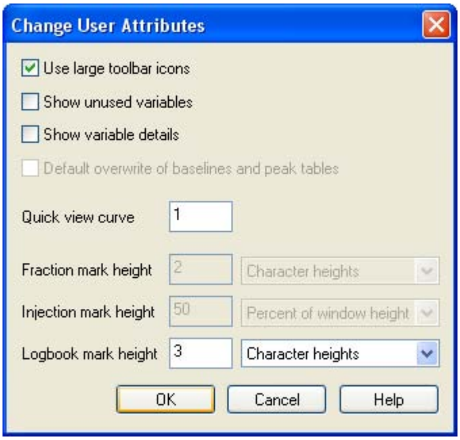
The list below is a summary of facts and advice about UNICORN DAQ passwords:

- The system can be set up to operate without required passwords.
- The minimum number of password characters is set up at installation.
- Passwords can be any combination of letters and numbers.
- Passwords are case sensitive.
- Avoid using obvious passwords, e.g. your username, your telephone number, etc.
- The settings in the ***User properties*** determine the expiration for a password. Change passwords regularly even if your user profile is set up without password expiration.

How to change user attributes

The table below describes how to change your user attributes.

Note: *Some items that are not applicable for UNICORN DAQ are grayed out and cannot be selected.*

Step	Action
1	Select ***Administration:Change User Attributes***. *Result*: The ***Change user attributes*** dialog box opens. 
2	**Dialog check box options** The dialog check box options are described below: • ***Use large toolbar icons*** Display large toolbar icons in all modules. • ***Show unused variables*** Show variables that are not used in the method on the ***Variable*** page of the ***Start Protocol***. (Not applicable for UNICORN DAQ) • ***Show variable details*** Show detailed method variables on the ***Variable*** page of the ***Start Protocol***. (Not applicable for UNICORN DAQ)

Step	Action
3	**Mark heights** Select a size definition and type the height for the following marks: • Logbook mark
4	Click ***OK***.

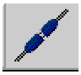
4.4 How to connect to the WAVE Bioreactor

Introduction

A computer can have up to four WAVE Bioreactor systems connected at a time. This section describes how to connect to the systems, and different connection modes.

How to establish a connection

The table below describes how to connect a WAVE Bioreactor system that is locally connected to your computer.

Step	Action
1	Open a ***System Control*** module. **Note:** *Each UNICORN installation may have up to four System Control modules. The number of modules are selected when the software is installed.*
2	• Select the ***System:Connect*** menu command. or • Click the ***Connect to system*** toolbar icon.  *Result*: The ***System Connect*** dialog box opens.
3	Select the system you want to connect.
4	Click ***OK***.

Remote connections

Each computer workstation may have up to four WAVE Bioreactor systems connected locally. In a network installation you may connect a system that is physically connected to another computer, the local station. Your system is then a remote station.

The local station that is connected to the WAVE Bioreactor system must be logged on to the network and the UNICORN drivers must be running. However, the connection will work even if the UNICORN program is not running on the local station.

4.5 How to back up and restore system data

Introduction

You can create a backup file with system information and store it on a USB memory or another drive. The backup file will contain information about

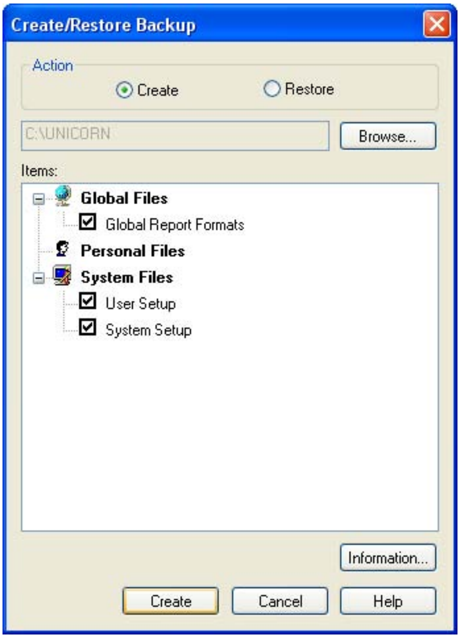
- Global Files
- Personal Files
- System Files

Afterwards you can use the backup file to restore the system definitions in case they are corrupted.

How to create a backup file

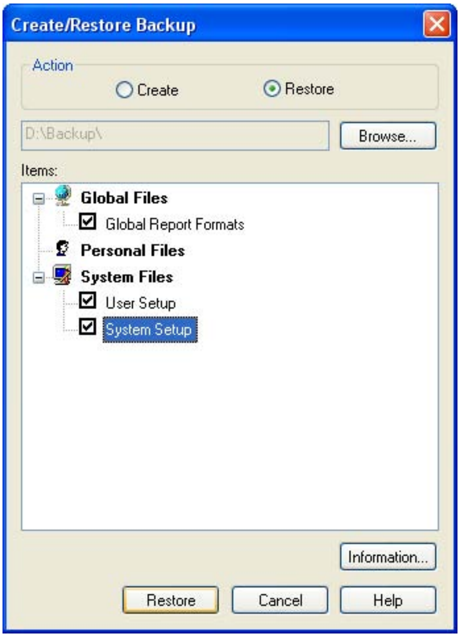
The table below describes how to create a backup file and store it for example on a USB memory:

Step	Action
1	Insert a USB memory into the computer if you want to store the backup file on a USB memory.

Step	Action
2	Choose ***Administration:Create/Restore Backup*** in the ***UNICORN Manager*** to display the ***Create/Restore Backup*** dialog box: 
3	• In the ***Action*** field, make sure that the ***Create*** option is selected. • Click the ***Browse*** button to select where to store the backup file. • In the ***Items*** field, select which information to include on the backup file. • Click the ***Create*** button to create the backup file and store it in the selected location. ***Note:*** *You can click the **Information** button to see which information files will be included in the backup file.*

How to restore the system data

The table below describes how to restore the system data from a backup file, located for example on a USB memory:

Step	Action
1	If the backup file is located on a USB memory, insert this into the computer.
2	Choose ***Administration:Create/Restore Backup*** in the ***UNICORN Manager*** to display the ***Create/Restore Backup*** dialog box: 
3	• In the ***Action*** field, select the ***Restore*** option. • Click the ***Browse*** button to select the folder where the backup file is located. • In the ***Items*** field, select which information to include from the backup file. • Click the ***Restore*** button to restore the system definitions. ***Note:*** *You can click the **Information** button to see which information files are included in the backup file.*

4.6 How to set up a printer

Introduction

UNICORN DAQ uses the default printer and printer settings that are installed on your computer. You can change your printer by changing the default Windows settings, but you can also set up a printer in UNICORN DAQ for the current working session.

How to set up a printer

The table below describes how to set up a printer in UNICORN DAQ.

Step	Action
1	Select the ***File:Printer Setup*** menu command in the ***UNICORN Manager*** module. *Result*: The ***Print Setup*** dialog box opens.
2	Select a printer from the ***Name*** drop-down box.
3	Change all printer ***Properties*** as necessary.
4	Change ***Paper*** and ***Orientation*** settings as necessary.
5	If you wish to access a network printer that is not shown in the ***Name*** drop-down box: • Click the ***Network...*** button *Result:* The ***Connect to Printer*** dialog box opens. • Locate and select the network printer by browsing the network in the ***Shared printers*** field. • Click ***OK*** to select the printer and close the ***Connect to Printer*** dialog box.
6	Click ***OK*** in the ***Print Setup*** dialog box to complete the setup.

Note: *To save created reports electronically you can select to print the files in PDF-format. To be able to do this you must have a full version of Adobe™ Acrobat™ installed and select PDF Writer or Distiller™ in the* ***Printer Setup****. Other compatible PDF software will serve the same purpose.*

5 Files and folders in UNICORN DAQ

Introduction

All UNICORN DAQ data is organized in files and folders. Files and folders are handled like in any other Windows application, with some exceptions. This chapter describes how to work with UNICORN DAQ files and folders, with the focus on the topics that are specific for UNICORN DAQ.

In this chapter

This chapter contains these sections.

5.1 How to create folders

Introduction

This section describes how folders are organized in UNICORN DAQ and how to create a new user-specific folder for the user's results.

UNICORN folders

The files and folders are displayed in the ***UNICORN Manager***.

- The result files and folders are listed in the ***Results*** window.
- You can only see folders that you have access to.

How to create a user-specific folder

The table below describes how to create a user-specific folder.

Step	Action
1	Select the ***Results*** window you want. (*Result*: The window title bar is highlighted.)
2	• Select ***File:New:Folder***. *or* • Right-click and select the ***New Folder*** shortcut. *Result*: The ***Create New Folder*** dialog box opens.
3	Type a name for the new folder.
4	Click ***OK***.

5.2 How to open and preview files

Introduction

This section describes how to open your saved result files. You can also preview your result files to identify the correct file before you open it.

How to open a result file in UNICORN Manager

You can open a result file in the ***UNICORN Manager*** module. Click the file in the ***Results*** window to select it and

- choose ***File:Open***.

  or

- right-click the file and choose ***Open*** from the short-cut menu.

  or

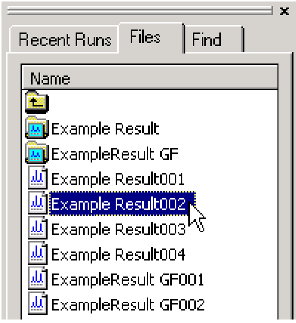
- double-click the file.

Result: The file is opened for editing in the ***Evaluation*** module.

How to open a result file in the Evaluation module

The table below describes how to open a result file from the ***File Navigator*** in the ***Eval-uation*** module.

Step	Action
1	• Click the ***Files*** tab.

Step	Action
2	• Locate and double-click the result file  *Result*: The result file opens.

Note: *The **File Navigator** opens by default in the **Evaluation** module. If it has been closed, select **View:File Navigator** in the **Evaluation** module.*

*The **File Navigator** is described further in Section 7.2 How to use the File Navigator, on page 124.*

Quick View

Quick View is a preview function for result files to make it easier to select the correct result file.

You can preview the first curve in the first chromatogram. You can also select to view another curve as default by selecting another curve number in your ***User Attributes*** settings, see *Section 4.3 How to change your passwords and user attributes, on page 75*. Several files can be opened for comparison.

How to use Quick View

The table below describes how to preview result files in Quick View.

Step	Action
1	Select one or more result files in the ***Result*** window of the ***UNICORN Manager***.

Step	Action
2	• Choose ***File:Quick View***. *or* • Right-click and choose ***Quick View*** from the short-cut menu. *Result*: The ***Quick View*** dialog box opens.
3	• Click the ***Next*** and ***Previous*** buttons to move between the result files (if more than one is selected). *Result*: The result file that is displayed in the dialog box opens in the ***Evaluation*** module.

5.3 How to arrange and locate your files

Introduction

This section describes how to arrange the way the files are displayed in your UNICORN DAQ workspace and how to locate files through a search.

Different view modes

You can choose how the files and folders are displayed in the ***UNICORN Manager*** windows. The options are the standard Windows alternatives:

- Details
- List
- Large icons
- Small icons.

How to change the view mode

If you want to change the view you either:

- Select ***View*** and the option that you want,

  or

- Right-click and select ***View*** and the option that you want from the shortcut menu.

Sort order in detailed view

The files can be sorted in a different order when a window is displayed in detailed view. The table below shows the options.

Sorted by:	Order
Name	Alphabetical order or reverse alphabetical order.
Size	Smallest or largest files first.
Type	Alphabetical order of file extension type.
Modified	Most recently modified files first.
Created	Most recent creation dates first.

How to change the sorting order

Select one of the methods below to change the sorting order:

- Select ***View:Sort*** and the option that you want,

  or

- Right-click and select ***Sort*** and the option that you want from the short-cut menu.

  or

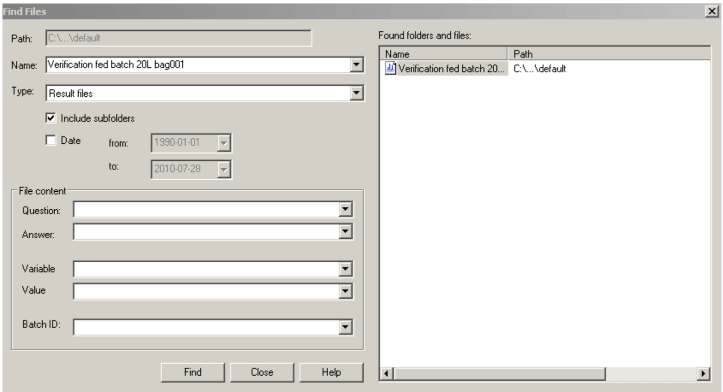
- Click the column header for the option that you want to sort by (a second click on the same header will reverse the order).

Note: *Only the currently active window is affected.*

How to find files

The table below describes how to perform a search for files.

Step	Action
1	Click the ***Results*** window and: • Select the ***File:Find*** menu command. or • Right-click and select ***Find*** from the shortcut menu. *Result*: The ***Find files*** dialog box opens.



Step	Action
2	Add search criteria to the dialog box, for example: • Type a name in the ***Name*** field. • Select a file type from the ***Type*** drop-down box. • Select if the search should include subfolders. • Select date limits in the ***Date*** drop-down boxes. • Type text strings to match ***Question*** or ***Answer*** texts. • Type a variable name and, if desired, a value. • Type a ***Batch ID***.
3	Click ***Find***. *Result*: The search results are listed in the ***Found folders and files*** field. The search is limited to the folder (including its subfolders) that is currently displayed.
4	Double-click a file in this list. *Result*: The dialog box is closed and the selected file is highlighted in the ***UNICORN Manager*** window. ***Note:*** *If you click **Close** you will return to the **UNICORN Manager** window with no file highlighted regardless if you have selected one in the dialog box or not.*

5.4 How to copy, delete, rename and backup files and folders

Introduction

UNICORN DAQ has some file and folder handling functions that are slightly different from the general Windows functions. This section focuses on the differences.

Note: *You need explicit authorization in your user profile to copy, move and delete files.*

How to copy or move files and folders

There are some restrictions to how you can copy or move files and folders:

- Files and folders can only be copied or moved to folders that are specific to your user name.
- You can also copy files to and from the folders that you have access to on the network.

If you copy a folder you will also at the same time copy all files and folders that it contains. The table below describes how to copy files and folders.

Note: *Follow the same steps but select* **Move** *to move files and folders.*

Step	Action
1	Select one or more files and folders in the ***Results*** window of the ***UNICORN Manager***.
2	• Select ***File:Copy***. *or* • Right-click and select ***Copy*** from the short-cut menu. *Result*: The ***Copy*** dialog box is opened.
3	Select a target folder or USB memory.
4	Click ***OK***.

The function Copy to External

Use the function ***Copy to External*** when you need to copy files and folders outside of your own user folders, for example to a USB memory.

How to Copy to External

The table below describes how to use the function ***Copy to External***.

Step	Action
1	Select the file you want to copy.
2	• Select ***File:Copy to External***. *or* • Right-click and select ***Copy to External*** from the shortcut menu. *Result*: The ***Copy to External*** dialog box opens.
3	Select the destination drive and folder.
4	Click the ***Save*** button.

The function Copy from External

The function ***Copy from External*** can be used to import files and folders. If the files were saved using the function ***Copy to External*** they will automatically be decompressed.

How to use Copy from External

The table below describes how to use the function ***Copy from External***.

Step	Action
1	Select a destination folder in the ***Results*** window.
2	• Select ***File:Copy from External***. *or* • Right-click and select ***Copy from External***. ***Note:*** *Do not select a file icon.* *Result*: The ***Copy from External*** dialog box opens.

