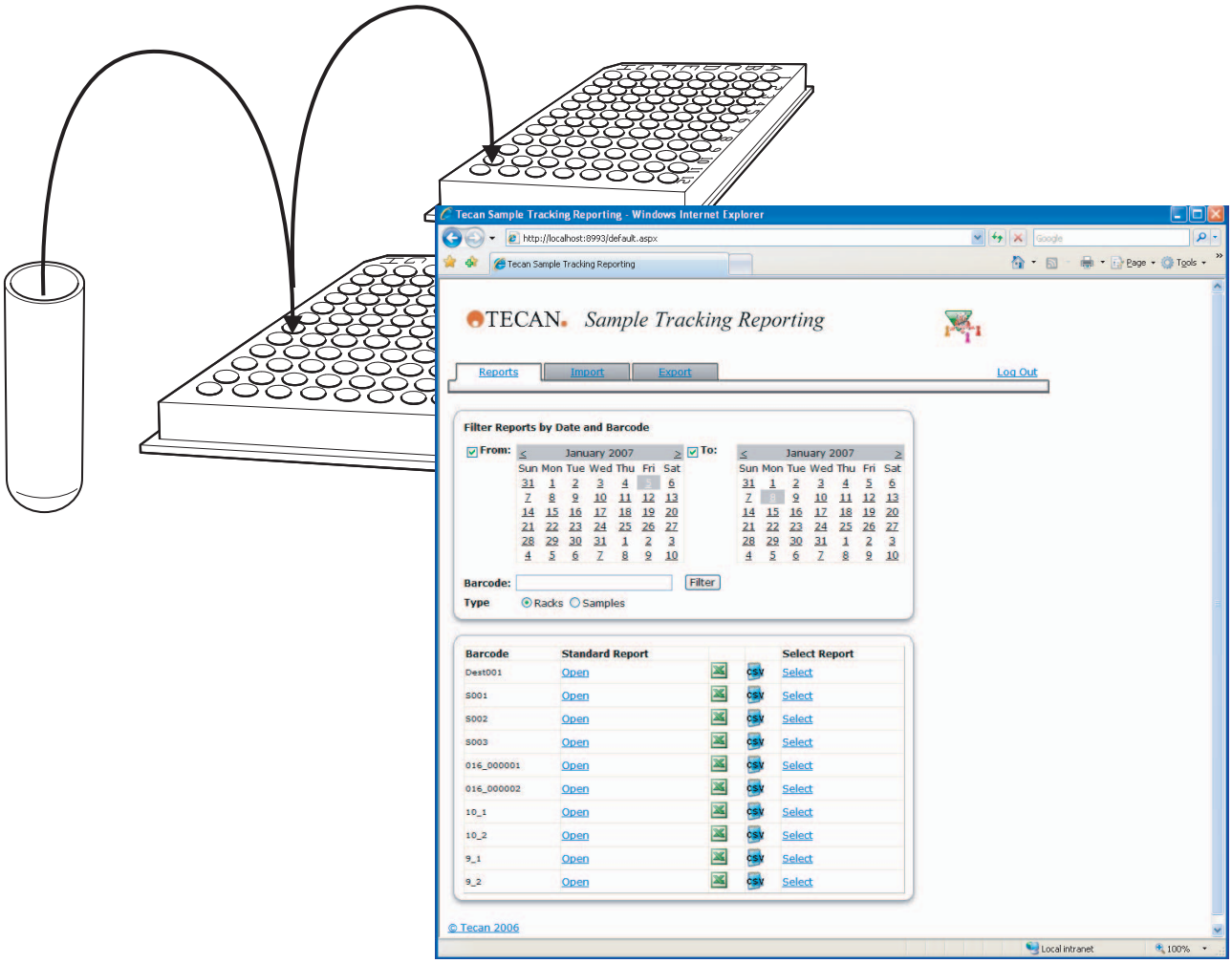
Software Manual

Tecan Sample Tracking Add-on



Document Status Sheet

Title:	Tecan ST Add-on Software Manual		**Part number:**	30021394.09
ID:	393933, en, Version 1.10		**Translated from:**	n.a.
Version	**Revision**	**Issue**	**Document History**	
1	0	2006-01-26	New edition	
1	1	2006-12-12	Updated for Freedom EVOware Sample Tracking Add-on V1.1	
1	2	2008-04-16	Minor corrections and adaptations	
1	3	2010-07-29	Updated for Freedom EVOware Sample Tracking Add-on V1.1 SP3	
1	4	2011-07-19	Windows 7 64-bit support	
1	5	2013-07-16	Support of new SQL Server versions in V1.2	
1	6	2014-11-25	Updated for FluentControl and Magellan, minor corrections and adaptions	
1	7	2017-11-06	Windows 10 64-bit support	
1	8	2018-05-15	Added support for sample tracking stand-alone with FluentControl, and soft-licencing.	
1	9	2021-07-29	Updated to integrate new SQL server 2019, Web server and refreshed installer	
1	10	2025-05-16	Integrate new SQL Server 2022 and Win 11 support	

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1 About This Manual

Purpose of This Chapter

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.

Purpose of This Manual

This manual describes the Tecan ST Add-on, provides all information required for proper installation, instructs how to run the software and how to make use of all its features.

Target Group

This manual is intended for all users of the Tecan ST Add-on software. In particular, operators (laboratory personnel) and system administrators are addressed.

Scope

This Software Manual applies to the Tecan ST Add-on software.

For Your Safety

Before installing and running the Tecan ST Add-on, first read the Software Manual carefully, in particular chapter 2 “Safety”.

1.1 Conventions Used in This Manual

Symbols and Conventions

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 2)

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

1.2 Reference Documents

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.*

This section provides a list of documents which are needed or may be useful in connection with the Tecan ST Add-on

Application Software

According to your configuration the following manuals for the application software are applicable:

- Freedom EVOware Plus/Standard (Research Use Only) Software Manual (Doc ID 393172)
- Freedom EVOware Plus/Standard (Limited Device Support) Software Manual (Doc ID 393804)
- FluentControl™ Application Software Manual (Doc ID 399935)
- Fluent Secure Operating Manual (Doc ID 403097)
- Veya Secure Operating Manual (Doc ID 403037)
- vControl Application Software Manual (Doc ID 402665)

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 (for simplicity reasons, the symbols for trademarks, such as ® and ™ are not repeated later in the manual):

- Freedom EVOware® and Freedom EVO® are registered trademarks of Tecan Group Ltd. in major countries.
- FluentControl™ is a registered trademark of Tecan Group Ltd. used world wide.
- Magellan™ is a registered trademark of Tecan Group Ltd. in major countries.
- Windows® is a registered trademark of Microsoft Corporation.
- SQL Server® is a registered trademark of Microsoft Corporation.
- Excel® is a registered trademark of Microsoft Corporation.

1.4 Abbreviations

API	Application Programming Interface
CSV	Comma Separated Values

DB	Database
GIF	Graphical Interchange Format (file extension)
GUI	Graphic User Interface
ID	Identification
JPEG (JPG)	Joint Photographic (Expert) Group (file extension)
LAN	Local Area Network
LIS	Laboratory Information System
MCS	Message Communication Server
MP	Microplate
PC	Personal Computer
PDF	Portable Document Format
PNG	Portable Network Graphics (file extension)
SQL	Structured Query Language
ST	Sample Tracking
WMF	Windows Metafile (file extension)
XML	Extensible Markup Language

1.5 Manual Structure

Information for Administrators

The chapter Installation is intended for system administrators only.
In routine operation, the client and the server do not usually need to be accessed by the operator. The corresponding chapters are intended for administrators.
All other chapters provide information for both operators and administrators.

1.6 Context-Sensitive Help System

The Tecan ST Add-on is provided with context-sensitive help as known in the application software.
Press F1 to get help on the current screen.
For details, refer to the corresponding Software Manual.

Note: *From the Reporting System, which is web-based, the context-sensitive help file of Tecan ST Add-on can only be opened from the Windows Start-Up menu.*

2 Safety

Purpose of This Chapter

This chapter covers only the general introductory safety instructions applicable to the Tecan ST Add-on. Specific safety instructions of the hardware device are laid down in the respective hardware manual.

Significance of These Safety Instructions

The Tecan ST Add-on is a pure software product and as such it does not contain any hazardous parts. It does not control instruments or influence processes and, thus, does not involve direct hazards.

However, the data the Tecan ST Add-on produces can, if misinterpreted, lead to dangerous situations (e.g. wrong diagnosis, mixing up of results, etc.).

Moreover, Freedom EVOware or FluentControl, the software to which Sample Tracking is added, 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 other involved persons can only be ensured if the safety instructions in this Software Manual, in the Software Manual of Freedom EVOware, or FluentControl respectively, as well as the safety instructions of the hardware devices are strictly observed and followed.

Therefore, all relevant manuals must always be available to all users working with the Tecan ST Add-on.

2.1 User Qualification

Possible Users

There are two user levels defined in the Tecan ST Add-on. Roughly, the following tasks can be assigned to them:

- Operator
  - Make queries
  - View
  - Export reports
- Administrator
  - Install software
  - Configure system
  - Administer users

Application specialists can be looked upon as a third user group. They define sample tracking commands in the application software (as per user management of Freedom EVOware or FluentControl).

What Users Must Know

Users must be qualified and trained to run the Tecan ST Add-on.

In particular, they must fulfill the following qualifications:

- They must have a basic knowledge of the Windows operating system.
- They must be familiar with the application software (Freedom EVOware or FluentControl).
- They must have read and understood the instructions in this Software Manual.
- Only users that meet the qualifications prescribed here are authorized to run the program described in this Software 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 Specific Hazards

The Tecan ST Add-on does not control instruments or influence processes and, thus, does not involve direct hazards.
However, the data the software produces can, if misinterpreted, lead to dangerous situations (e.g. wrong diagnosis, mixing up of results, etc.). To avoid this, pay attention to the following safety instructions:

WARNING

Erroneous Identification. Barcodes must be unique in order to provide safe identification.

- Do not change labware attributes during a run.
- Do not use the same barcode for multiple objects (even if they are exchangeable, e.g. aliquots).

WARNING

Erroneous definition or interpretation of reports.
After modifying report types (queries)/defining new report types, always validate the results and make sure that the results are properly interpreted before using them in your processes.

WARNING

Selection of wrong report for results evaluation.
When defining new report types (queries), make sure that the reports and the results are labeled properly and unambiguously.

WARNING

Though within a valid range (as per software check), identifier data may be wrong if the barcode, the entered ID or the plate map file defining the aliases contain errors.

- Validate all identifier data and their aliases (if applicable).
- To avoid valid-range errors, identifiers that have been entered by other means than PosID must be validated specifically.

2.3.1 Script Definition in the Application Software

ATTENTION

Labware moves which are not performed with the command **TransferLabware** are **not** tracked.
Be aware of the fact that moving labware by executing vectors with the robotic arm does not generate MCS messages and, therefore cannot be tracked with the Tecan ST Add-on.

- Always use the command **TransferLabware** to move microplates from one site to the other.

ATTENTION

Labware and actions before the barcode scanning step and before the RegLabware command within the script (Freedom EVOware Standard or FluentControl) or within the LiHa pipetting script (Freedom EVOware PLUS) will not be tracked.

- Scan all labware to be tracked as first action within the script.
- Register all labware to be tracked as second action within the script.

Note: *If not using a PosID, identifiers can be assigned to the labware by the* ***RegLabware*** *command (See section 5.2.2 "RegLabware Command", 5-9).*

2.4 Safety of the Overall System

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

WARNING

Hazards originating from the hardware devices controlled with Freedom EVOware or FluentControl.

Mind the safety instructions of all instruments and options which are used in connection with the Tecan ST Add-on.

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 Tecan ST Add-on must be strictly followed.

Modifications

Modifications to the Tecan ST Add-on are not permitted. The manufacturer will decline any claim resulting from unauthorized modifications.

2.6 Validation

Process validation is responsibility of the laboratory. Refer to the Freedom EVOware or FluentControl Software Manual for further guidelines concerning the validation of Freedom EVOware or FluentControl applications.

3 Product Description

Purpose of This Chapter

This chapter gives an overview of the software components and their functions. It specifies the scope and requirements of the Tecan ST Add-on.

3.1 The Software

3.1.1 Intended Use

What is the Tecan ST Add-on?

The intended use of the Tecan Sample Tracking Add-on is to track and retrieve the identities and process information of samples and labware as they are processed by the Freedom EVOware or FluentControl (Hereafter referred as to the Application Software) on Freedom EVO or Fluent instruments.

Features

The Tecan ST Add-on has the following features:

- Tracks Sample IDs, barcodes, volumes, concentrations & errors through complex pipetting processes
- Integrates pipetting and reader data (Magellan, i-Control, XFluor)
- Generates PDF files for electronic archiving, as well as CSV and printouts.
- Monitors pipetting in real-time
- Provides a single, Tecan interface to a LIMS

The Tecan ST Add-on provides three different configurations options for installation:

- Embedded
- Stand Alone
- Multi Instrument (Freedom EVOware only)

Database

The Tecan ST Add-on and the database can be run on a stand-alone PC or in a network (LAN) environment. It can be used to collect and store data from several Application Software installations. The recorded data is stored centrally in an SQL database. The data can be exported in various formats. A web-based reporting tool is also provided in the Stand Alone and Multi Instrument

How Does it Work?

Tecan ST Add-on tracks the location of liquids. When registering a sample, the identity of the cavity is assigned to a specific liquid. Thus, locations of samples can be tracked by tracing the process steps (e.g. aspirate and dispense).

3.1.2 Scope of Application

Sample Tracking is a software add-on for Freedom EVOware and other Application Software. Check the compatibility list on the master media for your Application Software compatibility.

Sample Tracking is also able to track data from other Tecan Application Software such as FluentControl or Magellan. Refer to the compatibility list of those products for details.

3.1.3 Overview of the Components

Main Components

The Tecan ST Add-on consists of the following main components:

- Sample Tracking Server
  - This component receives pipetting information, reader data and system messages from the Sample Tracking Client component and stores it in the SQL database. It is also used for system configuration.
  - This component is runs in the background. It is called “Server” in the Sample Tracking Installation Program.
- Sample Tracking Client
  - This component listens to pipetting information and system messages from Application Software and sends the data to the Sample Tracking Server. This component is required on all PCs running Application Software which you want to track.
  - It is called “Client” in the Sample Tracking installation program.
  - It communicates with Application Software through the driver SamTrkDrv.exe.
- Web-based reporting system (not available for embedded configuration)
  - This component allows you to access the SQL database using a browser such as Edge or Chrome from any PC which is connected to the LAN.
  - The reporting system communicates with the SQL Server through the Sample Tracking Server and publishes the report data using the built-in Web Server.
  - The web-based reporting system allows you to run either the built-in database queries or user-defined queries and to export tracking data to other programs such as Microsoft Excel.
  - This component is required once only.
- Application Software commands
  - Specific Sample Tracking commands for registering the items to be tracked and for generating reports are implemented in Application Software.
- QuickViewer
  - The Sample Tracking QuickViewer provides the possibility to visualize data currently gathered respectively tracked by the Sample Tracking Add-On.
- Report designer (not available for embedded configuration)
  - The Sample Tracking Report Designer provides the possibility of configuring and customizing report sheet templates.

Required Software

The Tecan ST Add-on makes use of two Microsoft software products, which are delivered with the Tecan ST Add-on:

- SQL Server 2022 Express Edition, which is free of license charges.
  It is limited to a database size of 10GB.

Note: *Full versions of MS SQL Server 2022 are also supported.*

Microsoft SQL Server

On Windows 10 64-bit and on Windows 11 the SQL Server 2022 Express Edition can be used with Sample Tracking Embedded and Stand Alone.

On Windows 10 64-bit and on Windows 11 the full Microsoft SQL Server 2022 must be used with Tecan ST Add-on Multi-Instrument, where higher performance is required.

The full Microsoft SQL Server 2022 can be used with Tecan ST Add-on Stand Alone.

Hardlock or Licensing Key

Depending on the version the Tecan ST Add-on requires a special dongle (hardlock) or a license key which has been configured to allow the use of this software.

There is an embedded version that does not require a dongle, but a license key is required in order to work with FluentControl. With this version, the database will be cleared during initialization at the start of new runs.

The stand-alone version supports one client connected to a server. The client and the server can be installed on one computer. The server checks for the dongle or the software license key.

The multi-instrument version allows connecting multiple clients to one server. The dongle is checked by the server on its own PC.

3.1.4 Architecture

Sample Tracking can be used to track data from one or more PCs running Application Software.

The SQL database, the Application Software installation(s) and the Sample Tracking Server can be installed on the same PC (stand-alone configuration) or can be distributed on different PCs (network configuration), depending on your requirements.

Stand-alone Configuration

The figure shows a stand-alone configuration where all software components are installed on the same PC:

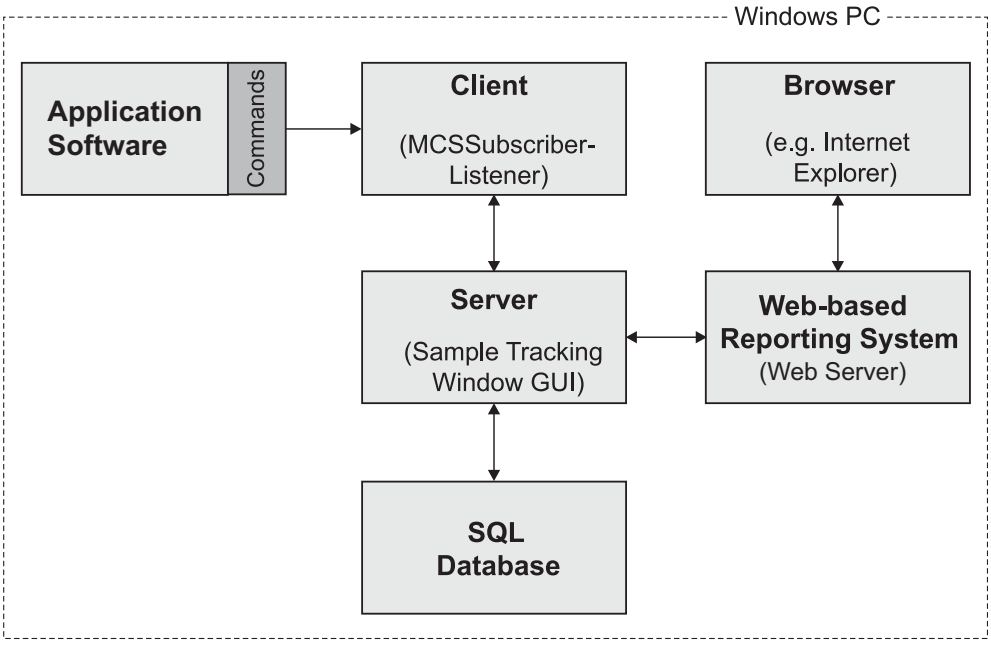

Fig. 3-1 *Example of a stand-alone configuration on one PC*

Network Configuration

With network configurations, all of the PCs must be part of the same LAN.

Web Server

The Web Server is automatically installed with the server.
The figure shows a configuration in a complex network environment:

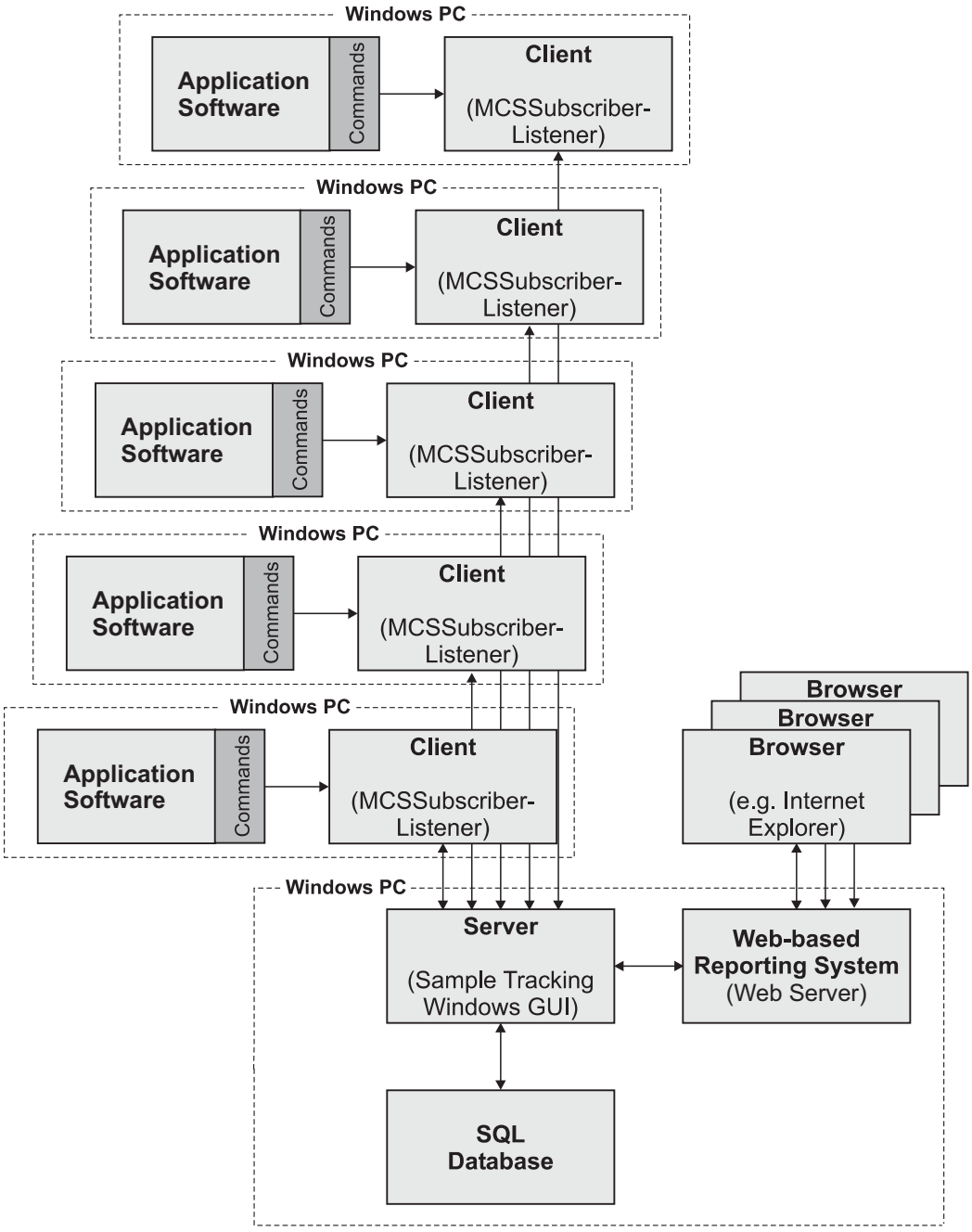

Fig. 3-2 *Example of a configuration in a complex network environment*

Each PC with Application Software controlling an instrument needs a client. The server and the SQL database can be installed on separate PCs. The reporting system needs to be installed on the PC with the server. Any PC in the network can access the reporting system by means of an Internet browser.
Up to five installations with Application Software controlled instruments can be tracked.

3.1.5 Checking the SW Version

Checking the software version which is currently installed is useful, e.g. in case of a support request.

Proceed as follows if you want to check which version of Tecan ST Add-on you are currently using:

1. Click the Windows Start button and choose Control Panel.
2. Double-click on Programs and Features.
3. Navigate in the list to the entry “Sample Tracking”.
4. Choose “Click here for support information”.

Note: *You need local administrator access rights for the Microsoft Windows operating system to carry out this check.*

3.2 Computer Requirements

The PCs on which the Tecan ST Add-on will be installed must meet the following minimum requirements:

Operating System

The Tecan ST Add-on is compatible with the following operating systems:

- Windows 10 Enterprise LTSC 21H2
- Windows 11 LTSC IOT Enterprise

Web Reporting Requirements

The Tecan ST Add-on Web reporting is compatible with Edge and Chrome (for details see compatibility list).

3.2.1 Emdedded and Stand Alone Configuration

Hardware

The hardware requirements depend on the component to be run on the individual PC. The following minimum requirements for the hardware must be fulfilled for a stand-alone configuration (all components installed):

- A CPU that is suitable for running Windows 10 Enterprise LTSC 21H2 or Windows 11 LTSC IOT Enterprise (x64 processors only).
- RAM: At least 2 GB (4 GB recommended)
- HDD: Free harddisk space for installation: 7 GB
- HDD: Harddisk drive with 7200 RPM of faster
- 1, or possibly 2 USB ports for the hardlock, depending on the dongle configuration used.

- USB
- Other requirements as for Application Software.
  Refer to the corresponding Application Software Manual.

3.2.2 Multi Instrument Configuration

Hardware

The PC running the Sample Tracking Server in a Multi Instrument configuration must meet the following specification:

- 3 Ghz CPU (Intel Pentium equivalent and x64 processors only)
- 2 GB RAM
- HDD: Free harddisk space for installation: 7 GB
- HDD: Harddisk drive with 7200 RPM of faster

Network Configuration

- 100 Mbit Ethernet
- All Clients must be on the same sub-net
- Microsoft SQL Server 2022 Standard Edition

3.2.3 Security

The following table shows which permissions are needed for installing and running the Tecan ST Add-on software.

Tab. 3-1 *Minimum MS Windows Security Permissions*

Activity	Windows 10 Enterprise LTSC 21H2 Windows 11 LTSC IOT Enterprise
Program installation	MS Windows Local Administrator
Running the program	MS Windows User

3.3 Restrictions

The restrictions listed here must be taken into consideration when defining scripts and processes for Application Software and when Sample Tracking is used.

The following restrictions apply to Tecan ST Add-on:

- Contamination by tip touch is not tracked by Sample Tracking.
- Contamination by mixing due to liquid class is not tracked by Sample Tracking.

3.4 Device List

Sample Tracking will be able to receive information from the following devices:

Note: *See also the FluentControl ASM for supported devices.*

Device
LiHa/FCA
MCA 96 and 384
RoMa/RGA
TeShake with heating option
Heated Incubator
Hydroflex/HydroSpeed
RT Incubator
1D-/2D-Barcode reader
Sunrise (Rdr_OLE)
Magellan
POS ID 2
POS ID 3
Te-VacS
i-Control (readerNETwork)

4 Installation

Purpose of This Chapter

This chapter describes the prerequisites and the installation of the Tecan ST Add-on components on a PC.

4.1 Introduction

Computer Requirements

For the general computer requirements refer to section 3.2 “Computer Requirements”, 3-5.

Access Rights

To install components of the Tecan ST Add-on on a computer, you need local administrator access rights for the Microsoft Windows operating system.
Refer to the Microsoft documentation for further information on access rights.

Before You Start

Carefully plan your system architecture and consider the user management before installing any software component.

General Installation Procedure

Install the software components in the order prescribed in the following.

4.2 Software installation

Application Software

Check if your existing Application Software installation is compatible to Tecan ST Add-on.
Refer to 3.1.2 “Scope of Application”, 3-1.
If not installed already, install a compatible version of Application Software.

Installation Procedure

For instructions on how to install, refer to the corresponding Application Software Manual.

Microsoft SQL Server

The Microsoft SQL Server Express Edition 2022 is included in the installation and is free of license charge.

Note: *The SQL Server is accessed through the web-based reporting system or the API; write access to the SQL Server directly is not permissible.*

WARNING

Data security cannot be ensured if the SQL Server is directly accessed.

- Only allow access to the database through ST software or to insert new report queries.
- Never access the database directly.

Magellan Software

If the Sample Tracking add-on is used in conjunction with the Magellan software, make sure that the Magellan software is installed before the Sample Tracking Add-on to avoid malfunctions.

4.3 Tecan ST Add-on installation

The Tecan ST Add-on consists of different components. Depending on your system architecture you will need to install only individual components (e.g. the client for computers with Application Software) or several components.

Note: *Thoroughly plan the concept of your complete system before installing the components.*

4.3.1 Initial Installation

Note: *If the Sample Tracking add-on is operated without the Magellan software, skip the attention note below.*

ATTENTION

Risk of malfunctions. Installing the Magellan Software after the Sample Tracking Add-on will result in malfunctions.

- Before initializing the Sample Tracking Add-on make sure that the Magellan software has been installed.

The Tecan Sample Tracking Add-on provides three different configurations options for installation:

Embedded

The embedded Tecan Sample Tracking Add-on installation is used to monitor and temporarily save Application Software data.

Stand Alone

The stand alone Tecan Sample Tracking Add-on installation runs on a single workstation and is used to monitor and save Application Software data.

Multi Instrument

The multi instrument Tecan Sample Tracking Add-on installation is used to run, monitor and save information as well as provide the possibility for full data coverage and organization of multiple workstations (with Application Software installed).

Note: *Make sure that Application Software is properly installed on computers where you wish to install the client.*

ATTENTION

Risk of malfunctions. Incorrectly set domains and regional settings will lead to malfunctions.

- Make sure that the server and clients are located in the same domain.
- Make sure that the server and clients have the same regional settings.
- Follow referenced secure operating manuals.

Installation Procedure

To install Tecan ST Add-on or components of it, proceed as follows:

Note: *If necessary, the required .NET framework version will be installed automatically from the USB.*

1 Insert the Tecan ST Add-on USB in your USB drive0.

2 Double-click the file <Setup.exe>.

The welcome screen appears:

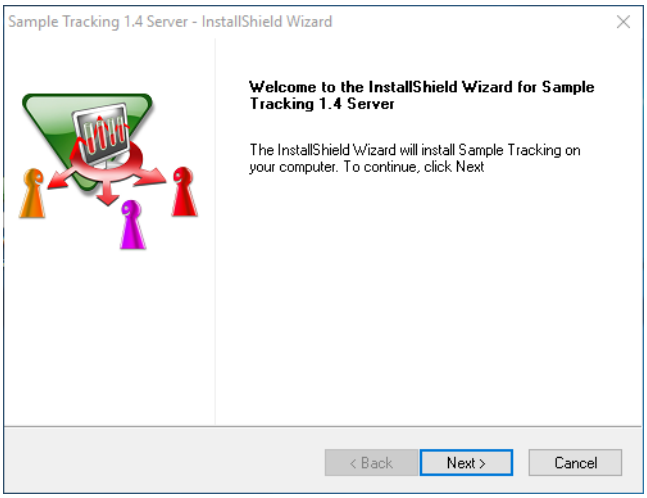

Fig. 4-1 *Welcome screen*

3 Click on **Next** to proceed.

Note: *If the Tecan ST Add-on is installed for the first time, the license agreement screen appears:*

Fig. 4-2 *License Agreement*

4 To accept the terms, select the option button **I accept the terms in the license agreement**.

The following screen appears:

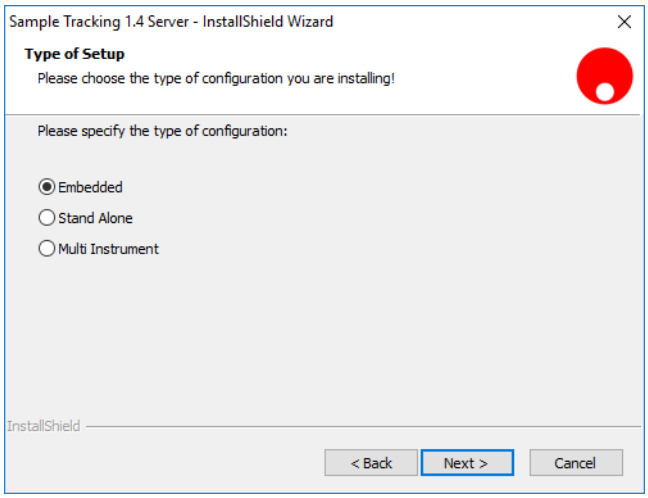

Fig. 4-3 *Destination folder screen*

5 Select the type of configuration required:

- **Embedded**
- **Stand Alone**
- **Multi Instrument**

6 Click **Next** to proceed.

7 For instructions concerning the appropriate configuration type selected refer to section listed below:

- **Embedded see 4.3.2 “Embedded”, 🗎 4-5**
- **Stand Alone see 4.3.3 “Stand Alone”, 🗎 4-8**
- **Multi Instrument see 4.3.4 “Multi Instrument”, 🗎 4-10**

4.3.2 Embedded

Follow the instructions below to install the embedded configuration of the sample tracking software.

After selecting the type of configuration and proceeding with the following dialog is displayed.

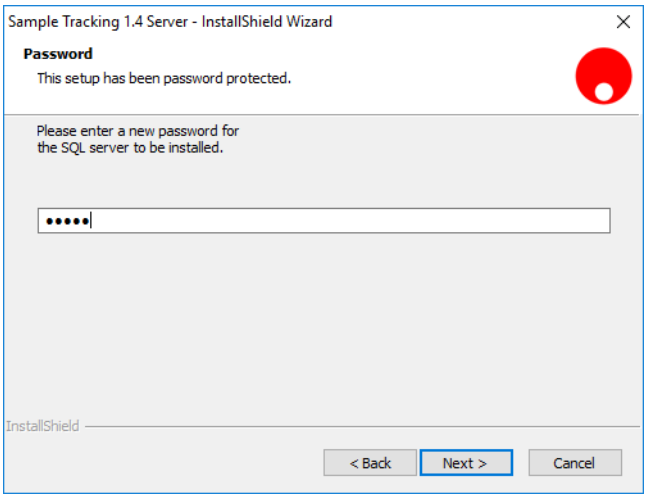

Fig. 4-4 *Choose password for Microsoft SQL Server 2022*

1 Choose a password that confirms the password complexity policies of Microsoft SQL Server like

- The password does not contain the account name of the user.
- The password is at least eight characters long.
- The password contains characters from three of the following four categories:
  - Latin uppercase letters (A through Z)
  - Latin lowercase letters (a through z)
- Base 10 digits (0 through 9)
- Non-alphanumeric characters such as: exclamation point (!), dollar sign ($), number sign (#), or percent (%).
- The password can be up to 128 characters long.

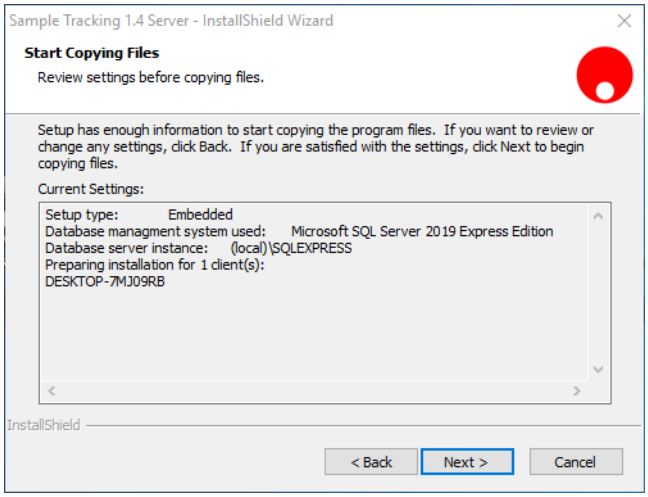

Fig. 4-5 *Review settings*

2 Click **Next** to proceed.

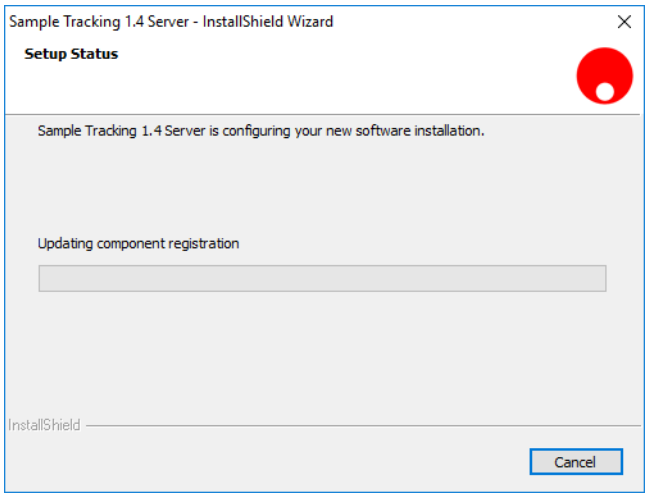

Fig. 4-6 *Setup status*

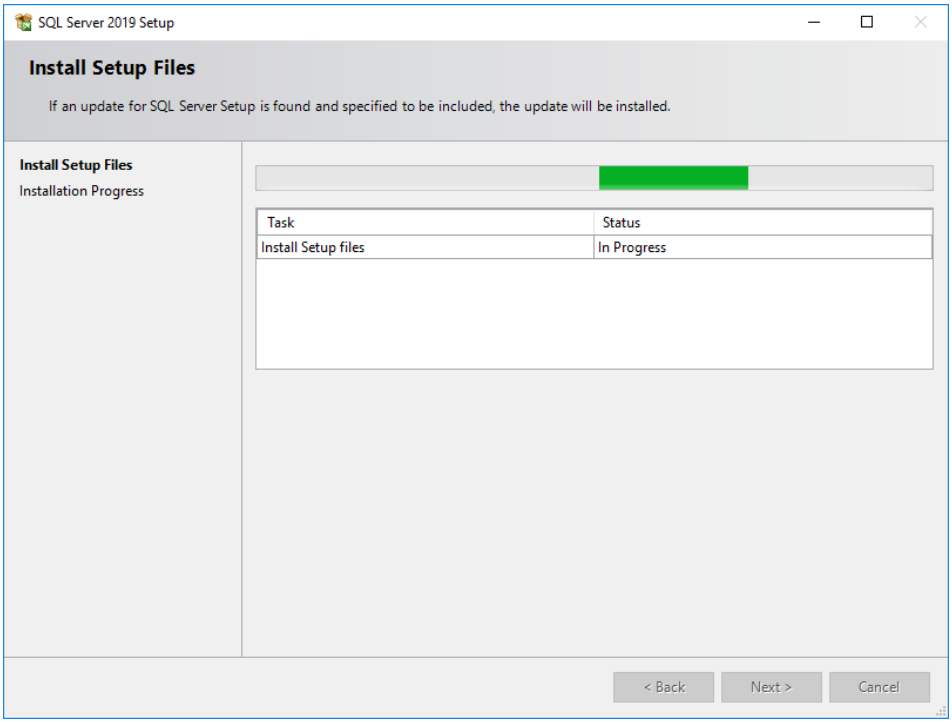

Fig. 4-7 *nstallation of SQL Server 2022*

3 Click **Next** to proceed.

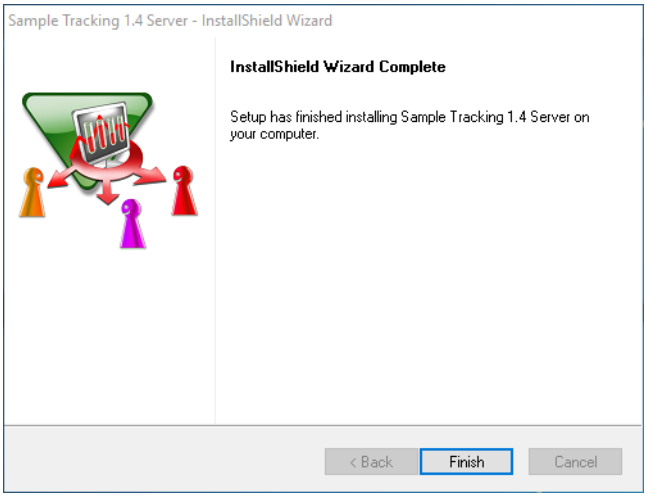

Fig. 4-8 *Finishing embedded setup*

4 Click **Finish** to finalize installation.

4.3.3 Stand Alone

Follow the instructions below to install the stand alone configuration of the sample tracking software.
After selecting the type of configuration and proceeding with the following dialog is displayed.

