

Lab Manual



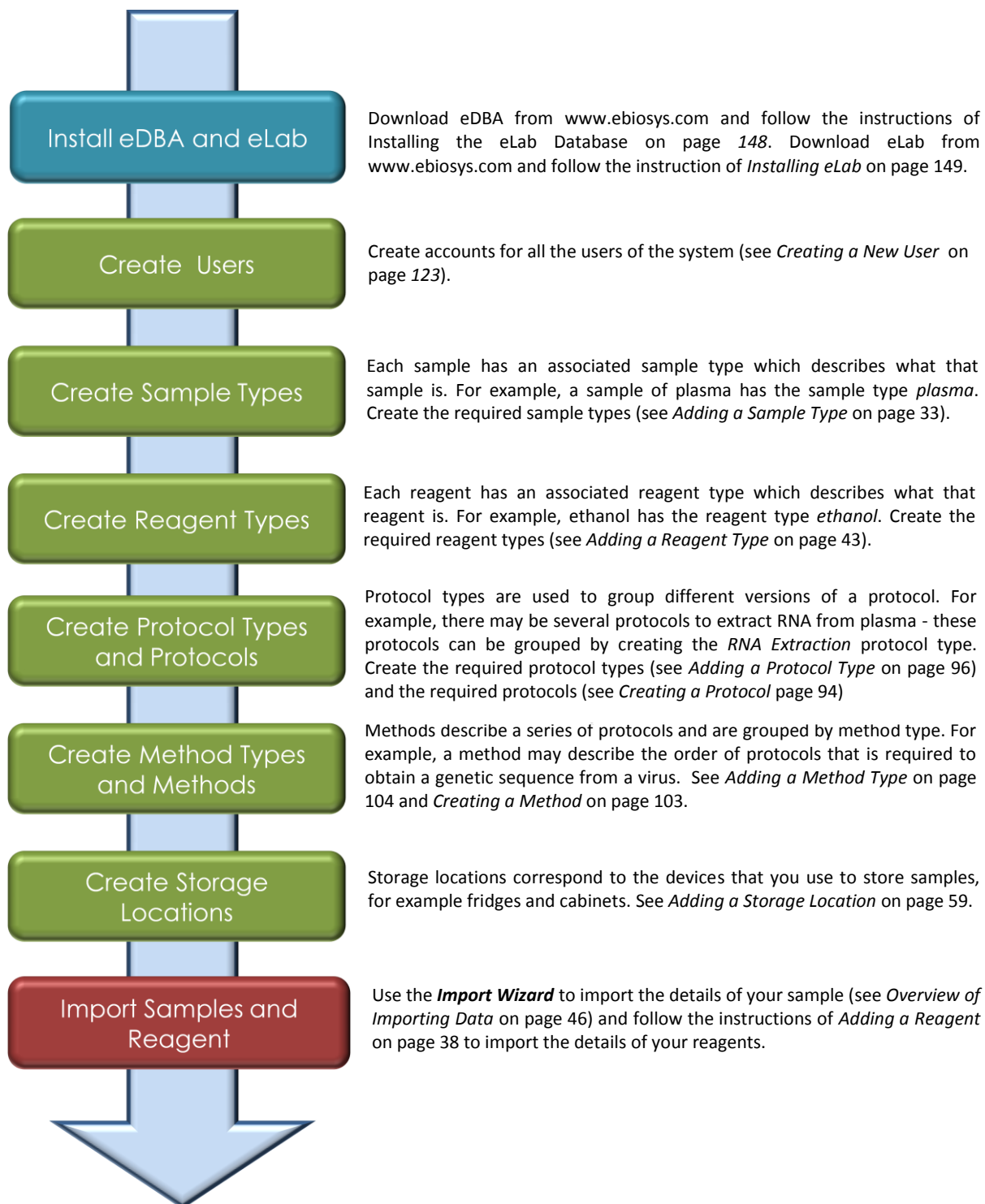
The Laboratory Information Management System

www.ebiosys.com

ebiosys

Getting Started

The diagram below describes the order of steps required for getting eLab ready for production.



See inside back cover
(working with samples)

Contents

Part 1 eLab Fundamentals.....	11
Chapter 1 Introducing eLab.....	1
Introduction to a Laboratory Information Management System	1
Overview	2
Starting eLab	3
Logon.....	3
The Ribbon Control	4
The eLab Menu.....	5
Data-view	5
Container Views	6
Locking the System	8
Logging Out	8
Exiting eLab	8
Using Help	8
Chapter 2 Introducing Home.....	10
Overview of the Home Tab	10
Chapter 3 Home Step-By-Step	11
Filtering the Tasks Overview	11
Opening a Task.....	11
Printing the Task Overview	11
Exporting the Task Overview	11
Filter the Worklist Overview	12
Opening a Worklist.....	12
Printing the Worklist Overview	12
Exporting the Worklist Overview	12
Sending Feedback about eLab	12
The About Screen.....	13
Part 2 Project Management	14
Chapter 4 Introducing Projects	15
What is a Project?	15
Why Use Projects?	15
When to Use a Sub-Project	15
Viewing a Project or Subproject.....	16
Chapter 5 Projects Step-by-Step	17
Creating a New Project	17
Changing the Details of a Project.....	17
Removing a Project	18
Adding Samples to a Project	18

Removing Samples from a Project	19
Viewing Sample History	19
Changing the Sample Status Colour	19
Assigning Samples to a Worklist	20
Part 3 Materials	22
Chapter 6 Introducing Materials	23
What is a Material?	23
Overview of the Materials Tab.....	23
Chapter 7 Samples	24
Introduction to Samples.....	24
The Samples Screen Overview	26
Chapter 8 Samples Step-By-Step.....	27
Searching for Samples.....	27
Sending Samples to a Worklist.....	27
Sending Samples to a Project.....	28
Adding a Sample.....	28
Editing a Sample.....	29
Moving a Sample.....	30
Aliquoting a Sample	30
Removing a Sample.....	31
Printing Sample Labels	32
Printing Sample Details	32
Exporting Sample Details	32
Viewing Sample History	33
Adding a Sample Type.....	33
Editing a Sample Type	34
Removing a Sample Type	34
Chapter 9 Reagents	35
Introduction to Reagents	35
The Reagents Screen Overview.....	37
Chapter 10 Reagents Step-By-Step	38
Searching For Reagents.....	38
Adding a Reagent	38
Editing a Reagent	39
Moving a Reagent	40
Aliquoting a Reagent.....	40
Removing a Reagent	41
Printing Reagent Labels.....	42
Printing Reagent Details.....	42
Exporting Reagents Details	42

Adding a Reagent Type	43
Editing a Reagent Type.....	43
Removing a Reagent Type.....	44
Chapter 11 Import Wizard	45
Importing Data	45
Import Wizard Introduction	45
Overview of Importing Data.....	46
Database Fields Description	47
Chapter 12 Import Wizard Step-By-Step.....	49
Importing Data	49
Creating a Template	50
Deleting a Template	50
Chapter 13 Containers	52
Introduction to Containers.....	52
The Containers Screen Overview	53
Chapter 14 Containers Step-By-Step.....	54
Searching for Containers.....	54
Adding a Container.....	54
Editing a Container.....	55
Removing a Container.....	55
Printing Container Labels	56
Printing Container Details	56
Exporting Container Details	56
Using the Container Designer	57
Chapter 15 Fridges and Cabinets	58
Introduction to Fridges and Cabinets.....	58
The Fridges and Cabinets Screen Overview	58
Chapter 16 Fridges and Cabinets Step-By-Step	59
Adding a Storage Location	59
Editing a Storage Location.....	59
Removing a Storage Location.....	60
Printing Storage Location Labels.....	60
Printing Storage Location Details.....	60
Exporting Storage Location Details	60
Chapter 17 Labels.....	61
Introduction to Labels	61
Chapter 18 Labels Step-By-Step.....	62
Using the Label Template Designer	62
Setting the Properties of a Label Component.....	62
Setting the Properties of a Linear Barcode	63

Setting the Properties of a 2D Barcode.....	64
Creating a New Label Template	65
Modifying an Existing Label Template	66
Removing a Label Template	67
Using the Label Designer.....	67
Creating a New Label	68
Modifying an Existing Label	69
Removing a Label	69
Part 4 Tasks.....	72
Chapter 19 Introducing Tasks	73
What is a Task?.....	73
What is a Worklist?	73
Overview of Creating Tasks.....	73
Task Report Overview	76
The Task Report Viewer	78
Chapter 20 Tasks Step-by-Step	79
Creating a New Task.....	79
Viewing an Existing Task	79
Removing a Task.....	79
Filtering Samples.....	80
Selecting Samples.....	80
Adding Containers to a Task	81
Adding Samples to a Task.....	81
Using patterns.....	82
Removing Containers	82
Filtering the Reagents	83
Adding Reagents to a Container	83
Editing Sample and Reagent Details	84
Setting Controls.....	85
Printing a Task Report	85
Exporting Task Data	85
Tagging Contamination	86
Attaching Results.....	86
Setting the Status of a Sample	86
Completing the Send to Worklist Dialogue box	87
Completing the Send to Storage (Move) Dialogue box	88
Completing the Send to Storage (Aliquot) Dialogue box	88
Printing Sample Labels	88
Printing Container Labels.....	89
Completing a Task.....	89

Part 5 Workflows	90
Chapter 21 Introducing workflows	91
What is a Workflow?	91
Overview of the Workflows Tab	91
Chapter 22 Protocols.....	92
Introduction to Protocols.....	92
Overview of Creating Protocols	92
Chapter 23 Protocols Step-By-Step.....	94
Creating a Protocol.....	94
Opening a Protocol	95
Editing a Protocol.....	95
Adding a Protocol Type	96
Editing a Protocol Type	97
Setting the Attributes of a Component.....	97
Saving a Protocol.....	98
Removing a Protocol	98
Attaching a Comment to a Connector	99
Printing a Protocol	99
Exporting a Protocol.....	99
Importing a Protocol	100
Chapter 24 Methods	101
Introduction to Methods.....	101
Overview of Creating Methods	101
Chapter 25 Methods Step-By-Step	103
Creating a Method	103
Adding a Protocol Type	104
Editing a Protocol Type	104
Opening a Method	104
Editing a Method.....	105
Setting the attributes of a Method	106
Saving a Method	106
Removing a Method.....	106
Printing a Method	106
Exporting a Method	106
Importing a Method.....	107
Setting the Attributes of a Method.....	107
Attaching a Comment to a Connector	107
Changing the status of a connector	108
Chapter 26 Actions.....	109
Introduction to Actions	109

Introduction to Metrics.....	109
Overview of Actions	109
Chapter 27 Actions Step-By-Step	110
Adding an Action	110
Editing an Action	110
Removing an Action	111
Part 6 Results.....	112
Chapter 28 Introducing Results.....	113
What is a Result?.....	113
Overview of the Results Tab	113
Chapter 29 Results Step-By-Step	114
Importing Results from a File	114
Importing Text.....	115
Importing a Sequence	116
Removing a Result.....	116
Exporting Results.....	117
Viewing Results	117
Part 7 Administration	118
Chapter 30 Administration.....	119
Introduction to Administration	119
Roles and Groups	119
Permissions	119
Chapter 31 Users and Contacts.....	121
Introduction to Users and Contacts	121
Managing Users and Contacts.....	122
Chapter 32 Users and Contacts Step-By-Step.....	123
Creating a New User	123
Changing Another User's Password	123
Creating a New Contact	124
Editing a User or Contact	125
Removing a User or Contact	126
Chapter 33 Groups	127
Introduction to Groups	127
Managing Groups.....	127
Chapter 34 Groups Step-By-Step	129
Creating a New Group.....	129
Editing a Group	129
Removing a Group.....	130
Chapter 35 Roles	132
Introduction to Roles	132

Managing Roles	133
Chapter 36 Roles Step-By-Step	134
Creating a New Role	134
Editing a Role	135
Removing a Role	136
Chapter 37 Database Maintenance	137
Database Maintenance Overview	137
Backup and Restore Overview	137
Chapter 38 Database Maintenance Step-By-Step	139
Backing up eLab	139
Checking Database Integrity	141
Database Settings	143
Chapter 39 Administration Step-By-Step	145
Changing Your Password	145
Managing Active Sessions	146
Printing Declaration	146
Updating Licensing	147
Appendix	148
Appendix 1 Installing eDBA	148
Introduction	149
Before Installation	149
Installing the eLab Database	149
Database Settings	152
Appendix 2 eDBA Step-By-Step	156
Before Installation	156
Installing eLab	156
Creating a New eLab Database	157
Updating an Existing eLab Database	157
Repairing an eLab Database	158
Resetting the Master Password	158
Recreating an eLab Database	159
Removing an eLab Database	159
Requesting a Database Key	160
Repairing an SQL Server Express Instance	161
Removing an SQL Server Express Instance	161
Requesting a Server Key	162
Appendix 3 Obtaining a License	163
Appendix 4 The FDA and 21 CFR 11	166
Appendix 5 Hardware and Software	167

Part 1

eLab Fundamentals

Chapter 1 Introducing eLab

Introduction to a Laboratory Information Management System

For the small to medium sized laboratory, daily work has traditionally been a manually intensive process. Manually intensive in regards to the actual application of protocols to samples by staff sitting at laboratory benches, but also in regards to laboratory managers who coordinate those tasks and oversee projects as a whole. Many managers have become skilled users of spreadsheets through the necessity of tracking samples and projects. However, as laboratory techniques improve and timeframes shorten, especially due to the use of robotics and other instrumentation, these traditional management techniques are becoming error prone and time consuming.

The need for effective sample and project management leads many laboratories to look for a software solution to their dilemmas. One route that laboratories can take is to develop their own unique software. However, this path is often fraught with the dangers of uncertain delivery times and budgetary blowouts - problems endemic in the world of software development. Another route, and one that many laboratories choose, is to purchase a commercially available Laboratory Information Management System (LIMS).

Many LIMS are targeted towards large commercial laboratories, their installations often require several months to complete, a team of IT staff to support them, and are often very expensive. This situation limits the appeal of LIMS to large laboratories with big budgets. However, utilizing modern development techniques and technology eBioSys has been able to create a LIMS system that provides the power and flexibility of expensive commercially available LIMS at a price affordable by all laboratories. At last, small laboratories have access to a powerful, fully compliant software solution that will allow them to manage samples, users, tasks, protocols, workflows and integrate with robotics and other equipment.

Overview

eLab is an advanced LIMS that is used for the management of samples, laboratory users, workflows, *protocols* as well as other functions such as sample storage and integration with analytical instrumentation.

Typically eLab is used by creating a project and then assigning an ordered sequence of protocols and one or more sets of samples to that project. As the project progresses, protocols are applied to groups of samples in the specified order until all the samples are completed. Worklists are used to group samples requiring the application of similar protocols, allowing laboratory staff to simply select a number of samples from a worklist and create a task.

Tasks are where protocols are applied to groups of samples. You can quickly manipulate and process the appropriate samples and reagents to create Task Reports, or export data for integration with equipment. Completion of a task allows you to automatically send samples to the next worklist, to a previous worklist or to storage. The status of any projects associated with the samples is automatically updated.

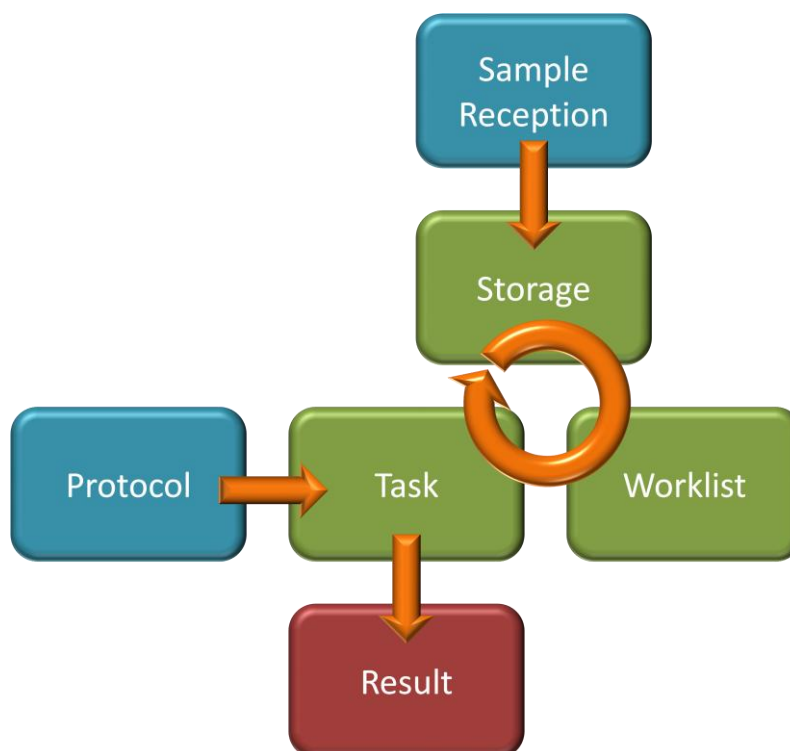


Figure 1.1. High-level overview of sample flow.

eLab will also manage all your sample and reagent requirements, help you create visual workflows, create label templates, perform data backup and recovery operations, as well as many other functions.

Starting eLab

To start eLab click the windows start button, click all programs, click eLab and then click eLab.

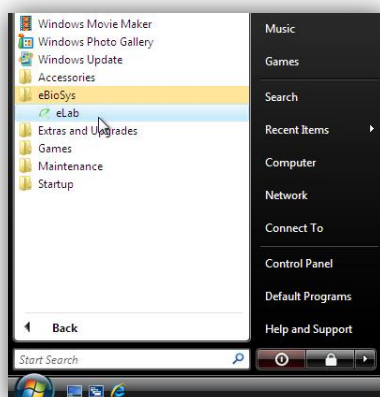


Figure 1.2. Starting eLab.

Logon

When you start eLab the first screen that you see is the **Logon** screen. Specify your group membership details, Username and password then press **Logon** to access the system.

If you are the only user of your computer you may decide to simplify the logon process by selecting the appropriate options below the password box:

- **Remember me.** The Logon screen will remember your group and username details.
- **Remember my password.** The logon screen will remember group, username and password details.
- **Sign me in automatically.** When eLab is run is you will be automatically signed in with the details that you provide.
- **Forget me.** Clears all the above checkboxes.

Note: The availability of these of these options depends on the level of compliance set for the system and your user account. To modify your level of compliance, to allow or disallow these options, see [Editing a User or Contact on page 125](#) and [Database Settings on page 143](#).



Figure 1.3. The Logon screen.

The advanced options of the **Logon** screen allow you to set specific options for the database connection, the web connection and feedback. Normal installations of eLab do not require the other options to be modified.

*Note: The first time you log on you may need to specify the connection details of the eLab database that was created using eDBA. To specify these details, click **Advanced** and enter the server name followed by “\eLab”, e.g. DBServer\eLab.*

The Ribbon Control

Commands have been separated into key areas of functionality by a ribbon control at the top of eLab. To access a particular area of functionality click the appropriate name and the ribbon will display the selected tab and its controls. There are six tabs in eLab: **Home**, **Projects**, **Tasks**, **Materials**, **Workflows**, and **Results**. The **Home** tab appears when you start eLab.

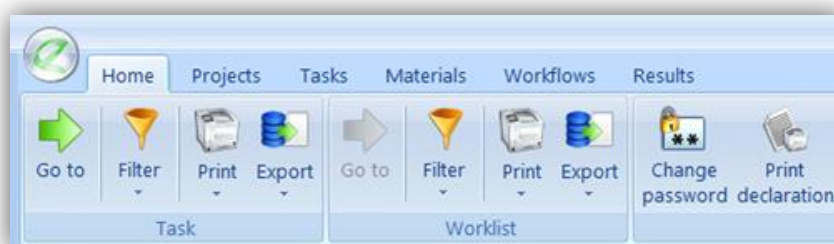


Figure 1.4. The ribbon control.

Notice that each ribbon tab contains a series of groups and each group holds a set of controls that enable you to perform tasks related to that group. Some groups are always visible and others are contextually aware and come and go depending on what you are doing.

The position and size of the ribbon controls change with the size of eLab. All controls are always visible, but the format may change depending on the situation.

Ribbon Control Tips:

- Clicking on a control with a drop-down arrow displays a menu that contains further options.
- A highlighted control indicates that a choice has been made from a selection of controls. For example, in the figure below the user is viewing samples in the list view mode.



Figure 1.5. List view mode selection.

The eLab Menu

To access the eLab menu click the round graphic at the top left corner of the application (See Figure 1.1). The eLab menu contains options for locking the application, logging off and exiting.



Figure 1.6. The eLab Menu

*Note: These functions are also on the **Home** tab.*

Data-view

When a set of data is being presented in eLab, one of the common ways to display it is the data-view, which is a spreadsheet-like view of the data.

Id	Other identifiers	Container location	Location	Sample type	Volume	Concentration
☒ 1-1		2: Fridge 2.	1: Container 1...	Plasma	1 µL	
☐ 1-3		2: Fridge 2.	1: Container 1...	Plasma	1000 µL	
☐ 2-1		2: Fridge 2.	1: Container 1...	Plasma	2 µL	
☐ 3-1		2: Fridge 2.	1: Container 1...	Plasma	3 µL	
☐ 4-1		2: Fridge 2.	1: Container 1...	cDNA	4 µL	
☐ 5-1		2: Fridge 2.	1: Container 1...	Plasma	1000 µL	
☐ 6-1		2: Fridge 2.	1: Container 1...	Plasma	1000 µL	
☐ 7-1		2: Fridge 2.	1: Container 1...	Plasma	1000 µL	
☐ 8-1		2: Fridge 2.	1: Container 1...	Plasma	1000 µL	
☐ 9-1		2: Fridge 2.	1: Container 1...	Plasma	1000 µL	
☐ 10-1		2: Fridge 2.	1: Container 1...	Plasma	1000 µL	
☐ 11-1		2: Fridge 2.	1: Container 1...	Plasma	200 mL	

Figure 1.7. Data-view.

The data-view has a header and a set of alternating coloured rows that contain the data. By clicking on a column header you can sort the data based on the order of that column and an arrow appears in the header indicating the direction of the sort - a down arrow on a numeric column indicates that the column is sorted from the highest to lowest value.

It is often necessary to select one or more rows from a data-view so that you can apply some function to those items represented by these specific rows. You can select a single row by clicking anywhere on the row or select several rows by clicking one row at a time. If you accidentally select a row you can deselect it by clicking it again. You can also select a group of rows by clicking on a row and dragging the mouse over the remaining rows.

Each data-view has a menu that can be accessed by right-clicking on the column headers row. The bottom part of the menu displays a list of all the possible columns for the data-view. By clicking on a column name you can toggle between displaying it and hiding it. The top part of the menu contains the following functions:

- **Print.** There are two print options, the top print option is a 'quick print' that prints the contents of the data-view using the default settings. The second print option displays a dialogue box for specifying your preferred settings.
- **Page Preview.** Displays a preview of the screen as it would be printed.
- **Setup.** Displays a **Page Setup** dialogue box for setting the page size, margins and orientation.
- **Copy.** Copies all the data contained in the data-view to the computer's clipboard. You can then paste the data into another program.
- **Export To.** Displays a submenu that allows you to export a file in one of the following formats:
 - Excel (XLS),
 - Text (Comma Delimited; CSV)
 - Text (Tab Delimited; TXT)
 - Extensible Markup Language (XML)

Note: These options are often also available from the Ribbon Control and may vary depending on the context of the data and the user's permissions.

Container Views

eLab uses container views to display a virtual representation of samples and reagents in containers. Container views promote a better connection between the data stored in eLab and real laboratory work by allowing you to see the actual layout of samples and reagents in a container.

Containers are created and modified using the Container Designer (see *Using the Container Designer* on page 57). The Container Designer allows you to set the number of rows and columns, the well style, the visibility of labelling as well as several other properties.

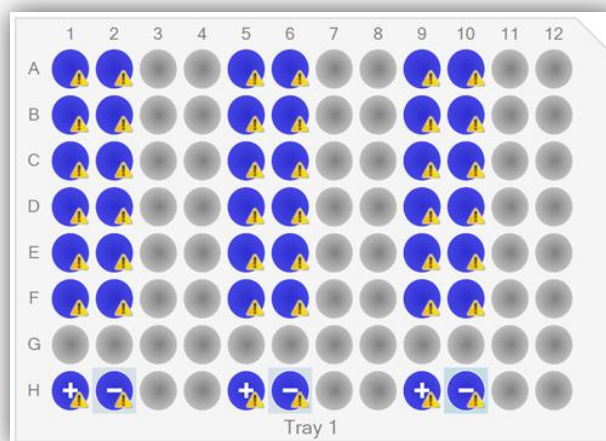


Figure 1.8. Container-view.

The default appearance of a container is light-grey with dark-grey wells. Coloured wells represent the location of samples and reagents. The colour of a well corresponds to the status of the sample or reagent at that location. Red indicates that a sample or reagent has failed a task, green that it has completed a task, and blue that it is being processed by a task.

Contamination of samples or reagents is represented by a surrounding coloured ring. The colour of the ring indicates the level of contamination:

- Red - Known contamination.
- Yellow - Possible contamination.
- Green - No contamination.
- White - No determination of any contamination has been made.

A positive sign on a sample or reagent indicates that it is a positive control and a negative sign indicates it is a negative control.

Wells containing samples and reagents, but not relevant in the current contact have a transparent appearance.

It is often necessary to select one or more wells from a container view so that you can apply some functionality to those specific wells or samples and reagents in those wells. Select a single well by clicking anywhere on that well - the selected well is indicated by a surrounding dark blue rectangle. Select a pattern of wells by holding the control key as you click individual wells. Alternatively you can select a range of wells by holding the shift key and clicking the beginning and ending wells of that range or by dragging your mouse over the range of wells. When you have created a selection of wells the primary well is surrounded by a dark blue rectangle and the remaining wells of the selection are surrounded by light blue rectangles.

You can change the position of one or more samples or reagents within a container view by selecting them and dragging them to a new position. Select the samples or reagents that you want to

reposition and then move the mouse over one of the coloured rectangles indicating the selection, the cursor will change to a cross, click the selection and drag it to the new position. As you drag the samples or reagents the position that they will be placed in is indicated by a pattern of dark-grey rectangles.

Container view hints:

- *Most container views have an associated zoom control that allows you to control the size of the container on the screen.*
- *You can select a row by clicking on a row header or a column by clicking on a column header.*

Locking the System

If you are leaving your computer but want to retain the screens that you have open and the current state of the work that you are performing, lock eLab by clicking the **Lock** button on the **Home** tab or the **eLab** menu. The **Locked** dialogue box is then displayed. When you return to your computer enter your password, click **Unlock**, and continue with your work.

Logging Out

If you have finished with your session of eLab you can log out of the system by clicking the **Log Out** button from the **Home** tab or the **eLab** menu.

Exiting eLab

When you have finished working with eLab click the **Exit** button from the **Home** tab or the **eLab** menu, then click **Yes** in the confirmation dialogue box.

Using Help

eLab provides an innovative help system, which provides an internet browser style approach to navigating the extensive help files.

To access help, follow these steps:

1. On any tab click the **Help** button from the **Help** group, or press the F1 key. The help browser is displayed.

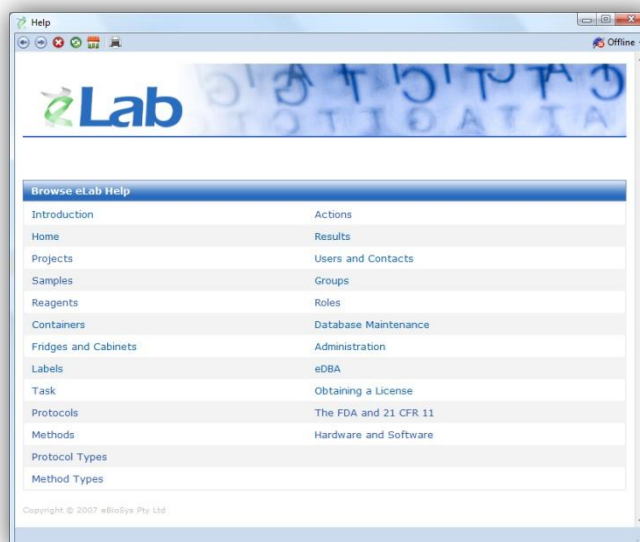


Figure 1.9. The main help page.

2. Click the name of the area that best describes the subject that you want help with. A selection of available topics is displayed.



Figure 1.10. The help sub-topic page.

3. Select the topic that you are interested in.

Note:

- Use the navigation buttons at the top of the screen to go backwards, forwards, stop, refresh, return home, and print.
- By selecting the offline/online connection status control in the top right of the application you can alternate between offline and online modes. By default eLab is in offline mode.

Chapter 2 Introducing Home

Overview of the Home Tab

The **Home** tab is the default tab that you see after starting eLab. It provides overviews of the current worklists and tasks and allows you to access the administrative functionality of the system. The administrative features of eLab are discussed in *Administration Step-By-Step*.

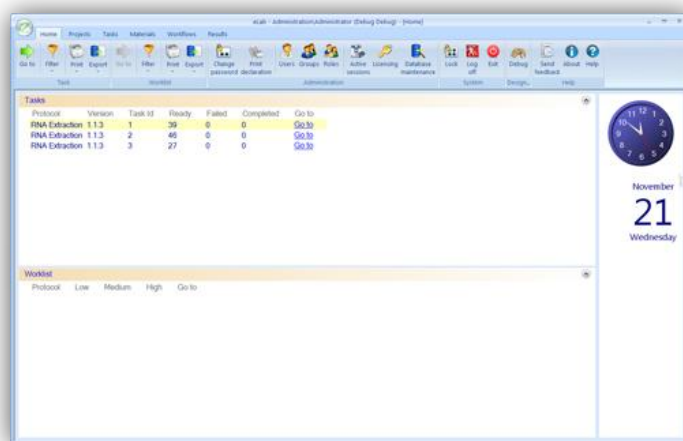


Figure 2.1. The Home page.

The Tasks section displays the tasks that the user has permission to access. Each line represents a single task and displays the following details:

- Protocol. The name of the protocol used by the task.
- Version. The version number of the protocol.
- Task Id. A number that uniquely identifies the task.
- Ready. The number of samples in the task that have not been completed or failed.
- Failed. The number of samples that have failed processing by the task.
- Completed. The number of samples that have been processed by the task and have not failed.

The Worklist section displays a summary of the details of the samples that are waiting in worklists for processing by tasks. The section displays the following details:

- Protocol. The name of the protocol that applies to the worklist.
- Low. The number of low priority samples in the worklist.
- Medium. The number of medium priority samples in the worklist.
- High. The number of high priority samples in the worklist.

Chapter 3 Home Step-By-Step

Filtering the Tasks Overview

You can filter the tasks that are displayed by changing the options under the **Filter** drop down button in the **Task** ribbon group. This allows you to view completed tasks, failed tasks, and tasks assigned to other users.

To print or export the information in the task section click on the **Print** and **Export** buttons in the **Task** ribbon group.

Opening a Task

To open a task either double-click the task row from the **Task** overview, or select it and click the **Go To** button from the **Task** group.

Printing the Task Overview

Clicking the top-half of the **Print** split-button prints the task overview using your default settings – it acts as a ‘quick print’ control. Clicking the bottom half allows you to select from one of the following options:

- **Print**. Displays a Print dialogue box for setting your preferred printing options.
- **Preview**. Used for displaying a preview of the task data that will be printed.
- **Page Setup**. Used for setting the page size, margins and orientation.

Exporting the Task Overview

Clicking the top-half of the **Export** split-button from the **Task** group copies the task overview to the clipboard allowing you to paste the data into other applications. Clicking the bottom half displays a **Save File** dialogue box that allows you to export a file in one of the following formats:

- Excel (XLS)
- Text (Comma Delimited; CSV)
- Text (Tab Delimited; TXT)
- Extensible Markup Language (XML)

Filter the Worklist Overview

You can filter the worklists that are displayed by changing the options under the **Filter** drop down button in the **Worklist** ribbon group.

To print or export the information in the worklist section click on the **Print** and **Export** buttons in the **Worklist** ribbon group.

Opening a Worklist

To open a task either double-click the worklist row from the **Worklist** overview, or select it and click **Go To**, or select it and click the **Go To** button from the **Worklist** group.

Printing the Worklist Overview

Clicking the top-half of the **Print** split-button from the **Worklist** group acts as a quick print, printing the worklist overview using your default settings. Clicking the bottom half allows you to select from one of the following options:

- **Print**. Displays a Print dialogue box for setting your preferred printing options.
- **Preview**. Used for displaying a preview of the worklist data that will be printed.
- **Page Setup**. Used for setting the page size, margins and orientation.

Exporting the Worklist Overview

Clicking the top-half of the **Export** split-button from the **Worklist** group copies the worklist overview to the clipboard allowing you to paste the data into other applications. Clicking the bottom half displays a **Save File** dialogue box that allows you to export a file in one of the following formats:

- Excel (XLS)
- Text (Comma Delimited; CSV)
- Text (Tab Delimited; TXT)
- Extensible Markup Language (XML)

Sending Feedback about eLab

If you have any comments regarding eLab we encourage you to send your feedback to us by following these steps:

1. On the **Home** tab click the **Send Feedback** button. The **Feedback** dialogue box is displayed.

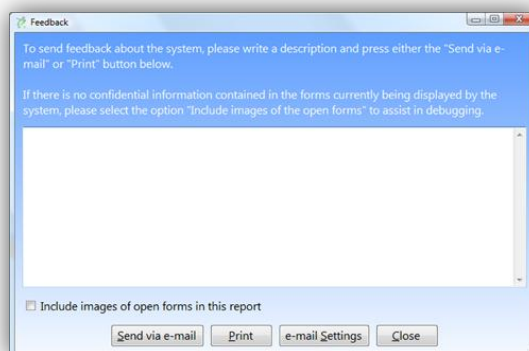


Figure 3.1. The *Feedback* dialogue box

2. Enter your feedback.
3. To include images of open forms, select the appropriate option.
4. Click **Send via e-mail**.

Note:

- *Do not include images of forms that contain confidential data.*
- *To print a copy of the feedback, click the **Print** button and set the printer details in the **Print** dialogue box that opens.*
- *To change details of the SMTP server and other sending options use the **email setting** dialogue box, accessed by clicking the **email Settings** button.*

The About Screen

The about screen allows you to access information regarding the current version of eLab and the details of the machine that it is running on.