Step	Action
3	Select the files you want to copy.
4	Click ***Save***. *Result*: • Result files are copied into the designated folder in the ***Results*** window.

How to rename files and folders

The table below describes how to rename files and folders in the ***Results*** window in the ***UNICORN Manager*** module.

Step	Action
1	Select the item that you want to rename.
2	• Select ***File:Rename***. or • Right-click and select ***Rename*** from the shortcut menu. *Result*: The ***Rename*** dialog box opens.
3	Type a new name.
4	Click ***OK***.

How to delete files and folders

The table below describes how to delete files and folders in the ***Results*** window in the ***UNICORN Manager*** module.

Note: *Home folders cannot be deleted this way.*

Step	Action
1	Select the item that you want to delete.

Step	Action
2	• Select ***File:Delete***. or • Right-click and select ***Delete*** from the shortcut menu. or • Press the ***Delete*** key.
3	Confirm the delete action in the confirmation dialog box

Backup security

Backup copies should be taken regularly to avoid data loss in the event of hard disk failure or accidental deletion. You can use the function ***Copy to External*** to save your files on the network server.

Note: *GE Healthcare cannot accept responsibility for the replacement of results that were lost as a result of computer failure or other incidents.*

6 How to monitor and acquire data from cell cultivation runs

Introduction

This chapter describes how to monitor and perform data acquisition from cell cultivation runs from the ***System Control*** module. It also describes how to perform manual commands. Note that the UNICORN DAQ software cannot be used to control but only to monitor the operation of the WAVE Bioreactor system, and to collect result data.

In this chapter

The chapter contains these sections:

6.1 How to start the cell cultivation data acquisition

Before you start

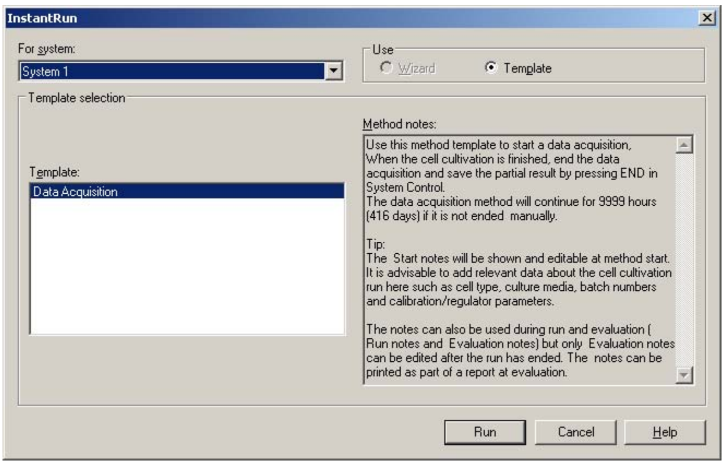
Before you start a data acquisition, make sure that

- the correct system is connected in control mode
- the correct system for the data acquisition is selected in the system selector of the ***System Control*** module
- the system is prepared according to the system user manual

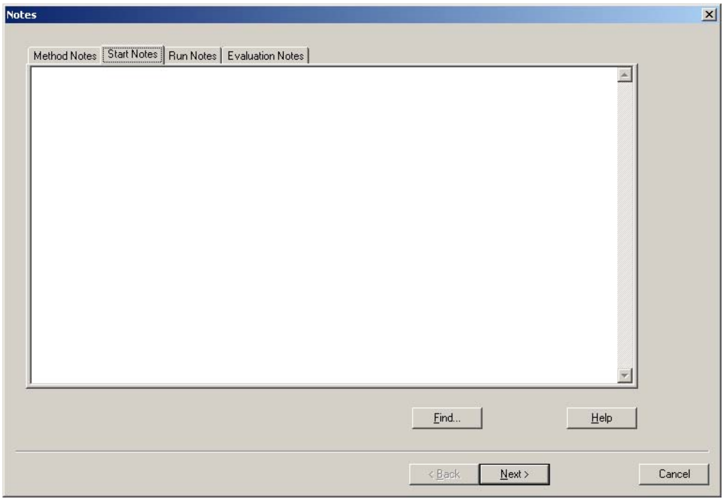
How to start the data acquisition

The table below describes how to start a method run from ***System Control***:

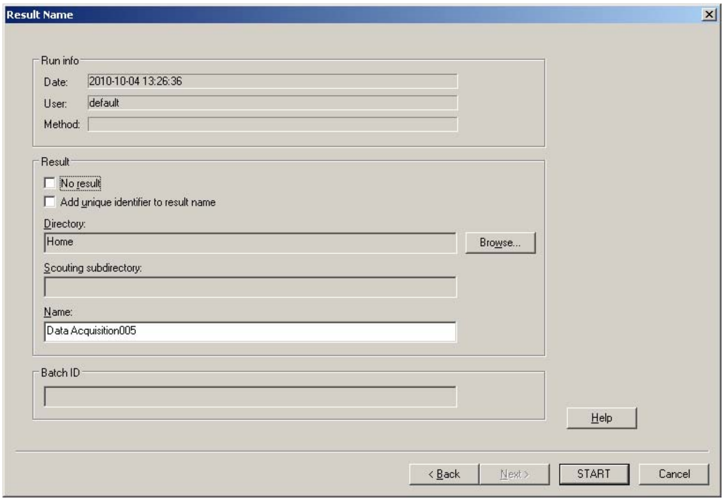
Step	Action
1	• Select ***File:Instant Run*** or • click the ***Run*** button. ***Note:*** *You can only use the **Run** button to start the data acquisition if a run has been performed earlier on the system and you have not logged out since then.* *Result:* The ***Instant Run*** dialog box is displayed.



Step	Action
2	• Select a system (if several WAVE Bioreactor systems are available). • Make sure that ***Template*** is selected. • Choose the template method in the ***Template*** list.
3	Click the ***Run*** button. *Result*: The ***Start Protocol*** opens with the **Note**s page and the ***Start Notes*** tab selected.



Step	Action
4	• Enter information about the data acquisition and • click the ***Next*** button to proceed. *Result*: The ***Result Name*** page opens.



Step	Action
5	• Choose a directory where the result will be saved, • enter a ***Name*** for the result, and • click the ***START*** button. *Result*: UNICORN DAQ starts monitoring the data from the current cell cultivation run.

Tip: In the ***Result*** field of the ***Result Name*** page, you can select the option to let UNICORN DAQ add a unique identifier number to your result name. You can use the same name for a series of runs, with each individual result designated by the identifier number.

You can choose the option of performing data acquisition without generating a result file.

Tip: When the data acquisition is in progress, you may want to create a reference curve using data that you enter manually. This is described in *Section 6.3.2 Manual instructions, on page 116*.

Notes

The ***Start notes*** will be shown and editable at the method start. It is advisable to add relevant data about the cell cultivation here, such as cell type, culture media, batch numbers and calibration/regulator parameters.

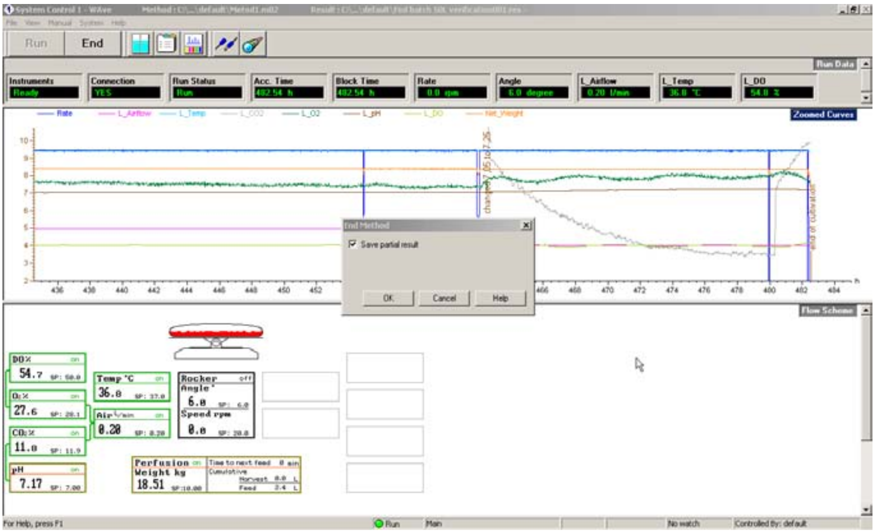
The notes can also be used during run and evaluation (***Run notes*** and ***Evaluation notes***) but only ***Evaluation notes*** can be edited after the run has ended.

Notes are not automatically added as ***Logbook*** entries. To create entries that will be registered in the Logbook, you must use the ***Set_Mark*** instruction. This is described in *How to enter a Set_Mark instruction, on page 117*.

How to finish the data acquisition

Press the ***End*** button to finish the data acquisition.

A dialog will open, asking if you will save a partial result from the data acquisition. It is essential to save the data at this point, otherwise it will be lost.



6.2 How to set up UNICORN DAQ to monitor the cell cultivation

Introduction

This section describes how to set up the ***System Control*** to acquire data from the cell cultivation and how to customize the different panes.

In this section

The table shows the topics that can be found in this section.

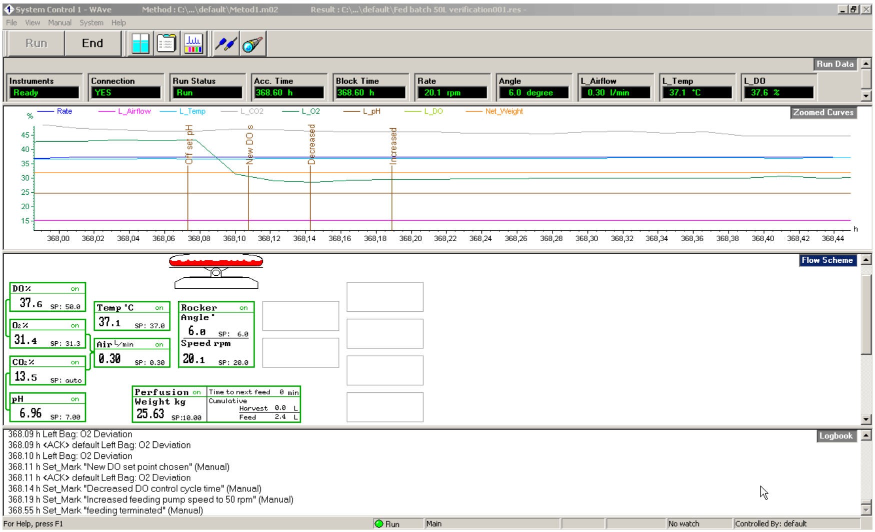
6.2.1 How to customize System Control panes

Introduction

The ***System Control*** module displays the status of the current system. On the Windows taskbar, there may be up to four ***System Control*** modules available that can be connected to different systems. Separate systems may be monitored independently of each other.

Illustration

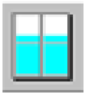
The illustration shows the ***System Control*** module with the ***Run Data***, ***Curves***, ***Flow scheme*** and ***Logbook*** panes displayed.



How to select what panes to display

Each ***System Control*** module displays up to four panes for monitoring different aspects of the run. To select what panes to display, either

- click the ***Customize Panes*** icon,

  or

- choose ***View:Panes***.

How to customize System Control panes

Change the size

Select a split-bar and drag up and down to change the size of a specific pane.

Maximize, restore or hide

Right-click a pane and select the appropriate option to:

- maximize,
- restore

  or

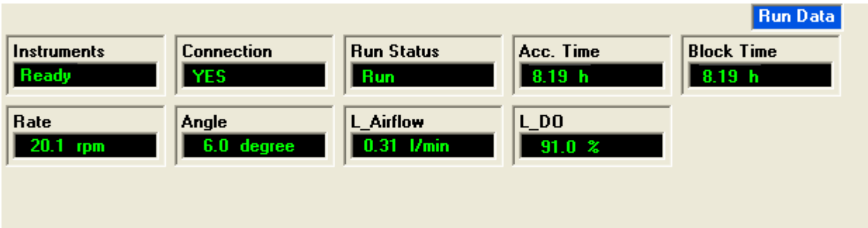
- hide the pane.

6.2.2 The Run Data pane

Description

The ***Run Data*** pane displays the current values for selected run parameters. The update interval is defined in the system strategy.

The figure below displays an example of the ***Run Data*** pane:



How to change the appearance of the pane

The appearance of the pane can be changed so that it includes more or fewer data displays. The table below describes how this is done:

Step	Action
1	• In ***System Control***, select ***View:Properties*** *or* • right-click on the pane and select ***Properties*** on the menu. *Result:* The ***Properties*** dialog box is displayed.

Step	Action
2	Select the ***Run Data Groups*** tab and, if desirable, do one or more of the following: • *Select* an available group to be displayed in the list to the left. • *Edit* an available group: Select the group from the list on the left, and click the ***Edit Group*** button. Modify the included readings in the list to the right, and click ***OK***. • *Create* a new group: Click the ***New group*** button and select the readings that you want to view from the list. Enter a name for the group, and click ***OK***. • *Delete* a group: Click the ***Delete Group*** button and select a group in the ***Delete Layout*** dialog box, click ***OK*** and confirm the deletion.
3	Select the run data parameters that you want to display in the list to the right.
4	Click ***OK*** to view the selected items in the ***Run Data*** pane. The name of the selected layout replaces the default layout name ***Run Data***.

How to change text color or text background

The table describes how to change the text color or background in the displayed reading boxes.

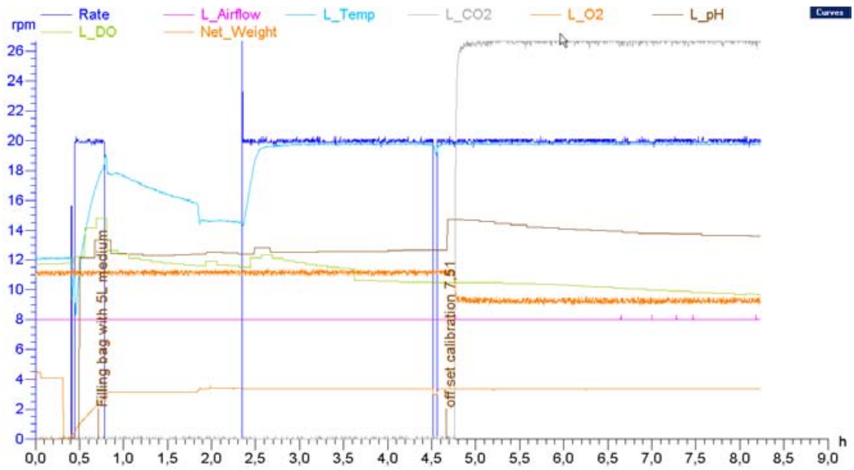
Step	Action
1	Right-click on the pane and select Properties. *Result:* The ***Properties*** dialog box is displayed.
2	Select the ***Run Data Color*** tab.
3	Click the ***Text*** or ***Background buttons.*** Select a new color, and click ***OK***. *Result:* The color change is displayed in the test field.
4	Make further adjustments to the colors as appropriate.
5	Click ***OK*** to apply the changes.

6.2.3 The Curves pane

Introduction

The ***Curves*** pane of the ***System Control*** module displays monitor signal values graphically.

The figure below shows an example of the ***Curves*** pane:



How to select curves to be displayed

You can decide which curves you want to display in the ***Curves*** pane.

The table describes how to select the curves to be displayed on the screen.

Step	Action
1	In ***System Control***, select ***View:Properties***. *Result:* The **Properties** dialog box is displayed.
2	Select the ***Curves*** tab.
3	In the ***Display curves*** list, select the curves you want to display. If you want all curves to be displayed, click the ***Select All*** button. If you do not want any curves to be displayed, click the ***Clear All*** button.
4	Click ***OK***.