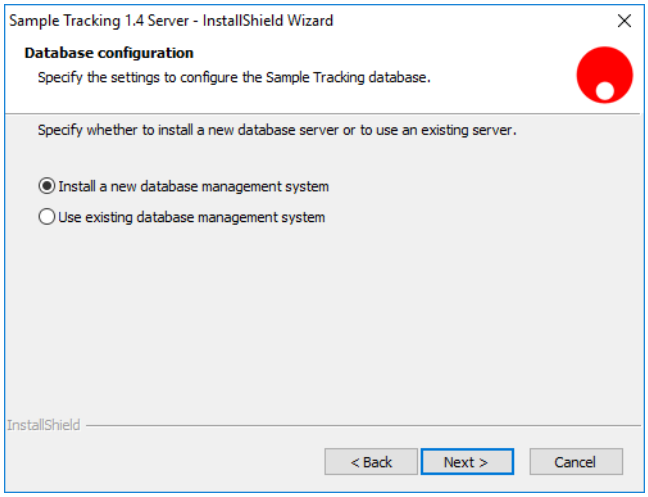

Fig. 4-9 *Database configuration*

Note: *If you intend to use a existing data base refer to* *4.3.5 “Using An Existing SQL Server”, 4-17*

1 Select **Install a new database ...** option and confirm the selection by clicking **Next**.

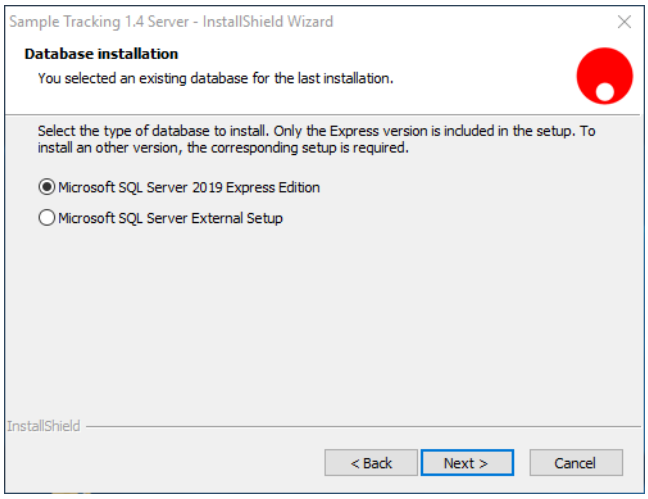

Fig. 4-10 *Database installation*

Note: *By default the* ***Microsoft SQL Server 2022 Express Edition*** *option is selected.*

2 Click **Next** to proceed.

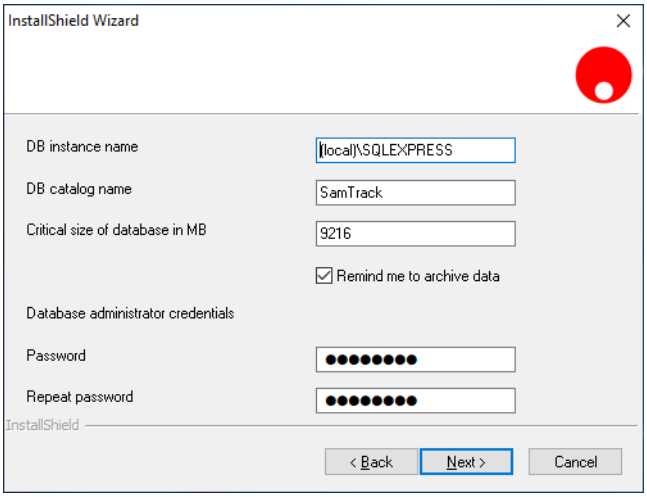

Fig. 4-11 *Database installation*

Critical Size

3 Tick the **Remind me to archive data** check box.

4 Edit critical size of the database in MB.

Note: *The critical size of the database is the fill level (MB) that triggers the automated archival functionality to move data to an archive database.*

5 Choose a password that confirms the password complexity policies of Microsoft SQL Server like

- The password does not contain the account name of the user.
- The password is at least eight characters long.
- The password contains characters from three of the following four categories:
  - Latin uppercase letters (A through Z)
  - Latin lowercase letters (a through z)
- Base 10 digits (0 through 9)
- Non-alphanumeric characters such as: exclamation point (!), dollar sign ($), number sign (#), or percent (%).
- The password can be up to 128 characters long.

ATTENTION

Risk of access denial. Use caution when editing a new password.

- Make sure password is correctly edited.
- Make sure username and password are noted adequately.
- Be sure to back up the user and password. When reinstalling Sample Tracking, this data will be needed to reconnect to an existing database.

ATTENTION

Risk of non authorized access to database. Using the default password may lead to non authorized access to the database.

- Avoid using the default password.

6 Click **Next** to proceed.

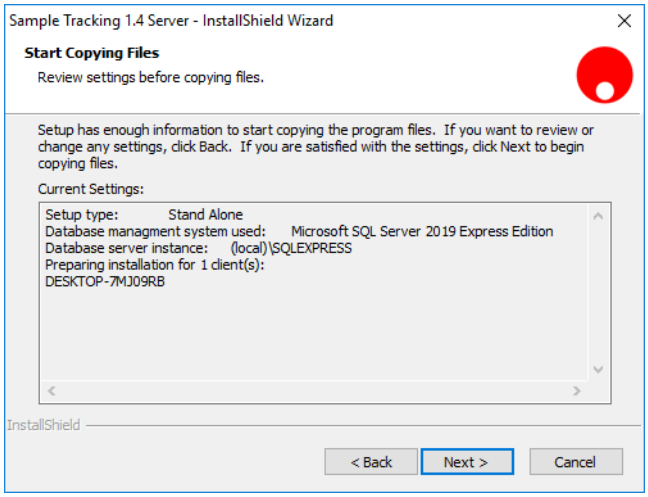

Fig. 4-12 *Start copying files*

7 Click **Next** to proceed.

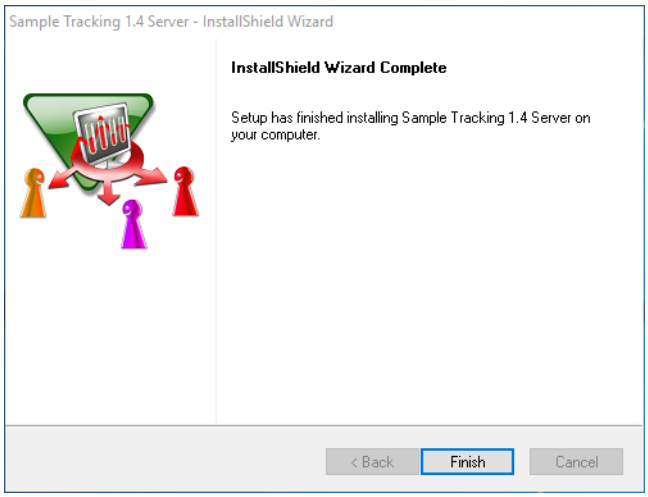

Fig. 4-13 *Installshield wizard complete*

8 Click **Finish** to finalize installation.

4.3.4 Multi Instrument

Follow the instructions below to install the Multi instrument configuration of the sample tracking software.
After selecting the type of configuration and proceeding with the following dialog is displayed.

ATTENTION

Risk of malfunctions. Server and client regional settings that do not match will lead to malfunctions.

- Make sure that the regional settings of server and clients match.
- Make sure that the date format has to be the same to provide data exchange.

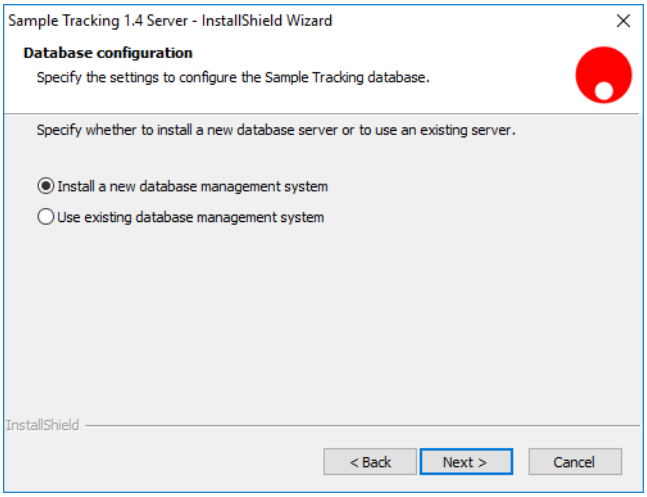

Fig. 4-14 *Database configuration*

1 Select **Install a new database management system** option and confirm the selection by clicking **Next**.

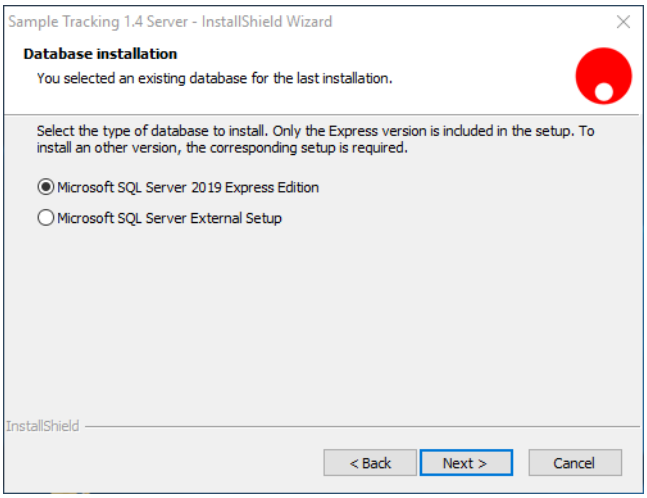

Fig. 4-15 *Database installation*

Note: *By default the* ***Microsoft SQL Server 2022 Express Edition*** *option is selected.*

2 Click **Next** to proceed.

The following substeps describe the external MS SQL server setup.

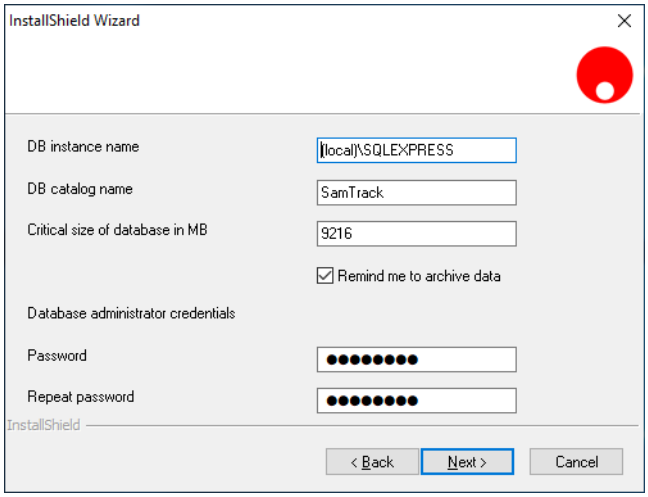

Fig. 4-16 *Microsoft SQL server 2022*

3 Click **Next** to proceed.

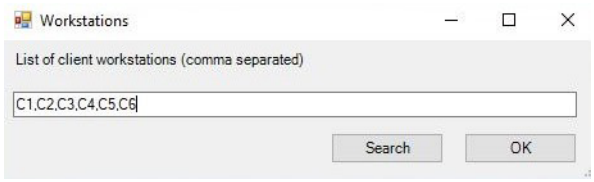

Fig. 4-17 *Add Client workstations*

4 Click **OK** to proceed or **Search** to look for an available client PC.

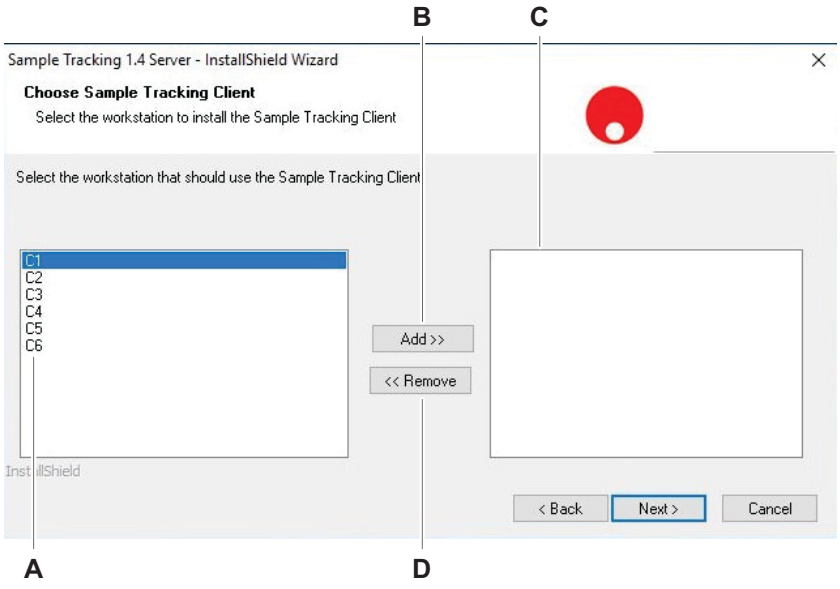

Fig. 4-18 *Choose sample tracking client*

A *Workstations available*
B *Add to list Function*
C *Workstation selection for Sample Tracking Client installation*
D *Remove from selection function*

5 *Select the appropriate workstation from the listing (A) and click **Add** (B) to add the workstation to the selection (C).*

6 Repeat the previous sub step until the selection (C) contains the *appropriate* workstations.

7 Click **Next** to proceed.

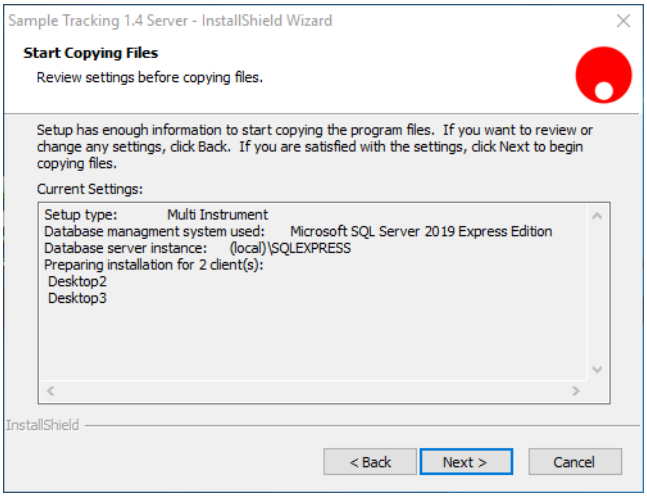

Fig. 4-19 *Start Copying Files*

8 Click **Next** that the sample tracking software can configure the new software installation.

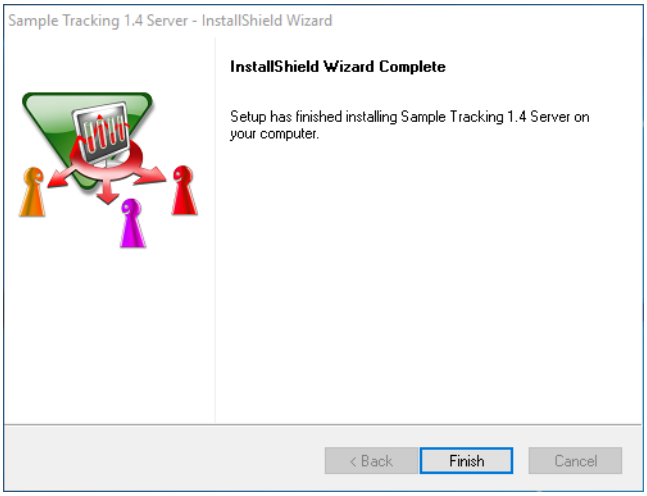

Fig. 4-20 *Installshield wizard complete*

9 Click **Finish** to finalize installation.

Client installation for Multi instrument configuration

The Sample Tracking client is required to provide the data exchange between the message control server, EVOware and the instruments.

Follow the instructions below to for each instrument that need to be connected.

1 Initiate the **Windows Explorer**.

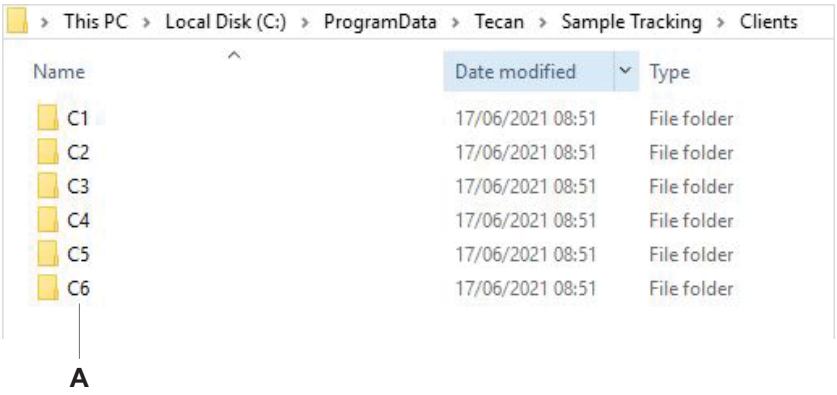

Fig. 4-21 *Windows Explorer*

2 Select appropriate network client to run the **Sample Tracking Client Setup.exe** (A).

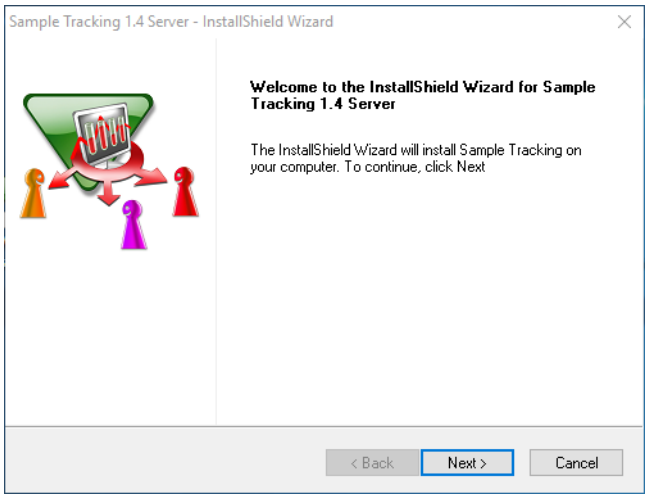

Fig. 4-22 *Welcome screen*

3 Click **Next** to proceed.

Fig. 4-23 *License Agreement*

4 To accept the terms, select the option button **I accept the terms in the license agreement**.

5 Click **Next** to proceed.

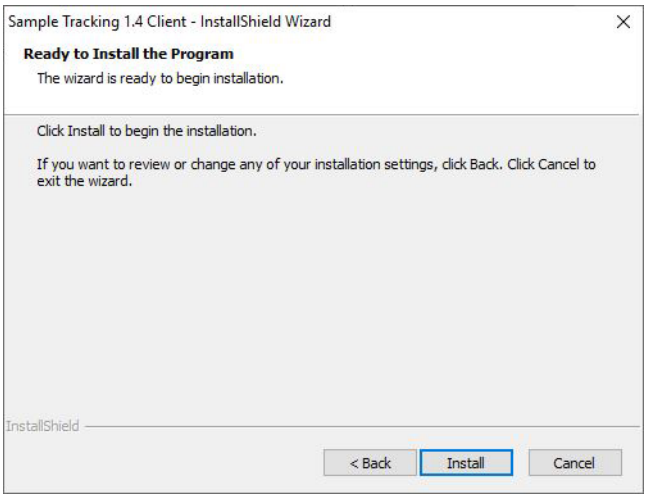

Fig. 4-24 *Ready to Install the Program*

6 Click **Install** to proceed.

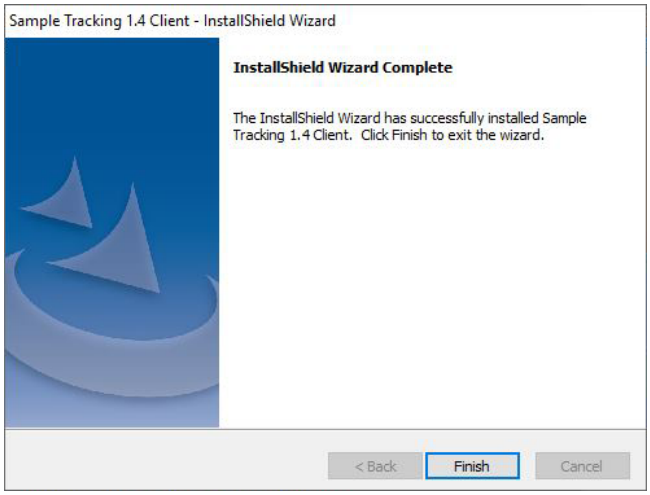

Fig. 4-25 *Ready to Install the Program*

7 Click **Finish** to proceed.

4.3.5 Using An Existing SQL Server

Note: *If you are using an existing SQL server make sure the authentication mode is set to Mixed mode* ***(Windows Authentication and SQL Server Authentication)****.*

Note: *If the SQL server is not started automatically change the computer management settings as follows below.*

1 Open the Windows Computer Management

Automatic SQL Server start mode

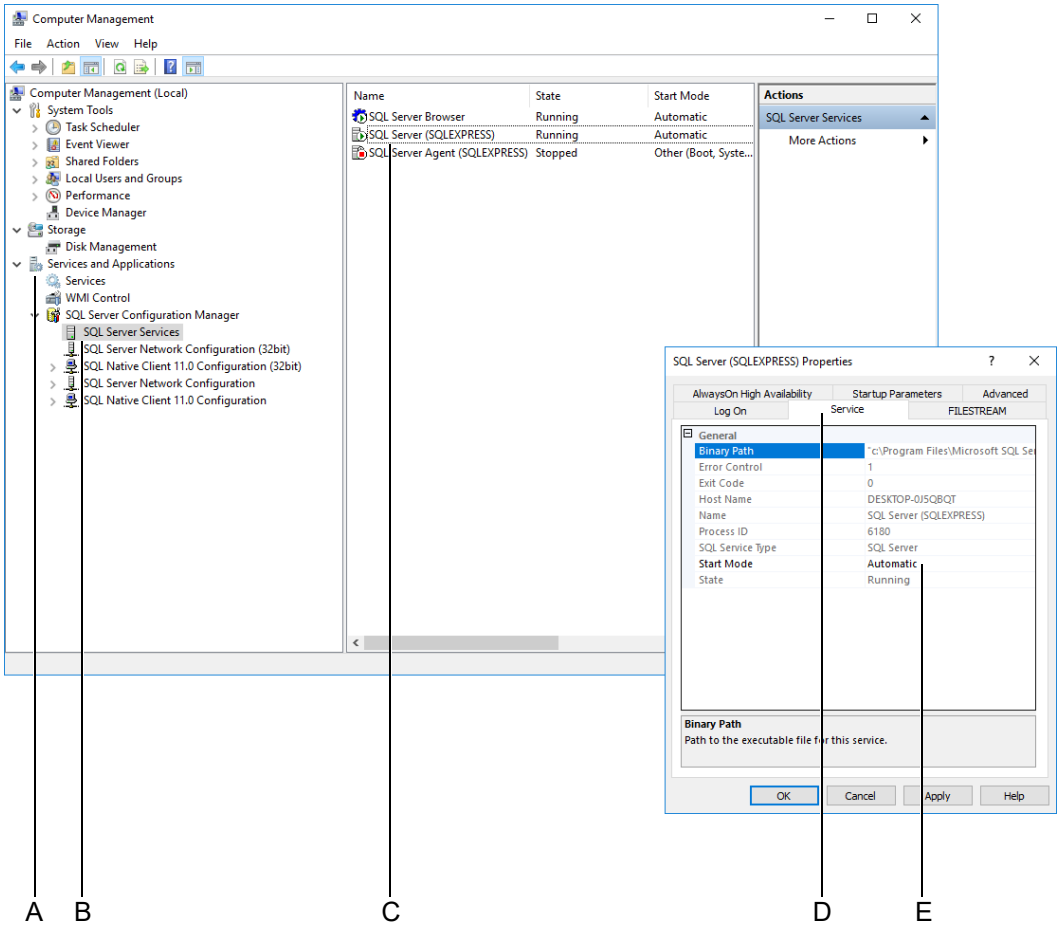

Fig. 4-26 *Contact SQL (SQLEXPRESS) properties*

2 Select **Services and Applications** (A) to view data.

3 Select SQL Server Configuration menu (B).

4 Select and click right mouse button on file **SQL Server(SQLEXPRESS)** (C) and select **Properties** from the content menu Fig. 4-26, 🗎 4-17.

5 Select **Automatic** (E) from **Start type:** drop down list of the **QL Server (SQLEXPRESS) Properties (Local Computer)** menu Fig. 4-26, 🗎 4-17.

6 Click **OK** to confirm entries Fig. 4-26, 🗎 4-17.

4.3.6 Modifying the Installation

If there is already an installation available on the computer, the **Program Maintenance** screen appears after the welcome screen:

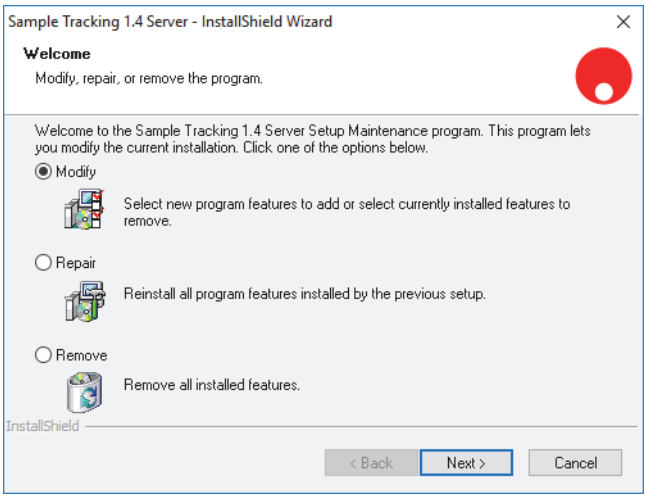

Fig. 4-27 *Program Maintenance screen*

Select one of the options and click on **Next** to proceed.
Follow the instructions on the screen.

4.3.7 Distributing Access to the Sample Tracking Web Reporting Tool

The Sample Tracking Webserver is designed to support plain text HTTP access to the Web Reporting Tool, with default security measures restricting connections to localhost.
To facilitate secure network access to the Web Reporting Tool, it is necessary to generate certificates and configure an HTTPS proxy. The Sample Tracking system provides a dedicated tool for certificate generation and server configuration, located on the master medium under the Install directory.
The following section outlines the necessary steps, to be executed with Windows Administrator privileges, to enable secure HTTPS access.

Generate a RootCA certificate

If you already have a Personal Information Exchange (*.pfx) file and a Security Certificate (*.crt) file from other installations, skip forward to the next step.
This step only needs to be performed once, and the files reused for each Sample Tracking server. **Only one RootCA certificate** should be generated and then reused for each installation.
At the end of this step, we will have created two files:

- A PFX file containing a password protected private key
- A CRT file containing the corresponding public key and information related to the certificate.

The PFX file is necessary to generate certificates for each Sample Tracking web reporting tool instance (step two). The CRT file needs to be imported into all clients that need to access the web reporting tool over the network (step three).

Note: *The certificate will be valid for 10 years and it should be replaced before it expires.*

The replacement process is the same as initially generating the certificate and configuring Sample Tracking as described in this section. All Sample Tracking servers and clients that access the web reporting tool need to be updated with the new certificate.

1 Open the CertificateGenerator tool and fill out the required information as highlighted in the red box.

Note: *Only use the letters a-z, @ and - when entering information.*

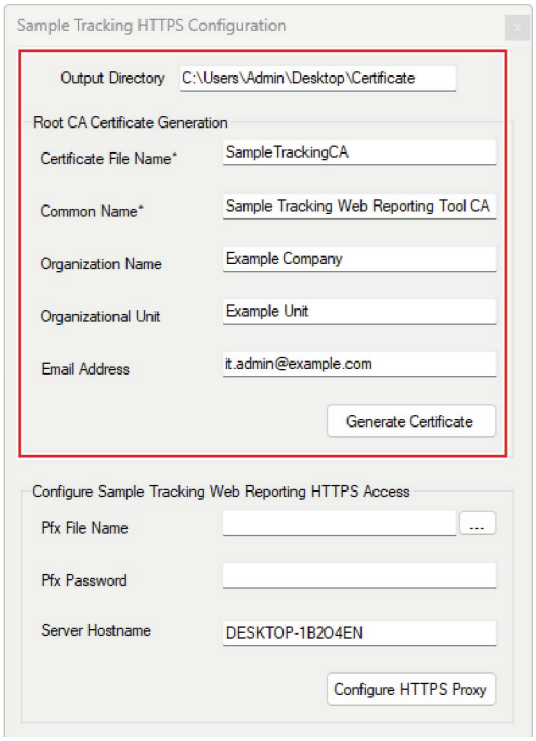

Fig. 4-28 *Sample Tracking HTTPS Configuration*

Output Directory is where the PFX and CRT files are saved to.
Certificate File Name is the name of the PFX and CRT files.
Common Name describes what the certificate is for.
Organization Name, **Organization Unit** and **Email Address** are optional.

2 Click on **Generate Certificate** to proceed.

After the tool has finished, there should be a message box with a password.

Note: *Note this password somewhere safe and separate from the PFX file!*

If the CRT file, PFX file or password are lost, a new RootCA certificate needs to be generated, and all Sample Tracking installations updated with the new certificate.

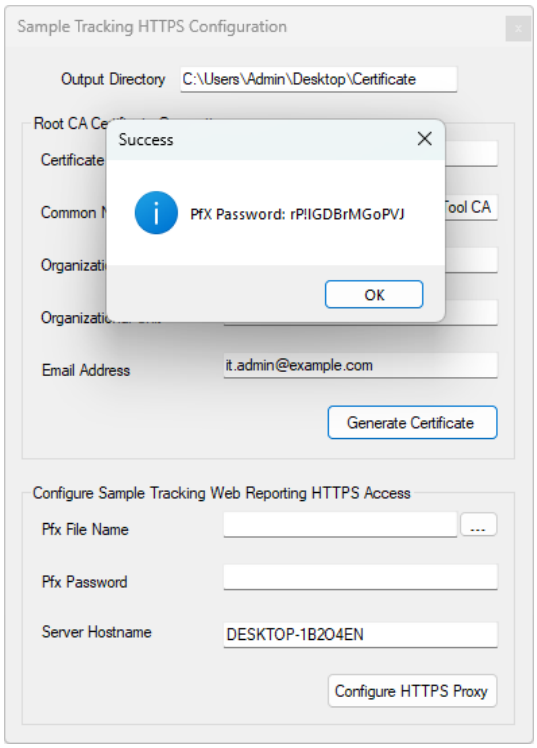

Fig. 4-29 *PFX Password*

The **Output Directory** should contain the PFX and CRT file together with a log file. The PFX file and the password are required for the next step and should be kept safe. The CRT file is required for step three.

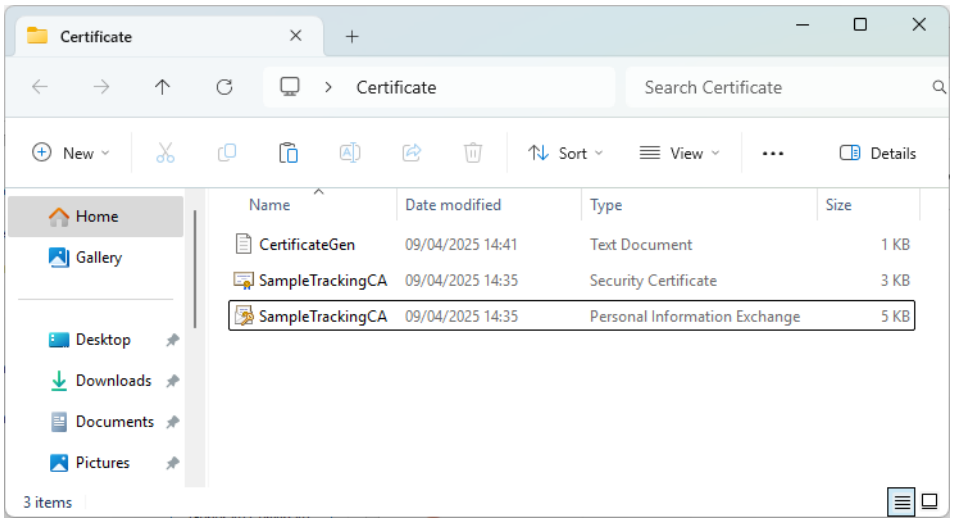

Fig. 4-30 *Output Directory*

Configure Sample Tracking

This step needs to be done for **each Sample Tracking Server Web Reporting Tool installation** that requires access over the network.

To enforce secure connections to the web reporting tool over the network, the configuration directive "LocalHostMode" must be set to True (see chapter 6.7 “Additional Configuration”, 6-17).

If the Server has a firewall, port 443 needs to be opened to allow external connections.

For this we require the Personal Information Exchange (PFX) file from step one.

At the end of this step, we will have:

- Configured Sample Tracking to enable HTTPS access to the Web Reporting Tool
- A shortcut to the Web Reporting Tool

We require a hostname for the Sample Tracking Server which can be resolved from the web browser clients inside the company network. Ideally the hostname is provided by the IT department and can be resolved through an internal DNS server.

1 Open the Certificate Generator tool and fill out the required information as highlighted in the red box.

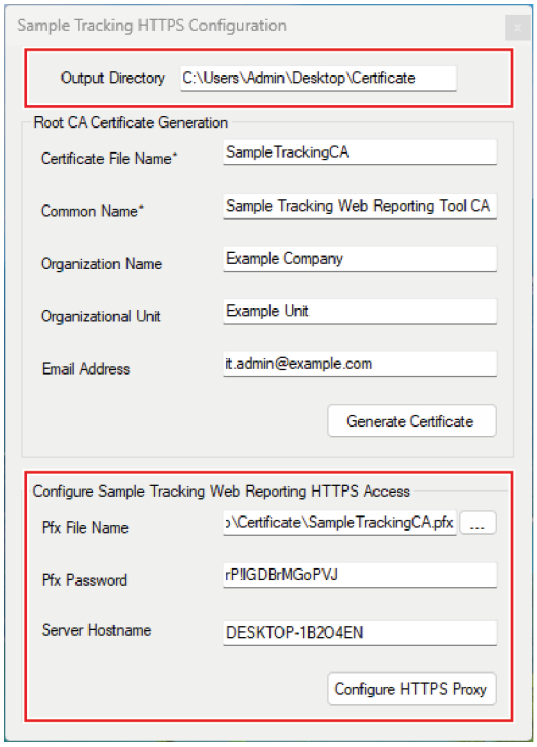

Fig. 4-31 *Certificate Generator tool*

Output Directory is where the shortcut and logfile are stored.

Pfx File Name and **Password** are from the previous step.

Server Hostname is the hostname of the Sample Tracking Server. The field is filled by default with the computer name, but it should be changed to a hostname provided by the IT department.

2 Click on **Configure HTTPS Proxy** to configure Sample Tracking and the HTTPS proxy.

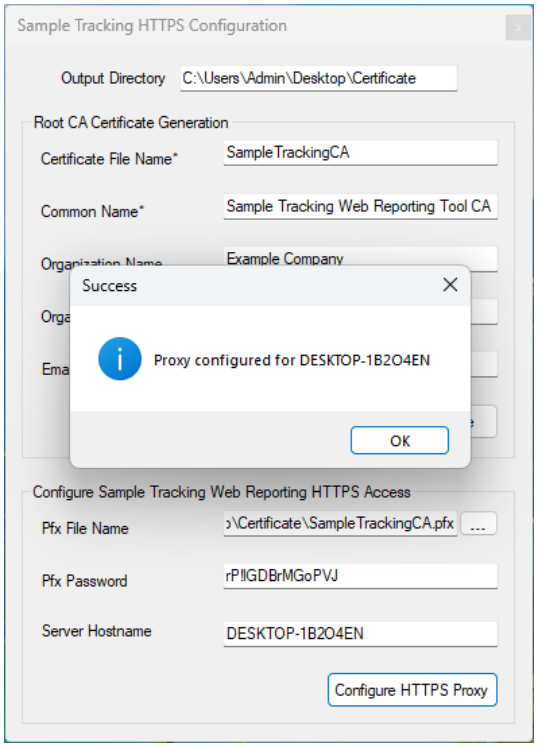

Fig. 4-32 *Configure HTTPS Proxy*

The **Output Directory** will contain a shortcut to the secured reporting tool interface and a logfile.

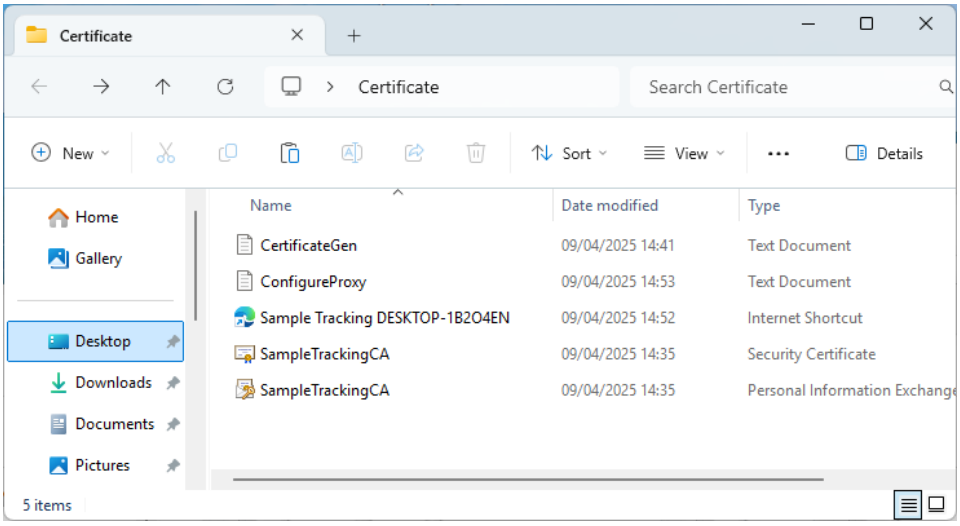

Fig. 4-33 *Output Directory*

3 Either restart the computer or manually restart the **Tecan Sample Tracking Webserver** service.

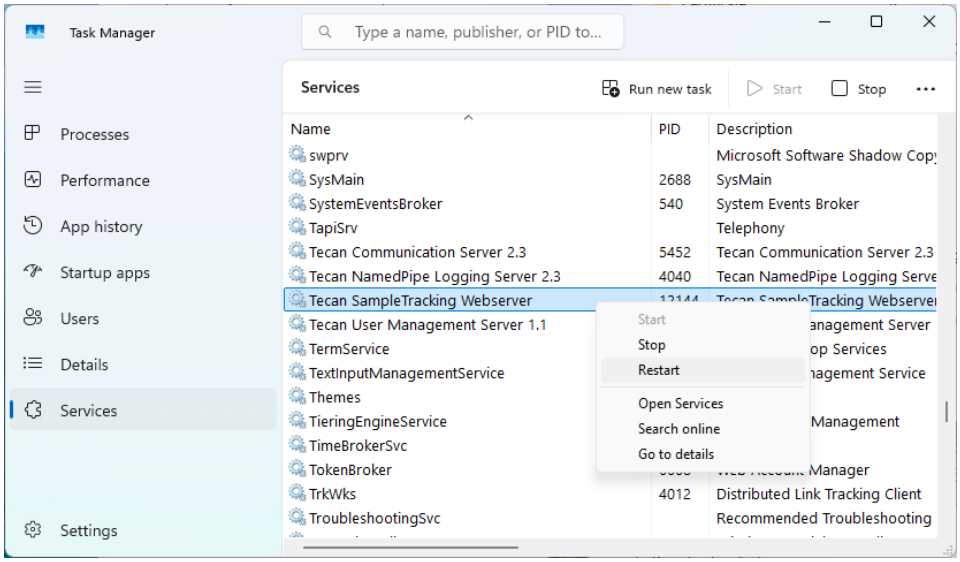

Fig. 4-34 *Restart with Tecan Sample Tracking Webserver*

After the restart, a new process named **Caddy** should have appeared in the task manager. Before we can access the Web Reporting Tool over HTTPS we will need to import the RootCA certificate CRT file from the first step onto the server and each web browser client in step three.