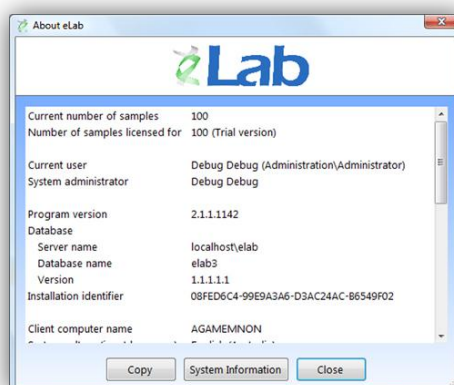


Figure 3.2. The *About* screen.

Note:

- The program version installation identifier can be found on the about screen.
- The **System Information** button provides a short cut to the Windows System Information screen.

Part 2

Project Management

Chapter 4 Introducing Projects

What is a Project?

A project groups samples and associates them with a method that describes an ordered sequence of protocols. Simply put, a project specifies a group of samples, what actions should be done to those samples and in what order those actions should take place. For example, a sequencing project could specify the order of protocols that would be applied to a sample of blood to produce a genetic sequence.

Projects come in all types and sizes. One project might contain 5 samples, another 5000. One project might take a month to complete, another may be ongoing. There can be projects within projects linked by a master project. These subprojects, however, can all be unique and have different sequences of protocols, assigned users, and different groups of samples.

Why Use Projects?

Projects create groupings of samples that parallel the work performed by laboratories. For example, samples received for a particular research effort can be added to a project created specifically for that work.

Once created and populated with samples, projects allow you to:

- See a visual representation of the state of all samples in that project.
- Add more samples and users.
- Review the history of the samples.
- Review the status of any previous attempts at applying a protocol to a sample.
- Assign samples to a worklist.

When to Use a Sub-Project

When you have, or expect to receive, sets of related samples that may require the application of more than one protocol, create a project with one or more sub-projects. For example, you may take on several shipments of samples from the group ABC. A project named ABC can be created and each batch of samples can be assigned a separate sub-project.

Viewing a Project or Subproject

The **Projects** tab presents an overview of the progress of samples belonging to a selected project or subproject. Two drop-down controls on the left-side of the **Project Actions** group are used to specify the project and/or subproject to view. When a selection is made the project screen populates with the details of the appropriate samples and the work that has been performed on those samples, if any.

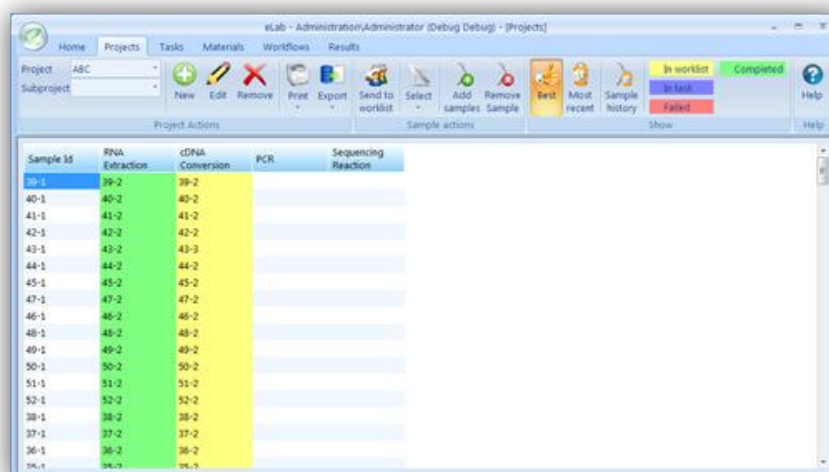


Figure 4.1. The **Project** screen.

The details of the selected project are presented in a spreadsheet like view. The rows correspond to the samples in the project and the columns correspond to the protocols of the assigned method. Within a row, the first column displays the identifier of the original sample sent to the project and the remaining columns display the identifiers of samples, derived from the original, which have been sent to the worklist of the protocol that column represents.

The particular sample shown in a cell is determined by the choice of the **Best** or **Most Recent** views from the **Show** group. The **Best** option displays the sample identifiers of the most successful samples (as determined by sample status) for each protocol, while the **Most Recent** option displays the sample identifiers of the most recently created samples, or the most recent samples assigned to a particular protocol's worklist.

You can select a single sample by clicking on a cell or a specific group of samples by pressing the control key while selecting the desired samples. You can select a range of samples by holding the shift key down while clicking on the beginning and ending cells of the range. You can also select a group of samples by clicking on the **Select** drop down button in the **Sample Action** ribbon group.

When one or more samples are selected the user is able to access the sample history and send to worklist functionalities. By clicking a selected sample a second time a drop-down appears displaying all the samples descending from the original sample of that row that have also been processed with the protocol of that column, or sent to a worklist of the protocol. You can select one of these samples to replace the identifier for that cell.

Chapter 5 Projects Step-by-Step

Creating a New Project

To create a new project, follow these steps:

1. On the **Projects** tab, click **New**.

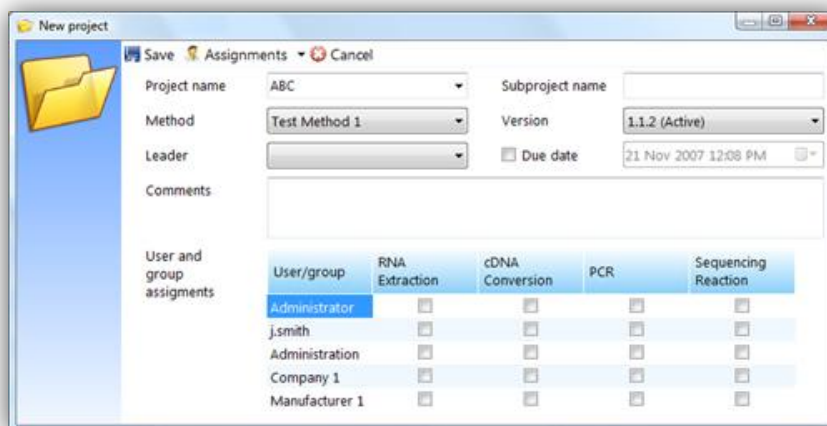


Figure 5.1. The *New project* dialogue box.

2. In the **Project name** field, enter the name of the project.
3. If you wish to create a sub-project, enter the sub-project name in the **Sub-project name** field.
4. Select the method that you want to assign to the project.
Method is the term used to describe a logical sequence of protocols, see *Methods*.
5. Select the **Version** of the method to apply.
6. Choose a **Leader** for the project.
7. If you would like to, specify the due date of the project.
You can enable the **Due date** control by clicking the box next to **Due date**.
8. Enter any comments you would like attached to the project.
9. Under **User and group assignments** specify which user or roles have the ability and permission to perform the protocols of the task.
User and group assignments can be a useful means of limiting the work that can be performed in projects to appropriately trained groups or individuals.
10. Click **Save**.

Changing the Details of a Project

To change the details of a project, follow these steps:

1. Display the project that you want to edit.
2. Click **Edit**.
3. In the **Edit project** Dialogue box make the appropriate changes.
4. Click **Save**.

Removing a Project

To remove a project, follow these steps:

1. Display the project that you want to remove.
2. Click **Remove**.
3. On the confirmation dialogue click **Yes**.

Adding Samples to a Project

To add one or more samples to a project, follow these steps:

1. Ensure that the **Materials** tab is in samples view and use the filters to locate the samples you want to add to the project.
See *Searching for Samples* on page 27 for details on locating samples.

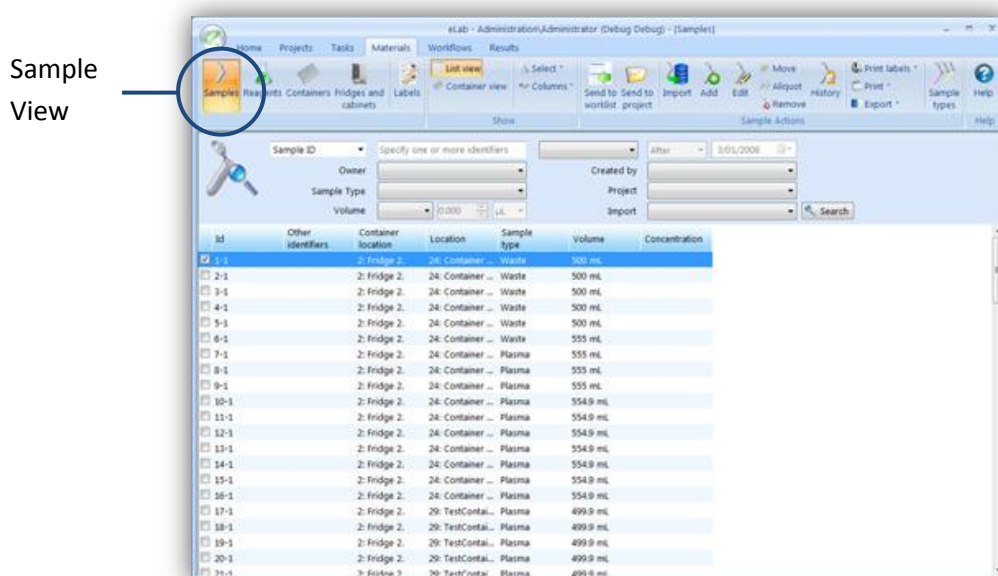


Figure 5.2. The Samples screen.

2. Select one or more samples
Select a sample by clicking anywhere on the row that represents the sample.
3. Click **Project** on the **Send To** Group. The **Send to Project** dialogue box appears.

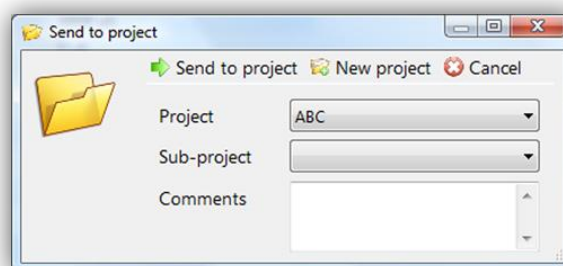


Figure 5.3. The Send to project dialogue box.

To send the samples to a new project

4. Click **New Project**
5. Enter the new project details as per *Creating a New Project* on page 17.
6. Continue to step 7.

To send the samples to an existing project

7. Choose the existing project and/or subproject you want to send the samples to.
8. In the Comments field enter any information you would like attached to the samples.
9. Click **Send to Project**.

Removing Samples from a Project

To remove a sample from a project:

1. Display the appropriate project and select the sample, or samples that you want to remove.
2. Click **Remove Sample** from the **Sample Actions** ribbon group.
3. On the confirmation dialogue box press **Yes**.

Viewing Sample History

The **Sample History** dialogue box presents a hierarchical view of a selected sample and all its relatives. The related samples are represented in a tree, with the originally imported sample at the root, new sample types creating new branches, and samples of the same type creating additional nodes on a branch.

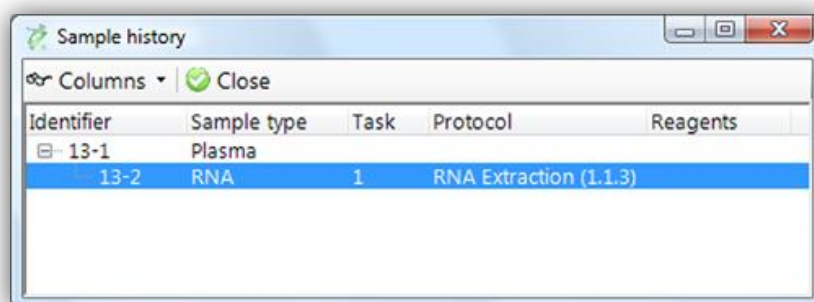


Figure 5.4. The *Sample history* dialogue box.

Changing the Sample Status Colour

You can personalise your view of the project by changing the colours associated with the status of the samples, as follows:

1. On the **Projects** tab click on the sample status you would like to change the colour of from the Show group.
2. Select your desired colour from the **Colour Picker** dialog.
3. Click **Ok**.

Assigning Samples to a Worklist

As samples complete tasks they are assigned to a worklist corresponding to the next protocol in a method. The assignment of samples to worklists can take place at the time of completion of a task or at a later point via the project management screen. Using the project management screen to assign tasks allows managers to maintain tighter controls over the progress of samples.

To assign samples to a worklist, follow these steps:

1. Display the project and select one or more samples from the same column.
*Note: Use the **Select** drop down button to quickly select a group of samples.*
2. Click the **Worklist** button from the **Send To** group. The **Send To Worklist** dialog box appears.

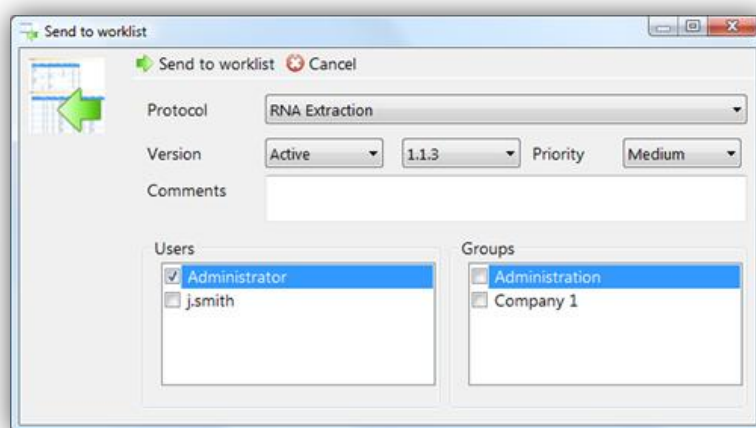


Figure 5.5. The *Send to worklist* dialogue box.

3. Select the name of the **Protocol** of the worklist you wish to assign the samples to.
4. Choose the **Version** and **Version Number**.
5. Set a **Priority** for the samples
6. Assign the samples to a particular user or group.
7. Click **Send To Worklist**.

Part 3

Materials

Chapter 6 Introducing Materials

What is a Material?

In eLab, materials are defined to be the samples, reagents, containers and storage devices that are used to perform laboratory work.

Overview of the Materials Tab

The Materials tab provides the functionality you need to add, edit, remove and search for materials controlled by eLab. The Materials tab has four key screens and one wizard:

- **Samples**
The sample screen is used for performing tasks related to samples maintained by eLab. You can import, edit, remove, search and view the history of samples.
- **Reagents**
Use the reagent screen for performing reagent related tasks. You can import, edit, remove and search reagents.
- **Containers**
The containers screen allows you to view samples in storage containers, or create, modify and remove containers.
- **Fridges and Cabinets**
This screen maintains a list of all the sample and reagent storage locations.
- **Labels**
The Labels Wizard is used for entering the physical dimensions of sample and container labels and to create layout templates for those labels.

Chapter 7 Samples

Introduction to Samples

One of the most important aspects of eLab is its ability to manage and maintain samples. By importing a sample into the system that sample can be readily located at anytime, whether in storage or while being used in a task. Not only will you know where a sample is, but you can access its property details and review its history.

Each sample has the following properties:

- **Sample Identifier**
When a sample is imported into eLab it is assigned a unique identifier, the Sample Id. The Sample Id is composed of two integers separated by a hyphen. The first integer is the sample number and is incremented each time a sample is imported. The second number is always set to 1 for newly imported samples. As further samples are derived from an imported sample the second integer is incremented. For example, a Sample Id of 18-4 means that the sample was the 4th sample derived (by means of aliquoting or performing tasks) from the 18th sample that was imported or created in the system.
- **Other Identifiers**
This property is used to store any additional identifiers that you want to associate with samples. For example, if you receive sample shipments from an external laboratory this field is where those identifiers are maintained.
- **Container Location**
This property describes the device that the sample is stored in and is often presented in the following format: **<Storage Id>: <Device name>**. For example, **3: Freezer 1** indicates that the associated container is stored in the device named 'Freezer 1' that has the Identifier '3'. Usually samples are stored in fridges or freezers. Locations are created and maintained from the **Fridges and Cabinets** screen, see *Fridges and Cabinets*.
- **Location**
This property describes the container that the sample is stored in and is often presented in the following format: **<Container Id>: <Container name>. <Row><Column>**. For example, **18: Container 1. B3** indicates that the associated sample is located in the second row and third column of the container named 'Container 1' that has the Identifier '18'. Containers are created and maintained from the **Containers** screen, see *Containers*.
- **Row**
The value of this property corresponds to the row of the container where the sample is located.
- **Column**
The value of this property corresponds to the column of the container where the sample is located.
- **Sample Type**
Each sample has an associated sample type which describes what that sample is. For example, a sample of DNA has the sample type DNA. See *Adding a Sample Type* on page 33 for the details of creating sample types.

- **Volume**
Maintaining the volume, and associated units, of the sample gives users an estimate of the volumes available to perform tasks.
Note: As tasks are performed on samples their actual volumes may differ to that indicated by eLab due to human or instrument error. See Editing a Sample on page 29 for details on adjusting volumes.
- **Owner**
The Owner property describes the person, group or role that created the sample. It is used when filtering worklist for users or groups and in creating homepage summaries for users.
- **Concentration**
Use this property to maintain the value of the concentration of a sample, if required.
- **Contamination**
The contamination property is used to associate one of the following levels of contamination with a sample:
 - Yes. The sample is definitely contaminated.
 - Maybe. The sample is possibly contaminated.
 - No. The sample is definitely not contaminated.
 - Unknown. No determination of any contamination has been made. This is the default contamination setting for samples.
- **Collection Date**
This is the date that the original sample was collected on. For example, if the original sample was blood this is the date that the blood was drawn from the patient.
- **Control**
If a sample is used as a control this property will describe the sample as a positive or negative control.
- **Comments**
This field contains any comments attached to the sample
- **Status (Task Status)**
 - Completed. The sample has been processed by a task.
 - Failed. The sample has failed processing by a task.
 - Ready. The sample is ready for processing by a task or worklist.
- **Created Date**
The date the sample was created in eLab.
- **Status (Sample Status)**
 - Registered. The sample has been created and is physically accessible.
 - Pre-registered. The sample has not yet been received or created.
- **Group**
The group that the sample belongs to.

The Samples Screen Overview

The Samples screen is used to manage samples maintained by eLab and is accessed by clicking the **Samples** button (see Figure 7.1).



Figure 7.1. The Samples screen.

The screen is divided into two sections, the search criteria section at the top and the sample section at the bottom, as shown in Figure 7.1. When the **Search** button is pressed it is the values of the search criteria section which determine the samples displayed in the sample section below. Once you have found the samples you were looking for you can select some or all of the samples by selecting the individual rows representing the samples or by using the **Select** button. Send the selected samples to a project or worklist by selecting the **Send To Project** or **Send To Worklist** buttons respectively.

The sample screen also provides the ability to import one or more samples. To import a single sample click the **Add** button (see Figure 7.1), to import a file containing the data of one or more samples click the **Import** button (see Figure 7.1). Clicking the **Import** button starts the **Import Wizard** which greatly simplifies the process of importing samples from an Excel file.

The **History** button provides access to the **Sample History** dialogue box which presents a hierarchical view of a selected sample and all its relatives. The related samples are represented in a tree, with the originally imported sample at the root, new sample types creating new branches, and samples of the same type creating additional nodes on a branch.

Each sample has an associated sample type which describes what that sample is. For example, a sample of DNA has the sample type DNA. The **Sample Types** button displays the **Sample Types** dialogue that allows you add, remove and edit the sample types that are available.

Chapter 8 Samples Step-By-Step

Searching for Samples

Use the controls in the search criteria section (see Figure 8.1) to specify the property values of the samples that you're looking for, and then press the **Search** button to display samples matching those requirements.



Figure 8.1. The sample search criteria section.

Sending Samples to a Worklist

To send samples to a worklist, follow these steps:

1. Select the samples you want to send to a worklist.
Note: You can use the Select button to select all the samples at once.
2. Click the **Send To Worklist** button in the **Sample Action** group. The **Send To Worklist** dialogue box appears.

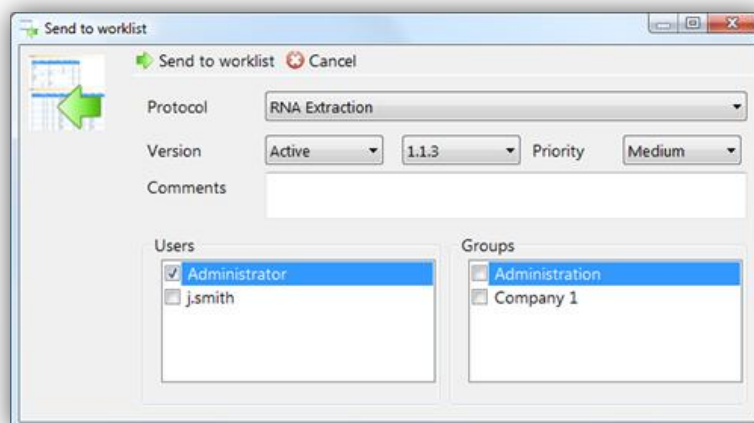


Figure 8.2. The *Send to worklist* dialogue box.

3. Select the **Protocol** of the worklist you wish to assign the samples to.
4. Choose the **Version Type** and **Version Number** of the appropriate protocol
5. Set a **Priority** for the samples
6. Assign the samples to a particular user or group.
7. Click **Send To Worklist**.

Sending Samples to a Project

To send samples to a project, follow these steps:

1. Select the samples you want to send to a project.
2. Click the **Send To Project** button in the **Sample Actions** group. The **Send To Project** dialogue box appears.

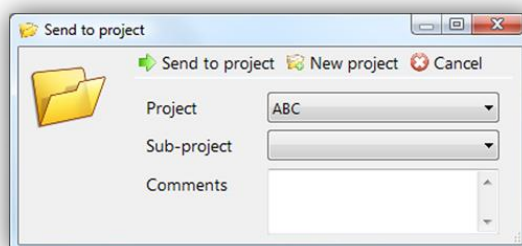


Figure 8.3. The *Send to project* dialogue box.

3. Select the project you want to send the samples to.
*Note: Click **New Project** to create a new project using the **New Project** dialogue box.*
4. Specify a sub-project, if appropriate.
5. Add any comments you would like to attach to the samples.
6. Click **Send To Project**.

*Note: A dialogue box may appear asking if you would like to send your samples to the first protocol of the project. If you would like to do so, click **Yes** and complete the relevant details of the **Send to Worklist** dialogue box (see *Sending Samples to a Worklist* on page 27).*

Adding a Sample

To add a single sample to eLab, follow these steps:

1. Click the **Add** button from the **Sample Actions** group of the **Samples** screen. The **Add Sample** dialogue box appears.

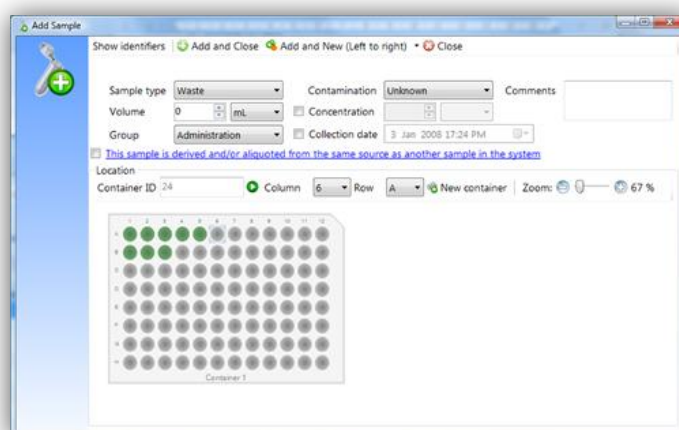


Figure 8.4. The *Add sample* dialogue box.

2. Enter the details corresponding to the properties of the new sample (see *Introduction to Samples* on page 24).
3. If the sample is derived and/or aliquoted from the same source as another sample in the system select the appropriate option. Enter the Sample Id of the other sample and specify how the new sample is related.
4. Enter the identifier of the container that the sample is located in, and then click the green load container button next to the **Container ID** textbox.
*Note: You can create a new container by clicking **New Container** and completing the **Add Container** dialogue box, see *Adding a Container* on page 54.*
5. Select an empty well directly from the container, or use column and row controls.
6. If you want to add further samples, click the **Add and New** button. You can choose how the next sample will be positioned by choosing either the **Left to Right** option or the **Top to Bottom** option from the drop down of the button.
7. Click **Add and Close**.

Editing a Sample

To edit a sample in eLab, follow these steps:

1. Select the sample to edit.
2. Click the **Edit** button from the **Sample Actions** group. The **Edit Sample** dialogue box appears.

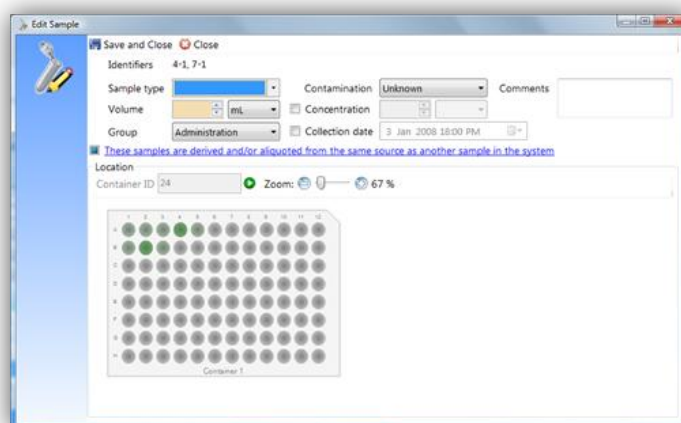


Figure 8.5. The *Edit sample* dialogue box.

3. Edit the required properties (see *Introduction to Samples* on page 24).
4. Click **Save and Close**.

Note:

- The identifier(s) of the sample(s) being edited is displayed at the top of the dialogue box above the **Sample Type** textbox.
- If more than one sample is being edited the values of the properties that differ are highlighted in brown.

Moving a Sample

To move a sample, follow these steps:

1. Select the sample(s) to move.
2. Click the **Move** button from the **Sample Actions** group. The **Send to storage** dialogue box appears.

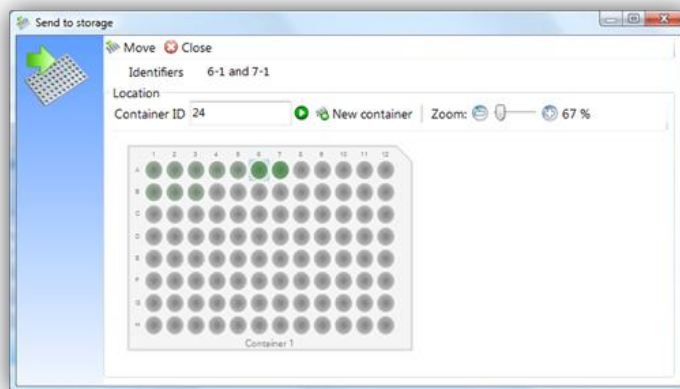


Figure 8.6. Moving samples.

3. Enter the identifier of the container that you want to move the sample(s) to, and then click the green load container button next to the **Container ID** textbox. The container is displayed and the selected samples are positioned in the first free position(s).
*Note: You can create a new container by clicking **New Container** and completing the **Add Container** dialogue box, see Adding a Container on page 54.*
4. Optionally, reposition the sample(s) by selecting them and dragging them to a new position.
5. Click **Move**.

Aliquoting a Sample

To aliquot a sample, follow these steps:

1. Select the sample(s) to aliquot.
2. Click the **Aliquot** button from the **Sample Actions** group. The **Send to storage** dialogue box appears.

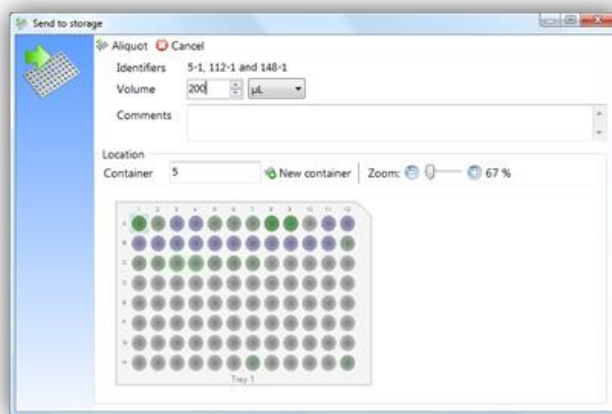


Figure 8.7. Aliquoting samples.

3. Enter the volume and the units of the amount of the sample you want to aliquot.
4. Optionally, enter a comment to attach to each aliquot.
5. Enter the identifier of the container that you want to move the sample(s) to, and then click the green load container button next to the **Container ID** textbox. The container is displayed and the new samples are positioned in the first free position(s).
*Note: You can create a new container by clicking **New Container** and completing the **Add Container** dialogue box, see Adding a Container on page 54.*
6. Optionally, reposition the new sample(s) by selecting them and dragging them to a new position.
7. Click **Move**.

Note: Each aliquot becomes a new sample and is distinguished from its parent by the incrementing of the second integer that comprises the sample identifier, see Sample Identifiers in Introduction to Samples on page 24.

Removing a Sample

To remove a sample, follow these steps:

1. Select the sample to remove.
2. Press the **Remove** button.
3. Click **Ok** on the confirmation dialogue box.

Note: Removing a sample also removes any other data that depends on the sample, for example a worklist entry.

Printing Sample Labels

To print a sample label, follow these steps:

1. Select one or more samples you want to print labels for.
2. Click the **Print Labels** split button (see Figure 8.8), or select one of the label templates from its drop down selection.

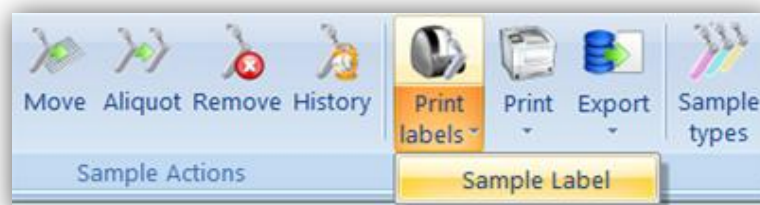


Figure 8.8. Printing sample labels.

3. Set the printer details in the Print dialogue box, and then click **Ok**.

Printing Sample Details

Clicking the top-half of the Print split-button prints the sample details using your default settings. Clicking the bottom half allows you to select from one of the following options:

- **Print**. Displays a Print dialogue box for setting your preferred printing options.
- **Preview**. Used for displaying a preview of the sample data that will be printed.
- **Page Setup**. Used for setting the page size, margins and orientation.

Exporting Sample Details

Clicking the top-half of the **Export** split-button copies the sample details to the clipboard allowing you to paste the data into other applications. Clicking the bottom half allows displays a save file dialogue box that allows you to export the data to a file in one of the following formats:

- Excel (XLS)
- Text (Comma Delimited; CSV)
- Text (Tab Delimited; TXT)
- Extensible Markup Language (XML)

Viewing Sample History

The **Sample History** dialogue box presents a hierarchical view of a selected sample and all its relatives. The related samples are represented in a tree, with the originally imported sample at the root, new sample types creating new branches, and samples of the same type creating additional nodes on a branch.

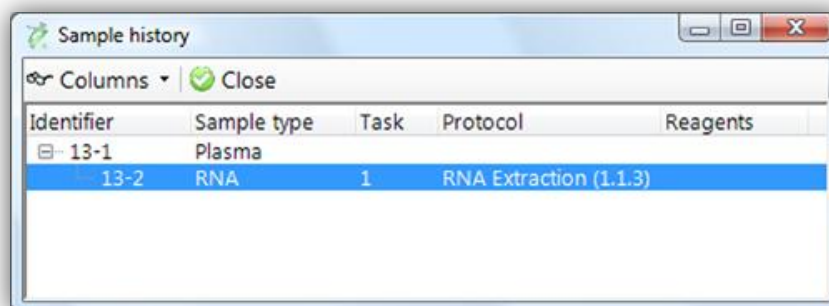


Figure 8.9. The *Sample history* dialogue box.

Adding a Sample Type

To add a sample type, follow these steps:

1. Click the **Sample Types** button in the **Sample Actions** group of the **Samples** screen. The **Sample Types** dialogue box appears.

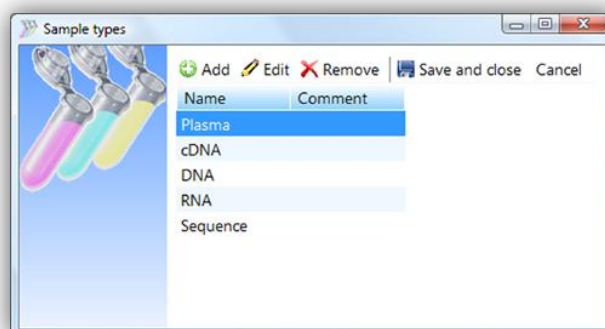


Figure 8.10. The *Sample types* dialogue box.

2. Click the **Add** button, a new row appears at the bottom of the list.
3. Enter the name of the sample type and any comments in the new row.
4. Click **Save and close**.

Editing a Sample Type

To edit a sample type, follow these steps:

1. Click the **Sample Types** button in the **Sample Actions** group of the **Samples** screen. The **Sample Types** dialogue box appears.
2. Select the row containing the details of the sample type that you want to edit, and then click **Edit**. The selected row becomes available for editing.
3. Edit the appropriate details of the row.
4. Click **Save and close**.

*Note: Alternatively you can click twice on the cell containing the details that you want to edit, make the required modifications and then click **Save and close**.*

Removing a Sample Type

To remove a sample type, follow these steps:

1. Click the **Sample Types** button in the **Sample Actions** group of the **Samples** screen. The **Sample Types** dialogue box appears.
2. Select the row containing the details of the sample type that you want to remove, and then click **Remove**. The selected row is removed.
3. Click **Save and close**.

Note: Removing a sample type will remove all the samples that have that sample type.

Chapter 9 Reagents

Introduction to Reagents

By importing reagents into eLab the details of those reagents become available to use in tasks. This is useful for specifying the exact batches used - an important ability for quality control.