How to display a vertical marker line

The table below describes how to display a vertical marker line:

Step	Action
1	Right-click the ***Curves*** pane and select ***Marker***.
2	Drag the marker line with the mouse. *Result:* Where the line bisects the curve, the X-axis and Y-axis values are displayed at the top right corner of the pane.

Note: *Right-click and select **Snapshot** to record the marker position values. See Section 2.2.6 Snapshots, on page 32 for more information about the **Snapshot** function.*

How to set a reference point

When the vertical marker is displayed, you can set a reference point to display curve data. The table describes how to set a reference point:

Step	Action
1	• Display a ***Marker*** in the ***Curves*** pane. • Right-click and select ***Set Marker Ref. Point*** to define a reference point for the marker position.
2	When the marker is moved from the reference point, the X-axis and Y-axis values for the new position are displayed together with: • the new position in relation to the position of the reference point, • the minimum, maximum and average values for the curve interval between the reference point and the new position.

How to change the curve colors and styles

The ***Curves*** pane displays graphs for the selected curves in different colors, with any reference curves included with the method as dashed lines.

The table below describes how to change the curve colors and styles:

Step	Action
1	Select ***View:Properties***. *Result:* The ***Properties*** dialog box is displayed.
2	Select the ***Curve Style and Color*** tab.
3	• Select a curve from the ***Curve*** list. • Select an appropriate color and style.

How to change the scale of the Y-axis

In most cases, the Y-axis is automatically scaled for each of the curves. Values on the Y-axis apply to the curve with the same color as the axis markings. To get the correct Y-axis, click the legend. The table below describes how to fix the scale of individual curves.

Step	Action
1	• Select ***View:Properties***. *Result:* The ***Properties*** dialog box is displayed. • Select the ***Y-axis*** tab.
2	• Select the appropriate curve. • Select ***Fixed*** and type a minimum and maximum range in the fields within the specified limits.
3	Repeat step 2 for other curves if needed.
4	Click ***OK***.

How to change the scale of the X-axis

The table below describes how to change the scale of the X-axis:

Step	Action
1	• Select ***View:Properties***. *Result:* The **Properties** dialog box is displayed. • Select the ***X-axis*** tab.
2	Select the appropriate ***Axis scale***: • ***Total*** will show the curves as far as they have come in the run. • ***Window*** allows you to set the portion of the total pane to be displayed. • Click ***OK***.

How to zoom in the Curves pane

The table below describes how to zoom in on a selected region of the curve pane:

Step	Action
1	• Press and hold the left mouse button and drag a rectangle out on the screen to encompass the area to be viewed. • Release the mouse button. *Result:* The display is now zoomed in on the selected area.
2	Repeat the process for further magnification of selected areas.

How to zoom out

To reduce the scale of the zoom, right-click in the ***Curves*** pane, and select one of the following options:

- ***Undo Zoom***: reverses each zoom-in action a step at a time.
- ***Reset Zoom***: reverses all zoom-in actions to the default scale.

How to edit text in the Curves pane

You can select the way that text is aligned for the ***Logbook*** curves. You can also select to show only part of the ***Logbook*** information. The table below describes how to do this:

Step	Action
1	Right-click in the ***Curves*** pane, and select ***Properties*** in the displayed menu. *Result:* The ***Properties*** dialog box is displayed.
2	Select the ***Curve Style and Color*** tab.
3	Select the following: • ***Logbook*** curve in the ***Curve*** list as appropriate. • Select the appropriate ***Logbook text alignment*** option: - Horizontal - Vertical - Fly over (displays the text if you place the mouse pointer over the generated mark).
4	To filter the type of ***Logbook*** information overlaid on the ***Curves*** pane, do the following: • Click the ***Filter*** button. *Result:* The ***Filter Logbook*** dialog box is displayed. • Select the appropriate check boxes and set the maximum block depth. • Click ***OK*** to return to the ***Curve style and Color*** tab.
5	Click ***OK***.

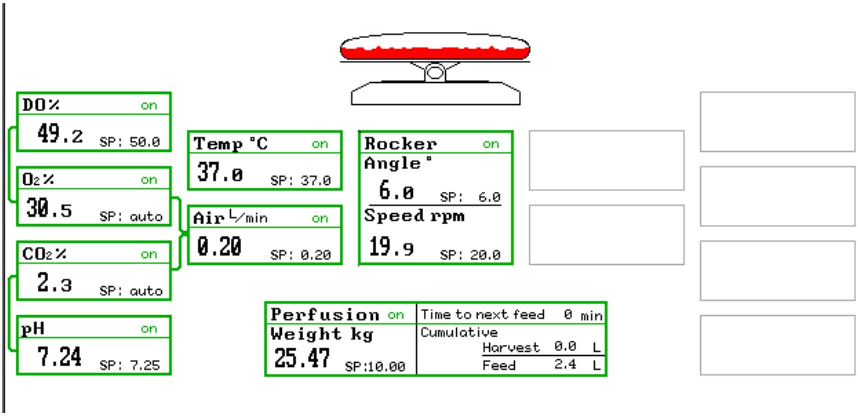
6.2.4 The Flow Scheme pane

Introduction

The flow scheme is a graphical representation of the WAVE Bioreactor system that shows the current status of the cell cultivation run. During a run, the flow scheme displays the system configuration, the status of the modules and the monitored signals with numerical displays.

Illustration

The illustration below shows an example of a flow scheme for a run:



How to stretch a flow scheme

The flow scheme can be stretched to fit the screen. To do this, right-click in the pane and select ***Stretch*** in the shortcut menu.

6.2.5 The Logbook pane

Introduction

All actions (including method start and end, manual interventions such as ***Set mark*** or ***External value***) and unexpected conditions such as warnings are logged for every run, with date, time and current user name where appropriate. The logbook thus provides a complete history of any given run. The log is saved in the result file.

Note: *Information added in **Run Notes** are not included in the **Logbook**. To be included in the **Logbook**, text should be entered as **Set marks**. This is described in* *How to enter a Set_Mark instruction, on page 117*.

Illustration

The illustration below shows an example of the ***Logbook*** pane:

368.09 h Left Bag: O2 Deviation
368.09 h <ACK> default Left Bag: O2 Deviation
368.10 h Left Bag: O2 Deviation
368.11 h Set_Mark "New DO set point chosen" (Manual)
368.11 h <ACK> default Left Bag: O2 Deviation
368.14 h Set_Mark "Decreased DO control cycle time" (Manual)
368.19 h Set_Mark "Increased feeding pump speed to 50 rpm" (Manual)
368.55 h Set_Mark "feeding terminated" (Manual)

Autoscroll

The ***Logbook*** pane can autoscroll to display the latest entries. Right-click in the pane, and select ***Autoscroll***. You can also select the ***Autoscroll*** option in the ***Properties*** dialog box (***View: Properties*** and select the ***Logbook*** tab).

How to filter the logbook contents

You can choose to display only selected items in the logbook. The table below describes how to activate the filter.

Step	Action
1	• Right-click in the ***Logbook*** pane and choose ***Properties***. *Result*: The ***Properties*** dialog box opens.
2	• Choose the ***Logbook*** tab. • Select the items you want to display in the logbook (all items are selected by default). • Click the ***OK*** button. *Result*: Only the selected items will be displayed in the logbook. The ***Logbook*** title in the upper right corner will show the text ***(Filter on)*** to indicate that not all items are visible. All items will still be logged in the result file.

How to find logbook text entries

The logbook can be searched for specific text entries. The table below describes the function:

Step	Action
1	Right-click in the ***Logbook*** pane and choose ***Find***. *Result*: The ***Find*** dialog box opens.
2	• Type the text you want to locate. • Select search criteria if necessary. • Click ***OK***. *Result*: The located logbook entry is highlighted.

a

6.3 Manual instructions

Introduction

This section describes how to control the data acquisition with manual commands and instructions.

In this section

This section contains these topics:

6.3.1 The toolbar and status bar

Toolbar buttons

The toolbar at the top of the ***System Control*** module contains three sets of buttons:

- ***Manual Direct Commands*** buttons for starting and stopping the run
- ***Windows*** buttons to access dialog boxes for pane selection, documentation and layout properties
- ***System Access*** buttons to control the system connection.

Show and hide

The toolbars can be shown and hidden by choosing ***View:Toolbars*** and selecting the relevant boxes.

The figure below shows the toolbar:

Direct command button functions

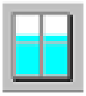
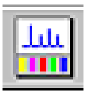
The table below describes the functions of the ***Manual direct command*** buttons.

Button	Function
Run	Starts a data acquisition, using the template method that was used for the previous data acquisition. ***Note:*** *This button only works properly if a data acquisition already has been performed on the computer. The first data acquisition must be started by choosing the* ***File:Instant Run*** *menu command.*
End	Terminates the run data acquisition. ***Note:*** *You can choose to save a partial result or discard it.*

Note: *The commands can also be found on the* ***Manual*** *menu.*

Windows buttons

The table below describes the functions of the ***Windows*** buttons:

Button	Function
	Opens a dialog box where you can choose which window panes to display. This button is equivalent to the menu command ***View:Panes***.
	Opens the documentation pages. Run notes can be entered on the ***Notes*** tab and settings can be changed. Other tabs are displayed for information only. This button is equivalent to the menu command ***View:Documentation***. ***Note:*** *Notes entered here about the data acquisition in progress will not be included in the Logbook.*
	Opens the properties pages. This button is equivalent to the menu command ***View:Properties***.

Status bar, connection status

The status bar displays a message indicating the connection status of the window. The table below describes the different messages:

Message	Connection status
Controlled by: <user>	The indicated user has a control mode connection to the software. Other users can establish a view mode connection.
System is available	Any user can establish a connection.

6.3.2 Manual instructions

Introduction

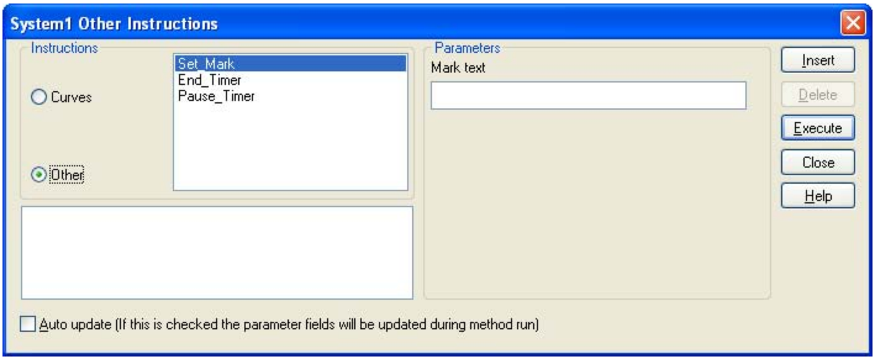
Manual instructions can be issued from the ***Manual*** menu in the ***System Control*** module. Manual instructions are used to create curves based on external values, or to enter text information in the chromatogram and ***Logbook***. This is described below.

External value curve instructions during a data acquisition

Manual instructions can be used during a data acquisition run to enter external value instructions. This will create a curve starting with the entered value. The curve will continue at this value until a new value is entered manually. The curve is then updated to reflect the new external value. All manual instructions that you issue during a data acquisition are recorded in the logbook.

The manual instructions dialog box

The ***Manual*** menu in ***System Control*** opens a dialog box. The name of the connected system is displayed on the title bar of the dialog box. See an example in the illustration below:



Note: *The **Auto update** function cannot be used for external value entries.*

How to use manual instructions

Manual instructions are entered in the ***Manual instructions*** dialog box in the ***System Control***.

Step	Action
1	Select an instruction group and a component in the ***Instructions*** field.
2	Select instruction parameters in the ***Parameters*** field.
3	Click the ***Insert*** or ***Execute*** buttons as needed. (See the descriptions of the different functions below)

How to enter a Set_Mark instruction

In UNICORN DAQ a ***Set_Mark*** is used to enter essential information into the data acquisition result. This information will be visible in the chromatogram but also, more importantly, in the ***Logbook***. It is recommended to enter a Set Mark describing the settings and selections for

- WAVE Bioreactor set points
- WAVE Bioreactor calibrations.

The table below describes how to add a manual ***Set_Mark*** instruction:

Step	Action
1	• Select the ***Other*** instruction group and • select the ***Set_Mark*** instruction.
2	Type the Set Mark text in the ***Mark text*** field.
3	• Click the ***Execute*** button to add the mark text to the chromatogram and the run log. or • Click the ***Insert*** button to add the Set Mark to a list of instructions. The instructions will be performed at first when the ***Execute*** button is clicked.

Note: *You should normally only execute the Set Mark instruction when a data acquisition is already in progress. If you enter a Set Mark before a data acquisition has been started using the template method, you will start a manual run.*

Refer to How to save manual results below for information on how to save results from manual runs, to ensure that any data that you acquire manually is not lost.

The buttons of the manual instructions dialog box

The table below describes the functions of the manual instructions buttons:

Button	Function
Insert	This button places the current instruction in the list at the bottom left of the dialog box.
Delete	This button deletes the selected instruction from the current list only. One instruction can be deleted at a time.
Execute	This button • executes all instructions in the list at the same time or • executes the currently marked instruction if the list is empty.
Close	If you click the ***Close*** button without first clicking the ***Execute*** button, commands in the list • will not be executed • will be deleted from the command list.

How to save manual results

When you choose to run the data acquisition manually by executing a manual instruction - as opposed to starting with the supplied template method - the results are automatically stored in a folder called ***Manual Runs***. The ***Manual Runs*** folder stores the ten most recent results from your manual runs. To save a result file from the ***Manual Runs*** folder more permanently, you need to move or copy it to another location.

6.3.3 Warnings

Introduction

Warnings are displayed regardless of the activity currently in progress in UNICORN DAQ. You will be notified that for example an exceeded limit in a running WAVE Bioreactor system has triggered an alarm, even if you are evaluating data or monitoring a cell cultivation run on a different system. Warnings are also recorded in the logbook for the run.

Note: *The WAVE Bioreactor will continue the run. It will not be set in a pause state.*

Limits for monitor signals

The WAVE Bioreactor settings in the base unit or WAVEPOD determine the acceptable limits of monitor signals during a cell cultivation run. If these limits are exceeded, an alarm will be triggered by the unit and a corresponding warning dialog box will be displayed on the screen by UNICORN DAQ.

In a network system

In a network installation, warnings are displayed on the controlling station and all stations viewing the system.

6.4 If the network connection fails

Results will be saved in the Failed folder

If the results of a data aquisition are stored on a server or other location, and there is a network communication failure during a data acquisition that has been started from a remote station, the data acquisition will continue and the results will be saved in the ***Failed*** folder on the local station. A control mode connection can be established on the local station to control the data acquisition.

7 How to view results

Introduction

A result file containing the acquired data from a cell cultivation can be generated at the end of the data acquisition. It will contain a complete record of the acquired data, including settings, curve data compiled in chromatograms, and a run log. The ***Evaluation*** module offers facilities for presentation and evaluation of the curve data.

This chapter describes how to present the chromatograms and curves of your result file and how to create and print reports.

In this chapter

This chapter contains these sections:

7.1 How to open a result file

Introduction

All contents of the result files are opened in the ***Evaluation*** module. By default, the curve data is presented as chromatograms which are shown as opened windows. The chromatogram window on top is the active window.

See *Section 7.3 Basic presentation of chromatograms, on page 130* for further information about chromatograms.

