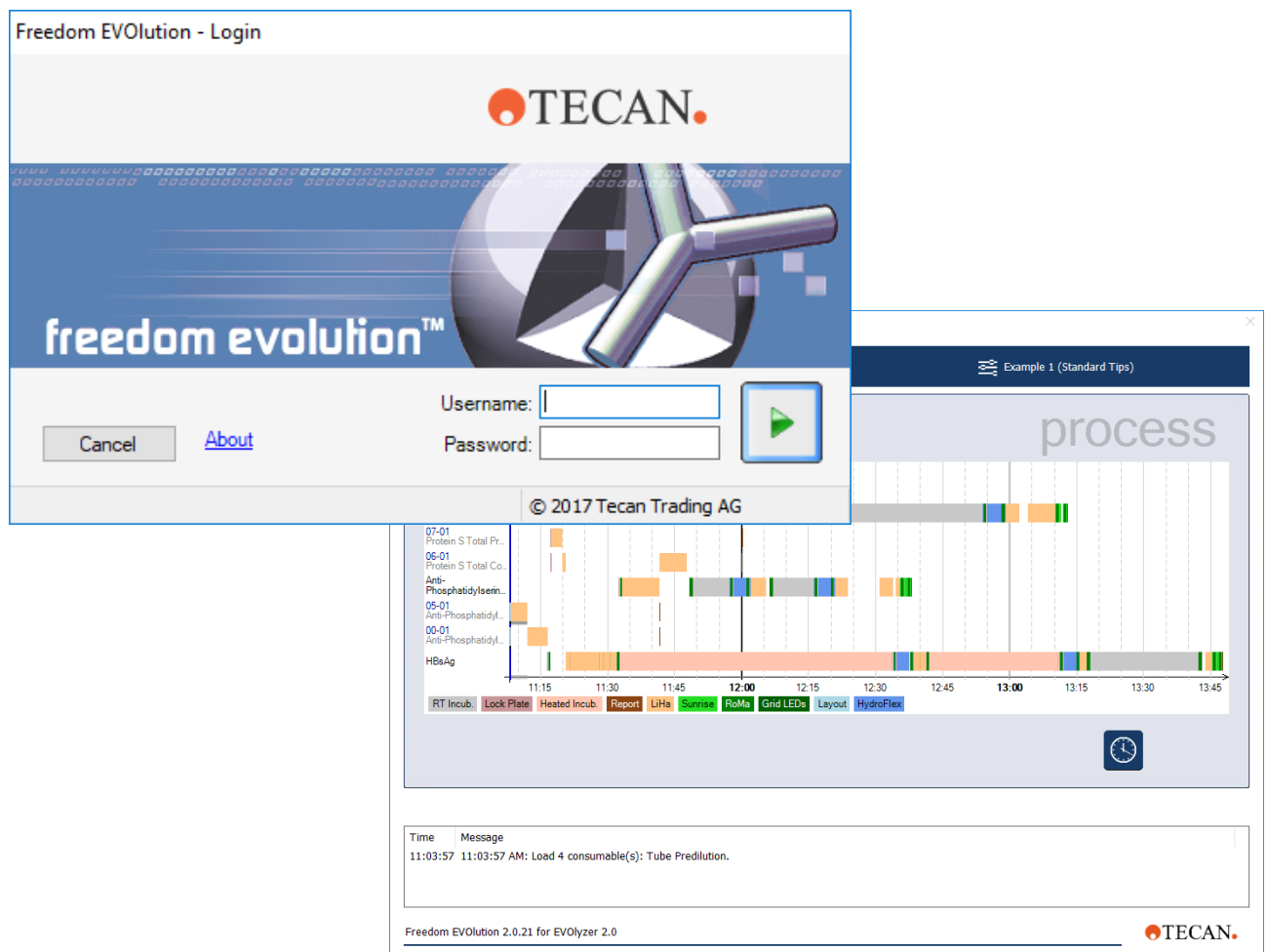


## Runtime Controller Manual

# Freedom EVolution™ Software Run Control



The screenshot displays the Freedom EVolution software interface. On the left, a login window titled "Freedom EVolution - Login" features the TECAN logo, a decorative graphic of a pipette tip, and the text "freedom evolution™". It includes input fields for "Username:" and "Password:", a green play button, and "Cancel" and "About" buttons. Below the login window is a copyright notice: "© 2017 Tecan Trading AG".

On the right, a process control window titled "Example 1 (Standard Tips)" shows a "process" timeline. The timeline includes a list of tasks on the left: 07-01 Protein S Total Pr., 06-01 Protein S Total Co., Anti-PhosphatidyIseir., 05-01 Anti-PhosphatidyL., 00-01 Anti-PhosphatidyL., and HBsAg. The timeline itself shows colored bars representing task durations from 11:15 to 13:45. Below the timeline is a sequence of process steps: RT Incub., Lock Plate, Heated Incub., Report, LiHa, Sunna, RoMa, Grid LEDs, Layout, and HydroFlex. A clock icon is visible at the bottom right of the process window.

At the bottom of the interface, a message log shows the following entry:

Time	Message
11:03:57	11:03:57 AM: Load 4 consumable(s): Tube Predilution.

The bottom of the interface also displays the version information: "Freedom EVolution 2.0.21 for EVolyzer 2.0" and the TECAN logo.

### Document Status Sheet

<b>Title:</b>	Freedom EVOLution SW Runtime Controller Manual	<b>Part number:</b>	30034851.03
<b>ID:</b>	394803, en, Version 2.3	<b>Translated from:</b>	n.a.
<b>Version</b>	<b>Revision</b>	<b>Issue</b>	<b>Document History</b>
1	0	2006-11-30	New edition, covers Freedom EVOLution SW V1.6
2	0	2007-11-29	Added: Features of Freedom EVOLution SW V1.9 and 2.0
2	1	2008-05-30	Added: Features of Freedom EVOLution SW 2.1
2	2	2015-10-06	Update Windows 7
2	3	2017-11-27	Update for Windows 10, new graphical user interface design

# Table of Contents

<b>1</b>	<b>About This Manual</b>	
1.1	Conventions Used in This Manual . . . . .	1-1
1.2	Reference Documents . . . . .	1-2
1.3	Trademarks . . . . .	1-2
1.4	Abbreviations . . . . .	1-2
<b>2</b>	<b>Safety</b>	
2.1	User Qualification . . . . .	2-1
2.2	Warning Notices Used in the Manuals . . . . .	2-2
2.3	Use of the Software . . . . .	2-2
2.4	Safety of the Overall System . . . . .	2-3
2.5	General Safety Rules . . . . .	2-3
<b>3</b>	<b>Starting the Freedom EVOLution SW</b>	
3.1	Freedom EVOLution Run Control . . . . .	3-1
3.1.1	Access Rights . . . . .	3-1
3.1.2	Operating Elements of the Run Control . . . . .	3-1
3.1.3	Login . . . . .	3-3
3.2	Main Menu . . . . .	3-5
3.2.1	Safety Concept . . . . .	3-7
3.3	Setting Language . . . . .	3-9
3.4	Exiting Freedom EVOLution SW . . . . .	3-10

<b>4</b>	<b>Running a Process</b>	
4.1	Start Run	4-1
4.1.1	Initializing	4-3
4.1.2	Customized Startup Steps	4-4
4.1.3	Checking for Plates	4-5
4.1.4	Checking DiTis	4-6
4.1.5	Sequence and Work Modes	4-7
4.1.6	Loading Plates	4-9
4.1.7	Loading Wash Buffers	4-11
4.1.8	Loading Consumables	4-12
4.1.9	Scanning	4-16
4.1.10	Flushing	4-17
4.1.11	Heating	4-17
4.1.12	Loading Samples	4-18
4.1.13	Scanning the Samples	4-19
4.1.14	Work Order Assignment	4-21
4.1.15	Transferring Plate	4-24
4.1.16	Schedule	4-25
4.1.17	Completing the Process	4-29
4.2	Application Settings	4-31
4.2.1	Main Settings	4-31
4.2.2	Barcode Types	4-33
4.2.3	Paths	4-34
4.2.4	Report Options	4-35
4.2.5	Persistence Data	4-36
4.3	User Management	4-37
4.3.1	Adding User	4-38
4.3.2	Disabling User	4-38
<b>5</b>	<b>Maintenance</b>	
5.1	Menu Item Maintenance	5-1
5.1.1	Viewing Records	5-3
5.2	Maintenance Steps	5-4
5.2.1	Maintenance Dialog Boxes	5-5
<b>6</b>	<b>Utilities</b>	
6.1	Plate Manager (SW Version 2.0 Only)	6-1
6.1.1	Plate Map	6-2
6.1.2	Process Report	6-3
6.2	Report Center (SW Version 2.1)	6-4
6.2.1	Running an Application	6-4
6.2.2	Settings	6-5
6.3	Worklist Creator	6-6
6.3.1	File Menu	6-7
6.3.2	Plate Map Modus	6-7
6.3.3	Edit Menu	6-8
6.3.4	Help Menu	6-8
6.3.5	Icon Bar	6-9



<b>7</b>	<b>Error Handling</b>	
7.1	Error Messages 1.....	7-1
7.2	Error Messages 2.....	7-2




# 1 About This Manual

<b>Purpose of This Chapter</b>	This chapter points out the purpose of the manual, specifies the product the manual deals with and who the manual is intended for. Furthermore, it explains the symbols, conventions and abbreviations used and offers other general information.
<b>Purpose of This Manual</b>	<p>This manual describes the Run Control (GUI) of Freedom EVOLution SW. The Run Control is a part of the complete software, which is used to control liquid handling and processes.</p> <p>The information given in this manual is based on the assumption that</p> <ul style="list-style-type: none"> <li>◆ Freedom EVOLution SW is properly installed.</li> <li>◆ users with the corresponding access rights are set up by the system administrator.</li> <li>◆ the instrument is configured according to the process to be run.</li> <li>◆ the processes to be run are tested and validated.</li> </ul>
<b>Target Group</b>	<p>This manual is intended for operators, e.g. laboratory technicians, who run scripts or processes on the Tecan automation platforms.</p> <p>It provides guidance to operators on how to start, operate and close the Freedom EVOLution Run Control.</p> <p>The Manual only describes the dialogs of the software that are accessible on operator level. It does not enable the user to define or modify scripts or processes.</p> <p><b>Note:</b> For application specialists a comprehensive Software Manual exists.</p>
<b>Scope</b>	This manual applies to the Run Control of Freedom EVOLution SW version 2.0 and 2.1.
<b>For Your Safety</b>	<b>Before installing and running the Freedom EVOLution SW, first read the Runtime Controller Manual carefully, in particular chapter 2 “Safety”.</b>

## 1.1 Conventions Used in This Manual

- ◆ Cross-references appear as follows: e.g. “Refer to section “1.1.1  1-1”
  - 1.1.1 refers to the corresponding chapter number
  - The symbol  denotes “page number”
  - 1-1 refers to the page number, whereas the first number stands for the chapter number (chapter 1 page 1)

**Note:** The symbols pertaining to safety (WARNINGS and ATTENTIONS) are explained in chapter 2 “Safety”,  2-1.

## 1.2 Reference Documents

This section provides a list of documents which are needed or may be useful in connection with the Freedom EVOLution Run Control.

### What Does the Doc. ID Tell You?

The Doc. IDs listed below are root numbers. Therefore, they do not contain information about the language, document version or the medium (data storage medium, hardcopy, downloadable file, etc.) of the document.

Check the scope of the corresponding document to make sure that you are in possession of the correct version.

**Note:** *The Doc. ID does not represent ordering information. For orders refer to the number on the binder, CD casing, etc.*

### Operating Manuals

- ◆ Freedom EVOLyzer Operating Manual (Doc ID 393035)
- ◆ Freedom EVO Clinical Operating Manual (Doc ID 393062)

## 1.3 Trademarks

The following product names and any registered and unregistered trademarks mentioned in this manual are used for identification purposes only and remain the exclusive property of their respective owners:

- ◆ Freedom EVOLution™ is a trademark of Tecan Group Ltd.
- ◆ Freedom EVOLyzer® and Freedom EVO® are in major countries registered trademarks of Tecan Group Ltd.
- ◆ Windows® is a registered trademark of Microsoft Corporation.
- ◆ Codesoft® is a registered trademark of Bratton Groupe sarl.

## 1.4 Abbreviations

### ASTM

American Society for Testing and Materials. The ISO organization which defined a serial transmission protocol for laboratory data

### ELISA

Enzyme-Linked Immunosorbent Assay

### GUI

Graphic User Interface

### LIMS

Laboratory Information System

### SW

Software



## 2 Safety

### Purpose of This Chapter

This chapter covers only the general introductory safety instructions applicable to the Freedom EVOLution SW. Specific safety instructions of the hardware devices are laid down in the respective hardware manuals.

### Significance of These Safety Instructions

The Freedom EVOLution SW is a pure software product and as such it does not contain any hazardous parts. However, the software is used to control hardware devices and options, which may contain parts that can move with great force and at considerable speed.

As a consequence, the safety of users and personnel can only be ensured if the safety instructions in this Runtime Controller Manual as well as the safety instructions of the hardware devices controlled with the software described here are strictly observed and followed.

Therefore, all relevant manuals must always be available to all users working with the Freedom EVOLution SW.

## 2.1 User Qualification

### What Users Must Know

Users must be qualified and trained to run the Freedom EVOLution SW.

In particular, they must fulfill the following qualifications:

- ◆ They must have a basic knowledge of the Windows operating system.
- ◆ They must have a thorough knowledge of the processes run on the system.
- ◆ They must be familiar with the “Good Laboratory Practice” guidelines.
- ◆ They must have read and understood the instructions in this Runtime Controller Manual.

Only users that meet the qualifications prescribed here are authorized to run the program described in this Runtime Controller Manual.

### Training Courses

**Note:** Tecan recommends that users attend a software training course. Please ask your nearest Tecan representative about the available courses.

## 2.2 Warning Notices Used in the Manuals

The symbols used for safety-related notices have the following significance:

### WARNING Symbols



WARNING notices appear as follows:

#### WARNING

Generally, the triangular warning symbol indicates the possibility of personal injury or even loss of life if the instructions are not followed.

### ATTENTION Symbols



ATTENTION notes appear as follows:

#### ATTENTION

With the general “Read This!” symbol, ATTENTIONs indicate the possibility of equipment damage, malfunctions or incorrect process results, if instructions are not followed.

## 2.3 Use of the Software

### Intended Use

The Freedom EVOLution Run Control is used to run processes that perform

- ♦ pre-analytical sample distribution and assay preparation on a Tecan Freedom EVO Clinical instrument.
- ♦ ELISA and similar tests on a Tecan Freedom EVOlyzer instrument.

Refer to the comprehensive Software Manual of your software installation.  
The software must not be used for applications other than listed there.

## 2.4 Safety of the Overall System

In addition to the safety instructions in this Runtime Controller Manual, the safety instructions in the manuals of the hardware devices must also be observed and followed.



### **WARNING**

Hazards originating from the hardware devices controlled with this software. Mind the safety instructions of all instruments and options which are used in connection with the Freedom EVOLution SW.

## 2.5 General Safety Rules

### **Legal Regulations**

Legal regulations, such as local, state and federal laws which prescribe the use or application as well as the handling of dangerous materials in connection with the Freedom EVOLution SW must be strictly followed.

### **Modifications**

Modifications to the Freedom EVOLution SW are not permitted. The manufacturer will decline any claim resulting from unauthorized modifications.



## 3 Starting the Freedom EVOLution SW

**Purpose of This Chapter**

This chapter describes how to start the Run Control of Freedom EVOLution SW on the corresponding operator level.

### 3.1 Freedom EVOLution Run Control

The Freedom EVOLution Run Control for the routine operation of the Freedom EVOLution SW can be operated via a touchscreen.

Start the Freedom EVOLution Run Control from the Windows start menu.






#### 3.1.1 Access Rights















The following table gives an overview over the user groups and their corresponding access rights.





**Tab. 3-1** Access rights

User group	Access right
Lab operator	Start Run, Maintenance
Application Specialist	Start Run, Maintenance, Application Settings
Administrator	Start Run, Maintenance, Application Settings, User Management

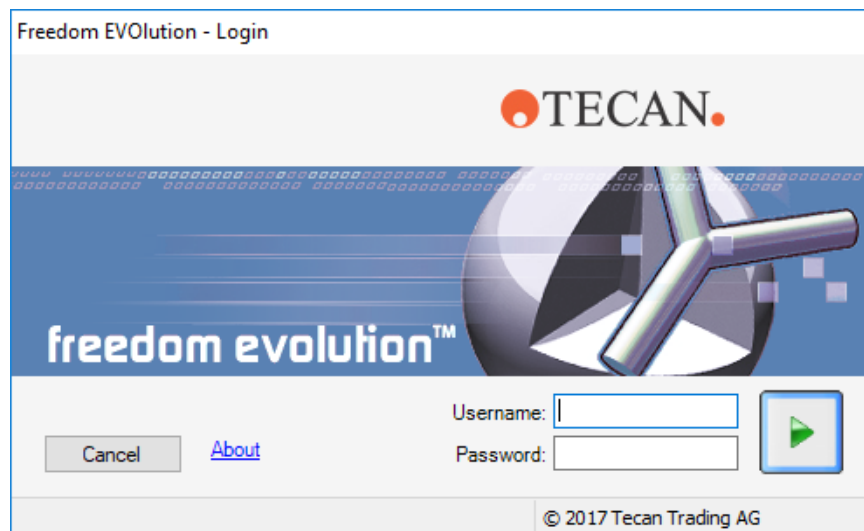
#### 3.1.2 Operating Elements of the Run Control

Button	Button Name	Description
	Next	Saves the settings of the current dialog box and brings you to the next step of the operating procedure. Starts a certain procedure, e.g. an instrument flush.
	Stop	Aborts the operating step currently in progress.
	Main menu	Brings you back to the main menu.
	Add user	Clears fields for user name and full name located on the left-hand in order to add a new user.
	Back	Returns to the <i>Load consumables</i> dialog in case of an error message.

	Cancel/No	Replies with <b>No</b> .
	Commit/Apply/ Done/Yes/OK	Confirms that the required step was carried out successfully. Replies with <b>Yes</b> .
	Exit	Exits the program.
	Missing samples	Displays a list of samples missing on the worktable. The list can be printed.
	Modify	Returns to the <i>Sample work orders</i> dialog.
	Print	Displays the available information and offers the possibility to print it.
	Retry	Retries the current procedure, e.g. reconnect to the instrument.
	Repeat	Repeats the current procedure, e.g. a flushing procedure.
	Save	Saves changes.
	Save barcode	Saves the entered barcode.
	Scan samples	Initiates a sample scan.
	Skip	Skips the currently required maintenance step and proceeds to the next one.
	Strip Frame	Displays the layout of every single strip frame.
	Carrier	Returns to the <i>Load plate</i> view.

	Update	Applies changes.
	View records	Displays the maintenance records.
	View schedule	Displays the current state and course of the run progress.
	View time	Displays time until completion of the run.

### 3.1.3 Login



**Fig. 3-1** Login dialog box

To log in, proceed as follows:

- 1 Type in your user name in the first row.
- 2 Type in your password in the second row.

**Note:** If you log in for the first time, your password is the same as your user name. Ask your administrator, who carried out the software setup, for the user name he created for you.

- 3 Click the **Next** button to log in.  
You will get to the main menu.

### 3.1.3.1 New Password Required

**Note:** If you log in for the first time or if your password has expired (Default setting: After 90 days), the **Login** dialog box will switch into “Change Password mode”.



**Fig. 3-2** Login dialog box

In this case enter the new password in the corresponding field, confirm it and click the **Next** button to log in.

**Note:** The new password must differ from the old one.

In case the entered user name or password was wrong a corresponding error message is displayed.

Confirm the error message with **OK** and retry to log in.

**Note:** If you enter a wrong password three times in a row, you are not able to log in anymore. In this case, contact your administrator for assistance.

To close the Login dialog box of the Freedom EVOLution Run Control and thus to shut down the software program, click the **Cancel** button.

To display the current software version and additional information click the **About** button. The **About** dialog box opens (not shown here). This dialog box supplies the following information:

- ◆ Current program version
- ◆ Manufacturer name
- ◆ Copyright information.

Click the **OK** button to close the dialog box.