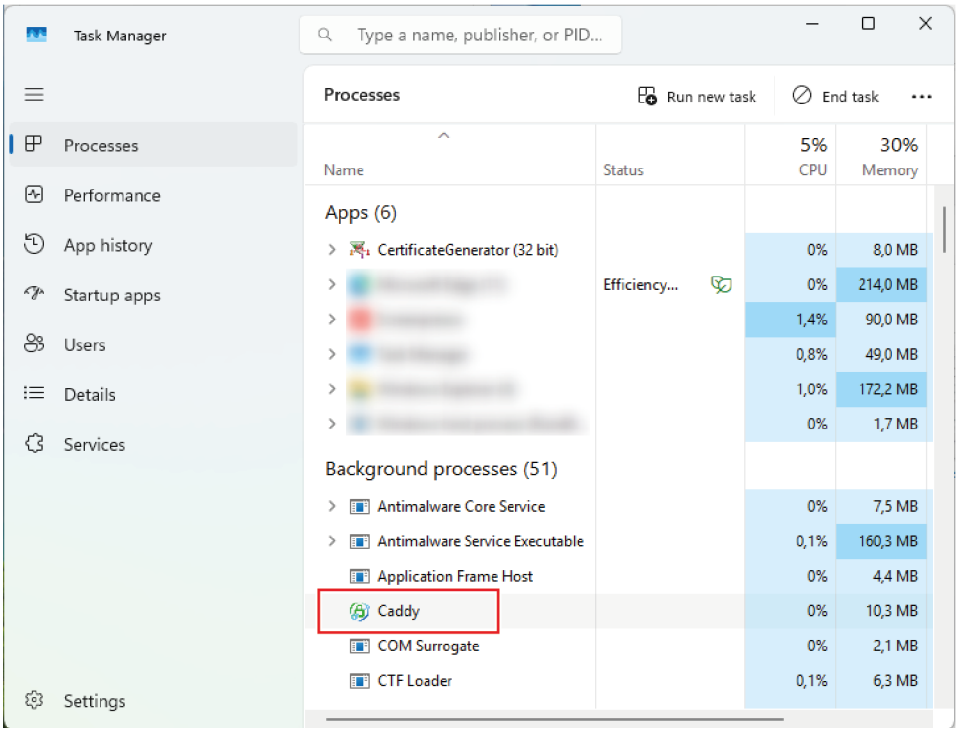

Fig. 4-35 *Process Caddy*

Configure Web Browser Clients

This step needs to be done for each client that needs access the Web Reporting Tool over a web browser to prevent a security warning.

The following description is for Windows, for other operating systems or individual browsers, refer to their documentation on how to import a "Trusted Root CA Certificate".

For this step we require the Security Certificate (CRT) file from the first step and Admin permissions.

1. Copy the CRT file to the client PC and in Windows Explorer right click on the Security Certificate File.
2. Select **Install Certificate** from the context menu.

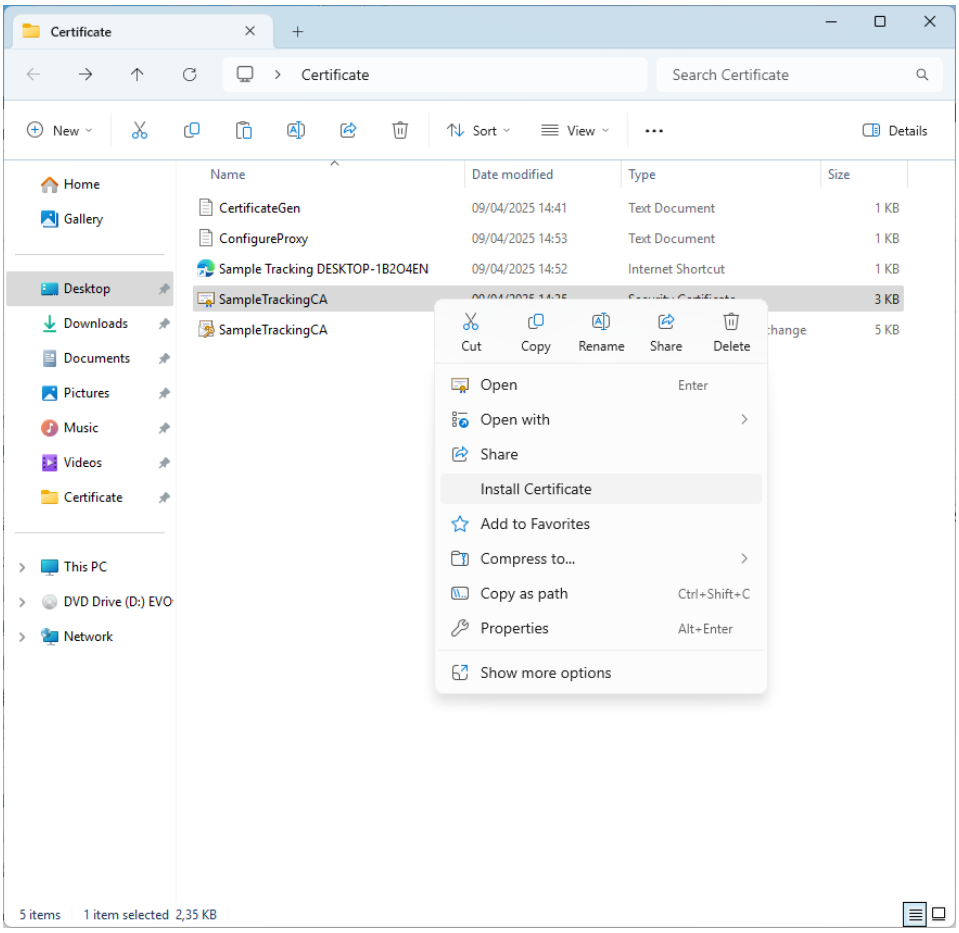

Fig. 4-36 *Install Certificate*

3 Select **Local Machine** as store location.

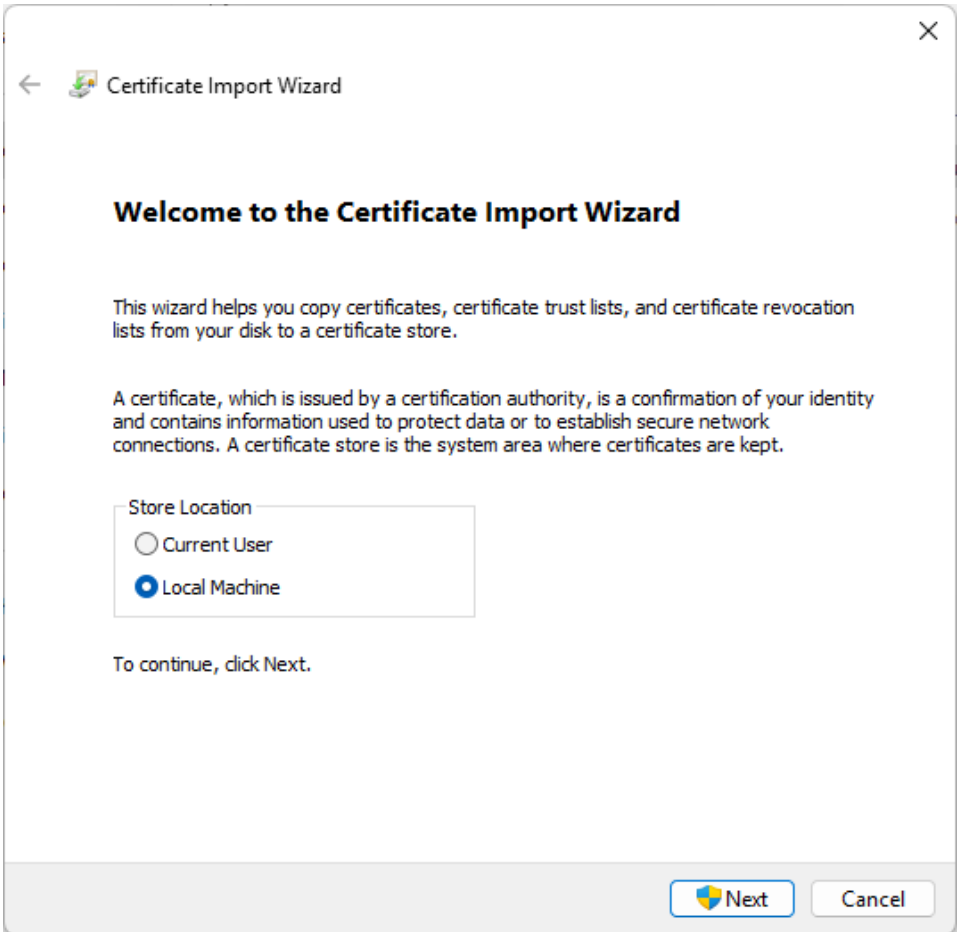

Fig. 4-37 *Certificate Import Wizard*

4 Select **Place all certificates in the following store** and click **Browse**.

5 From the window select **Trusted Root Certification Authorities** then click **OK** and **Next**.

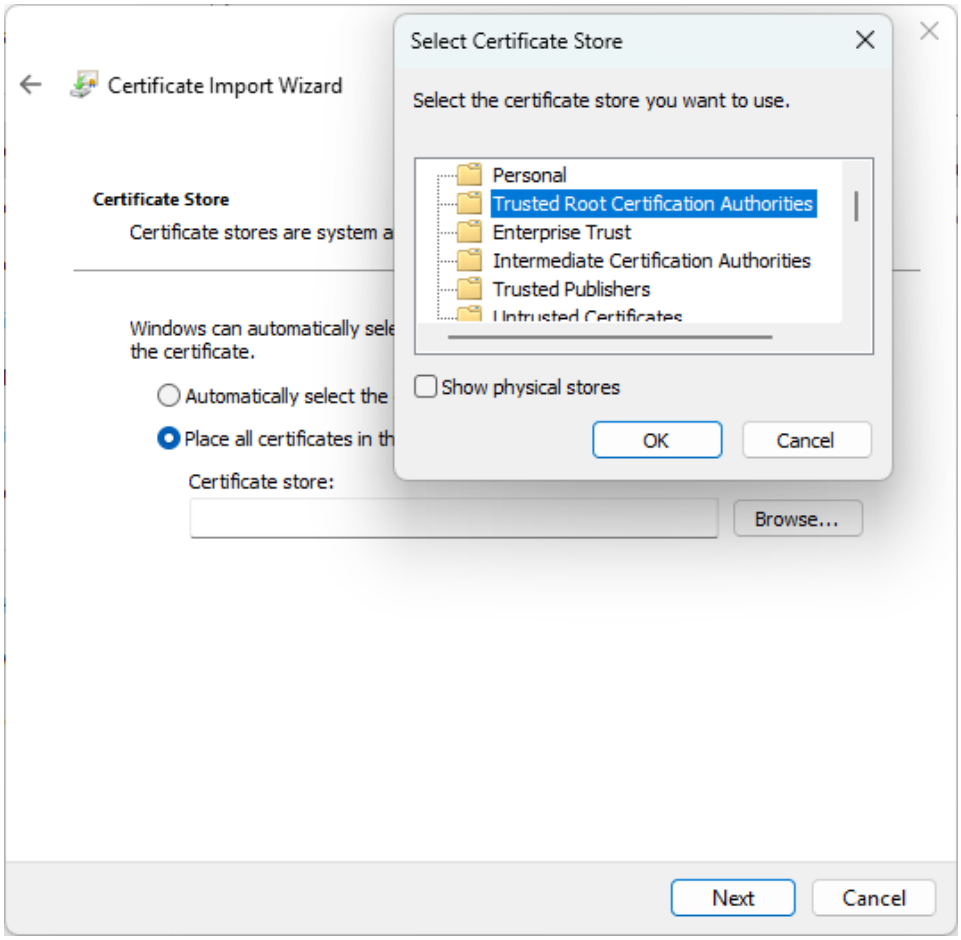

Fig. 4-38 *Trusted Root Certification Authorities*

6 Check the settings and click **Finish.**

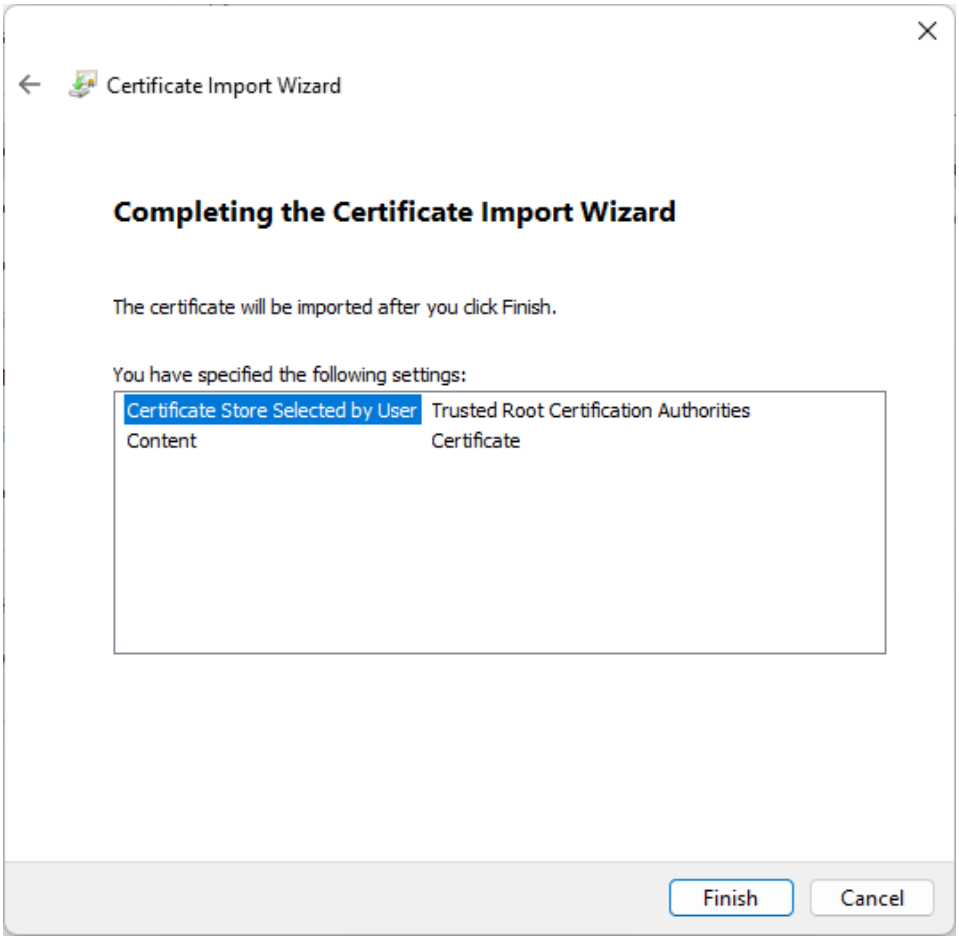

Fig. 4-39 *Completing the Certificate Import Wizard*

Now we should be able to reach the Sample Tracking Web Reporting Tool by either using the shortcut from step two, or by entering the hostname from step two into the address bar of a browser as follows: https://<hostname> (replace <hostname> with the actual hostname).

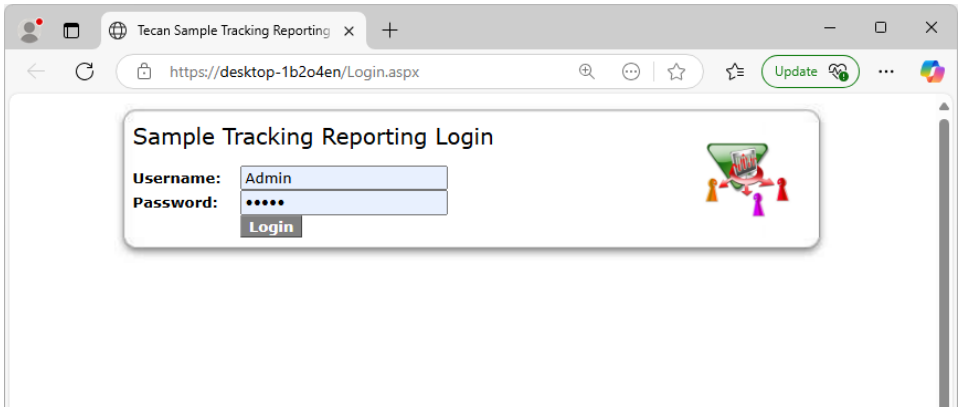

Fig. 4-40 *Login*

4.3.8 Licensing

Hardlock or Licensing Key

Each computer connected to a Application Software controlled instrument, with a Embedded or StandAlone configuration, requires a special Application Software dongle (hardlock) or licensing key which has been configured to allow the use of this software.

Note: *Multi Instrument configurations can be operated by connecting the dongle to the server.*

Application Software controlled instruments with a Multi Instrument configuration require the dongle to be connected to the server.

Communication between Sample Tracking Server and the Application Software is not possible if no proper dongle or licensing key is applied.
The hardlock configuration enables Application Software and Tecan ST Add-on to connect to a USB port.

4.3.9 Test

Verifying the Installation

If the Sample Tracking components have been correctly configured, the status message ”Listening…” in the Sample Tracking Server should be in green. Otherwise it will be in red.
Check the connections to the clients as described in section 6.6.1 “Connection”, 🗎 6-16.

Database

Check the connection to the database as described in section 6.6.2 “Check Database”, 🗎 6-17.

Verify Reporting

To check whether the reporting works satisfactorily proceed as described in section 7.1.1 “Starting the Reporting System”, 🗎 7-3.

4.3.10 Sample Tracking and Magellan

In order to enable the Application Software to exchange labware and sample barcodes, as well as Magellan result data with the Sample Tracking software, proceed as follows:

1. In the EVOware software, open the **Magellan Configuration - Settings** tab. For details refer to the Application Software Manual, section “Settings for the Magellan driver”.
2. On this tab, select on the **Sample Tracking** check box.

   This allows the EVOware software to exchange the above mentioned data with the Sample Tracking software.

Note: *If the Sample Tracking server is not running on the EVOware PC, proceed as follows:*

- *Locate the file MagellanProxy.config in the EVOware directory.*
- *In <client url="tcp://localhost:8080" …, replace "localhost" with the name of the server where Sample Tracking server is running.*

4.3.11 Upgrade Sample Tracking Installation

To upgrade Tecan ST Add-on a system with an older ST version installed, proceed as follows:

Note: *If necessary, the required .NET framework version and the required SQL Server will be installed automatically from the USB.*

1 Insert the Tecan ST Add-on USB in your USB drive.

Double-click the file <Setup.exe>.
The welcome screen appears:

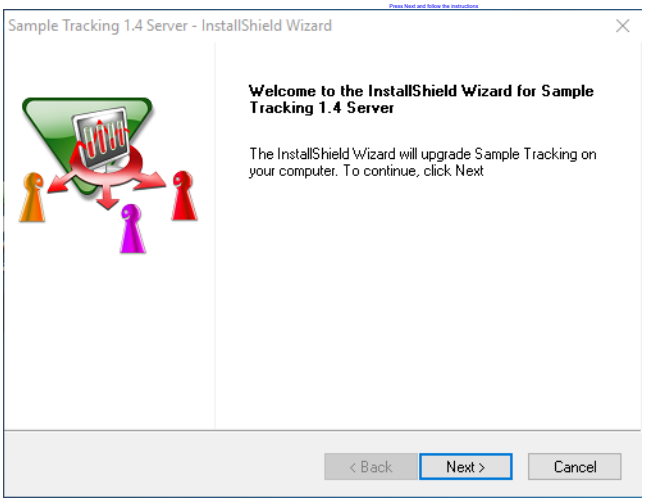

Fig. 4-41 *Welcome screen*

2 Press **Next** and follow the instructions.

4.4 User Management

Access to the web-based reporting system requires a user name and password. If Application Software is running on the same PC, any existing Application Software user accounts for the user role Administrator can be used to log in. If Application Software is running on a different PC, the Sample Tracking Installer installs its own User Management System for user authorization. It is then necessary to set up a suitable user account for the Administrator using the Sample Tracking Server.

The same user account is used to access the web-based reporting system and to change configuration settings in the Sample Tracking Server.

A user name and password is also required to exit the Sample Tracking Client. This prevents unauthorized persons from disabling the tracking function and the server. Any existing Application Software user accounts for the user role Administrator can be used for this purpose.

Note:

- *When you create or modify a user in the Application Software User Management System (standalone systems only), you must change your password at the next login. This login or password change must be done in the Application Software and cannot be done in Sample Tracking Reporting.*
- *Sample Tracking Client runs on the Application Software PC, so the User Management component is already available in this case.*

Also refer to the corresponding Application Software Manual.

4.5 Starting Sample Tracking

The server and the client start automatically when the system is booted.

Note: *Sample Tracking requires the Application Software to run in real mode.*

To run the Application Software in real mode, either connect up to a real pipetting instrument or start Simulator.

Note: *EVOSim does not support all of the hardware options of the pipetting instrument (e.g. Te-VacS). See the EVOSim chapter in the Appendix of the Application Software Manual for more information.*

Hardlock or Licensing Key

Depending on whether Sample Tracking version is used with EVOware or Fluent Control, the software requires a special dongle (hardlock) or licensing key which has been configured to allow the use of this software. For the activation of Sample Tracking for Fluent the Gx Assurance Software License is required (see Fluent Manual). This applies for Embedded and Stand Alone.

The server checks for a valid dongle. If a message saying “No dongle is found”, connect the hardlock (dongle) now.

Note: *There is a 30 day evaluation period after installation. After this time has elapsed the software can only be run with the 3D Simulation Tool.*

4.6 Data Administration

Data Maintenance

Take notice that the database files need to be kept at a reasonable size.
Make sure that the database size does not exceed the memory capacity set.

- Refer to section “Critical Size”, 4-9 to set critical size of database.

WARNING

Data loss due to accumulation of data that exceeds the maximum file size.

- Check the file size periodically.
- Data administration and clearing needs to be organized by your IT administration to prevent the harddisk from exceeding its capacity.

Data Backup

Organization of periodical data maintenance is the responsibility of the user.

In particular, the following maintenance tasks must be performed:

- Backup of database
- Backup of transaction log

5 Client

Purpose of This Chapter

This chapter describes the functions of the **Sample Tracking Client** and the relevant Application Software commands.

5.1 Sample Tracking Client

The Sample Tracking Client widget enables the Sample Tracking Server to receive data from connected instruments.

The Client widget, is generally registered at the server, and monitors important MCS messages running from computers with the Application Software installed.

The client registers important MCS messages being processed and forwards them to the Sample Tracking Server.
An import function reads data from non-Tecan readers, assuming that the data has been converted into a platemap format.

Importing

Refer to sections:

- 9.2 “Sample Import/Export”, 9-18
- 9.1.1 “CSV Platemap Report”, 9-2
- 9.4.1 “Platemap XML File Definition”, 9-22
- 9.3.1 “Import CSV to Excel”, 9-20

5.1.1 Starting the Client

The client automatically initializes when the system is booted.

Note: *The Sample Tracking Client is not visible in the Windows task bar.*

Double click the Sample Tracking Client icon displayed in the system tray to view the main menu.

Fig. 5-1 *Example of icons on the system tray*

The Sample Tracking Client window:

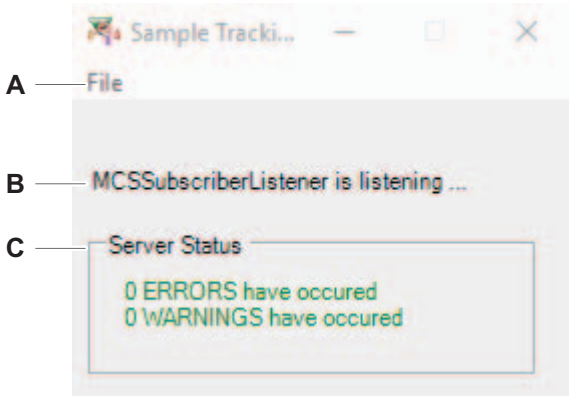

Fig. 5-2 *Sample Tracking Client window*

A *Pull down menu File*
B *Actions display*
C *Server Status display*

The **Server status** message (B) appears in different colors with following meanings:

Green	A connection to all configured machines (instruments) has been established
Orange	A connection has not been established to all machines (instruments)
Red	No connection has been established

- Click on the **Minimize** icon to minimize the client.

Restarting

To restart the client (e.g. after previous closing), double-click **Sample Tracking Client** from the Windows **start** menu.

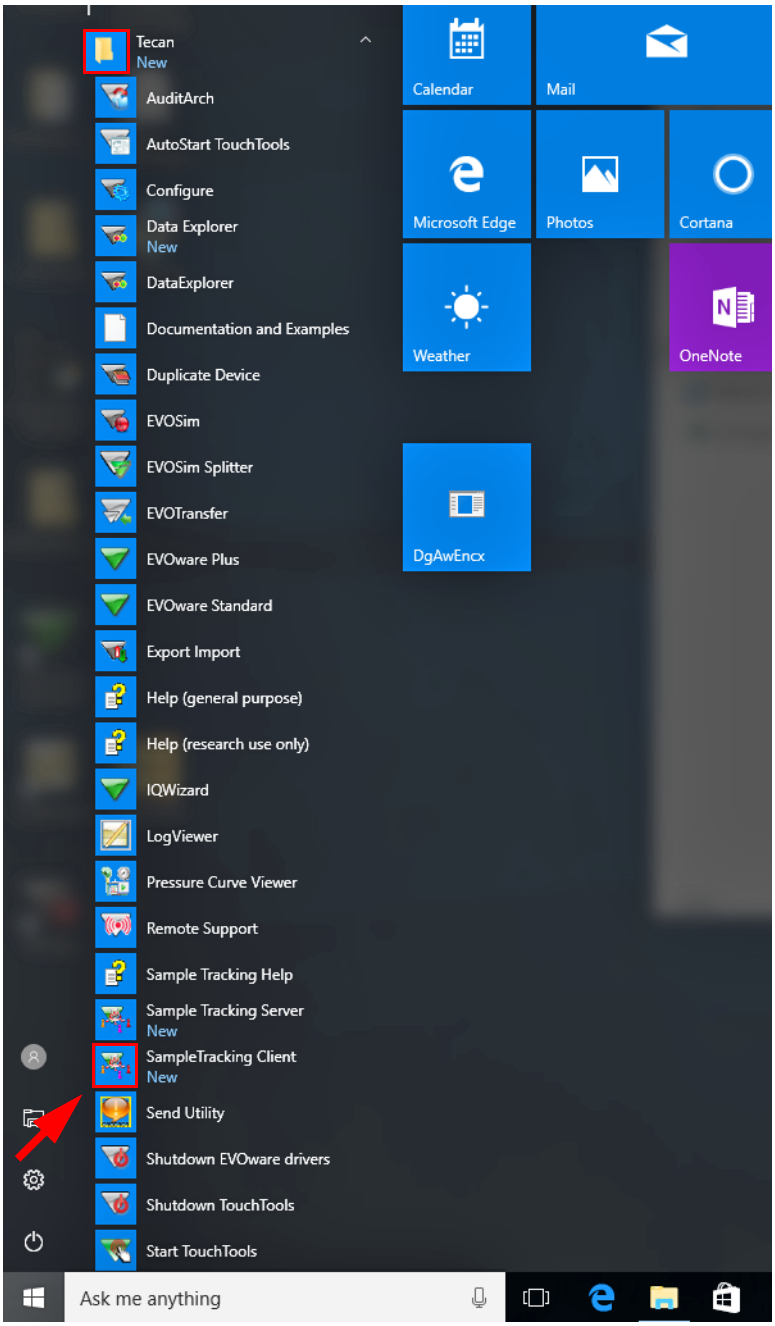

Fig. 5-3 *Windows start menu*

After initializing the Sample Tracking Client, the following window is displayed.

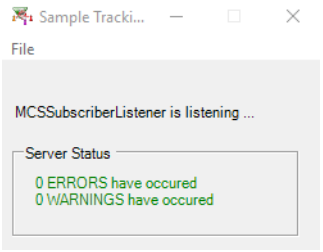

Fig. 5-4 *Sample Tracking Client window*

5.1.2 Importing Reader Data

Following instructions describe the importing of reader data from non-Tecan data readers.

1 Select **Import Reader Data File** from the pull down menu **File**.

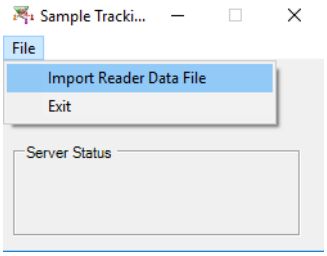

Fig. 5-5 *Sample Tracking Client, pull down menu File*

2 Press Browse to select the required file.

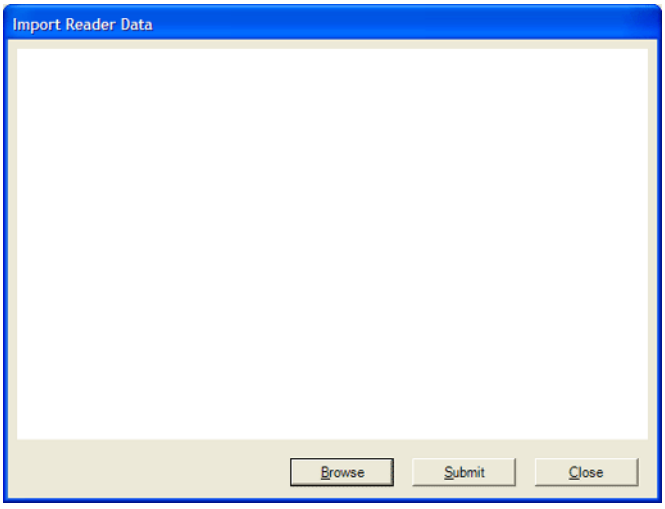

Fig. 5-6 *Sample Tracking Client, pull down menu File*

3 Select the reader map file.

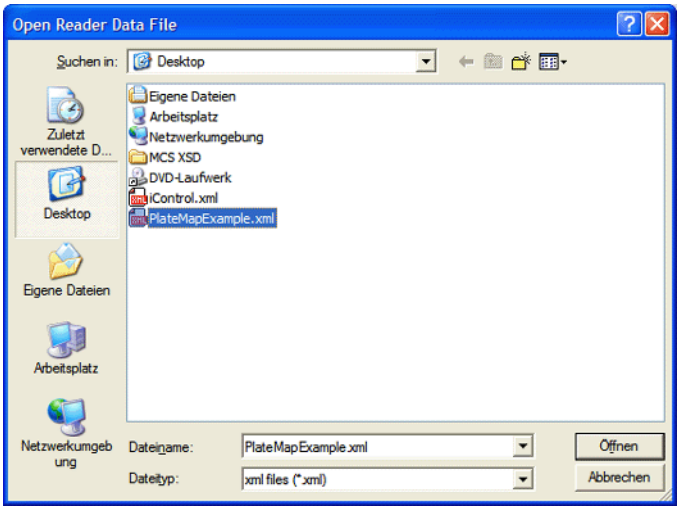

Fig. 5-7 *Sample Tracking Client, pull down menu File*

4 Submit map file.

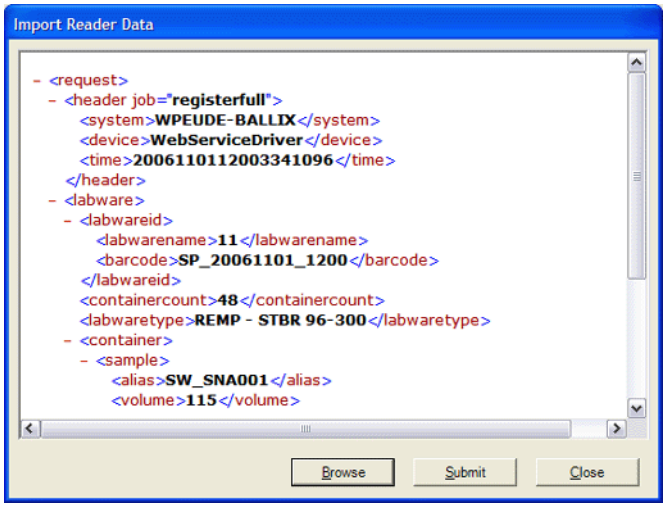

Fig. 5-8 *Import Reader Data*

5.1.3 Closing The Sample Tracking Client

Note: *Appropriate access authorization is required to exit the sample tracking client.*

WARNING

Incomplete tracking data
If the client is closed, no data will be tracked from the corresponding instrument any more. This can result in incomplete data in the DB and thus, may lead to dangerous situations.

- Never close the client during a run or while the server shows activities in API or queue.

1 Select **Exit** from the pull down menu **File**.

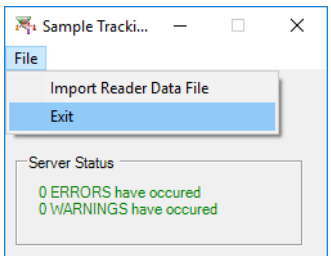

Fig. 5-9 *Sample Tracking Client, pull down menu file*

2 Edit the **user** name and **password** and confirm with **OK**.

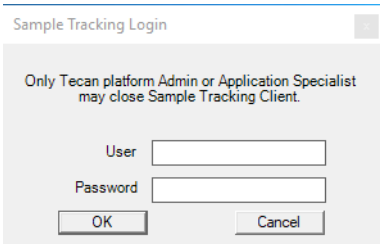

Fig. 5-10 *Sample tracking login*

5.1.4 Configuration

Client

The configuration of the **Sample Tracking Client** is done during installation.

Application Software Commands Driver

The driver is configured in the Application Software configuration. (Refer to the Application Software manual on how to configure drivers).

WARNING

Erroneous sample tracking possible, if the configuration files are incorrect.

- After modifications on the configurations files, always validate the complete system.

5.2 Application Software Commands

In the application software Tecan Sample Tracking Add-on, the Sample Tracking functions of the Tecan Sample Tracking Add-on are controlled by special script commands.
These are added to your Application Software configuration when you install the client components of Sample Tracking.

Note: *Refer to the FluentControl ASM for information about the commands available on the Fluent.*

5.2.1 Sample Tracking Commands on EVOware, Overview

Tab. 5-1 *Overview of sample tracking commands in Application Software*

Icon	Command
	**RegLabware** - This command is used to register labware and cavities. Refer to 5.2.2 “RegLabware Command”, 🗎 5-9.
	**PrintRep** - This command is used to automatically generate printed reports. Refer to 5.2.3 “PrintRep Command”, 🗎 5-15.
	**RegRotate** - This command is used to define the orientation of already registered labware. Refer to 5.2.4 “RegRotate Command”, 🗎 5-16.
	**SetValues** - The SetValue command provides the setting of values of identified tubes and wells.Refer to 5.2.5 “SetValues Command”, 🗎 5-17
	**GetValue** - The GetValue command is used to retrieve values of identified tubes or wells in Sample Tracking to script variables in EVOware. Refer 5.2.6 “GetValue Command”, 🗎 5-19
	**SetMCATipMask** - The SetMCATipMask command (MCA384/MCA96) provides the setting of a mask for mounted tips to be able to operated in in a scenario with tips that are unknown to EVOware when using partially loaded disposable tip racks, or re-racked disposable tips. Sample Tracking masks-out the unused tip positions while pipetting is performed.

The following sections provide a detailed description of the sample tracking commands.

5.2.2 RegLabware Command

The RegLabware command is used to register labware, cavities and the associated samples in the cavities.

To register labware, proceed as follows:

ATTENTION

Risk of malfunctions. The labware selected for the RegLabware command has to be at the designated position during the execution of this command.

- Make sure that the labware to be register is in the designated position before command executed.
- There is a restriction regarding the barcode of the labware to be registered. Make sure that the length of the barcode does not exceed 120 characters.
- There is a restriction regarding the labware name and the sample alias. Make sure that the length of those does not exceed 140 characters.

1 Drag the command icon in Application Software into the script definition (at the beginning of the script).

The following screen appears:

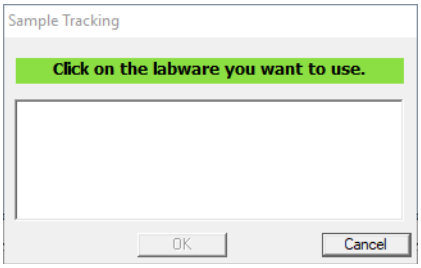

Fig. 5-11 *Sample Tracking labware selection screen*

2 In the Application Software script editor, click on the labware (one or several items of the same type) you want to register.

The labware name is displayed in the window.

ATTENTION

Labware of different types (e.g. microplates and tube racks) cannot be registered together at the same time.

- Only register labware of the same type in one command.
- Insert a second command to register another type of labware.

3 Click on **OK** to proceed.

5.2.2.1 Tab Register

The following screen appears (the tab **Labware Orientation** is only displayed if labware with variable orientation, such as a microplate, is registered):

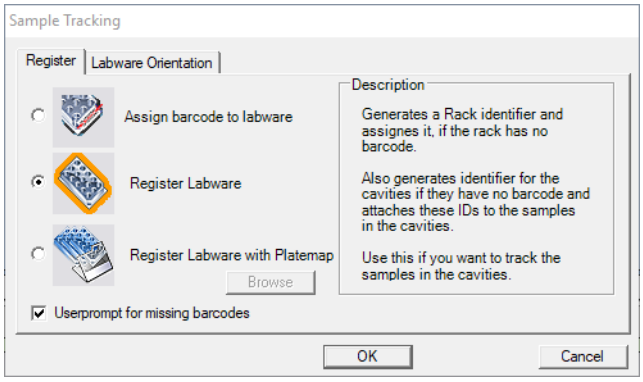

Fig. 5-12 *Sample Tracking Register screen*

User prompt for missing barcodes

Check box selected:

– If there is no barcode or if the barcode cannot be read, a user prompt is issued when the script is started (Application Software runtime control) and the user can select if he/she wants to enter an ID for
  • the labware or
  • the individual containers.
  See 5.2.8 “Starting a Run”, 🗎 5-21.

Check box not selected:

– No user prompt is issued.
– In the background, the Tecan ST Add-on generates an ID (time stamp) according to the following pattern:
  • “YearMonthDaysHoursMinutesSecondsTicker(5 digits)”
  • e.g. **20051231235959000001**

4 Select one of the registration options.

Note: *Labware is generally identified by a barcode reader such as POSID 3.*

Tab. 5-2 Labware/sample registration options

Option	Description
Assign barcode to labware	Generates a labware identifier and assign it to the labware, if the labware has no barcode. *Use this option to identify destination labware.*
Register labware	In addition to generating a labware identifier, generates identifiers for the cavities if they have no barcode and attaches these IDs to the samples in the cavities. *Use this option to identify and track samples in the labware.*
Register Labware with Platemap	Generates a labware identifier and assigns it to the labware, if the labware has no barcode. Also reads sample IDs from a file and assigns them to the cavities specified. *Use this option if you want to assign sample IDs that are different from the cavity IDs and/or if you have a plate map file from a LIS.* *You can also import volumes, concentrations and up to 5 user defined fields that are tracked with samples.*

5.2.2.2 Registering With Aliases

*If the option **Register labware with aliases** has been selected, the screen appears as follows:*

ATTENTION

Risk of data mixup. Not supported data formats or data formats with invalid parameters will lead to misinterpretation and/or false diagnostics when imported.