Note: *It is not possible to open the same result file from two different locations simultaneously.*

How to open a result from the UNICORN Manager

To open a result file from the ***UNICORN Manager***, do one of the following:

- Double-click a result file in the ***Results*** window of the ***UNICORN Manager***,

  or

- Select a result file icon in the ***Results*** window of the ***UNICORN Manager*** and select ***File:Open***,

  or

- Click the ***Evaluation*** icon in the ***UNICORN Manager***, open the ***Evaluation*** module and select a result file from the ***Open Result*** dialog box.

How to open a result in the Evaluation module

To open a result file in the ***Evaluation*** module:

- Do the following:
  - Select ***File:Open***
  - Select a result file from the ***Open Result*** dialog box.

or

- Do the following:
  - Select ***View:File Navigator***
  - Locate and select a result file from the ***File Navigator***.

Note: *See Section 7.2 How to use the File Navigator, on page 124 for detailed instructions on how to locate files and set up File Navigator preferences.*

7.2 How to use the File Navigator

Introduction

The ***File Navigator*** can be used to locate and open result files in the ***Evaluation*** module. Recent runs are also listed based on the user preferences.

How to open the File Navigator

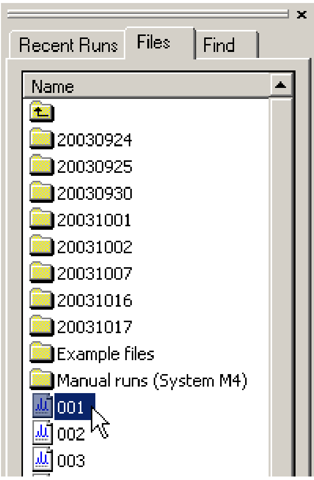
To open the ***File Navigator***:

- Click the ***Evaluation*** module icon in the Windows task bar.
- Select ***View:File Navigator***

Result: The ***File Navigator*** opens in the ***Evaluation*** module. The ***File Navigator*** can be resized and dragged to other positions in the module.

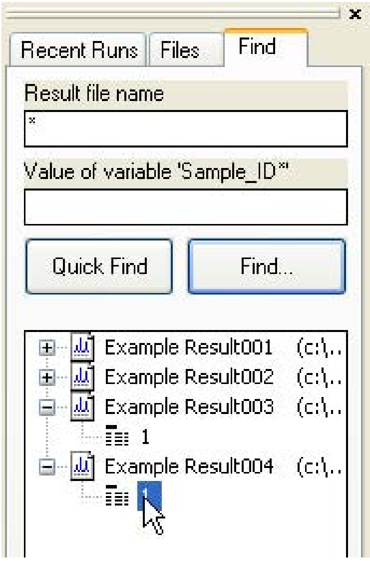
How to open files from the Files list

The table below describes how to use the ***Files*** list to locate and open a result file.

Step	Action
1	• Click the ***Files*** tab *Result*: The ***Files*** list opens in the ***File Navigator***. The list is identical to the ***Results*** window in the ***UNICORN Manager*** and shows all user available folders and files. 
2	• Navigate to the desired folder • Double-click the desired result file *Result*: The result file opens in the ***Evaluation*** module.

How to use Find to search for files

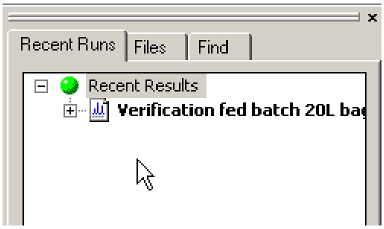
The ***Find*** function in the File Navigator is used to locate result files in the available folders. The table below describes how to use the ***Find*** function to locate and open a result file.

Step	Action
1	• Click the ***Find*** tab *Result*: The ***Find*** list opens in the ***File Navigator***. 
2	Type a file name or part of a file name in the ***Result file name*** text box. Standard wildcard characters can be used.
3	• Click the ***Quick Find*** button *Result*: The located result files are listed in the ***File Navigator***.
4	• Double-click the desired result file or chromatogram *Result*: The file or chromatogram opens in the ***Evaluation*** module.

Note: *Click the **Find** button to open the **Find Files** dialog box where more search functions are available. See* *Section 5.3 How to arrange and locate your files, on page 88* *for more information.*

How to open a Recent Run

The ***Recent Runs*** list shows all the available recorded recent runs based on the selected user preferences. The table below describes how to use the ***Recent Runs*** list to locate and open a result file.

Step	Action
1	• Click the ***Recent Runs*** tab *Result*: The ***Recent Runs*** list opens in the ***File Navigator***.  **Note:** *Until the files and chromatograms in the list have been opened and saved they are noted in bold text. When they are opened and saved the text is changed to plain text.*
2	• If needed, click the ***Refresh*** button in the bottom of the ***File Navigator*** *Result*: The ***Recent Runs*** list is updated with all runs that were performed since the ***File Navigator*** was opened the last time.
3	• Locate the desired run • Double-click the file *Result*: The result file opens in the ***Evaluation*** module.

Note: *Click the **+** signs to view or select individual chromatograms from the result files. Individual result files can be selected and removed from the list by clicking the **Remove** button. The **Remove all** button clears the whole list.*

Note: ***Remove** only clears the list, the files are not deleted.*

How to set preferences for Recent Runs

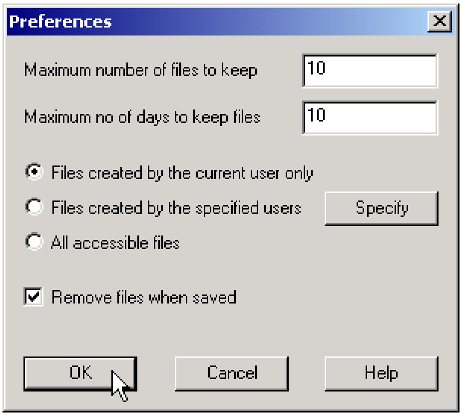
The ***File Navigator*** will display ***Recent Runs*** based on the individual user preference settings. The table below describes how to adjust the preference settings:

Step — **Action**

1

- Click the ***Preferences*** button

Result: The ***Preferences*** dialog box opens.



2

- Type the maximum number of files to keep on the list
- Type the maximum number of days to keep the files on the list

3

Select which files to display on the list:

- Only files created by the current user
- All files created by specified users

Note: *Click the **Specify** button to open a dialog box and select from a list with all accessible users.*

- All accessible files regardless of the creator

4

- Choose ***Remove files when saved*** if the files are to be removed from the list when they have been saved.
- Click the ***OK*** button.

Result: All new results will be displayed on the ***Recent Runs*** list based on the changed preferences.

How to close the File Navigator

To close the ***File Navigator***:

- Click the small cross in the top right-hand corner of the ***File Navigator***.

Result: The ***File Navigator*** closes.

7.3 Basic presentation of chromatograms

Introduction

This section describes how to access result files and optimize the presentation of a chromatogram and its curves via the ***Chromatogram Layout*** dialog box.

In this section

This section contains these topics:

7.3.1 Introduction to chromatograms

Contents of a chromatogram

Chromatograms can be viewed in the ***Evaluation*** module.

A chromatogram includes a number of curves that have been acquired during a cell cultivation run, such as temperatures, pH, logbook entries, etc. A chromatogram also contains the curves created and saved during an evaluation session. The original raw data curves cannot be deleted or modified, but they can be used as the basis for evaluation procedures and subsequent creation of new curves.

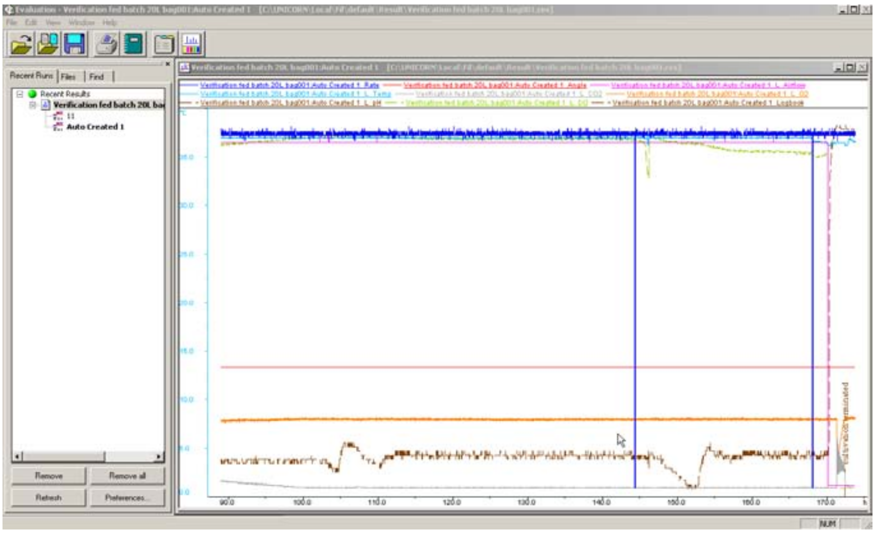
7.3.2 The chromatogram window

Main views

The chromatogram window is divided into two main views:

- File Navigator
- curves

The displayed areas for the views can be adjusted by dragging the borders with the mouse cursor between the views.



Run curves, default appearance and information

The first time a result file is opened and viewed, a default layout is applied to display all the original curves. The default layout can be changed by the user (see *Section 7.4.5 How to save and apply a layout, on page 144*).

Information for each curve

Each curve is automatically assigned a default color and style, with default information about each curve displayed in the key above the curves. This information includes

- result file name
- chromatogram name

- curve name.

Choose the Y-axis scale

Each curve has a correspondingly colored Y-axis. To choose the appropriate Y-axis scale

- click on the Y-axis until the desired scale is displayed

or

- click on the name of the curve.

Run curves, shortcut menu

When viewing curves in the ***Evaluation*** module, you can access a menu that provides a quick alternative to menu commands. Right-click the run curves view to display the menu shown in the picture below:

Optimizing the workspace

The chromatogram window can be minimized and maximized using ordinary Windows commands. The table below describes extra features to optimize the workspace:

Use the command	if you want...
Window:Arrange icons	to arrange icons of minimized windows.
Window:Tile	to view several chromatogram windows side by side.
Window:Cascade	to stack the open windows like a deck of cards.

How to display a vertical marker line

The table below describes how to display a vertical marker line:

Step	Action
1	Right-click the ***Curves*** pane and select ***Marker***.
2	Drag the marker line with the mouse. *Result:* Where the line bisects the curve, the X-axis and Y-axis values are displayed at the top right corner of the pane.

Note: Right-click and select ***Snapshot*** to record the marker position values. See *Section 2.2.6 Snapshots, on page 32* for more information about the ***Snapshot*** function.

How to set a reference point

The table describes how to set a reference point:

Step	Action
1	• Display a ***Marker*** in the ***Curves*** pane. • Right-click and select ***Set Marker Ref. Point*** to define a reference point for the marker position.
2	When the marker is moved from the reference point, the X-axis and Y-axis values for the new position are displayed together with: • the new position in relation to the reference point, • the minimum, maximum and average values for the curve interval between the reference point and the new position.

7.4 How to optimize the presentation of a chromatogram

Introduction

This section describes some of the ways you can optimize the presentation of a chromatogram.

In this section

This section contains these sub-sections:

7.4.1 How to make changes in the Chromatogram Layout dialog box

Instruction

The ***Chromatogram Layout*** dialog box is used to make changes regarding chromatogram presentation. The main features of the ***Chromatogram Layout*** dialog box regarding chromatograms are described in the subsequent sections in this chapter.

The table below describes how to make changes in the ***Chromatogram Layout*** dialog box:

Step	Action
1	Open a result file.
2	• Right-click the chromatogram window and select ***Properties*** *or* • Choose ***Edit:Chromatogram Layout***. *Result:* The ***Chromatogram Layout*** dialog box is displayed. The view from which you activate the ***Properties*** command determines the tab that is displayed in the ***Chromatogram Layout*** dialog box.
3	Carry out the changes on the different tabs to get the desired layout for header and curves. Select ***Apply to all chromatograms*** if you want to apply changes made in the ***Chromatogram Layout*** dialog box to all open chromatograms. Click ***OK***.

7.4.2 The Curve tab and Curve Names tab

The Curve tab

The ***Curve*** tab of the ***Chromatogram Layout*** dialog box contains a list of all the curves included in the chromatogram. Select the curves you want to display in the chromatogram, and click ***OK***.

Curve name appearance

You select options for the curve name appearance on the ***Curve Names*** tab. This is an example of a default curve name:

Result:11_Rate

The table below describes the three components that make up the default curve name:

Component	Description	Example
Result name	Name of the result.	Fed batch 50L
Chromatogram name	Number given automatically during a run or a name defined by the ***New_Chromatogram*** instruction.	11
Curve name	Curve type.	Rate

How to choose curve name appearance

You can choose to view only part of the curve name. The table below describes how to do this:

Step	Action
1	Open a result file.
2	Choose ***Edit:Chromatogram Layout***. *Result:* The ***Chromatogram Layout*** dialog box is displayed.
3	Click the ***Curve Names*** tab.

Step	Action
4	• Select the appropriate boxes for ***Curve name appearance***. • Select the appropriate ***Curve legend position***. • Click ***OK***.

Note: *It is usually sufficient to select the* ***Curve Name*** *option if only one chromatogram is being evaluated. However, confusion can arise when more than one chromatogram is shown, so more complete names might be necessary.*

7.4.3 The Curve Style and Color tab

Introduction

All curves within a chromatogram are represented by a default color and line style. Curves imported into the chromatogram or newly created curves are automatically assigned a color and line style.

Logbook text alignment settings

The ***Logbook text*** can be set to the following alignment options:

- ***Vertical***
- ***Horizontal***
- ***Fly Over***, which sets text labels as hidden text that appears only when the cursor is carefully positioned over the logbook entry.

How to change the color and style of a curve

The table below describes how to change the color and style of a curve:

Step	Action
1	Open a result file.
2	Choose ***Edit:Chromatogram Layout***. *Result:* The ***Chromatogram Layout*** dialog box is displayed.
3	Click the ***Curve Style and Color*** tab.
4	• Select the curve you want to change from the list. • Select the desired color and style. • Click ***OK***.

How to display and filter logbook information

The table below describes how to display and filter logbook curve information:

Step	Action
1	Open a result file.
2	• Choose ***Edit:Chromatogram Layout***. *Result:* The ***Chromatogram Layout*** dialog box is displayed.
3	• Click the ***Curve*** tab. • Select the logbook curve.
4	• Click the ***Curve Style and Color*** tab. • Click the ***Filter...*** button in the ***Logbook text alignment*** field. *Result:* The ***Filter Logbook*** dialog box is displayed.
5	• Select the type of logbook information you want to show. • Set the maximum block depth to show. • Click ***OK***.

How to display a hatched background

The table below describes how to display a hatched background in the chromatogram window:

Step	Action
1	Open a result file.
2	• Choose ***Edit:Chromatogram Layout***. *Result:* The ***Chromatogram Layout*** dialog box is displayed.

Step	Action
3	• Click the ***Curve Style and Color*** tab. • Select the ***Hatch*** box. • If desired, select the ***Apply to all chromatograms*** box and click ***OK***. *Result:* Hatch marks are displayed as a background.

Note: *You can also right-click in the **Chromatogram** window and select **Hatch**.*

7.4.4 How to change and fix the axes

How to change and fix the Y-axis

The table below describes how to change and fix the Y-axis:

Step	Action
1	Open a result file.
2	Choose ***Edit:Chromatogram Layout***. *Result:* The ***Chromatogram Layout*** dialog box is displayed.
3	Click the ***Y-Axis*** tab.
4	• Select the appropriate curve from the list. • Click the ***Fixed*** option.
5	• Type the desired minimum and maximum values. • Click the ***All with this unit*** button if you want other curves with the same Y-axis units as the current scaled curve to be similarly scaled. ***Note:*** *The values will only be applied to existing curves. They will not be applied to new curves created after this function was last used.* • Click ***OK***.