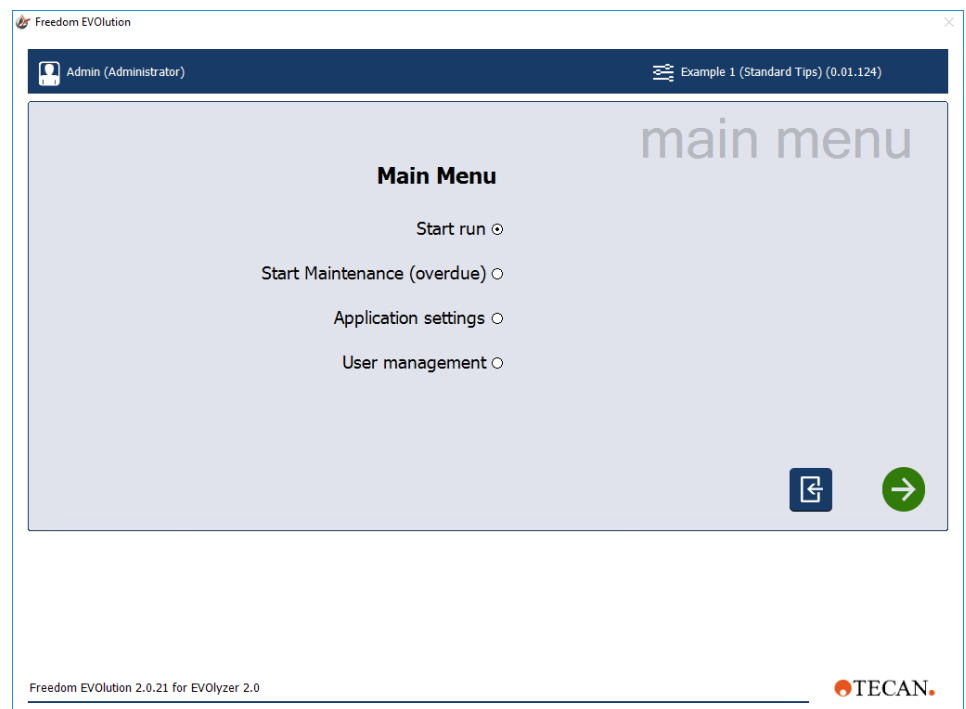


### 3.2 Main Menu

Before the main menu is displayed, the system checks, whether a printer is connected and whether configurations are available on the computer.

If no printer is found, a corresponding message is displayed. Click the **OK** button to confirm the message. You can continue your routine operation but no reports can be printed out.

If no configuration is found on the computer, a corresponding message is displayed. Confirm the message by clicking the **OK** button. The Freedom EVOLution Run Control is closed.



**Fig. 3-3** Main menu dialog box

The main menu enables access to four submenus in which you can carry out the following tasks:

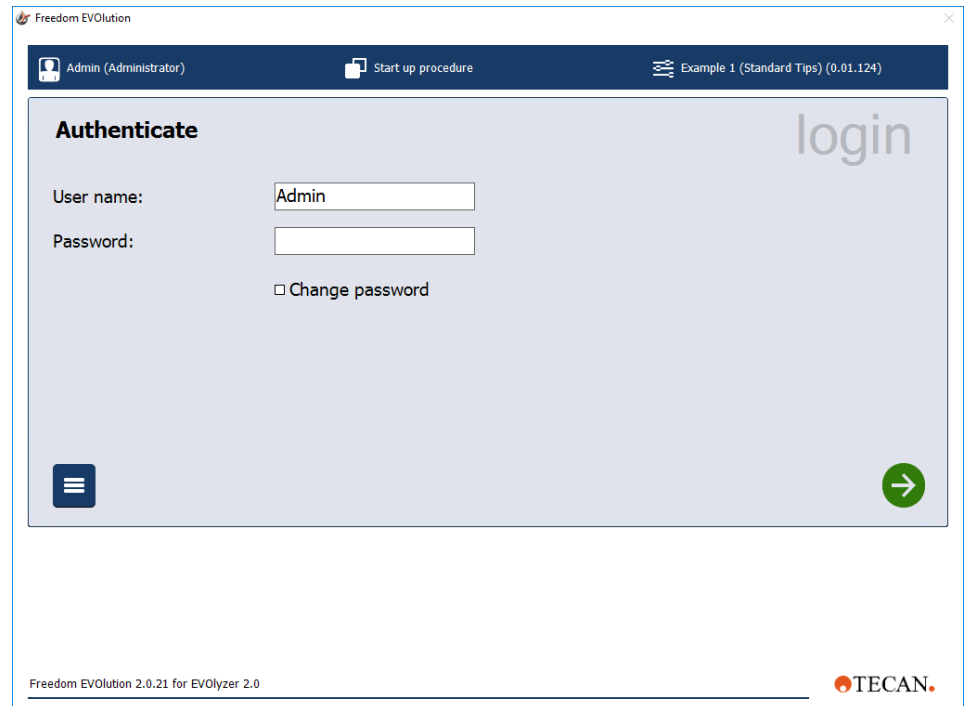
Submenu	Action	Reference
<b>Start Run</b>	To start runs (for operators, application specialists and administrators)	See section <a href="#">4.1</a> , <a href="#">4-1</a>
<b>Maintenance</b>	To carry out the daily and weekly maintenance and print out maintenance reports (for operators, application specialists and administrators). If “(overdue)” is indicated behind the submenu, at least one maintenance task of one of the maintenance sequences is overdue.	See section <a href="#">5.1</a> , <a href="#">5-1</a>
<b>Application Settings</b>	To set up the application settings (for application specialists and administrators)	See section <a href="#">4.2</a> , <a href="#">4-31</a>
<b>User Management</b>	To add users and define their access rights (for administrators only)	See section <a href="#">4.3</a> , <a href="#">4-37</a>

- ◆ Activate the corresponding option button and click the **Next** button to get to the desired submenu.
- ◆ To close the program click the **Exit** button.

### 3.2.1 Safety Concept

The Freedom EVOLution Run Control is operated according to a safety concept in conformity with regulatory requirements.

This concept provides an authentication prior to each task accessible from the main menu. As soon as you have selected a submenu from the main menu and click the **Next** button, the **Authenticate** dialog box opens:



**Fig. 3-4** Authenticate dialog box

To authenticate, proceed as follows:

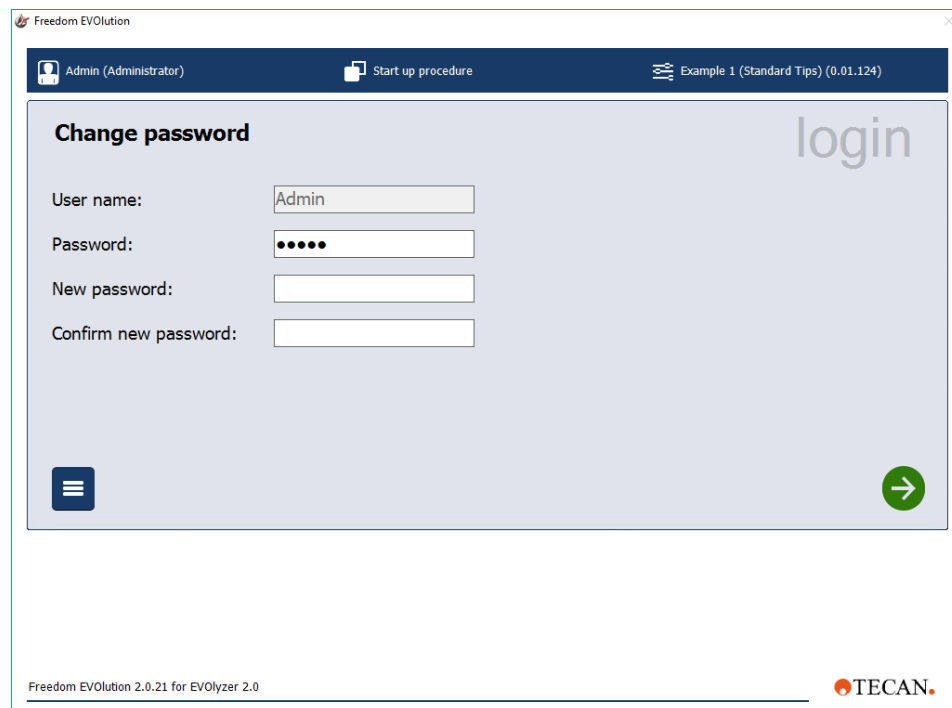
- 1 Type in your user name in the first row
- 2 Type in your password in the second row
- 3 Click the **Next** button.

*You will get to the desired submenu of the main menu.*

To get back to the main menu click **Main menu**.

### 3.2.1.1 Changing Password

To change your password, activate the check box **Change password** and click the **Next** button. The **Change password** dialog box appears:



**Fig. 3-5** Change password dialog box

To change the password, proceed as follows:

- 1 Type in your user name in the first row.
- 2 Type in your current password in the second row.
- 3 Type in your new password in the third row.

**Note:** The password must consist of at least 5 and not more than 32 alphanumeric or numerical characters.

- 4 Confirm your new password in the fourth row.
- 5 Click the **Next** button.

You will get to the desired submenu of the main menu.

To get back to the main menu click **Main menu**.

### 3.3 Setting Language

The Freedom EVOLution Run Control supports several user languages. The language is defined during the specific language setup.

If you would like to change the language setting later on without installing the software new, proceed as follows:

- 1 Direct the mouse cursor to Freedom EVOLution Software via **Start>Programs>**[Path] but do not open the file.
- 2 Call up the context menu (e.g. with right mouse button).
- 3 Click on **Properties**.
- 4 In the **Target** command line, enter the two-character language code of the language group according to ISO 639 (e.g. en for English), followed by the code of the language subgroup (e.g. EN) as shown in the example. Note that the second language code must be entered in capital letters.

```
"***.exe" "en-EN"
```

**Note:** In the above example “en” represents the language group, whereas “EN” represents the required country-specific language, i.e. the required type of English (British, American, South African English etc.).

- If the language is supported, Run Control will change to that language when the software is started.
- Otherwise, the software will switch to the default English language.

The following table gives examples for the language codes:

**Tab. 3-2** Examples for language codes

ISO 639 Code	Subgroup (e.g. dialect) <sup>a)</sup>	Represented language
en	EN	English, Great Britain
de	DE	German, Germany
fr	FR	French, France
it	IT	Italian, Italy
es	ES	Spanish, Spain
pt	PT	Portuguese, Portugal
sv	SE	Swedish, Sweden
ru	RU	Russian, Russia
zh	CN	Chinese, China
nb	NO	Norwegian, Norway

a) Microsoft standard for Culture Name, also see Language ReadMe file

## **3.4 Exiting Freedom EVOLution SW**

Click on the red cross in the upper right edge of the startup wizard or on the **Cancel** button.

## 4 Running a Process

**Purpose of This Chapter**

This chapter describes the preparatory steps before a process run and how to run the process in the corresponding work mode.

### 4.1 Start Run

If you have selected start run and a maintenance task is overdue, the following dialog box will open:



**Fig. 4-1** Maintenance overdue warning dialog box

The dialog box shows you a warning message, that you are trying to start a run while at least one maintenance task is overdue.

If you click the **No** button you will get back to the main menu from which you can access your overdue maintenance task (see section 3.2 “Main Menu”, 3-5).

If you click the **Yes** button you will get to the **Select configuration** dialog boxes, i.e. proceed with the preparation for a new run without carrying out maintenance. The results of this run will therefore be flagged with a warning indicator.

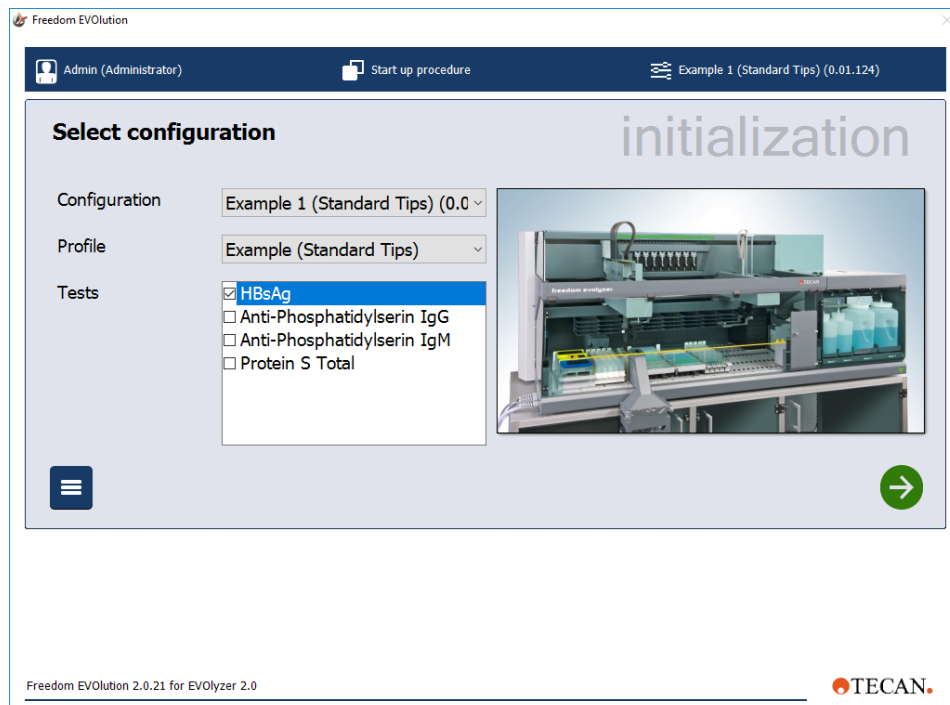


Fig. 4-2 Select configuration dialog box

**Note:** EVOLution 2.0 has no Sample Splitting selection.

- 1 Click on the arrow next to the drop-down list **Configuration** and highlight the desired item to select the configuration you want to work with.
  - 2 Select the desired profile from the drop-down list **Profile**.  
*The list in the field **Tests** shows all associated tests in the current profile within the selected configuration.*  
*Refer to the Freedom EVOLution SW Application Software Manual.*
  - 3 If you have selected the work mode “Batch” on the **Main Settings** tab of the **Application Settings** menu, or when working in the Load and Go mode for Sample Splitting, you can select which tests of the configuration should be carried out for each sample by activating the check box in front of the test/workgroups name.  
*For further information refer to: 4.1.5 “Sequence and Work Modes”, 4-7*
  - 4 Click the **Next** button.  
*You will get to the loading dialog boxes.*
- To get back to the main menu click **Main menu**.

**Note:** In case you have selected a configuration, which has not been signed, yet, a corresponding message will be displayed by the software. To confirm this message, click the **OK** button. The data resulting from the run carried out with an unsigned configuration are flagged.

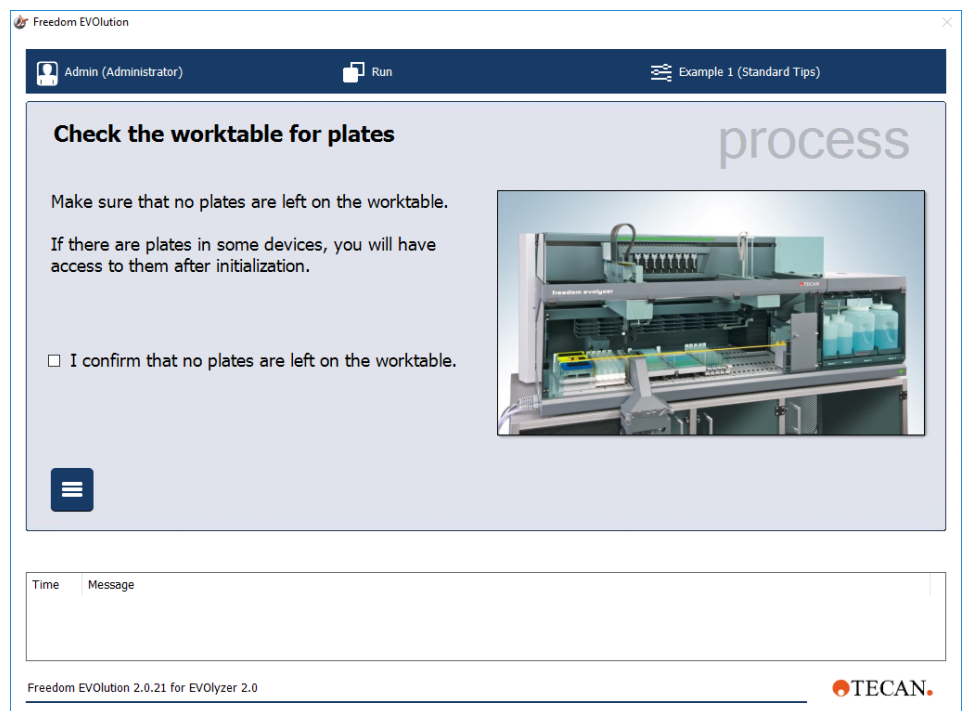
**Note:** In case you are working with worklists and no worklist can be found on the computer, a corresponding message is displayed. Confirm this message by clicking the **OK** button.



**Note:** When the software cannot connect to the instrument, a corresponding error message is displayed. Try to fix the problem by checking the instrument status and the cable connections and then click the **Retry** button or click the **Cancel** button to get back to the main menu.

### 4.1.1 Initializing

In the following sequence the instrument will be initialized. The initialization process is visualized by means of different dialog boxes. Each dialog box displays the instrument part currently initialized and indicates the initialization status by means of a progress bar. When an instrument part was initialized successfully, the program automatically switches to the next dialog box. At the beginning of the sequence you are prompted to remove all non-required components from the worktable.



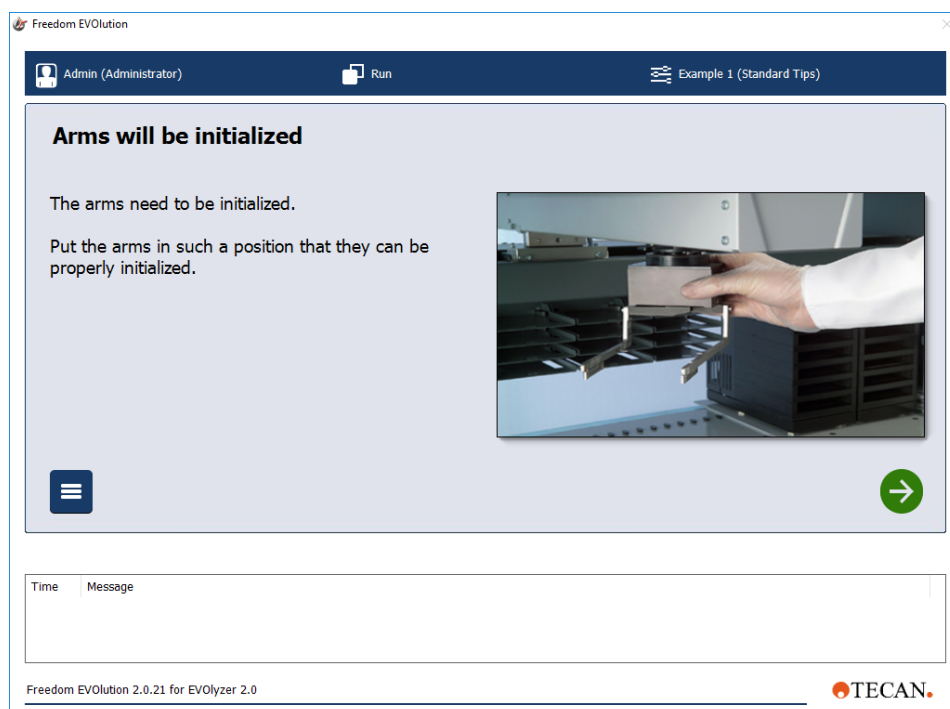
**Fig. 4-3** Check the worktable for plates dialog box

When you have performed this task tick the check box to confirm and click the **Next** button to proceed.

First, the arm(s) will be initialized and the following dialog box appears:

**Note:** If the arm is already initialized and in its correct position this dialog box does not appear, i.e. this step is omitted.

**EVolyzer  
Platform Only**



**Fig. 4-4** Arms will be initialized dialog box

Move the arm(s) to the center of the instrument, so that they can be properly initialized and click the **Next** button to proceed.

In case an error occurs during initialization, a corresponding error message with problem description and recovery is displayed.

**Note:** For more information on the error message refer to the tables in chapter 7 “Error Handling”, [7-1](#).

Try to fix the problem at the instrument and select an option from the option box by activating the corresponding check box. Then click the **Next** button to proceed as selected.

#### 4.1.2 Customized Startup Steps

**Note:** If you have defined one or several customized startup steps in the corresponding configurator, they will be carried out after the instrument initialization (for more details on the usage and creation of customized startup steps, please refer to the Freedom EVolution SW Application Software Manual).

When you have finished with your customized startup step(s), click the **Next** button to proceed.

**4.1.3 Checking for Plates**

**EVolyzer  
Platform Only**

You are prompted to remove the plate(s) from the device(s) (e.g. Sunrise reader).