- Make sure appropriate data formats supported are imported
- Make sure data imported is correct and within the valid parameters

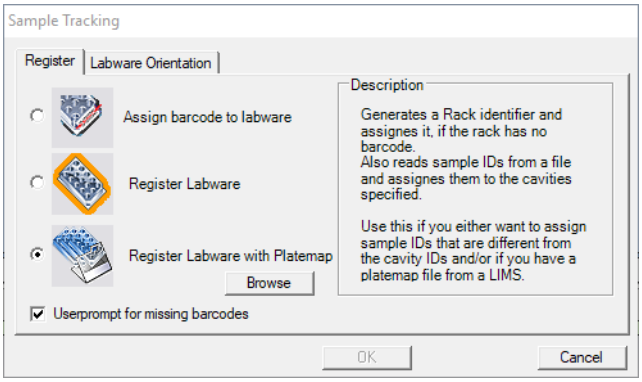

Fig. 5-13 Sample Tracking Register screen/Browse

– Click on **Browse** to select the file with the plate mapping data.
File format: See 9.2 “Sample Import/Export”, 9-18 or 9.1.1 “CSV Platemap Report”, 9-2.

The following screen appears:

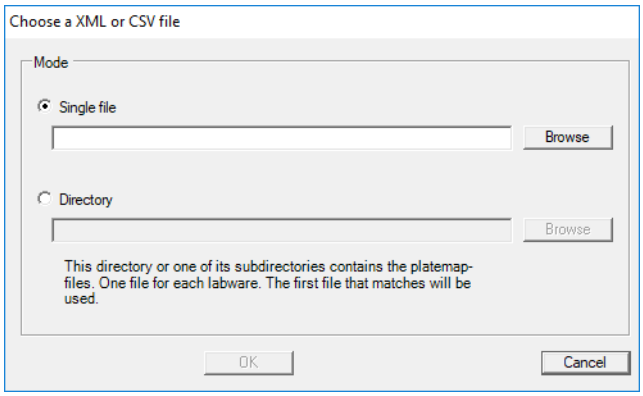

Fig. 5-14 *Chose platemap file*

Sample Tracking searches in the configured directory, and looks for a match between the plate barcode read by EVOware and the container barcode in the file.

- Select one of the options:
  - Single file: Define a location and select a file.
    Use this option if you want the system to search for a matching container barcode in one specific file.
  - Directory: Define the path and select a directory.
    Use this option if there are several files to be searched for a matching container barcode.
- Click on **Browse** to select the file/location.
- Click on **OK** to proceed.

5.2.2.3 Tab Labware Orientation

5 For microplates, define the orientation of the plate on the instrument in the tab **Labware Orientation**.

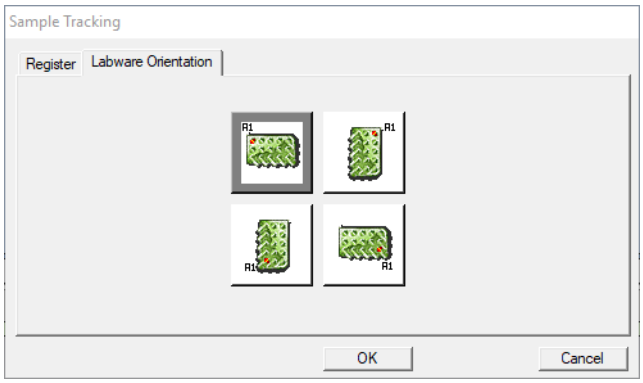

Fig. 5-15 *Sample Tracking labware orientation screen*

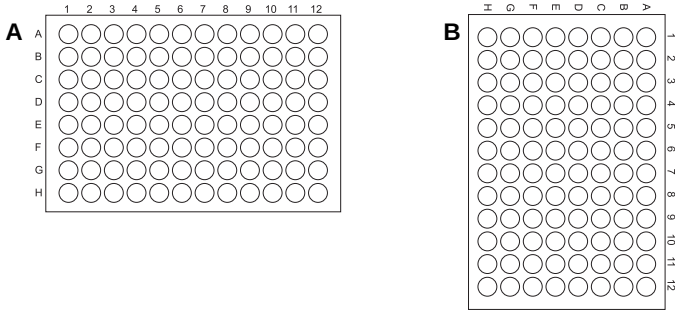

Fig. 5-16 *Default MP orientation*

The figure shows the default orientation for microplate landscape (A) and portrait (B) layout.

– Click on the icon that corresponds with the orientation of your MP (position of well A1).

WARNING

Wrong results due to misinterpreted plate orientation.

- Make sure that the plate orientation set here corresponds with the actual orientation of the plate in the process.
- Also take into account that plates can be rotated by 180° (cavity A1 in the right bottom position).

Note: *If labware with invariable orientation, such as a tube labware, is registered, the tab* ***Labware Orientation*** *does not appear on the screen.*

6 Click on **OK** to proceed.

5.2.2.4 Labware Identification

In the labware reports are identified as follows:

Labware

The characters #, - and _ in the string are separators to represent the following information:

– Name of the computer on which the action was carried out
– Grid position on the worktable of the instrument
– Site position (counted from the rear of the instrument)
– Labware name, given by the user

Labware Id

The Labware Id is either a manually entered or an automatically generated barcode or labware identification.

5.2.2.5 Cavity ID Assignment

Positions

The figure shows examples of an MP (landscape default orientation) and a tube labware and how the positions of the cavities are identified:

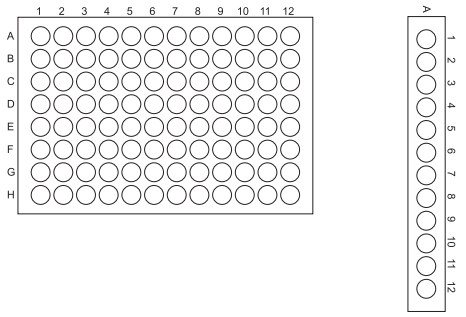

Fig. 5-17 *Examples of cavity assignment*

The Tecan ST Add-on assigns IDs to the cavities according to the following pattern:

Microplate

Microplate cavities are assigned as follows:
<Labware ID>_A001 to <Labware ID>_H012
<Labware ID> refers to the labware identifier.
A001 refers to the position on the labware.

Tube Labware

Tube labware cavities are assigned in the same way, if they have no identifier of their own (e.g. barcode on tube):
<Labware ID>_A001 to <Labware ID>_A012
<Labware ID> refers to the labware identifier.
A001 refers to the position on the labware.

How Sample IDs Are Generated?

A sample is the liquid inside a cavity and, therefore, adopts the ID of the cavity. However, sample identifiers are only created by Sample Tracking if they are not read from a file (see 5.2.2.1 “Tab Register”, 🗎 5-10, option Register labware with ID).
This alias sample ID is defined in the plate map file, which can be generated, e.g. by a LIS. Also see 5.2.2 “RegLabware Command”, 🗎 5-9.

Note: *In EVOware Plus the labware is registered using RegLabware command in either a LiHa, MCA or TeMO node.*

5.2.3 PrintRep Command

The PrintRep command is used to generate a printed report as a process step in a Application Software script and a CSV file.

To generate a print report, proceed as follows:

1 Drag the command icon in Application Software into the script definition

2 In the Application Software script editor click on the labware you want to generate a report for.

The labware name is displayed in the window.

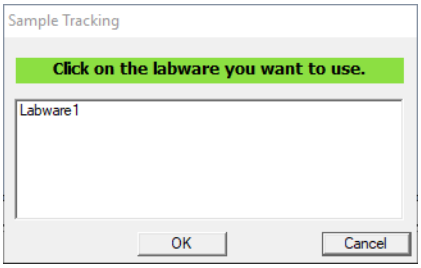

Fig. 5-18 *Sample Tracking; Labware selection screen*

3 Click **OK** to proceed.

Note: *Make sure the labware to be reported is actually at this location when macro is executed and has a barcode.*

Note: *Only reports that fulfill the following requirements are displayed on this screen:*

- *Report has only 1 parameter*
- *Parameter points to container ID (barcode)*
- *Output*

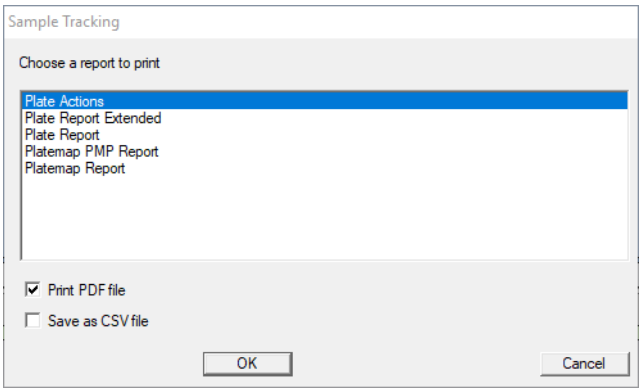

Fig. 5-19 *Sample Tracking; Choose a report to print screen*

Note: *Print PDF file It is only printed if the Print PDF check box is checked.*

- *The PDF file is always written to the report directory (e.g. C:\ProgramData\TECAN\Sample Tracking\Reports). It is only printed if the Print PDF check box is checked.*

Note: *A CSV file is only generated if the Save as CSV file checkbox is checked.*

- *The CSV is written to the Sample Tracking sub-directory of the Application Software's output directory (e.g. C:\ProgramData\TECAN\EVOware\output\Sample Tracking).*

4 Select the required report type from the list.

Refer to the respective section for further information:

- 7.4.1 "Plate Actions", 🗎 7-22
- 7.4.2 "Plate Errors", 🗎 7-23
- 7.4.3 "Plate Report", 🗎 7-24
- 7.4.4 "Plate Results", 🗎 7-25
- 7.4.6 "Sample Actions", 🗎 7-27
- 7.4.7 "Sample Errors", 🗎 7-28
- 7.4.8 "Sample Report", 🗎 7-29
- 7.4.8 "Sample Report", 🗎 7-29

5 Click on **OK** to proceed.

Note: *The print options can be modified in the server's configuration settings and in the print option file. See 6.5 "Configuration Menu", 🗎 6-14.*

5.2.4 RegRotate Command

The RegRotate command is used to define the orientation of the labware.

Note: *This command is only used if the labware, such as a microplate, is already registered, e.g. from a previous process or if the labware is moved from one to another instrument. In this case only the orientation needs to be defined for sample tracking.*

To define the orientation of the labware, proceed as follows:

1 Drag the command icon in Application Software into the script definition (at the beginning of the script).

The following screen appears:

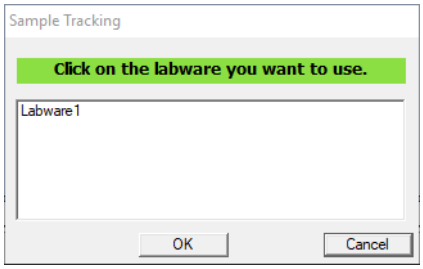

Fig. 5-20 *Sample Tracking labware selection screen*

2 In the Application Software script editor, click on the labware you want to register.

The labware name is displayed in the window.

3 Click on **OK** to proceed.
The following screen appears:

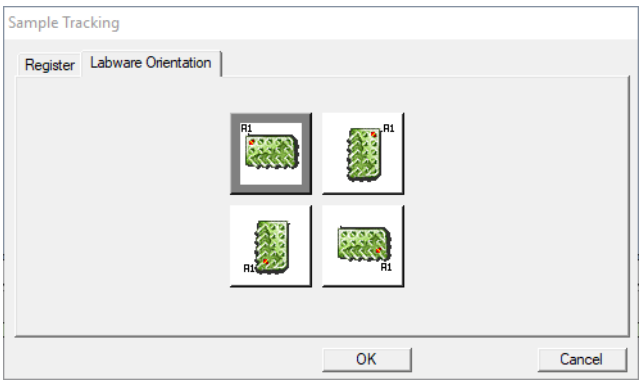

Fig. 5-21 *Sample Tracking labware orientation screen*

4 Click on the icon that corresponds with the orientation of your MP (position of well A1).

Also see 5.2.2 "RegLabware Command", 5-9.

WARNING

Wrong results due to misinterpreted plate orientation.
Make sure that the plate orientation set here corresponds with the actual orientation of the plate in the process.

5 Click on **OK** to proceed.

5.2.5 SetValues Command

The **SetValue** command provides the setting of values of identified tubes and wells.

Note: *The SetValue command is only used if the labware (e.g. microplate) is already known the Tecan Sample Tracking Add-on.*

Follow the substeps below to set the values of the tube respectively well:

1 Drag the command icon in Application Software into the script definition.

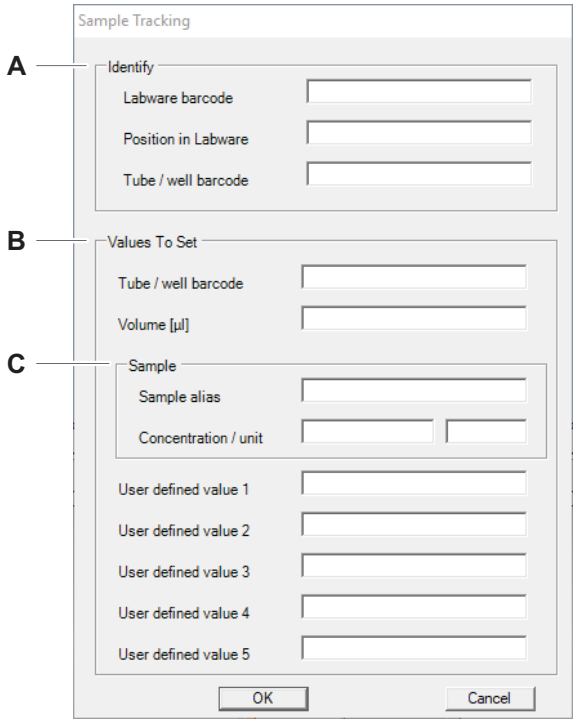

Fig. 5-22 *Sample Tracking get value screen*

2 Enter the identification information into the Identity section (A) Fig. 5-22, 🗎 5-18.

This is either the labware barcode and position in the labware the tube or well barcode.

If the concentration respectively unit of one of multiple samples have to be set, the sample alias field in the Values To Set section is used to identify the sample.

Note: *If only one sample is registered for the well or tube no identification is needed.*

3 Edit the values to set to the tube or well in the in the Values To Set section (B) Fig. 5-22, 🗎 5-18.

Script variables can be used in both sections.

4 Click on OK to proceed Fig. 5-22, 🗎 5-18.

ATTENTION

Risk of erroneous results. Editing incorrect information will lead erroneous results.

- Make sure the information set corresponds to the actual information of the labware.

5.2.6 GetValue Command

The GetValue command is used to retrieve values of identified tubes or wells in Sample Tracking to script variables in EVOware.

Note: *This command is only used if the labware, such as a microplate, is already known to the Tecan Sample Tracking Add-on.*

To get values of the tube or well, proceed as follows:

1 Drag the command icon in Application Software into the script definition.

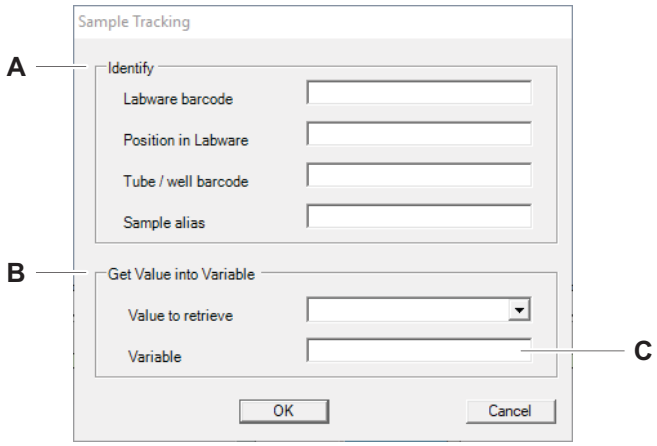

Fig. 5-23 *Sample Tracking get value screen*

2 Edit the identification information in the Identify section (A) Fig. 5-23, 🗎 5-19.

This is either labware barcode and position in labware the tube or well barcode.

If the concentration respectively unit of one of multiple samples have to be set, the sample alias field in the Values To Set section is used to identify the sample.

Note: *If only one sample is registered for the well or tube no identification is needed.*

3 Select the value to be retrieved from the dropdown list (B) in the In the Get Value into Variable section Fig. 5-23, 🗎 5-19.

Possible values are: Tube Barcode, Volume, Sample Alias, Concentration, Concentration Unit, User Defined Value 1 to 5.

4 Edit the name of the existing script variable into text field (C) Fig. 5-23, 🗎 5-19.

5 Click OK to proceed.

ATTENTION

Risk of malfunction. Back to back setting of a script variable is not possible.

- Make sure that the script variable is reset in the script prior to using it again.

5.2.7 SetTipMask

The **SetMCATipMask** command (MCA384/MCA96) provides the setting of a mask for mounted tips to be able to operated in a scenario with tips that are unknown to EVOware when using partially loaded disposable tip racks, or re-racked disposable tips.

Note: Sample Tracking masks out the unused tip positions while pipetting is performed.

Proceed as follows to set the tip mask:

1 Drag the command in Application Software into the script definition.

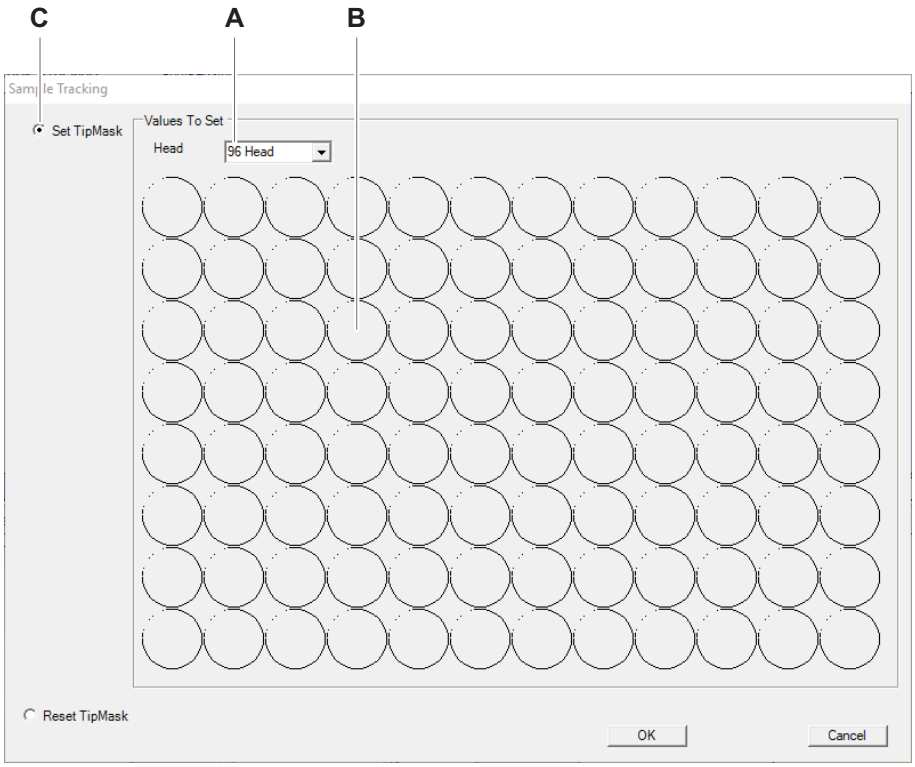

Fig. 5-24 *SetMCATipMask*

2 Select the MCA head type (A) Fig. 5-24, 🗎 5-20.

3 Mark the required tip positions (B) Fig. 5-24, 🗎 5-20.

Note: *Select the Reset TipMask option and click OK to reset the tip mask if required.*

4 Click OK to confirm settings.

5.2.8 Starting a Run

1 Start the run in Application Software.

*Should the barcode not be identified by the barcode scanner as well as if the check box **User prompt for missing barcodes** (see 5.2.2 "RegLabware Command", 5-9) is selected, the following screen appears:*

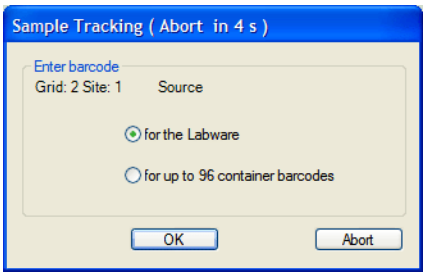

Fig. 5-25 *Enter barcode mode screen*

2 Select from the options:

for the labware

The system will ask for an identifier for the labware; cavities will be identified by the position on the labware.

for up to "n" cavity barcodes

The system will ask for the labware identifier (barcode) and for an identifier for each cavity in the labware (e.g. for tube rack).

3 Click on **OK** to proceed.

The following screen appears:

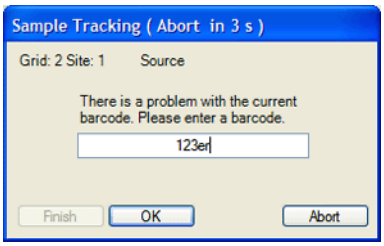

Fig. 5-26 *Enter barcode screen*

4 Enter the corresponding identifier.

5 Click on **OK** to proceed.

If the identifier already exists in the database, the following screen appears:

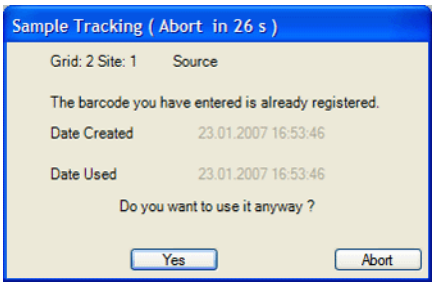

Fig. 5-27 *Already registered screen*

6 Click on **Yes** if you want to use this identifier even though it is already registered.

Or Click on **Abort** to enter a new identifier.

The Application Software runs the script.

5.2.9 After the Run

After the run, check the following:

1 Check the ERROR/WARNING messages in the Sample Tracking Server.
Refer to section 6.1.3.8 “ERRORs and WARNINGS”, 🗎 6-11.

2 Examine the log file, if there are such messages.

3 Decide on the validity of the ST data.

4 Make a query to prepare a report, as required.
Refer to chapter 7 “Reporting”, 🗎 7-1.

6 Server

Purpose of This Chapter

This chapter describes the functions of the Sample Tracking Server and the configuration of the system.

6.1 Sample Tracking Server

Note: *The server does not usually need to be accessed by the operator. It is used for setup and troubleshooting purposes only.*

6.1.1 Starting the Server

The server starts automatically when the system is booted.

Note: *After minimizing, the Sample Tracking Server is not visible in the Windows task bar.*

To make it visible, click on the icon on the system tray (lower right corner of the Windows screen) with the right mouse button and select **Restore** from the context menu.

Fig. 6-1 *Example of icons on the system tray*

Restarting

To restart the server (e.g. after previous closing), double-click **Sample Tracking Server** (see arrow) from the Windows **start** menu.

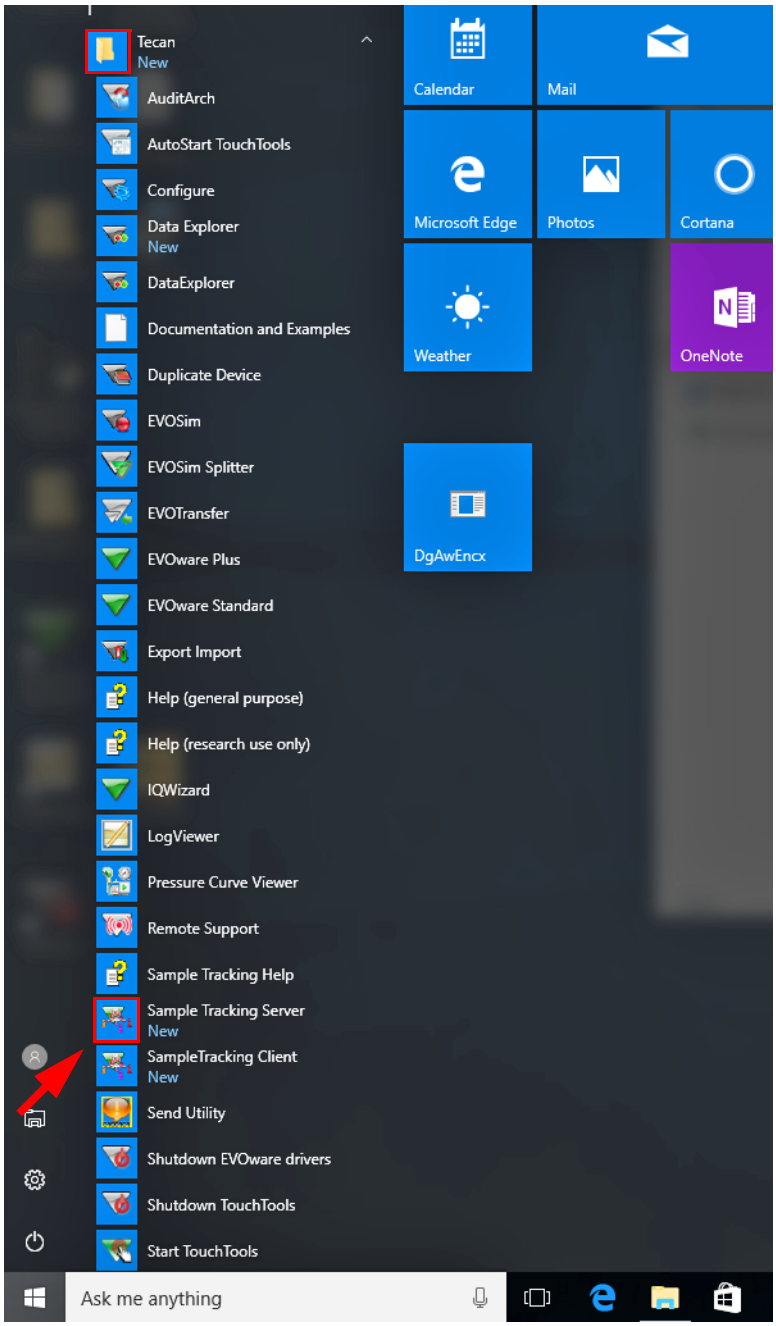

Fig. 6-2 *Windows start menu*

6.1.2 Sample Tracking Server screen

The server is represented with the following screen:

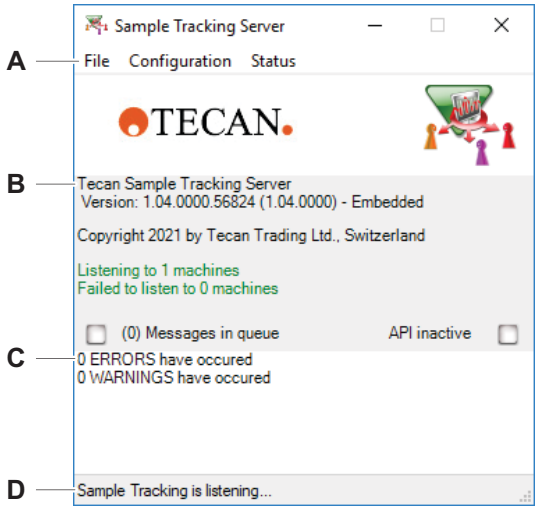

Fig. 6-3 *Sample Tracking Server screen*

A	*Menu bar*	***C***	*Log display*
B	*Multiple information section*	***D***	*Server status*

Screen contents:

- The upper part of the screen contains the menu bar (A).
  See 6.2 “Menu Items”, 🗎 6-11.
- The middle (gray) part (B) of the screen displays the following information:
  - Version of the software.
    This version number is used for internal purposes and differs from the one you can read from the Control Panel (see 3.1.5 “Checking the SW Version”, 🗎 3-5).
  - Status message about the connected machines.
    See 6.1.3.6 “Connected Machines”, 🗎 6-9.
  - Message processing status (boxes with color code)
    See 6.1.3.7 “Message Processing Status”, 🗎 6-10.
- The lower part of the screen (C) display the number of ERRORs and WARNINGs.
  See 6.1.3.8 “ERRORs and WARNINGS”, 🗎 6-11.
- The bottom line displays the server status (D).

6.1.3 Configuration Settings

To edit the configuration settings follow instructions below.

1 Select **Configure Connections** from drop down menu **Configuration**.

Note: *To prevent the server configuration from being changed by unauthorized users, an administrator login is necessary.*

2 Edit the **user** name and **password** and confirm with **OK**.

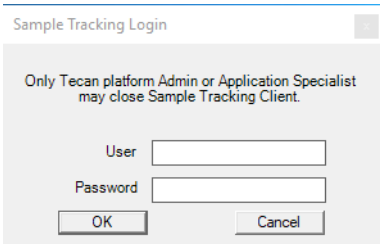

Fig. 6-4 *Administrator Login for configuration settings*

The configuration screens are displayed:

6.1.3.1 Tab Connections

The connections tab provides the adding and removing as well as the possibility to enable respectively disable machines connected.

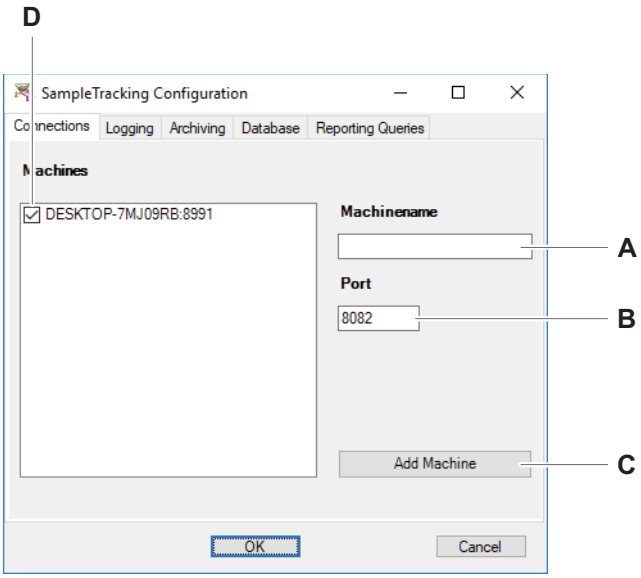

Fig. 6-5 *Connections screen*

The screen lists the machines to be connected and defines the port.

Adding an Instrument

To define an additional machine (instrument), proceed as follows:

1 Edit the host name into the field **Machinename** (A).

2 Edit the port used on the new machine in the field **Port** (B).

The default port is 8082. Make sure that no other device on that computer uses this port. Alternatively, use a different free port.

3 Click **Add Machine** (C).

4 Confirm and save settings with **OK** and close the screen.

Removing an Instrument

To remove an instrument, proceed as follows:

1 Untick the check box **(D)** of the machine to be removed.

2 Save and confirm settings with **OK** and close menu.

6.1.3.2 Tab Logging

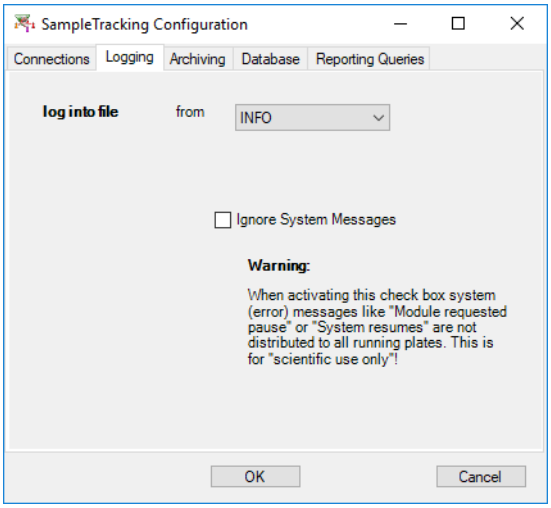

Fig. 6-6 *Logging Tab*

Define Logging

Messages can be logged in the ST log file. This screen defines which message levels are logged in the log file.

All events are classified to belong to one of the following levels:

- DEBUG (lowest filter level, all available events)
- INFO (important events)
- WARN (warnings)
- ERROR (errors)
- FATAL (highest filter level; only fatal errors)

From the dropdown list from, select from which event level you want the messages to be listed.

To switch the logging off, set "from OFF to OFF".

Note: *Suggested levels for FROM are DEBUG or INFO.*

WARNING

Possible errors in the process definition may not be traced sufficiently any more, if the logging configuration is unsuitable.

- When configuring the logger, make sure not to switch off the logging of events that are crucial to your process.

Ignore System Messages

This check box prevents unspecific (not labware related) system messages from being distributed to all running labware (labware in the current run).

Note: *When activating this check box system (error) messages like* ***Module requested pause*** *or* ***System resumes*** *are not distributed to all running plates. This is for "scientific use only".*

6.1.3.3 Tab Archiving

The archiving tab provides the setting of an automated data archiving function as well as database administrator access management.

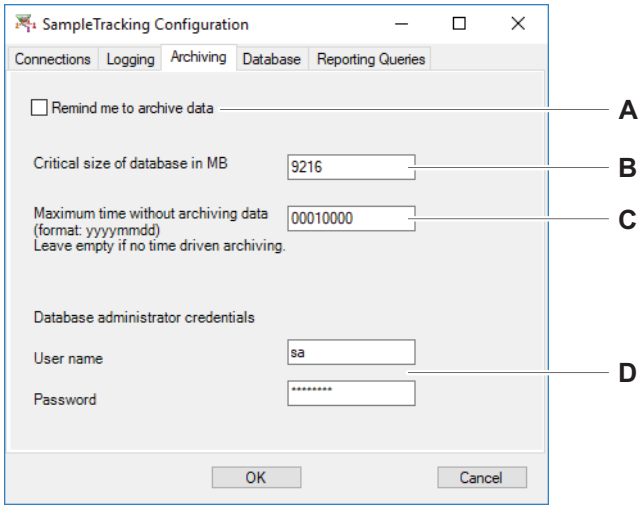

Fig. 6-7 *Archiving Tab*

Automated Archiving Settings

1 Tick the check box **Remind me to archive data** (A) to enable the automated archiving function.

Note: *To provide the performance required the critical database value is not allowed to exceed 4000 MB.*

2 Edit the value of the **Critical size of the database** in MB (B).

Note: *The critical size value initiates the archiving reminder.*

3 Edit the **Maximum time without archiving data** (C).

4 Edit the **user name** and **password** (D).

5 Confirm settings with **OK**.

6.1.3.4 Tab Database

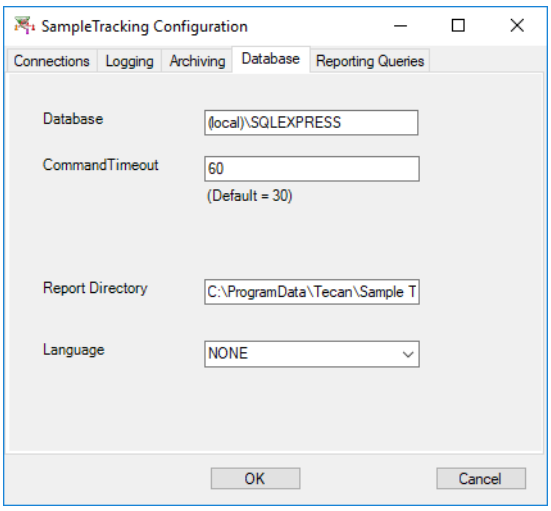

Fig. 6-8 *Database Tab*

Database

Displays the SQL Server name.

NOTE: *The SQL Server name is defined during installation and must not be changed later on.*

CommandTimeout

Defines a time frame (in seconds) in which the connection to the SQL Server must take place.
The time-out results in an exception, and an error message will be generated and displayed in the Sample Tracking Server.
Open the log file to see the details.

The default value for the command time-out is 30 s. Do not change this value if not absolutely necessary.

NOTE: *Ask your network administrator or contact the Tecan Support if you encounter difficulties with this.*

6.1.3.5 Tab Reporting Queries

The **Reporting Queries** tab provides usage of available database queries required to create, edit as well as delete reports.

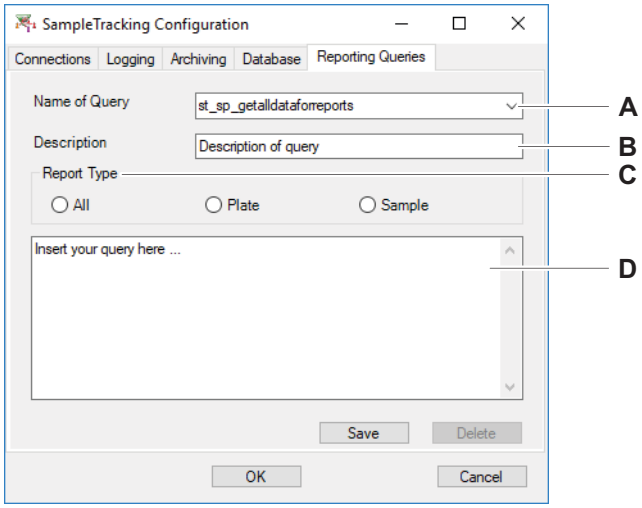

Fig. 6-9 *Report Queries Tab*

Creating and Editing Queries

Note: *In order to create a new query, an existing data set needs to be selected and renamed.*

1 Select the appropriate query from the **Name of Query** drop down list (A).

Note: *The query name will automatically be displayed in the Description gap (B).*

2 Modify the actual query as required.
3 Select a **Report Type** option (C) .

Note: *Skip next sup step if the query name does not require renaming.*

4 Edit new query name into the description gap (B).
5 Confirm query with **Save**.
6 Click **OK** to close the Sample Tracking Configuration menu.

Deleting Queries

1 Select the appropriate query from the **Name of Query** drop down list (A).

ATTENTION

Risk of loss of data. Deleted report queries can not be restored.
- Use caution when deleting report queries.

2 Click **Delete** to delete query.
3 Confirm database modification with **OK**.

6.1.3.6 Connected Machines

The status message about the connected machines informs the user about the number of machines sample tracking is listening to and if all connections are OK.

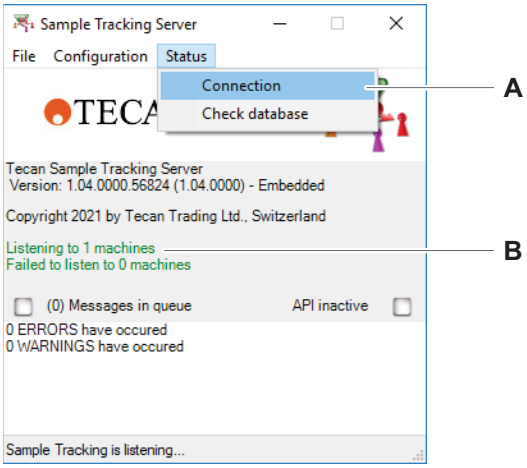

Fig. 6-10 *Status display of connected machines*

The message (B) appears in different colors with following meanings:

Green	A connection to all configured machines (instruments) has been established
Orange	A connection has not been established to all machines (instruments)
Red	No connection has been established

6.1.3.7 Message Processing Status

The message processing indicator provide the current status of the messages and API activity of the sample tracking server.

The message processing status is displayed with the indicators (A), (B).