How to add a second Y-axis

The table below describes how to add a second Y-axis to the chromatogram.

Step	Action
1	Choose ***Edit:Chromatogram Layout***. *Result:* The ***Chromatogram Layout*** dialog box is displayed.
2	Click the ***Y-Axis*** tab.
3	• Select the appropriate curve from the ***Right Axis*** droplist. • Click the ***OK*** button.

How to change and fix the X-axis

The table below describes how to change and fix the X-axis:

Step	Action
1	Open a result file.
2	Choose ***Edit:Chromatogram Layout***. *Result:* The ***Chromatogram Layout*** dialog box is displayed.
3	Click the ***X-Axis*** tab.
4	• Click the ***Fixed*** option in the ***Axis scale*** field to set the axis limits manually. • Type the desired minimum and maximum values. • Click ***OK***.

7.4.5 How to save and apply a layout

Introduction

All configurations that you make in the ***Chromatogram Layout*** dialog box can be saved as a layout. It is possible to apply saved layouts to other chromatograms. All saved layouts are user-specific.

How to save a layout

The table below describes how to save a layout:

Step	Action
1	Open a result file.
2	Choose ***Edit:Chromatogram Layout***. *Result:* The ***Chromatogram Layout*** dialog box is displayed.
3	Make the appropriate layout configuration within the various tabs. **View your changes** Click ***OK*** if you want to return to the chromatogram window to see the applied affects of a given configuration. Return to the ***Chromatogram Layout*** dialog box to perform further changes.
4	• Select the ***Layout Library*** tab. • Click the ***Save current layout as*** button. *Result:* The ***Save Layout*** dialog box is displayed.
5	• Type a name for the layout. • If you want the current layout to be the new default layout, select the ***Save as default*** option. • Click ***OK***. *Result:* The new name is added to the ***Saved layouts*** list.
6	Click ***OK***.

How to apply a layout

The table below describes how to apply a layout:

Step	Action
1	Select the ***Layout Library*** tab on the ***Chromatogram Layout*** dialog box.
2	• Select a layout from the ***Saved layouts*** list. • Click the ***Apply selected layout*** button. *Result:* The layout is automatically applied to the active chromatogram window.
3	If the same layout is to be applied to all chromatograms on the ***Evaluation*** workspace, select the ***Apply to all chromatograms*** checkbox.
4	Click ***OK***.

7.4.6 How to show part of a curve

Introduction

You can select a part of a curve in order to examine details more closely.

You can

- use the zoom to magnify

  or

- cut the axes.

It is also possible to fix the axes, see *Section 7.4.4 How to change and fix the axes, on page 142*.

How to use the zoom function

In the active chromatogram window, you can zoom in on a designated area of the chromatogram. This is the easiest and quickest way to enlarge different parts of a curve. The table below describes how to do this:

Step	Action
1	Open a result file.
2	• Place the mouse pointer in any corner of the area you want to magnify. • Press and hold the left mouse button. A magnifying glass icon will be added to the mouse pointer arrow on the screen. • Drag a box to cover the area to be magnified, and release the mouse button. *Result:* The selected region is now displayed in the entire chromatogram window, together with appropriate scales for the Y and X axes.
3	Use the arrow keys on the keyboard to move around in the chromatogram at the current zoom scale.
4	**Undo zoom** Right-click in the window and select ***Undo zoom*** to undo the last zoom step. **Reset zoom** Right-click in the window and select ***Reset zoom*** to reset all zoom steps at once.

7.4.7 How to change the size of the Logbook marks

Introduction

The sizes of the ***Logbook*** marks are all determined by your user settings. The settings are applied for all your chromatograms.

Instruction

The table below describes how to change the size of the ***Logbook*** marks:

Step	Action
1	• Choose ***Administration:Change User Attributes*** in the ***UNICORN Manager*** module. *Result*: The ***Change user attributes*** dialog box opens.
2	Select the unit for the ***Logbook mark height***: • ***Percent of window height*** • ***Character Heights*** • ***Pixels*** Type a new size value in the ***Logbook mark height*** box.
3	Click ***OK***.

7.5 How to print active chromatograms

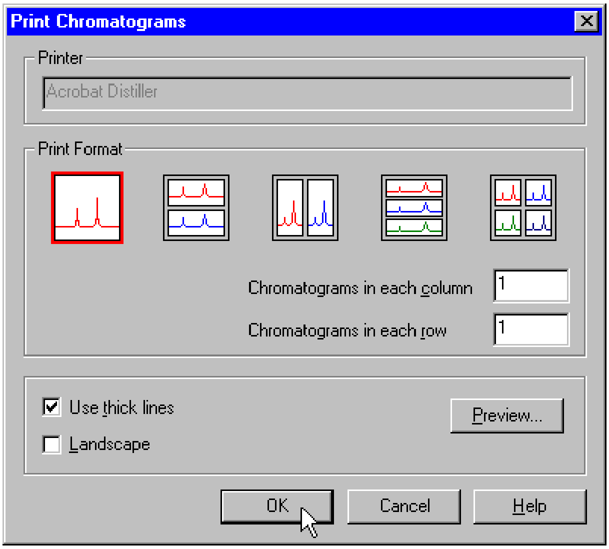
Introduction

This section describes how to print the chromatograms that are open in the ***Evaluation*** module.

The Print Chromatograms dialog box

This is an illustration of the ***Print Chromatograms*** dialog box.

Note: *The selected print format is outlined in red.*



Instruction

The table below describes how to print active chromatograms on the default Windows printer.

Step	Action
1	Open all chromatograms that you want to print in the ***Evaluation*** module.

Step	Action
2	• Select ***File:Print***. *or* • Click the ***Print*** toolbar icon.  *Result*: The ***Print Chromatograms*** dialog box opens.
3	Select print format and layout options.
4	• Click ***OK*** to print. *or* • Proceed with step 5 to preview and edit the layout.
5	Click the ***Preview*** button. Result: The ***Customize Report*** window opens.
6	• Click the ***Edit Mode*** button to make changes, e.g. change the order of the chromatograms (see *Section 7.6.1 How to create and print a customized report, on page 151* for more information about how to edit). • Click the ***Preview*** button to return to preview mode.
7	• Select ***File:Print***. *or* • Click the ***Print*** toolbar icon. *Result*: The ***Print*** dialog box opens.
8	• Select the print range and number of copies. • Click ***OK***.

7.6 How to create and print reports

Introduction

The ***Evaluation*** module provides extensive tools to create detailed reports. This section describes how to create and print reports that are based either on a customized layout or a previously saved format.

In this section

This section contains these topics.

7.6.1 How to create and print a customized report

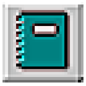
Introduction

You can choose from a variety of objects to include in a report, including chromatograms, documentation, free text and more in the customized report interface. You can also place, align and size the objects as you please. This section describes how to create and save a customized report format. The saved report format can be used as a standard format for subsequent reports.
Saved report formats can be edited and saved as alternative report layouts. This is described in *Section 7.6.2 How to edit an existing report format, on page 167*.

Should you need to store store your reports in an electronic format you can save them as PDF files. This section also describes how to do this.

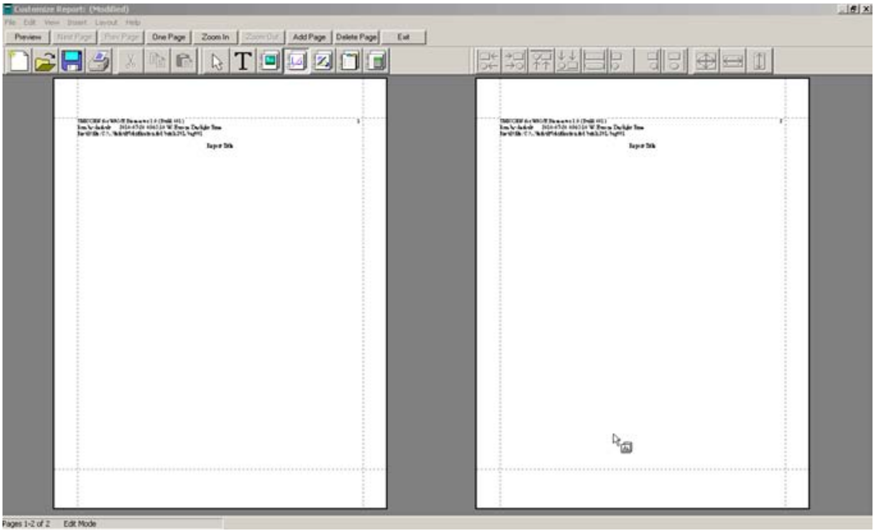
How to open the Report Editor in edit mode

The table below describes how to open the ***Report Editor*** in ***Edit mode*** to create a customized report format.

Step	Action
1	Open a result file in the ***Evaluation*** module.
2	• Select ***File:Report***. *or* • Click the ***Report*** icon.  *Result*: The ***Generate Report*** dialog box opens.
3	• Click the ***New*** button. *Result*: The ***Create New Report Format*** dialog box opens.
4	• Select the ***Customized format*** and click ***OK***. *Result*: The ***Report Editor*** opens in ***Edit mode***.

The Edit mode window

The illustration below shows the ***Report Editor*** window in ***Edit mode*** with a blank report open:



Toolbar button functions in the Report Editor

The table below describes the different functions of the Edit mode toolbar buttons in the ***Report Editor***:

Toolbar button	Function
Preview/Edit	This button toggles between a print preview of the report and the ***Edit mode***.
Next Page	This button displays the next page or pair of pages (where there are more than one page).
Prev Page	This button displays the previous page or pair of pages (where there are more than one page).
One Page/Two Pages	This button toggles between single page view and pairs of pages view, when there is more than one page.
Zoom In	This button increases the magnification of the view.

Toolbar button	Function
Zoom Out	This button decreases the magnification of the view.
Add Page	This button adds a blank page to the report.
Delete Page	This button deletes the current page from the report.
Exit	This button closes the ***Customize Report*** window.

How to add and delete report pages

The table below describes how to add or delete report pages in the ***Report Editor***:

If you want...	then...
to add new pages,	• click the ***Add Page*** toolbar button. *Result*: A new page is added after the last page.
to delete a page while in ***One Page*** mode,	• select the page with ***Next Page*** or ***Prev Page***, • click the ***Delete Page*** toolbar button and confirm the deletion.
to delete a page in ***Two Page*** mode,	• select the page with ***Next Page*** or ***Prev Page***, • click an object on the page, • click the ***Delete Page*** toolbar button and confirm the deletion.

How to change the page layout

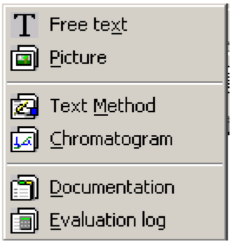
The page layout is changed in the ***Page Setup*** dialog box. The table below describes how to set up the page layout:

Step	Action
1	Double-click anywhere on the report page in the ***Report Editor*** (not on an object). *Result*: The ***Page Setup*** dialog box opens.

Step	Action
2	• Type new values for the ***Margins*** if necessary. • Select the appropriate ***Settings*** and ***Unit***.
3	• Click the ***First Header*** tab. **Note:** *An extra **Header** tab will appear if you de-select the option to have the same header on all pages. The **First Header** tab is used for the first page header only, and the **Header** tab is used for all subsequent pages.* • Select all the items you want to include in the header from the ***Select Items*** list. • Click the ***Font*** button to change the font for all items if necessary.
4	• Type header text in the ***Free text*** box and click the ***Font*** button to alter the default font if necessary. • Type the report title in the ***Report title*** box and click the ***Font*** button to alter the default font if necessary.
5	• Select the ***Logo*** check box and click the ***Browse*** button if you want to locate and select a logo image file. • Select the ***Alignment*** for the logo, if necessary. **Note:** *The logo file must be in bitmap format (**.bmp**) and smaller than 64 kB. Larger logo files or files in other formats must be inserted as **Picture** objects.*
6	If you want to have a line under or over the header, select the appropriate option in the ***Layout*** field.
7	• Repeat steps 3 to 6 on the ***Footer*** tab and the subsequent pages' ***Header*** tab. **Note:** *All **Header** and **Footer** tabs contain the same options. You can have all information in either the header or footer or split information between the header and footer as required.*
8	Click ***OK***.

How to add objects to the report

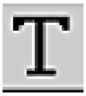
The table below describes how to add objects to the report. The various objects are described below this table.

Step	Action
1	• Click the appropriate icon in the ***Report items*** toolbar. *or* • Choose an object from the ***Insert*** menu. 
2	• Press and hold the left mouse button on the report page, and drag out a box to the size of the item you want to insert. ***Note:*** *The mouse pointer shows a symbol for the type of item you have selected.* • Release the mouse button. *Result*: A ***Setup*** dialog box opens. The dialog is specific to the type of item that you want to insert.
3	Select the desired options and click ***OK***. *Result*: The object is inserted onto the page.

Note: *If you want to edit an object later, double-click the object box.*

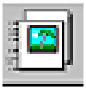
How to add free text

The table below describes how to add free text to the report:

Step	Action
1	• Click the ***Free Text*** icon.  • Press and hold the left mouse button on the report page and drag out a box to the size of the text. Release the button. *Result*: The ***Setup Free Text*** dialog box opens.
2	• Type text in the edit field. • Select if the text is to start on a new page. • Select if the text box should be automatically sized. • Select if the text should appear in the same position on all pages, for example as header and footer text.
3	• Click the ***Font*** button to change the default font. *Result*: The ***Font*** dialog box opens. • Make the necessary changes and click ***OK*** to return.
4	Click ***OK***. *Result*: The text object is inserted onto the page.

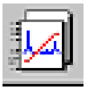
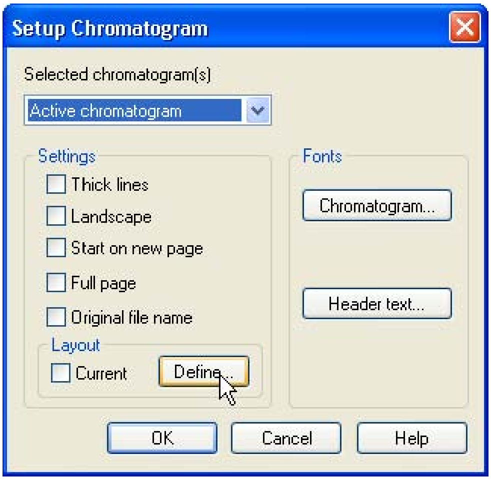
How to add a picture

The ***Picture*** dialog box is useful to insert logos, pictures or other image objects in the report. The table below describes how to add a picture object to the report:

Step	Action
1	• Press and hold the left mouse button on the report page and drag out a box to the size of the picture item. Release the mouse button. • Click the ***Picture*** icon.  *Result*: The ***Picture*** dialog box opens.
2	• Click the ***Browse*** button to locate the desired picture file. • Select the picture file and click the ***Open*** button. **Note:** *The file formats **.bmp**, **.emf**, **.jpg** and **.tif** can be used.* *Result*: A preview of the selected picture is displayed.
3	Select the desired ***Settings*** and click ***OK***. *Result*: The picture is inserted onto the page.

How to add a chromatogram

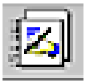
The table below describes how to add a chromatogram to the report.

Step	Action
1	• Click the ***Chromatogram*** icon.  • Press and hold the left mouse button on the report page and drag out a box to the size of the chromatogram. Release the mouse button. *Result*: The ***Setup Chromatogram*** dialog box opens. 
2	Select which chromatogram(s) to insert from the ***Selected chromatogram(s)*** droplist: • ***Active chromatogram*** inserts the chromatogram that currently is active in the ***Evaluation*** module. • ***All chromatograms*** inserts all chromatograms that are open in the ***Evaluation*** module. • ***1, 2...etc.*** inserts the corresponding chromatogram.