**Note:** This dialog box only appears if such a device is installed on the instrument.

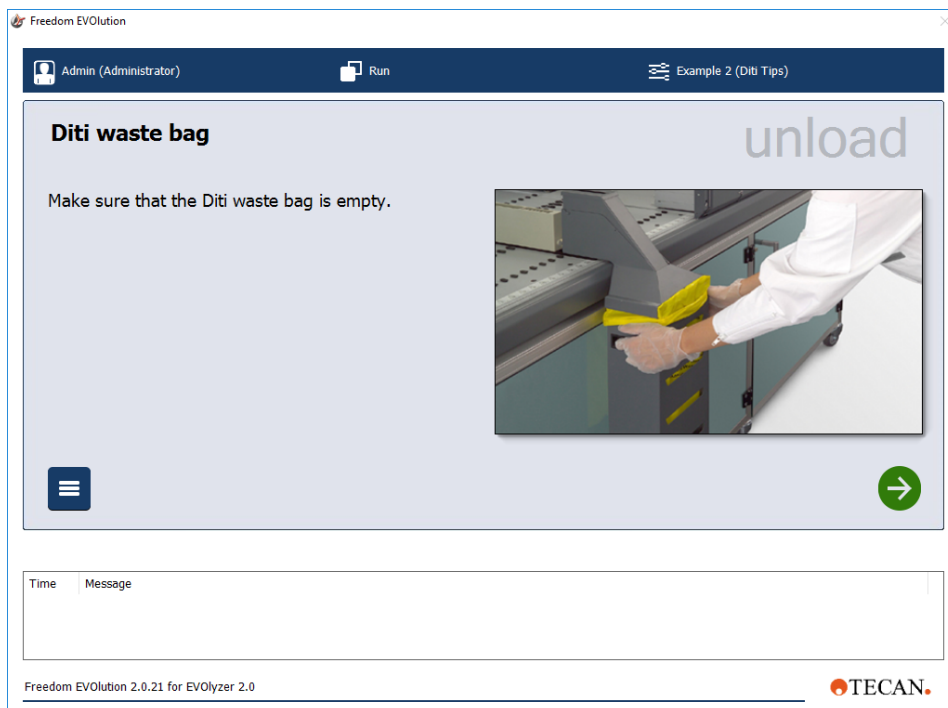


**Fig. 4-5** Check device for plates dialog box

When you have performed this task tick the check box to confirm and click the **Next** button to proceed.

### 4.1.4 Checking DiTis

If you are operating with DiTis, you are now prompted to check the DiTi waste bag.



**Fig. 4-6** DiTi waste bag dialog box

When the DiTi waste bag is empty, click the **Next** button to proceed. You are now prompted to load the consumables needed for the test in your selected configuration on the worktable. The status lamp of the instrument is flashing green. To abort the preparation of the run and get back to the main menu, click **Main menu**.



#### WARNING

Pipetting tips can cause injuries.

- ♦ Avoid contact with the pipetting tips and contact with aerosols when accessing the worktable, by wearing adequate protective clothing.

## 4.1.5 Sequence and Work Modes

### Standard Work Mode

- ◆ Worklist (or ASTM):
  - If the work mode in the tab **Main Settings** in the **Application Settings** is set to worklist mode, the operator can check and/or update the worklist before processing. A worklist file must be present in the folder “Worklist”. The selection of the tests in the **Select Configuration** panel is not possible, because the assignments are defined in the worklist.
- ◆ Batch:
  - If the work mode in the tab **Main Settings** in the **Application Settings** is set to batch mode, the operator needs to select which tests of the configuration must be carried out for each sample. The operator can check and/or update the work order before processing.

### Loading mode<sup>1)</sup>

- ◆ Normal Loading:
  - The operator is enabled to load the consumables or plates during the initial load procedure.
- ◆ Shopping List Loading:
  - The system performs the loading procedure. The operator needs to load all items displayed in the loading panels.

### Sample Splitting Work Mode<sup>1)</sup>

- ◆ Load and Go
  - The operator loads the sample sections and workgroups, samples as well as secondary tubes. The system automatically scans the worktable for the operator to edit the work orders in the samples work order panel.

**Note:** When the Load and Go mode has been selected, the system operates in batch mode disabling all other work mode functions.

- ◆ Scan and Load
  - The system scans the samples. The operator is asked to assign the workgroups to the samples. The software provides a file with the barcode list to be used with an external barcode printing software. The operator applies the labelled secondary tubes onto the workgroups.

**Note:** When the Scan and Load mode has been selected, the system operates in worklist mode disabling all other work mode functions.

### Order of Dialog Boxes

**Note:** The different modes result in the dialog boxes, particularly the flush, scanning, load consumables, load wash buffers and load plates dialog boxes, being displayed in different order, depending on the selected work and loading mode. The general steps, however, are identical.

Example for a Shopping List Loading (order may change):

- 1 Load samples
- 2 Scanning

<sup>1)</sup> This setting is made by the application specialist in the Application Settings Control

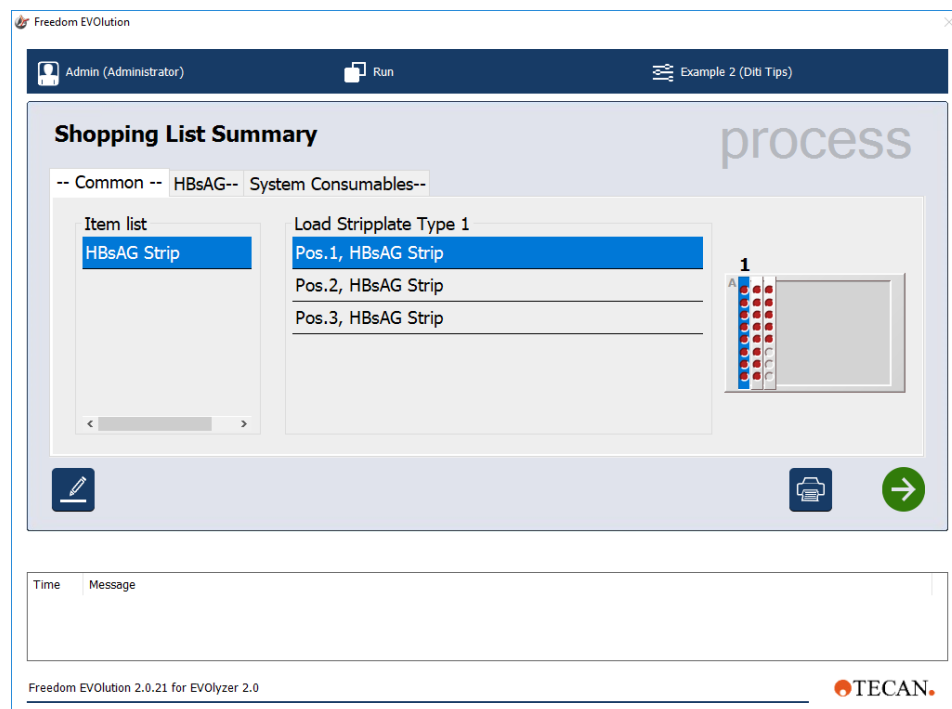
- 3 Sample work orders
- 4 Shopping list summary
- 5 Load wash buffers<sup>1)</sup>
- 6 If specified in the reader method: Enter assay-specific variables<sup>1)</sup>
- 7 Load consumables
- 8 Flushing liquid system and prime washer<sup>1)</sup>
- 9 Load plates

The following dialog boxes prompt you to load the corresponding consumables onto the worktable and to select the required items:

- ◆ Shopping List Summary (Shopping List Loading only)
- ◆ Plates
- ◆ Wash buffers<sup>1)</sup>
- ◆ Consumables
- ◆ Waste and system liquid

Always follow the instructions provided on the screen. For more information refer to the explanations given after the subsequent sequence of dialog boxes.

This dialog box is only displayed in Shopping List Loading mode and lists the consumables that are needed for the test.



**Fig. 4-7** Shopping List Summary dialog box

**Note:** Item list: Black text refers to items that need to be loaded immediately (Initial loading); red text refers to items that will be requested later (during the run).

1) EVOlyzer platform only

To print the shopping list, click the **Print** button.

The appearing print preview is similar to the one in Fig. 4-15 “Print preview of Consumable Report”, 4-16.

To return to the sample work orders dialog, click the **Modify** button.

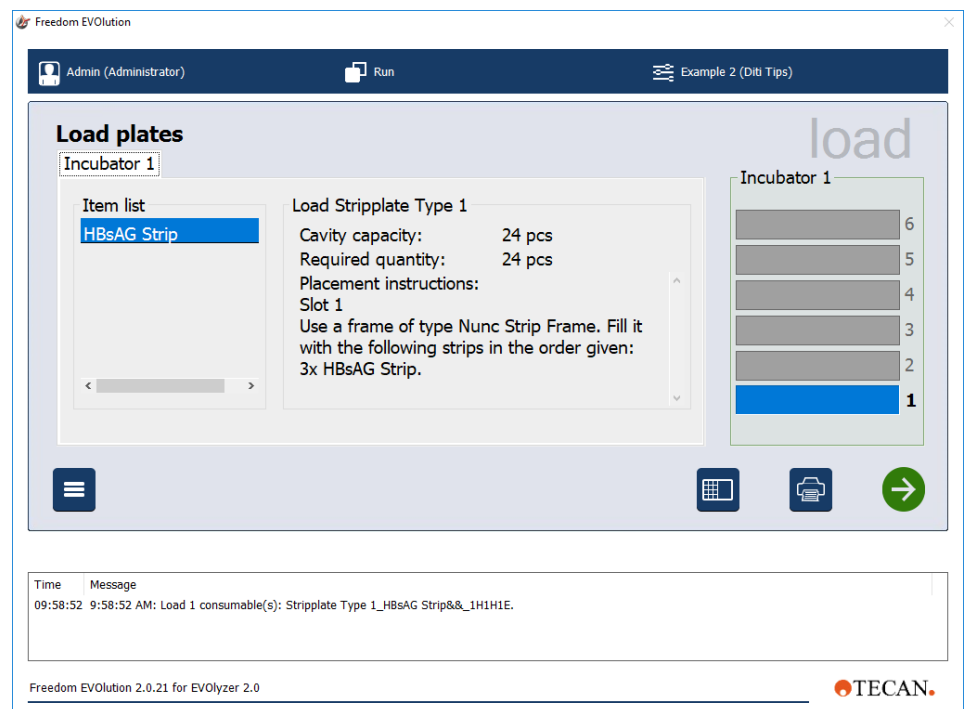
Click the **Next** button to proceed.

### 4.1.6 Loading Plates

**EVOLyzer  
Platform Only**

The dialog box below prompts you to load the plates. For more information see later in this section.

**Note:** A graphical presentation of the consumable facilitates its identification. Click on the list item to highlight the corresponding graphical presentation. When you click on the presentation, the list item will be highlighted.



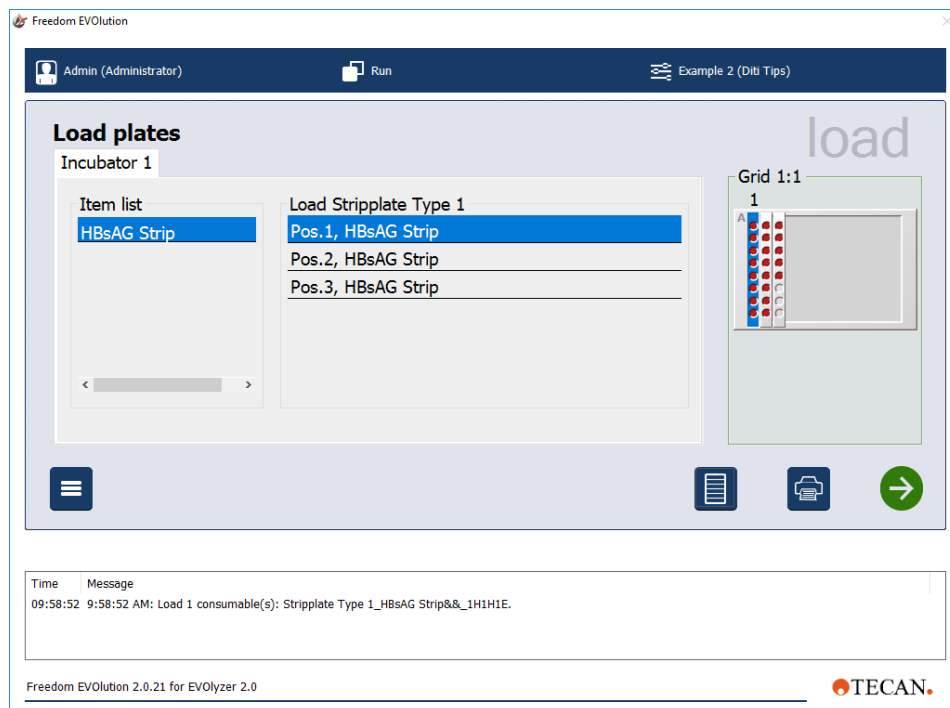
**Fig. 4-8** Load plates dialog box

**Note:** The barcode ID entry field and the **Update** button (to apply the barcode ID entry) are only enabled if the Edit Barcode mode is enabled.<sup>1)</sup>

Click **Strip Frame** to view the layout of every single strip frame.

Click the **Next** button to proceed.

1) This setting is made by the application specialist in the Application Settings Control



**Fig. 4-9** Load strip frames dialog box

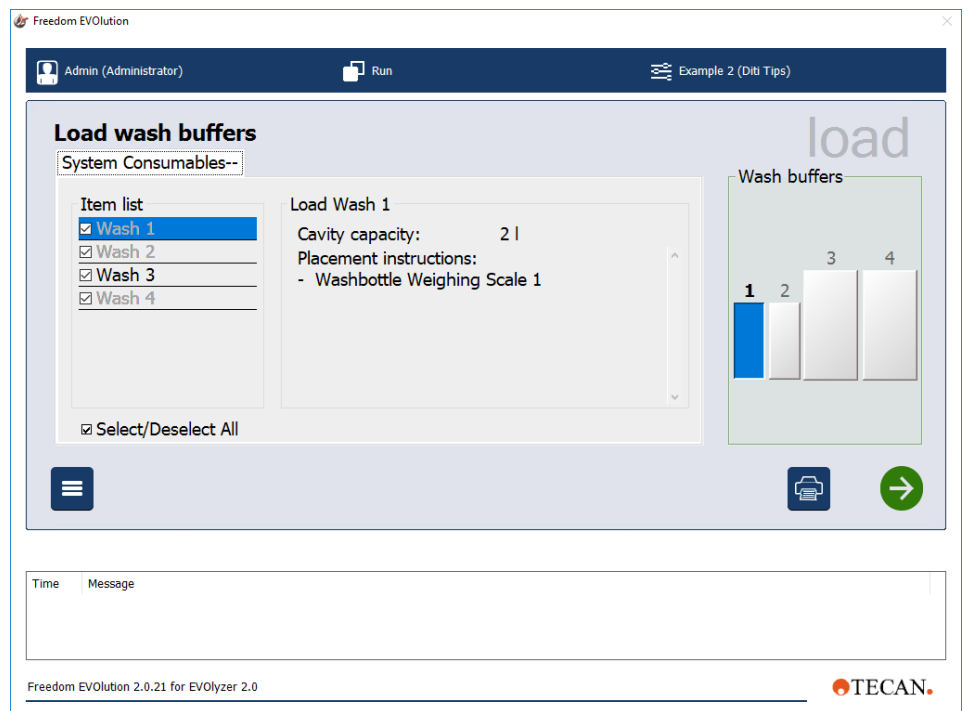


### 4.1.7 Loading Wash Buffers

**EVolyzer  
Platform Only**

Next, you are prompted to load the wash buffers. For more information see later in this section.

**Note:** A graphical presentation of the consumable facilitates its identification. Click on the list item to highlight the corresponding graphical presentation. When you click on the presentation, the list item will be highlighted.



**Fig. 4-10** Load wash buffers dialog box

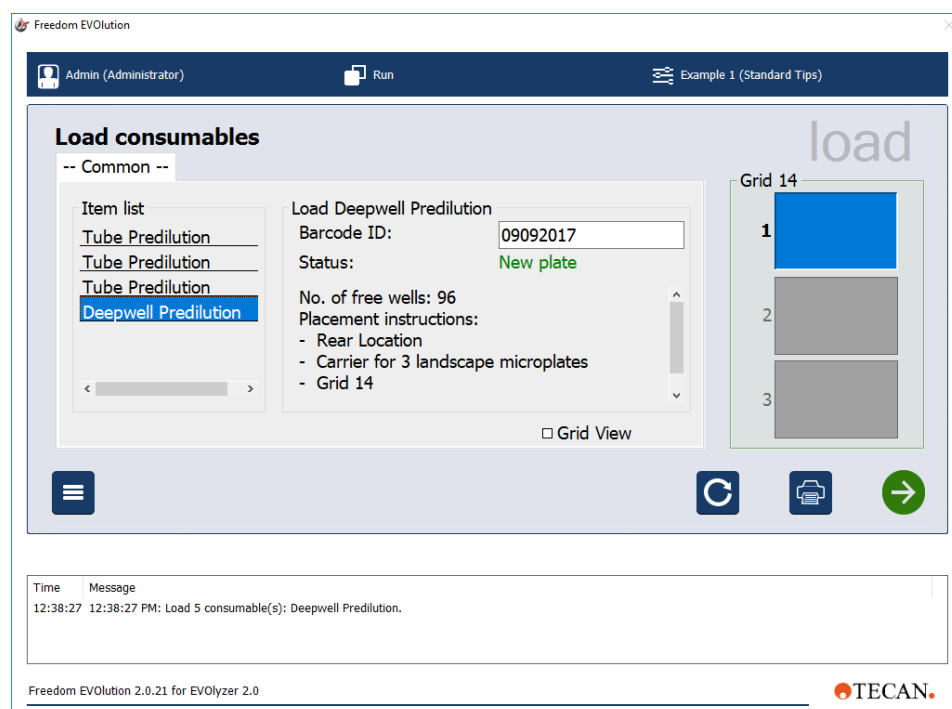
Click the **Next** button to proceed.

### 4.1.8 Loading Consumables

Next you are prompted to load the consumables. For more information see later in this section.

**Note:** A graphical presentation of the consumable facilitates its identification. Click on the list item to highlight the corresponding graphical presentation. When you click on the presentation, the list item will be highlighted.

#### Loading Microplates



**Fig. 4-11** Load consumables dialog box: Load microplates

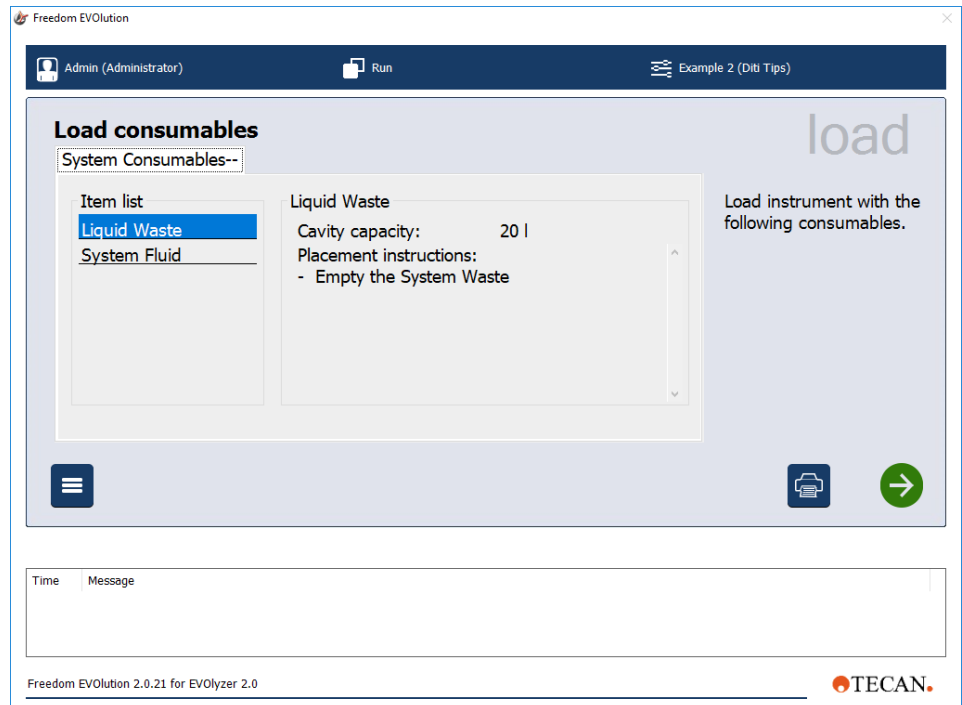
**Note:** The **Barcode ID** entry field and the **Update** button (to apply the barcode ID entry) are only enabled if the **Edit Barcode mode** is enabled<sup>1)</sup>.

Click the **Next** button to proceed.

After you have made the required entries you are prompted to load the waste liquid container and the system liquid container. For more information see later in this section.

1) This setting is made by the application specialist in the Application Settings Control

**Loading Liquid Containers**



**Fig. 4-12** Load consumables dialog box: Load waste and system liquid containers

Click the **Next** button to proceed.

**Loading Reagents and Controls**

When you are prompted to load reagents and controls, the corresponding dialog box appears, depending on the setting of **Volume Pre Checking** (enabled/disabled).

**Note:** When **Volume Pre Checking** is enabled, the instrument checks the currently available volume of the consumables on the worktable. The system compares the available quantity with the required quantity. If the available quantity is insufficient the user is requested to refill the consumable.

This option is set in the “Consumables Data Editor”.