Each reagent has the following properties:

- **Reagent Identifier**
When a reagent is imported into eLab it is assigned a unique identifier, the Reagent Id. The Reagent Id is composed of two integers separated by a hyphen. The first integer is the reagent number and is incremented each time a reagent is imported. The second number is always set to 1 for newly imported reagents. As further reagents are derived from an imported reagent the second integer is incremented. For example, a Reagent Id of 18-4 means that the reagent was the 4th reagent derived (by means of aliquoting or performing tasks) from the 18th reagent that was imported or created in the system.
- **Container Location**
This property describes the device that the reagent is stored in and is often presented in the following format: **<Storage Id>: <Device name>**. For example, **3: Freezer 1** indicates that the associated container is stored in the device named 'Freezer 1' that has the Identifier '3'. Usually reagents are stored in fridges, freezers or cabinets. Locations are created and maintained from the **Fridges and Cabinets** screen, see *Fridges and Cabinets*.
- **Location**
This property describes the container that the reagent is stored in and is often presented in the following format: **<Container Id>: <Container name>. <Row><Column>**. For example, **18: Container 1. B3** indicates that the associated reagent is located in the second row and third column of the container named 'Container 1' that has the Identifier '18'. Containers are created and maintained from the **Containers** screen, see *Containers*.
- **Row**
The value of this property corresponds to the row of the container where the reagent is located.
- **Column**
The value of this property corresponds to the column of the container where the reagent is located.
- **Reagent Type**
Each reagent has an associated reagent type which describes what that reagent is. For example, ethanol has the reagent type Ethanol. See Adding a Reagent Type page 43 for the details of creating reagent types
- **Volume**
Maintaining the volume, and associated units, of the reagent gives users an estimate of the volumes available to perform tasks.
Note: As tasks are performed the actual volume of reagents remaining may differ to that indicated by eLab, see Editing a Reagent on page 39 for details on adjusting volumes.
- **Concentration**

Use this property to maintain the value of the concentration of a reagent, if required.

- Contamination

The contamination property is used to associate one of the following levels of contamination with a reagent:

- Yes. The reagent is definitely contaminated.
- Maybe. The reagent is possibly contaminated.
- No. The reagent is definitely not contaminated.
- Unknown. No determination of any contamination has been made. This is the default contamination setting for reagents.

- Comments

This field contains any comments attached to the reagent.

- Manufacturer

This is the name of the manufacturer that produced the reagent.

- Name/Batch

This field contains information used to identify the particular consignment of reagent.

- Expiry Date

This is the expiry date of the reagent.

- Created By

This is the user that the reagent was created by. This is useful when a reagent is created in-house.

- Date Created

The date the reagent was created in eLab.

The Reagents Screen Overview

The Reagents screen is used to manage reagents maintained by eLab and is accessed by clicking the Reagents button (see Figure 9.1).

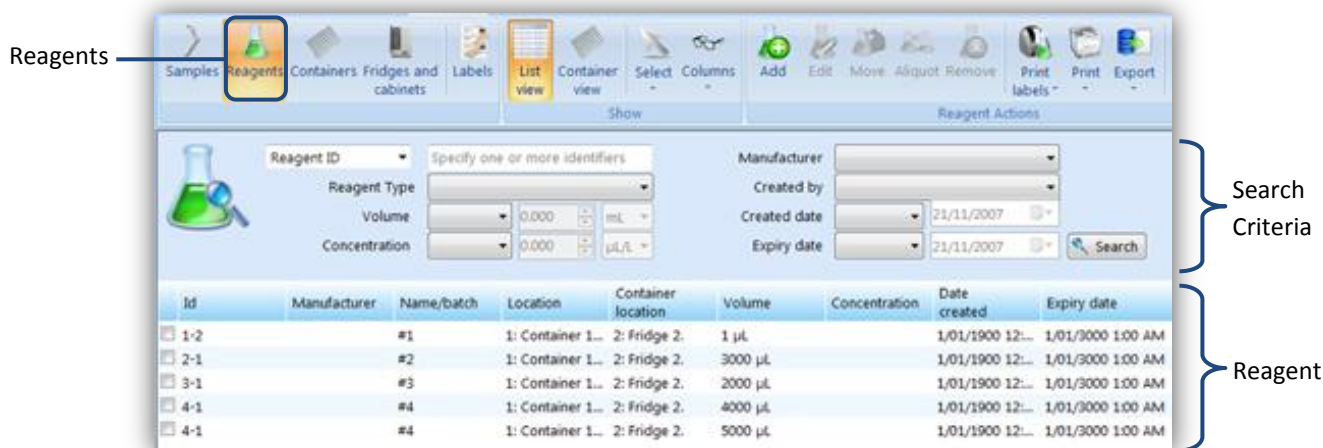


Figure 9.1. The Reagents screen.

The screen is divided into two sections, the search criteria section at the top and the reagent section at the bottom, as shown in Figure 9.1. When the **Search** button is pressed it is the values of the search criteria section which determine the reagents displayed in the reagent section below. Once you have found the reagents you were looking for you can use the options of the **Reagent Actions** group to edit the reagent details. To import a reagent click the **Add** button (see Figure 9.1).

Each reagent has an associated reagent type which describes what that reagent is. For example, ethanol has the reagent type Ethanol. The **Reagent Types** button displays the **Reagent Types** dialogue that allows you add, remove and edit the sample types that are available.

Chapter 10 Reagents Step-By-Step

Searching For Reagents

Use the controls of the search criteria section (see Figure 10.1) to specify the property values of the reagents that you're looking for, and then press the **Search** button to display reagents matching those requirements.



Figure 10.1. The reagent search criteria section.

Adding a Reagent

To add a single reagent to eLab, follow these steps:

1. Click the **Add** button from the **Reagent Actions** group of the **Reagents** screen. The **Add Reagent** dialogue box appears.

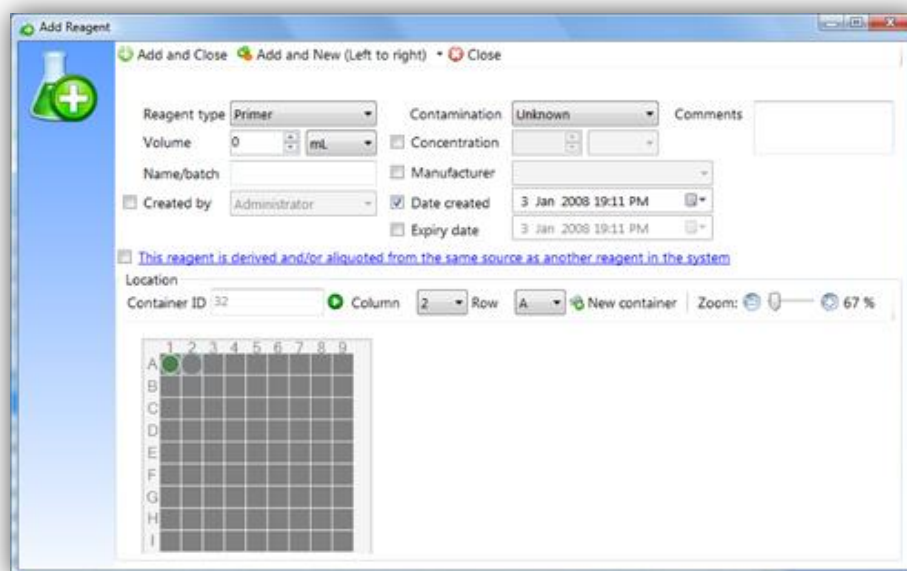


Figure 10.2. The Add reagent dialogue box.

2. Enter the details corresponding to the properties of the new reagent (see *Introduction to Reagents* on page 35).
3. If the reagent is derived and/or aliquoted from the same source as another reagent in the system select the appropriate option. Enter the eLab Reagent Id of the other reagent and specify how the new reagent is related.

4. Enter the identifier of the container that the reagent is located in, and then click the green load container button next to the **Container ID** textbox.
*Note: You can create a new container by clicking **New Container** and completing the **Add Container** dialogue box, see Adding a Container on page 54.*
5. Select an empty well directly from the container, or use column and row controls.
6. If you want to add further reagents, click the Add and New button. You can choose how the next reagent will be positioned by choosing either the Left to Right option of the Top to Bottom option from the drop down of the button.
7. Click **Add and Close**.

Editing a Reagent

To edit a single reagent in eLab, follow these steps:

1. Select the reagent to edit.
2. Click the **Edit** button from the **Reagent Actions** group. The **Edit Reagent** dialogue box appears.

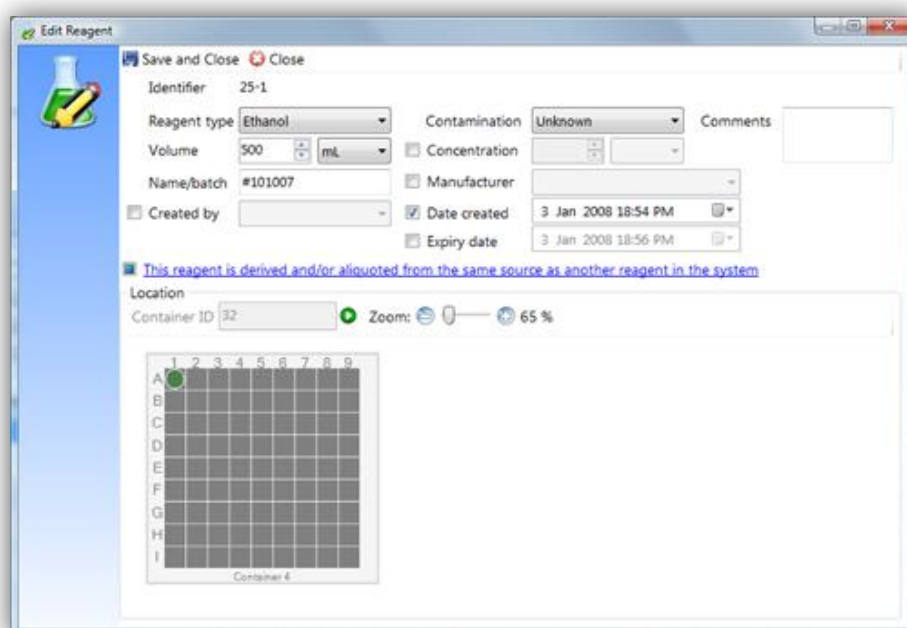


Figure 10.3. The Edit reagent dialogue box.

3. Edit the required properties (see *Introduction to Reagents* on page 35).
4. Click **Save and Close**.

Note:

- The identifier(s) of the reagent(s) being edited is displayed at the top of the dialogue box above the **Reagent Type** textbox.
- If more than one reagent is being edited the values of the properties that differ are highlighted in brown.

Moving a Reagent

To move a reagent, follow these steps:

1. Select the reagent(s) to move.
2. Click the **Move** button from the **Reagent Actions** group. The **Send to storage** dialogue box appears.

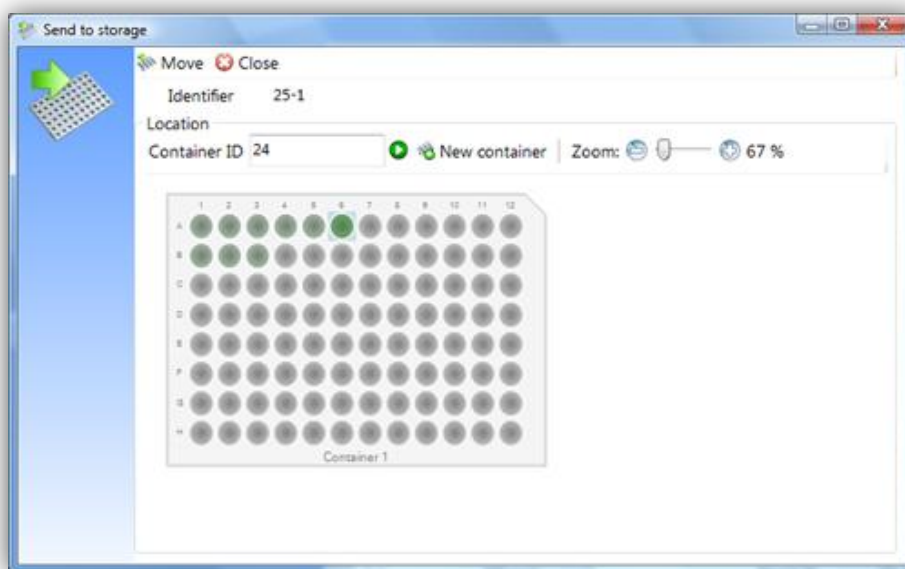


Figure 10.4. Moving Reagents.

3. Enter the identifier of the container that you want to move the reagent(s) to, and then click the green load container button next to the **Container ID** textbox. The container is displayed and the selected reagents are positioned in the first free position(s).
*Note: You can create a new container by clicking **New Container** and completing the **Add Container** dialogue box, see Adding a Container on page 54.*
4. Optionally, reposition the reagent(s) by selecting them and dragging them to a new position.
5. Click **Move**.

Aliquoting a Reagent

To aliquot a reagent, follow these steps:

1. Select the reagent (s) to aliquot.
2. Click the **Aliquot** button from the **Reagent Actions** group. The **Send to storage** dialogue box appears.

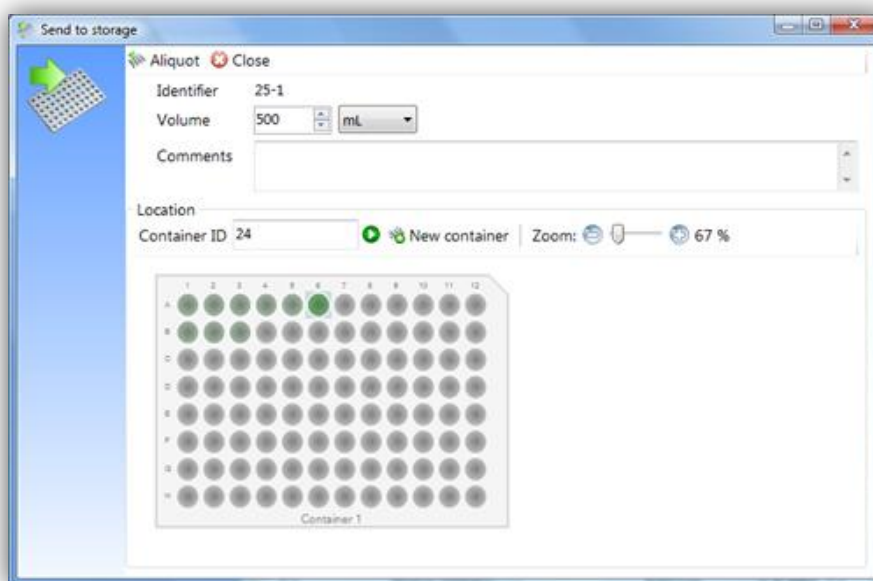


Figure 10.5. Aliquoting reagents.

3. Enter the identifier of the container that you want to move the reagent(s) to, and then click the green load container button next to the **Container ID** textbox. The container is displayed and the new reagents are positioned in the first free position(s).
- Note: You can create a new container by clicking **New Container** and completing the **Add Container** dialogue box, see Adding a Container on page 54.*
4. Enter the volume and the units of the amount of the reagent you want to aliquot.
5. Optionally, enter a comment to attach to each aliquot.
6. In the **Container** control, enter the identifier of the container that you want to aliquot the reagent (s) to. The container is then displayed and the new reagent(s) are positioned in the first free position(s).
7. Optionally, reposition the new reagent(s) by selecting them and dragging them to a new position.
8. Click **Move**.

Note: Each aliquot becomes a new reagent and is distinguished from its parent by the incrementing of the second integer that comprises the reagent identifier, see Reagent Identifiers in Introduction to Reagents on page 35.

Removing a Reagent

To remove a reagent, follow these steps:

1. Select the reagent to remove.
2. Press the **Remove** button.
3. Click **Ok** on the confirmation dialogue box.

Note: Removing a reagent also removes any other data that depends upon the reagent.

Printing Reagent Labels

To print a reagent label, follow these steps:

1. Select one or more reagents you want to print labels for.
2. Click the **Print** split button (see Figure 10.6), or select one of the label templates from its drop down selection.



Figure 10.6. Printing reagent labels.

3. Set the printer details in the **Print** dialogue box, and then click **Ok**.

Printing Reagent Details

Clicking the top-half of the **Print** split-button prints the reagent details using your default settings. Clicking the bottom half allows you to select from one of the following options:

- **Print**. Displays a Print dialogue box for setting your preferred printing options.
- **Preview**. Used for displaying a preview of the reagent data that will be printed.
- **Page Setup**. Used for setting the page size, margins and orientation.

Exporting Reagents Details

Clicking the top-half of the **Export** split-button copies the reagent details to the clipboard allowing you to paste the data into other applications. Clicking the bottom half allows displays a save file dialogue box that allows you to export the data to a file in one of the following formats:

- Excel (XLS)
- Text (Comma Delimited; CSV)
- Text (Tab Delimited; TXT)
- Extensible Markup Language (XML)

Adding a Reagent Type

To add a reagent type, follow these steps:

1. Click the **Reagent Types** button in the **Reagent Actions** group of the **Reagents** screen. The **Reagent Types** dialogue box appears.

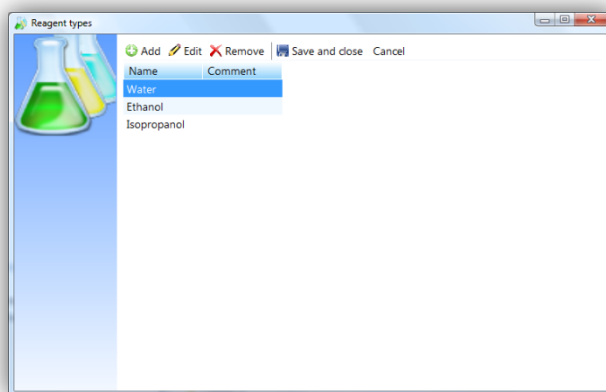


Figure 10.7. The Reagent types dialogue box.

2. Click the **Add** button, a new row appears at the bottom of the list.
3. Enter the name of the reagent type and any comments in the new row.
4. Click **Save and close**.

Editing a Reagent Type

To edit a reagent type, follow these steps:

1. Click the **Reagent Types** button in the **Reagent Actions** group of the **Reagents** screen. The **Reagent Types** dialogue box appears.
2. Select the row containing the details of the reagent type that you want to edit, and then click **Edit**. The selected row becomes available for editing.
3. Edit the appropriate details of the row.
4. Click **Save and close**.

*Note: Alternatively you can click twice on the cell containing the details that you want to edit, make the required modifications and then click **Save and close**.*

Removing a Reagent Type

To remove a reagent type, follow these steps:

1. Click the **Reagent Types** button in the **Reagent Actions** group. The **Reagent Types** dialogue box appears.
2. Select the row containing the details of the reagent type that you want to remove, and then click Remove. The selected row is removed.
3. Click **Save and close**.

Note: Removing a reagent type will remove all the reagents that have that reagent type.

Chapter 11 Import Wizard

Importing Data

Laboratories that receive samples from external sources will often receive associated Excel files containing data about those samples. Each organisation has its own formatting standards and layouts, making it very difficult to import data in a consistent way. To simplify this process many laboratories use a template based approach – a correctly formatted Excel file with columns for all the required data. The client or the customer copies the required data into the template then uploads the file into the sample management system. Using the eLab Import Wizard successfully simplifies this process by providing a step-by-step approach to importing Excel files of any format directly into eLab, as well as facilitating the popular template approach.

Import Wizard Introduction

The Import Wizard empowers the user to import sample data directly from an Excel file into eLab. The wizard presents the list of the available properties and provides the option of linking a column in the file being imported to those properties or setting them to a particular value.

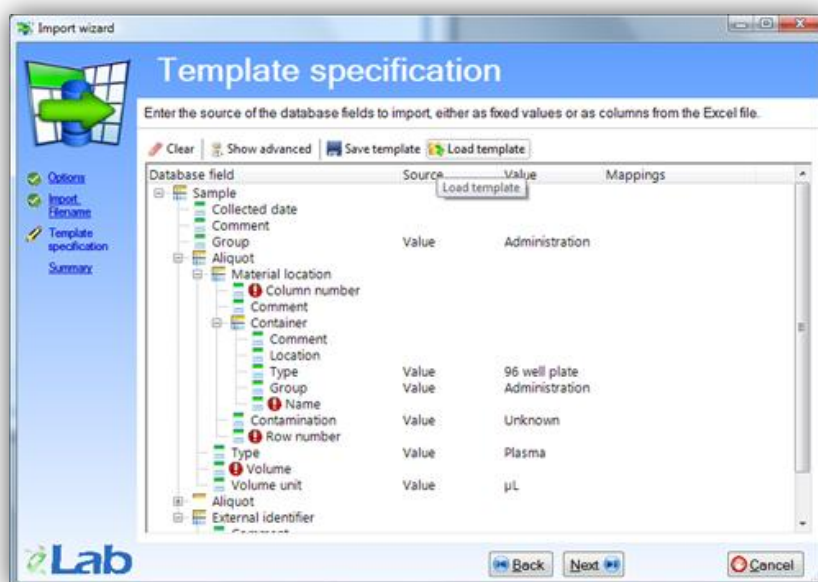


Figure 11.1. The Import wizard template specification screen.

The main screen of the wizard consists of a table with four columns:

- Database Field. This column presents a tree-view of all the properties associated with samples. Properties are grouped into areas of functionality and collapsed into nodes.

- **Source.** The option selected from this column determines whether the property of the associated row is linked to a column in the file being imported, set to a particular value, or not set.
- **Value.** This column determines the value of the property of the associated row, it can be set to a specific value or be linked to the value from the file being imported.
- **Mapping.** The mapping column allows you to examine the data from the relevant column in the underlying file and map values of that column to new values to be uploaded into eLab.

Overview of Importing Data

To import sample data into eLab open the **Import Wizard** from the **Materials** tab and select a file. The **Template Specification** screen presents a list of the available properties. Click the plus symbol next to a node of the Database Field column to expand that node and access its sub-properties. A red exclamation symbol next to a name from the Database Field column indicates that it is a required property.

For each property that you import into eLab you must specify how the value of that property is determined. Click on the **Source** column of the row of the property and select either **Column** or **Value**. Column allows you to link the property to a value in the underlying Excel file. Value allows you to select or enter a particular value. To clear a property set the source column control to the first (empty) option.

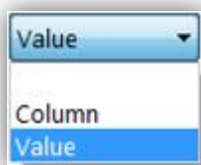


Figure 11.2. The **Source** column drop down control.

Click on the **Value** column of the row of the property that you are setting and specify a value for the property. The entry method is controlled by the relevant setting from the **Source** column. A setting of 'Column' presents the user with a list of columns from the underlying file from which to choose from. A setting of 'Value' either presents a list of options that have been predefined in eLab or a control to enter the desired value.

When the **Source** column of a property is set to 'Column' the **Click here to edit** control becomes available in the **Mappings** column. Clicking on this control displays the **File to database mapping** dialogue box which allows you to map any value from the underlying column to a particular value.

Note: See Introduction to Samples on page 24 for descriptions of the properties associated with samples and reagents.

Database Fields Description

Each sample that is imported has the following properties:

- Collected Date
This is the date that the original sample was collected on. For example, if the original sample was blood this is the date that the blood was drawn from the patient.
- Comment
This property contains any comments attached to the sample.
- Concentration*
The value of the concentration of the sample
- Concentration Unit*
The unit corresponding to the concentration of the sample.
- Group
The group that the sample belongs to.
- Material Location
The material location describes the properties of the location in which the sample is stored.
 - Column Number
The value of this property corresponds to the column of the container where the sample is stored.
 - Comment
This property contains any comments attached to the well where the sample is stored.
 - Container
Container describes the properties of the container in which the sample is stored. You can either specify an existing container on the container row or expand the node to set the properties of a new container.
 - Comment
This property contains any comments attached to the container.
 - Location
The storage location of the container (see *Fridges and Cabinets*).
 - Type
The type of the container (see *Containers*).
 - Group
The group the container belongs to.
 - Name
The name used to distinguish the container.
 - Contamination
The contamination property is used to associate one of the following levels of contamination with a sample:
 - Yes. The sample is definitely contaminated.
 - Maybe. The sample is possibly contaminated.
 - No. The sample is definitely not contaminated.
 - Unknown. No determination of any contamination has been made. This is the default contamination setting for samples.
 - Row Number

The value of this property corresponds to the row of the container where the material is located.

- Type
The sample type of the sample being imported.
- Volume
The value of the volume of the material.
- Volume unit
The unit corresponding to the volume of the material.
- External Identifier
Multiple sample identifiers can be associated with the samples, each has the following properties:
 - Comment
This property contains any comments attached to the external identifier.
 - Name
This property is used to contain the external sample identifier.
 - Group
The group that the external identifier belongs to.

** Denotes advanced options.*

Chapter 12 Import Wizard Step-By-Step

Importing Data

To import sample data into eLab, follow these steps:

1. Click **Import** from the **Sample Actions** group of the **Materials** tab. The **Import Wizard** is displayed.

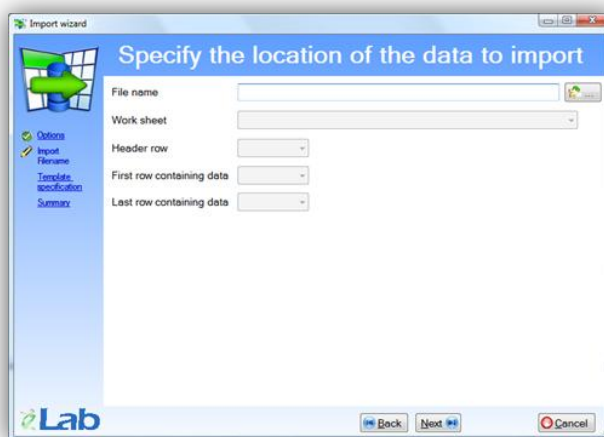


Figure 12.1. The *Import wizard* *Import filename* screen.

2. Enter the location of the Excel file or click the button next to the **File** name box to browse to the location of the file.
3. The remaining controls will be automatically populated. Ensure the settings are correct, otherwise make the required changes, and then click **Next**.
4. Set the required properties and values or click Load template and select a template to apply.
5. Click **Next**.
6. Review the information to be uploaded on the summary screen, and then click **Accept**.
7. The data to be imported will be validated. If the validation process is successful, click **Yes** on the dialogue box that is displayed.

Note:

- *You may be prompted to clarify any ambiguities in the file or inconsistencies between the Excel data and the database that are found during the validation process.*
- *To import data from another file format use Microsoft Excel to convert the data to an Excel file before using the Import Wizard.*

Creating a Template

Templates allow you to save the properties and values for a particular spreadsheet layout so that it can be reused. This is particular useful when you are receiving multiple shipments of samples with similarly formatted data files.

To create a template, follow these steps:

1. Click **Import** from the **Sample Actions** group of the **Materials** tab. The **Import Wizard** is displayed.
2. Enter the location of an Excel file containing data in the format that you want to create a template for, or click the button next to the **File** name box and browse to the location of that file.
3. The remaining controls will be automatically populated. Ensure the data is correct otherwise make the required changes, and then click **Next**.
4. Set the required properties and values, and then click **Save Template**. The **Save Template** dialogue is displayed.

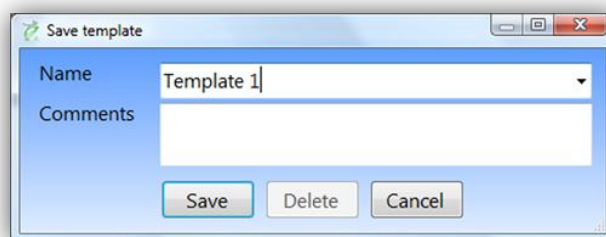


Figure 12.2. The *Save template* dialogue box.

5. Enter a name for the template and any comments that you want attached to it, and then click **Save**.

Deleting a Template

To delete a template, follow these steps:

1. Click **Import** from the **Sample Actions** group of the **Materials** tab. The **Import Wizard** is displayed.
2. Enter the location of an Excel file, or click the button next to the File name box to browse to the location of an Excel file. Click **Next**.
3. Click **Save template**, the **Save Template** dialogue is displayed.

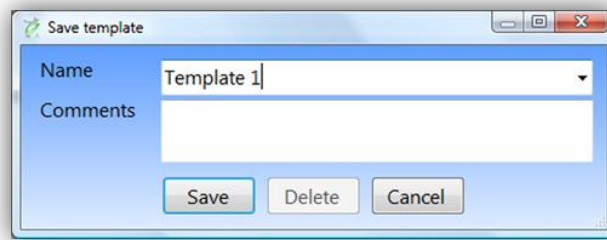


Figure 12.3. The *Save template* dialogue box.

4. Select the template to delete from the Name control.
5. Click **Delete**, and then click **Cancel**.

Chapter 13 Containers

Introduction to Containers

eLab containers maintain data corresponding to the containers used to store samples or reagents in real life. The layout of a container, the volumes of contained samples and reagents, and the location of the container are the same as those of the real container. Combined with the ability to present containers in one of two ways, either a virtual representation or a list, eLab containers greatly simplifies sample and reagent storage.

Each container has the following properties:

- **Container Identifier**
This is a unique integer assigned to the container when it is created. The integer starts at 1 for the first container added to the system and is incremented by 1 for each container added thereafter.
- **Fridge/Cabinet**
This property describes the device that the container is stored in and is often presented in the following format: **<Storage Id>: <Device name>**. For example, **3: Freezer 1** indicates that the associated container is stored in the device named 'Freezer 1' that has the Identifier '3'. See *Fridges and Cabinets*.
- **Type**
Each container has an associated container type which describes what that container is. For example, a 96 well plate describes a plate with 8 rows and 12 columns.
- **Comments**
This field contains any comments attached to the container.
- **Owner**
The Owner property describes the group that owns the container.
- **Name**
This is the name that can be used to distinguish the container from others. It could also be the identifier used by an external laboratory.
- **Number Used**
This field contains the number of wells that contain at least one reagent or sample.
- **Number Free**
This field contains the number of empty wells that are available.

The Containers Screen Overview

The **Containers** screen is used to manage containers maintained by eLab and is accessed by clicking the **Containers** button of the **Materials** Tab (see Figure 13.1).

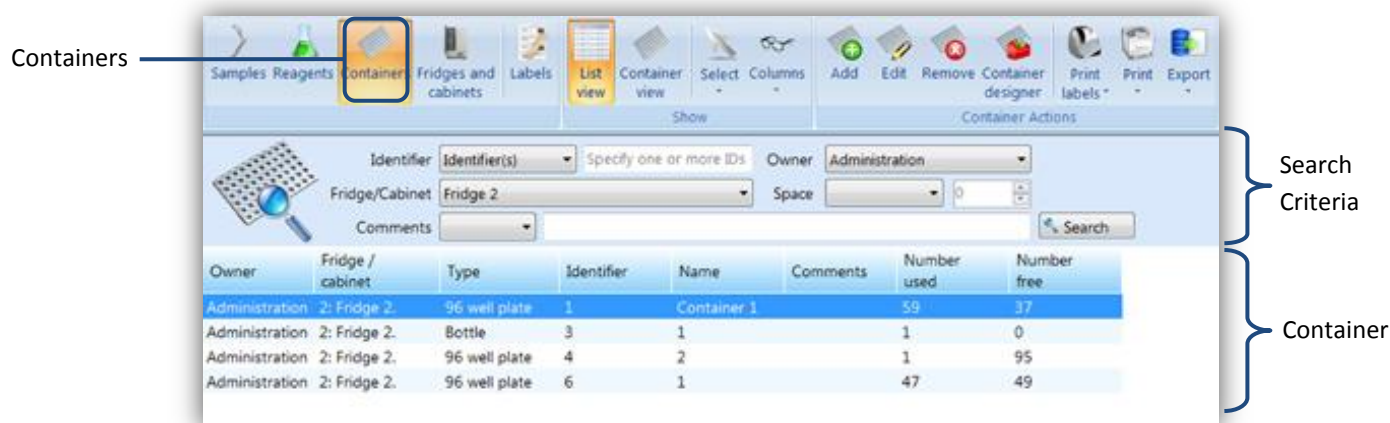


Figure 13.1. The Containers screen.

The screen is divided into two sections, the search criteria section at the top and the container section at the bottom, as shown in Figure 13.1. When the **Search** button is pressed it is the values of the search criteria section that determine the containers displayed in the container section below. Once you have found the container you were looking for you can use the options of the **Container Actions** group to edit the container details, or use the **Samples Action** group to manage the samples in the container. The **Container Designer** allows you to create and modify container types corresponding to your requirements, for example a new sample tray of different dimensions.

Chapter 14 Containers Step-By-Step

Searching for Containers

Use the controls of the search criteria section (see Figure 14.1) to specify the property values of the containers that you're looking for, and then press the **Search** button to display containers matching that criteria.

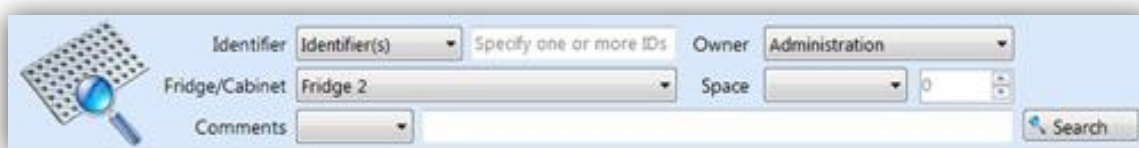


Figure 14.1. The containers search criteria section.

Adding a Container

To add a container to eLab, follow these steps:

1. Click the **Add** button from the **Container Actions** group of the **Containers** screen. The **Add Container** dialogue box appears.



Figure 14.2. The Add container dialogue box.

2. Enter the values corresponding to the property values of the container (see *Introduction to Containers* on page 52).
3. Click **Add**.

Note:

- Click **Add Container Type** to create new container types (see *Using the Container Designer* on page 57).
- Click **Add Fridge/Cabinet** to create new storage locations (see *Adding a Storage Location* on page 59)

Editing a Container

To edit a container, follow these steps:

1. Search for that you want to edit, see *Searching for Containers* on page 54.
2. Select the container to edit.
3. Press the **Edit** button. The **Edit container** dialogue box appears.



Figure 14.3. The Edit container dialogue box.

4. Update the appropriate property values of the container (see *Introduction to Containers* on page 52).
5. Click **Save**.

Note:

- The identifier(s) of the container(s) being edited is displayed at the top of the dialogue box above the **Owner** textbox.
- If more than one container is being edited the values of the properties that differ are highlighted in brown.
- Click **Add Container Type** to create new container types (see *Using the Container Designer* on page 57).
- Click **Add Fridge/Cabinet** to create new storage locations (see *Adding a Storage Location* on page 59).

Removing a Container

To remove a container, follow these steps:

1. Search for the container to be removed, see *Searching for Containers* on page 54.
2. Select the container to remove.
3. Press the **Remove** button.
4. Click **Ok** on the confirmation dialogue box.

Note: Removing a container may result in the contained samples and/or reagents being removed from the database.