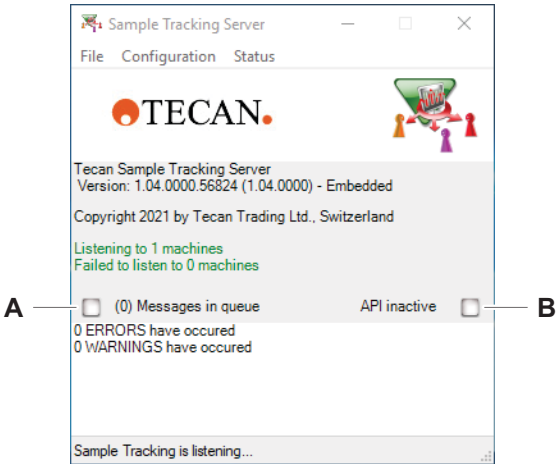

Fig. 6-11 *Status display of connected machines*

ATTENTION

Risk of incomplete reports. Excessive amounts of messages, from multiple Application Software systems connected, being process by the Sample Tracking Server may lead to delays in the process circuit causing incomplete reports.

- Use caution as only last action will be displayed in report.

Messages in queue indicator (A) Fig. 6-11, 🗎 6-10:

Indicator		Comment
Green	■	Number of messages in queue E.g. [5] Messages in queue e.g. [5] Messages in queue
Blank	□	No messages in queue
Red (flashing)	■	An error has occurred

API active/inactive indicator (B) Fig. 6-11, 🗎 6-10:

Indicator		Comment
Green	■	API active
Blank	□	API inactive

Note: *The processing of the API commands is prioritized, i.e. the MCS messages are only processed when all API commands have been carried out.*

6.1.3.8 ERRORs and WARNINGS

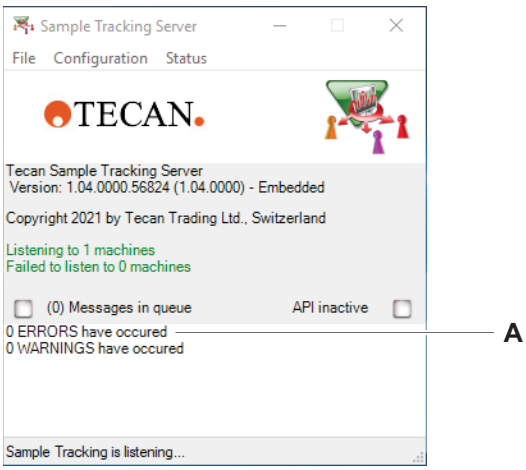

Fig. 6-12 *Status display of connected machines*

Section A displays the number of Errors respectively Warnings that have occurred.

View log file

To view the file click the message section (A) with the right mouse button and select **View log file** from the context menu

Resetting the message counter

To reset the message counter, click the message section (A) with the right mouse button and select **Reset error counter** from the context menu.

WARNING

Erroneous tracking data possible, if the ERRORS or WARNINGS issued on the server screen are ignored.

- Make sure that these messages are evaluated via the log file.
- Trace and rectify the cause of the messages.

6.2 Menu Items

The menu bar offers the following menu items:

- File (see section 6.3 “File Menu”, 🗎 6-12)
- Configuration (see section 6.5 “Configuration Menu”, 🗎 6-14)
- Status (see section 6.6 “Status Menu”, 🗎 6-16)

6.3 File Menu

Select **File** > **Exit** to close the Sample Tracking Server.

6.4 Database Maintenance

The Database Maintenance provides the archiving of the database. Database archiving shall be executed when no other activities are happening on the database. Sample Tracking shows a warning during startup when the database exceeds the specified critical size or when the configured archiving interval has been reached.

Note: *The Sample Tracking Server requires all data collected to provide consistent data coverage. Alteration as well as tampering of database files will lead to loss of data and failure of reporting.*

ATTENTION

Risk of loss of data. A full hard drive may lead to loss of data.

- Archive sample tracking data regularly
- Check hard drive capacity on a regular basis depending on your data load.

1 Select **Database Maintenance** from the drop down menu **File**.

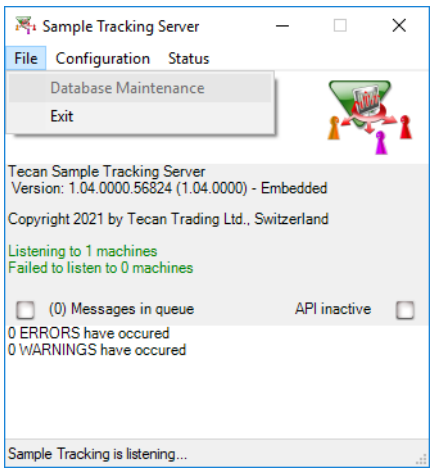

Fig. 6-13 *Database Maintenance*

2 Edit the **user** name and **password** and confirm with **OK**.

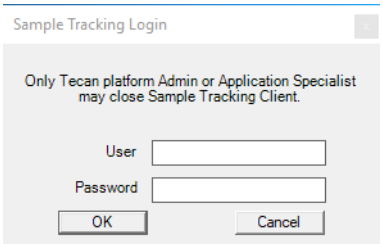

Fig. 6-14 Administrator Login

Database archiving

3 Select **Archive Database** to start database archiving:

– **Archive Database** (A) moves the current database to a new name. Report queries will be applied to the current database and all archive databases.

ATTENTION

Risk of malfunction. The Database Archival function will lead to malfunctions when other database retrieval functions are active.

- Make sure the Quickviewer and Webreporting programs are not in use.

ATTENTION

Risk of malfunction. Renaming the current database and creating a new database will not re-create custom queries, views or tables. These have to be added to the database after the archival function was executed.

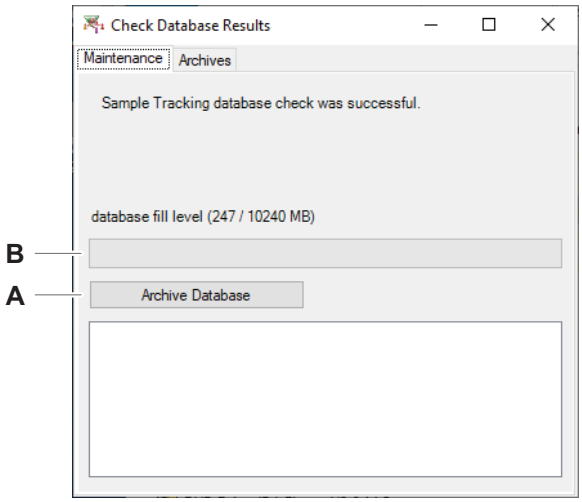

Fig. 6-15 Check Database Results

A *Archive Database* ***BC*** *Retrieve database fill level*

4 The tab **Archiving** does not allow any modification and only provides a list of archived databases.

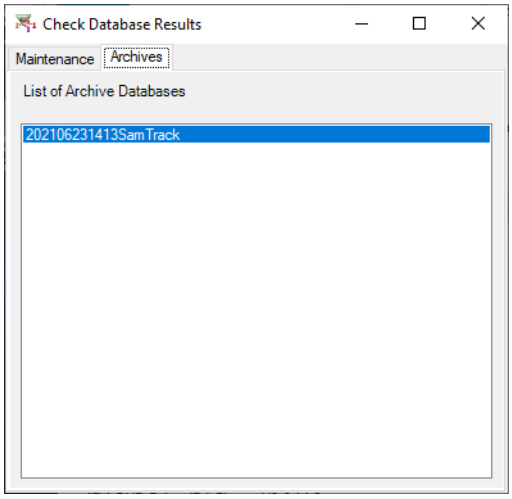

Fig. 6-16 *Archive database*

6.5 Configuration Menu

The Sample Tracking Server has configuration options for:

- Setting up user accounts
- Connections to PCs running Application Software and the **Sample Tracking Client**
- Logging of internal errors and of messages sent to ST
- The database connection
- Configuration of archiving

6.5.1 User Management

Select **Configuration** > **User Management** to create or edit user accounts. To prevent the user accounts from being changed by unauthorized users, an administrator login is necessary.

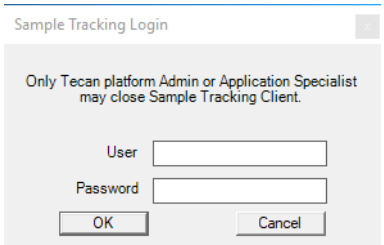

Fig. 6-17 *Administrator Login*

1 Edit the **user** name and **password** and confirm with **OK**.
The user management screen is displayed:

6.5.1.1 Editing Users

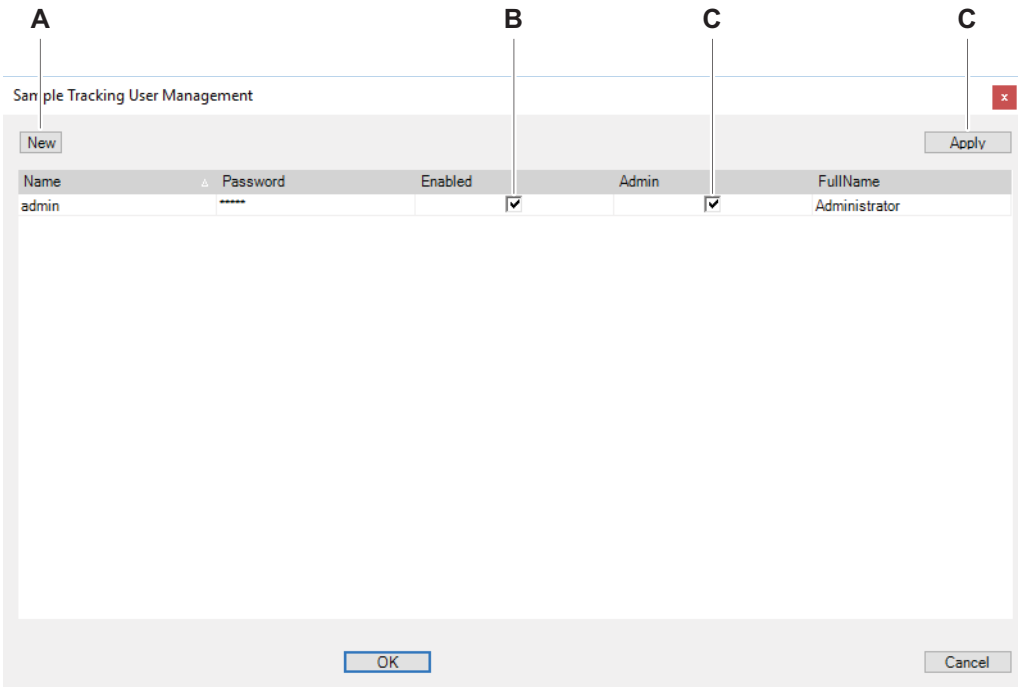

Fig. 6-18 *Sample Tracking User Management/Create User screens*

Editing User Accounts

1 Select or clear the check box in the column **Enabled** (B) to enable/disable user accounts Fig. 6-18, 🗎 6-15.

Note: *Users cannot be deleted. If user accounts are disabled, the corresponding user cannot login anymore.*

2 Select the check box in the column **Admin** (C) to grant administrator access rights to users Fig. 6-18, 🗎 6-15.

Creating a New User Account

To create a new user account, proceed as follows:

1 Click on **New** (A) Fig. 6-18, 🗎 6-15.
*The **Create User** screen appears.*
2 Edit the user name, the full name of the user and assign a password.
3 Reenter the password a second time.
4 Confirm entries with **OK**.

6.6 Status Menu

The status menu serves to check the connections to the Application Software machines and to the SQL Server.

6.6.1 Connection

Select **Status** > **Connection** to view a connection overview from the server to the machines (instruments).
The following window is displayed:

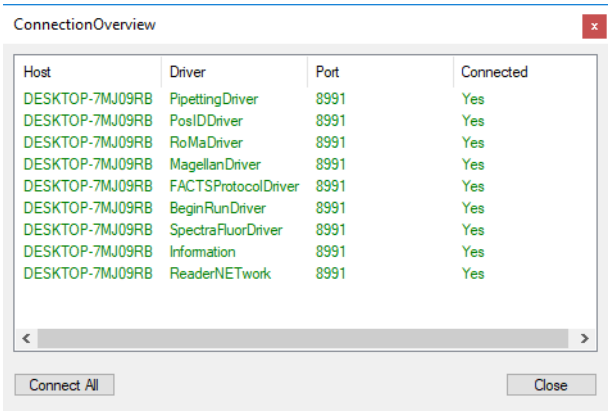

Fig. 6-19 *ConnectionOverview screen*

The **ConnectionOverview** window shows if the drivers of the corresponding host are connected and displays the port.

- Connected drivers are listed in green.
- Drivers with no connection are listed in red.

Connecting drivers

To connect a single driver, select the driver and click on **Connect**.
To connect all drivers, click on **Connect All**.

- Click **Close** to close the ConnectionOverview window.

WARNING

Erroneous data if not all connections are active.

- To prevent loss of data, always use the **Connect All** button unless instructed otherwise by the Tecan Support or your network administrator (troubleshooting).

6.6.2 Check Database

Select **Status** > **Check Database** to check the connection to the SQL Server. One of the following screens appears.

- If the test was successful the following pop up is displayed:

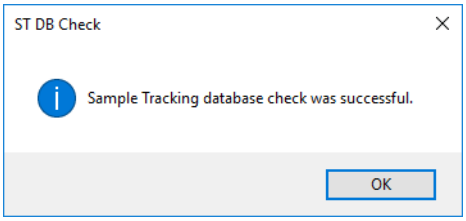

Fig. 6-20 *ST DB Check successful*

- If the test was not successful a pop up warning is displayed which can only be confirmed by pressing **OK**.

6.7 Additional Configuration

There are further options to configure in the **SampleTracking.config** file in the program data directory of Sample Tracking.
They are added to the appsettings node in the form <add key="<key>" value="<value>">.

Tab. 6-1 Appsettings node

Key	Value
ListSeparator	“regionalsettings” or value (e.g. ";", ",")
Modules2Track	Comma separated list of modules "scheduler" (default)
LocalhostMode	True/False if the Sample Tracking Web Server is (only) available on the local host. Default is set to True.
UptimeInSeconds	Waiting time to start remoting connection after system boot. Default value is 60 seconds. This delays the startup of the application to ensure functioning of the remoting.

7 Reporting

Purpose of This Chapter

This chapter describes the functions of the web-based reporting system and the report options.

7.1 Reporting System

The reporting system provides the exporting and viewing of reports via the Web Server.

Note: *The web application port configuration for the web server can vary on each computer connected to the reporting system.*

- By default the web address of the reporting system is **http://localhost:<portnumber>/**
- If HTTPS access is configured, the reporting system can be accessed under **https://<hostname>/**

<portnumber> Tecan Sample Tracking Webserver Port
<hostname> Tecan Sample Tracking Server Hostname

The reporting system is started from the Sample Tracking menu or the server context menu.

Note: *To access the Sample Tracking Web Reporting system over the network, follow the instructions in chapter* *4.3.7 "Distributing Access to the Sample Tracking Web Reporting Tool", 4-18* *of this manual. By default the access is limited to localhost*

Note: *The reporting system has been developed and tested for Edge and Chrome as well as the Acrobat Reader (details can be found in the compatibility list).*

The reporting system provides the user to retrieve customized sample tracking reports on labware or samples, filtered by barcode and/or period of time.

An import function provides the importing of labware or sample definitions from non-tecan applications into the database.

The export function provides the exporting of labware or sample definitions from the database to be processed by non-tecan applications.

Security

To prevent unauthorized users from accessing the reporting system, a user name and password is required. The Sample Tracking Webserver only supports plain text communication, which is why it is limited to localhost.

To access the reporting system over the network securely please refer to chapter *4.3.7 “Distributing Access to the Sample Tracking Web Reporting Tool”,* 4-18.

ATTENTION

Risk of misinterpretation. Use caution when printing reports, partial printouts may lead to misinterpretation.

- Do page setup before printing
- Make sure all report columns are visible in the print preview before printing

ATTENTION

Risk of process time-outs. Complex custom reports might take a significant time to be generated.

- Make sure your process includes this time frame to prevent process time-outs

7.1.1 Starting the Reporting System

To start the reporting system, proceed as follows:

Initialize **Sample Tracking Web** from the Windows **Start** menu.

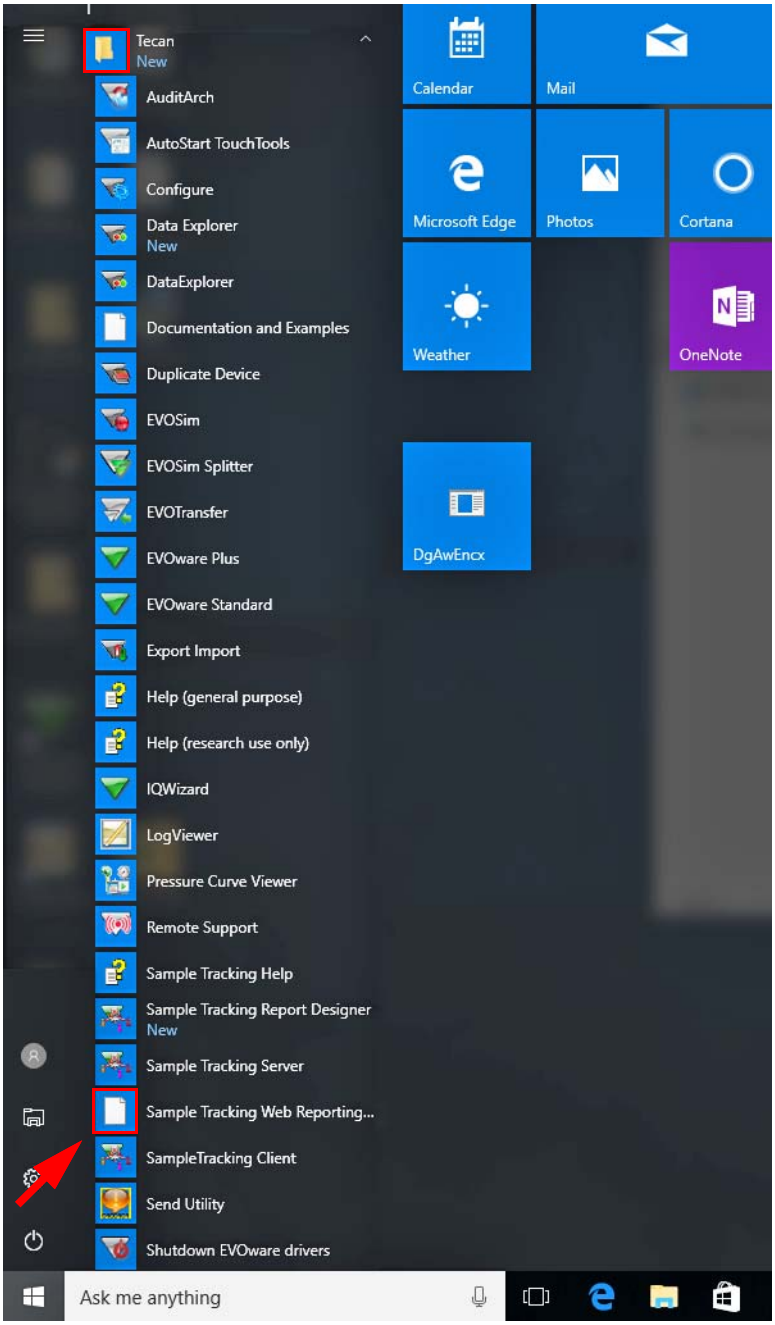

Fig. 7-1 *Windows Start menu, Sample Tracking Web Reporting Tool*

Or Enter the web address into the address bar of the internet browser.
See 7.1 “Reporting System”, 7-1.

Login

The login screen appears:

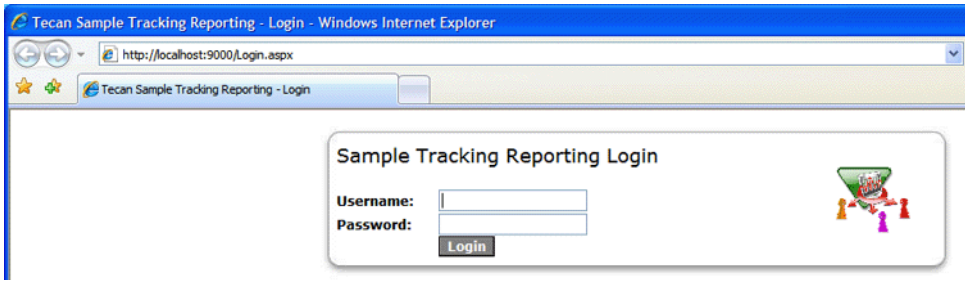

Fig. 7-2 *Reporting system login screen*

1 Enter your user name and password.

2 Click **Login**.

The reporting system screen in displayed

ATTENTION

Risk of false diagnosis. Incomplete or false data collected from inadequate queries may result in misinterpretation and/or false diagnostics.

- Use caution when doing creating and/or editing report queries.
- Validate query settings according to resulting data.

The reporting system offers the following tabs:

- Results
  - Displaying and exporting of results, refer to sections below:
    - 7.4.1 “Plate Actions”, 🗎 7-22.
    - 7.4.2 “Plate Errors”, 🗎 7-23.
    - 7.4.3 “Plate Report”, 🗎 7-24.
    - 7.4.4 “Plate Results”, 🗎 7-25.
    - 7.4.6 “Sample Actions”, 🗎 7-27.
    - 7.4.7 “Sample Errors”, 🗎 7-28.
    - 7.4.8 “Sample Report”, 🗎 7-29
    - 7.4.8 “Sample Report”, 🗎 7-29
    - 7.4.9 “Report Export Options”, 🗎 7-30.
- Import
  - To import labware and sample definitions into the database. Refer to 7.2.1 “Import into Database”, 🗎 7-10.
- Export
  - To export labware and sample definitions from the database. Refer to 7.2.2 “Export from Database”, 🗎 7-11.

7.1.2 Reports Tab

The **Reports** tab provides the possibility to filter respectively list reports by date, period of time or barcode.

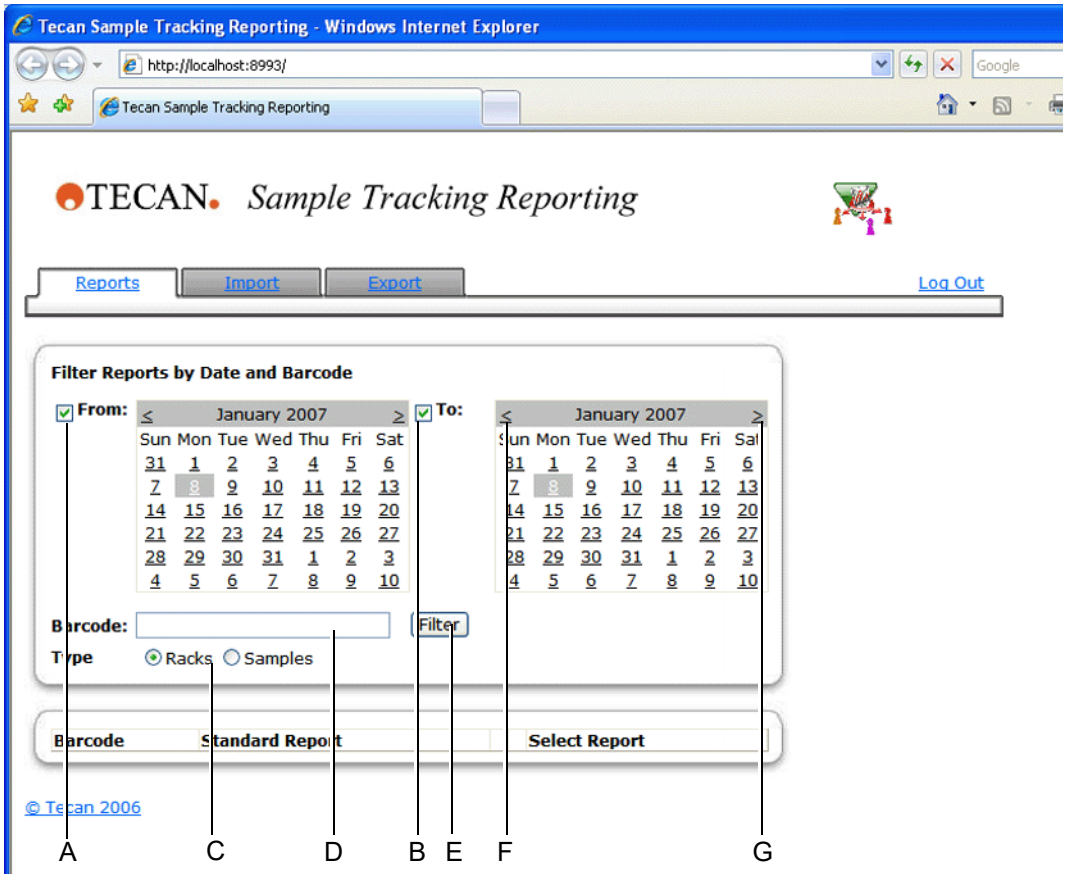

Fig. 7-3 *Tab Reports*

A *Period check box From*
B *Period check box To*
C *Type options*
D *Barcode filter function*
E *Barcode filter function*
F *Previous month*
G *Next month*

7.1.2.1 Filtering reports

ATTENTION

Risk of incomplete data. Incomplete data collected may result in misinterpretation and/or false diagnostics.

- Only open report from non active processes.
- Wait for sample tracking process to finalize before opening report.

Filter by Date

1 Tick the period check box **From** (A) Fig. 7-3, 🗎 7-6.
2 Select the date from the calendar.
3 Select the sample type option **Type** (C) Fig. 7-3, 🗎 7-6.

Note: *Note that the report is automatically processed after the date and type options have been selected.*

Filter by Period

1 Tick the period check box **From** (A) and **To** (B) Fig. 7-3, 🗎 7-6.
2 Select the period of time on calendars.
3 Select a **Type** option (C) Fig. 7-3, 🗎 7-6.

Note: *Note that the query is automatically processed after the period of time and type option have been selected.*

Filter by Barcode

1 Edit the barcode into the **Enter Barcode** gap (D) Fig. 7-3, 🗎 7-6.

Note: *Barcodes can also be edited with a optional barcode reading device if installed.*

2 Click **Filter** (E) to start filtering Fig. 7-3, 🗎 7-6.

Note: *Edit an asterisk * to enable wildcard search.*

7.1.2.2 Opening a Report

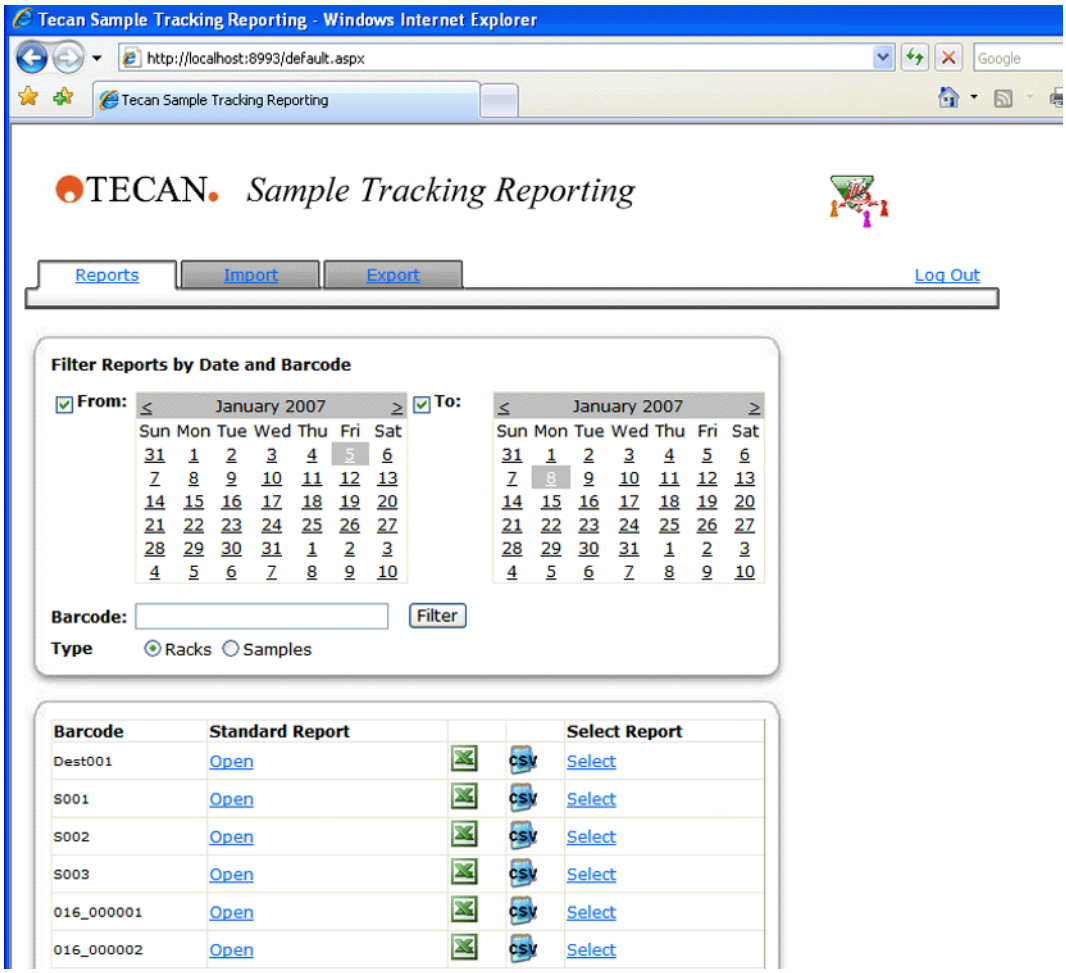

Fig. 7-4 *Tab Reports - filtered results with all racks*

Note: *When requiring a report file format other than PDF click on the* ***Excel*** *respectively* ***CSV*** *symbol to view the report in an xls or cvs format. All other report types can be loaded by clicking* ***Select*** *from the* ***Select Report*** *column.*

- *File types: .xls; .cvs*
- *Report types: Plate Report; Sample Report; Plate Error Report*

1 Filter the report required see 7.1.2.1 “Filtering reports”, 🗎 7-6
2 Select a report from listing Fig. 7-4, 🗎 7-8.

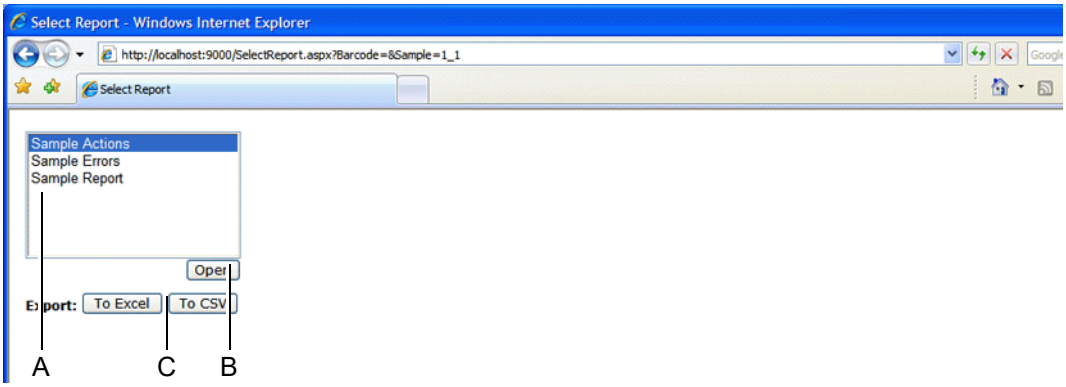

Fig. 7-5 *Tab Reports filtered results*

A *Report types*
B *Open Report function*
C *Export functions*

3 Select the appropriate labware and confirm with **Open**.

Note: *A PDF is automatically generated and displayed in the respective internet browser.*

- For further information concerning results refer to
  - 7.4.1 “Plate Actions”, 🗎 7-22.
  - 7.4.2 “Plate Errors”, 🗎 7-23.
  - 7.4.3 “Plate Report”, 🗎 7-24.
  - 7.4.4 “Plate Results”, 🗎 7-25.
  - 7.4.6 “Sample Actions”, 🗎 7-27.
  - 7.4.7 “Sample Errors”, 🗎 7-28.
  - 7.4.8 “Sample Report”, 🗎 7-29.
  - 7.4.9 “Report Export Options”, 🗎 7-30.

7.2 Import/Export Function

7.2.1 Import into Database

The **Import** tab provides the importing of labware or sample definitions into the database.

- Select the tab **Import** (B) to display the import screen Fig. 7-6, 7-10:

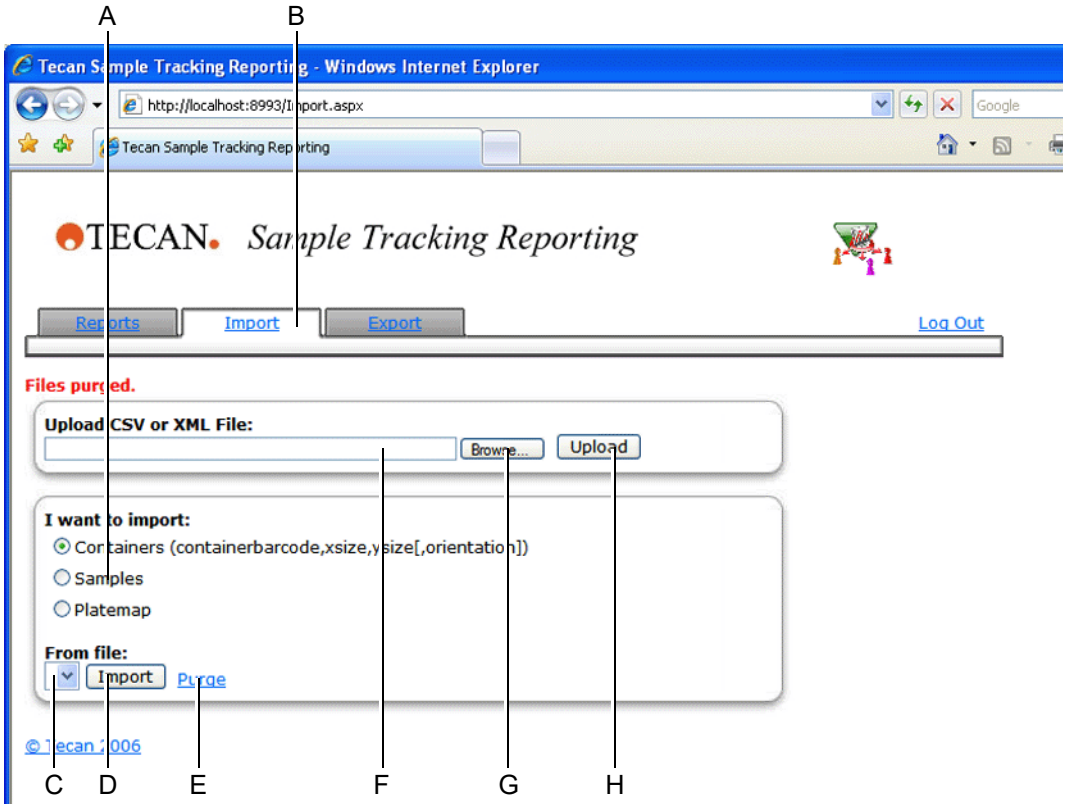

Fig. 7-6 *Tab Import*

Importing into the Database

To import definitions into the database, proceed as follows:

ATTENTION

Risk of false diagnostics. Not supported data formats or data formats with invalid parameters will lead to misinterpretation and/or false diagnostics when imported to database.

- Make sure appropriate data formats supported are imported
- Make sure data imported is correct and within the valid parameters

1 Click **Browse...** (G) to select a CSV file.

Note: *The file is displayed in the field* ***Upload CSV File*** *gap (F).*

2 Click **Upload** (H) to make the file accessible in the field **From file**.

3 Select an appropriate import option (A):

Note: *Refer to chapter Appendix for an exact description.*

4 Select the file from the drop-down list (C).

Note: *Click on* ***Purge*** *(E) to clear the drop down list.*

5 Click **Import** (D).

7.2.2 Export from Database

The **Export** tab provides the exporting of labware or sample definitions from the database.

- Select the tab **Export** (D) to display the export screen Fig. 7-7, 7-11:

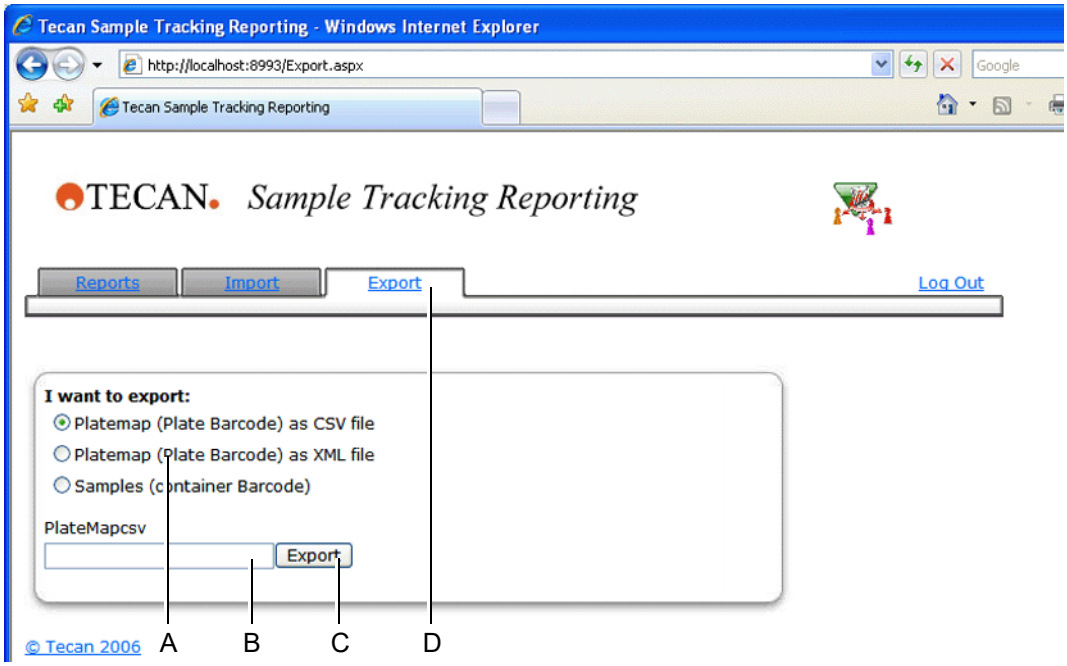

Fig. 7-7 *Tab Export*

6 Select an appropriate export options (A):

- Platemap (Plate Barcode) as CSV file
  - A file with the comma separated values for {container barcode, X-size (number of cavities in X-direction), Y-size (number of cavities in Y-direction), orientation} will be generated.
  - See “Sample Orientation” below.
- Platemap (Plate Barcode) as XML file
  - A tag oriented file to facilitate the sharing of data across different information systems.
  - See “Sample Orientation” below.
- Samples

- A file with the comma separated values for {sample ID, container barcode, container position}.

7.3 Report Designer

7.3.1 Editing Sample Tracking Report Templates

The Sample Tracking Report Designer provides the possibility of configuring and customizing report sheet templates.

ATTENTION

Risk of misinterpretation. Use caution when generating or modifying reports.

- Make sure plate and sample ID are always included on the reports
- Make sure the reports always show the dates of the last action was recorded.
- Make sure report templates are validated after each modification.

Double-click **Reporting** from the Windows **Start** menu.