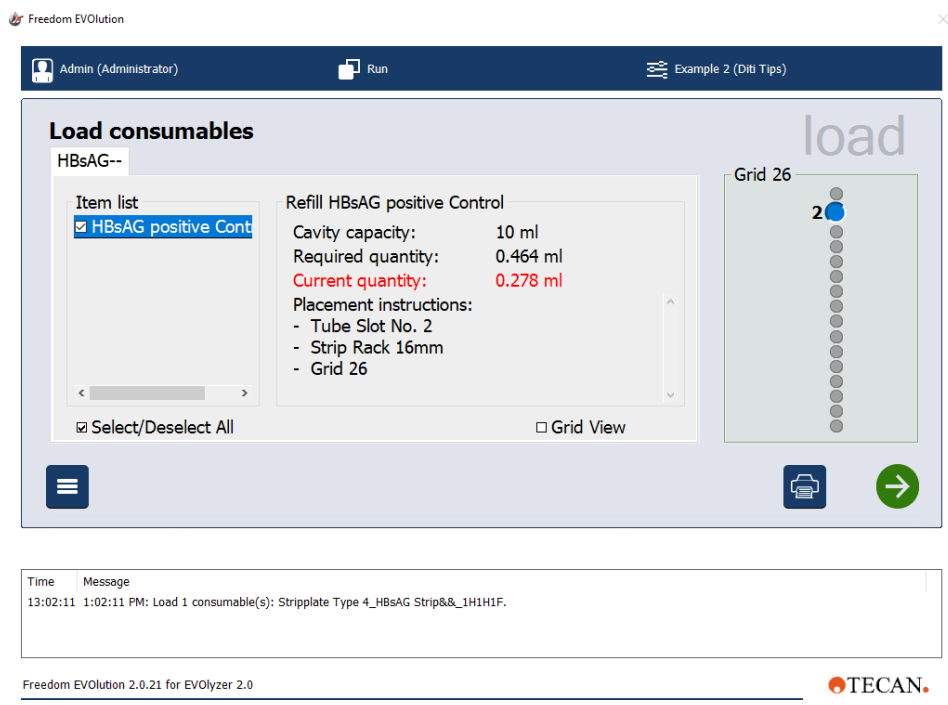
**Shopping List Mode**

The **Shopping List Mode** provides the activation of optional consumables during **initial load** if enabled<sup>1)</sup>.

The following options are available:

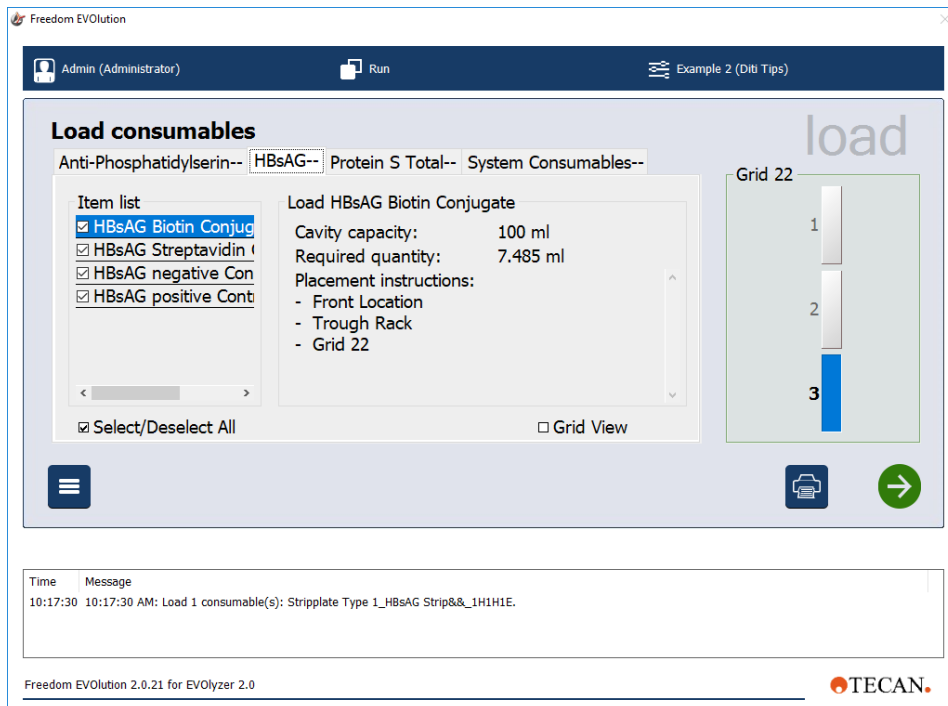
- ◆ Initially select optional consumables
- ◆ Perform volume check for optionally loaded consumables during initial load

1) This setting is made by the application specialist in the Application Settings Control



**Fig. 4-13** Load consumables dialog box:  
Load reagents and controls (with volume pre checking)

If **Volume Pre Checking** is disabled the dialog box appears as follows:



**Fig. 4-14** Load consumables dialog box:  
Load reagents and controls (without volume pre checking)

Click the **Next** button to proceed.

### Explanations

The tabs **Common** or **Typical reagent** contain an **Item list** that shows the consumables to select or deselect.

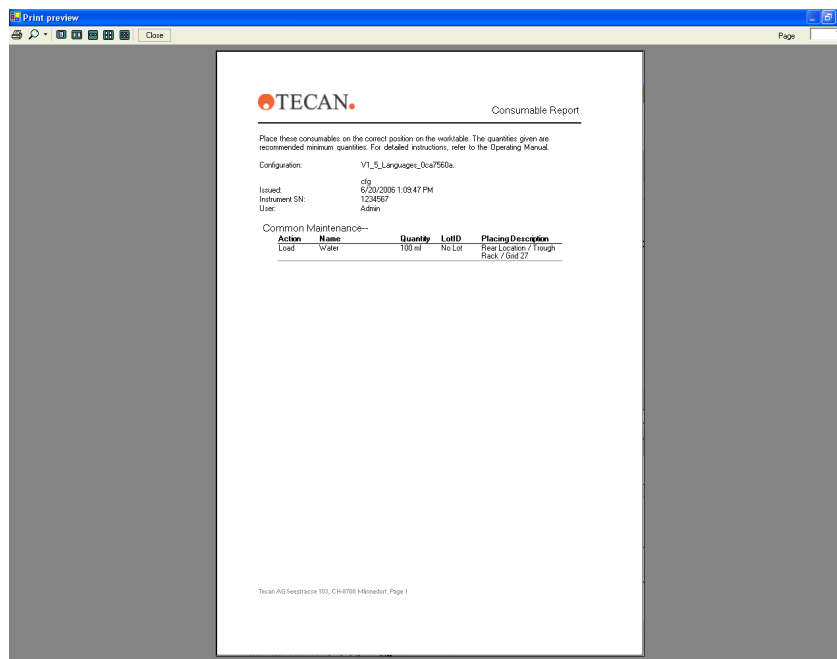
- ◆ Select the required item(s) from the list
- ◆ Items that are not needed for a test can be deselected by clearing the corresponding check box(es).
- ◆ You can also select/deselect all items in the list by selecting or clearing the check box **Select/Deselect All** below the list.

**Note:** *If you deselect an item, although it is needed during the run, a reload procedure has to be carried out for that item.*

- ◆ If you highlight an item in the list, additional information on that item is provided on the right side of the screen.
- ◆ When you have loaded all consumables necessary for your run on the worktable, click the **Next** button to proceed.
- ◆ To abort the run preparation and get back to the main menu, click **Main menu**.

To print a list of the consumables with their corresponding specifications, click **Print** in the corresponding dialog box.

The figure shows an example for a print preview as it may appear:



**Fig. 4-15** Print preview of Consumable Report

### 4.1.9 Scanning

The instrument now starts to scan the items on the worktable.

In the corresponding dialog box, the scanning status is indicated by means of a progress bar.

In case an error occurs during scanning, a corresponding error dialog box is displayed, indicating the expected and the actual situation.

For reagents and plates the error handling corresponds to the procedure "Scanning of Samples" (see section 4.1.13, 4-19).

**Note:** For more information on the error message refer to the tables in chapter 7 "Error Handling", 7-1.

The signal lamp and the LED on the loading interface at the corresponding grid position are flashing red. Try to fix the problem at the instrument by accessing the grid position with the flashing LED (indicated in the item list).

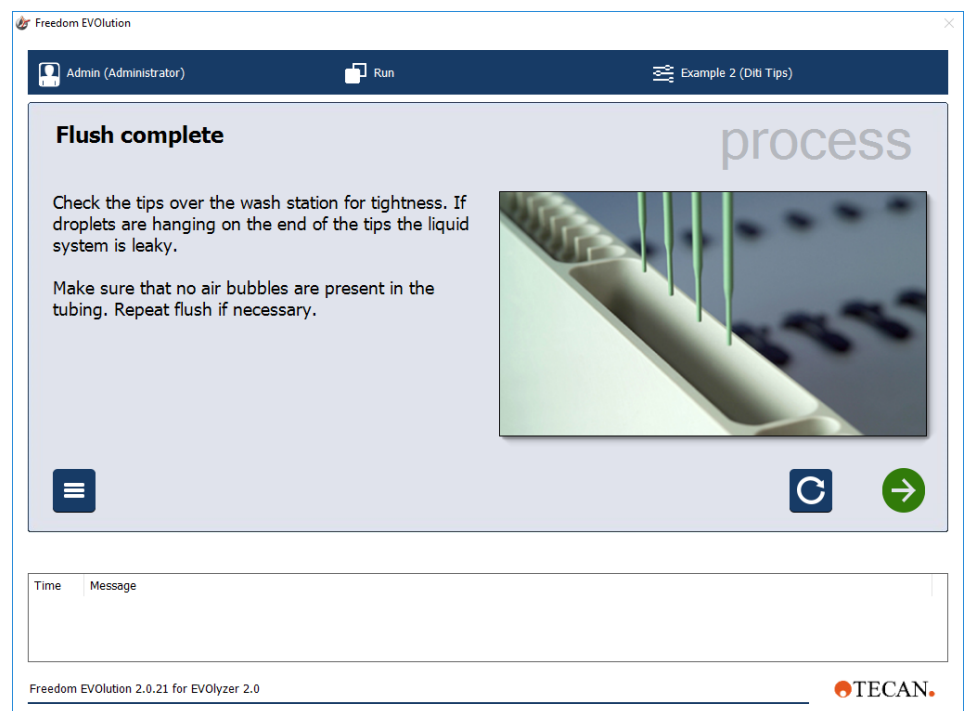
Then click the **Next** button to proceed and repeat the scanning procedure or click **Cancel** to abort the run preparation.

### 4.1.10 Flushing

After the scanning procedure is finished successfully, the instrument starts flushing the liquid system.

In the corresponding dialog box, the flushing status is indicated by means of a progress bar.

When the flush is completed, the corresponding dialog box is displayed:



**Fig. 4-16** Flushing completed dialog box

You are now prompted to check the tubing for bubbles. If there are still bubbles present in the tubing, click **Repeat** to repeat the flushing process.

When the tubing is free of bubbles, click the **Next** button to continue.

### 4.1.11 Heating

**EVOlyzer  
Platform Only**

Now the heated incubators are heated to their operating temperature. The expected completion time is displayed in the corresponding dialog box.

### 4.1.12 Loading Samples



#### WARNING

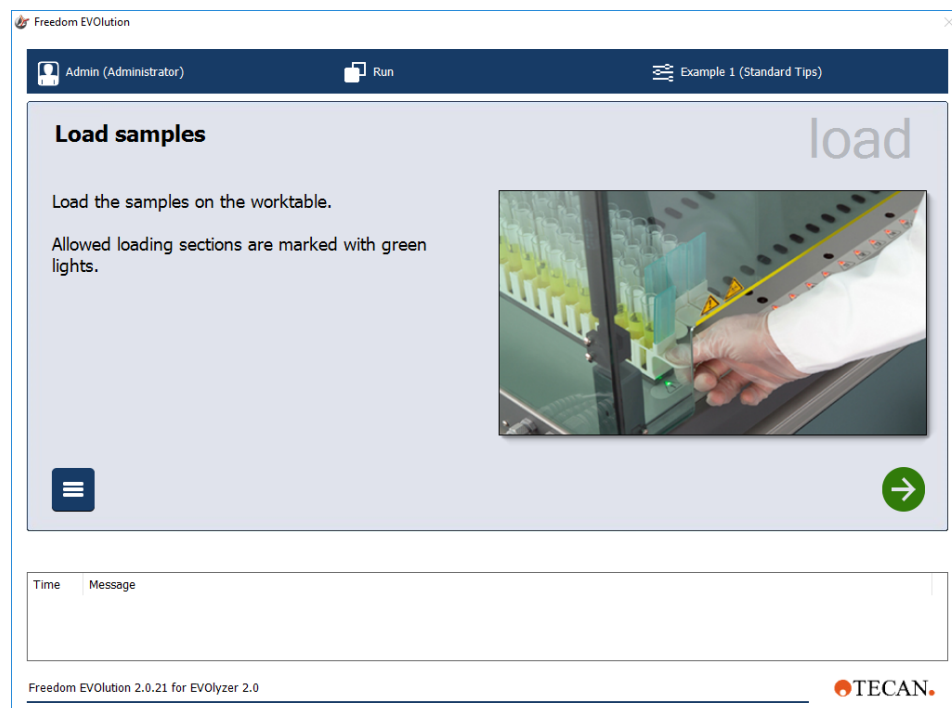
Pipetting tips can cause injuries.

- ♦ Avoid contact with the pipetting tips and contact with aerosols when accessing the worktable, by wearing adequate protective clothing.



#### ATTENTION

Loading samples before system is initialized may cause collision with tips.



**Fig. 4-17** Load samples dialog box

**Note:** The sections available for samples are indicated with a green LED at the corresponding grid position on the loading interface.

When you have loaded all consumables necessary for your process on the worktable, click the **Next** button to proceed.



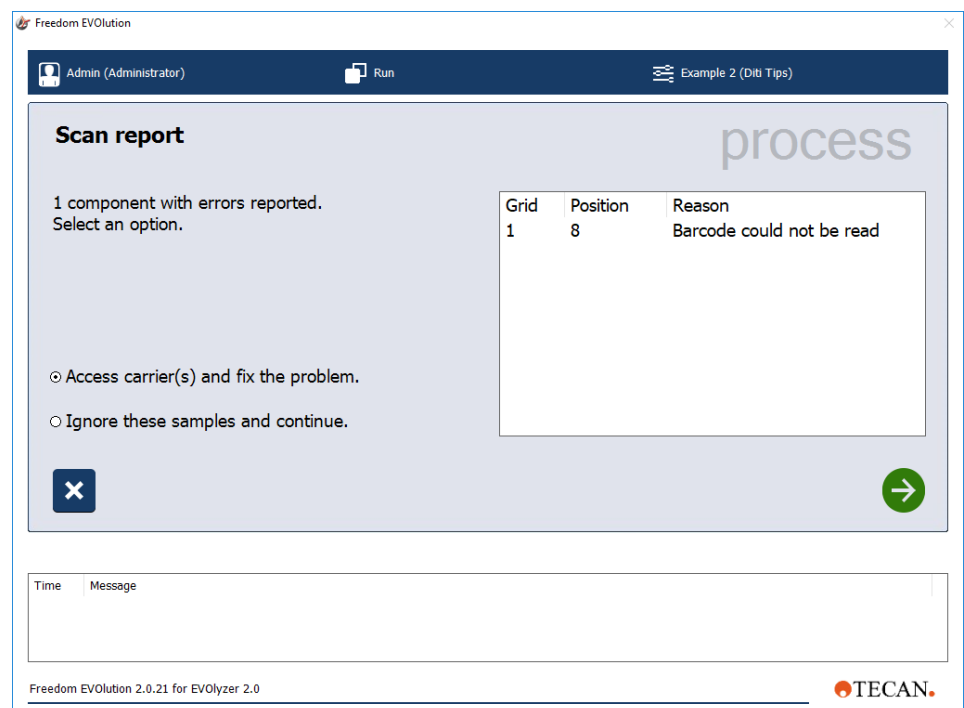
### 4.1.13 Scanning the Samples

The samples will now be scanned.

To abort the run preparation and get back to the main menu, click **Main menu**.

**Note:** The user is responsible for the correct worktable layout as defined in the software, i.e. the defined racks with the correct sample assignment must be present on the worktable.

In case an error occurs during scanning, a corresponding error message is displayed, indicating the grid position, the position in the rack and the reason for the error.



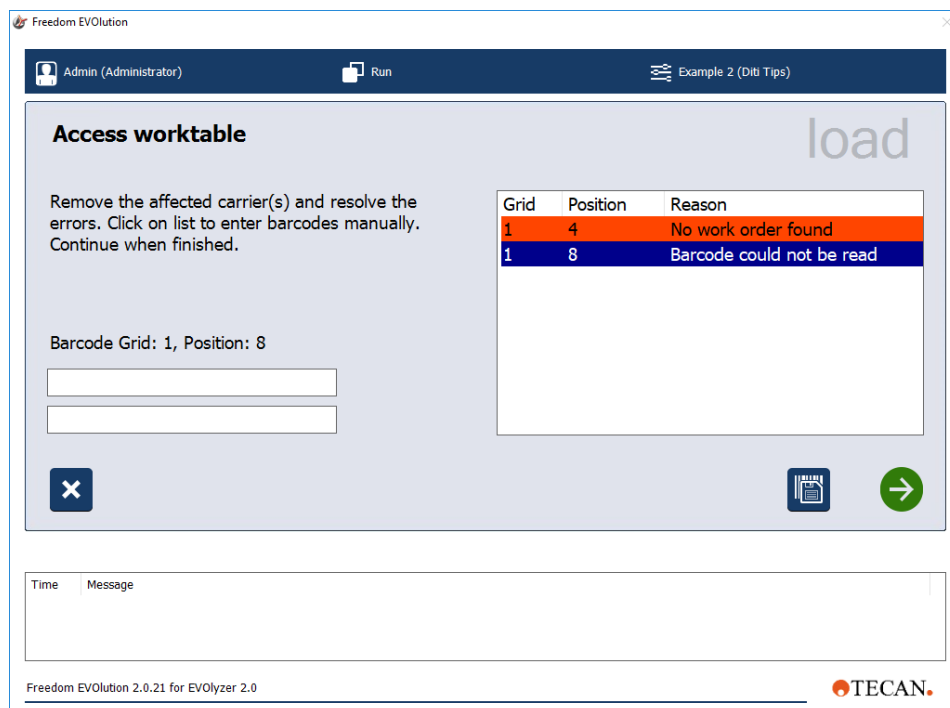
**Fig. 4-18** Scan report dialog box

Now you can select one of two possibilities to continue by activating the corresponding option button.

- ◆ **Access carrier(s) and fix the problem:** When this option button is activated and you click the **Next** button, the status lamp starts flashing red, the acoustic alarm sounds and the **Access worktable** dialog box is displayed (see [Fig. 4-19](#), [Fig. 4-20](#)).
- ◆ **Ignore these samples and continue:** When this option button is activated and you click the **Next** button, the run preparation will be continued and the samples affected by the error will be ignored.

To get back to the **Scan report** dialog box, click the **Cancel** button.

### 4.1.13.1 Access Worktable



**Fig. 4-19** Access worktable dialog box

To fix the problem, access the worktable and proceed as indicated on the **Access worktable** dialog box.

**Note:** You only have a certain time slot to access the worktable. Afterwards the PosID will repeat the scanning procedure.

As soon as you click on one of the lines in the table on the right, the entry fields on the left and the **Save barcode** button become active.

Now proceed as follows:

- 1 Enter the barcode value for the line you clicked on in the upper field.
- 2 Optional: Confirm it in the lower field (depending on the settings of the barcode entry options)<sup>1)</sup>.
- 3 Click **Save barcode**.
- 4 Proceed like this for all barcodes in the table.
- 5 When you have finished, click the **Next** button.

1) This setting is made by the application specialist in the Application Settings Control

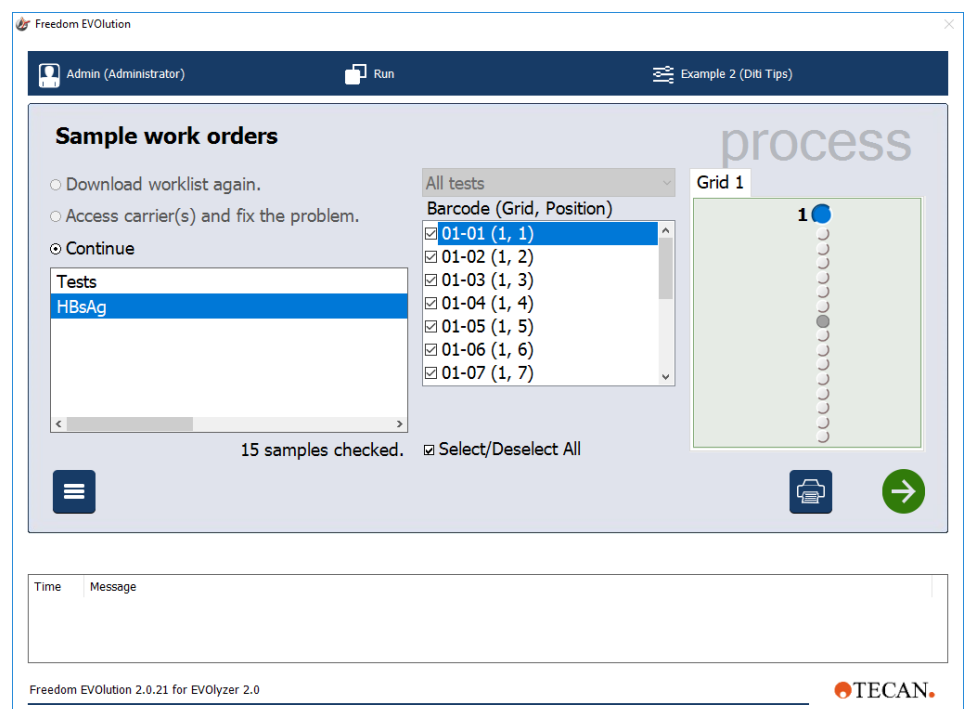
#### 4.1.14 Work Order Assignment

After the samples have been scanned, you can make changes to the work order assignments.