Printing Container Labels

To print container labels, follow these steps:

1. Search for the container(s) that you want to create labels for, see *Searching for Containers* on page 54.
2. Select one or more containers.
3. Click the **Print Labels** split button (see Figure 14.4), or select one of the label templates from its drop down selection.



Figure 14.4. Printing container labels.

4. Set the printer details in the **Print** dialogue box, and then click **Ok**.

Printing Container Details

Clicking the top-half of the **Print** split-button prints the container details using your default settings. Clicking the bottom half allows you to select from one of the following options:

- **Print**. Displays a Print dialogue box for setting your preferred printing options.
- **Preview**. Used for displaying a preview of the container data that will be printed.
- **Page Setup**. Used for setting the page size, margins and orientation.

Exporting Container Details

Clicking the top-half of the **Export** split-button copies the container details to the clipboard allowing you to paste the data into other applications. Clicking the bottom half displays a save file dialogue box that allows you to export the data to a file in one of the following formats:

- Excel (XLS)
- Text (Comma Delimited; CSV)
- Text (Tab Delimited; TXT)
- Extensible Markup Language (XML)

Using the Container Designer

The **Container Designer** is used to create virtual containers according to your specifications. You can specify the physical dimensions, the number of rows and columns, and the containers' colouring. Creating your own virtual containers helps ensure the best possible correspondence between the screens in eLab and what you see when performing your work in real life. The container designer is accessed by clicking the **Container Designer** button in the **Container Actions** group of the **Container** screen.

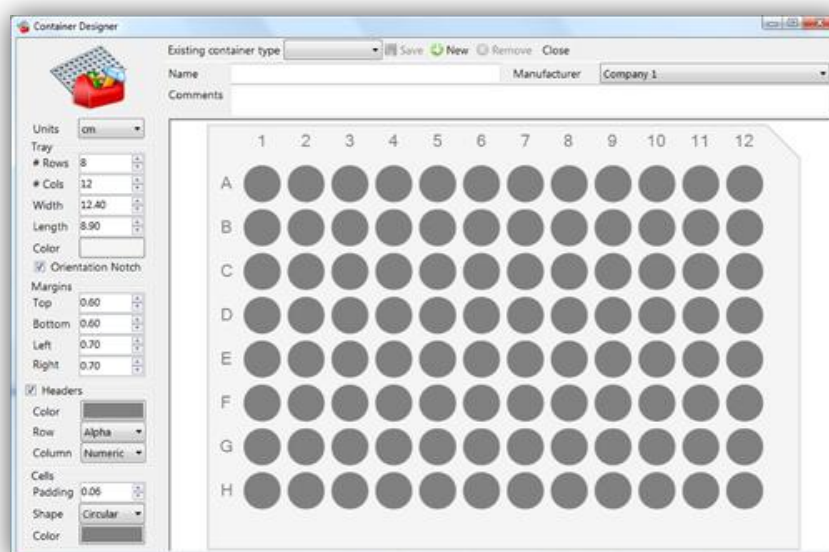


Figure 14.5. The Container designer.

Use the controls on the left-hand side to set the properties of the new container. Enter a name, any comments you would like to attach to the container, optionally select a manufacturer, then click **Save**.

*Note: Manufactures can be created in the **Group Wizard**, see *Editing a Group* on page 129.*

To edit an existing container choose the desired container from the Existing Container Type control. Edit the desired properties then click **Save**.

Chapter 15 Fridges and Cabinets

Introduction to Fridges and Cabinets

Fridges and Cabinets represent the devices that containers are stored in. Typically a lab will have several storage options that correspond to the different requirements of the samples that are processed by that laboratory.

The Fridges and Cabinets Screen Overview

The Fridges and Cabinets screen is used to manage the storage locations maintained by eLab and is accessed by clicking the Fridges and Cabinets button (see Figure 15.1).



Figure 15.1. *Fridges and cabinets screen overview.*

The screen displays a list of the storage locations that have been entered into the system. Each storage location has the following properties associated with it:

- **Id**
This is a unique integer assigned to the storage location when it is created. The integer starts at 1 for the first storage location added to the system and is incremented by 1 for each storage location added thereafter.
- **Group**
The group property describes the group that owns the storage location, if any.
- **Name**
A name that describes the storage location.
- **Temperature**
The value of this property corresponds to the target temperature of the storage location.
- **Unit**
The unit property contains the units of the temperature value.
- **Comment**
This field contains any comments attached to the storage location.

Chapter 16 Fridges and Cabinets Step-By-Step

Adding a Storage Location

To add a storage location, follow these steps:

1. Click the **Add** button from the **Actions** group of the **Fridges and Cabinets** screen. The **Add Fridges and Cabinets** dialogue box is displayed.

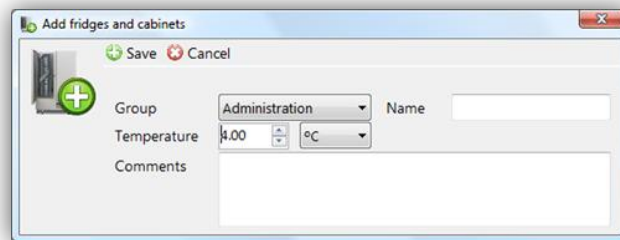


Figure 16.1. The *Add fridges and cabinets* screen dialogue box.

2. Select the group that owns/controls the storage location.
3. Enter a descriptive name for the storage location.
4. Enter the storage locations target temperature value.
5. In the **Comments** field enter any comments you would like to the attached to the storage location.
6. Click **Save**.

Editing a Storage Location

To edit a storage location, follow these steps:

1. Select the storage location you want to edit.
2. Click the **Edit** button from the **Actions** group.
3. The **Edit Fridges and Cabinets** dialogue box is displayed



Figure 16.2. The *Edit fridges and cabinets* dialogue box.

4. Modify the required property values.
5. Click **Save**.

Removing a Storage Location

To remove a storage location, follow these steps:

1. Select the storage location you want to remove.
2. Click the **Remove** button from the **Actions** group
3. Click **Yes** on the confirmation dialogue box.

Printing Storage Location Labels

To print a storage label, follow these steps:

1. Select the storage location you want to print a label for.
2. Click the **Print Labels** split button, or select one of its options from the drop down selection.
3. Set the printer details in the Print dialogue box, and then click **Ok**.

Printing Storage Location Details

Clicking the top-half of the **Print** split-button prints the storage location details using your default settings. Clicking the bottom half allows you to select from one of the following options:

- **Print.** Displays a Print dialogue box for setting your preferred printing options.
- **Preview.** Used for displaying a preview of the container data that will be printed.
- **Page Setup.** Used for setting the page size, margins and orientation.

Exporting Storage Location Details

Clicking the top-half of the **Export** split-button copies the storage location details to the clipboard allowing you to paste the data into other applications. Clicking the bottom half allows displays a save file dialogue box that allows you to export the data to a file in one of the following formats:

- **Excel (XLS)**
- **Text (Comma Delimited; CSV)**
- **Text (Tab Delimited; TXT)**
- **Extensible Markup Language (XML)**

Chapter 17 Labels

Introduction to Labels

Labels in eLab correspond to the real labels used in the laboratory and describe the physical properties of those labels. Label templates are created for a particular label and describe what information should be printed and where it should be printed. You can specify linear and 2-dimensional barcodes as well as text components for your label templates. Label types are used to group label templates.

When you want to create a label for a particular purpose you select a label template of the appropriate type (e.g. a label template of the sample type) and select an appropriate material type (e.g. a sample) that contains the data required by the template. When you print a label for a material, eLab will populate the required fields in the template with the data extracted from the information associated with the material.

The **Label Wizard** allows you to create and manage labels and label templates. The Label Wizard is accessed by clicking the **Labels** button from the **Show** group of the **Materials** tab.

Note: eLab designs and prints labels for use with Zebra ZPL II compatible printer. See www.zebra.com for details.

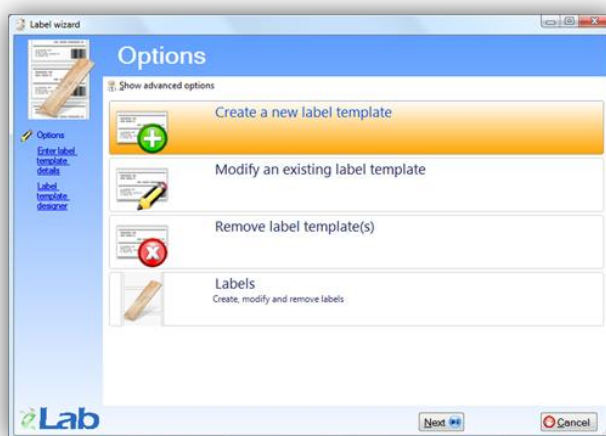


Figure 17.1. The **Label wizard Options** screen.

Chapter 18 Labels Step-By-Step

Using the Label Template Designer

The **Label Template Designer** is used for setting the properties and positions of the components of a label template. The designer is separated into two main sections, the left-side is a list of the available components and the right-side is the design surface. A component is positioned on the design surface by dragging it from the component list. Once a component has been placed, its properties can be set by double clicking on it.

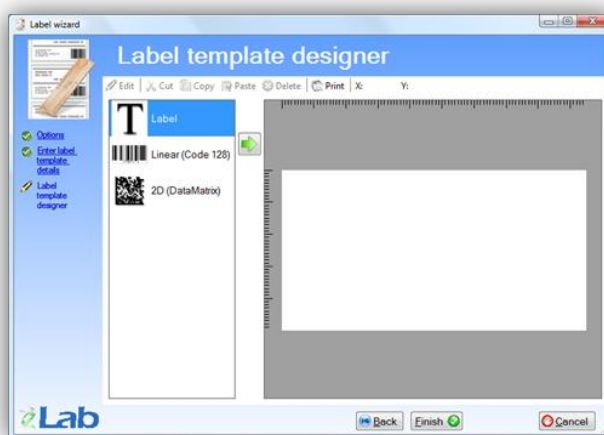


Figure 18.1. The *Label template designer*.

Setting the Properties of a Label Component

The purpose of the label component is to display text. The text displayed can be specified when the label template is created or can be populated by a property associated with a material at the time of printing.

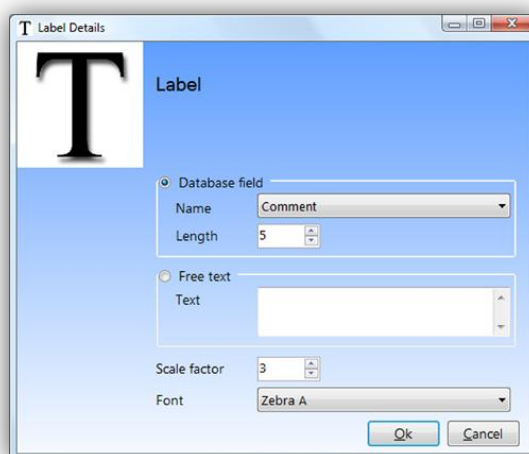


Figure 18.2. The *Label Details* dialogue box.

The options of the label component are:

- Database field. Select this option when the text of the label is to be populated by eLab at the time of printing. From the Name box select the name of the field from the database that represents the data you want and the number of characters that you want to display.
- Free Text. Select this option when you want to display static text on the label. Enter the text in the **Text** box.
- Scale Factor. Acts to magnify the size of the label based on the font setting.
- Font. Allows you to select one of the Zebra fonts, see the table below.

Font	Height (in dots)	Width (in dots)	Inter-character Gap (in dots)
Zebra A	9	5	1
Zebra C	18	10	2
Zebra D	18	10	2
Zebra F	26	13	3
Zebra G	60	40	8

Table 18-1. Zebra font specifications.

Note: See your Zebra printer manual and www.zebra.com for more details regarding fonts.

Setting the Properties of a Linear Barcode

The purpose of the linear barcode component is to create Code 128 barcodes. Code 128 has a very high-density barcode symbology and is good for displaying numeric and alphanumeric data. The data displayed can be supplied when the label template is created or can be populated by eLab when the label is printed.

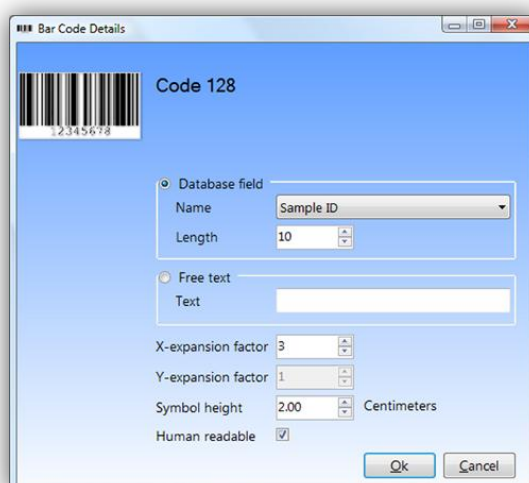


Figure 18.3. The Barcode Details - Code 128 dialogue box

The options of the linear barcode component are:

- Database field. Select this option when the barcode data is to be populated by eLab at the time of printing. From the Name box select the name of the field from the database that represents the data you want and the number of characters that you want to display.
- Free Text. Select this option when you want to manually supply the data that the barcode will display. Enter the data in the Text box.
- X-expansion factor. The value of this option determines what multiplication of the original width the barcode will be displayed at, the default is 2.
- Symbol Height. This value sets the height of the lines of the barcode in centimetres.
- Human Readable. This setting determines whether a human readable description will be displayed under the barcode.

Setting the Properties of a 2D Barcode

The purpose of the 2D barcode component is to create Data Matrix barcodes. Data Matrix is a very efficient two dimensional barcode symbology that uses a small area to encode just about anything including text and numeric data. The data displayed can be supplied when the label template is created or can be populated by eLab when the label is printed.

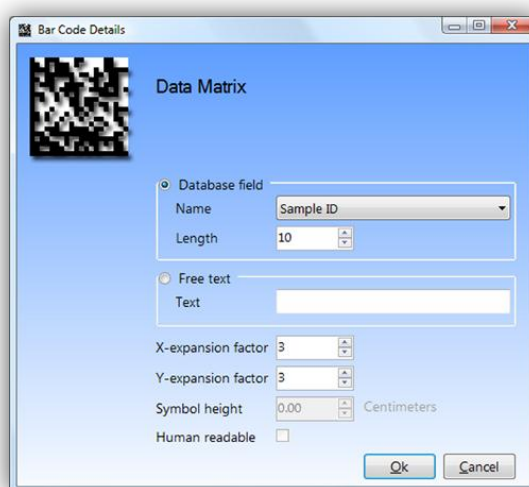


Figure 18.4. The Bar code details - Data Matrix dialogue box.

The options of the 2D barcode component are:

- Database field. Select this option when the barcode data is to be populated by eLab at the time of printing. From the Name box select the name of the field from the database that represents the data you want and the number of characters that you want to display.
- Free Text. Select this option when you want to manually supply the data that the barcode will display. Enter the data in the **Text** box.
- X-expansion factor. The value of this option determines what multiplication of the original width the barcode will be displayed at.
- Y-expansion factor. The value of this option determines what multiplication of the original height the barcode will be displayed at.

Creating a New Label Template

To create a new label, follow these steps:

1. Click the **Labels** button from the **Show** group on the **Materials** tab. The **Label Wizard** is displayed.

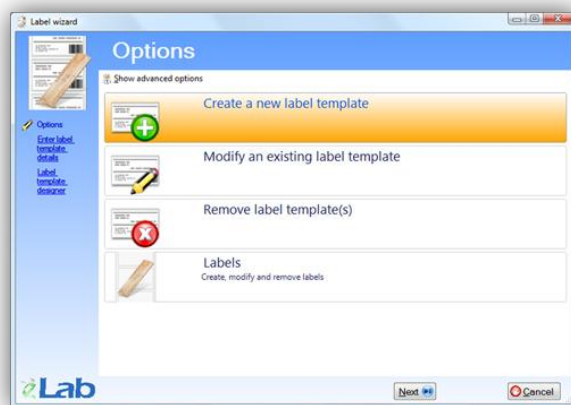


Figure 18.5. The *Label wizard*, *Options* screen.

2. Click the **Create a new label template** button.

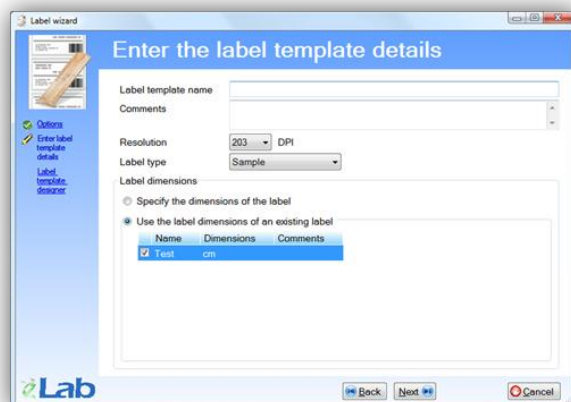


Figure 18.6. The *Label Wizard*, *label template details* screen.

3. Enter a descriptive name for the label template.
4. Enter any comments that you want to attach to the label template.
5. Select the **Resolution** that labels based on this template will be printed at – this normally corresponds to the resolution of your label printer.
6. In the **Label type** box, click the name corresponding to the label type you want to design.
The available label types are:
 - Sample - for labelling individual samples.
 - Reagent - for labelling individual reagents.
 - Container - for labelling containers.
 - Fridges and Cabinets - for labelling storage locations.
7. Select one of the options from the Label dimensions section:
 - Specify the dimensions of the label. Select this option to create a new label, see

- *Creating a New Label* on page 68.
 - Use the label dimensions of a new label. Select this option to choose from a list of labels that have already been created.
8. Click **Next**.

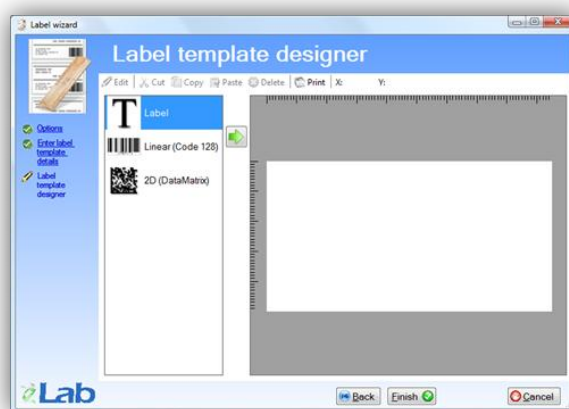


Figure 18.7. The label wizard *Label, template designer* screen.

9. Position the components of the label template by dragging components from the component list on the left-hand side of the designer surface and set the properties in the dialogue box that is displayed.
10. Click **Finish** to save the label template.

Modifying an Existing Label Template

To modify an existing label template, follow these steps:

1. Click the **Labels** button from the **Show** group on the **Materials** tab. The **Label Wizard** is displayed.
2. Click the **Modify an existing label template** button.
3. Select the label template that you want to edit, and then click **Next**.

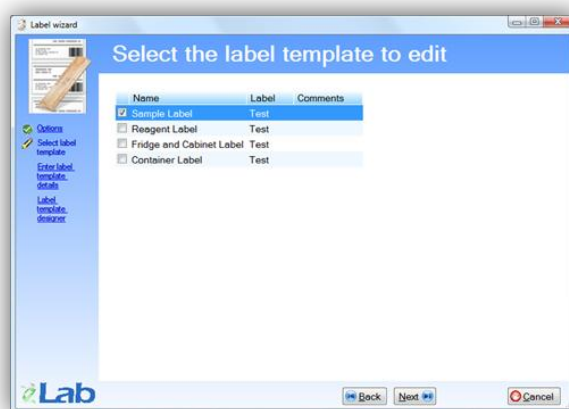


Figure 18.8. The Label wizard, *Select label template* screen.

4. Edit any of the label template details, and then click **Next**.
5. Edit the components of the label template designer by double clicking on them, or by selecting one and clicking the **Edit** button.

6. Click **Finish**.

Removing a Label Template

To remove an existing label template, follow these steps:

1. Click the **Labels** button from the **Show** group on the **Materials** tab. The **Label Wizard** is displayed.
2. Click the **Remove label template(s)** button.
3. Select the label template(s) that you want to remove.

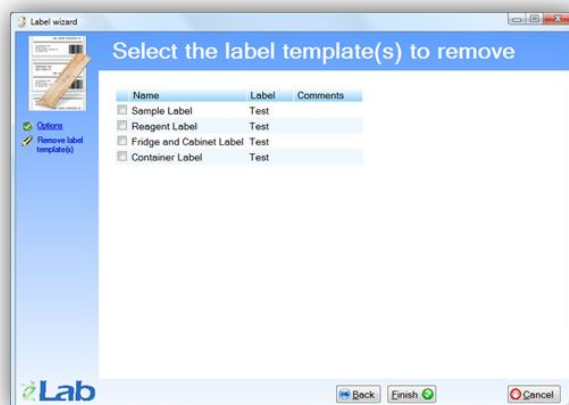


Figure 18.9. The *Label wizard*, *Remove label template* screen.

4. Select **Yes** on the **Confirmation** dialogue box.
5. Click **Finish**.

Using the Label Designer

The **Label Designer** is used for setting the physical properties of a label. A group of controls on the left-side of the designer is used for setting the values of the corresponding properties. The label representation on the right-side of the designer updates to reflect any changes made to the properties of the label.

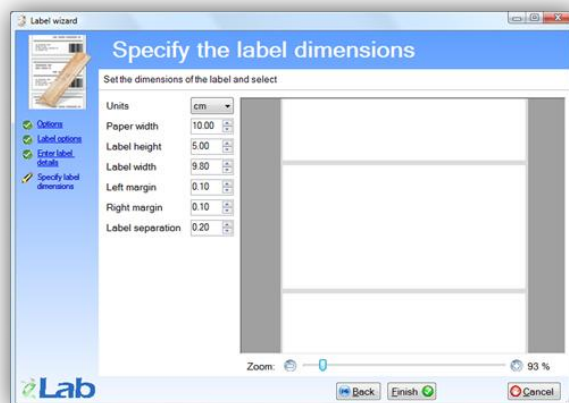


Figure 18.10. The *Label wizard*, *Specify label dimensions* screen.

Labels have the following properties:

- **Units**
The units that the dimensions of the label are described in.
- **Paper Width**
This is the value of the width of the labels' paper backing.
- **Label Height**
The value of this property corresponds to the height of a label.
- **Label Width**
The value of this property corresponds to the width of a label.
- **Left Margin**
This is the separation between the left edge of the paper backing and the left edge of the label.
- **Right Margin**
This is the separation between the right edge of the paper backing and the right edge of the label.
- **Label Separation**
This is the separation between consecutive labels.

Creating a New Label

To create a new label, follow these steps:

1. Click the **Labels** button from the **Show** group on the **Materials** tab. The **Label Wizard** is displayed.

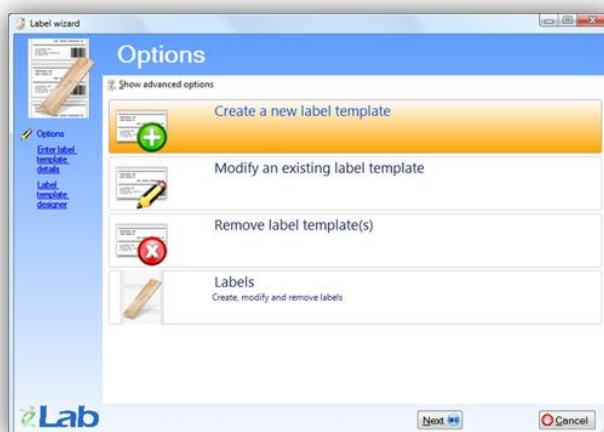


Figure 18.11. The *Label wizard*, *Options* screen.

2. Click the **Labels** button, and then click the **Create a new label** button.
3. Enter a descriptive name for the label.
4. Optionally, enter any comments that you would like attached to the label.
5. Click **Next**.
6. Set the properties of the label.
7. Click **Finish**.

Modifying an Existing Label

To modify an existing label, follow these steps:

1. Click the **Labels** button from the **Show** group on the **Materials** tab. The **Label Wizard** is displayed.
2. Click the **Labels** button, and then click the **Modify an existing label** button.

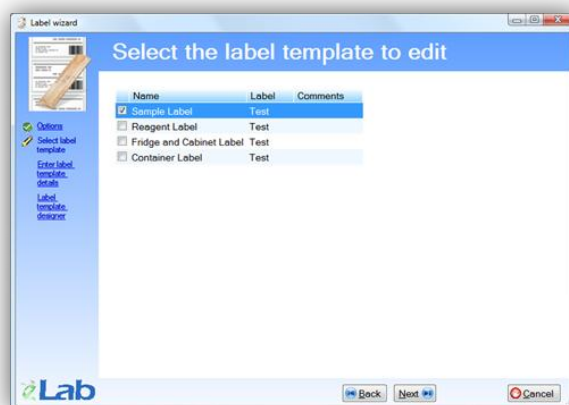


Figure 18.12. Label wizard, Select template screen.

3. Select the label that you want to edit, and then click **Next**.
4. Change the name or comments of the label, if desired, and then click the **Next** button.
5. Edit any of the label properties, and then click **Finish**.

Removing a Label

To remove an existing label, follow these steps:

1. Click the **Labels** button from the **Show** group on the **Materials** tab. The **Label Wizard** is displayed.
2. Click the **Labels** button, and then click the **Remove a label** button.

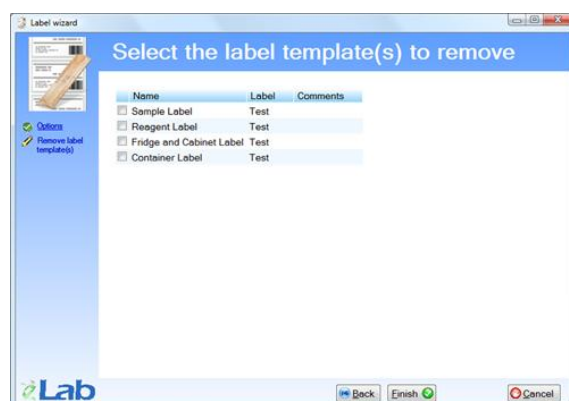


Figure 18.13. Label wizard, Remove label template screen.

3. Select the label(s) that you want to remove.
4. Click **Yes** on the confirmation dialogue box.
5. Click **Finish**.

Part 4

Tasks

Chapter 19 Introducing Tasks

What is a Task?

A task corresponds to the actual performance of laboratory work whether by a human at a bench or by a robot. While protocols define the way in which reagents and actions should be applied to a sample, tasks manage the physical application of this process.

What is a Worklist?

A worklist is a group of samples assigned to be performed by a particular protocol.

Overview of Creating Tasks

The task screen is where the day-to-day work of creating, organising and carrying out tasks is performed. This screen brings together the appropriate samples, reagents and protocols to help you lay out your working containers, create task reports, export data to equipment and more.

The task screen is divided into two sections, the worklist section and the task section (see Figure 19.1). The worklist section toggles between displaying the samples in a particular worklist (i.e. sample assigned to be performed by a particular protocol) and displaying the reagents required for the protocol associated with the worklist. The task section displays a view of the containers that the samples and reagents will be added to when performing the task. Both sections are able to display sample data in either a virtual representation of the containers holding the samples or a spreadsheet like view.

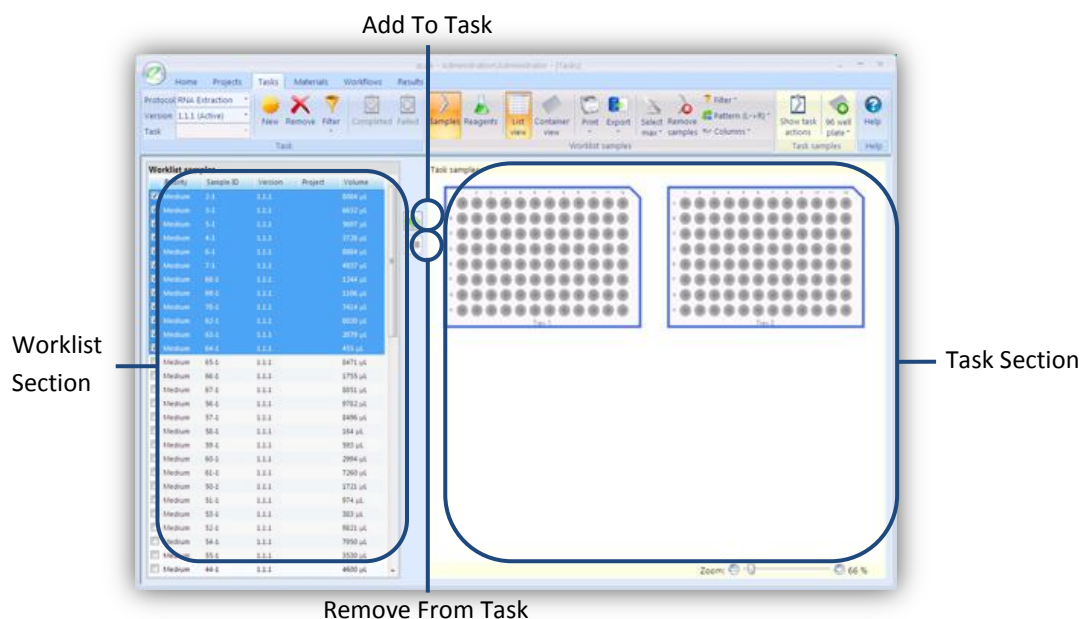


Figure 19.1. The *Task* screen.

Worklists are groups of samples that are waiting for processing by a particular protocol. As samples are added to a worklist they continue to queue, building in number. Samples may queue in a worklist because there are too many to complete at one time, or you are waiting for resources to become available, or simply because there is not enough time to process them. To display the samples for in a particular worklist use the Protocol and Version controls (see Figure 19.2). You can use the Filter Options control (see Figure 19.2) to refine this list.

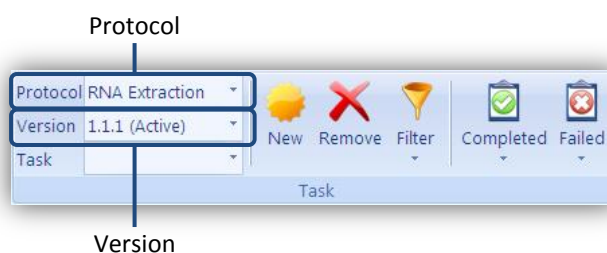


Figure 19.2. The Task group.

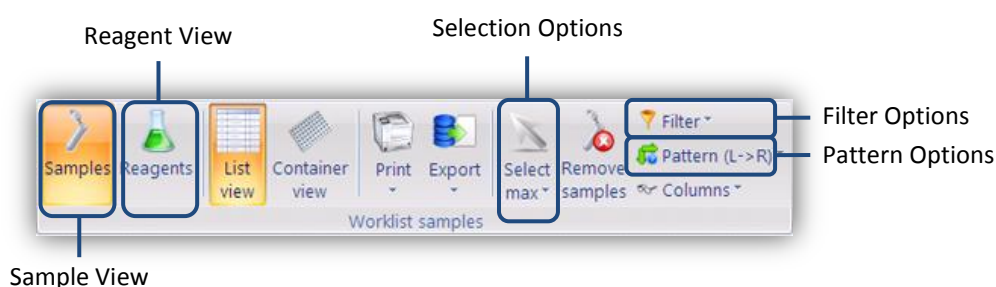


Figure 19.3. The Worklist samples group.

Before adding your samples to the Task section you will need to create one or more containers. The **Add Container** control (see Figure 19.4) allows you to add a range of containers by clicking on the appropriate choices. You can add as many containers as required. Choose the containers that best represent the ones that you are actually using to perform the work - this will help to minimize any errors that may occur in sample positioning.

*Note: If there is no suitable container available you can create additional containers from the containers screen on the **Materials** tab.*

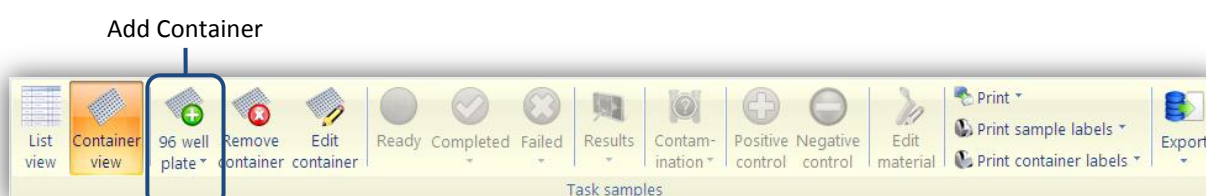


Figure 19.4. The Task samples group.

Select the samples from the worklist that you would like to use in a task. You can manually select the samples or use the **Filter** drop down control together with the **Select** drop down control to select the appropriate number of samples from the top of the list (see Figure 19.3). Press the **Add-To-Task**

control (see Figure 19.1) to move selected samples from a worklist to a selected container. Samples are positioned from the first free or first selected well in the task section and placed according to the **Pattern** Option control (see Figure 19.3). Alternatively, you can specify a particular layout by selecting wells on the target container – these wells are also filled according to the **Pattern** Option control.

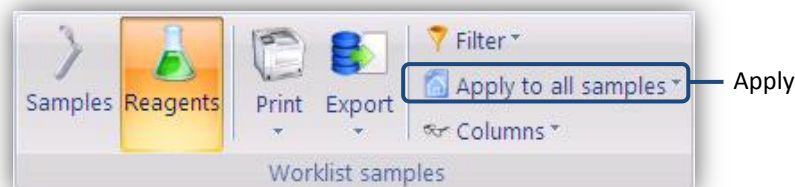


Figure 19.5. The Worklist reagents group.

To add reagents, switch to the reagent view by clicking the **Reagent View** button (see Figure 19.5). Select the particular batches that you want to add to the samples, and then click the **Add-To-Task** button to add those reagents to the appropriate wells.

Note: You can modify the wells into agents are added by changing the settings under the Apply drop down control (see Figure 19.5).

Once you have added the samples and reagents you can perform the following tasks:

- Set Controls. Use the **Positive Control** or **Negative Control** buttons to set any controls.
- Edit samples or reagent details. Use the **Edit** button to change the volume or concentration details of the samples and reagents in the selected task container's wells.
- Print protocols or Task Reports.
- Print sample or tray labels.
- Export data for use with equipment.

Now it is time to perform the task, you have the option of creating a printed Task Report or exporting a data file for integration with laboratory equipment.

When the task is complete you need to associate any results with the appropriate samples, identify contaminated samples, specify the success or failure of each sample in the task and send all samples to storage or a worklist.