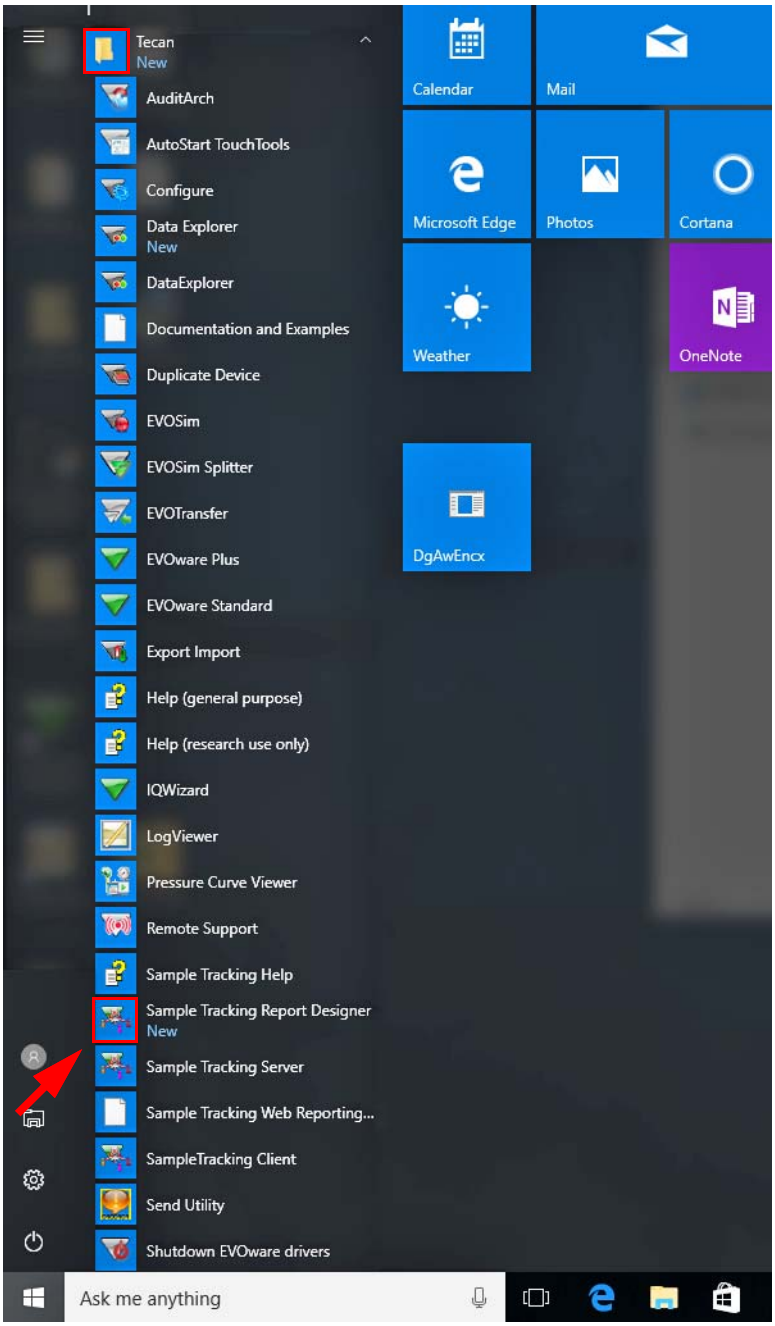

Fig. 7-8 *Windows Start menu, Sample Tracking Web Reporting Tool*

7 Edit username and password and confirm with next (A).

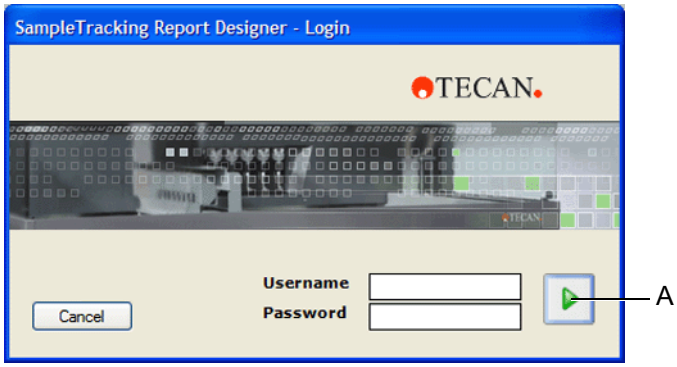

Fig. 7-9 *Sample Tracking Report Designer - Login*

Skip to appropriate content listed below:

- “Create a new report template”, 7-14
- “Edit an existing report template”, 7-18
- “Deleting report templates”, 7-20

Create a new report template

1 Select the **Create a new report** option and continue with next (A).

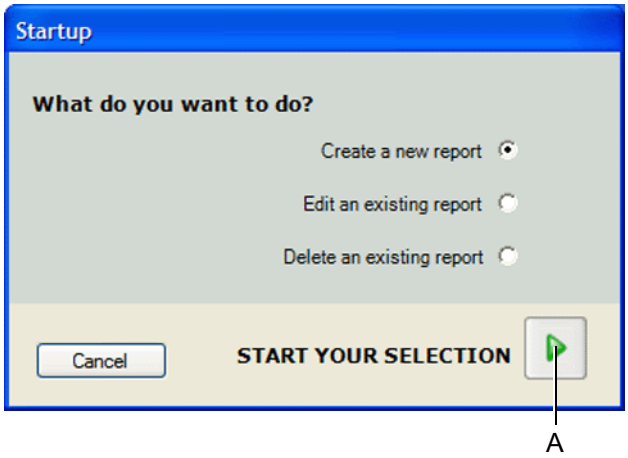

Fig. 7-10 *Startup*

2 Select the data source and continue with next (A).

Note: *Selecting the data source **All data reports** from listing may cause a performance issue.*

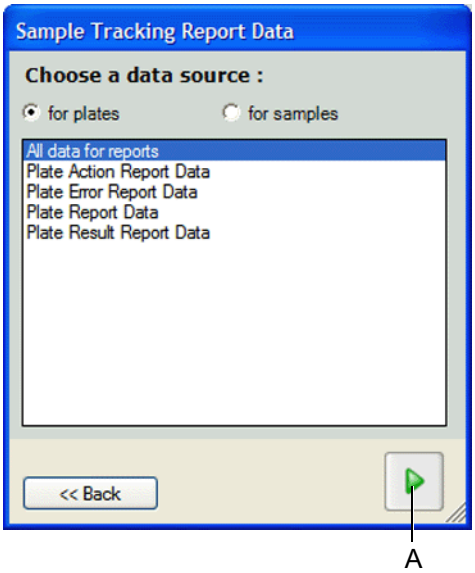

Fig. 7-11 *Report data source flow*

Data Source

Data sets contain the basic data for a report. The Report Designer provides configuring, layouting and linking of report templates to the data sets.

3 Configure an appropriate sample tracking report template.

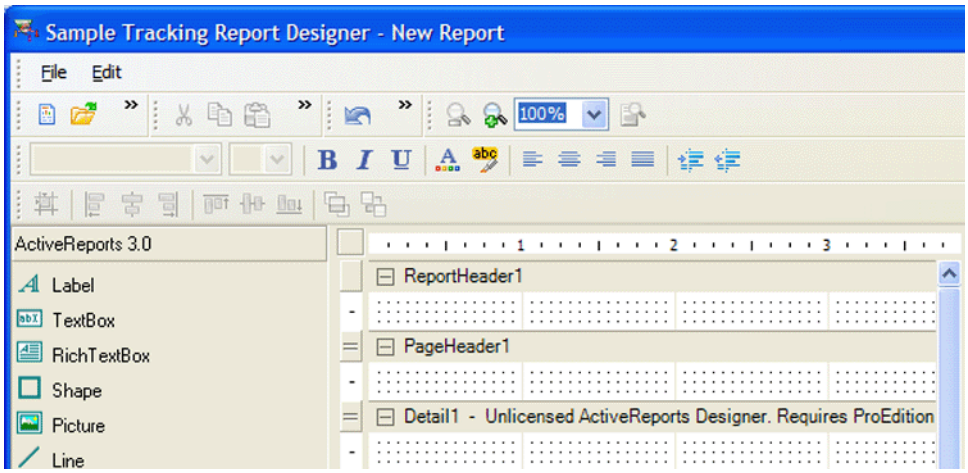

Fig. 7-12 *Report designer*

4 Select headers and text boxes as required.

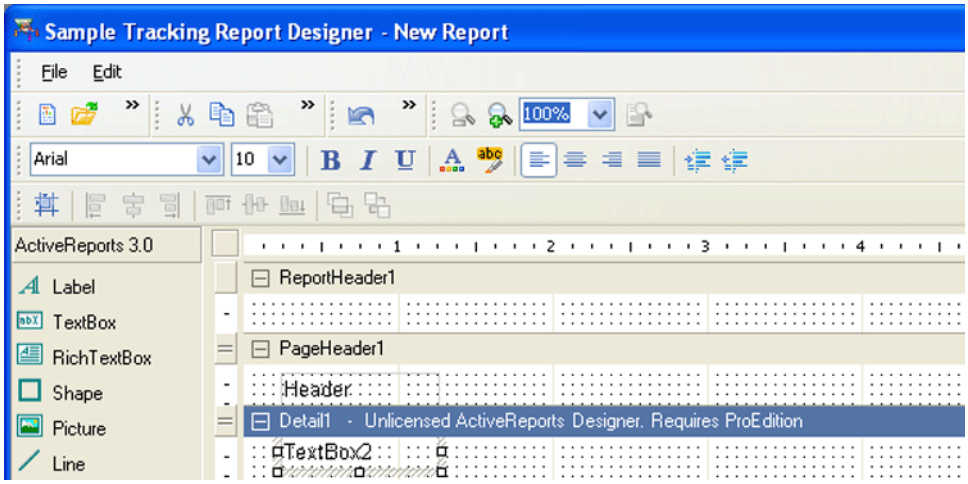

Fig. 7-13 *Report designer*

Data Source and Filtering

5 Select the data field for the text box inserted and apply filters if required.

Note: *Select the data field for the text box from the drop down list (A) of the data fields available from the previously selected data source.*

Note: *Edit the filtering subjects into the Filter data box (B). Separate values with a semicolon if multiple filtering values are required.*

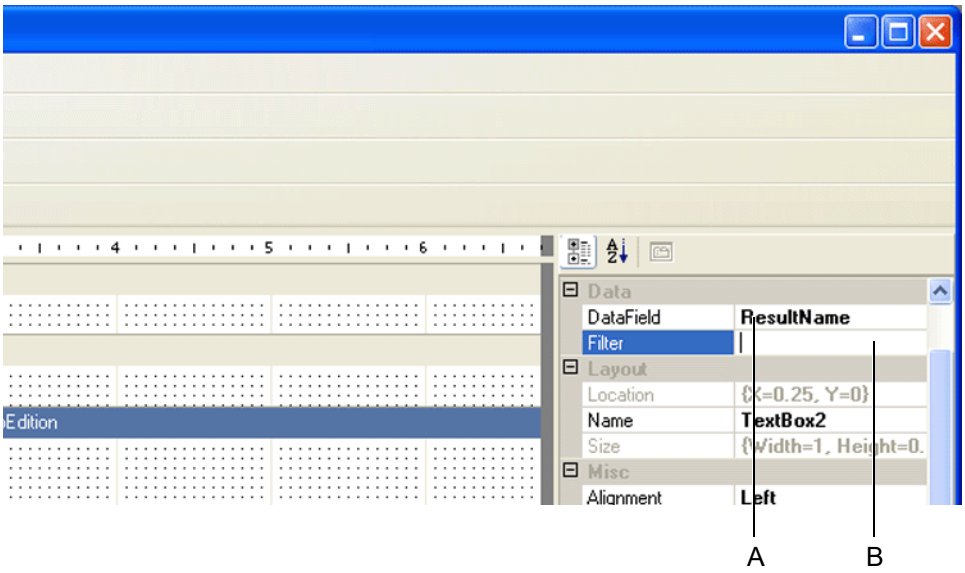

Fig. 7-14 *Report designer*

6 Select **Save** from drop down menu **File** to save report template.

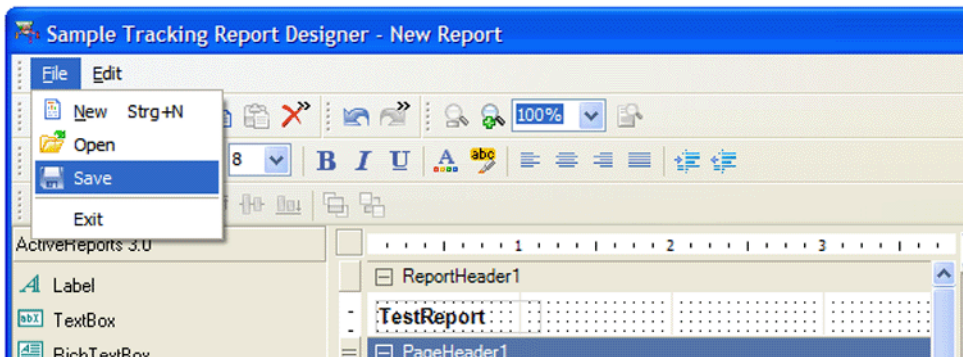

Fig. 7-15 *Save report*

7 Edit file name and confirm entry with **Save**.

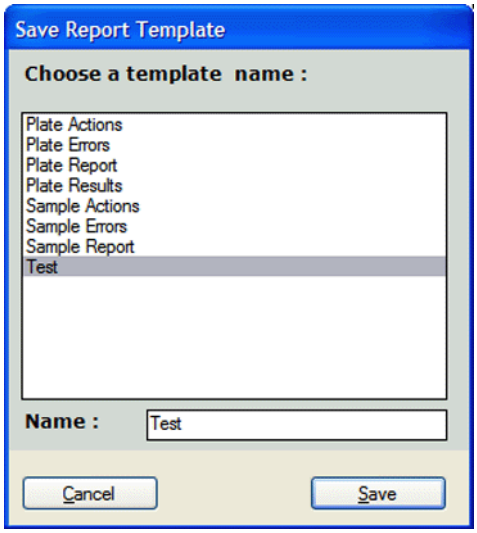

Fig. 7-16 *Save report template*

Edit an existing report template

1 Select **Edit an existing report** option and continue with next (A).

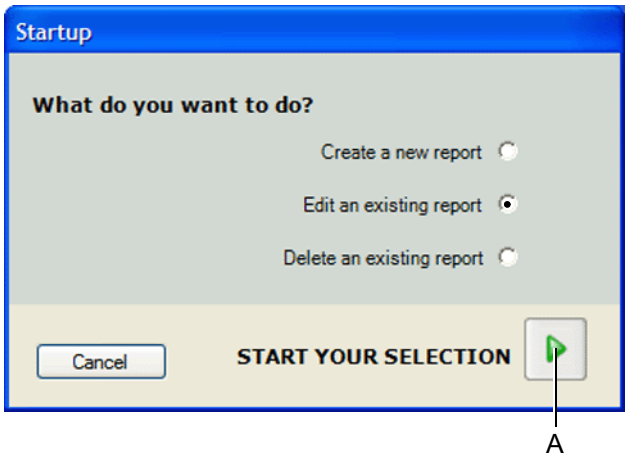

Fig. 7-17 *Sample Tracking Report Designer - Startup*

2 Select the report template to be edited and continue with next (A).

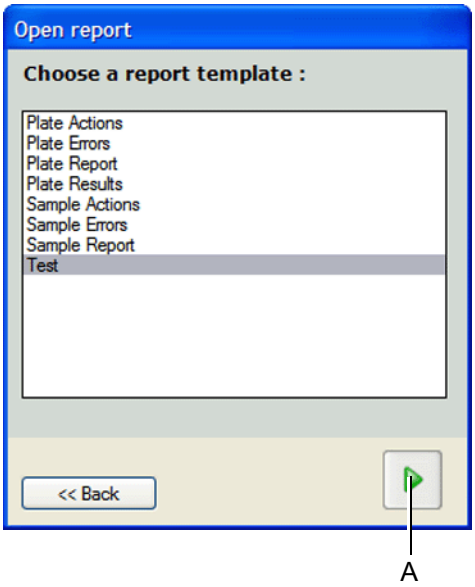

Fig. 7-18 *Open report*

3 Edit sample tracking report template sheet.

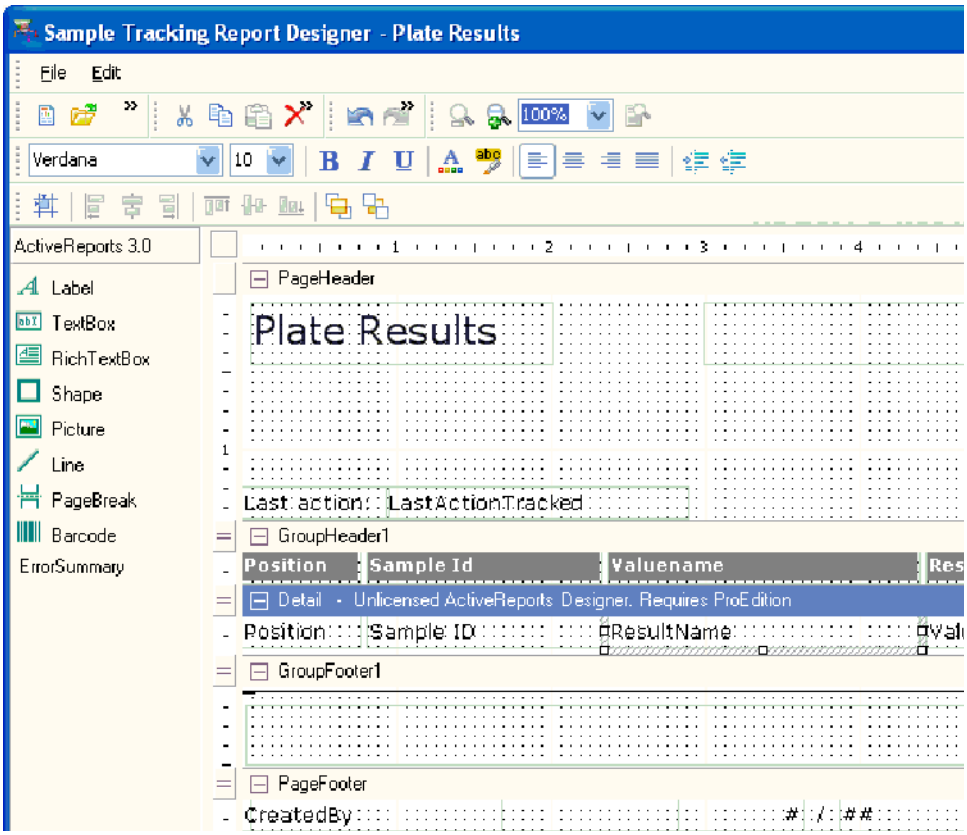

Fig. 7-19 *Report designer*

4 Refer to substeps 4, 🗎 7-16 and 5, 🗎 7-17 to modify the report template.

5 Select **Save** from drop down menu **File** to save report template.

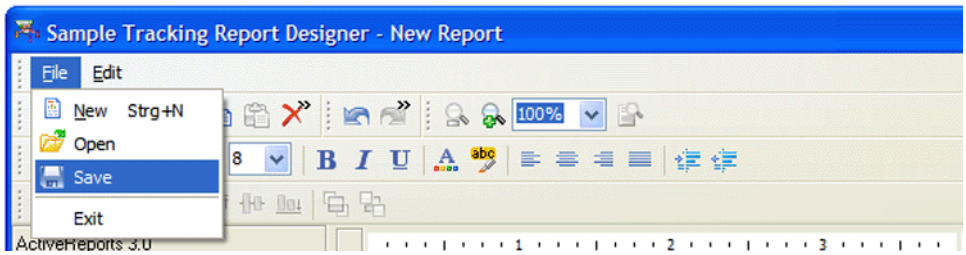

Fig. 7-20 *Save report*

6 Select or edit file name and confirm modifications with **Save**.

Note: *If file name is going to be overwritten, confirm to overwrite file with YES.*

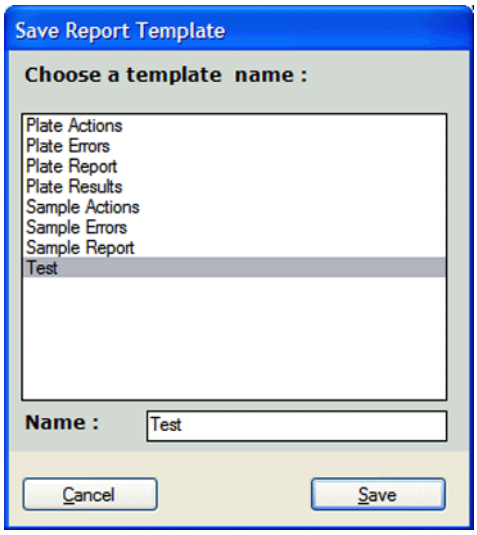

Fig. 7-21 *Save report template*

Deleting report templates

1 Select **Delete an existing report** option and continue with next (A).

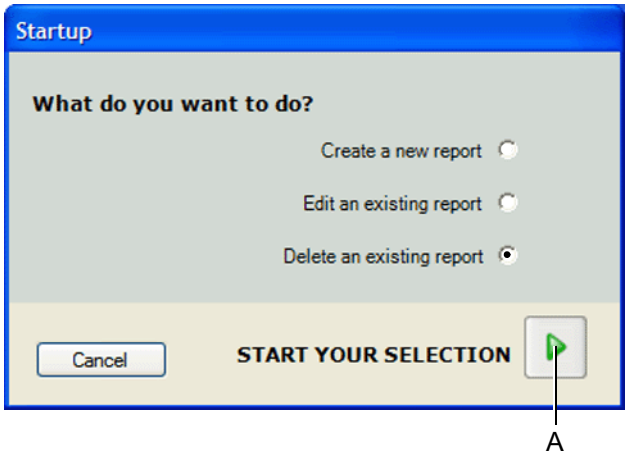

Fig. 7-22 *Sample Tracking Report Designer - Startup*

2 Select the file to be deleted and confirm selection with next (A).

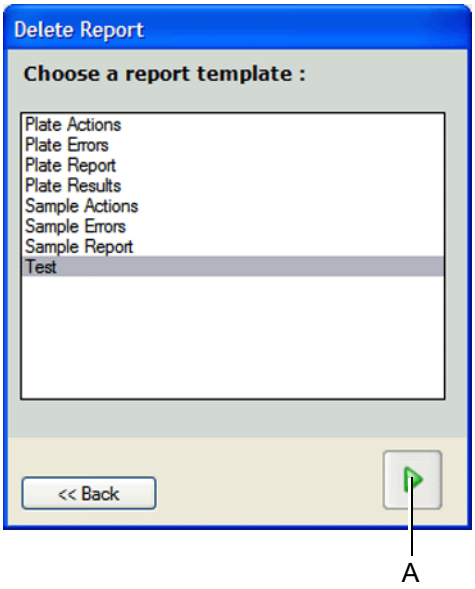

Fig. 7-23 *Save report template*

3 Confirm deleted file with **OK**.

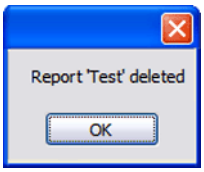

Fig. 7-24 *Report deleted*

7.4 Reports Types

File Location

The **Platemap Report PMP** file is automatically generated after the pipetting process and saved to the following directory:

```
C:\Documents and Settings\All Users\Application
Data\TECAN\Sample Tracking
```

7.4.1 Plate Actions

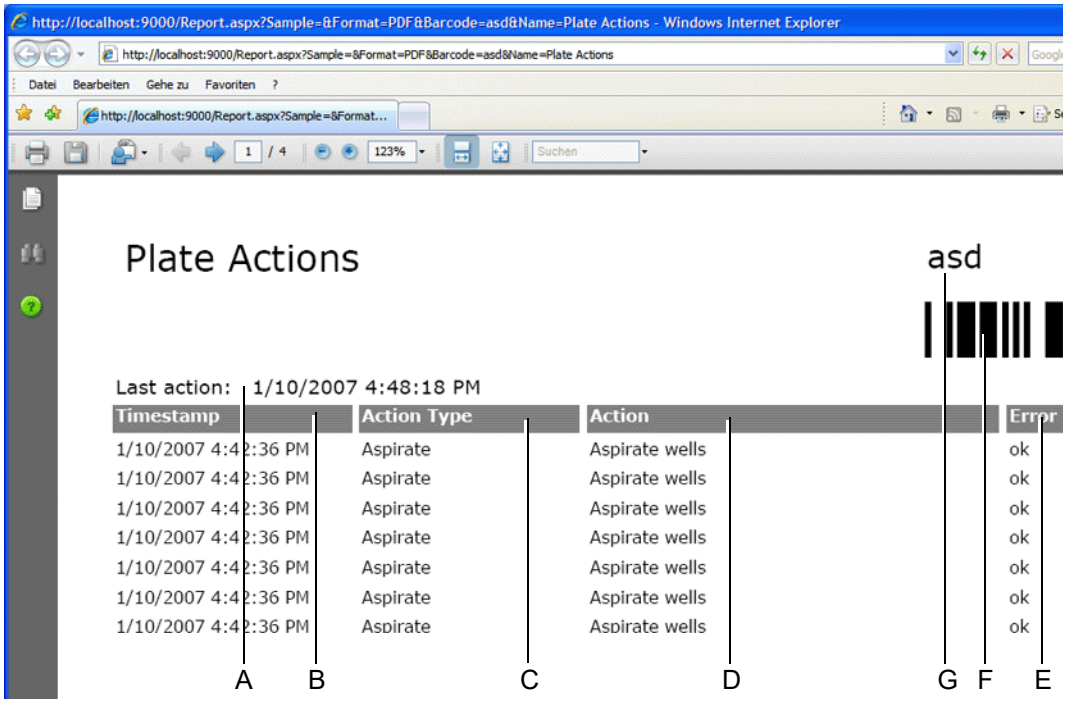

Fig. 7-25 *Tab Results: Example of report Plate actions*

Results

Note: *A PDF is automatically generated and displayed in the respective internet browser.*

The Plate Actions report shows the following data:

Last action	**A**	Time the last action listed was carried out
Timestamp	**B**	Time the action was carried out
Action Type	**C**	Type of action carried out on plate
Action	**D**	Description of action details
Error Status	**E**	Comma separated list of all errors that occurred relating the appropriate action. If no errors have occurred OK is displayed.
Barcode	**F**	Barcode
Plate Id	**G**	Plate identification

7.4.2 Plate Errors

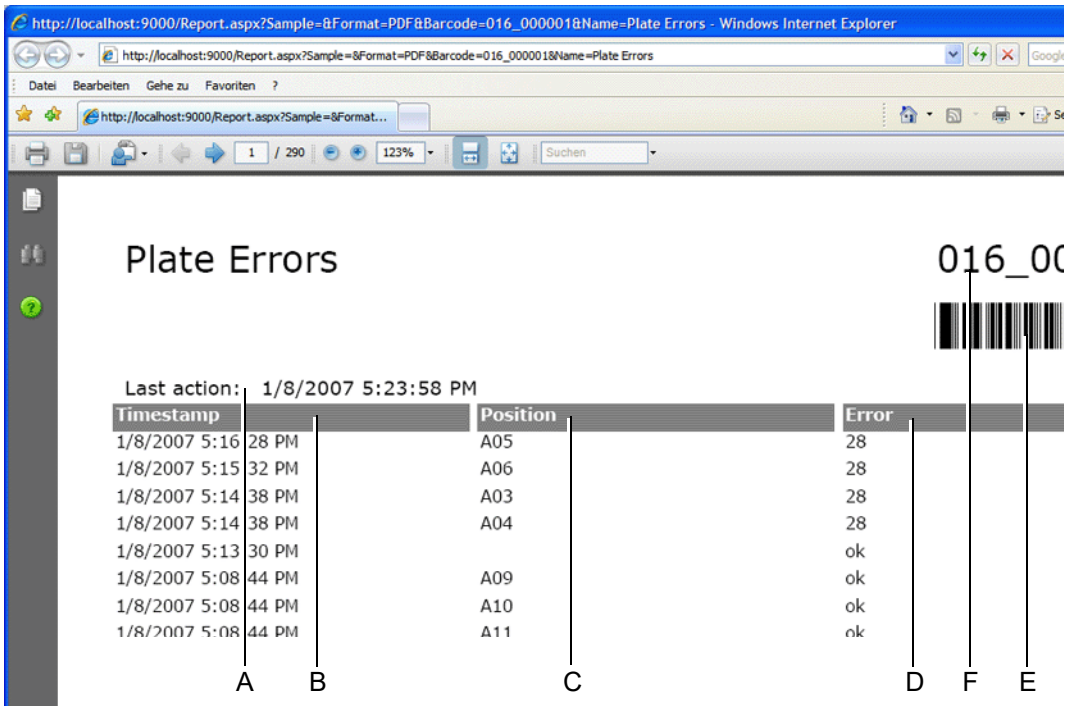

Fig. 7-26 *Tab Results: Example of report* ***Plate errors***

Results

Note: *A PDF is automatically generated and displayed in the respective internet browser.*

The Plate Errors report shows the following data:

Last action	**A**	Time the last action listed was carried out
Timestamp	**B**	Time the action was carried out
Position	**C**	Position of the cavity on the labware. See 5.2.2.5 “Cavity ID Assignment”, 5-14.
Error	**D**	Comma separated list of errors codes that occurred relating the appropriate labware or cavities.
Barcode	**E**	Barcode
Plate Id	**F**	Plate identification

7.4.3 Plate Report

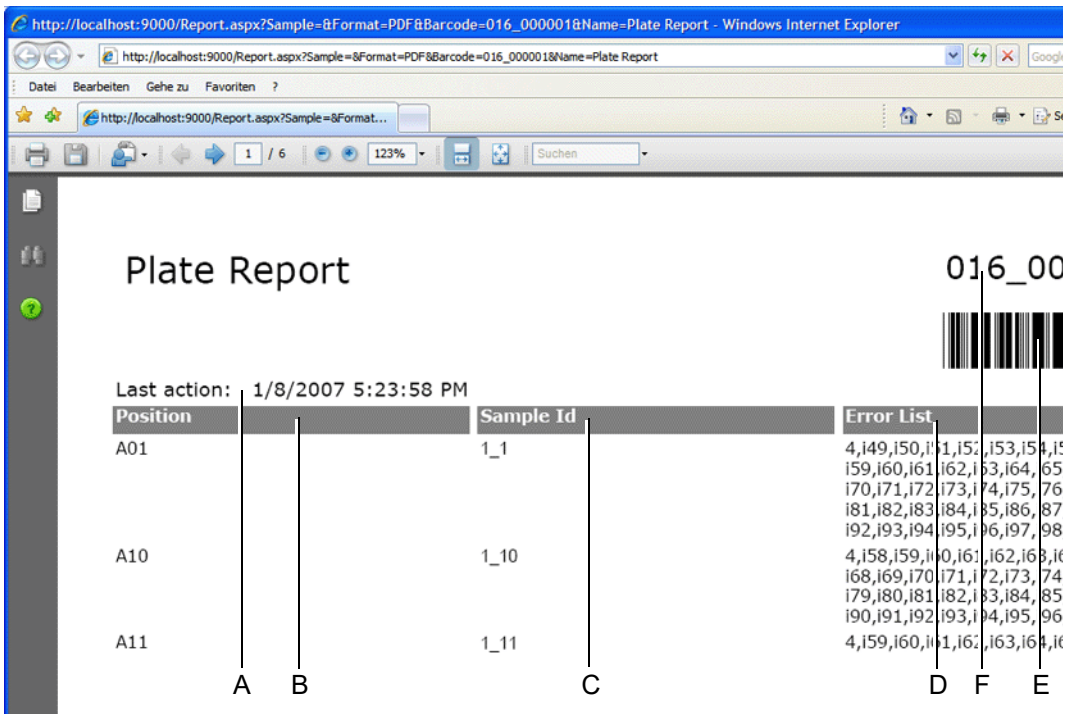

Fig. 7-27 *Tab Results: Example of report* ***Plate report***

Results

Note: *A PDF is automatically generated and displayed in the respective internet browser.*

The Plate Report shows the following data:

Last action	**A**	Time the last action listed was carried out
Position	**B**	Position of the well on the plate
Sample Id	**C**	Well Identification
Error List	**D**	Comma separated list of errors that occurred relating the appropriate well
Barcode	**E**	Barcode
Plate Id	**F**	Plate identification

Note: *Errors may originate from earlier applications and add up.*

- *Samples inherit errors from other liquids pipetted into them, as well as from the plate (e.g. barcode reading error).*
- *Later plate errors (e.g. overheating in an incubator) are passed on to all samples.*

7.4.4 Plate Results

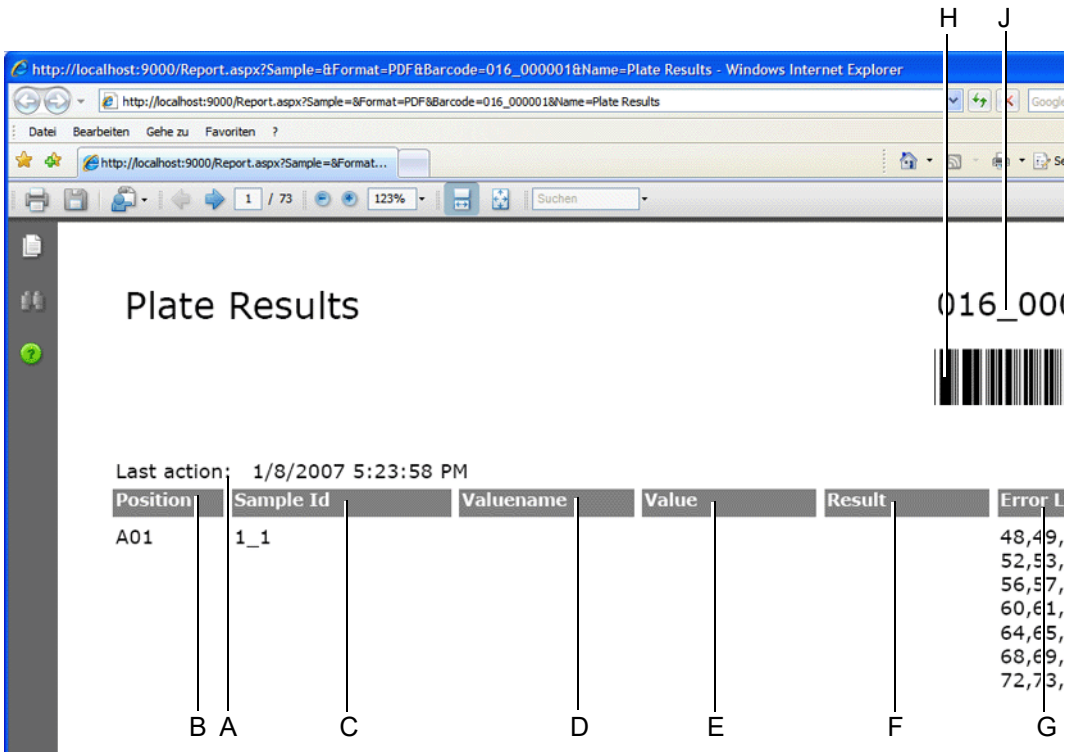

*Fig. 7-28 Tab Results: Example of report **Plate results***

Results

***Note:** A PDF is automatically generated and displayed in the respective internet browser.*

The Plate Results shows the following data:

Last action	**A**	Time the last action listed was tracked
Position	**B**	Position of the well on the plate
Sample Id	**C**	Identification for registered samples in well
Valuename	**D**	Attribute attached to the results given (e.g. Wavelength”)
Value	**E**	The value of the attribute (e.g. 450)
Result	**F**	Result value
Error List	**G**	Comma separated list of errors that occurred relating the appropriate action. If no errors have occurred OK is displayed.
Barcode	**H**	Barcode
Plate Id	**J**	Plate identification

7.4.5 Platemap Report PMP

Pos.	Sample Id	Volume	Curve File	Seq.	Transfer Success	Transfer Error List
A07	2010031615482670312_007	0	C:/Program Data/TECAN/EVOware/PMP/Curves/0057_1_100316_154828.pmd.zip	1	No	i7;i22;i23;i25
A07	2010031615482670312_007	100	C:/Program Data/TECAN/EVOware/PMP/Curves/0061_1_100316_154903.pmd.zip	1	Yes	i7;i17;i22;i25
A08	2010031615482670312_008	100	C:/Program Data/TECAN/EVOware/PMP/Curves/0058_2_100316_154828.pmd.zip	1	Yes	ok
A09	2010031615482670312_009	100	C:/Program Data/TECAN/EVOware/PMP/Curves/0059_3_100316_154828.pmd.zip	1	Yes	ok
A10	2010031615482670312_010	100	C:/Program Data/TECAN/EVOware/PMP/Curves/0060_4_100316_154828.pmd.zip	1	Yes	ok

Fig. 7-29 *Platemap Report PMP*

Result

The Platemap report PMP file is automatically generated after the pipetting process and saved to the following directory:

```
C:\ProgramData\TECAN\Sample Tracking
```

Note: *The Platemap PMP Report contains the same data information as the CSV output file.*

Pos.	**A**	Position
Sample Id	**B**	Sample identification
Volume	**C**	Volume (demanded in the script [µl] If no dispense occurred this value shows a [0].
Curve File	**D**	Curve file, location / name [zip] Refer to the PMP application Manual for further information
Seq.	**E**	Dispense steps: Single dispense: set to [1] Multiple dispense: [2 or more] Set to the number of dispenses for each aspirate
Transfer Success	**F**	Transfer Successful: A transfer is deemed successful if evaluated as correct by PMP
Transfer Error List	**G**	List of pipetting errors

7.4.6 Sample Actions

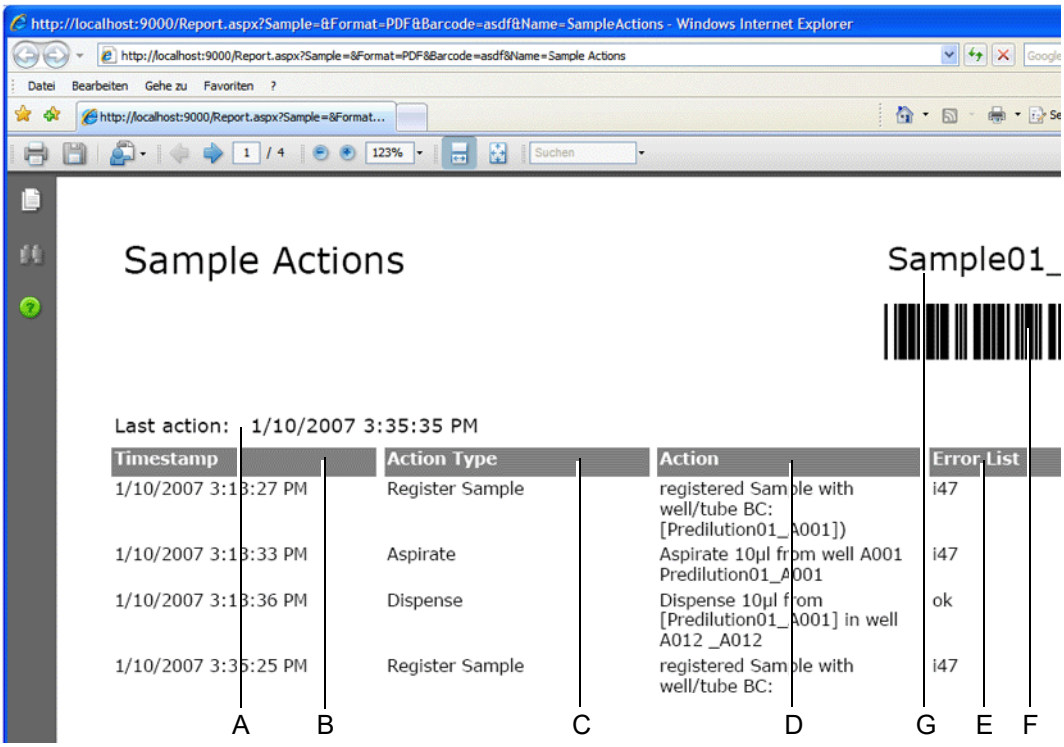

Fig. 7-30 *Tab Results: Example of report* ***Sample actions***

Results

A PDF is automatically generated and displayed in the respective internet browser.