Work mode views can be changed in the **Workmode view** drop down list Fig. 4-20, Fig. 4-21, Fig. 4-22.

##### Standard Work Mode View

If the system is operating in worklist or ASTM mode, the user can edit the requests for each sample. If it is operating in batch mode the user can assign all previously selected tests to all samples.



**Fig. 4-20** Sample workorders dialog box, Standard

All samples found are listed with their grid position, their position on the carrier and their barcode in the area on the right. By using the **Filter** function, you can assign the samples to the corresponding test(s) by marking a line with the sample ID and selecting the check box of the test.

The samples for which an assignment was modified are marked red.

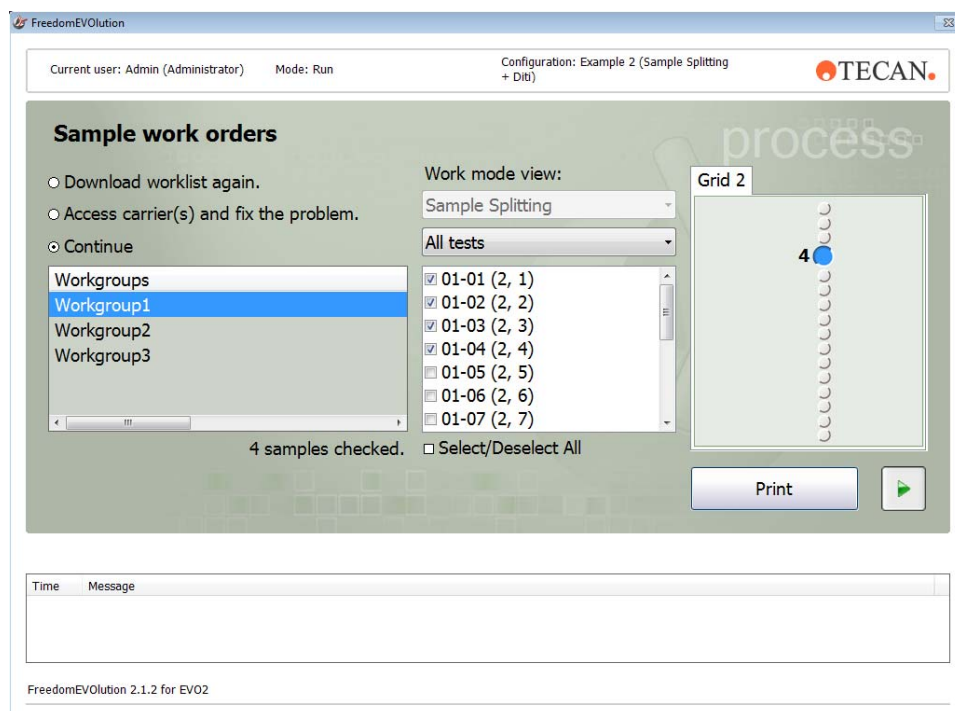
- ◆ Click the **Update** button (only visible if changes are made) to accept the changes.
- ◆ Click the **Next** button to proceed with the selected option.

**Note:** If dilution factors are selected, the factors are displayed (value in brackets after the test name).

For details on dilution factors refer to the Freedom EVOlution SW Application Software Manual.

### Sample Splitting Work Mode View

If the system is operating in Scan and Load mode, the user can edit the requests for each sample. If it is operating in Load and Go mode the user can assign all previously selected workgroup to all samples.



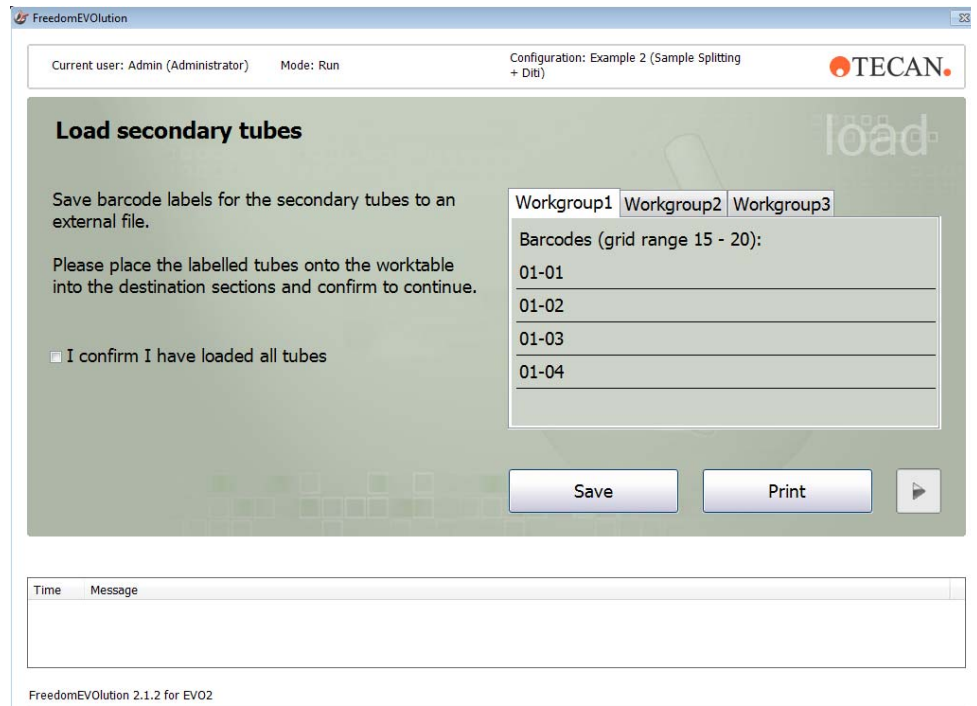
**Fig. 4-21** Sample workorders dialog box, Sample Splitting

All samples found are listed with their grid position, their position on the carrier and their barcode in the area on the right. By using the **Filter** function, you can assign the samples to the corresponding workgroup(s) by marking a line with the sample ID and selecting the check box of the test.

The samples for which an assignment was modified are marked red.

- ◆ Click the **Update** button (only visible if changes are made) to accept the changes.
- ◆ Click the **Next** button to proceed with the selected option.

**Note:** The screen **Load secondary tubes** is only displayed in the **Scan and Load** mode [Fig. 4-22](#), [Fig. 4-23](#).



**Fig. 4-22** Load Secondary Tubes dialog box

**Print button**

Print preview and print

**Save button**

Freedom EVOlution SW compiles several files format (csv, txt, csd) of which barcodes can be printed with a third party software such as CodeSoft etc.

The storage location and file format to generate reports and barcodes have to be defined in the Application Settings Control.



**ATTENTION**

Risk of malfunctions. Not loaded tubes will lead to malfunctions.

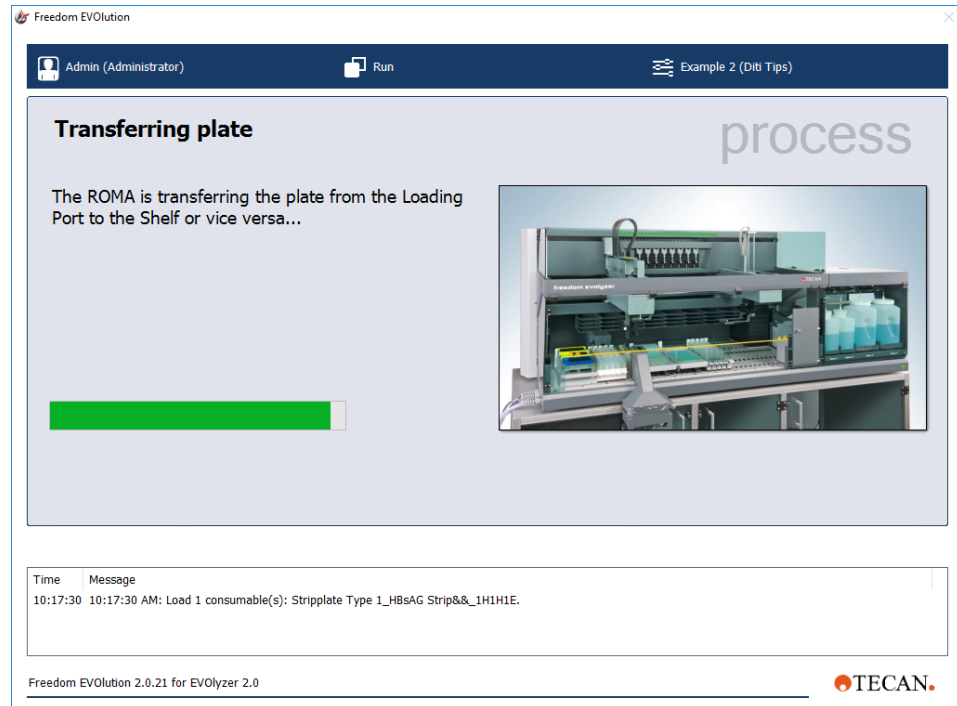
- ◆ Make sure tubes have been loaded.

- 1 Confirm the loading of the tubes by ticking the ckech box **I confirm I have loaded all tubes**.
- 2 Click the **Print** button to generate the report.

### 4.1.15 Transferring Plate

**EVolyzer  
Platform Only**

In Shopping List Mode the RoMa transfers the plate from the loading port (or RT incubator) to the shelf.



**Fig. 4-23** Transferring Plate dialog box

After completing all processes this dialog box appears again to inform that the RoMa returns the plates from the shelf to the loading port.

If an error occurs during plate transfer, a corresponding error dialog box appears.

**Note:** For more information on the error message refer to the tables in chapter 7 “Error Handling”, [7-1](#).

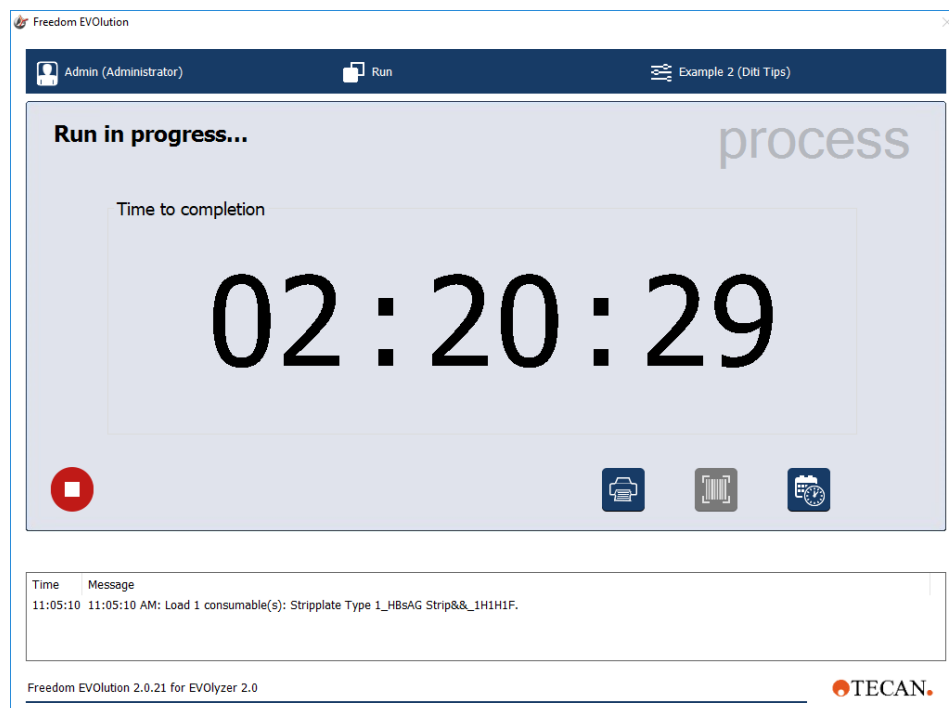
Rectify the error and click the **Next** button to proceed.

### 4.1.16 Schedule

#### 4.1.16.1 Calculating the Schedule

When the instrument is ready to start the run, the time to completion and the schedule will be calculated.

When this procedure is finished, the following dialog box is displayed:



**Fig. 4-24** Run in progress dialog box

The time to completion in hours, minutes and seconds elapsing is visualized in the center of the dialog box.

To print a list of current ticker messages, click **Print Message(s)**.

To visualize the current state and course of the run progress, click **View schedule**.

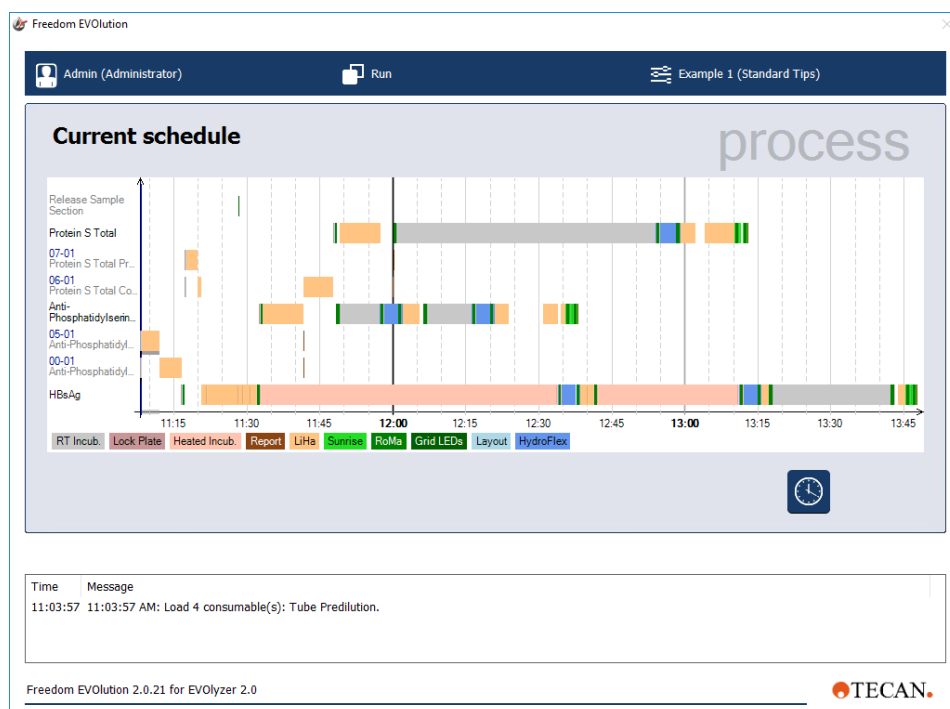


Fig. 4-25 Current schedule dialog box

On the y-axis the tests currently running for each plate as well as reload and scan information are applied. Each colored bar represents the instrument actions carried out for one plate. The x-axis is a time axis, showing how much time will be needed for each instrument action. The meaning of the colors is explained in the legend in the lower part of the dialog box.

The narrow blue upright bar shows the state the instrument is currently in.

The narrow red line shows that a new schedule is in progress.

The table at the bottom of the dialog box shows a list of scheduled reload procedures (“Message”) and indicates the “Time”, the message was reported. The schedule computation is carried out continuously, so that the messages are updated in regular intervals and listed below the last reported message.

When a job is finished, it will disappear from the schedule dialog box.

To get back to the previous dialog box showing the time to completion, click the **Next** button.

### ATTENTION

Possible instrument malfunction and arm crashes into labware.

- ◆ Never pull a carrier during a run when the corresponding position of the loading interface LED is red, nor place any carrier on an empty grid position when the corresponding red LED is lit.
- ◆ By moving carriers on the worktable without permission, they might end up in the planned trajectories of other moving devices and thereby cause a crash.
- ◆ The instrument will display a warning if a carrier is moved on the worktable in such a situation.





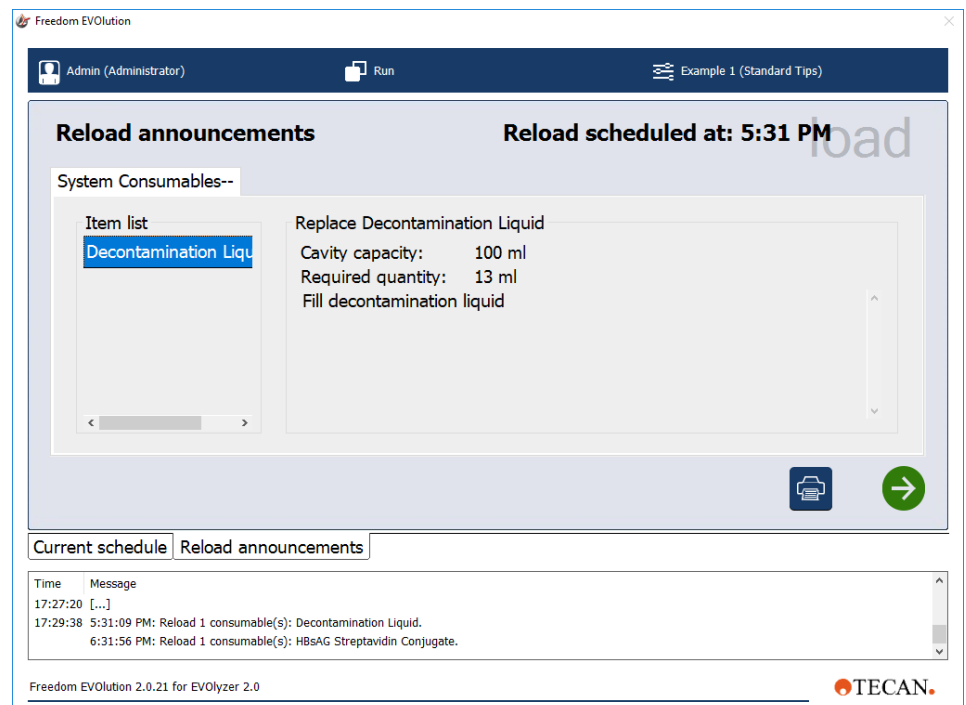
When you want to reload samples on your worktable during the continuous loading process, position the samples on the worktable, where the lit green LED on the loading interface indicates access and click **Scan samples**.

Clicking the **Stop** button in the lower left corner will abort the run.

#### 4.1.16.2 Reload

Before you run out of reagents for a certain test or when critical consumables have already remained too long on the worktable, a reload announcement is displayed.

Reload processes are also scheduled and displayed in the scheduler.



**Fig. 4-26** Reload announcement dialog box

On the appearing dialog box, the test for which a reload is needed is displayed with the item list and the corresponding item to be reloaded. In the upper right corner, the time for which the reload is scheduled is displayed.

The table at the bottom of the dialog box shows a list of scheduled reload procedures ("Message") and indicates the "Time", the message was reported. The schedule computation is carried out continuously, so that the messages are updated in regular intervals and listed below the last reported message.

To print a list of the items to be reloaded, click the **Print** button.

Click the **Next** button to get back to the previous dialog box showing the time to completion or the current schedule.

When the reload actually needs to be carried out, the status lamp of the instrument is flashing green and the **Load consumables** dialog box appears:

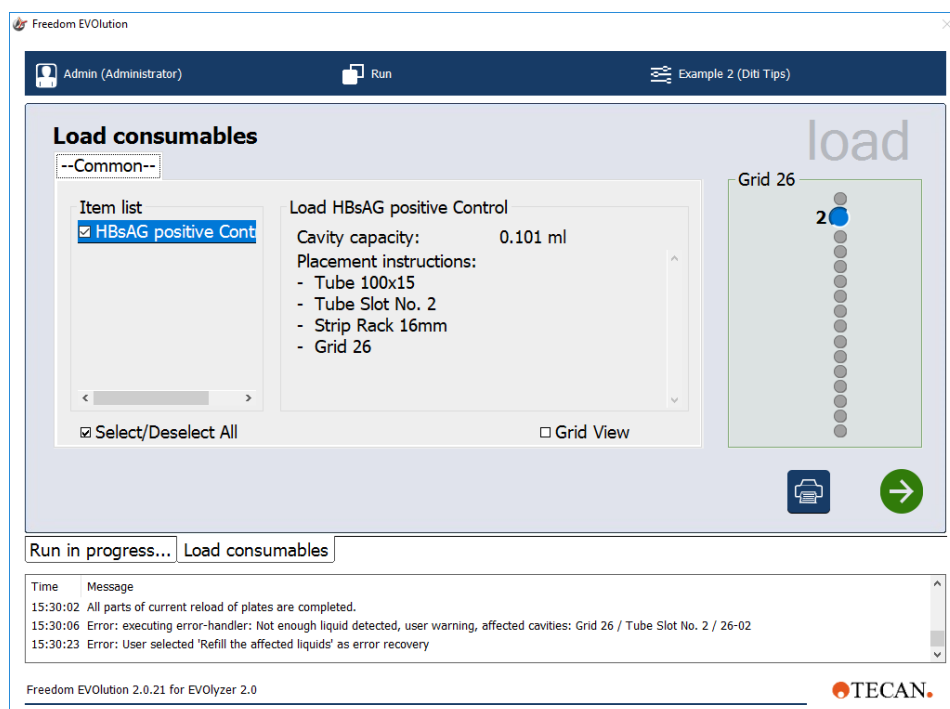


Fig. 4-27 Load consumables dialog box

You are now prompted to load the consumables needed to continue your current test on the worktable.