Note:

- *Users are only shown the samples in worklists that they are assigned, by default. To view samples in worklists assigned to other users change the settings under the **Filter** drop down button in the **Task** group.*
- *You can add samples directly to a task from the **Materials** tab.*
- *The **Task** control in the **Task** group is used to locate existing tasks created from a particular protocol.*

- When you add samples to a working container, by default they are removed from the worklist. Use the **Show transfer samples** option from the **Filter** control in the **Worklist Samples** group (see Figure 19.3) to change this setting.
- If you accidentally add the wrong samples to a container you can remove those samples and return them to the worklist by selecting the samples and clicking the **Remove-From-Task** control (located below the **Add-To-Task** control).
- To view tasks that have been completed or have failed, changed the options under the **Filter** drop down control in the **Task** group.
- If a reagent or sample that is specified in the applied protocol is missing from a well, a validation error icon will appear on the well.

Task Report Overview

A Task Report is a printable report that provides details of the samples and reagents of a task. The report is divided into three sections, the header, the current location and the new location (see Figure 19.6). The header contains task-level details such as the task identifier, the report creator's username, the protocol type, and the protocol version. The current location section lists the locations of the samples and reagents used by the task, and the new location section specifies the required volumes of those samples and reagents, as well as where those volumes should be positioned.

Task Report

Task:5

Protocol Type:RNA Extraction

User:Administrator

Protocol Version:1.1.3 (Active)

Current Location							New Location				
ID	Type	Ctrl	Location	Container	Row	Col	Container	Row	Col	Volume	ID
17-1	Plasma		Fridge 2	Container 1	C	7	Tray 1	A	3	200 µL	17-3
55-1	Plasma		Fridge 2	1	A	1	Tray 1	A	1	200 µL	55-3
56-1	Plasma		Fridge 2	1	A	2	Tray 1	E	3	200 µL	56-3
57-1	Plasma		Fridge 2	1	A	3	Tray 1	E	1	200 µL	57-3
58-1	Plasma		Fridge 2	1	A	4	Tray 1	A	4	200 µL	58-3
101-1	Plasma		Fridge 2	Container2	A	0	Tray 1	A	5	200 µL	101-2
102-1	Plasma		Fridge 2	Container2	A	1	Tray 1	E	4	200 µL	102-2
103-1	Plasma		Fridge 2	Container2	A	2	Tray 1	E	5	200 µL	103-2
104-1	Plasma		Fridge 2	Container2	A	3	Tray 1	A	3	200 µL	104-2

Figure 19.6. The Task Report.

The Task Report has the following information:

- Task.
The identifier of the task.
- User.
The username of the report's creator.
- Protocol Type
The protocol type of the task.
- Protocol Version
The protocol version of the task.

- **Current Location**
 - **ID**
The identifier of the sample or reagent.
 - **Type**
The sample type or reagent type.
 - **Ctrl**
Use to identify a sample or reagent as a positive (+) or negative (-) control.
 - **Location**
This is the name of the device that the sample or reagent is stored in.
 - **Container**
This is the name of the container that the sample or reagent is stored in.
 - **Row**
The value of this column corresponds to the row of the container where the sample or reagent is located.
 - **Column**
The value of this column corresponds to the row of the container where the sample or reagent is located.
- **New Location**
 - **Container**
This is the name of the container that the new sample or reagent will be created.
 - **Row**
The value of this column corresponds to the row of the new container.
 - **Col**
The value of this column corresponds to the column of the new container.
 - **Volume**
The volume of the sample, or reagent, to be transferred to the new location.
 - **ID**
The identifier of the new sample, or reagent, which will be created when the task is completed.

Note:

- *Depending on the settings of the Task Report Viewer (See The Task Report Viewer on page 78) reagents that are present in each well of the task may be removed from the samples and reagents list and placed in a Master Mix group in the header section.*
- *Use the Task Report when performing work manually and use the options of the **Export** split-button in the **Task Samples** group when using robotics.*

The Task Report Viewer

The Task Report Viewer allows you to navigate the pages of multipage reports, change the way pages are printed and viewed, and modify the options applied during the creation of the report.

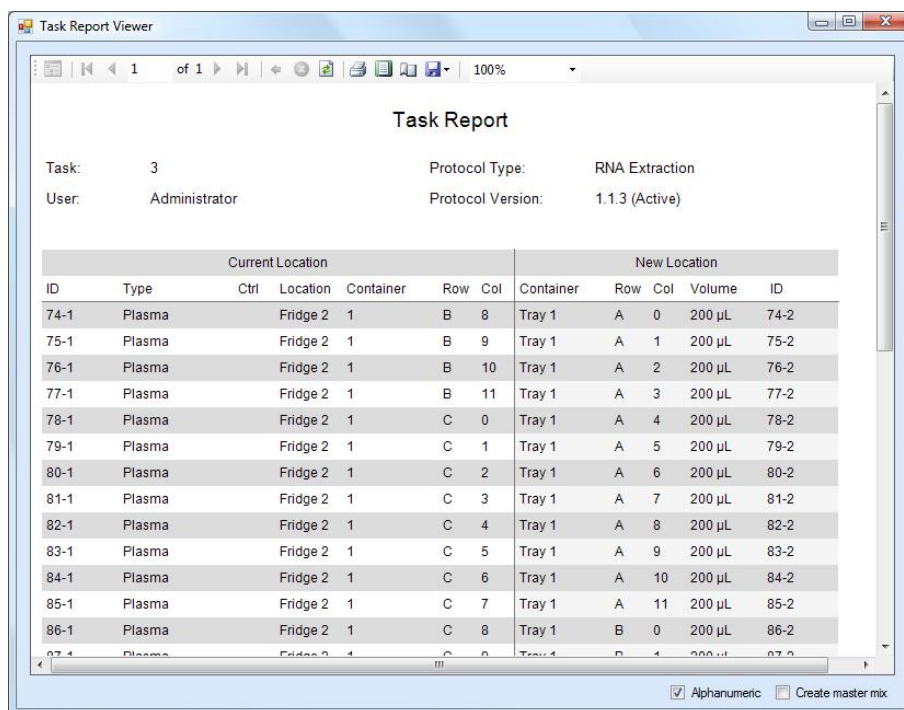


Figure 19.7. The Task Report Viewer.

Note:

- To create a master mix, select the **Create Master Mix** control from the bottom right of the Task Report Viewer.
- To alternate the way rows are identified between numeric and alphanumeric options change the selection of the **Alphanumeric** control in the bottom right of the Task Report Viewer.
- The **Save** button of the Task Report Viewer toolbar allows you to save a report as a Microsoft Excel file or a PDF.

Chapter 20 Tasks Step-by-Step

Creating a New Task

To create a new task, follow these steps:

1. On the **Tasks** tab select the desired protocol from the **Protocol** control in the **Task** group.

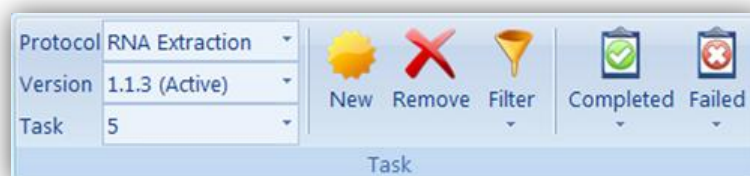


Figure 20.1. The Task group.

2. Select the version of the protocol you will be using.
3. Click the **New** button.

Viewing an Existing Task

After a task is saved you can later return to it to complete any missing details or for review. To view an existing task:

1. If you want to open a task that has already been set to completed or failed, modify the settings under the **Filter** drop down control in the **Task View**.
2. Select the protocol of the task from the protocol control in the **Task** group.
3. Select the version of the protocol, if known.
4. Choose the required **Task** number from the **Task** control.

Removing a Task

To remove a task, follow these steps:

1. Select the task, see *Viewing an Existing Task* on page 79.
2. Click the **Remove** button (See Figure 20.2) from the Task Group.



Figure 20.2. Removing a task.

Note: This will remove all samples from the task and place them back on the worklist.

Filtering Samples

The samples displayed in the worklist are determined by the options selected in the **Filter** control in the **Worklist samples** group.

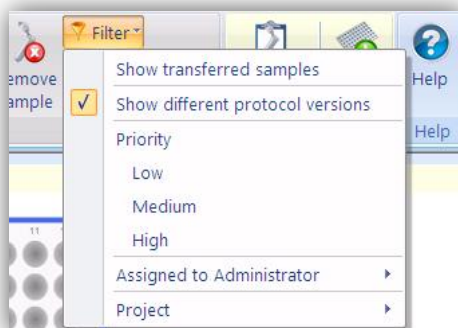


Figure 20.3. The **Filter** control.

The available options are:

- Show transferred samples. This option determines whether samples that have been added a task remain in the worklist or are hidden from view. By default this option is off and samples added to a task are hidden
- Show different protocol version. Acts as an override to the Version control allowing the worklist to display samples in the worklist that have been assigned other versions of the selected protocol.
- Priority. The priority options allow the worklist to be filtered by samples of low, medium, or high priority.
- Assigned To. Show samples that have been assigned to other users.
- Projects. The projects section displays a list of projects and sub-projects that the user has access to. Selecting one or more projects limits the samples displayed in the worklist to those projects.

Selecting Samples

You can manually select a sample from a worklist by clicking anywhere on the row associated with that sample. However the **Selection** control simplifies this process.

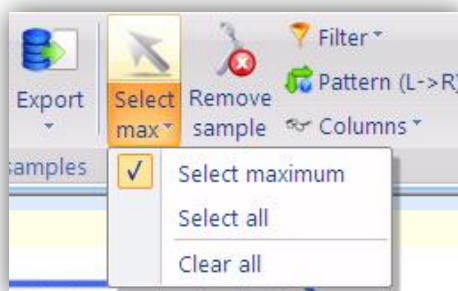


Figure 20.4. The **Selection** control.

The available options are:

- Select Maximum. Selects the maximum number of samples, starting from the top of the worklist, which will fit in containers in the task.
- Select All. Selects all the samples in the worklist.

Adding Containers to a Task

Containers are added to the **Task** section using the **Add Container** control. The top half of the control acts like a regular button and adds the container corresponding to the name of the control when it is pressed. However, when the bottom half is pressed it presents a dropdown list of options. Selecting from the list adds that container type to the task and set it to the default.

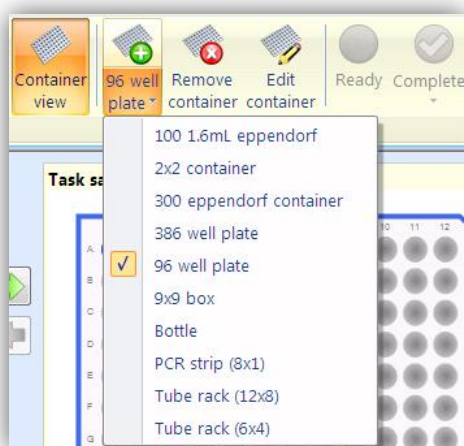


Figure 20.5. The Add container control.

Note: For details on creating additional container type, see Using the Container Designer on page 57.

Adding Samples to a Task

To add samples to a container in the task, follow these steps:

1. When in a task, select the samples you want to add to a container.
2. Set the pattern for adding the samples.
Note: Patterns allow samples to be added to more than one container at a time. This is very useful for duplicating layouts.
3. In each target container either :
 - Select a single well. The samples will be added, starting at the current well, according to the options selected in the Pattern control.
 - Select a pattern of wells. The samples will be added to the selected wells according to the options in the Pattern control starting from the current well.
4. Click the **Add-To-Task** button.

Note:

- If a pattern of wells have been selected and there are more samples than the number of selected wells then not all the samples will be added to the container.
- If a single well has been selected or if the last well of a container is reached while samples are being added, the placement position will loop to the first well of the container and attempt to fill-in any empty wells.
- If there are more samples than free positions in a container a message will be displayed.
- If there is an insufficient volume of a sample to add the requested amount a confirmation dialogue box will be displayed.

Using patterns

Patterns allow the user to specify how samples are added to containers.

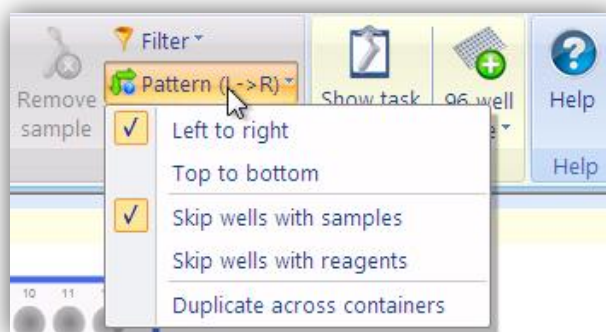


Figure 20.6. The *Pattern* control.

The available options are:

- Left to right (L->R). The samples are to be placed from the left to right across the row of a container. When the end of a row is reached the samples wrap and start at the beginning of the next row.
- Top to bottom (T->B). The samples are to be placed from the top to bottom down a column of a container. When the end of a column is reached the samples wrap and start at the beginning of the next column.
- Duplicate across containers. Each of the selected samples in the worklist section will be added to the selected container in the Task section in accordance with the choice of the previous two options.

Removing Containers

To remove a working container from the **Task** section, follow these steps:

1. Select the container from the **Task** section.
2. Click the **Remove** button

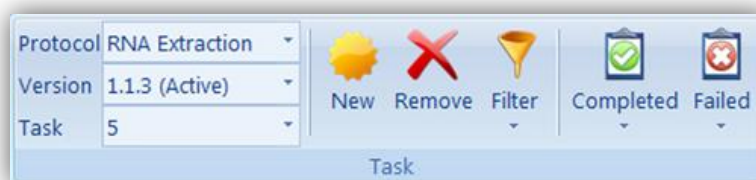


Figure 20.7. The Task group.

Note: This will automatically remove all samples and reagents from the container (samples will be added back onto the worklist).

Filtering the Reagents

The reagents displayed when creating a task are determined by the options selected in the **Filter** control in the **Worklist** group.

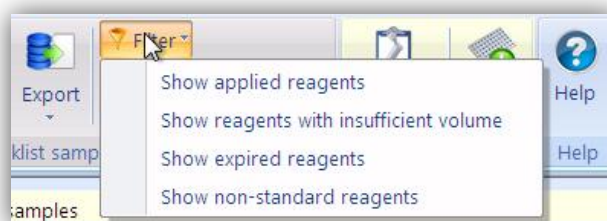


Figure 20.8. The Filter control.

The available options are:

- Show applied reagents. When this option is not selected, reagents that have already been applied to the task are not shown.
- Show reagents with insufficient volume. When this option is selected only reagents with sufficient volumes are shown.
- Show expired reagents. When this option is selected only samples within their expiry date are shown.
- Show non-standard reagents. When this option is not selected, reagents that are not part of the assigned protocol are hidden.

Adding Reagents to a Container

To add reagents to a container, follow these steps:

1. Select the **Reagent** toggle button in the **Worklist samples** group. This will display a list of reagents.
2. Select a reagent to add to the task.
3. Select one of the following options from the Apply control:
 - Apply to all samples. The reagents will be added to each well containing a sample.
 - Apply to selected wells. The reagents will be added to every selected well.
 - Apply to all wells. The reagents will be added to the each well in the containers of the task.

- Apply to all selected samples. The reagents will be added to selected wells that contain samples.

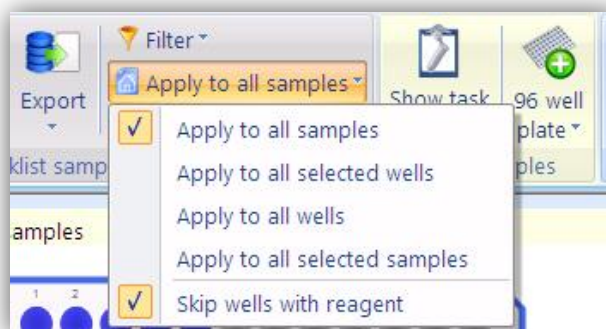


Figure 20.9. The **Apply** control.

4. If you do not want the reagents to be added to any wells where those reagents have already been added make sure the **Skip well with reagent** option is selected from the **Apply** control.
5. If you selected an apply option that requires wells to be selected, and then select the wells that you want to add the reagents to.
6. Press the **Add-To-Task** button.

*Note: You can add reagents not specified by the protocol by selecting **Show non-standard reagents** under the **Filter** drop down in the **Worklist samples** group.*

Editing Sample and Reagent Details

To edit the details of samples or reagents in working container, follow these steps:

1. Select the well that contains the sample or reagent details you want to edit.
2. Press the **Edit** button from the **Task samples** group. The **Edit Container Samples and Reagents** dialogue box is displayed.

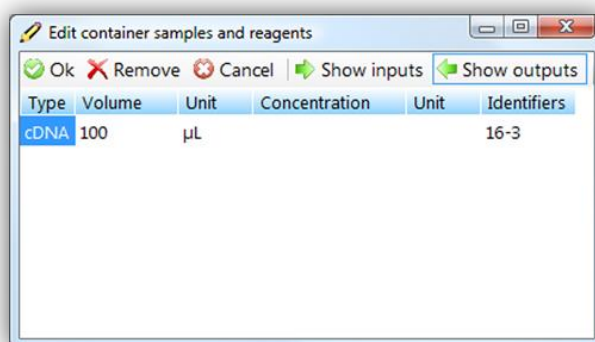


Figure 20.10. The **Edit container samples and reagents** dialogue box.

3. To edit the details of a sample or reagent click on the appropriate Volume, Concentration or Unit and enter a new value.
4. Click **Ok**.

Note:

- Press the **Show Inputs** button to view the input of a task for that well.
- Press the **Show Outputs** button to view the output of the task for that well.
- Press **Remove** to remove a sample or reagent from a well.

Setting Controls

The use of controls is an integral part of quality control practices in the laboratory. To designate a well as containing a control, select the well and press either the Negative control or Positive control button from the Task samples group.

Note:

- To remove a samples designation as a control, click the relevant control button again while the control is selected.
- You can select an empty well as a negative control.

Printing a Task Report

Clicking the top-half of the **Print** split-button prints the Task Report using your default printer settings – it acts as a ‘quick print’ control. Clicking the bottom half allows you to select from one of the following options:

- **Print**. Displays a Print dialogue box for setting your preferred printing options.
- **Preview**. Used for displaying a preview of the Task Report that will be printed.
- **Page Setup**. Used for setting the page size, margins and orientation.

Exporting Task Data

Exporting task data is useful for integration with robots and other equipment. To export task data, follow these steps:

1. Display the Task that you want to export data for.
2. Select one of the following options from the **Export** control in the **Task samples** group:
 - Excel (XLS).
 - Text (Comma delimited; CSV).
 - Text (Tab delimited; TXT).
 - Extensible Markup Language.
3. From the dialogue box select a location to save the data file.
4. Click **Save**.

Tagging Contamination

When a task is complete any samples identified as being contaminated can be tagged as such. To do so, follow these steps:

1. Select the contaminated samples.
2. From the **Contamination** control select one of the following contamination types:
 - Yes. The sample is definitely contaminated.
 - Maybe. The sample is possibly contaminated.
 - No. The sample is definitely not contaminated.
 - Unknown. No determination of any contamination has been made. This is the default setting.

Attaching Results

To attach result data to a sample, follow these steps:

1. Select the sample you want to attach a result to.
2. From the **Results** control in the **Task Samples** group select one of the following options:
 - Text. Used to attach manually inputted or cut and paste text to the selected sample(s).
 - File path. For linking or importing a file with the selected sample(s).
 - Image. Used to import an image into eLab and associate it with the selected sample(s).
 - Sequence. For manually inputting or cutting and pasting a sequence into eLab and associating them with the related sample(s).
 - Other. For importing sample data not supported by one of the other options listed above.
3. Enter the required data from the dialogue box that is displayed (see *Results Step-By-Step* for details).
4. Click **Import**.

Setting the Status of a Sample

When samples are added to a task, or while they are being processed, they are assigned the default status of Ready. Once a task has been completed the user is required to specify a final status for all the samples in the task, either completed or failed. Assign a status of completed to those samples that have successfully completed processing, otherwise assign a status of failed.

To set the status of a sample, follow these steps:

1. Select the samples you want to change the status of.
2. If the status is completed, either click the top of the **Completed** control in the **Task samples** group to set sample to complete or click the bottom of the control to set the sample to complete and perform one of the following actions:

- Send to worklist. This option allows you to send the samples directly to the next worklist. This is very useful when you are proceeding immediately to the next task.
- Send to storage (move). The sample will be moved from the task to the storage location you specify.
- Send to storage (aliquot). An aliquot of the sample will be sent to the storage location you specify.

If the sample has failed, you are given the same functionality as for the completed option, but are presented with a different set of protocols when sending to worklist, as per the method.

3. Complete the dialogue box that appears (see below) and confirm the details.

Completing the Send to Worklist Dialogue box

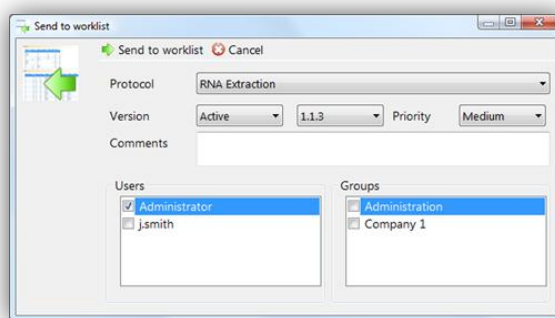


Figure 20.11. The *Send to worklist* control.

1. Select the **Protocol** of the worklist you wish to assign the samples to.
2. Choose the **Version Type** and **Version Number** of the appropriate protocol.
3. Set a priority for the samples
4. Assign the samples to a particular user or group.
5. Click **Send To Worklist**.

Note:

- The list of protocols available in the **Protocol type** drop down is limited to those applicable to the current sample type and the associated method, if any. You can remove this restriction by changing the setting under the **Filter** drop down control.
- For samples that have been set to failed, you are given the option to choose which related sample(s) will be sent to the worklist.

Completing the Send to Storage (Move) Dialogue box

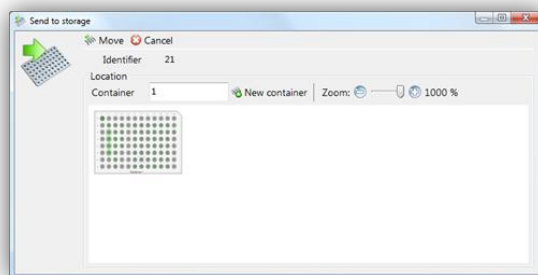


Figure 20.12. The *Send to storage (move)* control.

1. Enter the identifier of the container you want to add the samples to, or create a new container by clicking the **New Container** button (See *Adding a Container* on page 54).
2. Select the location(s) of the sample(s) within the container.
3. Click **Move**.

Completing the Send to Storage (Aliquot) Dialogue box

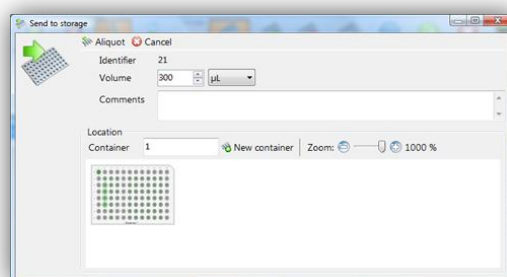


Figure 20.13. The *Send to storage (aliquot)* control.

1. Enter the **Volume** and select the units of the amount you want to move to the container.
2. Enter any comments you want attached to the aliquoted sample.
3. Enter the identifier the container you want to add the samples to, or create a new container by clicking the **New Container** button (See *Adding a Container* on page 54).
4. Select the location(s) of the sample(s) within the container.
5. Click **Aliquot**.

Printing Sample Labels

Once you have completed a task you are able to print labels for the sample output of each well. To print the samples labels:

1. Select the completed samples you want to print labels for.
2. Click the appropriate label type from the **Print Sample Labels** control in the **Task samples** group.
3. A **Print** dialogue box appears.

4. Select the name of the label printer.
5. Click **Ok**.

Note: You can print sample labels before or after a sample has been processed.

Printing Container Labels

Once you have completed a task you are able to print labels for the working containers. To print the container labels:

1. Select the containers you want to print labels for.
2. Click the appropriate label type from the **Print Container** Labels control in the **Task Samples** group.
3. A **Print** dialogue box appears.
4. Select the name of the label printer.
5. Click **Ok**.

Note: You can print sample labels before or after a sample has been processed.

Completing a Task

Once all samples in a task have been set to complete or failed, you will be prompted to set the entire task to complete or failed. This is useful to remove tasks from the list of active tasks. Note, however, that you can still view these tasks and change the status back by changing the task filter options.

To set all uncompleted tasks to either Complete or Failed you can use the **Complete** or **Failed** drop down control in the **Task** group. These drop down controls allow you to specify what action should be taken on the samples in the task.

Part 5

Workflows

Chapter 21 Introducing workflows

What is a Workflow?

A workflow is a sequence of steps used to describe a process. In eLab there are two types of workflows: protocols and methods. Protocols describe the sequence in which reagents and actions are applied to a sample in order to create a new product. Methods describe the logic for linking these protocols together. The flow of samples between tasks is controlled by the applying method and the work done in each task is controlled by the applying protocol.

Overview of the Workflows Tab

The **Workflows** tab provides the functionality required to create and manage workflows. The Workflows tab has five screens:

- Protocol
The protocol screen is used for creating and managing protocols by specifying a sequence of actions.
- Method
Use the method screen is used for creating and managing methods by specifying the logic connecting protocols.
- Action
This screen allows you to create actions for use in protocols.

Chapter 22 Protocols

Introduction to Protocols

A protocol describes the sequence of actions and reagents that need to be applied to a sample in order to produce an output of the required type. Protocols specify as much detail about each component as possible and they are grouped by protocol type.

Maintaining protocols in eLab helps to improve business practices through automated versioning and the creation of a direct link between tasks and protocols. This link ensures that the default reagents in tasks and the volumes of samples added to working containers correspond to those from the appropriate protocol.

Protocols are grouped by protocol types which specify an input and output sample type. For example, if you have several protocols that describe how to extract RNA from plasma you can group these protocols by creating a protocol type named RNA Extraction that takes an input of type plasma and creates an output of RNA.

Overview of Creating Protocols

The Protocol screen is composed of three sections, the property section at the top, the tree-view on the left and the designer on the right. The property section describes the protocol type, version and status of the protocol. The tree-view contains a list of actions and reagents that can be dragged onto the designer. Finally, the designer is where the actions and reagents are positioned, details are specified and the order of components set.

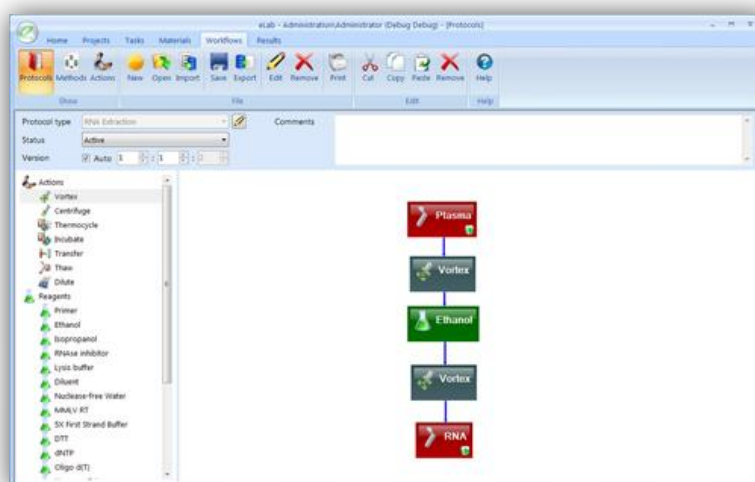


Figure 22.1. The *Protocols* screen

To create a new protocol click **Protocols** from the **Show** group, click **New**, select the protocol type from the displayed dialogue box, and then set the details of the properties section. It is important to note that if the protocol type changes, the two red components on the designer also change, these components correspond to the input and output sample types of the selected protocol type.

The available actions or reagents that can be applied to a protocol are shown in the tree-view on the left of the screen. Drag the actions and reagents from the tree-view and position them on the Designer in the order that you want them to be performed.

Clicking a component will put that component into selection mode (see Figure 22.2). When a component is in selection mode you can change its position by clicking on the component again and moving the mouse around while holding down the button.



Figure 22.2. A protocol component.

Once you have positioned all the components it is time to link them together. Click a component and drag from its connector circle, the small gray circle near the bottom right of the component (see Figure 22.2), to the component you wish to link to and release the button. The two components are now linked by a connector and the order is specified by an arrow on the connector.

To create a valid protocol there should be a complete path from the input to the output sample types and no components should be orphaned. Orphaned components are components that lead nowhere (that is they do not have a connector with an arrow leading away from them) or do not flow from another component (that is they do not have a connector with an arrow coming from another component).

To complete the protocol double-click on each component to view its attributes dialogue box and set as many of the attributes as possible. It is particularly important that the required volumes and concentrations of samples and reagents are completed as these details are required when tasks are created. You can tell when attributes have been attached to a component as there is a small icon representing the associated attribute at the bottom right of the component.

Chapter 23 Protocols Step-By-Step

Creating a Protocol

To create a protocol, follow these steps:

1. Open the **Protocol** screen by clicking on the **Protocols** button in the **Show** group of the **Workflows** tab.
2. Click **New** from the **File** group of the **Protocols** screen. The **Select or enter the protocol type** dialogue box appears.

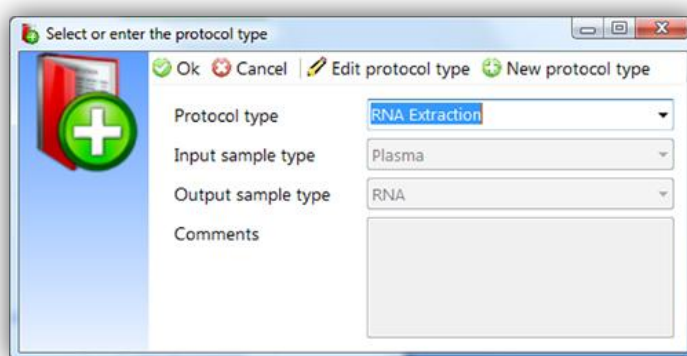


Figure 23.1. The *Select or enter protocol type* dialogue box.

3. Select the appropriate protocol type from the **Protocol Type** control, and then click **Ok**.
Note:
 - Click **New protocol type** to create a new protocol type (See *Adding a Protocol Type* on page 96).
 - Click **Edit protocol type** to edit an existing protocol type (See *Editing a Protocol Type* on page 97).
4. Set the details of the properties section.
5. Drag actions and reagents from the tree-view onto the designer.
6. Connect the actions and reagents together in a logical flow.
7. Edit each component by double clicking on it and setting as many properties as possible (See *Setting the Attributes of a Component* on page 97).
8. Ensure that the version number is correct, then click the **Save** button in the **File** group.
9. Click **OK** on the **Save Completed** dialogue box.

Note:

- Make sure there are no orphaned actions or reagents and there is a flow from the input to output sample types.
- It is important to specify the correct volumes and units for reagents as these are used when determining applying the protocol.
- The **Status** control from the properties section contains four options for setting the status of a protocol: Active, Experimental, Inactive and Redundant. Using the protocol status option makes it easier to filter and locate protocols.

Opening a Protocol

To open a saved protocol, follow these steps:

1. Click **Open** from the **File** Group of the **Protocols** screen. The **Open Protocol** dialogue box appears.

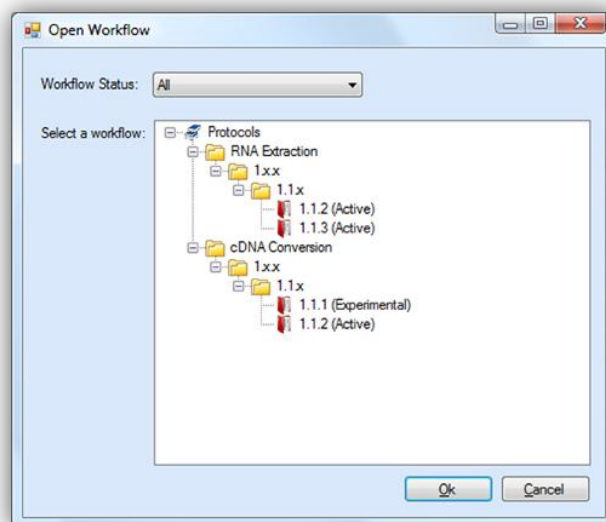


Figure 23.2. The *Open protocol* dialogue box.

The protocols are displayed in a tree-view. The first level of nodes sort by protocol type, and the remaining levels sort by version.

2. If you know the status of the protocol that you want to open select it from the **Protocol Status** control. This will limit the list of displayed protocols to those with that status.
3. Locate the required protocol version from the tree-view and double-click it, or select it then press **Ok**.

Note:

- Make sure there are no orphaned actions or reagents and there is a flow from the input to output sample types.

Editing a Protocol

To edit a protocol, follow these steps:

1. Open the protocol that you want to edit (See *Opening a Protocol* on page 95).
2. Make the required changes to the protocol, some examples are given below:
 - Add a component. Drag the appropriate action or reagent onto the designer.
 - Remove a component. Select the component to remove then press the **Delete** key or right-click on the component and select **Delete** from the context menu that appears.
 - Add a connector. Modify the flow by creating new connections between actions and reagents.

- Remove a connector. Select the connector that you want to remove then press the **Delete** key or right-click on the connector and select **Delete** from the context menu that appears.
 - Modify the properties of the components. See *Setting the Attributes of a Component* on page 97.
3. Click on the **Save** button from the **File** group.
 4. If you are overwriting an existing protocol a confirmation dialogue box will ask you to confirm the changes, click **Yes**.
 5. Click **Ok** on the **Save Completed** dialogue box.

Note: For better laboratory practice it is recommended that you assign the edited protocol a new version number instead of replacing an existing protocol.

Adding a Protocol Type

To add a protocol type, follow these steps:

1. Open the **Protocols** screen by clicking on the **Protocols** button in the **Show** group of the **Workflows** tab.
2. Click **New** from the **File** group of the **Protocols** screen. The **Select or enter the protocol type** dialogue box appears.