Step	Action
3	• Select the desired ***Settings***. • If desired, change the ***Fonts***. **Note:** *Separate fonts can be selected for the* ***Chromatogram*** *and the* ***Header text****.*
4	• Click the ***Define*** button in the ***Layout*** field if you want to re-define the layout of the chromatogram. *Result*: The ***Report Chromatogram Layout*** dialog box opens. • Make the appropriate changes and click ***OK*** to return to the ***Setup Chromatogram*** dialog box. **Note:** *The changes that you make will only affect the report and not the view of the chromatograms in the* ***Evaluation*** *module.*
5	Click ***OK***. *Result*: The chromatogram is inserted onto the page.

How to include a method

The table below describes how to include a method in the report:

Step	Action
1	• Click the ***Method*** icon.  • Press and hold the left mouse button on the report page and drag out a box to the size of the item. Release the button. *Result*: The ***Setup Method*** dialog box opens.
2	Select the items to be included in the report: • ***Main Method*** is the method on which the run was based. • ***Blocks*** are the blocks that were used in the method.

Step	Action
3	• Select the appropriate ***Settings***. ***Note:*** ***Expand main*** *displays the expanded method view.* • If desired, change the ***Fonts***. • Click ***OK***. *Result*: The method object is inserted onto the page.

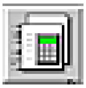
How to add documentation

The table below describes how to add documentation to the report:

Step	Action
1	• Click the ***Documentation*** icon.  • Press and hold the left mouse button on the report page and drag out a box to the size of the item. Release the button. *Result*: The ***Setup Documentation*** dialog box opens.
2	Select the items to be included in the report: • ***Select All*** includes all items in the report. • ***Clear All*** removes all selections.
3	• If desired, change the ***Fonts***. • Select if the documentation should start on a new page. • If ***Select All***, ***Run summary*** or ***Logbook*** was selected, make the necessary changes to the ***Base*** and ***Logbook filter*** settings.
4	Click ***OK***. *Result*: The selected documentation items are inserted into the report.

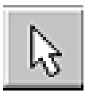
How to add the Evaluation Log

The table below describes how to add the ***Evaluation Log*** to the report:

Step	Action
1	• Click the ***Evaluation Log*** icon.  • Press and hold the left mouse button on the report page and drag out a box to the size of the item. Release the mouse button. *Result*: The ***Setup Evaluation Log*** dialog box opens.
2	• If desired, change the ***Fonts***. • Select if the ***Evaluation Log*** should start on a new page.
3	Click ***OK***. *Result*: The ***Evaluation Log*** is inserted into the report.

How to move and resize objects freely

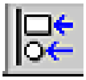
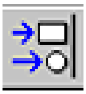
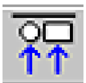
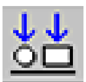
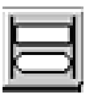
The table below describes how to select, move and resize objects freely:

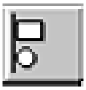
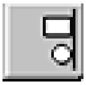
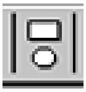
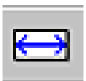
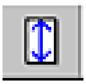
If you want...	then...
to select a single object,	• click the ***Select*** icon,  • click the object of interest.
to select several objects,	• click the ***Select*** icon, • press and hold the **Ctrl** key while you click the objects.
to move the selected object(s),	click on the objects, hold down the left mouse button and drag the object(s) to the new position.

If you want...	then...
to resize the selected object(s),	click one of the object border anchors, either in the corners or in the middle of a border, and drag the box to the new size. **Note:** *Some **Text** objects cannot be resized.*

Alignment toolbar icon functions

Objects can be placed in exact positions and sized in relation to other objects. The table below describes the function of the ***Alignment*** toolbar icons in the ***Report Editor***:

Toolbar icon	Function
	**Align left** Matches the left alignment of all selected objects to that of the highlighted object.
	**Align right** Matches the right alignment of all selected objects to that of the highlighted object.
	**Align top** Matches the top alignment of all selected objects to that of the highlighted object.
	**Align bottom** Matches the bottom alignment of all selected objects to that of the highlighted object.
	**Adjust to margins** Stretches the selected object(s) to the left and right margins.

Toolbar icon	Function
	**Adjust to left margin** Adjusts the selected object(s) to the left margin.
	**Adjust to right margin** Adjusts the selected object(s) to the right margin.
	**Adjust to center** Adjusts the selected object(s) to the center of the page.
	**Make same size** Adjusts the selected objects to the same size as the highlighted reference object.
	**Make same width** Adjusts the selected objects to the same width as the highlighted reference object.
	**Make same height** Adjusts the selected objects to the same height as the highlighted reference object.

Note: *The **Make same size** and **Make same width** functions can only be used to resize the width of chromatograms, free text and picture objects.*

How to print the report

The table below describes how to print the report:

Step	Action
1	• Choose ***File:Print***. *or* • Click the ***Print*** icon.  *Result*: The ***Print*** dialog box opens. **Note:** *Printers are set up in the **File** menu of the **UNICORN Manager**.*
2	• Select the printing range. • Select the number of copies.
3	Click ***OK***.

Note: *You can also print the report from the **Generate Report** dialog box.*

How to save the report in PDF format

The table below describes how to save the finished report as a PDF file:

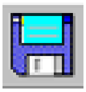
Step	Action
1	• Click the ***UNICORN Manager*** icon on the Windows taskbar. *Result*: The ***UNICORN Manager*** opens.
2	• Choose ***File:Printer Setup***. *Result*: The ***Print Setup*** dialog box opens.

Step	Action
3	• Select an Adobe Acrobat printer from the ***Printer Name*** list (e.g. Acrobat Distiller). • Click the ***Properties*** button and edit the document properties if needed. • Select the appropriate paper size and orientation. • Click ***OK***.
4	• Click the ***Evaluation*** icon on the Windows taskbar. *Result*: The ***Evaluation*** module opens
5	• Print the report as described in *"How to print the report"*. *Result*: The report is created as a PDF file and saved in the location specified in your Acrobat settings.

Note: *You must have a full installation of Adobe Acrobat or a suitable printer driver to be able to do this.*

How to save the report format

The table below describes how to save the finished report format:

Step	Action
1	• Choose ***File:Save***. *or* • Click the ***Save*** icon.  *Result*: The ***Save Report Format*** dialog box opens.
2	• Type a name for the format. • Select if you want to save the format for global use. • Select if you want to save the format as default. **Note:** *The name for the default format will automatically be changed to **DEFAULT**.*

Step	Action
3	Click ***OK***.

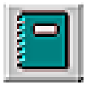
7.6.2 How to edit an existing report format

Introduction

This section describes how to edit an existing report format.

How to edit a report

The table below describes how to edit a report format in the ***Evaluation*** module.

Step	Action
1	Open a result file.
2	• Select ***File:Report***. or • Click the ***Report*** icon.  *Result*: The ***Generate Report*** dialog box opens.
3	• Select a ***Customized Report Format*** to edit. • Click the ***Edit*** button. *Result*: The report format opens in the ***Report Editor***.
4	• Double-click the report item you want to edit. • Make the desired changes in the dialog box. • Continue to edit all items until the format is complete. ***Note:*** *See Section 7.6.1 How to create and print a customized report, on page 151 for more information.*
5	• Select ***File:Save As***. *Result*: The ***Save Report Format*** dialog box opens.

Step	Action
6	• Type a name in the ***Report format name*** text box. - Select the ***Save as global format*** check box to make the format available to other users. - Select the ***Save as default report format*** check box if desired (The format is saved as DEFAULT). - Click ***OK***. *Result*: The new report format is saved and available in the ***Format*** list.

7.7 Run documentation

Introduction

The full documentation for a run is stored in the result file. This section describes:

- some of the contents of the run documentation,
  and
- how to view and print the run documentation,

How to view and print the run documentation

The table below describes how to view and print the run documentation.

Step	Action
1	Open a result file.
2	• Choose ***View: Documentation*** in the ***Evaluation*** module. *or* • Click the view ***Documentation*** icon.  *Result*: The ***Documentation*** dialog box opens. See further information about some of the tabs below.
3	Click the ***Print*** button. *Result*: The ***Print*** dialog box opens.
4	Select the documentation items you want to print and click ***OK***. *Result*: The documentation is printed on the default Windows printer.

The tabs of the Documentation dialog box

The table below describes the contents of some of the ***Run Documentation*** tabs.

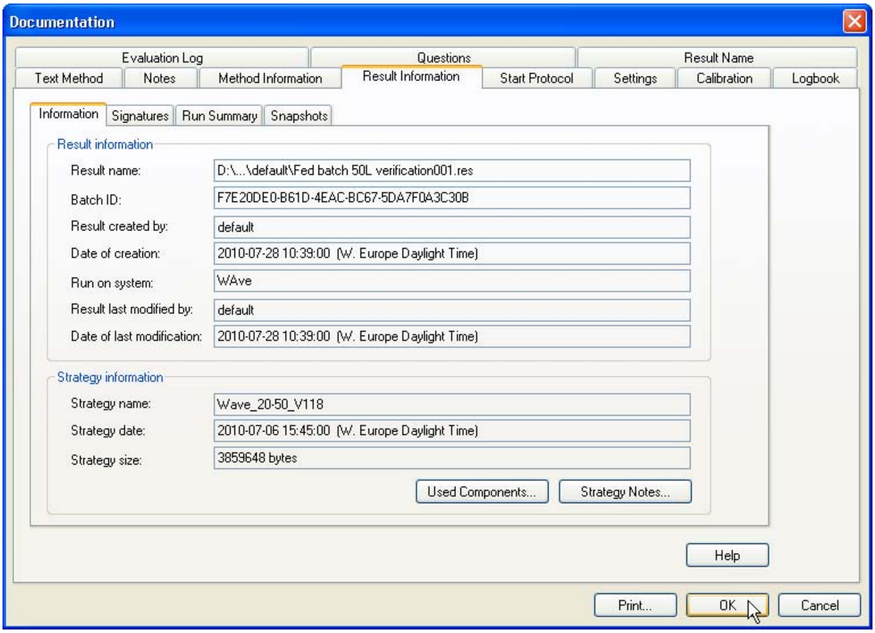
Documentation tab	Contents
Notes	The ***Notes*** tab displays the notes that you have made at various times during the method run. You are also able to type new comments on the ***Evaluation Notes*** sub-tab. **Note:** *Click the **Find** button to search for a specific text string in the **Notes**.*
Logbook	The ***Logbook*** tab displays what happened during a method run. You can view information concerning alarms, the method, manual changes during the run, errors, etc. **Note:** *Click the **Find** button to search for a specific text string in the **Logbook**.*
Evaluation Log	The ***Evaluation Log*** lists all of the evaluation operations that you have performed for the result file during all sessions, including at the end of the method.
Method Information	The ***Method Information*** tab displays information about the method, such as the method name, the target system and the date of the last change. Information about the strategy includes name, date and size. There is also a sub-tab for ***Signatures***.
Result Information	See "The Result Information tab" in this section.

The Result Information tab

The ***Result Information*** tab displays information about the result file, such as

- the result file name
- the system that was used
- the last date it was changed.

Information about the strategy includes name, date and size. The ***Run Summary*** sub-tab is a summary of the run expressed in volume or time per block. There is also a sub-tab for ***Signatures*** and a sub-tab where all ***Snapshots*** that have been taken during the run are displayed.


Documentation
Evaluation Log
Questions
Result Name
Text Method
Notes
Method Information
Result Information
Start Protocol
Settings
Calibration
Logbook
Information
Signatures
Run Summary
Snapshots
Result information
Result name:
D:\...\default\Fed batch 50L verification001.res
Batch ID:
F7E20DE0-B61D-4EAC-BC67-5DA7F0A3C30B
Result created by:
default
Date of creation:
2010-07-28 10:39:00 (W. Europe Daylight Time)
Run on system:
WAve
Result last modified by:
default
Date of last modification:
2010-07-28 10:39:00 (W. Europe Daylight Time)
Strategy information
Strategy name:
Wave_20-50_V118
Strategy date:
2010-07-06 15:45:00 (W. Europe Daylight Time)
Strategy size:
3859648 bytes
Used Components...
Strategy Notes...
Help
Print...
OK
Cancel

8 How to edit results

Introduction

This chapter describes

- how to edit the results that are presented in the ***Evaluation*** module
- how to import and compare runs
- how to import and export results.

For more information about how to view results, see chapter *Chapter 7 How to view results, on page 121*.

In this chapter

This chapter contains these sections:

8.1 How to enter and edit text in the chromatogram

How to enter text

Text can be added to the chromatogram. The table below describes how to do this:

Step	Action
1	• Right-click the curves view of the chromatogram window and select ***Add text*** from the menu. *or* • Choose ***Edit:Text:Add***.
2	Click where you want to insert text in the chromatogram. *Result*: A text box opens.
3	Type the text.
4	Click outside the text box to set the text.

How to edit the text

The table below describes how to edit inserted text:

Step	Action
1	Choose ***Edit:Text:Edit***. *Result:* The ***Edit Texts*** tab of the ***Chromatogram Layout*** dialog box is displayed.
2	• Select the text that you want to edit and make the appropriate changes in the ***Selected text*** field. • Click the ***Change text*** button or the ***Delete text*** button. • Use the ***Font*** and ***Set Orientation*** buttons if needed, and make the desired changes in the resulting dialog boxes.
3	Click ***OK*** to apply the changes.

Shortcut option

You can also right-click outside the text box and select ***Edit Text Mode*** from the shortcut menu. This activates all the text boxes in the chromatogram. The list below describes how to edit the text:

- Click the text and type the new text.
- Click outside the text box to set the text.

8.2 How to rename chromatograms and curves

Instruction

The table below describes how to rename chromatograms or curves in the ***Evaluation*** module:

Step	Action
1	Choose ***Edit:Rename*** and the relevant option ***Chromatogram*** or ***Curve***. *Result*: The ***Rename*** dialog box opens.
2	Select the appropriate object.
3	Type a new name in the ***Name*** field.
4	Click ***OK***.

Note: *The original raw data curves cannot be renamed. They will not be listed as options in the dialog box.*

8.3 How to import and export results

Introduction

Curves and data can be imported and exported in different formats. This section describes how to import and export results.

In this section

This section contains these topics:

8.3.1 How to import results

Introduction

This section describes how to import curves in different formats.

Curve formats

You can only import curves in ASCII (text) format.

How to import curves

The table below describes how to import curves.

Step	Action
1	Choose ***File:Import:Curve***. *Result*: A menu with the available curve formats opens.
2	Choose the correct curve format. *Result*: The ***Choose File to Import From*** dialog box opens.
3	Locate the file that contains the curve and double-click the file. *Result*: The ***Import Curves*** dialog box opens.
4	Select the curve(s) to import and click the ***OK*** button. *Result*: The curves are opened in the ***Evaluation*** module.

8.3.2 How to export results

Introduction

This section describes how to export curves in different formats and how to copy data and curves to the clipboard.