### WARNING

Pipetting tips can cause injuries.

- ◆ Avoid contact with the pipetting tips and contact with aerosols when accessing the worktable, by wearing adequate protective clothing.



### ATTENTION

Time-critical operation.

- ◆ Make sure to reload the item within the scheduled time, otherwise the corresponding test will be aborted.

The appearing dialog box lists the test(s) for which a consumable has to be reloaded. The corresponding consumable(s) is/are displayed in the item list. Information on the currently highlighted item is given on the right.

The placement instructions tell you exactly where to put the corresponding consumable on the worktable. The text on the left indicates the time you have for the reload.

To print a list of the consumables to be reloaded with their corresponding information, click the **Print** button.

The appearing print preview is similar to the one in Fig. 4-15 “Print preview of Consumable Report”, 4-16.

When you have loaded all consumables necessary for the completion of your run on the worktable, click the **Next** button to get back to the previous dialog box showing the time to completion.

To abort the run preparation and get back to the main menu, click the **Cancel** button.

### 4.1.17 Completing the Process

When all processes are completed the following dialog box is displayed:

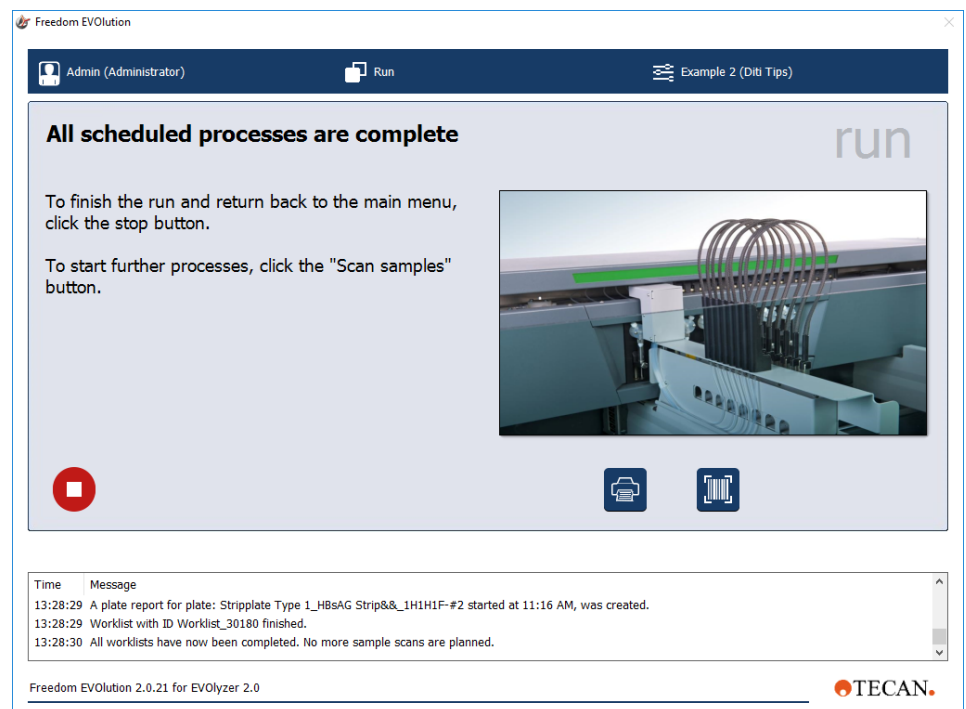


Fig. 4-28 Scheduled processes completed dialog box

The instrument is now waiting for new samples to be loaded. In order to start new processes, load the samples in the available sample sections on the worktable, where the green LEDs on the loading interface are lit to indicate access.

- ◆ Click **Scan Samples** when done.
- ◆ If no more samples are to be processed, click the **Stop** button.

#### 4.1.17.1 Shopping List Mode

In shopping list mode, when the **Stop** button is clicked:

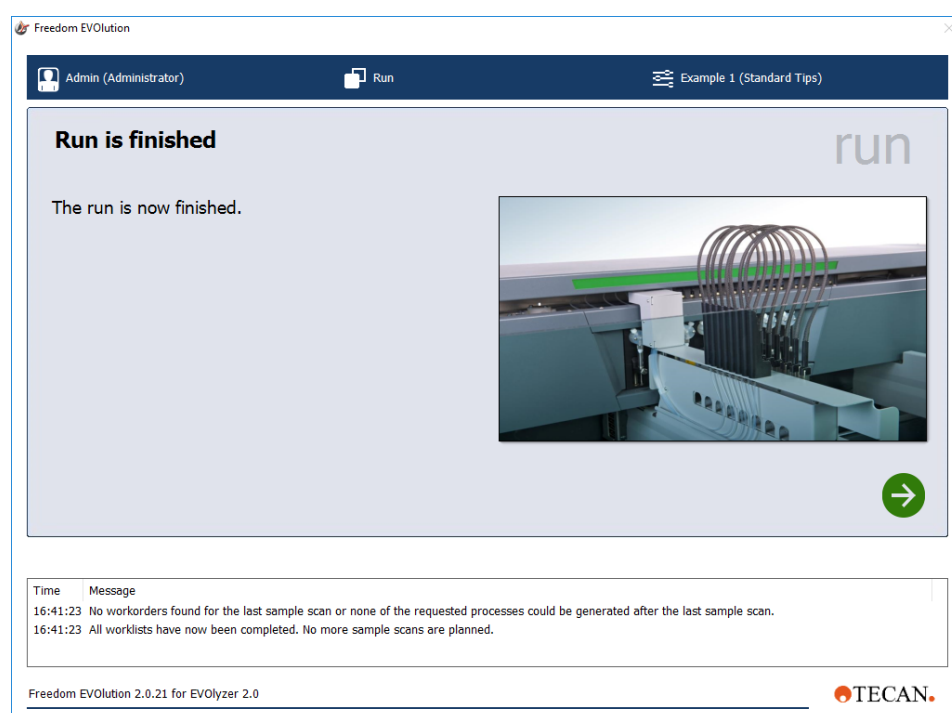
- ◆ You are now asked to unload the plates from the shelf or the microplate carrier. For each plate, the position and barcode, as well as the completion status and the number of available wells (if the plate has been defined for

reuse) are displayed. To print a list of all plates with their corresponding status, click the **Print** button.

- When you have unloaded all required plates, click the **Next** button to proceed.
- To abort the plate unload and get back to the main menu, click **Main menu**.

#### 4.1.17.2 Run Finished

The run is now finished and the following dialog box is displayed:



**Fig. 4-29** Run is finished dialog box

Click the **Next** button to get back to the main menu, or, if you have defined one or several customized shutdown steps in the corresponding configurator, they will be carried out now (for more details on the usage and creation of customized shutdown steps, please refer to the Freedom EVOLution SW Application Software Manual).

When you have finished with your customized shutdown step(s), click the **Next** button or **Main menu** to get back to the main menu.

## 4.2 Application Settings

**Note:** This submenu is accessible for Application Specialists and Administrators only.

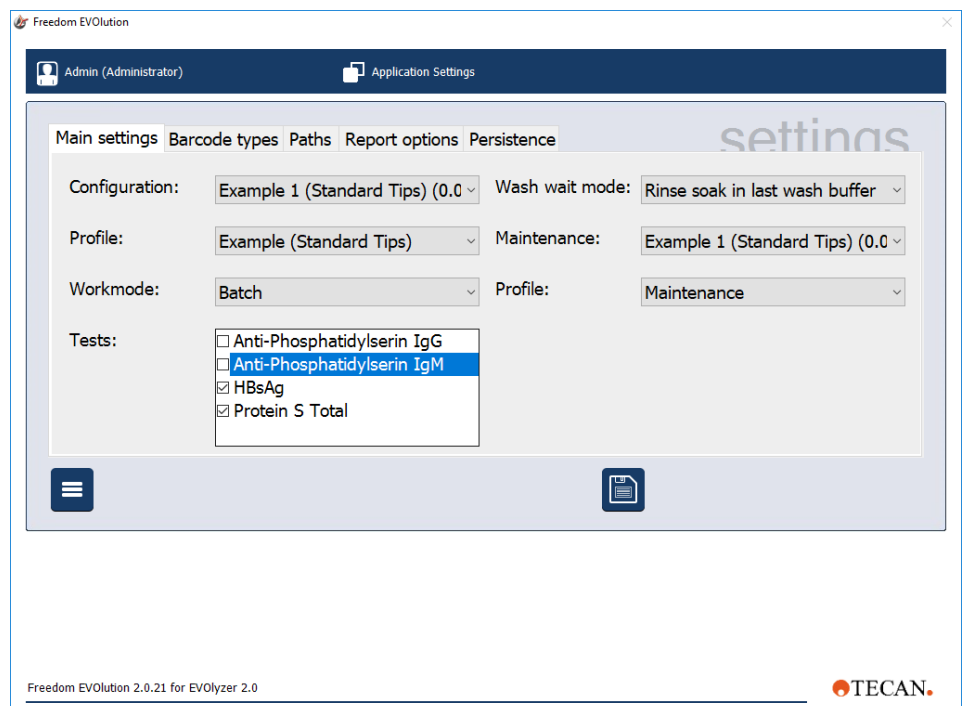
The submenu Application Settings consists of a dialog box with five different tabs:

- ◆ Main settings
- ◆ Barcode types
- ◆ Paths
- ◆ Report options
- ◆ Persistence

To open these dialog boxes, click the corresponding tabs.

**Note:** Further settings can be made in the Application Settings Control: Refer to the Freedom EVolution SW Application Software Manual.

### 4.2.1 Main Settings



**Fig. 4-30** Main settings dialog box

On the **Main settings** tab you can define some general run parameters.

**Configuration:** Here you can select a configuration by clicking the arrow next to the corresponding field. A drop-down list with all configurations opens. Highlight the configuration you want to work with by clicking on it.

**Profile:** Select the desired profile. A profile associates a set of assays within a configuration. According to the profile, the placement of the consumables on the worktable will be affected.

**Workmode:** Three different workmodes are available:

- ◆ **Batch:** When this work mode is selected, all samples on the worktable are processed with the tests activated under **Tests**.
- ◆ **Worklist:** When this work mode is selected, the samples on the worktable are processed according to a worklist created with the Worklist Creator (see section 6.3 “Worklist Creator”, 6-6 for details). The corresponding worklist must be saved in the folder specified on the **Paths** tab.
- ◆ **ASTM:** When this work mode is selected, the information concerning the tests to be carried out with the samples on the worktable are inquired from the connected LIMS.

**Note: Sample Splitting:** The workmodes **Load and Go** and **Scan and Load** are made by the application specialist in the Application Settings Control.

#### **EVOlyzer Platform Only**

**Wash wait mode:** To prevent the needles of the wash manifold from drying out for the time it is not used in a process, two different modes are available:

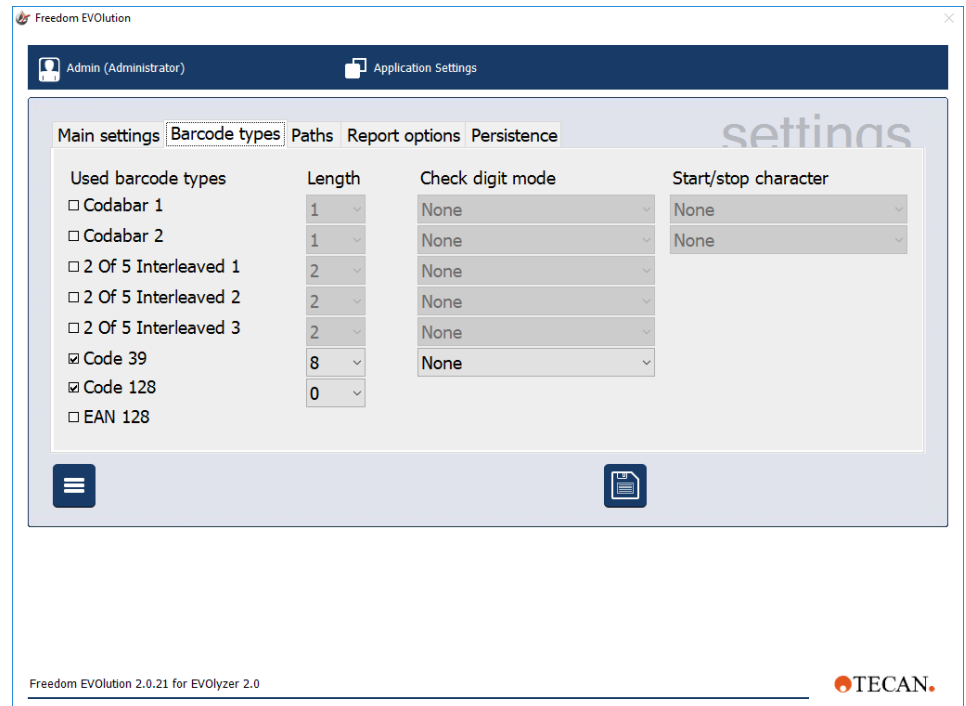
- ◆ *Rinse soak in last wash buffer:* The waste sink is filled with the wash buffer recently used, the manifold is lowered into it and left there until it is needed again by the process.  
*In this mode the washer will, after lowering the needles, rinse them for a configurable period of time (adjustable in durations.xml).*
- ◆ *No rise soak:* No wash wait mode is used.

**Maintenance:** Select a maintenance configuration from the dropdownlist. This configuration contains the consumables needed for your maintenance procedure.

**Profile:** Select a maintenance profile. According to the profile, the placement of the consumables for the corresponding maintenance task will be affected.

- ◆ To save your changes, click the **Apply** button.
- ◆ To get back to the main menu, click **Main menu**.

### 4.2.2 Barcode Types



**Fig. 4-31** Barcode types dialog box

On the **Barcode types** tab you can activate the used barcode types. For the barcode types Codabar and 2 of 5 Interleaved you have to define some additional settings (length, check digit mode, start/stop character).

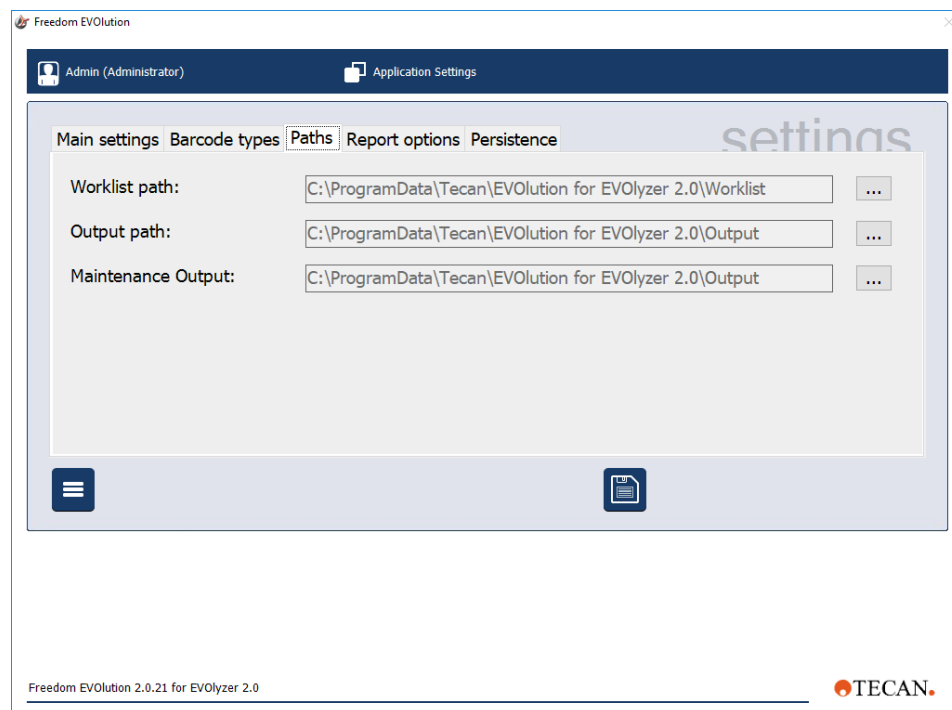
As the two barcode types Codabar and 2 of 5 Interleaved can cause problems because of their variable length, we strongly recommend to work with an evaluation. Whether the PosID should transmit this information back to the software can be selected freely.

For further information on the used possible barcode types, see also section “Positive Identification (PosID)” in the corresponding Operating Manual of the instrument.

To save your changes, click the **Apply** button.

To get back to the main menu click **Main menu**.

### 4.2.3 Paths



**Fig. 4-32** Paths dialog box

On the **Paths** tab you have to define the worklist folder, the output folder and the maintenance folder, i.e. where the worklist, the output and the maintenance reports are saved on your hddisk.

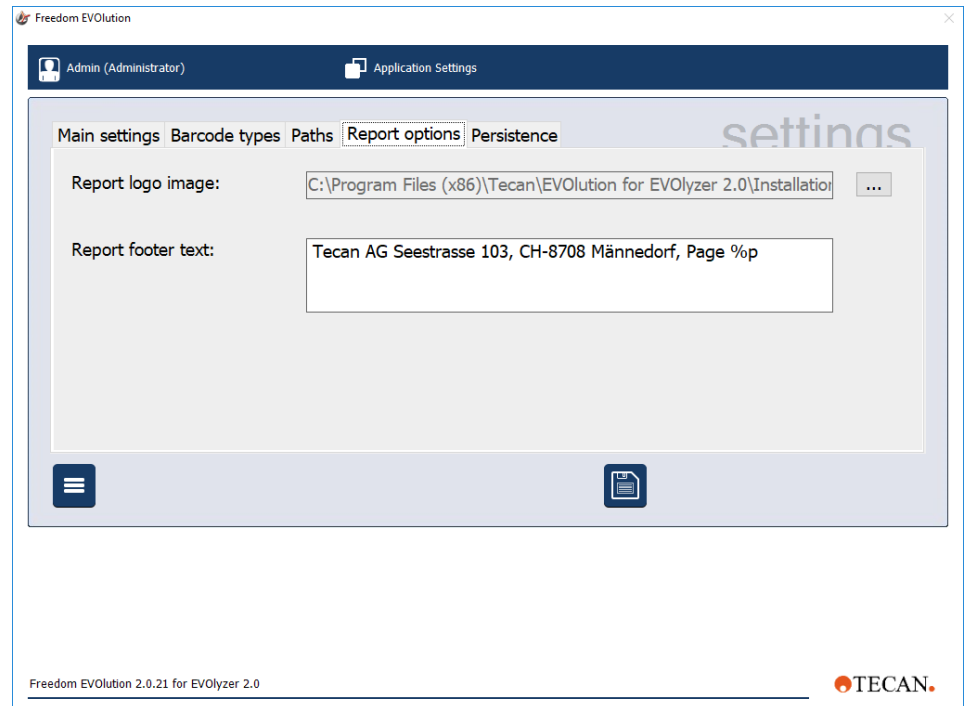
For this purpose click the button next to the corresponding field and select the path.

To save your changes, click the **Apply** button.

To get back to the main menu without saving, click **Main menu**.



## 4.2.4 Report Options



**Fig. 4-33** Report options dialog box

On the **Report options** tab you can define the folder for the report logo image, i.e. where the corresponding file is saved on your harddisk.

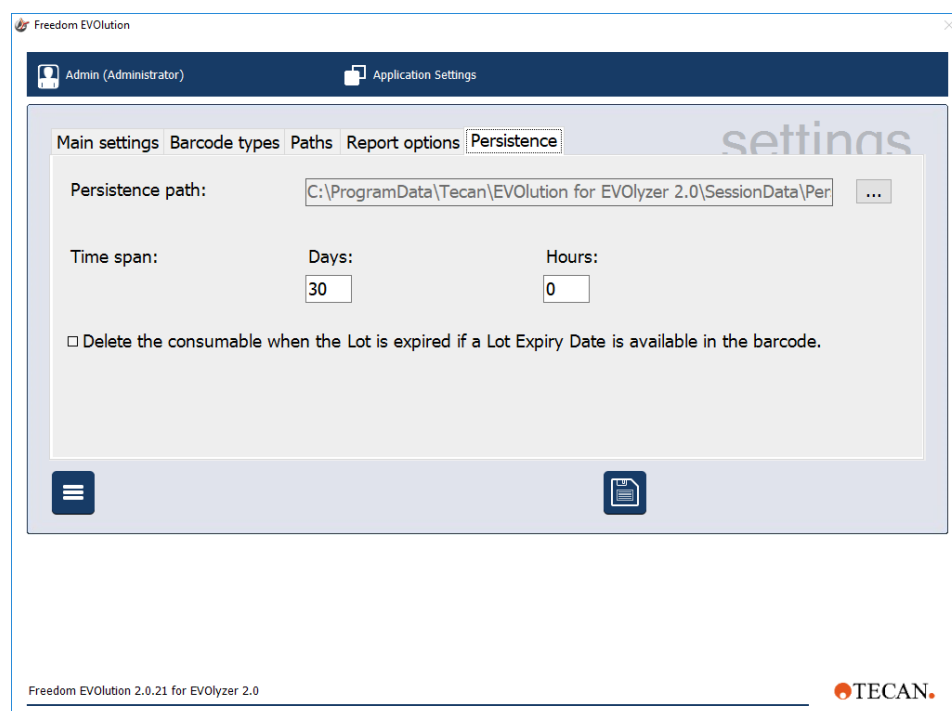
For this purpose, click the button next to the corresponding field and select the path.