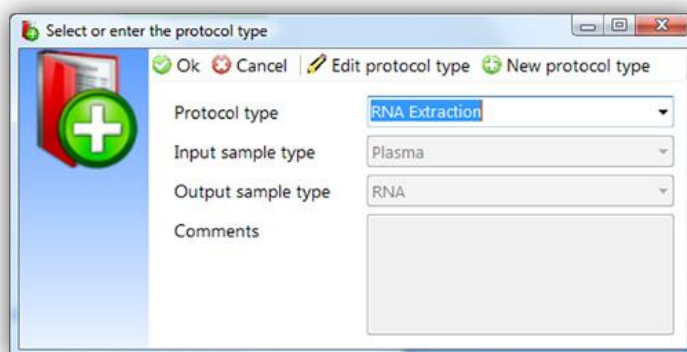


Figure 23.3. The *Select or enter protocol type* dialogue box.

3. Click **New protocol type**.
4. Enter the appropriate details for the new protocol type, and then click **Ok**.

Editing a Protocol Type

To edit a protocol type, follow these steps:

1. Click on the protocol type edit button, located to the right of the **Protocol type** control. The **Edit protocol type** dialogue box appears.

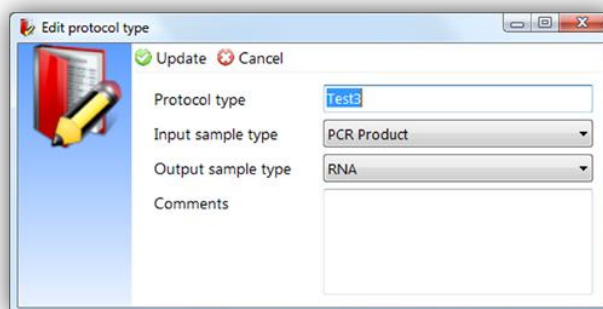


Figure 23.4. The *Edit protocol type* dialogue box.

2. Make the required changes to the protocol type.
3. Click **Update**.

Setting the Attributes of a Component

Component dialogue boxes consist of three parts:

- The attributes list
This lists all the attributes that are appropriate for describing the component type. To enter the details of a particular attribute select it and enter its details in the attribute details section. See *Actions* for details on adding actions to the list of attributes.
Note: A green attribute indicates that an attribute has associated details and a red attribute indicates that there is an error in the details of the attribute.
- The attribute details section
This section allows you to set the details of a selected attribute. You can set the value, units, error in value and attach a comment to the attribute.
- The component comment
This allows you to attach a comment to the component.

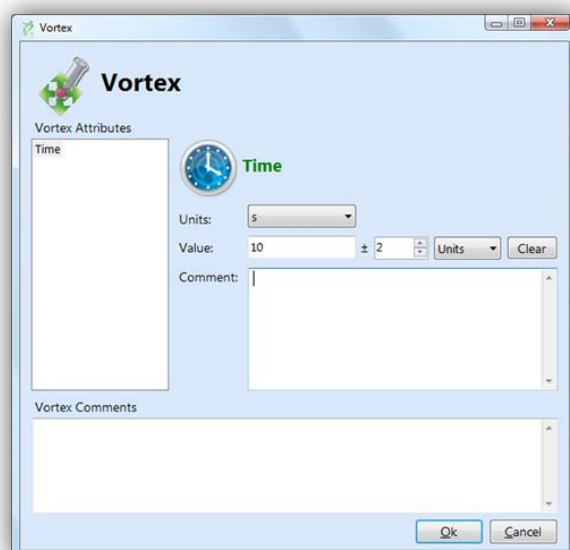


Figure 23.5. A Component dialogue box.

To set the attributes of a component, follow these steps:

1. Double-click the relevant component from the protocol designer, the component dialogue box appears.
2. Select each attribute one-by-one and set the associated attributes.
3. Enter any comments you want to associate with the component

Click the **Ok** button.

Saving a Protocol

To save a protocol, follow these steps:

1. Ensure that correct version information has been set.
2. Click the **Save** button from the **File** group
3. Click **Ok** on the **Save Completed** dialogue box.

Removing a Protocol

To remove a protocol, follow these steps,

1. Open the protocol that you want to remove.
2. Click the **Remove** button from the **File** dialogue box.
3. Click **Ok**

Note: Removing a protocol that has been used in the system (for example in a method, worklist, etc) will result in the associated information also being removed.

Attaching a Comment to a Connector

To attach a comment to a connector, follow these steps:

1. Double-click the relevant connector from the protocol designer, the connector dialogue box appears.
2. Enter the comment you want to associate with the connector.
3. Click the **Ok** button.

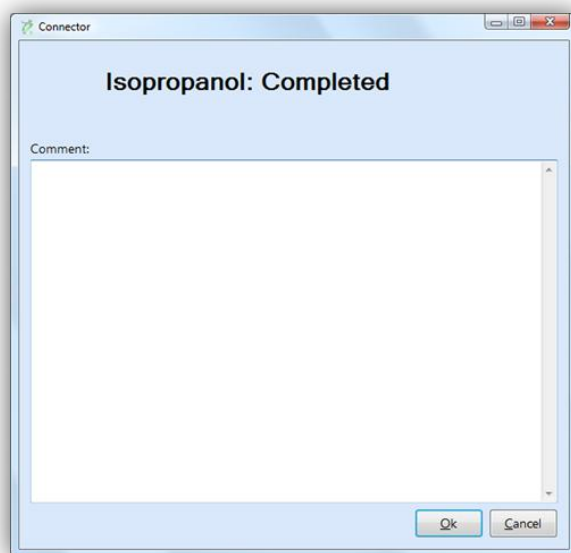


Figure 23.6. A Connector comment dialogue box.

Printing a Protocol

You can print the view from the designer by clicking the **Print** button from the **File** group and selecting the printer from the **Print** dialogue box.

Exporting a Protocol

To export a protocol, follow these steps:

1. Open the protocol that you want to export.
2. Click the **Export** button from the **File** group.
3. Specify a location to save the file in the **Save File** dialogue box.
4. Click **Ok**

The protocol is exported as an XML file for easy interoperability.

Importing a Protocol

You can import a protocol that was exported from another installation of eLab. To import a protocol follow these steps:

1. Click **Import** from the **File** group, the **Open** file dialogue box is displayed.
2. Specify the location of the file containing the protocol to be imported, and then click **Open**.

Note: If the protocol being imported contains unknown methods or reagents an error may be raised.

Chapter 24 Methods

Introduction to Methods

A method describes a sequence of protocols. Projects use methods to determine the order in which work should be performed as well as the input and output sample types. Methods are grouped by method type.

Overview of Creating Methods

The Method screen is composed of three sections, the property section at the top, the tree-view on the left and the designer on the right. The property section describes the method type, version and status of the method. The tree-view contains a list of protocols that can be dragged onto the designer. Finally, the designer is where the protocols are positioned, details are set and the order of components determined.

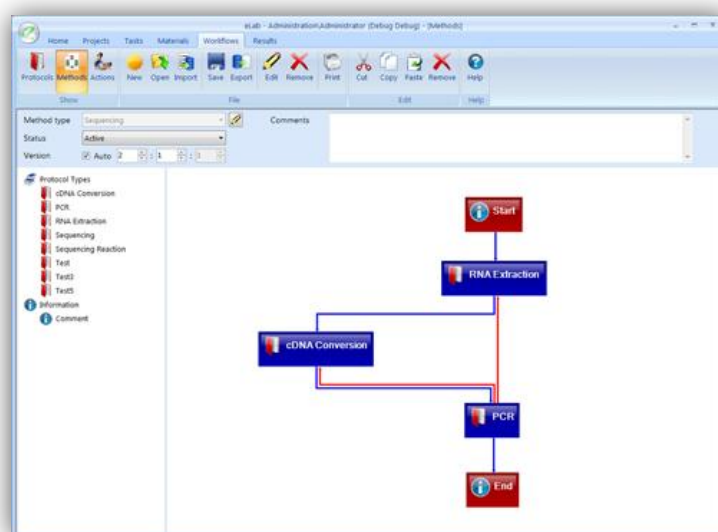


Figure 24.1. The *Methods* screen.

To create a new method click **Methods** from the **Show** group, click **New**, select the method type from the displayed dialogue box, and then set the details of the properties section. It is important to note that if the method type changes, the two red components that denote the starting and ending components. Drag protocols from the tree-view and position them on the designer in the order that you want them to be performed.

Clicking a component in the designer will put that component into selection mode (see Figure 24.2). When a component is in selection mode you can drag it by clicking on the component again and moving the mouse around while holding down the button. If desired, double-click on a component and enter a description in the component dialogue box that is displayed.



Figure 24.2. A method component.

Once you have positioned all the components it is time to link them together. Click a component and drag from its connector circle, the small gray circle near the bottom right of the component (see Figure 24.2), to the component you wish to link to and release the button. The two components are now linked by a connector and the order is specified by an arrow on the connector. By right clicking on a connector you can set a connector status to indicate when a particular path should be followed. For example, you can set the connector status to failed to indicate which protocol should be performed next on the failure of a particular protocol.

To create a valid method there should be a complete path from the start to the end components and no components should be orphaned. Orphaned components are components that lead nowhere (that is they do not have a connector with an arrow leading away from them) or do not flow from another component (that is they do not have a connector with an arrow leading from another component).

Chapter 25 Methods Step-By-Step

Creating a Method

To create a method, follow these steps:

1. Open the **Method** screen by clicking on the **Methods** button in the **Show** group of the **Workflows** tab.
2. Click **New** from the **File** group of the **Methods** screen. The **Select or enter the method type** dialogue box appears.

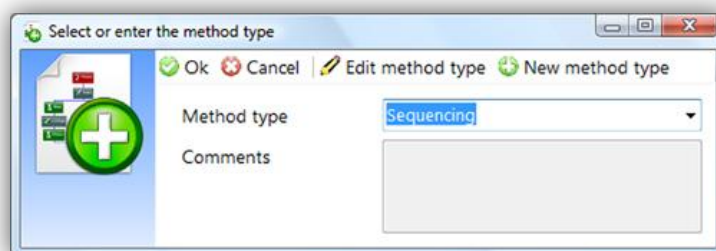


Figure 25.1. The **Methods** screen.

3. Select the appropriate method type from the **Method Type** control, and then click **Ok**.
Note:
 - Click **New method type** to create a new method type (See Adding a Method Type on page 104).
 - Click **Edit method type** to edit an existing method type (See Editing a Method Type on page 104).
4. Set the details of the properties section.
5. Drag protocols from the tree-view onto the designer.
6. Connect the protocols together in a logical flow.
7. Attach a comment to a protocol by double clicking on the protocol and entering a comment in the **Comment** box.
8. Ensure that the version number is correct, then click the **Save** button in the **File** group.
9. Click **OK** on the **Save Completed** dialogue box.

Note:

- Make sure there are no orphaned methods and there is a flow from the Start to End sample component.

Adding a Method Type

To add a protocol type, follow these steps:

1. Open the **Method** screen by clicking on the **Methods** button in the **Show** group of the **Workflows** tab.
2. Click **New** from the **File** group of the **Methods** screen. The **Select or enter the method type** dialogue box appears.

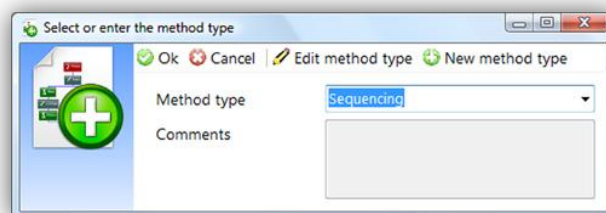


Figure 25.2. The *Select or enter the method type* dialogue box.

1. Make the required changes to the method type.
2. Click **Ok**.

Editing a Method Type

To add a method type, follow these steps:

1. Open the **Method** screen by clicking on the **Methods** button in the **Show** group of the **Workflows** tab.
2. Click **New** from the **File** group of the **Methods** screen. The **Edit method type** dialogue box appears.

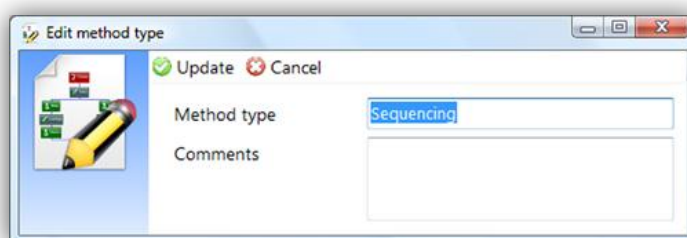


Figure 25.3. The *Edit method type* dialogue box.

3. Enter the appropriate details for the new method type, and then click **update**.

Opening a Method

To open a saved method, follow these steps:

1. Click **Open** from the **File** group of the **Method** screen. The **Open Method** dialogue box appears.

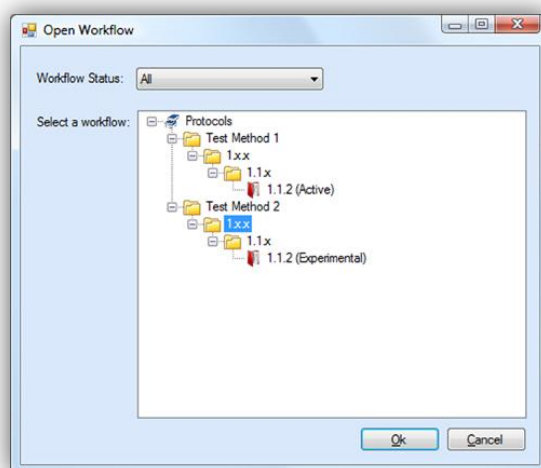


Figure 25.4. The *Open method* dialogue box.

The methods are displayed in a tree-view. The first level of nodes sort by method type, and the remaining levels sort the methods by version.

2. If you know the status of the method that you want to open select it from the **Method Status** control. This will limit the list of displayed methods to those with that status.
3. Locate the required method version from the tree-view and double-click it, or select it then press **Ok**.

Editing a Method

To edit a method, follow these steps:

1. Open the method that you want to edit (See *Opening a Method* on page 104).
2. Make the required changes to the method, some examples are given below:
 - Add a protocol. Drag the appropriate protocol component onto the designer.
 - Remove a protocol. Select the protocol component to remove then press the **Delete** key or right-click on the component and select **Delete** from the context menu that appears.
 - Add a connector. Modify the flow by creating new connections between components.
 - Remove a connector. Select the connector that you want to remove then press the **Delete** key or right-click on the connector and select **Delete** from the context menu that appears.
 - Modify the comment attached to a protocol. Double click the appropriate component and change the associated comment.
3. Click on the **Save** button from the **File** group.
4. If you are overwriting an existing method a confirmation dialogue box will ask you to confirm the changes, click **Yes**.
5. Click **Ok** on the **Save Completed** dialogue box.

Note: For better laboratory practice it is recommended that you assign the edited method a new version number instead of replacing an existing method.

Setting the attributes of a Method

To attach comments to the protocols that form a method, follow these steps:

1. Double-click the relevant protocol, the **Protocol** dialogue box appears.
2. Enter the comment you want to associate with the protocol.
3. Click the **Ok** button.

Saving a Method

To save a method, follow these steps:

1. Ensure that correct version information has been set.
2. Click the **Save** button from the **File** group.
3. Click **Ok** on the **Save Completed** dialogue box.

Removing a Method

To remove a method, follow these steps,

1. Open the method that you want to remove.
2. Click the remove button from the **File** dialogue box.
3. Click **Ok**.

Note: Removing a method has been used elsewhere in the system (e.g. in a project) will result in the associated information also being removed.

Printing a Method

You can print the view from the designer by clicking the **Print** button from the **File** Group and selecting the printer from the **Print** dialogue box.

Exporting a Method

To export a method, follow these steps:

1. Open the method that you want to export.
2. Click the **Export** button from the **File** group.
3. Specify a location to save the file in the **Save File** dialogue box.
4. Click **Ok**.

The method is exported as an XML file for easy interoperability.

Importing a Method

You can import a method that was exported from another installation of eLab. To import a method follow these steps:

1. Click **Import** from the **File** group, the **Open** file dialogue box is displayed.
2. Specify the location of the file containing the method to be imported, and then click **Open**.

Note: If the method being imported contains unknown protocols an error may be raised.

Setting the Attributes of a Method

To attach comments to the protocols that form a method, follow these steps:

1. Double-click the relevant protocol, the **Protocol Attribute** dialogue box appears.
2. Enter the comment you want to associate with the protocol in the method.
3. Click the **Ok** button.

Attaching a Comment to a Connector

To attach a comment to a connector, follow these steps:

1. Double-click the relevant connector from the protocol designer, the **Connector** dialogue box appears.
2. Enter the comment you want to associate with the connector.
3. Click the **Ok** button.

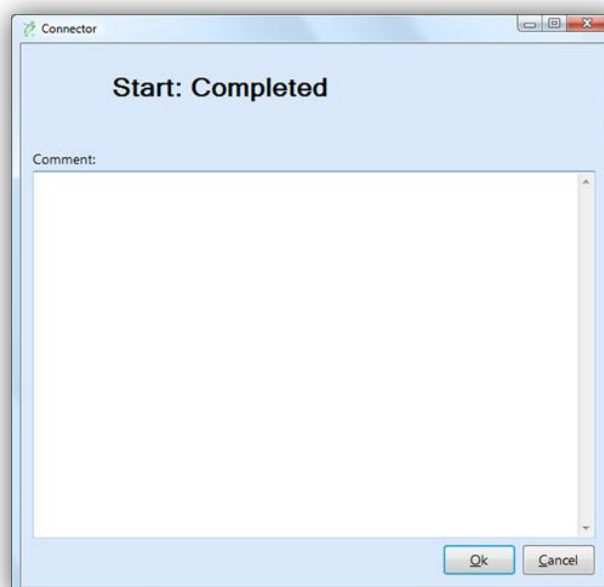


Figure 25.5. A *Connector* comment dialogue box.

Changing the status of a connector

To change the status of a connector, follow these steps:

1. Right click on the desired connector, the context menu is displayed.
2. Select the desired connector status: Failure or Completion.

The colour of the connector will change to represent the selected status.

Chapter 26 Actions

Introduction to Actions

These correspond to the actions carried out during the performance of a protocol. For example, one step of a protocol may require a sample to be centrifuged – this corresponds to a centrifuge action.

Introduction to Metrics

In eLab metrics describe the physical quantities that can be assigned to samples, reagents and actions. For example, time, temperature, pressure, force and volume.

Overview of Actions

Actions are managed from the **Actions** screen which is accessed by pressing the **Actions** button from the **Show** group of the **Workflows** tab.

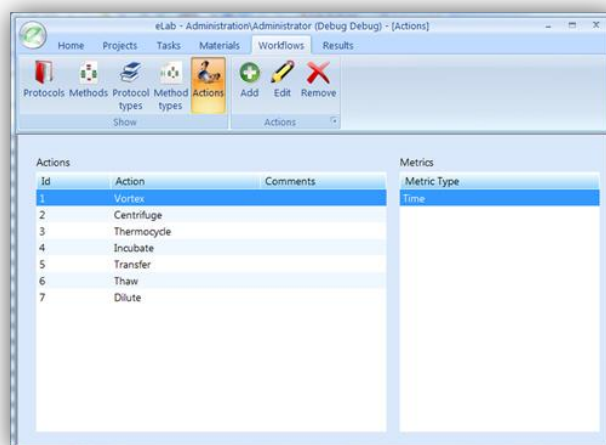


Figure 26.1. The **Actions** screen.

The **Actions** screen displays a list of actions that have been created in the system and for each selected action a list of the associated metrics.

Chapter 27 Actions Step-By-Step

Adding an Action

To add a new action, follow these steps:

1. Open the **Actions** screen by clicking on the **Actions** button in the **Show** group of the **Workflows** tab.
2. Click the **Add** button from the **Actions** group of the **Actions** screen. The **Add Action** dialogue box is displayed.

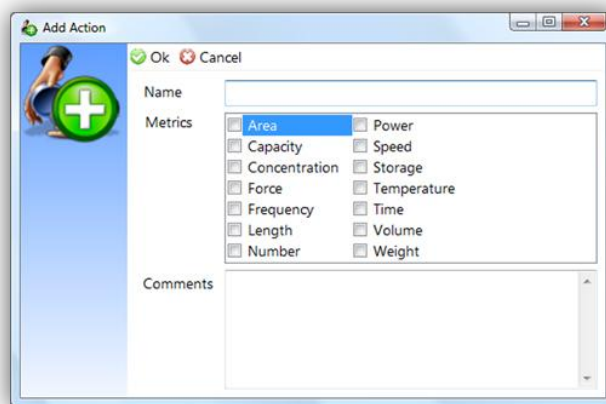


Figure 27.1. The *Add action* dialogue box.

3. Enter the name of the new action.
4. Select a metric that you want to use for a property associated with this actions and click **Add**. Repeat this step to add other desired metrics.
5. Enter a comment.
6. Click **Save**.

Editing an Action

To edit an existing action type, follow these steps:

1. Open the **Actions** screen by clicking on the **Actions** button in the **Show** group of the **Workflows** tab.
2. Double-click the action that you want to edit or select it and press **Edit** from the **Actions** group, the **Edit Action** dialogue box is displayed.

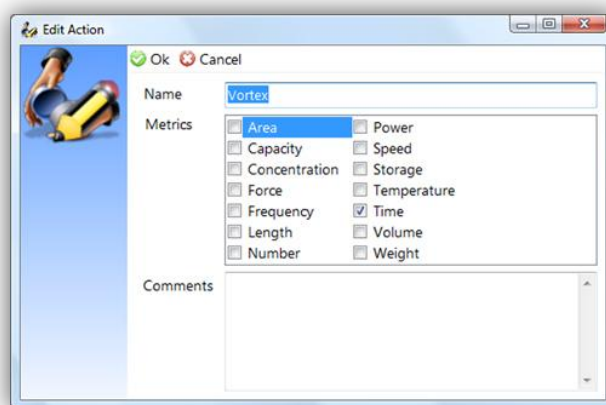


Figure 27.2. The *Edit action* dialogue box.

3. Make your desired changes to the action type.
4. Click **Save**.

Removing an Action

To remove an existing action, follow these steps:

1. Open the **Actions** screen by clicking on the **Actions** button in the **Show** group of the **Workflows** tab.
2. Select the action that you want to remove and press **Remove** from the **Actions** group.

Click **Ok** from the confirmation dialogue box

Note: Removing an action that has been referred to elsewhere (e.g. in a protocol) will result in the associated information also being removed.

Part 6

Results

Chapter 28 Introducing Results

What is a Result?

Results are external data that is associated with samples. This data may be in the form of written comments, images, file outputs from machines, or any other file types.

Overview of the Results Tab

The **Results** tab provides the functionality to manage the results associated with your samples. The screen is divided into two main sections the tree view on the left and the details view on the right. The tree view displays a list of result types maintained by eLab and the sample identifiers of the results falling under those types. The details view changes to display information related to each sample once it is selected.

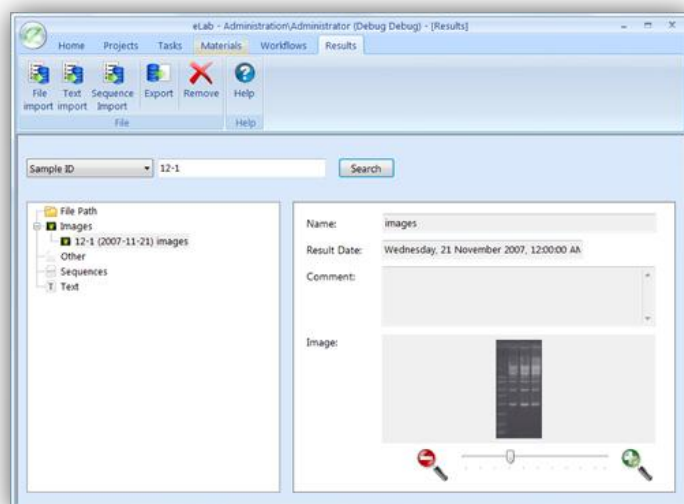


Figure 28.1. The Results screen.

The tree view separates result types into the following categories:

- Text. Used for the storage of text based results. The text may be imported from a file, typed directly, or cut and paste from other applications.
- Images. Images can be uploaded from a file into eLab.
- File Path. Stores the path of files maintained external to the system.
- Sequences. Used for the storage of sequences. The sequence may be imported from a file, typed directly, or cut and paste from other applications.
- Other. Used to upload any other file types into the system.

Chapter 29 Results Step-By-Step

Importing Results from a File

To import results from a file, follow these steps:

1. Click **File Import** from the **File** group of the **Results** tab. The **File Import** dialogue box is displayed.

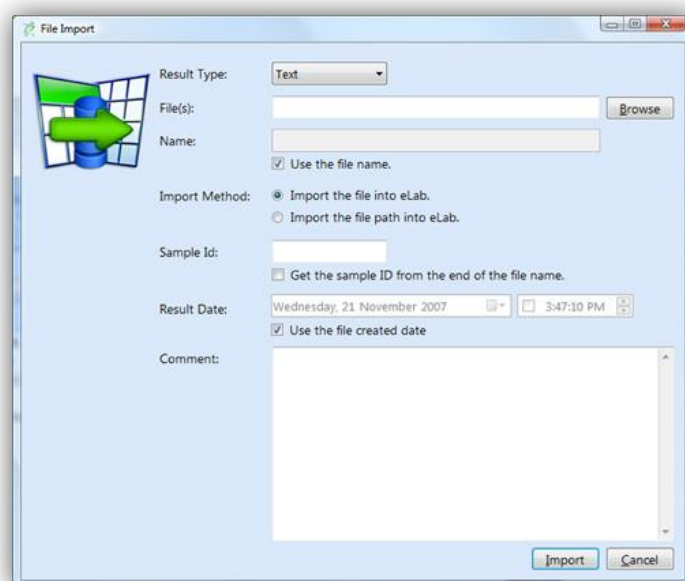


Figure 29.1. The *File import* dialogue box.

2. Choose the appropriate result type.
3. Enter the location of one or more files or click the **Browse** button to navigate to the file.
4. Deselect the **Use the filename** checkbox in order to enter another name for the result.
5. Select whether to import the file into eLab or import file path into eLab.
6. Type the sample identifier, or click the checkbox below the **Sample Id** box to get the sample identifier from the end of the filename.
7. If necessary, deselect the **Use the file created date** and enter a date and or time.
8. In the comment box enter any text you want to associate with the result.
9. Click **Import**.

Note:

- If you import as a file path, the result will appear under File Path in the tree-view of the result.
- To automatically enter the sample id from the filename the sample id must be valid and separated from the rest of the filename by a hyphen. For example, MyFilename-3-4.jpg denotes a file associated with sample 3-4.
- You can enter multiple sample identifiers in the **Sample Id** box by separating them with commas.

Importing Text

To import text into eLab, follow these steps:

1. Click **Text Import** from the **File** group of the **Results** Tab. The **Text Import** dialogue box is displayed.

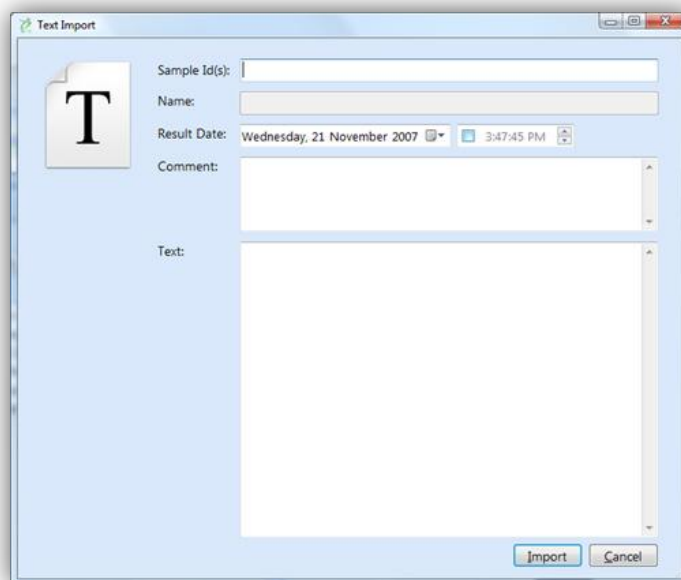


Figure 29.2. The *Text import* dialogue box.

2. Enter the sample Id of one or more samples that you want to attach to the text result.
Note: Separate multiple identifiers using commas (e.g. 1-2, 1-3, 2-4).
3. Select the date (and optionally time) that the result was created.
4. Enter any comments you want attached to the result.
5. In the **Text** box enter the result text.
6. Click **Import**.
7. A dialogue box will appear asking if you want to import more text results, if so click **Yes** otherwise click **No**.

Importing a Sequence

To import a sequence into eLab, follow these steps:

1. Click **Sequence Import** from the **File** group of the **Results** Tab. The **Sequence Import** dialogue box is displayed.

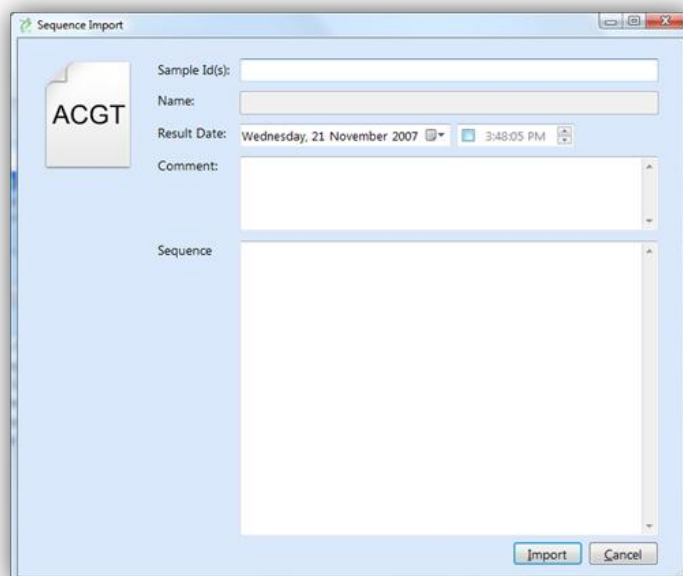


Figure 29.3. The *Sequence import* dialogue box.

2. Enter the sample identifier of one or more samples that you want to attach to the sequence.
3. Select the date (and optionally time) that the result was created.
Note: Separate multiple identifiers using commas (e.g. 1-2, 1-3, 2-4).
4. Enter any comments you want attached to the result.
5. In the **Sequence** box enter the result sequence by either typing it or pasting from another application.
6. Click **Import**.

Note: To input a sequence directly from a file, see Importing Results from a File on page 114.

Removing a Result

To remove a result, follow these steps:

1. Select the result you want to delete from the tree view.
2. Click **Remove** from the **File** group.
3. Click **Ok** on the confirmation dialogue box.

Exporting Results

To export a result, follow these steps:

1. Select the result you want to export from the tree-view.
2. Click **Export** from the **File** group.
3. Use the **Save As** dialogue box to choose a location and name the file to save the result to.
4. Click **Save**.

Viewing Results

To view a result, follow these steps:

1. Enter one or more identifiers in the **Sample Id** box.
Note: Separate multiple identifiers using commas (e.g. 1-2, 1-3, 2-4).
2. Click the **Search** button.
3. From the tree view, double-click the category heading of the result type that you are looking for.
4. Select the name of the result. The details of the result will be displayed in the details view.

Part 7

Administration

Chapter 30 Administration

Introduction to Administration

In eLab, administration is the process of managing users, groups, roles, passwords, licenses and maintaining the underlying database. We have made every effort to simplify these processes as much as possible and provide wizards to guide you through many of the more complex tasks. For most installations it would not be necessary to use most of the administrative features of eLab. The administrative features are contained in the **Administration** group on the **Home** tab.

Many of eLab the settings, required data and permissions are in response to industry compliance guidelines, in particular the FDA's 21 CFR Part 11 (see www.fda.gov). By default eLab implements a strict interpretation of the guidelines and makes much of the administrative overhead transparent. However, if you choose not to follow these guidelines or wish to implement them in a different way, you may modify the level of compliance by changing the settings in the *Database Settings* on page 143. Modifying these settings may also improve system performance.

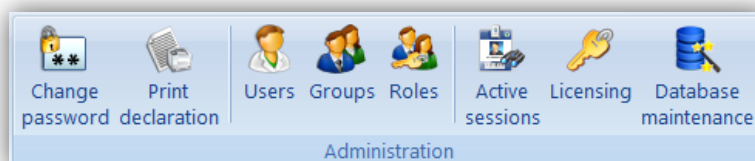


Figure 30.1. The *Administration* group.

Note: You are required to have the appropriate permissions to view these features.

Roles and Groups

The main units of organisation for the users of eLab are roles and groups. Roles describe the type of work that users perform. For example, a laboratory manager might perform administrative work and be a member of the administrator role. Groups are collections of users with the same set of affiliations. For example, members of the routine laboratory may all be part of the Routine group.

Permissions

Roles determine the ability of users to access data through the following levels of permission:

- Module level. Describes accessibility to the screen and dialogue boxes of eLab. For example, a Standard User cannot access most of the administrative controls.
- Table level. Describes the user's ability to read, add, edit and delete data from the tables of the eLab database.

- Row level. Describes the user's ability to read, add, edit and delete data from specific rows of the eLab database.
- New data level. Describes which, if any, other users have access to new data created by that role.

Permissions can be further finetuned by granting or denying specific levels of permission to a single user. Denying permission to data for a user, or any role that user belongs to, denies all permissions to that data even if the user has been granted permissions elsewhere. For example, if a user is denied permission to modify a particular row, then they will be denied the ability to edit that data even if permission is given to the associated table.

Note: In most cases you will not have to modify the permissions in the system and if you do it would usually only be at the module level.

Chapter 31 Users and Contacts

Introduction to Users and Contacts

A user is defined as someone that uses eLab to manage their work, and a contact is a person or organisation that a user has an association with. For example, a laboratory assistant who uses eLab will be a user of the system and an external person, or a manager that is referred to by the system but who is never likely to use the system, is a contact in the system.

eLab users and contacts are created and managed through the **User and Contact Wizard**. The wizard is accessed by clicking the **Users** button from the **Administration** group of the **Home** tab.



Figure 31.1. The *User and contact wizard*.