Data formats

You can export data in the following formats:

- ASCII (.asc)
- Excel (.xls)

Export options

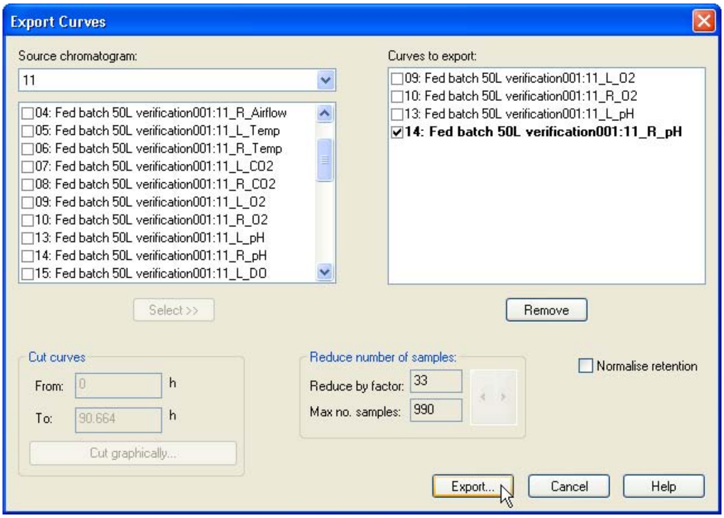
Select ***File:Export*** in the ***Evaluation*** module to export data from an open result file. The following export options are available:

- ***Curves***
- ***Documentation***
- ***Evaluation log***

How to export curves

The table below describes how to export curves in the ***Evaluation*** module.

Step	Action
1	Choose ***File:Export:Curves***. *Result*: The ***Export Curves*** dialog box opens.



Step	Action
2	• Select the curve(s) you want to export. • Enter parameters to limit the curve(s) if necessary. • Click the ***Select*** button. • Repeat Step 2 to select more curves.
3	Click the ***Export*** button. *Result*: The ***Export Curves to File*** dialog box opens.
4	Select the export file format from the ***Save as type*** droplist. • ***ASCII files (*.asc)*** • ***Excel files (*.xls)***
5	• Select a destination folder. • Type a file name and click ***OK***.

Note: *Curves are exported as series of numerical coordinates that refers to the time/volume and signal respectively.*

How to limit the exported curves

You can optimize the exported curves to only the parts that you want to focus on, in the ***Export Curves*** dialog box. The table below describes how to use these editing options.

Dialog box option	Instruction
Cut curves	Enter retention values in the text boxes to limit the curve to only a portion of the original curve.
Cut graphically	This button opens the ***Export Cut*** dialog box. Move the vertical markers to the correct cutoff points.
Reduce number of samples	Adjust the factor value or the maximum number of samples. To reduce the number of samples by a factor of five means that only every fifth point will be sampled for export.
Normalize retention	Select the ***Normalize retention*** checkbox to have all exported curves normalized to a common X-axis.

How to export methods, documentation and evaluation logs

The table below shows how to export methods, documentation and evaluation logs:

Step	Action
1	Select the data you want to export.
2	• Select options in the dialog box. • Click the ***Export*** button.
3	• Select a destination folder and type a file name. • Click ***OK***.

Copy to the clipboard

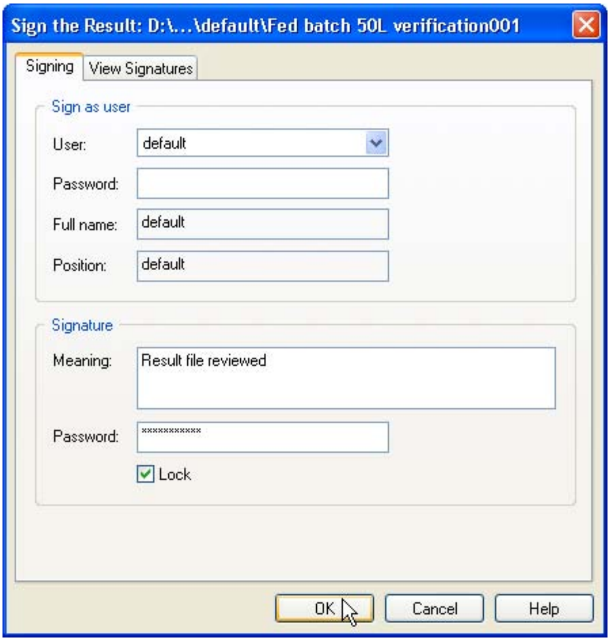
You can also use the ***Windows*** clipboard to copy the contents of the active window and paste it into other programs, e.g. ***Microsoft Word***. Curves and documentation are copied as Windows enhanced metafiles (.emf) and peak tables are copied as text. Only the peak table columns that are selected in the spreadsheet will be copied.

8.4 How to sign results electronically

Instruction

Result files can be signed electronically to enhance data file security. The table below describes how to sign a result file electronically in the ***Evaluation*** module:

Step	Action
1	Choose ***File:Sign Result***. *Result*: The ***Sign the Result*** dialog box opens.



Step	Action
2	• The ***Sign as user*** field shows the properties for the current user. You can also choose another user from the droplist. If you choose a new user, the corresponding password must be typed in the ***Password*** text box. • Type a short text description for the signed operation in the ***Meaning*** field (e.g. Result file reviewed). • The ***Lock*** check box is selected as default, to lock the result file from further changes. • Type your signature password in the ***Password*** field and click ***OK***. ***Note:*** *You should only lock the result when you are sure that the result file will not be modified anymore.*

Signatures associated with the result

The ***View Signatures*** tab of the ***Sign the Result*** dialog box provides a list of all signatures associated with the current result. The information on this tab is for viewing purposes only and cannot be changed.

8.5 How to save results and exit the Evaluation module

Introduction

After you have finished the evaluation process, you can save all the changes you have made to the chromatograms, including newly created curves and chromatograms that you have imported and created.

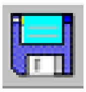
How to delete unwanted curves

All the curves that you created during your manipulations will be saved in the chromatogram. If some of these curves are not be needed anymore, select ***Edit:Delete:Curves*** in the ***Evaluation*** module to remove the curves.

Note: *The original curves that were created during the run can never be deleted.*

How to save the results

You can either save your edited results in the original file or in a new result file. The table below describes how to save the results in the ***Evaluation*** module.

If you want to save the edited results...	then...
in the original result file	• select ***File:Save***. *or* • click the ***Save*** toolbar icon. 
in a new result file	select ***File:Save as***.

Note: *The previous version of the result file will be overwritten if you save the changes. This cannot be reversed. However, the raw data curves remain unchanged.*

How to exit the Evaluation module

The table below describes how to exit the ***Evaluation*** module:

Step	Action
1	Choose ***File:Exit***. *Result*: If there are unsaved changes, a dialog box opens with an option to save the changes before exit.
2	Select ***Yes*** if you want to save the changes. *Result*: The result file is closed in the ***Evaluation*** module and the ***UNICORN Manager*** module is displayed.

9 System settings

Introduction

This chapter describes some of the general UNICORN DAQ settings.

In this chapter

This chapter contains this section:

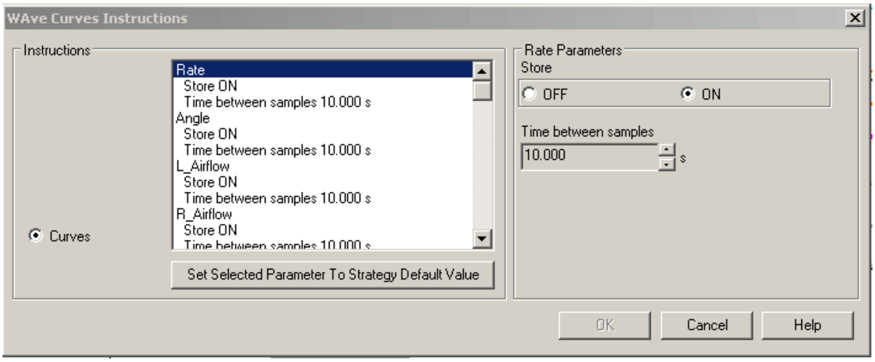
9.1 Curves

Introduction

This section is a short description of the ***Curves*** system settings.

The Instructions dialog box

The illustration below shows the ***Instructions*** dialog box with the ***Curves*** instructions selected.



Curve settings

The curve settings determine which monitor signals that will be stored as curves in the result file. Verify that ***Store:ON*** is set in the ***Instructions*** dialog box for all signals that are to be stored.

Note: *If a curve is set to **Store:OFF**, data from the specific monitor cannot be displayed in the curves window during a process run. The data will not be recorded in any way.*

Store and Time between samples

The table below describes the function of the two curve settings.

Setting	Function
Store (OFF/ON)	This setting determines whether the curve data is stored or not.
Time between samples	This setting determines with which frequency curve data is recorded. It does not affect the reading frequency of the actual monitor. Default value is the shortest possible time between samples.

10 Error reporting

Introduction

This chapter describes the error reporting functions.

In this chapter

This chapter contains these sections:

10.1 How to generate problem reports

Introduction

UNICORN DAQ contains a ***Generate Report Wizard*** for registration of errors or problems that you have detected or that occur during a run. The ***Generate Report Wizard*** takes you through the steps to generate your report.

There are two ways of accessing the ***Generate Report Wizard***:

- From the ***UNICORN Manager***
- From the ***System Control***.

In this section

This section contains these sub-sections:

10.1.1 How to generate a problem report from the UNICORN Manager

Introduction

The ***Generate Report Wizard*** is used to generate problem reports. This section describes how to generate a problem report from the ***UNICORN Manager***.

Step 1: How to create the report

The table below describes how to create a report with the ***Generate Report Wizard***.

Step	Action
1	Select ***Administration:Create System Report*** in the ***UNICORN Manager*** module.
2	The first step is a ***Welcome*** screen. • Click the ***Next*** button. *Result*: The ***Systems*** dialog box opens with a list of the available systems for the logged-on user.
3	Select a system for which the report is to be generated and click the ***Next*** button. *Result*: The ***Description*** dialog box opens.
4	Add the following information in the dialog box: • a short description of the problem • the circumstances under which the problem occurs • the consequences of the problem. Click the ***Next*** button. *Result*: The ***Reproducibility*** dialog box opens.

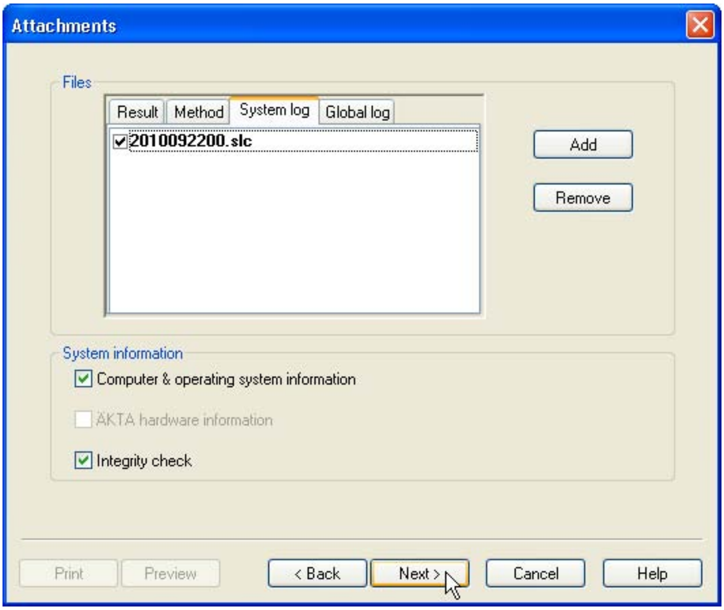
Step	Action
5	Specify whether the problem is reproducible or not. Select one of these alternatives: • ***Yes*** (Provide a short description in the text box of how the problem can be reproduced.) • ***No*** • ***Unknown***. Click the ***Next*** button to proceed to attach example files (see table below).

Step 2: How to attach a file

You can attach result files and log files to the problem report.

The table below describes how to attach a file:

Step	Action
1	The ***Attachments*** dialog box is displayed:



Step	Action
2	• Depending on the character of the file to be attached, select the appropriate tab: ***Result***, ***System log*** or ***Global log***. • Attach the file: - Click the ***Add*** button. - Select a file in the dialog box and click the ***Attach*** or ***OK*** button. *Result*: The selected file is added to the tab in the ***Attachments*** dialog box. **Note:** *To remove a file, select the check box and click the* ***Delete*** *button.*
3	To include more information in the report, select the appropriate check boxes in the ***System information*** field. By default, all options are checked. **Computer & operating system information** A summary of the computer and operating system information, for example type of processor, processor speed, RAM, hard disk capacity and printer. **Integrity check** When UNICORN is installed a checksum calculation is performed on the stationary files (*.dll and *.exe) for the system. An integrity check means that a new checksum calculation is performed for the same files in their folders. This new calculated value is compared with the checksum value obtained during installation. The results of the comparison are presented in the report and any deviations are included. Click the ***Next*** button. *Result*: The ***Generate report*** dialog box is displayed.
4	Proceed to *Step 3: How to generate and save the report* below.

Step 3: How to generate and save the report

The table below describes how to generate and save the report:

Step	Action
1	By default, the report is saved in the folder `Unicorn\Reports`. If you want to save the report at another location, select a folder in the tree structure.

Step	Action
2	You also have these options: • Click the ***Preview*** button to open the report in Notepad. • Click the ***Print*** button to print the report without any preview.
3	Click the ***Finish*** button to generate and save the report.

10.1.2 How to generate a problem report from the System Control

Introduction

The ***Generate Report Wizard*** is used to generate problem reports. When an error message appears in ***System Control***, you can activate the report wizard from the error message dialog box. The ***Generate Report Wizard*** can also be activated anytime if you choose ***System:Report***.

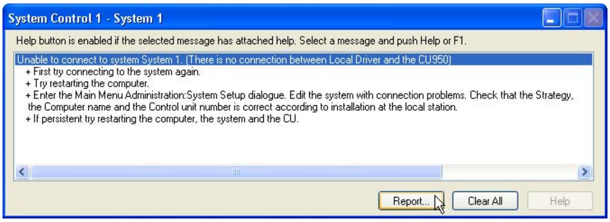
Step 1: How to create the report

When an error message appears in ***System Control***, follow the instructions in this table to activate the ***Generate Report Wizard*** and create a report:

Step | **Action**

1

- Click the ***Report*** button in the error message dialog box.



or

- Choose ***System:Report***.

2

The first step is a ***Welcome*** screen.

Click the ***Next*** button.

Result: The ***Description*** dialog box is displayed and shows a list of the problems/errors that have occurred. All the problems/errors that have occurred, together with help texts, are automatically recorded and included in the report.

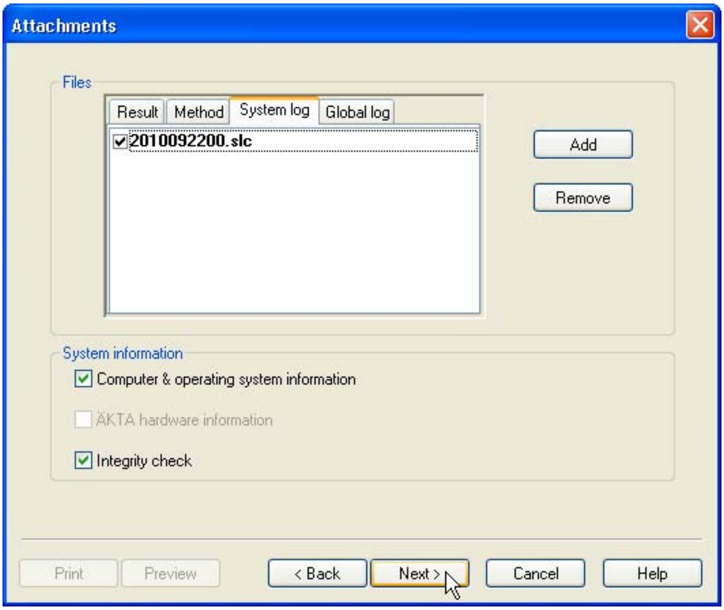
Tip: If you select a specific error in the ***Description*** dialog box, the appropriate help text is shown in the error message box.