In the field **Report footer text** you can enter the text to be printed in the footer of your reports. To add a page number to your report, write “%p” where you want the page number to be printed, see also [Fig. 4-33](#), [Fig. 4-35](#).

To save your changes, click the **Apply** button.

To get back to the main menu without saving, click **Main menu**.

## 4.2.5 Persistence Data



**Fig. 4-34** Persistence data dialog box

The **Persistence** tab contains settings which are used when a configuration uses persistent data.

Refer to the Freedom EVolution SW Application Software Manual.

The **Persistence path** defines the folder in which all persistence data is stored, i.e. where the corresponding data is saved on your hard disk.

The **Time Span** allows you to define how long persistent data will be stored after creation. All data older than the defined time span is deleted at the beginning of Start of Day maintenance.

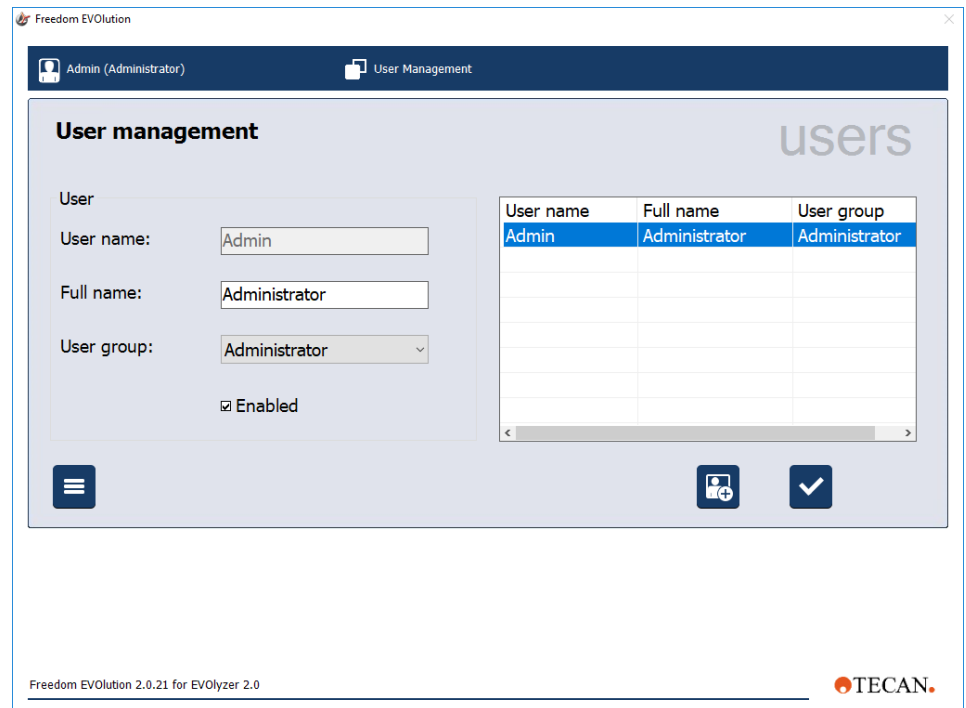
When the check box is selected, the deletion of persistent data is overruled for consumables with the lot expiry date encoded in their barcode. These consumables will be deleted only when the lot has expired (and not after the defined **Time Span**).

To save your changes, click the **Apply** button.

To get back to the main menu without saving, click **Main menu**.

### 4.3 User Management

**Note:** This submenu is accessible to administrators only.



**Fig. 4-35** User management dialog box

The **User Management** dialog box consists of two areas:

- ◆ The area **User** on the left-hand side, where the settings for a new user can be defined
- ◆ The user list on the right-hand side, where all defined users are listed with their **User name**, **Full name** and **User group**.

### 4.3.1 Adding User

To add a new user, proceed as follows:

- 1 Click **Add user**.  
*The user name and the full name fields on the left-hand side are cleared.*
- 2 Type in the user name in the first line. It must have between 5 and 10 characters.  
*The user name will be used for logging in and authentication. It will appear on the header of each dialog box to indicate who is currently logged in.*
- 3 Type in the full name in the second line.
- 4 Assign a user group to the user by clicking the arrow next to the selection field and highlighting the corresponding user group.  
*The user group will also appear in the header of each dialog box.*
- 5 Click the **Apply** button.  
*The user is now added to the list on the right hand-side and enabled by default (the corresponding check box is checked).*

**Note:** When a user is added, the initial password is automatically set equal to the user name. At the first login, users are prompted to change the initial password.

### 4.3.2 Disabling User

To disable a user, proceed as follows:

- 1 Highlight the corresponding user in the list on the right-hand side
- 2 Clear the check box **Enabled** and click the **Apply** button.  
*Now the user cannot log in anymore.*

**Note:** Users cannot be deleted.

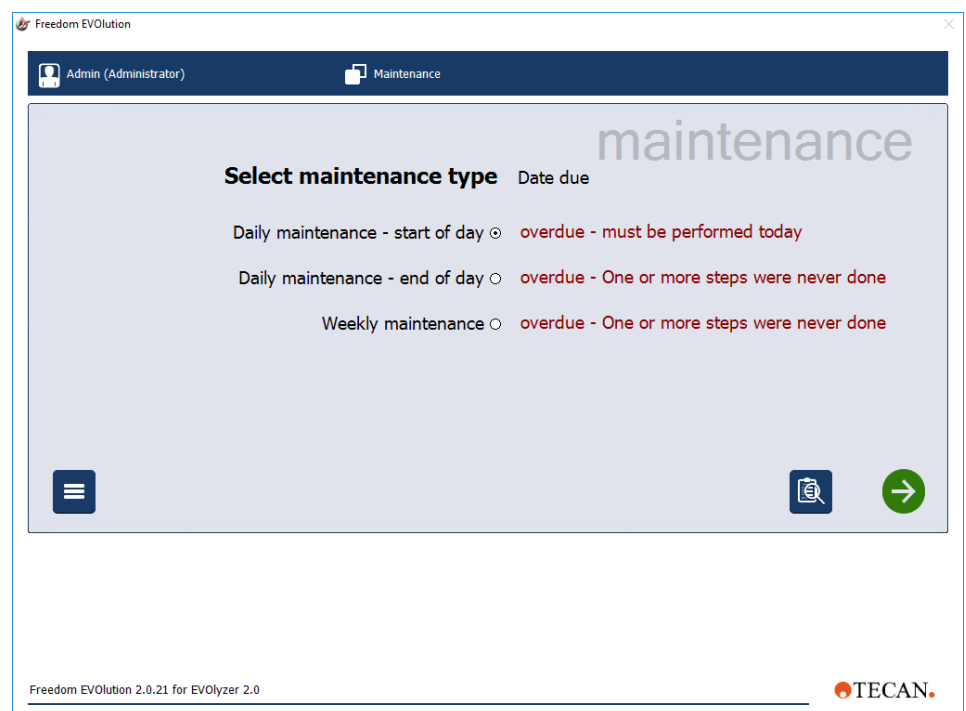
To get back to the main menu click **Main menu**.

## 5 Maintenance

**Purpose of This Chapter**

This chapter explains how Freedom EVolution SW supports the performance of instrument maintenance.

### 5.1 Menu Item Maintenance



**Fig. 5-1** Maintenance selection dialog box

The maintenance selection dialog box enables access to the three maintenance sequences:

Submenu	Action
Daily Maintenance - Start of Day	To carry out the maintenance task, which have to be done at the start of the day. If “(overdue)” is indicated behind the submenu, at least one maintenance task of this maintenance sequence is overdue.
Daily Maintenance - End of Day	To carry out the maintenance task, which have to be done at the end of the day. If “(overdue)” is indicated behind the submenu, at least one maintenance task of this maintenance sequence is overdue.
Weekly Maintenance	To carry out the weekly maintenance. If “(overdue)” is indicated behind the submenu, at least one maintenance task of this maintenance sequence is overdue.

The column subscribed with **Date due** indicates the dates when the individual maintenance sequences respectively have or had to be carried out.

**Note:** *If the working day exceeds eight hours, the daily maintenance should be repeated before the instrument is restarted.*

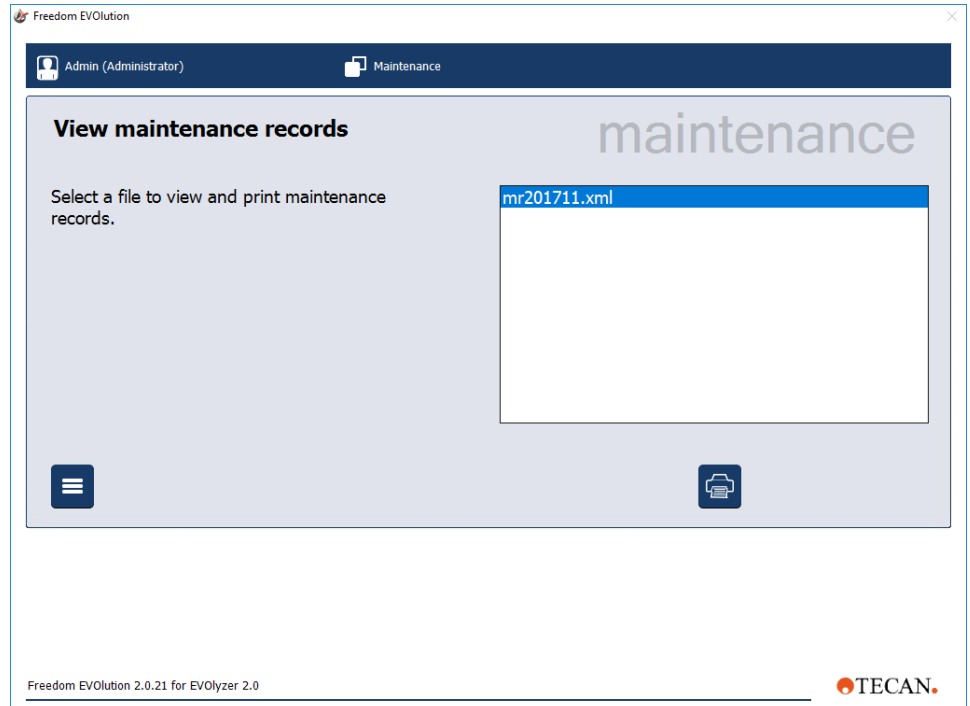
**Note:** *The weekly maintenance should be performed on the last working day of each week.*

Activate the corresponding option button and click the **Next** button to get to the desired submenu.

To abort the maintenance sequence and get back to the main menu, click **Main menu**.

### 5.1.1 Viewing Records

To view maintenance records, click **View Records**.



**Fig. 5-2** View maintenance records dialog box







To view and print the selected maintenance record, click the **Print** button.

To return to the main menu, click **Main menu**.

## 5.2 Maintenance Steps

### General

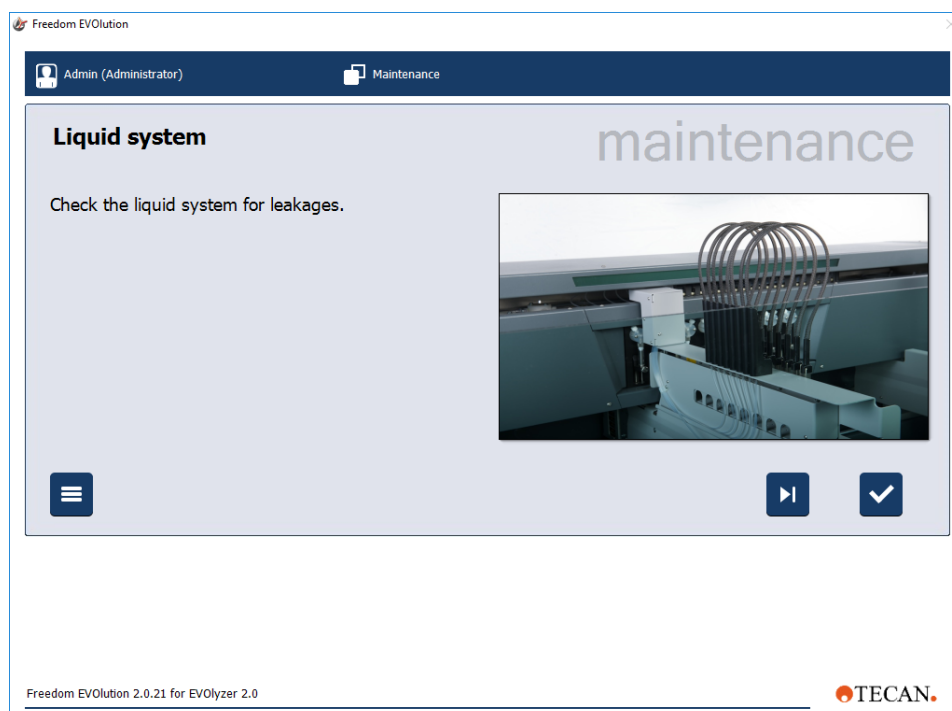
The maintenance part of the Freedom EVolution Run Control is set up like a wizard. You are guided through the tasks supposed to be carried out step by step. The dialog boxes that guide you through the maintenance tasks of the different sequences have a consistent structure. They consist of the following interactive elements:

	<p><b>Next</b> button. In the context of the maintenance sequences the <b>Next</b> button has a slightly different meaning than in the other Run Control dialog boxes. By clicking on it you will get to the next step for the preparation or post-processing of a maintenance task, e.g. a flushing procedure.</p>
	<p><b>Main menu</b> button. By clicking this button you will abort the maintenance sequence and get back to the main menu.</p>
	<p><b>Done</b> button. By clicking this button you indicate that the required maintenance step was carried out successfully and you will proceed with the next step.</p>
	<p><b>Skip</b> button. By clicking this button you miss out the currently required maintenance step and will get to the next one. The results of runs started afterwards without this maintenance step being carried out before will be flagged with a warning indicator.</p>
	<p><b>Repeat</b> button. By clicking this button you can repeat a procedure within a maintenance step, e.g. a flushing procedure.</p>
	<p><b>Print</b> button. By clicking this button you can print out a report, e.g. a maintenance report after the maintenance is complete.</p>





**Example of a  
Maintenance  
Task**



**Fig. 5-4** Liquid system dialog box

To achieve specified performance and reliability of the instrument, carry out the maintenance tasks by clicking through the Freedom EVolution Run Control and following the instructions on the screen. The tasks are sorted by the same order as indicated in section "Preventive Maintenance and Repairs" in the Operating Manual of the instrument.

## 6 Utilities

### Purpose of This Chapter

This chapter gives information on separate software tools that can be used by the operator in the Freedom EVOLution SW environment.

### 6.1 Plate Manager (SW Version 2.0 Only)

The plate manager is a separate software tool for reporting purposes.

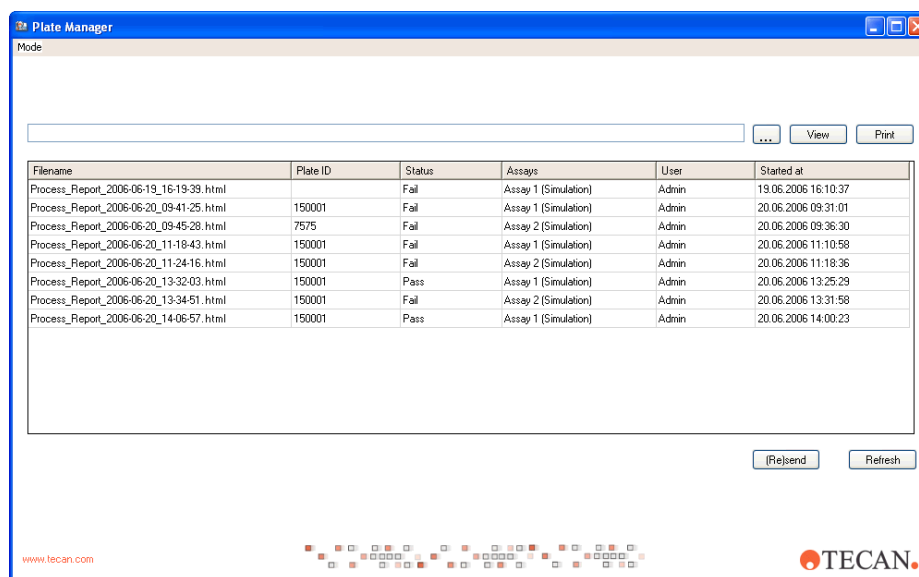


Fig. 6-1 Plate Manager dialog box

For each plate processed by the instrument, a plate report file is generated. This xml file contains all sample tracking information for the plate. With the **Plate Manager**, the plate report files can be viewed and printed out. The **Plate Manager** is configured to look into the Freedom EVOLution output folder for plate report files.

The main table contains a list of all converted plate report files. By double-clicking on a list item, or by selecting a list item and then clicking the **View** button, a **Print Preview** window is opened and the selected report is displayed. You can now choose to print the report.

Use the **Browse** button to locate plate report files which reside in other folders than the output folder. When a file has been selected, it is displayed in a print preview window. If the file found is a plate report xml file, it gets automatically converted and then displayed.

In order to print a report without viewing it, click the **Print** button.

To (re)send the results to the LIMS, click the **(Re)send** button.

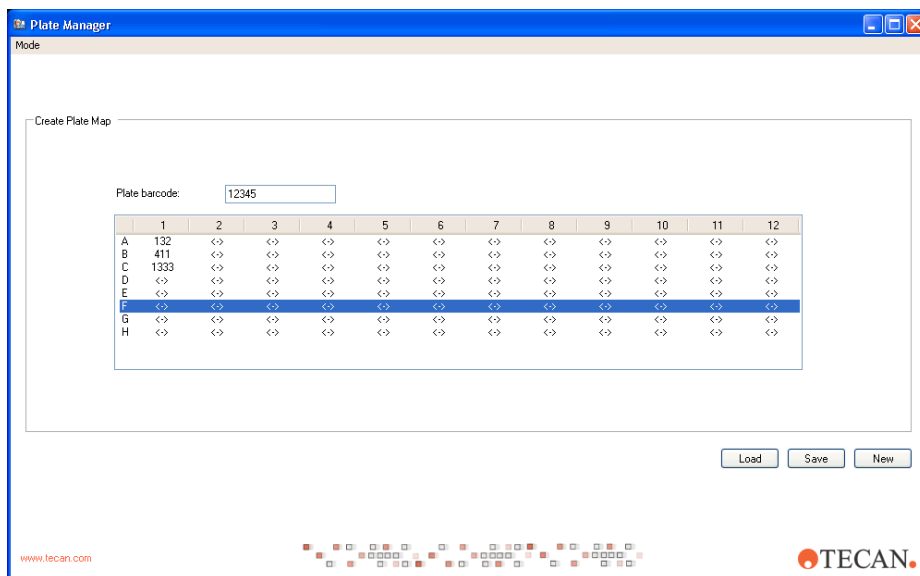
**Note:** If you wish to manually release results with this option please make sure that automatic transmit in the Application Settings Control is disabled.

By clicking the **Refresh** button, all plate report files generated since the **Plate Manager** was started, are automatically converted to HTML and then appear as items in the main table.

**Note:** The HTML report does not contain all information from the Magellan workspaces. For detailed Magellan data, refer to the corresponding Magellan workspace.

### 6.1.1 Plate Map

Click on the menu item **Mode** to switch to the **Create Plate Map** view.



**Fig. 6-2** Plate Manager / Create Plate Map dialog box

Enter the plate barcode in the designated text field and the sample barcodes/ sample IDs in the respective well position.

Click the **Save** button to save the plate map file.

**Note:** The plate map files have the extension “.map” and are saved in the Output path by default.

Click the **Load** button to load, view and modify an existing plate map file.

Click the **New** button to reset all fields for new data entry.

### Exit Worklist Creator

To exit the Worklist Creator, select **File > Exit**.

## 6.1.2 Process Report

Process reports **ProcessReport.html** are defined by the overall plate statuses fail or success.