The Sample Actions report shows the following data:

Last action	**A**	Time the last action listed was carried out
Timestamp	**B**	Time the action was carried out
Action Type	**C**	Type of action carried out on plate
Action	**D**	Action details
Error list	**E**	Comma separated list of errors that occurred relating the appropriate action. If no errors have occurred OK is displayed.
Barcode	**F**	Barcode
Sample Id	**G**	Sample identification

Note: *Errors can originate from earlier instances and, therefore, add up to the corresponding number.*

- *Samples inherit errors from other liquids pipetted into them, as well as from the plate (e.g. barcode reading error).*
- *Later plate errors (e.g. overheating in an incubator) are passed on to all samples.*

7.4.7 Sample Errors

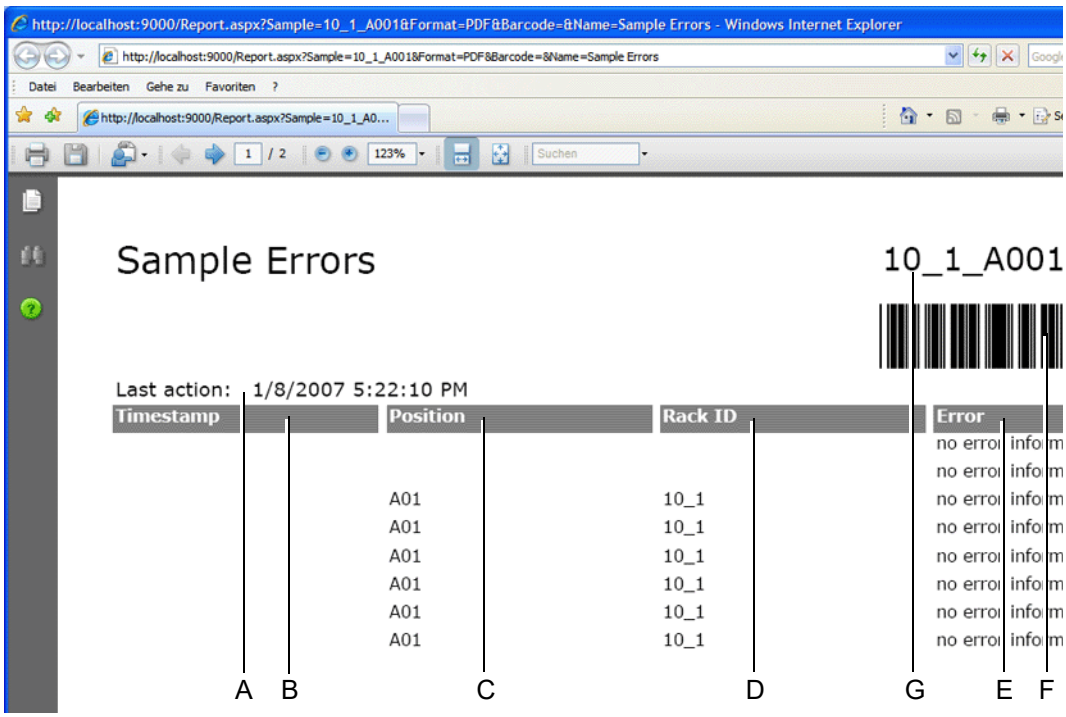

*Fig. 7-31 Tab Results: Example of report **Sample errors***

Results

***Note:** A PDF is automatically generated and displayed in the respective internet browser.*

The Sample Errors shows the following data:

Last action	**A**	Time the last error listed occurred.
Position	**B**	Position of the well where error occurred.
Sample Id	**C**	The identifier of a sample. See 5.2.2.5 “Cavity ID Assignment”, 5-14
Labware ID	**D**	Labware name and identification. See 5.2.2.4 “Labware Identification”, 5-13
Error	**E**	Error description text
Barcode	**F**	Barcode
Sample Id	**G**	Sample identification

7.4.8 Sample Report

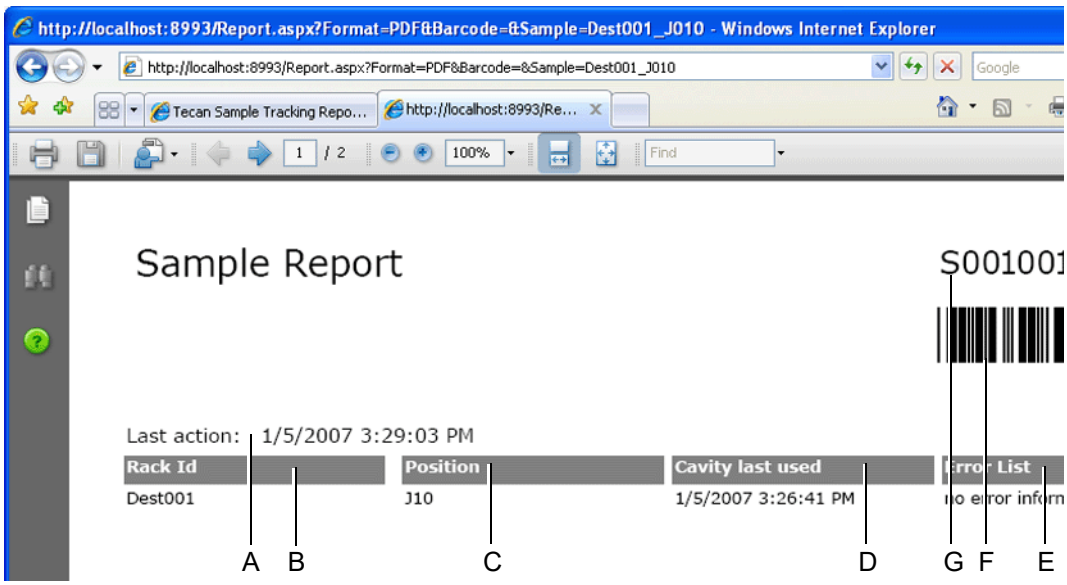

Fig. 7-32 Tab results: Example of Sample report

Results

Note: *A PDF is automatically generated and displayed in the respective internet browser.*

The Sample Report shows the following data:

Last action	**A**	Time the last action listed was carried out
Labware Id	**B**	Labware name and identification. See 5.2.2.4 “Labware Identification”, 5-13.
Position	**C**	Position of the well on the plate.
Cavity last used	**D**	Time the cavity was last used
Error	**E**	List of numbers of errors associated with the specific sample.
Barcode	**F**	Barcode
Sample Id	**G**	Sample Identification

7.4.9 Report Export Options

File Formats

The contents of all report types can be exported to the following file formats:

- XLS
  - Microsoft Excel file
- CSV
  - Comma separated file

To export a report, proceed as follows:

1 Open report 7.1.2.2 “Opening a Report”, 7-8.

*The **File Download** screen appears:*

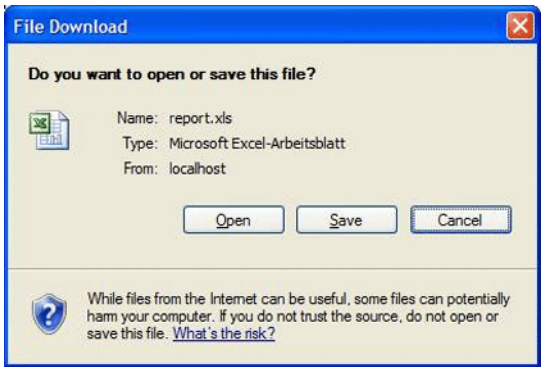

***Fig. 7-33 File Download** screen*

2 Click **Save**.

3 Select the location and name of the export file.

4 Click on **Save** to confirm export.

8 QuickViewer

Purpose of This Chapter

This chapter describes the prerequisites and the installation and usage of the Tecan ST Add-on Sample Tracking QuickViewer.

8.1 Introduction

General

The Sample Tracking QuickViewer provides the possibility to visualize data currently gathered respectively tracked by the Sample Tracking Add-On.

Computer Requirements

For the general computer requirements refer to section 3.2 “Computer Requirements”, 🗎 3-5.

Access Rights

QuickViewer does not require additional user authorization respectively access rights to be started.

8.2 Installing the Software

8.2.1 Application Software

Check if your existing Application Software installation is compatible to Tecan ST Add-on.
Refer to 3.1.2 “Scope of Application”, 🗎 3-1.
If the a compatible version has not yet been set up, install a compatible version of Application Software.

Installation Procedure

For instructions concerning the installation of the Application Software refer to the corresponding Application Software Manual.

8.3 QuickViewer installation

Do sub steps below to install the QuickViewer software.

1 Insert the Tecan ST Add-on USB into your USB drive.

2 Double-click the file <QuickViewer Setup.exe>.
The welcome screen pops up:

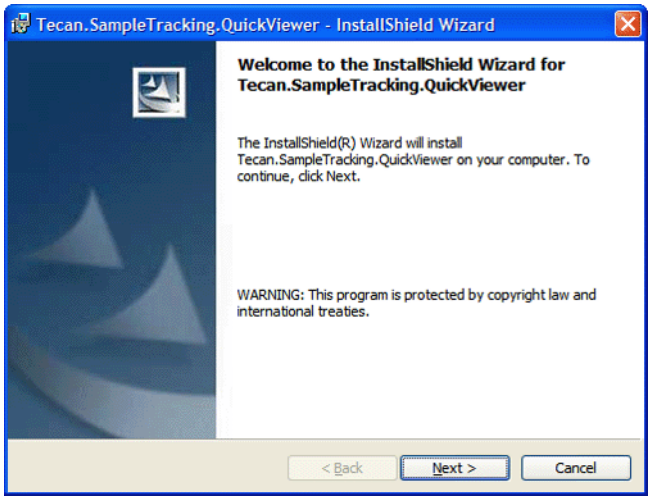

Fig. 8-1 *Welcome screen*

3 Click on **Next** to proceed.

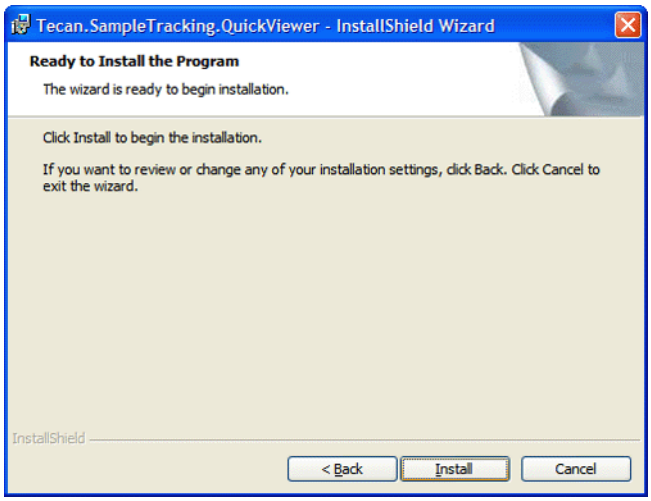

Fig. 8-2 *Ready to install*

4 Click **Install** to start installation.

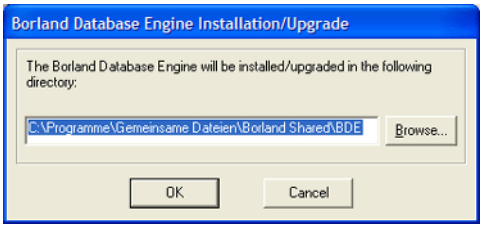

Fig. 8-3 *Select directory*

Note: *Tecan recommends the usage of the default settings provided by the QuickViewer software.*

5 Select the appropriate directory to install QuickViewer with **Browse…**.

6 Press **OK** to confirm settings.

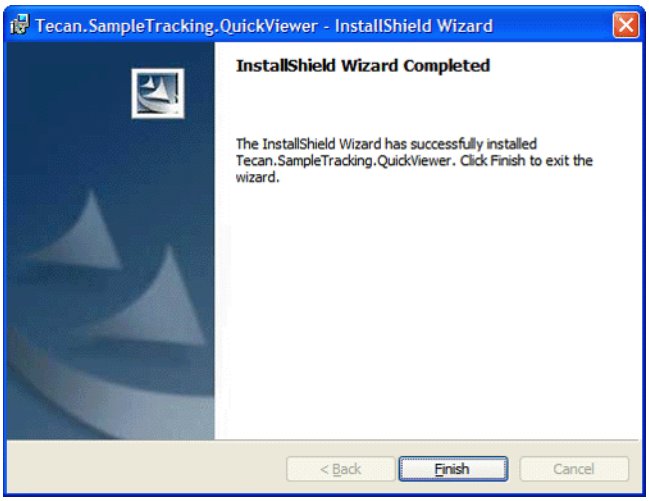

Fig. 8-4 *Installation complete*

7 Click **Finish** to complete installation.

8.4 Software Operation

QuickViewer is a powerful tool for tracking errors of finalized processes and provides the possibility to monitor containers and labware currently being processed.

8.4.1 Starting The Program

- To start QuickViewer select
  Launch Tecan.SampleTracking.QuickVierwe.exe from the Windows Start menu.

Note: *Tecan SCC GmbH / Tecan.Sampletracking QuickViewer / Launch Tecan.SampleTracking QuickViewer.exe*

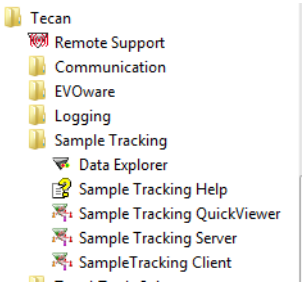

Fig. 8-5 *Windows Start menu*

8.4.2 Software Layout

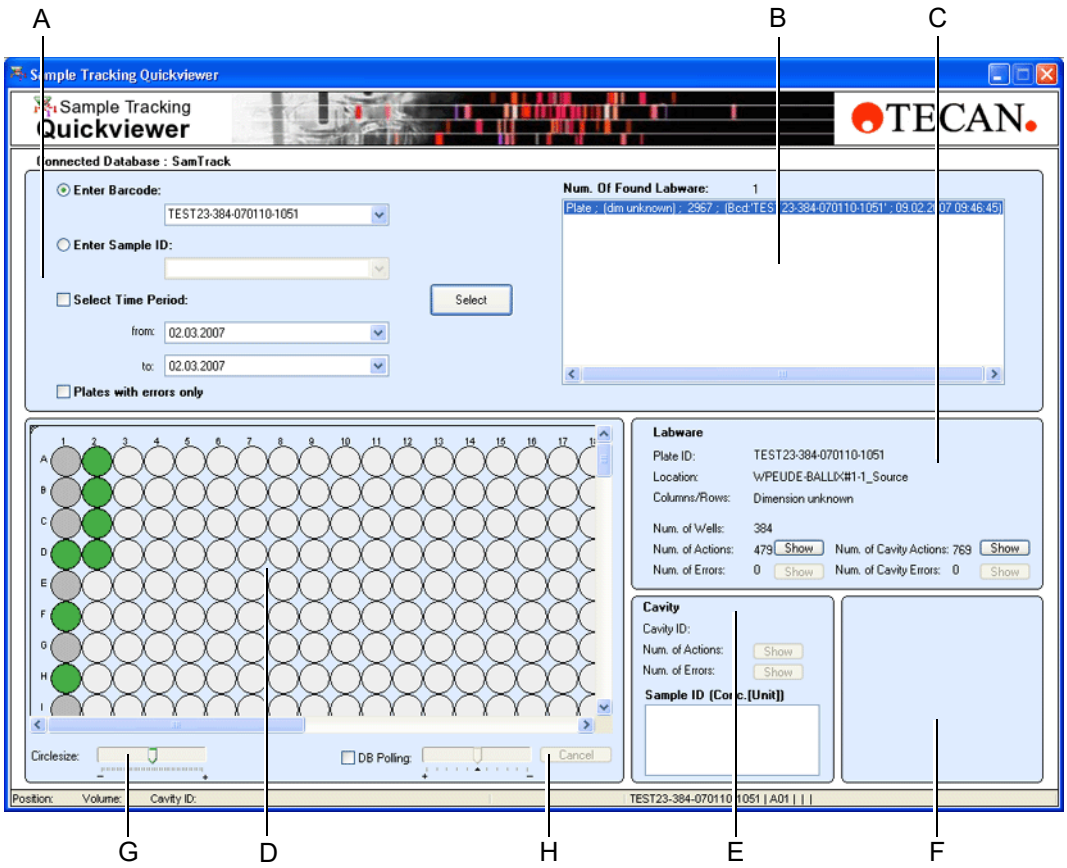

Fig. 8-6 *Program overview*

A *Connected Database Functions*
B *Found container listing*
C *Labware details*
D *Container display*
E *Cavity*
F *Cavity Detail View*
G *Circlesize (Zoom)*
H *DB Poling (process monitoring)*

8.4.3 Software Functions

- To load containers/labware: See 8.4.4 “Loading Containers”, 8-6
- To view details and data gathered: See 8.4.5 “View Plate Details”, 8-7
- For process monitoring: See 8.4.6 “Process Monitoring”, 8-9
- For error information concerning plates/labware: See 8.4.7 “Errors”, 8-10

8.4.4 Loading Containers

Registered containers/plates are retrieved respectively displayed by barcode or sample ID and can be filtered by period of time and/or plates with errors.

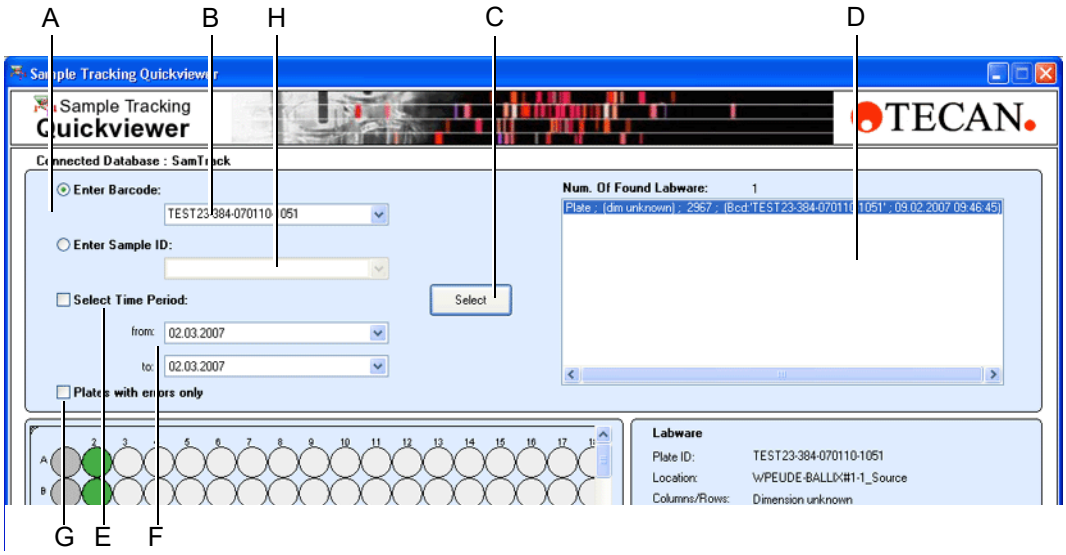

Fig. 8-7 *Loading containers*

To load/list containers:

- by Barcode: See "By Barcode", 🗎 8-6
- by Sample ID: See "By Sample ID", 🗎 8-6

By Barcode

1 Select the **Enter Barcode** option (A) Fig. 8-7, 🗎 8-6.

Note: *To display multiple containers, or assuming that the barcode number is unknown, an asterisk *****, in terms of a wild card, is edited into the **Enter Barcode** gap (B).*

2 Edit the barcode number respectively asterisk ***** into the **Enter Barcode** gap (B) Fig. 8-7, 🗎 8-6.

Note: *Skip to sub step 5 if filtering by period of time is not required.*

3 Tick the check box **Select Time period** (E) and edit the dates (F) of the filter period Fig. 8-7, 🗎 8-6.

4 Tick the check box **Plates with erros only** (G) to list plates with errors Fig. 8-7, 🗎 8-6.

5 Click **Select** (C) to display containersFig. 8-7, 🗎 8-6.

A list of matching main containers is displayed in the found container listing (D) Fig. 8-7, 🗎 8-6.

By Sample ID

1 Select the **Enter Sample ID** option (A) Fig. 8-7, 🗎 8-6.

Note: *To display multiple containers, or assuming that the sample ID is unknown, an asterisk *****, in terms of a wild card, can be edited into the **Enter Sample ID** gap.*

2 Edit the sample ID respectively asterisk * into **Enter Sample ID** gap (B) Fig. 8-7, 🗎 8-6.

Note: *Skip to sub step 5 if filtering by period of time is not required.*

3 Tick the check box **Select Time period** (E) and edit the dates (F) of the filter period Fig. 8-7, 🗎 8-6.

4 Tick the check box **Plates with erros only** (G) to list plates with errors.

5 Click **Select** (C) to display containers Fig. 8-7, 🗎 8-6.

A list of matching main containers is displayed in the found container listing (D) Fig. 8-7, 🗎 8-6.

8.4.5 View Plate Details

QuickViewer provides the viewing of information concerning labware and cavities.

1 Load a container. See 8.4.4 “Loading Containers”, 🗎 8-6.

2 Select the appropriate plate in found containers listing (A).

A plate illustration shows the plate configuration.

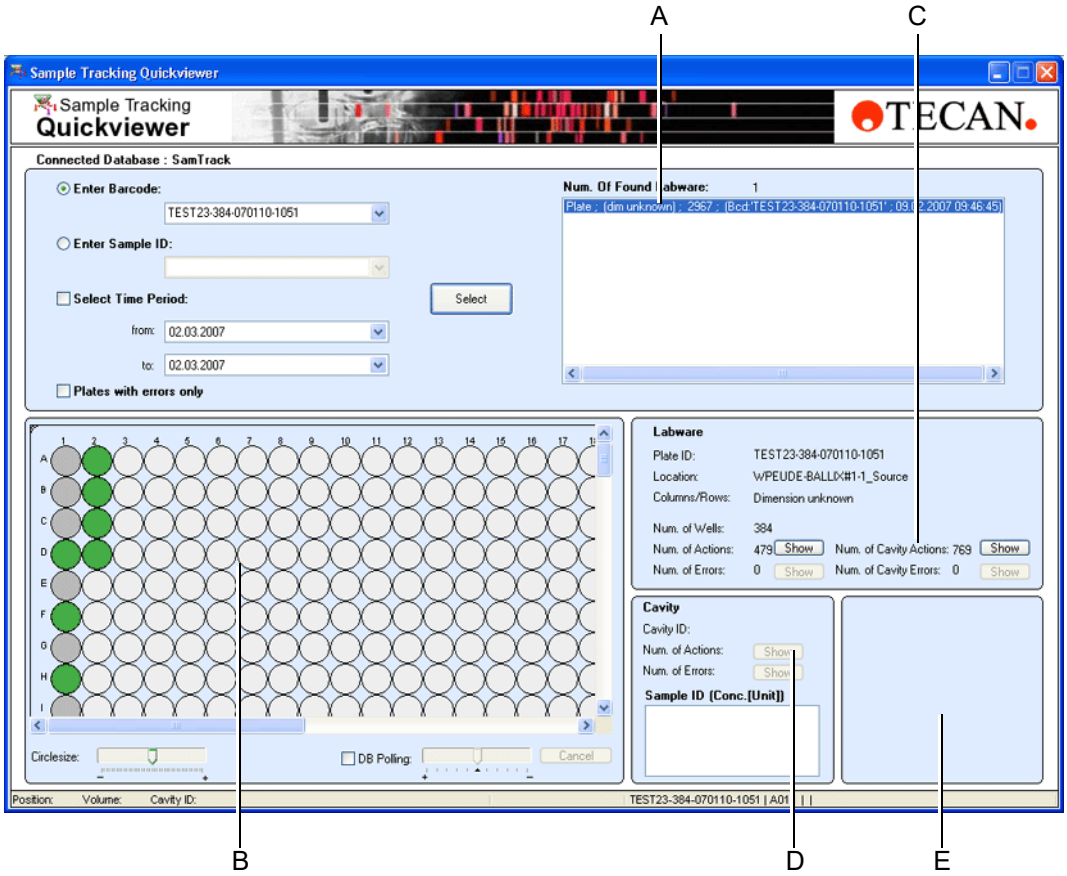

Fig. 8-8 *View plate details*

Plate Actions

1 To view the labware actions taken place on the selected plate click **Show Actions** (C) Fig. 8-8, 8-7.

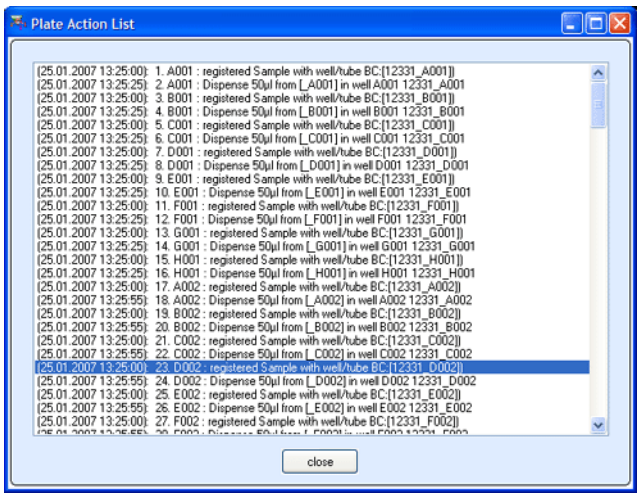

Fig. 8-9 *Plate Action List*

The Plate Actions List window shows following details:

- Date of action
- Time of action
- Action number
- Action location on plate
- Type of action
- Sample Id

2 Click **Close** to close window.

Cavity Details

1 To view cavity actions taken place on the selected plate click **Plate Actions** (D) Fig. 8-8, 8-7.

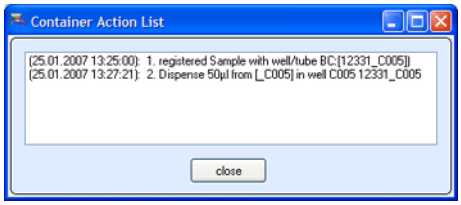

Fig. 8-10 *Container Action List*

The Container Actions List window shows following details:

- Date of action
- Time of action
- Action number
- Action location on plate
- Type of action
- Sample Id

2 Click **Close** to close window.

Cavity Detail View

1 Click on the appropriate well of the plate illustration (B) Fig. 8-8, 8-7.

The well selected is shown in the Cavity Detail View position section (E) Fig. 8-8, 8-7.

The Cavity Detail View section shows following details:

- Position number
- Well volume
- Error indication (red)

2 To view the actions taken place on the selected plate click **Show Actions** (C) Fig. 8-8, 8-7.

3 Repeat the Cavity Detail View steps to view other well cavity details.

8.4.6 Process Monitoring

DB Polling

QuickViewer provides the possibility to monitor containers and labware currently being processed.

To draw up a running process the labware illustration marks processed wells green respectively red (if an error should have occurred) and transparent if the well has not yet been tracked.

A database polling controller gives the user the possibility of near real time motion sequence monitoring of process running.

To monitor a process running do the following instructions.

1 Load a container. See 8.4.4 “Loading Containers”, 8-6.

2 Tick check box DB polling (A).

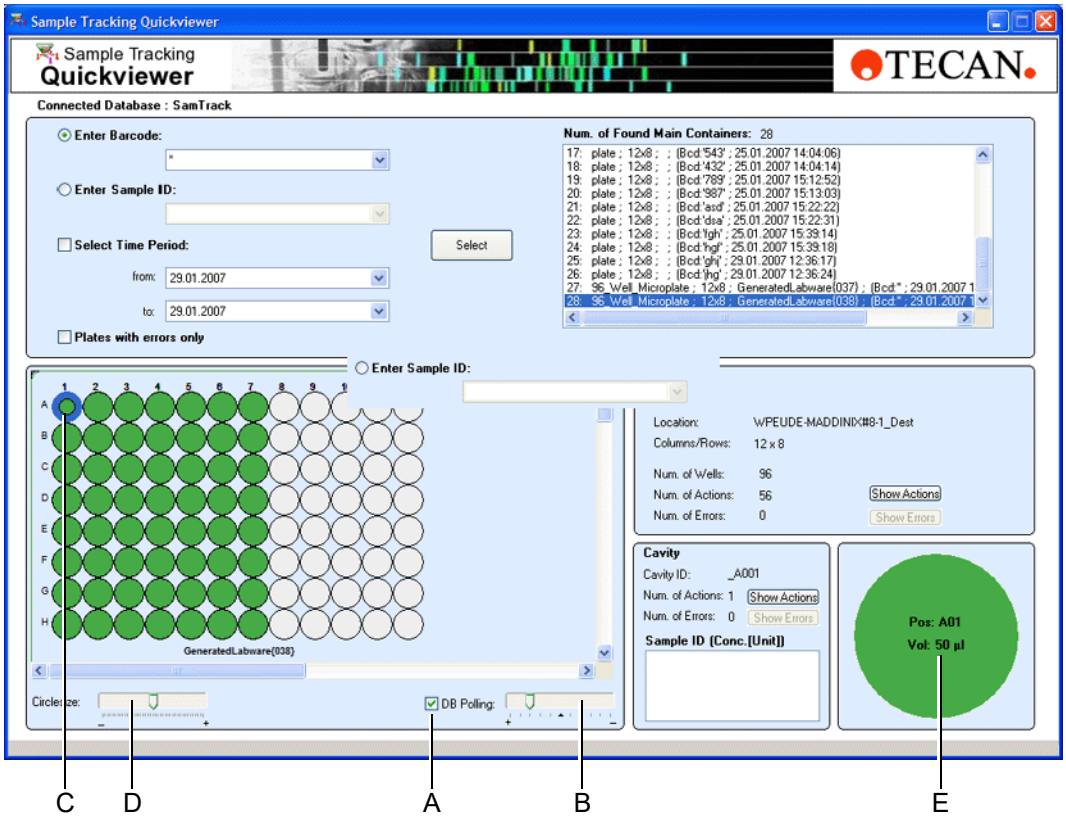

Fig. 8-11 *DB Polling*

A *DB Polling check box*
B *Refresh Rate Controller*
C *Selected Cavity*
D *Circlesize (zoom labware)*
E *Cavity Detail View*

3 Adjust labware illustration refreshing rate with the Refresh Rate Controller (B) if required.

To increase the refresh rate shift the Refresh Rate Controller to the + range.

To decrease the refresh rate shift the Refresh Rate Controller to the - range.

4 To view the labware details:

– the well cavity details select cavity position (C).

The well details are shown in the Cavity Detail View section

– Plate details: See 8.4.5 “View Plate Details”, 🗎 8-7
– Occurred Errors: See 8.4.7 “Errors”, 🗎 8-10

8.4.7 Errors

QuickViewer displays plates with error occurrence in red.

1 Load a container. See 8.4.4 “Loading Containers”, 🗎 8-6.
2 Select appropriate plate listed in found containers listing (A).

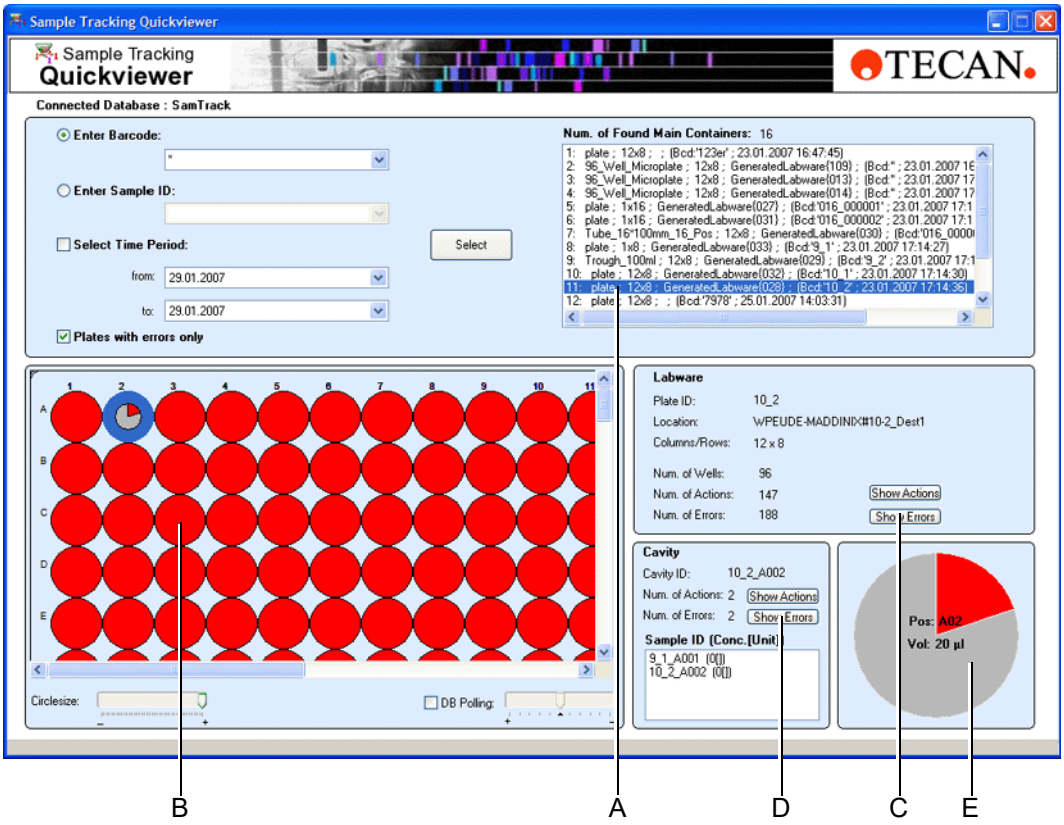

Fig. 8-12 *Container with error*

Plate Error List

3 To view labware errors taken place on the selected plate click **Show Errors** (C) Fig. 8-12, 8-11.

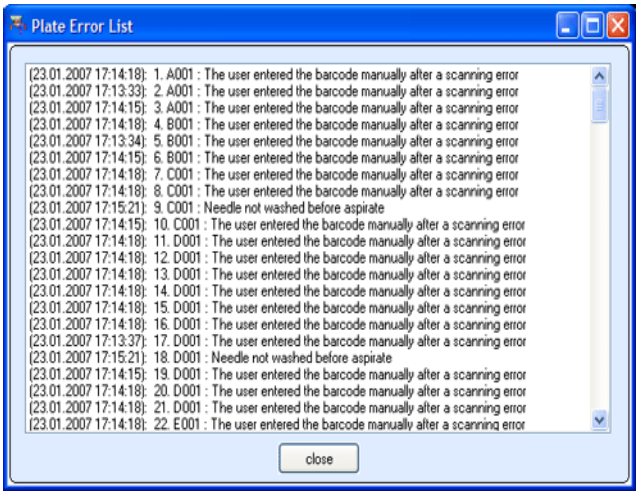

Fig. 8-13 *View plate details*

The Plate Error List window shows following details:

- Date of error
- Time of error
- Error number

- Error location on plate
- Type of action/error

4 Click **Close** to close window.

Container Error List

1 To view errors taken place on selected cavity/container click **Show Errors** (D) Fig. 8-12, 8-11.

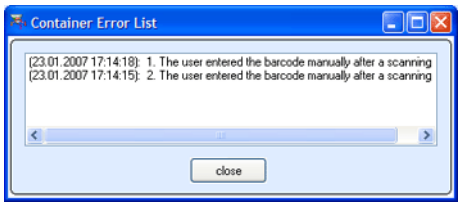

Fig. 8-14 *Container Error List*

The Container Error List window shows following details:

- Date of error
- Time of error
- Error number
- Type of action

2 Click **Close** to close window.

9 Import/Export Formats

Purpose of This Chapter

This chapter provides a description of each Tecan Sample Tracking Add-on file format.

ATTENTION

Risk of malfunctions. Incompatible, incorrect or invalid data formats will lead to malfunctions when imported.

- Make sure valid and correct data formats are correct imported.

Note: *Tecan recommends the implementation of a validation process to ensure the validity of the data formats.*

For examples and file definitions refer sections listed below:

- 9.1 “CSV Export Files”, 9-1
- 9.2 “Sample Import/Export”, 9-18
- 9.2 “Sample Import/Export”, 9-18
- 9.3 “Container Import/Export”, 9-19

9.1 CSV Export Files

Definition

The CSV file (comma separated value) is the key interface to export the sample data (platemap report) to the laboratory information management system LIMS. Lists within the file (e.g error lists) use the @ sign as list separator.
The CSV file contains checksums which are used to detect corrupted or modified data.

File Location

The CSV file is automatically generated after the pipetting process and saved to the following directory:

```
C:\ProgramData\TECAN\EVOware\output\Sample Tracking
```

9.1.1 CSV Platemap Report

The CSV Platemap Report contains the container barcode, barcode, samplealias, container position, volume etc. Refer to 9.1.2 “CSV Platemap File Definition”, 9-3 for detailed descriptions.

Containerbarcode	Barcode	Samplealias	Containerposition	Volume	Concentration	concentra
013/000020	Tb0016R001a	Tb0016R001a	A01	-9843.119	1	calculated
013/000020	Tb0015R001a	Tb0015R001a	A02	-9843.119	1	calculated
013/000020	Tb0014R001a	Tb0014R001a	A03	-9843.119	1	calculated
013/000020	Tb0013R001a	Tb0013R001a	A04	-9843.119	1	calculated
013/000020	Tb0012R001a	Tb0012R001a	A05	-9843.119	1	calculated
013/000020	Tb0011R001a	Tb0011R001a	A06	-9843.119	1	calculated
013/000020	Tb0010R001a	Tb0010R001a	A07	-9843.119	1	calculated
013/000020	Tb0009R001a	Tb0009R001a	A08	-9843.119	1	calculated
013/000020	Tb0008R001a	Tb0008R001a	A09	-9843.119	1	calculated
013/000020	Tb0007R001a	Tb0007R001a	A10	-9843.119	1	calculated
013/000020	Tb0006R001a	Tb0006R001a	A11	-9843.119	1	calculated
013/000020	Tb0005R001a	Tb0005R001a	A12	-9843.119	1	calculated
013/000020	Tb0004R001a	Tb0004R001a	A13	-9843.119	1	calculated
013/000020	Tb0003R001a	Tb0003R001a	A14	-9843.119	1	calculated
013/000020	Tb0002R001a	Tb0002R001a	A15	-9843.119	1	calculated
013/000020	Tb0001R001a	Tb0001R001a	A16	-9843.119	1	calculated
Sample Tracking Report Name : Platemap Report						
Last action tracked : 2/22/2008 3:22:22 PM						
Created by Admin at 3/20/2008 9:29:09 AM						

userdefValue1	userdefValue2	userdefValue3	userdefValue4	userdefValue5	PlateErrors	SampleErrors

9.1.2 CSV Platemap File Definition

The Platemap CSV file contains in each row the following columns of information. A header row declares the columns available for the import. The column names have to match exactly to be identified.