Each user and contact has the following core properties:

- Username. A name that uniquely identifies the user.
- Primary Group. This is the main group that the user belongs to (see Introduction to Groups on page 127).
- Title, First name, Initials, Surname and Suffix, Position, Address, Country, City, Phone Number, Cell Number, State/Region, Zip/Post Code, Fax Number, E-mail, Home Page, and Comments

Users have the additional properties:

- Password. eLab only accepts strong passwords unless this requirement has been explicitly turned off at the system and user level (see *Changing Your Password* on page 145)
- Password Hint. A phrase to remind the user of their password.
Note: The hint cannot resemble the other information associated with the user account.
- Role. The user may have one or more roles. The default roles are:

- Standard
- Administrator. Under a default installation, users that are members of the Administrator group have access to all the data and functionality of the system.
- **Status.** The status of the users account. The following options are available:
 - Valid - This is the default value and represents a valid user account.
 - Compromised - There has been unauthorised usage of the users account.
 - Contact Only - This account is used for contact details, and allows you to easily change a user to a contact.
 - Disabled - The account has been disabled.
 - Obsolete - This account is no longer required.
 - Suspicious – This account has potentially been compromised.

Note: Accounts not marked as valid cannot be used to access the system.

Managing Users and Contacts

To create, edit or remove a user or contact, follow these steps:

1. Click the **Users** button from the **Administration** group on the **Home** tab. The **Users and Contacts** wizard will appear.
2. Read the overview and click the **Next** button.
3. Click the relevant option.
4. Complete the relevant details on each of the required screens. Click the **Next** button to proceed to the next screen.
5. Click the **Accept** button when you reach the summary screen.

When available, the **Show advanced options** allows you to access some of the advanced features of the users and contacts wizard:

- Group Membership
- Module, table, row and new data permissions
- Validity periods and expiry dates for accounts
- Session and password options

Chapter 32 Users and Contacts Step-By-Step

Creating a New User

To create a new user, follow these steps.

1. Click the **Users** button from the **Administration** group on the **Home** tab. The **User and contact wizard** is displayed.
2. Click the **Next** button to access the **Options screen**, and then click on the **Create a new user** button.

Figure 32.1. The *User and contact wizard - Account details* screen.

3. Enter the required account details (see *Users and Contacts*), and then click **Next**.
*Note: Click **Show advanced options** to change group memberships, validity periods, and permissions.*
4. Complete the user's password details, and then click **Next**.
*Note: Click **Show advanced options** to modify password settings.*
5. Enter the required user's details (see *Users and Contacts*), and then click **Next**.
6. Confirm the details of the account and click **Accept**.
7. If you choose to print the usage declaration form when finishing the wizard (this is the default) then you will be prompted to print and sign it. If it is not printed and signed, the user will be asked again when they first log on.
8. Click the **Close** button to close the wizard.

Changing Another User's Password

This functionality is used by administrators to change the passwords of other users. For example, an administrator may be required to change the password of a user that has forgotten their password. To change your own password, see *Changing Your Password* on page 145.

To change a user's password, follow these steps.

1. Click the **Users** button from the **Administration** group on the **Home** menu. The **User and contact** wizard is displayed.
2. Click the **Next** button to access the **Options** screen, and then click on the **Change a user's password** button.

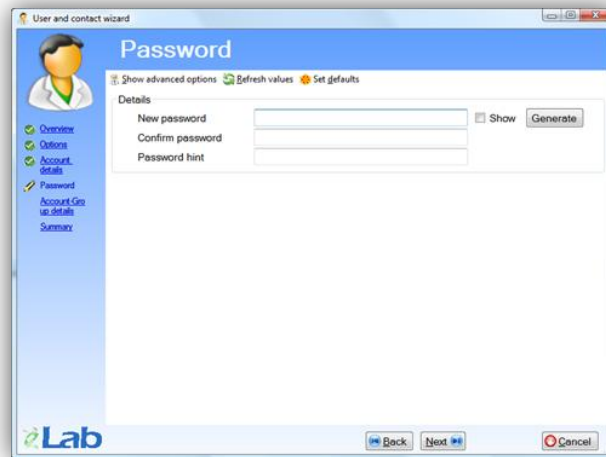


Figure 32.2. The *User and contact wizard - Password* details screen.

3. In the **Collaborating** user section, enter the logon information of another user that has permission to change the user's password (this is usually a user that is a member of the Administrators role).
4. In the **Details** section, enter the details of the user whose password you are changing, a new password (in both the **New Password** and **Confirm Password** controls) and a password hint, if any.
5. Click **Next**.
6. Confirm the details of the account and click **Accept**.
7. Click the **Close** button to close the wizard.

Note:

- To change other password settings, click the **Show advanced options** button.
- Under FDA 21 CFR part 11.200(a)(3), a second user is required to use another user's account. Therefore, to change another user's password, you must first get another user, with the appropriate permissions, to confirm this action by having them enter their details

Creating a New Contact

To create a new contact, follow these steps.

1. Click the **Users** button from the **Administration** group on the **Home** tab. The **User and contact** wizard is displayed.
2. Click the **Next** button to access the **Options** screen, and then click on the **Create a new contact** button.

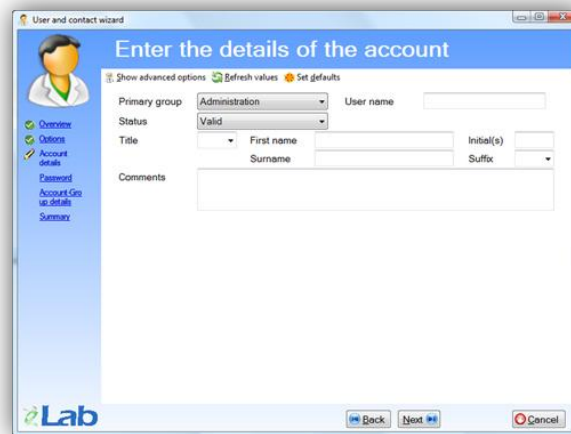


Figure 32.3. The *User and contact wizard - Account details* screen.

3. Enter the required account details (see *Users and Contacts*), and then click **Next**.
4. Enter the required contact's details (see *Users and Contacts*), and then click **Next**.
5. Confirm the details of the account and click **Accept**.
6. Click the **Close** button to close the wizard.

Editing a User or Contact

To edit the details of an existing user or contact, follow these steps.

1. Click the **Users** button from the **Administration** group on the **Home** tab. The **User and contact wizard** is displayed.
2. Click the Next button to access the **Options** screen, and then click on the **Modify the details of an existing user or contact** button.



Figure 32.4. The *User and contact wizard - Select account* screen.

3. Select the **Group** and **Name** of the account that you want to edit, and then click **Next**.
4. If required, edit the account details, and then click **Next**.
*Note: Click **Show advanced options** to change group memberships, validity periods, and permissions.*
5. Edit the users details, and then click **Next**.

*Note: Click **Show advanced options** to modify password settings.*

6. Confirm the details of the account and click **Accept**.
7. Click the **Close** button to close the wizard.

Removing a User or Contact

To remove a user or contact, follow these steps.

1. Click the **Users** button from the **Administration** group on the **Home** tab. The **User and contact wizard** is displayed.
2. Click the Next button to access the **Options** screen, and then click on the **Remove existing user or contact** button.

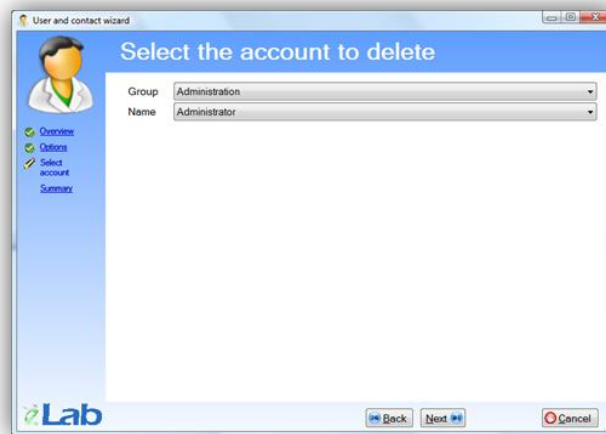


Figure 32.5. The **User and contact wizard** – **Select account** screen.

3. Select the **Group** and **Name** of the account that you want to remove, and then click **Next**.
4. Click **Accept**.
5. Click the **Close** button to close the wizard.

Note: Removing a user or contact will remove all data that depending on that information.

Chapter 33 Groups

Introduction to Groups

Groups are collections of users with the same set of affiliations. For example, members of the routine laboratory may all be part of the Routine group. Groups are created and managed through the **Groups wizard**. The wizard is accessed by clicking the **Groups** button from the **Administration** group of the **Home** tab.

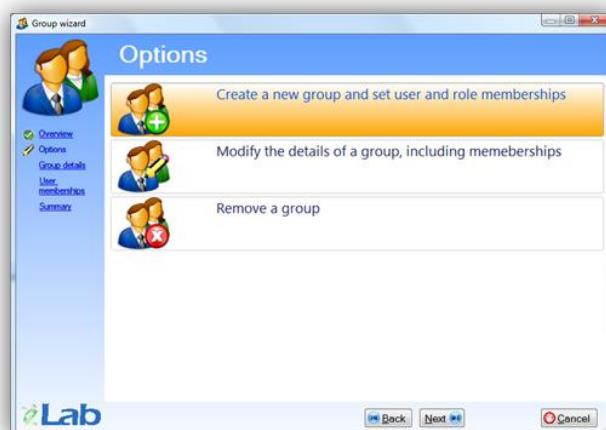


Figure 33.1. The Group wizard.

Each Group has the following core properties:

- Group Name. The name of the group.
- Group Type. The group type can be one of the following:
 - Laboratory. One of the internal groups of your laboratory.
 - External Laboratory. A group that is external to your laboratory or does not use eLab.
 - Customer. A customer of your laboratory.
 - Hardware Manufacturer. A company that manufactures equipment or disposables used by your laboratory.
- Contact details. Each groups has the following contact details: Address, Country, City, State/Region, Zip/Post Code, Web Address, and Comments.

Managing Groups

To create, edit or remove a group, follow these steps:

1. Click the **Groups** button from the **Administration** group on the **Home** tab. The **Groups** wizard will appear.
2. Read the overview and click the **Next** button.
3. Click the relevant option.

4. Complete the relevant details on each of the required screens. Click the **Next** button to proceed to the next screen.
5. Click the **Accept** button when you reach the summary screen.

Chapter 34 Groups Step-By-Step

Creating a New Group

To create a new group, follow these steps:

1. Click the **Groups** button from the **Administration** group on the **Home** tab. The **Group** wizard is displayed.
2. Click the **Next** button to access the **Options** screen, and then click on the **Create a new group and set user and role memberships** button.

Figure 34.1. The **Group wizard - group details** screen.

3. Enter the details of the new group (see *Introduction to Groups* on page 127), and then click **Next**.
4. Click the box in the first column to indicate the users that you want to be part of the group. *Note: Use the control in the second column to change the primary group of a user.*
5. Click **Next**.
6. Fill in the affiliation details of the users that you have assigned to the group. Click **Next** after updating each user.
7. Confirm the details of the group and click **Accept**.
8. Click the **Close** button to close the wizard.

Editing a Group

To edit an existing group, follow these steps:

1. Click the **Groups** button from the **Administration** group on the **Home** tab. The **Group wizard** is displayed.
2. Click the **Next** button to access the **Options** screen, and then click on the **Modify the details of a group, including memberships** button.

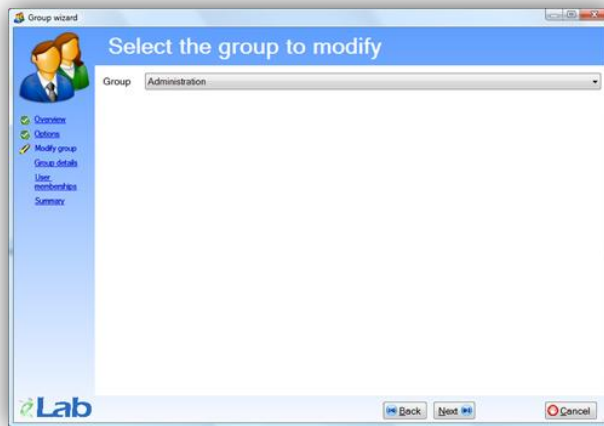


Figure 34.2. The Group wizard- Select account screen.

3. Select the group that you want to edit, and then click **Next**.
4. Enter the details of the group (see *Introduction to Groups* on page 127), and then click **Next**.
5. Click the box in the first column to add or remove user from the group, and then click **Next**.

Note:

- Use the control in the second column to change the primary group of a user.
 - To change a user's affiliation details run the **User Wizard**, see
 -
 - *Editing a User or Contact on page 125.*
6. Fill in the affiliation details of any new users that you have assigned to the group. Click **Next** after updating each user.
 7. Confirm the details of the group and click **Accept**.

Removing a Group

To remove a group, follow these steps:

1. Click the **Users** button from the **Administration** group on the **Home** tab. The **Group wizard** is displayed. Click the **Next** button to access the **Options** screen, and then click on the **Remove a group** button.

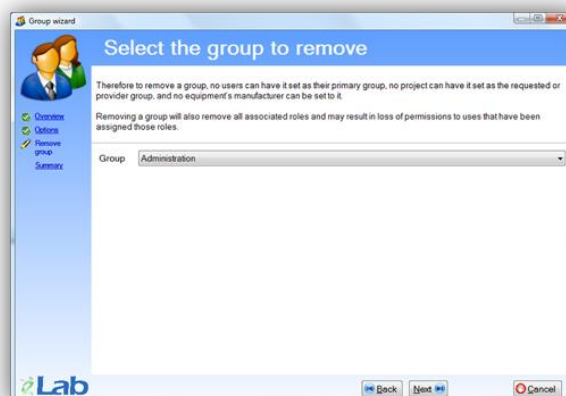


Figure 34.3. The Group wizard - Select account screen.

1. Select the group that you want to remove, and then click **Next**.
2. Click **Accept**.
3. Click the **Close** button to close the wizard.

Note: Removing a group will also remove all the associated data that depends on the group (for example, the associated roles).

Chapter 35 Roles

Introduction to Roles

Roles define the type of work that can be performed and the level of access to data in eLab. For example, a laboratory manager might perform administrative work and be a member of the administrator role. Roles are created and managed through the **Roles** wizard. The wizard is accessed by clicking the **Roles** button from the **Administration** group of the **Home** tab.

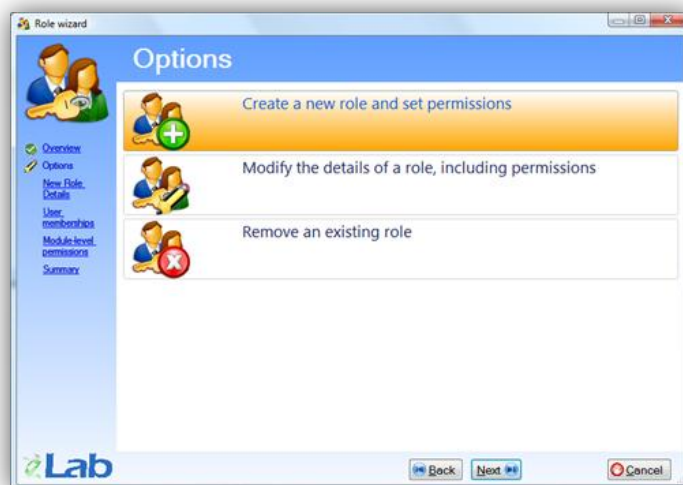


Figure 35.1. The *Role wizard*.

Each Role has the following core properties as well as associated module and data permissions:

- Group. The name of the group that will use the role.
- Name. The name of the role.
- Comment. A comment attached to the role.

For example, a group may have a user that performs quality control work this can be accommodated for by creating a QC role for that group.

Associated with each role are permissions granting or denying access to modules and data in the system. For example, the Administrative group has access to the **Role Wizard** module while the Standard role does not.

Managing Roles

To create, edit or remove a role, follow these steps:

1. Click the **Roles** button from the **Administration** group on the **Home** tab. The **Roles** wizard will appear.
2. Read the overview and click the **Next** button.
3. Click the relevant option.
4. Complete the relevant details on each of the required screens. Click the **Next** button to proceed to the next screen.
5. Click the **Accept** button when you reach the summary screen.

Note: When available, the Show advanced options allows you to access set permission options for the role.

Chapter 36 Roles Step-By-Step

Creating a New Role

To create a new role, follow these steps.

1. Click the **Roles** button from the **Administration** group on the **Home** tab. The **Role wizard** is displayed.
2. Click the **Next** button to access the **Options** screen, and then click on the **Create a new role and set permissions** button.

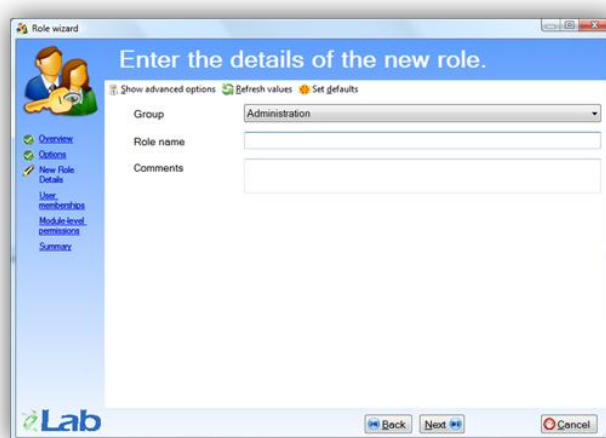


Figure 36.1. The Role Wizard - New role details screen.

3. Select the group that the new role is being created for.
4. Enter the name of the role.
5. Enter any comments that you want attached to the role.
*Note: If you want to set permissions for data click **Show advanced options** and then select the type of permissions that you want to specify. You will be prompted for the actual settings in the subsequent screens.*
6. Click **Next**.
7. Click the box in the first column to assign users to the role, and then click **Next**.
8. Click the appropriate boxes from the Allow or Deny columns to allow or deny the associated functionality to the role, and then click **Next**.
Note:
 - Any modules that you do not manually set the permission of will default to deny.
 - If a user belongs to more than one role and has conflicting permissions (e.g. deny in the QA role and grant in the Administrator role), then deny takes precedence and the user will be denied permission.
9. Confirm the details of the group and click **Accept**.
10. Click the **Close** button to close the wizard.

Editing a Role

To edit an existing role, follow these steps.

1. Click the **Groups** button from the **Administration** group on the **Home** tab. The **Role wizard** is displayed.
2. Click the **Next** button to access the **Options** screen, and then click on the **Modify the details of a role including permissions** button.



Figure 36.2. The *Role wizard* - *Modify group* screen.

3. Select the group and then select the role that you want to edit.
4. Click **Next**.
5. Edit the name of the role, the group that it belongs to, or edit the comments of the role, and then click **Next**.

*Note: If you want to set permissions for data click **Show advanced options** and then select the type of permissions that you want to specify. You will be prompted for the actual settings in the subsequent screens.*

6. Click the box in the first column to add or remove a user from the role, and then click **Next**.
7. Click the appropriate boxes from the **Allow** or **Deny** columns to allow or deny the associated functionality to the role, and then click **Next**.

Note:

- Any modules that you do not manually set the permission of will default to deny.
- If a user belongs to more than one role and has conflicting permissions (e.g. deny in the QA role and grant in the Administrator role), then deny takes precedence and the user will be denied permission.

8. Confirm the details of the changes to the role and click **Accept**.
9. Click the **Close** button to close the wizard.

Removing a Role

To remove a role, follow these steps.

1. Click the **Users** button from the **Administration** group on the **Home** tab. The **Role wizard** is displayed.
2. Click the **Next** button to access the **Options** screen, and then click on the **Remove an existing role** button.

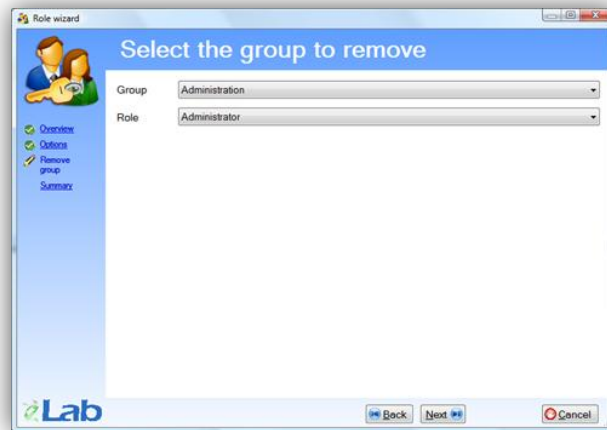


Figure 36.3. The **Group wizard** - **Remove group** screen.

3. Select the group and then select the role that you want to remove.
4. Click **Next** and then click **Accept**.

Note: Removing a role will remove all associated permissions that this role was providing to users that belong to this role.

Chapter 37 Database Maintenance

Database Maintenance Overview

The **Maintenance wizard** is used to backup the eLab database, check the integrity of the database and to modify the way that access to data is granted and recorded. The wizard is accessed by clicking the **Database Maintenance** button from the **Administration** group of the **Home** tab.



Figure 37.1. The Maintenance Wizard.

Backup and Restore Overview

It is important for good data management to ensure that regular backups of the eLab database are made in the event of a system failure or data corruption. A successful backup operation adds a single backup set to the backup file. There are three types of backups:

- Full - Creates a complete copy of the database.
- Differential - Copies any changes made to the database since the last full backup.
- Transaction Log - Copies a record of modifications performed to the database since the last backup.

You need to create at least one full backup in order to be able to create either of the other backup types. Creating frequent regular full backups can require a lot of disk space which is reduced by using differential backups. A combination of the occasional full backup, regular differential and more regular transaction log backups allows you to minimise the size of backups and reduce the potential for data loss.

The process of restoring an eLab database to the most recent backup depends on the type of that backup as follows:

- Full - Restore the most recent full backup by itself.

- Differential - Restore the most recent full backup then restore the most recent differential backup.
- Transaction Log - Restore the most recent full backup, the most recent differential backup (if any), and all the transaction logs since that differential backup (or full backup if no differential backup exists).

To restore an eLab database to the most recent point you must first backup the transactions that have been committed but not backed up since the last backup - a tail log backup. If you are restoring to the point of a failure, the tail-log backup is the last backup of interest in the restoration process. If you cannot back up the tail of the log, you can restore the database only to the end of the last backup that was created before the failure.

Chapter 38 Database Maintenance Step-By-Step

Backing up eLab

To backup eLab, follow these steps.

1. Click the **Database Maintenance** button from the **Administration** group on the **Home** menu. The **Database Maintenance wizard** is displayed.

Note: You will need the appropriate permissions to access this option.



Figure 38.1. The *Maintenance wizard - Options* screen.

2. Click on the **Backup database** button.

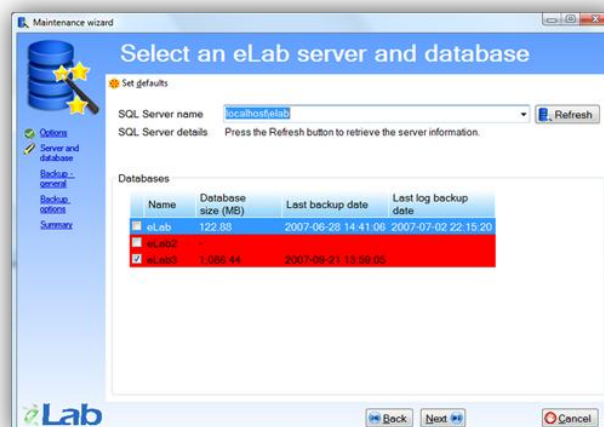


Figure 38.2. The *Maintenance wizard - Server and database* screen.

3. In the **SQL Server Name** box, select the server that hosts the eLab database. The Database view is populated with the list of databases hosted by that server. Click the database that you want to backup and click next.

Note:

- To refresh the list of servers click the **Refresh** button.

- A red highlighted row indicates that it has been more than seven days since the database was backed up.
- In a typical installation of eLab there will be one server and one database.

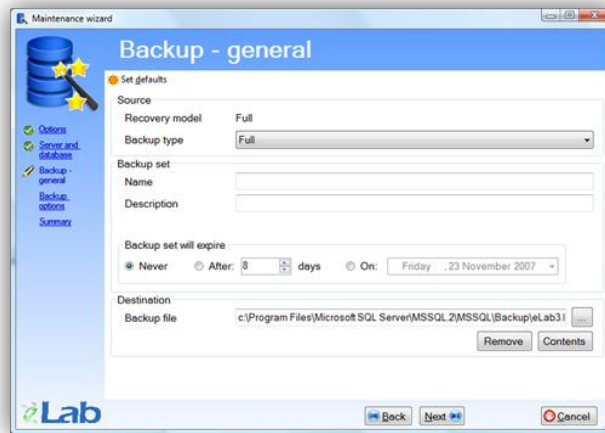


Figure 38.3. The Maintenance wizard - Backup general screen.

4. Select the backup type. If this is the first backup, choose **Full**.
5. Enter a name for the backup set in the **Name** box.
6. Optionally, in the **Description** box, enter a description of the backup set.
7. Specify when the backup set will expire:
 - If the backup set does not expire click **Never**, this is the default option.
 - To have the backup set expire after a specific number of days, click **After**, and enter the number of days.
 - To have the backup set expire on a specific date, click **On**, and select the date on which the set will expire.
8. Enter a location for the backup, or click the button to the right of the **Backup file** box and select a location.
9. To remove a backup destination, select it and click **Remove**. To view the contents of a backup destination, select it and click **Contents**.
10. Click **Next**.



Figure 38.4. The Maintenance wizard - Backup options screen.

11. Select an **Overwrite Media** option, by clicking one of the following:

- **Append to existing backup set.** This option adds the backup to the end of the backup file, retaining the existing backups.
 - **Overwrite the existing backup sets.** This option erases all the existing backup sets from the backup file.
12. In the **Reliability** section, optionally check:
- **Verify backup when finished.** This verifies that the backup file is readable once the backup is complete.
 - **Perform checksum before writing to media**, and, optionally, **Continue on checksum error.** This option verifies checksums before writing to the backup file.
13. In the **Transaction** log section, optionally check one of the following:
- **Truncate the transaction log.** This option backs up the transaction log and truncates it to free space.
 - **Backup the tail of the transaction log and leave the database in a restoring state.** This option creates a tail-log backup, which backs up logs that have not yet been backed up, typically, in preparation for restoring the database. If you select this option, the eLab database will be unavailable to users until it is completely restored.
14. Optionally, click the check box next to **Set password** and enter a password for accessing the backup file.
15. Click **Next** and click **Accept**.
16. When the backup has completed click **Close**.

Checking Database Integrity

The Database integrity wizard allows you to check if any data in the eLab database has been manually altered.

Note:

- *Manual altering of the database is highly unlikely given the level of security surrounding the implementation of eLab.*
- *However this option is provided as part of the FDA Chapter 21 guidelines.*

To run an integrity check, follow these steps.

1. Click the **Database Maintenance** button from the **Administration** group on the **Home** menu. The **Database Maintenance wizard** is displayed.

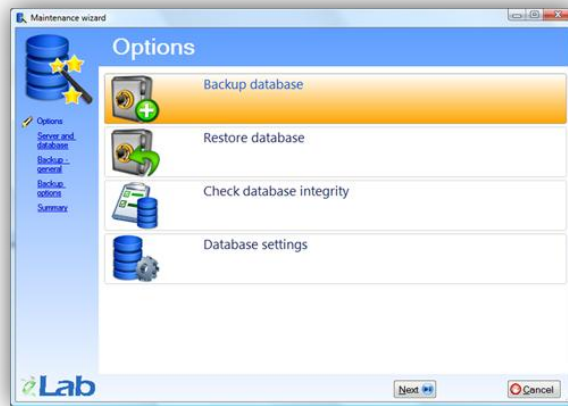


Figure 38.5. The *Maintenance wizard - Options* screen.

2. Click on the **Check Database Integrity** button.



Figure 38.6. The *Maintenance wizard - Database integrity* screen.

3. In the **Specify which data to check** section:
 - To check all data added, modified or removed since the last check, select the first option.
 - To check all data in the eLab database, select the second option.
 - To check all data before or after a specific date or in a certain date range, select the third option and set the relevant choices.

Note: The second option is the most secure as any altered data may have modified the date time stamps of the data rows, thereby possibly excluding it from being checked if the first or third option is checked.

4. Optionally, click **Skip archived data** to not check data that has been deleted or rows recording values before being updated.
5. In the **Reporting** section, optionally check:
 - Send a report to all administrators by email.
 - Send a report to me via email.
6. Click **Next** and click **Accept**.
7. Click the **Close** button to close the wizard.

Note:

- Depending on the size of the database, the options selected, and the frequency that these checks are performed this process could take awhile to perform and reduce the performance of the system for other users while it is being performed.
- A database integrity check will always send an email to the system administrator.

Database Settings

The **Database Settings** button in the **Maintenance Wizard** allows you to modify the way that access to eLab data is granted and recorded. By default eLab:

- Allows administrators to control the ability of users and roles to insert, view, modify and delete data both at the table and row level.
- Allows administrators to set user and role level permissions for new data
- Archives calls made to the database as well as all the data that is viewed, modified or removed by users.
- Hashes all the data that is inserted, modified, and removed.

Many of these features are in response to our strict interpretation of the FDA 21 CFR Part 11 guidelines. In some laboratories this level of compliance is not necessary, or some other process may be in place that duplicates the requirements. For these reasons, and/or to improve system performance you may want to remove some of these features.

To run the **Database Settings Wizard**, follow these steps:

1. Click the **Database Maintenance** button from the **Administration** group on the **Home** menu. The **Maintenance wizard** is displayed.



Figure 38.7. The **Maintenance wizard** - Options screen.

2. Click on the **Database settings** button.



Figure 38.8. The *Maintenance wizard - Database settings* screen.

3. Make any desired changes to the database settings (see Database Settings on page 152)
4. Click **Next** and click **Accept**.
5. Click the **Close** button to close the wizard.

Chapter 39 Administration Step-By-Step

Changing Your Password

In order to make eLab as secure as practically possible we recommend that you regularly change your password and you always use strong passwords. This is also in keeping with FDA 21 CFR Part 11 guidelines. For a password to be strong it should:

- Be at least 6 characters long.
- Contain characters from at least 3 of the following groups:
 - Uppercase letters (A, B, C, ...)
 - Lowercase letters (a, b, c, ...)
 - Numerals (1, 2, 3, ...)
 - Symbols (` ~ ! @ # \$ % ^ & * () _ - + = { [] } | \ " ' < , > . ? /)
- Be significantly different to prior passwords
- Not contain your name or username.
- Not be a common word or name.

To change your password, follow these steps:

1. On the **Home** tab click the **Change Password** button. The **Change Password** dialogue box is displayed.



Figure 39.1. The *Change password* dialogue box.

2. Enter your existing password.
3. Enter your new password and confirm it.
4. Enter a hint, something to remind you of your password if you forget it.
Note: The hint cannot resemble the other information associated with the user account.
5. Click **Ok**.

Managing Active Sessions

A session is created when a user logs into eLab and ends when that user logs out. The **Active Session** dialogue box displays a list of the sessions for each user that you have permission to view. Use this dialogue box to determine the users that are currently logged on, those that have forgotten to log out, and those that have not properly logged out of previous sessions.

Use the following steps to close a user's active session:

1. Click the **Active Sessions** button from the **Administrative** group of the **Home** tab. The **Active Sessions** dialogue box is displayed.

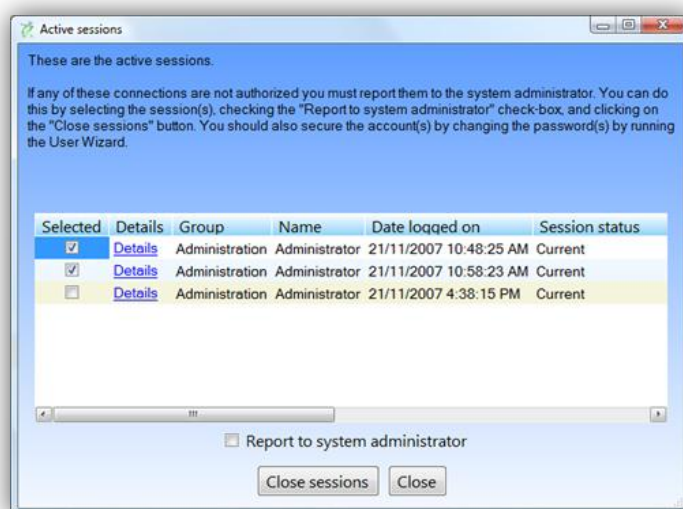


Figure 39.2. The Active sessions dialogue box.

2. Click the checkbox of the row, or rows, corresponding to the sessions that you want to close.
3. Click the **Close Session** button.

Note:

- The current session is highlighted in yellow.
- If a session is unauthorised click the **Report to system administrator** checkbox to send a report to the system administrator. If you close and report one of your sessions to the system administrator then you will be prompted to change your password.
- You can view the details of a session by clicking the details link. A **Session Network Details** dialogue box is displayed with the network details of that session.

Printing Declaration

Clicking the **Print Declaration** button prints an eLab Usage Agreement which contains the details of the eLab installation and the user. Full compliance with the FDA regulations requires that all users

print a declaration, have their signature witnessed, and send the declaration to the FDA - this is normally done when a user first logs into the system.

See www.21cfrpart11.com/file/library/government/21cfrpart11_finalrule.pdf for details.

Updating Licensing

When you download the trial version of eLab you are automatically licensed for up to 100 samples. To import more samples you need to purchase a Sample License from eBiosys (www.ebiosys.com). When you create a Sample License enter the license key in the **License** dialogue box, your license limit will immediately increase to the new number.

To enter a license key, follow these steps:

1. Click the **Licensing** button from the **Administration** group of the **Home** tab. The **Licensing** dialogue box is displayed.

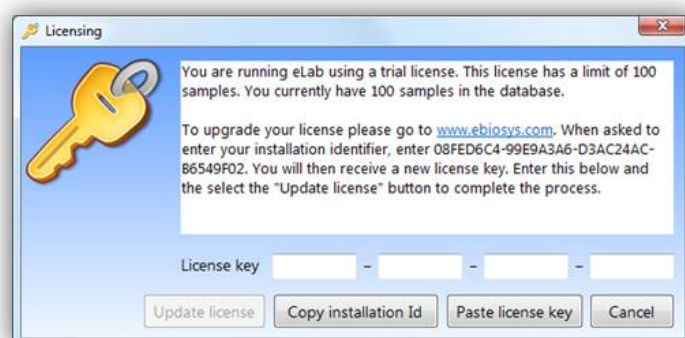


Figure 39.3. The Licensing dialogue box.

2. Enter the license key and then click the **Update license** button.

Note:

- See Obtaining a License on page 163 for the details of obtaining a license.
- If a license key has been copied to the clipboard use the **Paste license key** button to automatically insert the key into the dialogue box.
- Use the **Copy Installation Id** button to copy your installation Id to the clipboard so you can then paste the license on the relevant screen of the eBioSys website when purchasing a Sample License.