### PlateFailCriteria

The over all plate status **PlateFailCriteria** is determined by the following set of criteria (default setting):

- `<FailOnQCFailInAnyRead>true</FailOnQCFailInAnyRead>`
- `<FailOnAnyProcessError>true</FailOnAnyProcessError>`
- `<FailOnSampleInError>>false</FailOnSampleInError>`
- `<FailOnNonSampleInError>>false</FailOnNonSampleInError>`

### Examples

Failure in a sample (e.g. clot detection):

FailOnSampleInError set to true:

- ◆ Failed
  - The error in the cavity is passed on

FailOnSampleInError set to False:

- ◆ Passed
  - The error in the cavity is not passed on.

*E.g: Should only 1 error have occurred in a certain cavity, the rest of the plate could be passed on if required*

## 6.2 Report Center (SW Version 2.1)

### 6.2.1 Running an Application

The **Report Center** is a separate software tool for reporting purposes. For each plate processed by the instrument, a plate report file is generated. This xml file contains all sample tracking information for the plate. With the Report Center, the plate report files can be viewed and printed out.

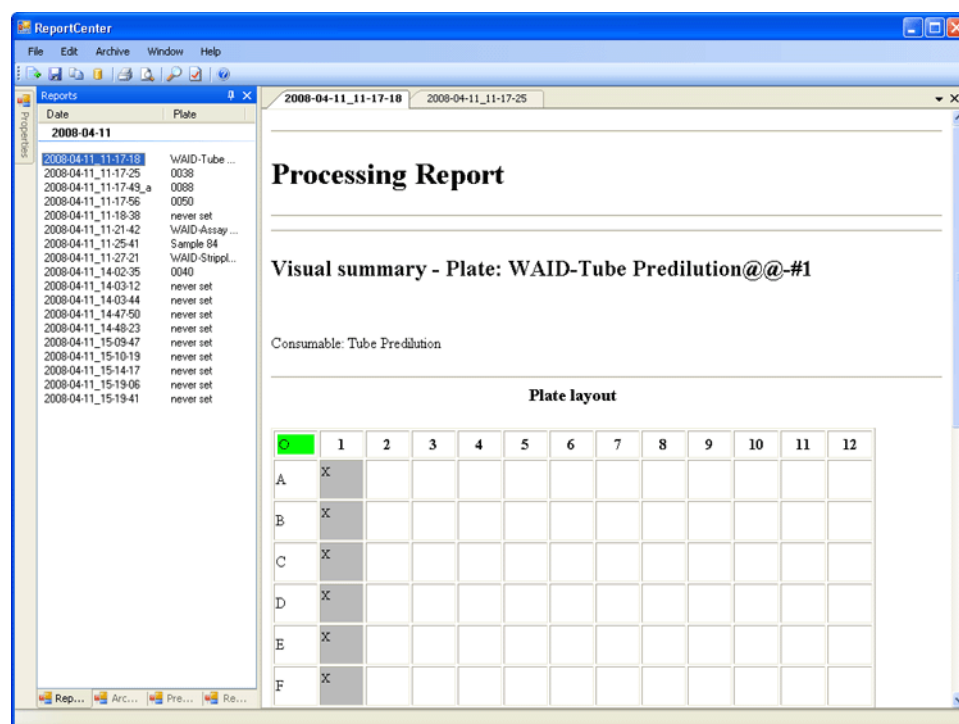


Fig. 6-3 Report Center

#### Output/ Reports

Report files saved to the output folder are displayed in the **Reports** list on the very left Fig. 6-3 “Report Center”, 6-4.

**Note:** Xml process reports from earlier software version are also supported.

#### Printing

Clicking the direct print icon displays, prints and adds the report files directory.

#### Trigger Words

Trigger words respectively strings have been defined for Predilution as well as ArchivePlates.

Incoming reports will be parsed by pre-defined triggers words and sorted into the appropriate **Reports** list.

#### Automatic Archiving

Selecting the Archive Automatic from the drop down menu Archive moves all reports older than the defined space of time to the reports file directory.

#### Viewing

Selecting a listed report entry opens a data view window in the Report Center.

**XSLT-Sheet**

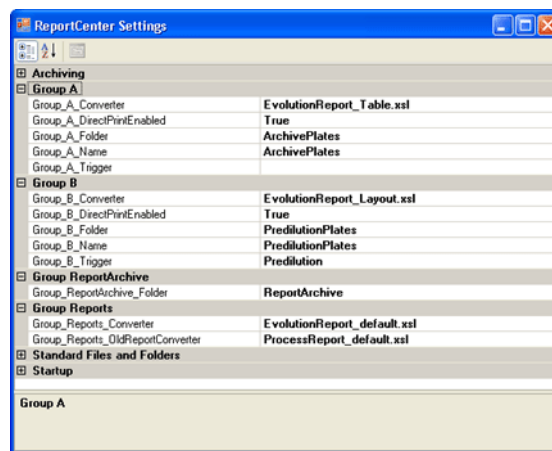
Tecan provides three report layouts:  
EVOLution\_default, EVOLution\_layout and EVOLution\_table

**Note:** The information displayed in the report depends on the XSLT-sheet defined.

- The XSLT-sheet can be customized if required.

**6.2.2 Settings**

Click the menu item **Edit Settings** from the menu, or click on the icon in the tool bar, to open the settings dialog **Report Center Settings**.



**Fig. 6-4** Report Center Settings

**Startup document**

By default the Tecan web site is displayed. The startup document can be edited.

**Groups**

Groups	E.g. entries	Designation
Group_A_Folder	ArchivePlates	Name of folder where report files will be stored
Group_B_Folder	PredilutionPlates	
Group_A_Name	ArchivePlates	Name of title displayed in the tab
Group_B_Name	PredilutionPlates	
Group_A_Trigger		Trigger words to determine reports for this specific tab (e.g. PredilutionPlates). The trigger words have to be separated by a comma, semicolon or a blanks.
Group_B_Trigger	Predilution	
Group_A_Converter	EvolutionReport_Table.xml	Name of the XSLT file used to perform the transformation for reports from XML to HTML
Group_B_Converter	EvolutionReport_Layout.xml	

**Editing Settings**

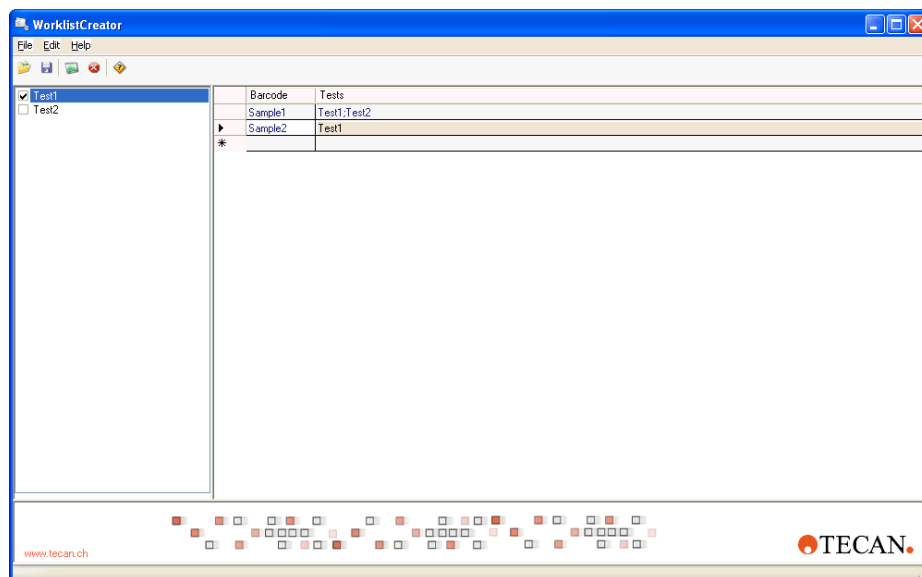
Edit the settings appropriately and close the dialog box.

**Note:** Settings not changeable are grayed out.

## 6.3 Worklist Creator

When you are not working with an LIMS, the Worklist Creator enables the easy creation of worklist files in xml-format for the Freedom EVOLution SW.

Open the Worklist Creator. The main menu is displayed, consisting of a test list at the right and a list of sample barcodes with the tests assigned to them on the left-hand side.



**Fig. 6-5** Worklist Creator

To add a new sample to the list on the right, click on an empty cell in the Barcode column and enter the barcode of the corresponding sample. Then press **Enter**. The cursor will jump to the cell below.

To add a test to the created sample in the list, click on the cell in the Tests column next to it and activate the check box in front of the test(s) in the test list on the left you want to assign. You can also select more than one cell in the Tests column.

To remove a sample from the Barcode column, highlight it and press the **Delete** key on your keyboard.



### 6.3.1 File Menu

To load a saved worklist from your harddisk to the Worklist Creator, select **File > Load ...** or click the corresponding icon.

**Note:** A csv-file to be loaded as worklist into the Worklist Creator should have the format "Barcode; Test".

To save the settings defined in the list on the right, select **File > Save ...** or click the corresponding icon.

To remove all settings defined in the list on the right, select **File > Clear** or click the corresponding icon.

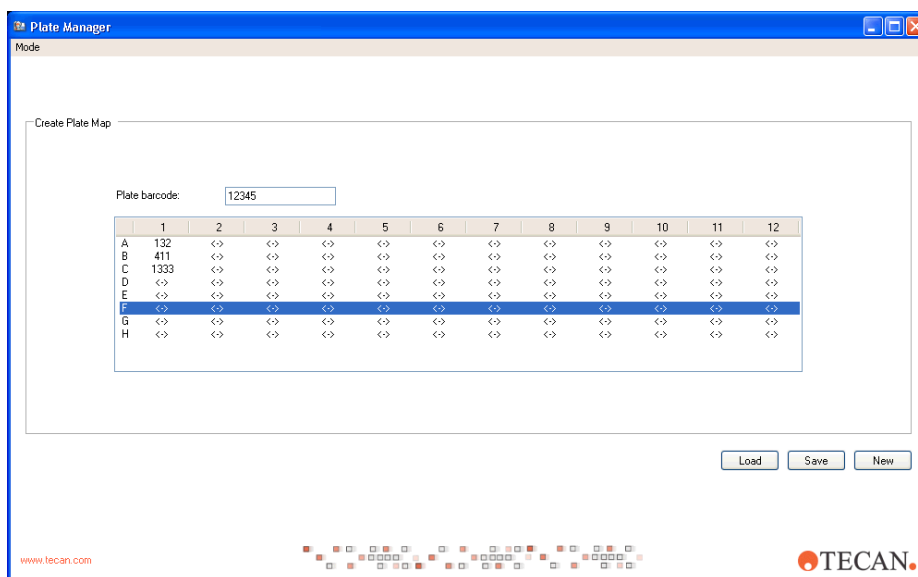


#### ATTENTION

The clear function cannot be undone. When it is used all unsaved data from the list on the right are lost.

### 6.3.2 Plate Map Modus

Click on the menu item **Mode** to switch to the **Create Plate Map** view.



**Fig. 6-6** Worklist Creator / Create Plate Map dialog box

Enter the plate barcode in the designated text field and the sample barcodes/sample IDs in the respective well position.

Click the **Save** button to save the plate map file.

**Note:** The plate map files have the extension ".map" and are saved in the Output path by default.

Click the **Load** button to load, view and modify an existing plate map file.

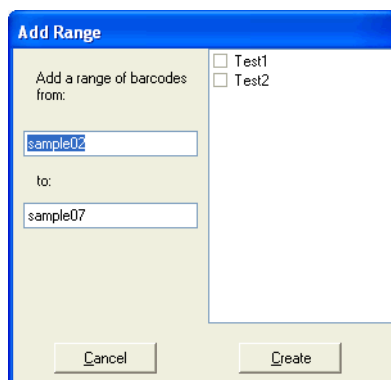
Click the **New** button to reset all fields for new data entry.

### Exit Worklist Creator

To exit the Worklist Creator, select **File > Exit**.

### 6.3.3 Edit Menu

To create a range of samples, select **Edit > Add Range**. A dialog box opens:



**Fig. 6-7** Add Range dialog box

In the text field on the left, enter the first and the last barcode of the range you want to create. Both barcodes should contain the sample prefix and a number at the end, which can be incremented. Click the **Create** button to append the sample range to **Barcode** column in the main window or the **Cancel** button to close the dialog box without creating a list.

To edit the tests currently available in the test list on the left, select **Edit > Edit Tests....** The test names are displayed in the list on the right and can be modified or cleared by means of the Clear icon. To save your changes, select **Edit > Commit Tests....**

The test names are saved to the file Tests.config.

**Note:** Do not use question marks or the slash character in test names.

### 6.3.4 Help Menu

To open the Worklist Creator Online Help, select **Help > Using Help**.

To open the About dialog box of the Worklist Creator for getting information on the currently used version, select **Help > About**.

### 6.3.5 Icon Bar




Open icon: By clicking this icon, an **Open** dialog box appears, enabling you to open formatted files, e.g. xml- and csv-files used as worklists. Select the file you want to open and click **Open**. It will then be loaded in the Worklist Creator.



Save icon: By clicking this icon, the worklist, currently displayed in the main window can be saved as xml-file to the **Worklist** folder within the Freedom EVOLution directory.



Add range icon: By clicking this icon, the **Add Range** dialog box appears, see [6.3.3 "Edit Menu"](#),  6-8.



Clear icon: By clicking this icon, the settings for the worklist currently displayed in the main window are reset.



Help icon: By clicking this icon, the online help for the Worklist Creator is opened.



# 7 Error Handling

**Purpose of This Chapter**

This chapter describes error messages that can be issued by the software. It gives information on the cause of the error and instructs how to correct the error, where applicable.

## 7.1 Error Messages 1

The following table lists error messages for which the software provides instructions on recovery, etc.:

**Tab. 7-1** Error messages 1

Instrument Part / Function	Error message	Problem description/ Actual situation	Expectation/ Recovery
Base unit	Door lock	The door locks could not lock properly when trying to lock the front safety panel.	Make sure that the front safety panel is closed. Retry to lock the front safety panel and then proceed as usual.
PosID	Verification scan error	Found component with barcode.	Didn't expect a component. The position was not controlled by the reload.
PosID	Verification scan error	Found carrier with barcode.	Expected situation: Empty (no carrier on the grid position).
PosID	Verification scan error	Found component with barcode.	Expected situation: Expected component without barcode.
PosID	Scan error	Found duplicated component.	Ignore the error or access the worktable and fix the problem.
PosID	Sample scan error	Carrier not present.	Place carrier in proper position.
PosID	Plate Barcode scan error	No barcode found	Place plate with barcode in proper position or enter barcode manually

## 7.2 Error Messages 2

The following table lists error messages for which the software itself does not provide instructions on recovery:

**Tab. 7-2** Error messages 2

Part / Function	Error message	Problem description	Recovery / Comment
Application settings	At least one test must be selected.	The user is in the <b>Application Settings</b> on the tab <b>Main Settings</b> . Batch mode and a configuration is selected, but no test.	Please select at least one test.
Application settings (PosID)	Codabar 1 and Codabar 2 cannot have the same length if they are both active.	Incorrect definition of the permissible barcodes of type "Codabar" in the Application Settings.	Select only one item for the barcode type "Codabar" or specify different lengths for several items of the same barcode type.
Application settings (PosID)	2 Of 5 Interleaved 1 and 2 Of 5 Interleaved 2 cannot have the same length if they are both active.	Incorrect definition of the permissible barcodes of type "2 Of 5 Interleaved" in the Application Settings.	Select only one item for the barcode type "2 Of 5 Interleaved" or specify different lengths for several items of the same barcode type.
Authentication	Authentication failed. User name or password was incorrect. Try again.	Error when trying to log in.	Enter the correct user account data.
Authentication	Your password has expired. You will be prompted to change password.	The system recognizes a new user, who must change her / his initial password. Or: The old password has expired.	User needs to change the password.
Authentication	You are not authorized to perform the selected action.	During authentication the system recognized that the user hasn't got the necessary access rights.	Either a different user with the corresponding access rights must log in or the user needs to contact the system administrator.
Authentication	Your initial password has expired. Please contact your administrator.	The password has expired. The administrator needs to issue a new one.	Contact the system administrator and request a new password.
Authentication	Your user account has been disabled. Please contact your administrator	The user was disabled because she / he tried to log in several times. The administrator needs to reset the authorization.	Contact the system administrator for resetting the authorization.
Authentication	User does not exist. Try again.	User not known.	Enter correct user name or have a user created.
Authentication	You have entered the wrong password. Try again.	The password was not entered correctly.	Enter correct password.
LiHa	Clot detected	During aspiration a clot was detected.	Remove the clot from the corresponding tip.

**Tab. 7-2** Error messages 2 (cont.)

Part / Function	Error message	Problem description	Recovery / Comment
LiHa	No Diti Found	Partially filled DiTi boxes loaded	Select <b>Fetch Diti at Position x</b> and enter next DiTi as number.
LiHa	Tip collided	Detected a crash while aspirating, affected tips: x	Access instrument and remove the disturbing object and continue.
Manual entry of barcode values	The two entered barcodes were unequal or one of them was empty. The barcodes must be equal and cannot be empty.	Erroneous barcode value entry.	Enter correct barcode values.
Manual entry of barcode values	This barcode has already been entered for another sample.	A barcode value that already exists was entered.	Enter / use a different barcode.
New password	User name, full name or password was blank. Try again.	Error when trying to change the password.	Enter user name, full name and password in the corresponding field.
New password	Password, new password or confirm new password was blank. Try again.	Error when trying to change the password.	Enter passwords in the corresponding fields. (This error will be logged).
New password	Confirmation of new password did not succeed. Try again.	Password and password confirmation do not match.	Confirm with the correct password.
New password	Password change failed. Try again.	Error when trying to change the password.	The following conditions must be met to successfully change the password: <ul style="list-style-type: none"> <li>• The user exists</li> <li>• The user name must have a length of 5 to 10 characters</li> <li>• The password must have a length of 5 to 10 characters</li> </ul>
New password	Only numeric and alphabetic characters are allowed. Try again.	Error when entering a new password.	Password must consist of numeric and alphabetic characters only.
Process	The configuration could not be activated. Unexpected files have probably been found in the configurations directory.	The files of the configuration are inconsistent.	Open the configuration builder and check the contents of the configuration.
Process	Handling of error is not possible because scheduling is complete.	The schedule is already completed, i.e. the error occurred at the very end of the process.	Error during execution of a process.
Process	The process was not patched during error handling because it was too late to take effect.	The internal error handling could not take effect.	Error during execution of a process.

**Tab. 7-2** Error messages 2 (cont.)

Part / Function	Error message	Problem description	Recovery / Comment
Process	A timing constraint was violated. The affected microplate will be moved back to the shelf either immediately or after execution of the actions defined. See log file for details.	A timing constraint was violated and the system was able to modify the process in such a way that the plate is transferred directly to its destination.	Timing constraint violated. Only active if constraint violations are handled as error. This setting is made by the application specialist in the Application Settings Control.
Process	No work orders were found for samples from the last sample scan.	Empty work list or work list for wrong configuration found. All assays at consistency check during initialization removed.	Work list does not contain any tests that can be run at the time.
Process	Scheduling will fail because process '{0}' consumes more '{1}' than can be loaded onto the worktable. Try again with less samples?	The process consumes a greater amount of a consumable than can be loaded onto the worktable. Example: Parallel sample pipetting (including diluent, controls) may consume an extremely high number of DiTis. These need to be loaded onto the worktable before this step.	Process consumes too much of a consumable. Reduce number of samples.
Process	Process '{0}' will not be executed because it consumes more '{1}' than can be loaded onto the worktable. Too many samples?	The process consumes a greater amount of a consumable than can be loaded onto the worktable. Example: Parallel sample pipetting (including diluent, controls) may consume an extremely high number of DiTis. These need to be loaded onto the worktable before this step.	Process consumes too much of a consumable. Reduce number of samples.
Process	The shelftime of the consumable '{0}' must not exceed the limit (see Consumable Editor).	Shelf time exceeded.	Object remains too long on the worktable.
RoMa	An error occurred during ROMA transfer. Probably the plate could not be fetched or was not found where expected.	The RoMa tried to transport a plate which is not being transferred for the first time in the process (e.g. from the shelf). The system will be stopped.	The RoMa could not transport the plate <ul style="list-style-type: none"> <li>• No plate present</li> <li>• A crash occurred</li> <li>• Plate could not be placed</li> </ul>
RoMa	Plate could not be fetched in shelf or site was empty.	The RoMa tried to transport a plate which is being transferred for the first time in the process (e.g. from the shelf).	The RoMa could not transport the plate <ul style="list-style-type: none"> <li>• No plate present</li> <li>• A crash occurred</li> <li>• Plate could not be placed</li> </ul>



**Tab. 7-2** *Error messages 2 (cont.)*

<b>Part / Function</b>	<b>Error message</b>	<b>Problem description</b>	<b>Recovery / Comment</b>
User management	The user name must have 5 or more characters.	User name defined in user management is too short.	Enter appropriate user name.
User management	User could not be created. User name must consist of minimum five, maximum 36 alphanumerical characters.	User name could not be stored.	Correct the entries.
User management	Username syntax is incorrect.	User name could not be stored.	Correct the entries.
User management	The user already exists.	User name could not be stored.	Correct the entries.