Step	Action
3	Add the following information in the ***Description*** dialog box: • A short description of the problem. • The circumstances under which the problem occurs. • The consequences of the problem. Click the ***Next*** button. *Result*: The ***Reproducibility*** dialog box opens.
4	Specify whether the problem is reproducible or not. Select one of these alternatives: • ***Yes*** (Provide a short description in the text box of how the problem can be reproduced.) • ***No*** • ***Unknown***. Click the ***Next*** button to proceed to attach example files (see table below).

Step 2: How to attach a file

You can attach log files to the problem report.

The table below describes how to attach a file:

Step	Action
1	The ***Attachments*** dialog box is displayed: 
2	• Depending on the character of the file to be attached, select the appropriate tab: ***Result***, ***System log*** or ***Global log***. • Attach a file: - Click the ***Add*** button. - Select a file in the dialog box and click the ***Attach*** or ***OK*** button. *Result*: The selected file is added to the tab in the ***Attachments*** dialog box. **Note:** *To remove a file, select the checkbox and click the **Delete** button.*

Step	Action
3	To include more information in the report, select the appropriate check boxes in the ***System information*** field. By default, all options are checked. **Computer & operating system information** A summary of the computer and operating system information, for example type of processor, processor speed, RAM, hard disk capacity and printer. **Integrity check** When UNICORN is installed a checksum calculation is performed on the stationary files (*.dll and *.exe) for the system. An integrity check means that a new checksum calculation is performed for the same files in their folders. This new calculated value is compared with the checksum value obtained during installation. The results of the comparison are presented in the report and any deviations are included. Click the ***Next*** button. *Result*: The ***Generate*** report dialog box is displayed.
4	Go to step 3 below.

Step 3: How to generate and save the report

The table below describes how to generate and save the report.

Step	Action
1	By default, the report is saved in the folder: `Unicorn\Reports`. If you want to save the report in another location, select a folder in the tree structure.
2	You also have these options: • Click the ***Preview*** button to open the report in Notepad. • Click the ***Print*** button to print the report without any preview.
3	Click the ***Finish*** button to generate and save the report.

Appendix A Audit trails

Purpose

The audit trail provides the system administrator with a full record of UNICORN DAQ usage and system activity.

The different types of audit trail files

There are two types of audit trail files, global files and system-specific files:

The *global* audit trail files

- are saved on the server disk in a network installation
- are examined via a network connection.

The *system* audit trail files

- are saved on the local station to which the WAVE Bioreactor system is physically connected
- can be examined from the local station without logging on to the network
- can be examined from any computer in a network installation.

Tabs of the Audit trail dialog box

The ***Audit trail*** dialog box has two or more tabs, one ***Global*** tab and a ***System*** tab for each installed system.

- The global tab displays usage information for the complete UNICORN DAQ installation.
- The system tab(s) displays usage information for a chosen system.

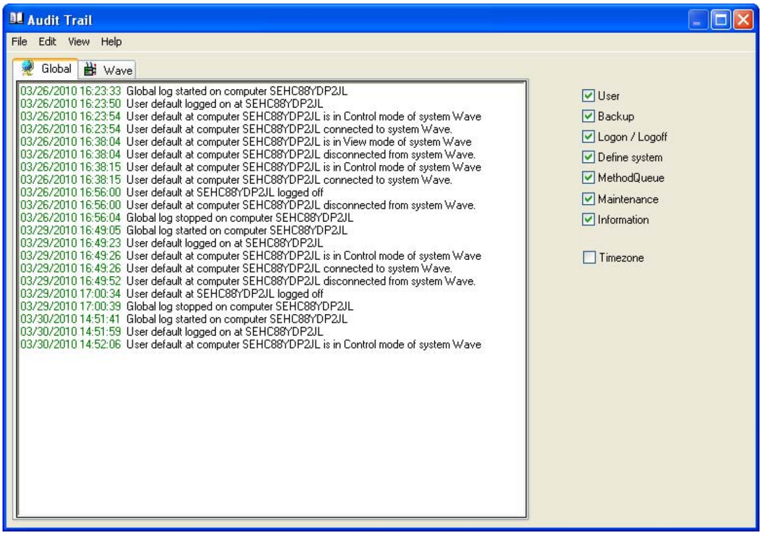
How to view the audit trail files

The table below describes how to examine the global and system audit trail files:

Step	Action
1	Choose ***Administration:Audit Trail*** in the ***UNICORN Manager***. *Result*: The ***Audit Trail*** dialog box is opened, see the illustration in *The Global tab* below.
2	By default the ***Global*** tab is displayed which shows the information of the global audit trail file. If you want to examine the audit trail file for a system, click a ***System*** tab. There is one tab for each installed system. See illustration in *The System tab* below.
3	Select the check boxes for the items you want to display. ***Note:*** *All items are recorded in the audit trail. The check boxes only control which items are displayed in the dialog box.*

The Global tab

The illustration below shows the ***Global*** tab of the ***Audit Trail*** dialog box:



The items of the Global tab

The table below describes the items which can be displayed on the ***Global*** tab:

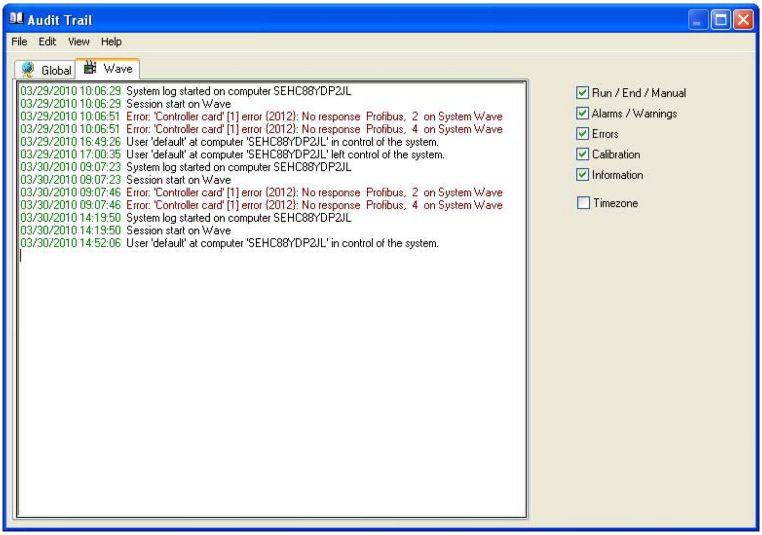
Item	Displays

User	• user creation, deletion and redefinition.
	• creation of rescue file for system definitions
	• restoration of system definitions with rescue file
	• changes of global and personal lists:
	  - report format
	  - templates

Backup	backup operations for global audit trail files.
Logon/Logoff	• all logon and logoff attempts • the name of the user logging on or off • failed logon attempts.
Define system	system definition, deletion and definition.
Maintenance	• maintenance activities that are scheduled in the ***System Control*** module (menu command ***System:Maintenance***). • settings made in maintenance module
Information	• system lock/unlock • socket on/off • global log started/stopped
Timezone	the time zone where the activity was logged.

The System tab

The illustration below shows a ***System*** tab of the ***Audit Trail*** dialog box:



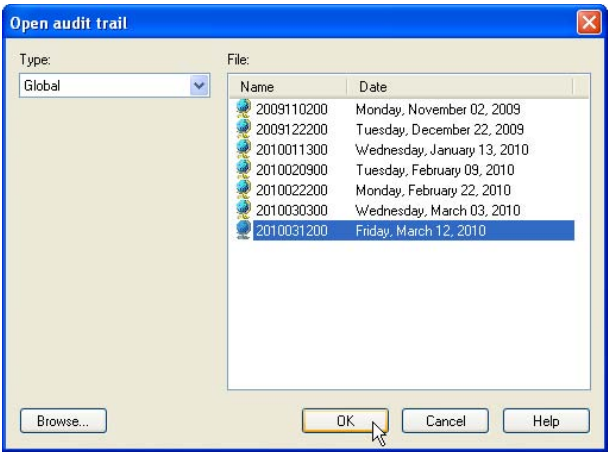
The table below describes the items which can be displayed on a ***System*** tab:

Item	Displays
Run/End/Manual	• the times for start and completion of a run • the times for manual operation.
Alarms/Warnings	alarms and warnings defined in the strategy for the system.
Errors	system errors.
Calibration	monitor calibration operations.
Information	system log started/stopped
Timezone	the time zone where the activity was logged.

How to view previous audit trail files

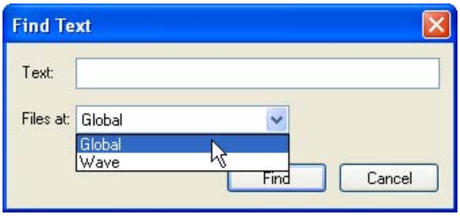
A new audit trail file is created at regular intervals and the old audit trail file is automatically saved. See *How to renew audit trail files* below for more information.

The table below describes how to view previous audit trail files:

Step	Action
1	Choose ***Administration:Audit Trail*** in the ***UNICORN Manager***. *Result*: The ***Audit Trail*** dialog box displays the *current* audit trail.
2	• Choose ***File:Open*** to display the ***Open audit trail*** dialog box: 
3	• Choose ***Global*** or a ***System*** in the ***Type*** drop-down box. • Select the file(s) to open from the ***File*** list: - Use the **CTRL** key if you want to open several audit trail files at the same time. - Click the ***Browse*** button if you want to open a file which is not listed. ***Note:*** *Files are named by date and serial number.* • Click ***OK***. *Result*: The audit trail file(s) is now displayed on a new, temporary tab.

How to search for text in audit trail files

The table below describes how to search for text in audit trail files:

Step	Action
1	Choose ***Administration:Audit Trail*** in the ***UNICORN Manager***. *Result*: The ***Audit Trail*** dialog box is displayed.
2	If you want search the *currently open* audit trail file • press the **CTRL** + **F** keys or choose ***Edit:Find in current log***. **Note:** *The currently open audit trail is the one displayed in the **Audit trail** dialog box and depends on the selected tab (**Global** or a **System**).* • type the text string you want to find in the ***Find Text*** dialog box and click the ***Find*** button. • press the **F3** key (or choose ***Edit:Find next***) to find the next occurrence of the search string.
3	If you want to search *all the existing* audit trail files, either ***Global*** or ***System***, • choose ***Edit:Find in log files***. • type the search string, choose whether to search ***Global*** or ***System*** audit trail files in the ***Files at*** drop-down box, and click the ***Find*** button.  *Result*: The search results are displayed on a new, temporary tab named ***Find result***.

How to print audit trails

The table below describes how to print an audit trail file:

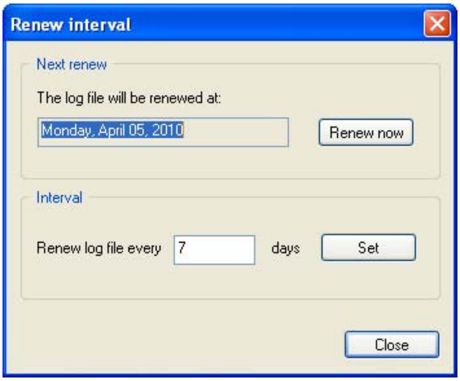
Step	Action
1	Choose ***Administration:Audit Trail*** in the ***UNICORN Manager***. *Result*: The ***Audit Trail*** dialog box is displayed.
2	• Select the ***Global*** tab or a ***System*** tab. • If you want to print other audit trail files than the currently open, then open the file(s) as described in *How to view older audit trail files* above.
3	Choose ***File:Print*** to print the file(s) displayed in the dialog box.

How to renew audit trail files

The audit trail file is renewed at regular intervals between 1 to 30 days. The old audit trail file is then saved automatically together with all the previous audit trail files.

The table below describes how to set the renewal interval and how to renew the audit trail immediately:

Step	Action
1	Choose ***Administration:Audit Trail*** in the ***UNICORN Manager***. Result: The ***Audit Trail*** dialog box is displayed.
2	Choose ***View:Renew interval***. *Result*: The ***Renew interval*** dialog box is displayed.



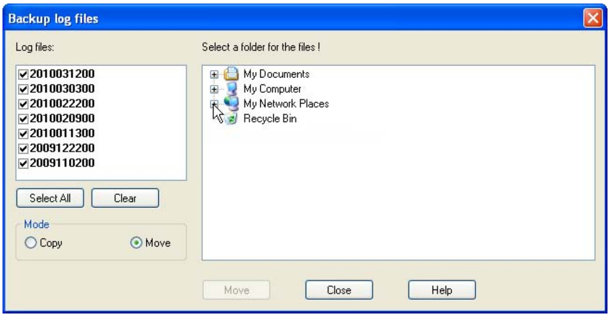
Step	Action
3	**Set renewal interval** • Type the desired interval in the ***Interval*** field. The standard value is 7 days. • Click the ***Set*** button. *Result*: The new ***Interval*** setting will take effect after the next scheduled renewal, or immediately if the ***Renew now*** button is clicked. **Renew now** • Click the ***Renew now*** button to start a new audit trail file. The old file is saved automatically. *Example*: If the audit trail is set to renew every 7 days and you click ***Renew now*** on a Friday, a new file will be started immediately and another file will be started the following Friday.
4	Click the ***Close*** button.

How to back up audit trail files

The table below describes how to back up audit trail files.

Note: *Old audit trail file are automatically saved each time a new one is created. This backup function is only necessary if you want to copy or move the audit trail files to a specific location.*

Step	Action
1	Choose ***Administration:Audit Trail*** in the ***UNICORN Manager***. *Result*: The ***Audit Trail*** dialog box is displayed.

Step	Action
2	Choose ***File:Backup***. *Result*: The ***Backup log files*** dialog box is displayed. 
3	You can choose either to copy or move the log files. • Select the files you want to back up in the ***Log files*** field. • Select a destination folder in the structure tree. • Select to ***Copy*** or ***Move*** the file(s) in the ***Mode*** field. The ***Move*** alternative is recommended to save disk space. • Click the ***Copy*** or ***Move*** button, depending on the previous choice. • Click the ***Close*** button. ***Note:*** *Backup operations are recorded in the audit trail.*

Appendix B Data sampling

Effective sampling frequency

The initial effective sampling frequency for each monitor is set in the system strategy. It can be viewed and changed in the ***Curves*** group of ***System:Settings*** in ***System Control***.

The default initial sampling frequency for the sensors are set to sample at every 10th second. After approximately 3.7 days, a new chromatogram will automatically be started where the sampling will continue at the same rate.

A total of ten chromatograms will be created from the same acquisition run. This will provide sampling at the same rate for up to 37 days. If this time is exceeded, the sampling rate will be halved in the last chromatogram only. This is done by excluding every second sampling, creating an effective samplig rate of every 20th second. The sampling rate reduction will be repeated for the last chromatogram after the number of run days shown in the table below:

Maximum number of run days	Effective sensor sampling rate (Seconds between samplings)
37	10
40.7	20
48.1	40
62.9	80

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For local office contact information, visit
www.gelifesciences.com/contact

GE Healthcare Bio-Sciences AB
Björkgatan 30
751 84 Uppsala
Sweden

www.gelifesciences.com/unicorn

GE Healthcare Europe GmbH
Munzinger Strasse 5, D-79111 Freiburg, Germany

GE Healthcare UK Limited
Amersham Place, Little Chalfont, Buckinghamshire, HP7 9NA, UK

GE Healthcare Bio-Sciences Corp.
800 Centennial Avenue, P.O. Box 1327, Piscataway, NJ 08855-1327, USA

GE Healthcare Japan Corporation
Sanken Bldg.3-25-1, Hyakunincho Shinjuku-ku, Tokyo 169-0073, Japan

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