Appendix

Appendix 1 Installing eDBA

Introduction

The eLab Database Administrator (eDBA) is the program that guides you through the process of installing the database that eLab uses to store its data. eDBA also allows you to perform other functions such as updating and repairing the database, and resetting the system administrator's password.

Before Installation

Before installing the eLab database, follow these steps:

1. Ensure that your hardware and software meets with the minimum requirements as described in the *Hardware and Software Requirements*.
2. To ensure the best compatibility and security it is highly recommended that you upgrade to the latest Windows Service Pack and critical updates (www.windowsupdate.com).
3. Purchase a license key from www.ebiosys.com.
4. Follow the installation instructions as described in the *Installing the eLab Database* on page 149.

Installing the eLab Database

At each step of the installation, if there are any advanced options available, these can be accessed by clicking the **Show advanced options** button at the top of the page.

To install the eLab database for the first time, follow these steps:

1. To begin installation download and run eDBA from the www.ebiosys.com.
2. On the **End User License Agreement** page, read the license agreement and if you agree click **Accept**.
3. On the **Overview** screen click **Next**.
4. On the **Options** page, click **Install a new instance of SQL Server and a new eLab database**.
5. Specify a SQL Server name, or the default name of 'eLab' will be used. We recommend you use the default name.
6. Click **Next**. The **Database details** page is displayed.



Figure 40.1. The *Database wizard - Database details* screen.

7. Enter a descriptive name for the installation of the eLab database in the **Database name** box. It is recommended that you use the default name 'eLab'.
8. If you have purchased a Sample License from the eBioSys website (www.ebiosys.com) select the **License key** option and enter the key. Otherwise, ensure the **No key (trial version)** option is selected, if you use this option you can specify a license key later from within eLab.
9. In the FDA 21 CFR Part 11 Compliance section you will need to select the level of compliance for the system. If you are not required to install an FDA compliant system, or if you have other processes in place that ensure your compliance, significant resources can be released helping to improve the performance of the system. For further information on the FDA guidelines go to www.fda.gov.
 - Select **Enforce compliance** to install a system that complies with the FDA guidelines.
 - Select **Allow non-compliance with warnings** to install a system that allows non-compliance with the FDA regulations, but prompts the user with warnings.
 - Select **non-compliance** to install a system that does not prompt the use if a setting is changed that may affect compliance with the FDA guidelines.
10. If you decide to allow non-compliance with the FDA regulations the **Database settings** section allows you to specify which aspects of the system will and will not be compliant. Disabling options can release significant resources and help to improve the performance of the system. See *Database Settings* on page 143 for a discussion on these options.

Advanced Options: The advanced options of this page allow you to specify the locations of the database files and details of the outgoing mail server. The available options are:

- *Database directory.* The directory specified by this option determines the location of the data file for SQL Server.
- *Database script.* The directory specified by this option determines the location of the script file that is run once SQL Server setup is complete. Only modify this option if you are given a script file and instructions from eBioSys.

- *Library deployment directory.* The directory specified by this option determines the location of the dll file used by SQL Server
- *Outgoing mail server.* This option is used to redirect the way that email notifications are sent to eBioSys.

11. Click **Next**.

Figure 40.2. Database wizard - Account details screen.

12. On the **Database administrators account** page complete the required details for the system administrator's account. Click Next.

Advanced Options: The advanced options of this page allow you to set the details of the administrators account such as:

- The period of time since the last activity that the account remains active for.
- If the user is required to change the password on the next login.
- How often the account's password needs to be changed.
- The period of time that the account is valid from and until.
- Whether login information can be saved between sessions and if accounts allow auto login.

Note: It is recommended that you maintain the default name for the administrator account and administration group.

13. Confirm the details of the **Summary page** and then click **Next**.

Note:

- The wizard will then launch the SQL Server setup application.
- If prompted, you must authorize the launch of the SQL Server Express setup application.

14. If you have a firewall installed and enabled, you may need to modify your settings to allow File and Printer Sharing and open UDP port 1434. You may also need to create an exception for the SQL Server application (sqlservr.exe) associated with the SQL Server instance that was created. This will allow eLab applications installed on other computers to access the database.

- Click the Windows **Start** button, and then click **Control Panel**.

- **For Windows XP and Windows 2003:** If the **Control Panel** is set to **Category View**, double click **Security Center**, and then click **Firewall**. If the **Control Panel** is set to **Classical View**, then double click **Windows Firewall**.
- **For Windows Vista:** If the **Control Panel** is not displaying the home page, then click **Control Panel Home**. Click **Allow a program through Windows Firewall** under the **Security** category. If the **User Account Control** dialog box appears, grant the right to open the **Windows Firewall**.
- Click on the **Exceptions** tab and click **Add port...**
- In the **Name** box, type "SQL Browser Port"; in the **Port** number box, type 1434; and select the UDP protocol. Click **OK** to add the port.
- Click **Add program...** then click **Browse...** and navigate to the folder "C:\Program Files\Microsoft SQL Server\MSSQL.x\MSSQL\Binn", where "C:\Program Files" is the default location of applications installed in Windows and x is an integer where MSSQL.x is the most recently created directory. If this is the first time SQL Server has been installed on then x will be 1. Select the program sqlservr.exe.
- Click **OK** to add the program, and then click **OK** to close Windows Firewall.

Note:

- *If Microsoft .NET 2.0 and Microsoft Data Access Components 2.8 is not installed, you will be asked to accept the relevant EULAs, after which they will automatically download and install. If Microsoft .NET 2.0 is not installed you will be required to reboot your system. After all pre-requisites have been installed the installation will continue automatically. If it does not, return to the website and click on the Download button again.*
- *When installing a new instance of SQL Server using eDBA on Microsoft Windows Vista, you may be prompted to grant administrator rights to the SQL Server setup program, part way through the process. You must grant these rights within 120 seconds otherwise installation will fail. If this occurs, Click on the Retry button in the wizard, or run the wizard again.*

See the Getting Started guide on the inside of the front cover for order of processes involved in getting an installation of eLab up and running.

Database Settings

The **Database settings** section allows you to control whether or not the permission set for users and roles to view, insert, modify and remove data are enforced. To change the actual permissions, see *Users and Contacts* and *Users and Contacts Step-By-Step*. The database settings also determine the way data is archived and hashed. The options are presented in a tree-view. Clicking the check box next to a node allows you to select or deselect the option represented by that node and any sub-

nodes attached to it. Alternatively, if a node has a plus symbol next to it, you can click on that symbol and select from a list of sub-nodes. The choice of options can have a significant impact on system resources and application performance. If you do not require the installation of a system that is fully compliant with the FDA guidelines (see www.fda.gov) it is strongly recommended that you read this section carefully. By default eLab is set to the highest level of compliance.

Note: eLab's data is stored in a database which is a structured collection of related tables, each consisting of rows and columns. Related types of data are grouped into tables, each row of a table represents a single item of data, and each field of the row maintains a separate property of the data. For example, user data may be stored in a user table. Each row of that table would contain data relating to a single user and each field of the row contains a separate property that describes that user.

eLab controls access to data by the use of permissions. For a user to be able to access specific data they must have been granted the permission to do so, either directly via their user account or indirectly through one of the roles they belong to. The types of permissions that are enforced for a user or a role are determined by the options under the **Enforce permission** node. Using these options you can control the overall ability of users and roles to view, insert, modify and remove data. The types of permissions that you can assign are summarized in Table 41.1. Row permissions include view, modify and remove. Table permissions include view, modify, remove and insert.

Permission	Meaning for Table Level	Meaning for Row Level
Insert	Permits inserting of rows into tables.	N/A
View	Allows or denies viewing of rows within tables.	Permits viewing data within rows.
Modify	Permits the modification of rows within a table.	Permits the modification of data within rows.
Remove	Permits rows to be removed from a table.	Permits data to be removed from within rows.

Table 41.1. eLab database permissions.

Each of these permissions can be assigned at the user level or the role level. For most installations the ability to set table level permissions for a role will be sufficient. This would allow certain types of data to be restricted to users from particular roles. For example, access to the ability to create a new user could be limited to members of the administrator role. To allow this type of permission you would ensure the role-level sub-node of the table-level node is selected.

Using the options of the **Permissions for new data** node you can set the types of permissions that can be assigned to new data. The user-level option allows you to set permission for data created by

particular users. The role-level option allows you to set permission for data created by users that belong to a particular role.

Any time you work with permissions, you should keep the following in mind:

- A user, or at least one of the roles of the user, needs to be granted row or table level access to data to have permission to access that data.
- Denying access to data at row or table level for a user, or any roles that user belongs to, denies permission to the data.

By default eLab maintains records of all requests to access data and archives all changes made to data. The options of the **Archive data** node determine how access and changes are recorded. The following options are available:

- **Database calls.** Maintains a record of all requests for data or changes to data.
- **Viewed data.** Maintains a record of the exact data that is viewed by users.
- **Modified data.** Keeps a copy of the original data and retains it in the system.
- **Removed data.** Hides the data being removed from the user but retains it in the system.

Note: Although a user or role may have permission to modify or remove data, if the modified data and removed data option are selected a copy of the original data will remain in the system.

The Database **calls** and **Viewed data** options can consume significant system resources. If you do not require the ability to track the data that user's access or modify then turning off one or both of these options can free resources and increase the resources available for storing results and sample data.

A hash is a reproducible method of creating a small digital 'finger print' that is effectively unique to the data that is hashed. eLab creates hashes based on all the fields of data from each row.

The options of the **Hash data** node are used to determine when hashes should be created:

- Inserted data. A hash is created when new data is inserted.
- Modified data. The hash is updated when data is updated.
- Removed data. The hash is updated when data is removed.

The database integrity check (see *Checking Database Integrity* on page 141) uses these hashes to determine if any unauthorized attempts to manipulate data have occurred. Therefore not creating hashes will affect the ability to check for unauthorized modifications.

It is important to note that although the options of this setting are critical to the performance of eLab the choices that you make at installation time are not locked into the system. Once the system is installed you can modify these settings through the **Maintenance Wizard** (see

7. Database Settings on page 152). You can also modify the actual role and user permissions through the **Role wizard** (see *Editing a Role* on page 135) and the **User wizard** (see

Editing a User or Contact *Editing a User or Contact* on page 125).

Appendix 2 Installing eLab

Before Installation

Before installing the eLab, follow these steps:

1. Ensure that your hardware and software meets with the minimum requirements as described in the *Hardware and Software Requirements*.
2. To ensure the best compatibility and security it is highly recommended that you upgrade to the latest Windows Service Pack and critical updates (www.windowsupdate.com).
3. Purchase a license key from www.ebiosys.com.
4. Follow the installation instructions as described in the *Installing the eLab Database* on page 149.

Installing eLab

To install the eLab database for the first time, follow these steps:

1. Using your browser to navigate to www.ebiosys.com.
Note: The website is best viewed using Microsoft Internet Explorer 7.0.
2. Click on the **Download** menu tab and then click on the eLab **Download** button. The **Application Install** dialogue box is displayed.
3. Click **Install**. The application will download, install, and when complete eLab will start.

*Note: If Microsoft .NET 2.0, Microsoft Data Access Components 2.8 and Crystal Reports 2.0 is not installed, you will be asked to accept the relevant EULAs, after which they will automatically download and install. If Microsoft .NET 2.0 is not installed you will be required to reboot your system. After all pre-requisites have been installed the installation will continue automatically. If it does not, return to the website and click on the **Download** button again.*

Appendix 3 eDBA Step-By-Step

Creating a New eLab Database

Use this option to create an eLab database on a SQL Server installation that was created for another eLab database by the **Database Wizard**.

To create a new eLab database, follow these steps:

1. On the **End User License Agreement** page, read the license agreement and if you agree click **Accept**.
2. On the **Overview** screen click **Next**.
3. On the **Options** page, click **Show advanced options** and then click **Use an existing SQL Server Express instance**.
4. On the **Existing SQL Server** page, select the SQL Server instance that was created previously by this wizard when creating another eLab database and then click **Next**.
5. On the **Database options** page, click **Create a new eLab database**.
6. Follow the remainder of this wizard as per the instructions of Installing the eLab Database on page 148.

Updating an Existing eLab Database

Do not use this option unless instructed to by eBioSys.

To update an existing eLab database, follow these steps:

1. On the **End User License Agreement** page, read the license agreement and if you agree click **Accept**.
2. On the **Overview** screen click **Next**.
3. On the **Options** page, click Show advanced options and then click **Use an existing SQL Server Express instance**.
4. On the **Existing SQL Server** page, select the SQL Server instance that holds the database you want to update and then click **Next**.
5. On the **Database options** page, click **Update an existing eLab database**.
6. Select the database to update from the **Database** control.
7. Select one of the following validation options:
 - Password. Use this option to enter the administrator password into the database.
 - Key. Use this option if you have lost your administration password or it is not being accepted. Follow the instructions of the Request a Database Key section.

8. Set the location of the update script in the **Script file** textbox, or press the button to the right of the text box to browse to the location of the script.
Advanced Option: The Library deployment directory specifies the location of the dll files used by SQL Server
9. Click **Next**.

Repairing an eLab Database

Do not use this option unless instructed to by eBioSys.

This procedure is usually used when there has been a hardware malfunction. To repair an existing eLab database, follow these steps:

1. On the **End User License Agreement** page, read the license agreement and if you agree click **Accept**.
2. On the **Overview** screen click **Next**.
3. On the **Options** page, click **Show advanced options** and then click **Use an existing SQL Server Express instance**.
4. On the **Existing SQL Server** page, select the SQL Server instance that holds the database you want to repair and then click **Next**.
5. On the **Database options** page, click **Show advanced options** and then click **Repair an eLab database**.
6. Select the database to update from the **Database** control.
7. Select one of the following validation options:
 - Password. Use this option to enter the administrator password the database.
 - Key. Use this option if you have lost your administration password or it is not being accepted. Follow the instructions of the Request a Database Key section.
8. Click **Next** and then click **Accept**.

Resetting the Master Password

Use this option when you have forgotten the system administrator's password and you cannot reset the password with another account (see Changing Another User's Password on page 123). To reset the master password of an eLab database, follow these steps:

1. On the **End User License Agreement** page, read the license agreement and if you agree click **Accept**.
2. On the **Overview** screen click **Next**.
3. On the **Options** page, click **Show advanced options** and then click **Use an existing SQL Server Express instance**.

4. On the **Existing SQL Server** page, select the SQL Server instance that holds the database you want to reset and then click **Next**.
5. On the **Database options** page, click **Show advanced options** and then click **Reset the master password of an eLab database**.
6. Select the database from the **Database** control.
7. Select one of the following validation options:
 - Password. Use this option to enter the administrator password the database.
 - Key. Use this option if you have lost your administration password or it is not being accepted. You will need to request a key from eBioSys before you can continue (see *Requesting a Database Key* on page 160).
8. Enter the new password, confirm the password, enter and password hint, and then click **Next**.
9. Click **Accept**.

Recreating an eLab Database

Do not use this option unless instructed to by eBioSys.

To recreate an eLab database, follow these steps:

1. On the **End User License Agreement** page, read the license agreement and if you agree click **Accept**.
2. On the **Overview** screen click **Next**.
3. On the **Options** page, click **Show advanced options** and then click **Use an existing SQL Server Express instance**.
4. On the **Existing SQL Server** page, select the SQL Server instance that holds the database you want to recreate and then click **Next**.
5. On the **Database options** page, click **Show advanced options** and then click **Recreate an eLab Database**.
6. Follow the remainder of this wizard as per the instructions of Installing the eLab Database on page 148.

Removing an eLab Database

This option will remove an eLab database and all of its data from the SQL Server instance on which it was created, To remove the SQL Server instance choose the **Remove SQL Server instance** option. This is the preferred option if you only have a single eLab database installed.

To remove an eLab database, follow these steps:

1. On the **End User License Agreement** page, read the license agreement and if you agree click **Accept**.
2. On the **Overview** screen click **Next**.
3. On the **Options** page, click **Show advanced options** and then click **Use an existing SQL Server Express instance**.
4. On the **Existing SQL Server** page, select the SQL Server instance that holds the database you want to remove and then click **Next**.
5. On the **Database options** page, click **Show advanced options** and then click **Remove an eLab database**.
6. Select the database to update from the **Database** control.
7. Select one of the following validation options:
 - Password. Use this option to enter the administrator password the database.
 - Key. Use this option if you have lost your administration password or it is not being accepted. You will need to request a key from eBioSys before you can continue (see *Requesting a Database Key* on page 160).
8. Click **Accept**.
9. Click **Close** to close the wizard.

Requesting a Database Key

Use this option if you have forgotten the system administrator's password and you cannot reset the password with another account (see *Changing Another User's Password* on page 123). To request a database key for an eLab database, follow these steps:

1. On the **End User License Agreement** page, read the license agreement and if you agree click **Accept**.
 2. On the **Overview** screen click **Next**.
 3. On the **Options** page, click **Show advanced options** and then click **Use an existing SQL Server Express instance**.
 4. On the **Existing SQL Server** page, select the SQL Server instance that holds the database you want to request a key for and then click **Next**.
 5. On the **Database options** page, click **Show advanced options** and then click **Request a Database Key**.
 6. Select the database to update from the **Database name** control.
 7. Enter the name of your organization in the **Group** box.
 8. Enter the details of a contact person and any comments. Click **Next**.
- Advanced Options.** Use this option to change the way that email notifications are returned to eBioSys.
9. Click **Accept**.
 10. Click **Close** to close the wizard.

Note: This will then send a request to eBioSys for a key. eBioSys will confirm your details before sending you a time-limited and database specific key.

Repairing an SQL Server Express Instance

Do not use this option unless instructed to by eBioSys

To repair an instance of SQL Server, follow these steps:

1. On the **End User License Agreement** page, read the license agreement and if you agree click **Accept**.
2. On the **Overview** screen click **Next**.
3. On the **Options** page, click **Show advanced options** and then click **Repair an SQL Server Express instance**.
4. Select the SQL Server instance that you want to repair from the **SQL Server name** control.
5. Select one of the following validation options, and then click **Next**.
 - **Server Key**. Use this option if you have lost your administration password or it is not being accepted. Follow the instructions of the Request a Sever Key section to obtain a server key.
 - **Database Passwords or keys**. Use this option to enter the administrator password or database key for each of the databases installed a SQL Server instance. Follow the instructions of the Request a Database Key section to obtain a database key.
6. Click **Accept**.
7. Click **Close** to close the wizard.

Note: On a given server you can install multiple SQL Server database engines; each engine is referred to as an instance.

Removing an SQL Server Express Instance

This option will remove the SQL Server instance that was created previously using this wizard as well as all databases that have been created on it. If multiple databases have been installed you can remove individual databases by following the instructions of *Removing an eLab Database* on page 159.

To remove an instance of SQL Server, follow these steps:

1. On the **End User License Agreement** page, read the license agreement and if you agree click **Accept**.
2. On the **Overview** screen click **Next**.
3. On the **Options** page, click **Show advanced options** and then click **Remove an SQL Server Express instance**.
4. Select the SQL Server instance that you want to remove from the **SQL Server name** control.

5. Select one of the following validation options, and then click **Next**.
 - **Server Key.** Use this option if you have lost your administration password or it is not being accepted. You will need to request a key from eBioSys before you can continue (see *Requesting a Database Key* on page 160).
 - **Database Passwords or keys.** Use this option to enter the administrator password or database key for each of the databases installed a SQL Server instance. Follow the instructions of the Request a Server Key or Request a database key section.
6. Click **Accept**.
7. Click **Close** to close the wizard.

Note:

- *On a given server you can install multiple SQL Server database engines; each engine is referred to as an instance.*
- *If you have lost your administration password or the server is not accepting your password follow the instructions of the **Request a Server Key** section to obtain a server key.*

Requesting a Server Key

Use this option to request a key to access some features in eDBA that cannot be accessed because a server is corrupt and needs to be repaired or removed.

To request a server key, follow these steps:

1. On the **End User License Agreement** page, read the license agreement and if you agree click **Accept**.
2. On the **Overview** screen click **Next**.
3. On the **Options** page, click **Show advanced options** and then click **Request a server key**.
4. Select the SQL Server instance that you want to request a key for from the **SQL Server name** control. Click **Next**.
5. Enter the name of your organization in the **Group** box.
6. Enter the details of a contact person and any comments. Click **Next**.
Advanced Options. Use this option to change the way that email notifications are returned to eBioSys.
7. Click **Accept**.
8. Click **Close** to close the wizard.

Note: This will then send a request to eBioSys for a key. eBioSys will confirm your details before sending you a time-limited and server specific key.

Appendix 4 Obtaining a License

To purchase a license to use eLab or to increase the number of samples your installation of eLab is licensed to manage, follow these steps:

1. Using your browser navigate to www.ebiosys.com.

Note: The website is best viewed using Microsoft Internet Explorer 7.0.

2. Click on the **Purchase** tab and then click on the **Buy Now** button. The licensing wizard is displayed in a new secure screen.

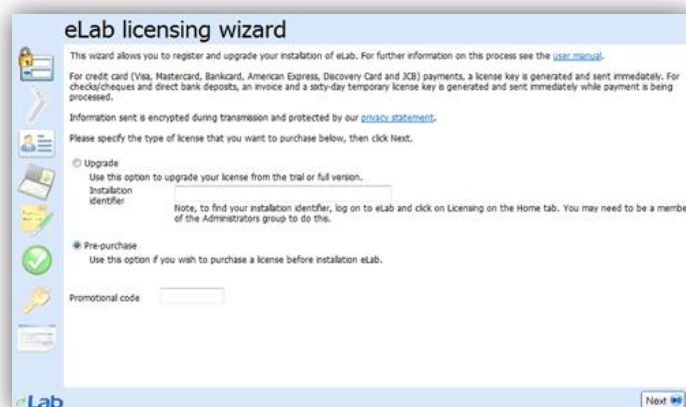


Figure 44.1. The eLab Licensing wizard.

Note: You may be prompted to open the secure webpage. eBioSys uses a strong encryption to secure the information you send to us using the licensing wizard.

3. Specify whether you want to purchase a license for a new installation of eLab, purchase a license to register a trial version, or upgrade an existing installation. If you choose to upgrade an installation you will need to enter the installation identifier. To find the installation identifier log on to eLab and click on the **Licensing** button in the **Administration** group of the **Home** tab.
4. Click **Next**.

Note: If you have a promotional code enter it at this stage.

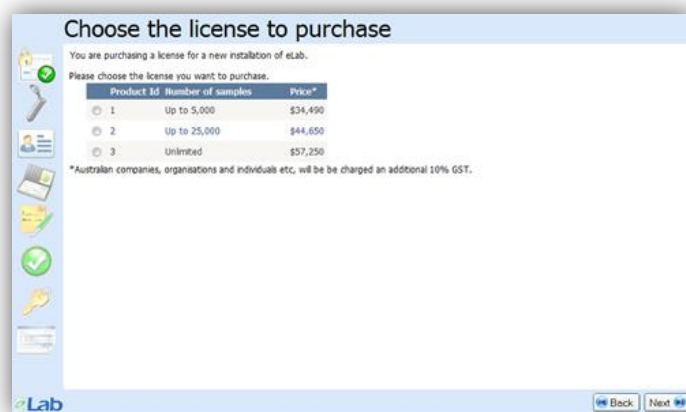


Figure 44.2. The eLab Licensing wizard - Select license screen.

- Choose a license that corresponds to the maximum number of samples that you believe the system will be required to maintain. Click **Next**.

Note:

- It is usually cheaper to purchase the appropriate license initially rather than purchasing a smaller license and upgrading as required.*
- Australian companies may be required to pay GST in addition to the displayed price.*

Please enter the contact details of a person within the organisation that is purchasing the license. Fields marked with an asterisk (*) must be filled out.

*e-mail Address
 Title
 *First name
 *Family name
 Initials
 Suffix
 Position
 Department
 *Company/organization
 *Address
 *City
 *State/region
 *Postal code
 *Country
 Phone
 Cell/mobile
 Fax
 Home page

Figure 44.3. The eLab Licensing wizard - Contact information screen.

- On the **Contact information** page, enter your contact details. Click **Next**.

Note: These details will appear on the invoice.

Figure 44.4. The eLab Licensing wizard - Payment details screen.

7. On the **Payment details** page, select your preferred payment option and complete the required details. Click Next.

Note:

- *It is usually cheaper to purchase the appropriate license initially rather than purchasing a smaller license and upgrading as required.*
 - *Australian companies may be required to pay GST in addition to the displayed price.*
8. On the **End User License Agreement** page, read the license agreement and if you agree click **Accept**.
 9. On the **Confirmation** page ensure that all your details are correct and then click **Accept**.
 10. If the correct details were entered the **Transaction successful** page will be displayed. From this page you can print a copy of the confirmation details, copy the license key to the clipboard, or view the invoice.

Appendix 5 The FDA and 21 CFR 11

The Food and Drug Administration (FDA) is the US agency responsible for protecting public health. Its role is best described by the FDA's mission statement:

“The FDA is responsible for protecting the public health by assuring the safety, efficacy, and security of human and veterinary drugs, biological products, medical devices, our nation’s food supply, cosmetics, and products that emit radiation. The FDA is also responsible for advancing the public health by helping to speed innovations that make medicines and foods more effective, safer, and more affordable; and helping the public get the accurate, science-based information they need to use medicines and foods to improve their health.”

In March 1997 the FDA issued 21 CFR Part 11, a set of regulations that apply to the use of electronic records by industry segments regulated by the FDA and to assist with industry guidance. The regulations enforce provisions related to the following:

- The secure retention of electronic records
- User-independent, time stamped audit trails
- Requirements for the use of electronic signatures
- Controls for open and closed systems
- Appropriate controls over system documentation
- The determination that users of electronic systems have the education, training and experience to perform their assigned tasks
- Use of device and operational system checks
- Limiting system access to authorized authenticated users

To learn more about the FDA go to the FDA’s website www.fda.gov, to download the 21 CFR Part 11 requirements go to www.21cfrpart11.com/files/library/government/21cfrpart11_final_fule.pdf.

Appendix 6 Hardware and Software Requirements

Supported Operating Systems

To install eLab and eDBA we recommend the following platforms and operating systems:

Scenario	Target Platforms	eLab	eDBA
x32-bit based Systems	Windows® 2000 Professional with SP4	✓*	✓*
	Windows® 2000 Server with SP4	✓*	✓*
	Windows® 2000 Advanced Server with SP4	✓*	✓*
	Windows® 2000 Datacenter Server with SP4	✓*	✓*
	Windows® XP Home Edition with SP2	✓	✓
	Windows® XP Professional with SP2	✓	✓
	Windows® XP Tablet PC Edition with SP2	✓	✓
	Windows® Vista Business	✓	✓
	Windows® Vista Enterprise	✓	✓
	Windows® Vista Home Basic	✓	✓
	Windows® Vista Home Premium	✓	✓
	Windows® Vista Starter	✓	
	Windows® Vista Ultimate	✓	✓
	Windows® Server 2003 Standard Edition with SP1	✓	✓
	Windows® Server 2003 Enterprise Edition with SP1	✓	✓
	Windows® Server 2003 Datacenter Edition with SP1	✓	✓
	Windows® Server 2003 Web Edition with SP1	✓	✓
	Windows® Server 2003 R2, Standard Edition	✓	✓
	Windows® Server 2003 R2, Enterprise Edition	✓	✓
	Windows® Server 2003 R2, Datacenter Edition	✓	✓
	Windows® Small Business Server 2003 Standard Edition SP1	✓	✓
	Windows® Small Business Server 2003 Premium Edition SP1	✓	✓
	Windows® Server 2008, Standard Edition	✓	✓
	Windows® Server 2008, Enterprise Edition	✓	✓
	Windows® Server 2008, Datacenter Edition	✓	✓
x64-bit based Systems (on WOW64)	Windows® XP Professional x64 Edition	✓	✓
	Windows® Vista Business x64 Edition	✓	✓
	Windows® Vista Enterprise x64 Edition	✓	✓
	Windows® Vista Home Basic x64 Edition	✓	✓
	Windows® Vista Home Premium x64 Edition	✓	✓
	Windows® Vista Ultimate x64 Edition	✓	✓
	Windows® Server 2003, Standard x64 Edition with SP1	✓	✓
	Windows® Server 2003, Enterprise x64 Edition with SP1	✓	✓
	Windows® Server 2003, Datacenter x64 Edition with SP1	✓	✓
	Windows® Server 2003 R2, Standard x64 Edition	✓	✓
	Windows® Server 2003 R2, Enterprise x64 Edition	✓	✓
	Windows® Server 2003 R2, Datacenter x64 Edition	✓	✓
	Windows® Server 2008, Standard Edition	✓	✓
	Windows® Server 2008, Enterprise Edition	✓	✓
	Windows® Server 2008, Datacenter Edition	✓	✓

* Contact us for details.

Note: eDBA should be installed on a secure machine that is accessible by computers where eLab is installed.

Unsupported operating systems

Scenario	Target Platforms
All platforms	Windows® 95
	Windows® 98
	Windows® 98 Second Edition
	Windows® NT Server
	Windows® NT Workstation
	Windows® Server 2003, Enterprise Edition for Itanium-based Systems
	Windows® Server 2003, Datacenter Edition for Itanium-based Systems

Processors

Application	Minimum	Recommended
eLab	600 MHz	2 GHz or higher
eDBA	500 MHz	1 GHz or higher

RAM

Application	Minimum	Recommended
eLab	512MB	1 GB or more
eDBA	512 MB	1 GB or more

Hard Disk Space

Application	Minimum
eLab	2 GB
eDBA	5 GB

Applications

Application	Minimum	Recommended
Internet Explorer	5.01	7.0 or higher
Microsoft Excel ²	2000	2007

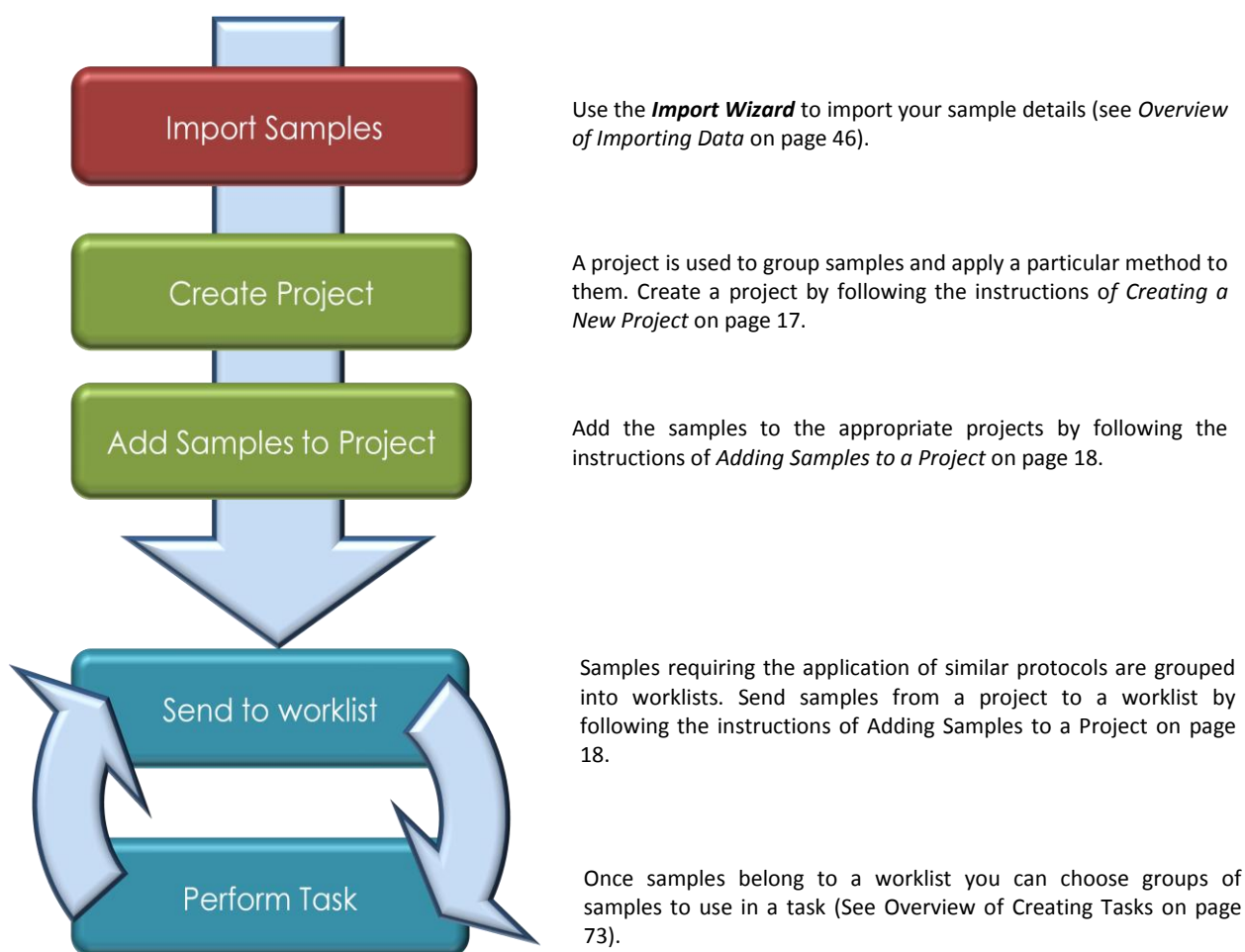
1. Alternatively Firefox can be used. Minimum version 1.5 and requires an add-on (e.g. FFClickOnce 0.6 <https://addons.mozilla.org/en-US/firefox/addon/1608>).
2. Required for importing data with the Import Wizard

Other Requirements

A Zebra ZPL II compatible printer is required for label printing, see www.zebra.com.

Working with Samples

When eLab has been installed and is ready for production the diagram below describes the steps that samples take to complete a project.



www.ebiosys.com



eBioSys Pty Ltd
PO Box 5602
Perth WA 6831
AUSTRALIA

Tel (within Australia):	1800 520 888
Tel (international):	+61 (0) 417 929 407
	+61 (0) 409 314 222
Fax:	+61 (0) 893 142 221
Email:	contactus@ebiosys.com
Web:	www.ebiosys.com

Copyright © 2007 eBioSys Pty Ltd

All rights reserved. No part of this document shall be reproduced by any means without the prior written consent of a company director. eBioSys reserves the right to deny approval of external usage for any reason.

eBioSys makes no warranties, express or implied, in this document. Nor is any liability assumed for damages resulting from the use of information contained herein.