Note: *The CSV platemap file is an export as well as an import format.*

Name	Comment	Qualification
Labwarename	The name of the labware	Optional
Containerbarcode	Barcode of the plate or rack	Mandatory
Barcode	Barcode of well or tube	Optional
Labwaretype	Alias of the labware type, just like it is defined in EVOware	Optional
SizeX	Number of child containers (wells or tubes) in horizontal direction	Optional
SizeY	Number of child containers (wells or tubes) in vertical direction.1, in case of tube	Optional
SizeInfo	Either no size Info or both, SizeX and SizeY Samples are only allowed if size info is given	Optional
Samplealias	User defined identifier. Multiple samples in a (tubes/wells) are possible and supported for the sample.	Optional
Concentration	Concentration of the sample in the tubes/wells.	Optional
ConcentrationUnit	Concentration and unit of the sample in the tubes/wells.	Optional
Containerposition	position of the sample on the plate in coordinates (A01, A02, ... B01,.. H12)	Mandatory
Volume	Total volume in the tube or well	Optional
UserdefValue1	Up to 5 user defined fields attached to the liquid in the tubes/wells (these values will be transferred to other containers with the liquid)	Optional
UserdefValue2	Same definition as UserdeValue1	Optional
UserdefValue3	Same definition as UserdeValue1	Optional
UserdefValue4	Same definition as UserdeValue1	Optional
UserdefValue5	Same definition as UserdeValue1	Optional

Note: *The last three rows of the platemap report (Report name, Last Action, Created by) are optional when importing a platemap CSV file.*

9.1.3 CSV Plate Results Report

The CSV Platemap Result Report contains the rack id, position, sample ID as well as result details such as result type, name and unit etc. Refer to Tab. 9-1 “Description CSV Plate Results Report”, 🗎 9-5 for detailed descriptions.

rack id	Position	Sample ID	ResultType	ResultName	Result	UNIT	ResultCycle	LabelId	A
2.00804E+18	A01	2008040214561934487_A001	Name	Raw data	0		1		
2.00804E+18	A01	2008040214561934487_A001	Name	Strip method names	HIV-ELISA		1		
2.00804E+18	B01	2008040214561934487_B001	Name	Raw data	0		1		
2.00804E+18	B01	2008040214561934487_B001	Name	Strip method names	HIV-ELISA		1		
2.00804E+18	C01	2008040214561934487_C001	Name	Raw data	0		1		
2.00804E+18	C01	2008040214561934487_C001	Name	Strip method names	HIV-ELISA		1		

ActionErrors	PlateErrors	SampleErrors	RESULTID																
	36	35	35	36	36	86	86	87	87	87	35	35	35	36	36	36	35	35	35
	36	35	35	36	36	86	86	87	87	87	35	35	35	36	36	36	35	35	35
	36	35	35	36	36	86	86	87	87	87	35	35	35	36	36	36	35	35	35
	36	35	35	36	36	86	86	87	87	87	35	35	35	36	36	36	35	35	35
	36	35	35	36	36	86	86	87	87	87	35	35	35	36	36	36	35	35	35
	36	35	35	36	36	86	86	87	87	87	35	35	35	36	36	36	35	35	35

35	35	35	36	36	36	35	35	35	36	36	36	35	35	35	35	35	36	36	36	36	36	i36	2
35	35	35	36	36	36	35	35	35	36	36	36	35	35	35	35	35	36	36	36	36	36	i36	7
35	35	35	36	36	36	35	35	35	36	36	36	35	35	35	35	35	36	36	36	36	36	i36	18
35	35	35	36	36	36	35	35	35	36	36	36	35	35	35	35	35	36	36	36	36	36	i36	23
35	35	35	36	36	36	35	35	35	36	36	36	35	35	35	35	35	36	36	36	36	36	i36	34
35	35	35	36	36	36	35	35	35	36	36	36	35	35	35	35	35	36	36	36	36	36	i36	39

Tab. 9-1 *Description CSV Plate Results Report*

Name	Comment
Rack Id	Identification of rack
Position	position of the sample on in a plate
Sample ID	Identification of sample
ResultType	Type of result
ResultName	name of result
result	result
UNIT	Unit of measurement
ResultCycle	Number of cycle run
LabelId	label identification
ActionErrors	Error associated with Samples
SampleErrors	Sample errors
RESULTID	Identification of result

9.1.4 CSV Plate Report

The CSV Plate Report contains the rack id, cavity id, position, sample id as well as the concentration, concentration unit, volume etc. Refer to Tab. 9-2 “Description CSV Plate Report”, 9-7 for detailed descriptions.

Rack id	Cavity Id	Position	Sample Id	CONCENTRATION	CONCENTRATIONUNIT	VOLUME	USERDEFI
013/000020	Tb0016R001a	A01	Tb0016R001a	1	calculated	-9843.12	
013/000020	Tb0015R001a	A02	Tb0015R001a	1	calculated	-9843.12	
013/000020	Tb0014R001a	A03	Tb0014R001a	1	calculated	-9843.12	
013/000020	Tb0013R001a	A04	Tb0013R001a	1	calculated	-9843.12	
013/000020	Tb0012R001a	A05	Tb0012R001a	1	calculated	-9843.12	
013/000020	Tb0011R001a	A06	Tb0011R001a	1	calculated	-9843.12	
013/000020	Tb0010R001a	A07	Tb0010R001a	1	calculated	-9843.12	
013/000020	Tb0009R001a	A08	Tb0009R001a	1	calculated	-9843.12	
013/000020	Tb0008R001a	A09	Tb0008R001a	1	calculated	-9843.12	
013/000020	Tb0007R001a	A10	Tb0007R001a	1	calculated	-9843.12	
013/000020	Tb0006R001a	A11	Tb0006R001a	1	calculated	-9843.12	
013/000020	Tb0005R001a	A12	Tb0005R001a	1	calculated	-9843.12	
013/000020	Tb0004R001a	A13	Tb0004R001a	1	calculated	-9843.12	
013/000020	Tb0003R001a	A14	Tb0003R001a	1	calculated	-9843.12	
013/000020	Tb0002R001a	A15	Tb0002R001a	1	calculated	-9843.12	
013/000020	Tb0001R001a	A16	Tb0001R001a	1	calculated	-9843.12	
Sample Tracking Report Name : Plate Report							
Last action tracked : 2/22/2008 3:22:22 PM							
Created by Admin at 3/20/2008 9:28:21 AM							

ERDEFINED2	USERDEFINED3	USERDEFINED4	USERDEFINED5	PlateErrors	SampleErrors	SAMPLEINSTANCEID	SAMPLEID
						97	1
						98	2
						99	3
						100	4
						101	5
						102	6
						103	7
						104	8
						105	9
						106	10
						107	11
						108	12
						109	13
						110	14
						111	15
						112	16

Tab. 9-2 Description CSV Plate Report

Name	Comment
Rack Id	Identification of rack
cavity ID	Identification of cavity
Sample ID	Identification of sample
Concentration	Concentration of the sample in the tubes/ wells.
ConcentrationUnit	Concentration and unit of the sample in the tubes/wells.
Volume	Total volume in the tube or well
UserdefValue1	Up to 5 user defined fields attached to the liquid in the tubes/wells (these values will be transferred to other containers with the liquid)
UserdefValue2	Same definition as UserdeValue1
UserdefValue3	Same definition as UserdeValue1
UserdefValue4	Same definition as UserdeValue1
UserdefValue5	Same definition as UserdeValue1
Plate Error	Plate errors
SampleErrors	Sample errors
SampleinstanceID	Sample with a certain liquid in a well at a certain time.
SampleID	Sample identification

9.1.5 CSV Plate Report Extended

The CSV Plate Report Extended contains the rack id, cavity id, position, sample id as well as the concentration, concentration unit, volume etc. Refer to Tab. 9-3 “Description CSV Plate Report Extended”, 9-9 for detailed descriptions.

Rack Id	Cavity Id	Position	Sample Id	CONCENTRATION	CONCENTRATIONUNIT	VOLUME	USERDEFINED1	USERDE
013/000020	Tb0016R001a	A01	Tb0016R001a	1	calculated	-9843.12		
013/000020	Tb0015R001a	A02	Tb0015R001a	1	calculated	-9843.12		
013/000020	Tb0014R001a	A03	Tb0014R001a	1	calculated	-9843.12		
013/000020	Tb0013R001a	A04	Tb0013R001a	1	calculated	-9843.12		
013/000020	Tb0012R001a	A05	Tb0012R001a	1	calculated	-9843.12		
013/000020	Tb0011R001a	A06	Tb0011R001a	1	calculated	-9843.12		
013/000020	Tb0010R001a	A07	Tb0010R001a	1	calculated	-9843.12		
013/000020	Tb0009R001a	A08	Tb0009R001a	1	calculated	-9843.12		
013/000020	Tb0008R001a	A09	Tb0008R001a	1	calculated	-9843.12		
013/000020	Tb0007R001a	A10	Tb0007R001a	1	calculated	-9843.12		
013/000020	Tb0006R001a	A11	Tb0006R001a	1	calculated	-9843.12		
013/000020	Tb0005R001a	A12	Tb0005R001a	1	calculated	-9843.12		
013/000020	Tb0004R001a	A13	Tb0004R001a	1	calculated	-9843.12		
013/000020	Tb0003R001a	A14	Tb0003R001a	1	calculated	-9843.12		
013/000020	Tb0002R001a	A15	Tb0002R001a	1	calculated	-9843.12		
013/000020	Tb0001R001a	A16	Tb0001R001a	1	calculated	-9843.12		
Sample Tracking Report Name : Plate Report Extended								
Last action tracked : 2/22/2008 3:22:22 PM								
Created by Admin at 3/20/2008 9:27:43 AM								

NED1	USERDEFINED2	USERDEFINED3	USERDEFINED4	USERDEFINED5	PlateErrors	SampleErrors	SAMPLEINSTANCEID	SAMPLEID
							97	1
							98	2
							99	3
							100	4
							101	5
							102	6
							103	7
							104	8
							105	9
							106	10
							107	11
							108	12
							109	13
							110	14
							111	15
							112	16

Tab. 9-3 Description CSV Plate Report Extended

Name	Comment
Rack Id	Identification of rack
cavity ID	Identification of cavity
Position	Position of sample
Sample ID	Identification of sample
Concentration	Concentration of the sample in the tubes/ wells.
ConcentrationUnit	Concentration and unit of the sample in the tubes/wells.
Volume	Total volume in the tube or well
UserdefValue1	Up to 5 user defined fields attached to the liquid in the tubes/wells (these values will be transferred to other containers with the liquid)
UserdefValue2	Same definition as UserdeValue1
UserdefValue3	Same definition as UserdeValue1
UserdefValue4	Same definition as UserdeValue1
UserdefValue5	Same definition as UserdeValue1
Plate Error	Plate errors
SampleErrors	Sample errors
SampleinstanceID	Identification of a sample with a certain liquid in a well at a certain time.
SampleID	Sample identification

9.1.6 CSV Plate Errors Report

The CSV Plate Error Report contains the rack Id, cavity id, position, as well as plate and sample errors including an error text and time stamp. Refer to Tab. 9-4 “Description CSV Plate Error Report”, 9-10 for detailed descriptions.

Rack Id	Cavity Id	Position	PlateError	SampleError	ErrorText	ErrorTimestamp
2.00804E+18	20080402145619344 87_B008	B08	36		System resumes	04.04.2008 17:18
2.00804E+18	20080402145619344 87_C008	C08	36		System resumes	04.04.2008 17:18
2.00804E+18	20080402145619344 87_D008	D08	36		System resumes	04.04.2008 17:18
2.00804E+18	20080402145619344 87_B001	B01	i36		System resumes	04.04.2008 17:16
2.00804E+18	20080402145619344 87_C008	C08	36		System resumes	04.04.2008 17:16
2.00804E+18	20080402145619344 87_C008	C08	35		System pause requested by module	04.04.2008 17:16
2.00804E+18	20080402145619344 87_D008	D08	36		System resumes	04.04.2008 17:16
2.00804E+18	20080402145619344 87_D008	D08	35		System pause requested by module	04.04.2008 17:16
2.00804E+18	20080402145619344 87_F008	F08	36		System resumes	04.04.2008 17:16
2.00804E+18	20080402145619344 87_F008	F08	35		System pause requested by module	04.04.2008 17:16
2.00804E+18	20080402145619344 87_E008	E08	36		System resumes	04.04.2008 17:16
2.00804E+18	20080402145619344 87_E008	E08	35		System pause requested by module	04.04.2008 17:16
2.00804E+18	20080402145619344 87_G008	G08	36		System resumes	04.04.2008 17:16
2.00804E+18	20080402145619344 87_H007	H07	i36		System resumes	04.04.2008 17:13
2.00804E+18	20080402145619344 87_H007	H07	i36		System resumes	04.04.2008 17:13
2.00804E+18	20080402145619344 87_A008	A08	i36		System resumes	04.04.2008 17:13
2.00804E+18	20080402145619344 87_A008	A08	i36		System resumes	04.04.2008 17:13
2.00804E+18	20080402145619344 87_A008	A08	i36		System resumes	04.04.2008 17:13
Sample Tracking Report Name : Plate Errors						
Last action tracked : 4/9/2008 8:57:53 AM						
Created by Admin at 4/9/2008 9:04:29 AM						

Tab. 9-4 *Description CSV Plate Error Report*

Name	Comment
Rack Id	Identification of rack
cavity ID	Identification of cavity
Position	Position of sample
PlateError	Plate errors
Sample Error	Sample errors
ErrorText	description of error
ErrorTimestamp	Time of error occurrence

9.1.7 CSV Plate Actions Report

The CSV Plate Action Report contains the rack id, a time stamp, type of action, DiTi id, position of DiTi, the pipetted sequence, volume and well as action and plate errors. Refer to Tab. 9-5 “Description CSV Plate Action Report”, 9-12 for detailed descriptions.

Rack Id	TIMESTAMP	Action type	Action
013/000020	2/22/2008 2:19:05 PM	Register existing Labware	registered an existing plate:[sys:WPEUDE-TESTPC1-BC:013/0000 lw:GeneratedLabware{013}])
013/000020	2/22/2008 2:19:05 PM	Register Labware	registered plate:[sys:WPEUDE-TESTPC1-BC:013/000020-lw:Gen
013/000020	2/22/2008 2:19:06 PM	setRotation	Rotation set to [90])
013/000020	2/22/2008 2:24:47 PM	Aspirate	Aspirate wells
013/000020	2/22/2008 2:27:08 PM	Aspirate	Aspirate wells
013/000020	2/22/2008 2:29:33 PM	Aspirate	Aspirate wells
013/000020	2/22/2008 2:31:53 PM	Aspirate	Aspirate wells
013/000020	PM	Aspirate	Aspirate wells
013/000020	2/22/2008 3:05:36 PM	Aspirate	Aspirate wells
013/000020	2/22/2008 3:07:57 PM	Aspirate	Aspirate wells
013/000020	2/22/2008 3:10:19 PM	Aspirate	Aspirate wells
013/000020	2/22/2008 3:12:50 PM	Aspirate	Aspirate wells
013/000020	2/22/2008 3:15:23 PM	Aspirate	Aspirate wells
013/000020	2/22/2008 3:17:42 PM	Aspirate	Aspirate wells
013/000020	2/22/2008 3:20:02 PM	Aspirate	Aspirate wells
013/000020	2/22/2008 3:22:22 PM	Aspirate	Aspirate wells
Sample Tracking Report Name : Plate Actions			
Last action tracked : 2/22/2008 3:22:22 PM			
Created by Admin at 3/20/2008 9:24:13 AM			

DITIID	DITIPOSITION	PIPINFO	SEQUENCE	PlateErrors	ActionErrors
			0		
re{013}])			0		
			0		
			0		
			0		
			0		
			0		

Tab. 9-5 Description CSV Plate Action Report

Name	Comment
Rack Id	Identification of rack
Timestanp	Time of Action
Action Type	Type of Action
DiTi Id	Pipetting information
DiTiposition	Position of DiTi
Pipinfo	PMP result file
Volume	Volume in well [µl]
Sequence	Identifies the dispense action in the PMP Graph
Plate Error	Error list
Action Error	Error associated with Sample

9.1.8 CSV Sample Report

The CSV report contains the sample ID, rack ID as well as the rack type, the cavity ID, the position and the last cavity. Refer to Tab. 9-6 “Description CSV Sample Report”, 9-13 for detailed descriptions.

Sample ID	Rack Id	Rack type	Cavity Id	Position	Cavity last used
MP96_023_R001a_A001	TP_045_R001a	Plate	TP_045_R001a_A001	A01	2/23/2008 12:42:41 AM
MP96_023_R001a_A001	MP96_023_R001a	96_Well_Microplate_LT	MP96_023_R001a_A001	A01	2/23/2008 12:31:38 AM
MP96_023_R001a_A001	TP_046_R001a	Plate	TP_046_R001a_A001	A01	2/23/2008 12:43:51 AM
Sample Tracking Report Name : Sample Report					
Last action tracked : 2/23/2008 12:43:51 AM					
Created by Admin at 3/20/2008 9:32:03 AM					

CONCENTRATION	CONCENTRATIONUNIT	VOLUME	USERDEFINED1	USERDEFINED2	USERDEFINED3	USERDEFINED4	USERDEFIN
0.6616178	calculated	63					
1	calculated	-87.36					
0.6616178	calculated	63					

FINED5	SampleErrors

Tab. 9-6 *Description CSV Sample Report*

Name	Comment
Sample ID	Sample Identification
Rack Id	Identification of rack
Rack type	Type of rack
Cavity ID	Identification of cavity
Position	Position of sample
Cavity last used	Identification of the last used cavity
Concentration	Concentration of the sample in the tubes/ wells.

Tab. 9-6 Description CSV Sample Report

Name	Comment
ConcentrationUnit	Concentration and unit of the sample in the tubes/wells.
Volume	Total volume in the tube or well
UserdefValue1	Up to 5 user defined fields attached to the liquid in the tubes/wells (these values will be transferred to other containers with the liquid)
UserdefValue2	Same definition as UserdeValue1
UserdefValue3	Same definition as UserdeValue1
UserdefValue4	Same definition as UserdeValue1
UserdefValue5	Same definition as UserdeValue1
Plate Error	Plate errors
SampleErrors	Sample errors

9.1.9 CSV Sample Errors Report

The CSV Sample Error Report contains the sample ID, cavity ID as well as the position the error occurred with the corresponding error information. Refer to Tab. 9-7 “Description CSV Sample Error Report”, 9-16 for detailed descriptions.

Sample Id	Rack Id	Cavity Id	position	SampleError	ErrorText
2008040214561934487_A001	2.00804E+18	2008040214561934487_A001	A01	i36	System resumes
2008040214561934487_A001	2.00804E+18	2008040214561934487_A001	A01	i35	System pause request
2008040214561934487_A001	2.00804E+18	2008040214561934487_A001	A01	i35	System pause request
2008040214561934487_A001	2.00804E+18	2008040214561934487_A001	A01	i36	System resumes
2008040214561934487_A001	2.00804E+18	2008040214561934487_A001	A01	i86	EVO_GLO_000_000: T
2008040214561934487_A001	2.00804E+18	2008040214561934487_A001	A01	i87	EVO_GLO_000_000: T
2008040214561934487_A001	2.00804E+18	2008040214561934487_A001	A01	i35	System pause request
2008040214561934487_A001	2.00804E+18	2008040214561934487_A001	A01	i36	System resumes
2008040214561934487_A001	2.00804E+18	2008040214561934487_A001	A01	i35	System pause request
2008040214561934487_A001	2.00804E+18	2008040214561934487_A001	A01	i36	System resumes
2008040214561934487_A001	2.00804E+18	2008040214561934487_A001	A01	i35	System pause requeste
2008040214561934487_A001	2.00804E+18	2008040214561934487_A001	A01	i36	System resumes
2008040214561934487_A001	2.00804E+18	2008040214561934487_A001	A01	i86	EVO_GLO_000_000: TI
2008040214561934487_A001	2.00804E+18	2008040214561934487_A001	A01	i87	EVO_GLO_000_000: TI
2008040214561934487_A001	2.00804E+18	2008040214561934487_A001	A01	i35	System pause requeste
2008040214561934487_A001	2.00804E+18	2008040214561934487_A001	A01	i36	System resumes
2008040214561934487_A001	2.00804E+18	2008040214561934487_A001	A01	i87	EVO_GLO_000_000: TI
2008040214561934487_A001	2.00804E+18	2008040214561934487_A001	A01	i35	System pause requeste
2008040214561934487_A001	2.00804E+18	2008040214561934487_A001	A01	i36	System resumes
Sample Tracking Report Name : Sample Errors					
Last action tracked : 4/9/2008 8:57:53 AM					
Created by Admin at 4/9/2008 9:06:03 AM					

	ErrorTimestamp
	04.04.2008 17:13
ed by module	04.04.2008 17:14
ed by module	04.04.2008 17:14
	04.04.2008 17:14
he response for message 12692 timed out.	04.04.2008 17:15
The response for message 12703 timed out.	04.04.2008 17:16
ed by module	04.04.2008 17:14
	04.04.2008 17:16
ed by module	04.04.2008 17:16
	04.04.2008 17:16
d by module	04.04.2008 17:14
	04.04.2008 17:14
ne response for message 12692 timed out.	04.04.2008 17:15
ne response for message 12703 timed out.	04.04.2008 17:16
d by module	04.04.2008 17:15

Tab. 9-7 Description CSV Sample Error Report

Name	Comment
Sample ID	Sample Identification
Rack Id	Identification of rack
Cavity ID	Identification of cavity
Position	Position of sample
Cavity last used	Identification of the last used cavity
ErrroText	Error description
ErrorTimestamp	Time of error occurrence

9.1.10 CSV Sample Actions Report

The CSV Sample Error Report contains the sample ID, Timestamp, Action type, and Action that was done with the sample, as well as possible SampleErrors.
Refer to Tab. 9-8 “Description CSV Sample Action Report”, 9-17 for detailed descriptions.

Sample ID	TIMESTAMP	Action type	Action
MP96_023_R001a_A001	2/23/2008 12:17:32 AM	Aspirate	Aspirate 20.8Âµl from well A001 MP96_023_R001a_A001 into tip LiHa:1
MP96_023_R001a_A001	2/23/2008 12:13:21 AM	Aspirate	Aspirate 20.8Âµl from well A001 MP96_023_R001a_A001 into tip LiHa:1
MP96_023_R001a_A001	2/23/2008 12:31:38 AM	Aspirate	Aspirate 22.88Âµl from well A001 MP96_023_R001a_A001 into tip LiHa:1
MP96_023_R001a_A001	2/23/2008 12:13:23 AM	Dispense	Dispense 30Âµl from [MP96_023_R001a_A001
MP96_023_R001a_A001	2/23/2008 12:13:05 AM	Register Sample	registered 1 Sample(s) with well/tube BC:[MP96_023_R001a_A001])
MP96_023_R001a_A001	2/23/2008 12:27:30 AM	Aspirate	Aspirate 22.88Âµl from well A001 MP96_023_R001a_A001 into tip LiHa:1
MP96_023_R001a_A001	2/23/2008 12:17:33 AM	Dispense	Dispense 30Âµl from [MP96_023_R001a_A001
MP96_023_R001a_A001	2/23/2008 12:31:40 AM	Dispense	Dispense 33Âµl from [MP96_023_R001a_A001
MP96_023_R001a_A001	2/23/2008 12:27:32 AM	Dispense	Dispense 33Âµl from [MP96_023_R001a_A001
Sample Tracking Report Name : Sample Actions			
Last action tracked : 2/23/2008 12:43:51 AM			
Created by Admin at 3/20/2008 9:31:25 AM			

SampleErrors
Reag01B01_R001a] from tip LiHa:1 into well A001 TP_045_R001a_A001
Reag01B02_R001a] from tip LiHa:1 into well A001 TP_046_R001a_A001
Reag01B02_R001a] from tip LiHa:1 into well A001 TP_045_R001a_A001
Reag01B01_R001a] from tip LiHa:1 into well A001 TP_046_R001a_A001

Tab. 9-8 *Description CSV Sample Action Report*

Name	Comment
Sample ID	Sample Identification
Timestanp	Time of Action
Action Type	Type of Action

Tab. 9-8 Description CSV Sample Action Report

Name	Comment
Action	description of action
Sample Error	Error associated with Sample
Sample ID	Sample Identification
Timestanp	Time of Action

9.2 Sample Import/Export

The following Table below is an example of a sample Import/Export File:

Note: *Refer to section 7.2 "Import/Export Function", 7-10 for further information.*

SampleID	Containerbarcode	Containerposition	Volume	Concentration	ConcentrationUnit	UserdefValue1
Predilution01_A005	Predilution01	A005		1		
Predilution01_B005	Predilution01	B005		1		
Predilution01_C005	Predilution01	C005		1		
Predilution01_D005	Predilution01	D005		1		
Predilution01_E005	Predilution01	E005		1		
Predilution01_F005	Predilution01	F005		1		
Predilution01_G005	Predilution01	G005		1		
Predilution01_H005	Predilution01	H005		1		
Predilution01_A006	Predilution01	A006		1		
Predilution01_B006	Predilution01	B006		1		
Predilution01_C006	Predilution01	C006		1		
Predilution01_D006	Predilution01	D006		1		
Predilution01_E006	Predilution01	E006		1		
Predilution01_F006	Predilution01	F006		1		
Predilution01_G006	Predilution01	G006		1		
Predilution01_H006	Predilution01	H006		1		
Predilution01_A007	Predilution01	A007		1		
Predilution01_B007	Predilution01	B007		1		
Predilution01_C007	Predilution01	C007		1		
Predilution01_D007	Predilution01	D007		1		
Predilution01_E007	Predilution01	E007		1		

9.3 Container Import/Export

The following Table below is an example of a container Import/Export File:

Containerbarcode	X-size	Y-Size	Orientation
016/000001	1	16	2
Sample01_01	0	0	2
Sample01_03	0	0	2
Sample01_04	0	0	2
Sample01_05	0	0	2
Sample01_06	0	0	2
Sample01_07	0	0	2
Sample01_08	0	0	2
Sample01_09	0	0	2
Sample01_10	0	0	2
Sample01_11	0	0	2
Sample01_12	0	0	2
Sample01_13	0	0	2
Sample01_14	0	0	2
Sample01_15	0	0	2
Sample01_16	0	0	2

9.3.1 Import CSV to Excel

Excel

Follow the substeps below to import a CSV file to Microsoft Excel:

1. Open MS-Excel with a new spread sheet.
2. Select Import Data from the pull-down menu **Data**, **Import External Data**.
3. Select the CSV file to be imported.

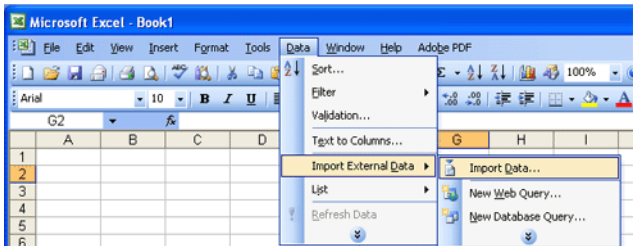

Fig. 9-1 *How to import a CSV file to excel*

4. Select the Original data type **Delimited**.
5. Select the following **Delimiters** check boxes:
   - Tab
   - Comma
6. Select Column data format **General**.
7. Click **Finish** to import Data.

	A	B	C	D	E	F	G	H	I
1	Rack Id	Cavity Id	Position	Sample Id	Volume	PipInfo	Sequence	Transfer success	Transfer Errors
2	201003	201003_A007	A07	201003_007	100	C:/Program Files/TECAN/EVOware/PMP/Curves /0042_1_100316_150339.pmd.zip	1	Yes	ok
3	201003	201003_A008	A08	201003_008	100	C:/Program Files/TECAN/EVOware/PMP/Curves /0043_2_100316_150340.pmd.zip	1	Yes	ok
4	201003	201003_A009	A09	201003_009	100	C:/Program Files/TECAN/EVOware/PMP/Curves /0044_3_100316_150340.pmd.zip	1	Yes	ok
5	201003	201003_A010	A10	201003_010	100	C:/Program Files/TECAN/EVOware/PMP/Curves /0045_4_100316_150340.pmd.zip	1	Yes	ok
6	Sample Tracking Report Name : Platemap Report PMP								
7	Last action tracked : 3/16/2010 3:03:59 PM								
8	Created by Admin at 3/16/2010 3:04:05 PM								
9	:000005175064								

Fig. 9-2 *CSV file example displayed in MS-Excel*

9.4 XML Platemap File

If the labware/samples have been registered with the option **Register labware with aliases**, a platemap file defines the allocation of the sample IDs to the cavity IDs. The file is normally generated by a LIS.

Definition

The following parameters are relevant for the definition of aliases:

Row number	Designation
Row 9	Defines the labware name in Application Software
Row 10	Defines the labware ID (barcode)
Row 13	Defines the labware type
Row 16	Defines the alias name for a specific sample
Row 27	Defines the position of the sample

Note: *Each cavity used requires a definition <container> as represented by row 14 to 28 in the example above.*

Platemap File

This section explains the required file format.

```
 1:  - <request>
 2:  - <header job="registerfull">
 3:    <system>WPEUDE-BALLIX</system>
 4:    <device>WebServiceDriver</device>
 5:    <time>20080220162600843 75</time>
 6:    </header>
 7:  - <labware>
 8:  - <labwareid>
 9:    <labwarename>Labware1</labwarename>
10:    <barcode>RF00046538</barcode>
11:    <forceNewObject>true</forceNewObject>
12:    </labwareid>
13:    <containercount>96</containercount>
14:    <labwaretype>96 Well Microplate</labwaretype>
15:    <sizex>12</sizex>
16:    <sizey>8</sizey>
17:  - <container>
18:  - <sample>
19:    <alias>C00100-1</alias>
20:    <volume>300.0</volume>
21:    <userdefValue1>ST001</userdefValue1>
22:    <userdefValue2>A01</userdefValue2>
23:    <userdefValue3>C00100</userdefValue3>
24:    <concentration>0.5</concentration>
25:    <concentrationUnit>mMol/l</concentrationUnit>
26:    </sample>
27:    <position>A01</position>
28:    <barcode />
29:    </container>
30:    </labware>
31:    </request>
```

9.4.1 Platemap XML File Definition

The XSD listing below describes the XML file for register a Platemap formally:

Definitions

The following parameters are relevant for the definition of aliases:

Row number	Designation
Row 3	This describes the header of XML files used for Sample Tracking as well as various data type defined specifically.
Row 15	The header (complex type t_requestheader) consists of a sequence of information including the system, device, process name, script name, and time.
Row 33	The plate identification (complex type t_plateid) contains the labware name, barcode, and label.
Row 34	The definition minOccurs="0" indicate optional elements. If elements are part of a sequence, the order of those elements is mandatory.
Row 39	This defines the orientation of the labware, on the basis of the position of well A01 (TopLeft=0, TopRight=1, BottomLeft=2, BottomRight=3)

Platemap File

```
 1: <?xml version="1.0" encoding="UTF-8" ?>
 2: - <xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
    elementFormDefault="qualified"
    attributeFormDefault="unqualified">
 3:   <xs:include schemaLocation="xStApiHeader.xsd" />
 4: - <!-- Schema defining the the xml stream used for
    SampleTracking API iRegister process
 5:   -->
 6: - <xs:element name="request">
 7: - <xs:annotation>
 8:   <xs:documentation>Comment describing your root element</
    xs:documentation>
 9:   </xs:annotation>
10: - <xs:complexType>
11: - <xs:sequence>
12: - <xs:element name="header">
13: - <xs:complexType>
14: - <xs:complexContent>
15: - <xs:extension base="t_requestheader">
16:   <xs:attribute ref="job" />
17:   </xs:extension>
18:   </xs:complexContent>
19:   </xs:complexType>
20:   </xs:element>
21: - <xs:element name="labware" type="t_plate">
22: - <xs:annotation>
23:   <xs:documentation>the plate to be reigstered. Contains 1
    or more samples.</xs:documentation>
24:   </xs:annotation>
25:   </xs:element>
26:   </xs:sequence>
27:   </xs:complexType>
28:   </xs:element>
```

```
29:   <xs:complexType name="t_container" />
30:   <xs:complexType name="t_sample" />
31: - <xs:complexType name="t_plate">
32: - <xs:sequence>
33:   <xs:element name="labwareid" type="t_plateid" />
34: - <xs:element name="containercount"
    type="xs:nonNegativeInteger" minOccurs="0">
35: - <xs:annotation>
36:   <xs:documentation>max number of wells on the plate</
    xs:documentation>
37:   </xs:annotation>
38:   </xs:element>
39: - <xs:element name="orientation"
    type="xs:nonNegativeInteger" minOccurs="0">
40: - <xs:annotation>
41:   <xs:documentation>Position of A01 (TopLeft=0, TopRight=1,
    BottomLeft=2, BottomRight=3)</xs:documentation>
42:   </xs:annotation>
43:   </xs:element>
44: - <xs:element name="labwaretype" type="xs:normalizedString"
    minOccurs="0">
45: - <xs:annotation>
46:   <xs:documentation>alias of the labware type, just like it
    is defined in evoware</xs:documentation>
47:   </xs:annotation>
48:   </xs:element>
49: - <xs:sequence minOccurs="0">
50: - <xs:annotation>
51:   <xs:documentation>Either no sizeInfo OR both, sizex AND
    sizeY. samples are only allowed if size info is given.</
    xs:documentation>
52:   </xs:annotation>
53: - <xs:element name="sizex">
54: - <xs:annotation>
55:   <xs:documentation>number of child containers (wells or
    tubes) in horizontal direction</xs:documentation>
56:   </xs:annotation>
57: - <xs:complexType>
58: - <xs:simpleContent>
59:   <xs:extension base="xs:positiveInteger" />
60:   </xs:simpleContent>
61:   </xs:complexType>
62:   </xs:element>
63: - <xs:element name="sizey">
64: - <xs:annotation>
65:   <xs:documentation>number of child containers (wells) in
    vertical direction. 1, in case of tube etc.</
    xs:documentation>
66:   </xs:annotation>
67: - <xs:complexType>
68: - <xs:simpleContent>
69:   <xs:extension base="xs:positiveInteger" />
70:   </xs:simpleContent>
71:   </xs:complexType>
72:   </xs:element>
73:   </xs:sequence>
74: - <xs:sequence minOccurs="0">
75: - <xs:element name="container" minOccurs="0"
```

```
    maxOccurs="unbounded">
 76: - <xs:complexType>
 77: - <xs:sequence>
 78: - <xs:element name="sample" minOccurs="0"
    maxOccurs="unbounded">
 79: - <xs:annotation>
 80:   <xs:documentation>samples, if provided.</xs:documentation>
 81:   </xs:annotation>
 82: - <xs:complexType>
 83: - <xs:complexContent>
 84: - <xs:extension base="t_sample">
 85: - <xs:sequence>
 86: - <xs:element name="alias" type="xs:normalizedString"
    nillable="false">
 87: - <xs:annotation>
 88:   <xs:documentation>user defined alias for the sample</
    xs:documentation>
 89:   </xs:annotation>
 90:   </xs:element>
 91:   <xs:element name="volume" type="xs:float" nillable="true"
    minOccurs="0" />
 92:   <xs:element name="userdefValue1"
    type="xs:normalizedString" nillable="true" minOccurs="0" />
 93:   <xs:element name="userdefValue2"
    type="xs:normalizedString" nillable="true" minOccurs="0" />
 94:   <xs:element name="userdefValue3"
    type="xs:normalizedString" nillable="true" minOccurs="0" />
 95:   <xs:element name="userdefValue4"
    type="xs:normalizedString" nillable="true" minOccurs="0" />
 96:   <xs:element name="userdefValue5"
    type="xs:normalizedString" nillable="true" minOccurs="0" />
 97:   <xs:element name="concentration"
    type="xs:normalizedString" nillable="true" minOccurs="0" />
 98:   <xs:element name="concentrationUnit"
    type="xs:normalizedString" nillable="true" minOccurs="0" />
 99:   </xs:sequence>
100:   </xs:extension>
101:   </xs:complexContent>
102:   </xs:complexType>
103:   </xs:element>
104:   <xs:element name="volume" type="xs:float" minOccurs="0" />
105:   <xs:element name="userdefValue1"
    type="xs:normalizedString" nillable="true" minOccurs="0" />
106:   <xs:element name="userdefValue2"
    type="xs:normalizedString" nillable="true" minOccurs="0" />
107:   <xs:element name="userdefValue3"
    type="xs:normalizedString" nillable="true" minOccurs="0" />
108:   <xs:element name="userdefValue4"
    type="xs:normalizedString" nillable="true" minOccurs="0" />
109:   <xs:element name="userdefValue5"
    type="xs:normalizedString" nillable="true" minOccurs="0" />
110: - <xs:element name="position" type="xs:normalizedString">
111: - <xs:annotation>
112:   <xs:documentation>position of the sample on the plate in
    plate-coordinates (A1, A2, ... B1,..B2 ...)</
    xs:documentation>
113:   </xs:annotation>
114:   </xs:element>
```

```
115:  - <xs:element name="barcode" minOccurs="0">
116:  - <xs:complexType>
117:  - <xs:simpleContent>
118:  - <xs:extension base="xs:normalizedString">
119:    <xs:attribute ref="org" />
120:    </xs:extension>
121:    </xs:simpleContent>
122:    </xs:complexType>
123:    </xs:element>
124:    <xs:element name="errors" type="xs:normalizedString"
      nillable="true" minOccurs="0" />
125:    </xs:sequence>
126:    </xs:complexType>
127:    </xs:element>
128:    </xs:sequence>
129:    </xs:sequence>
130:    </xs:complexType>
131:  - <xs:attribute name="job">
132:  - <xs:simpleType>
133:  - <xs:restriction base="xs:string">
134:    <xs:enumeration value="register" />
135:    <xs:enumeration value="registerfull" />
136:    <xs:enumeration value="registerauto" />
137:    </xs:restriction>
138:    </xs:simpleType>
139:    </xs:attribute>
140:    </xs:schema>
```

9.4.2 XML Header

The XSD listing below describes the XML file header formally:

Definitions

Row number	Designation
Row 84	If this option is operational, the system tries to load an existing labware with the barcode and changes the barcode appending _yyyyMMd-dHHmmss. It is not available for registration by driver except when using platemap files or registration by message (e.g. SASIS web service).

Header

```
 1: <?xml version="1.0" encoding="UTF-8" ?>
 2: - <xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
    elementFormDefault="qualified"
    attributeFormDefault="unqualified">
 3: - <!--
    ************************************************************
    ***********
 4:   -->
 5: - <!-- Sample Tracking API Standard Types
 6:   -->
 7: - <!--
    ************************************************************
    ***********
 8:   -->
 9: - <xs:complexType name="t_requestheader">
10: - <xs:sequence>
11: - <xs:element name="system">
12: - <xs:annotation>
13:   <xs:documentation>the System, EVOware is running on
    (Systemalias)</xs:documentation>
14:   </xs:annotation>
15: - <xs:complexType>
16: - <xs:simpleContent>
17: - <xs:extension base="xs:normalizedString">
18:   <xs:attribute ref="org" />
19:   </xs:extension>
20:   </xs:simpleContent>
21:   </xs:complexType>
22:   </xs:element>
23: - <xs:element name="device">
24: - <xs:complexType>
25: - <xs:simpleContent>
26: - <xs:extension base="xs:normalizedString">
27:   <xs:attribute ref="org" />
28:   </xs:extension>
29:   </xs:simpleContent>
30:   </xs:complexType>
31:   </xs:element>
32: - <xs:element name="processname" minOccurs="0">
33: - <xs:complexType>
34: - <xs:simpleContent>
35: - <xs:extension base="xs:normalizedString">
36:   <xs:attribute ref="org" />
37:   </xs:extension>
```

```
38:    </xs:simpleContent>
39:    </xs:complexType>
40:    </xs:element>
41:  - <xs:element name="scriptname" minOccurs="0">
42:  - <xs:complexType>
43:  - <xs:simpleContent>
44:  - <xs:extension base="xs:normalizedString">
45:    <xs:attribute ref="org" />
46:    </xs:extension>
47:    </xs:simpleContent>
48:    </xs:complexType>
49:    </xs:element>
50:  - <xs:element name="time">
51:  - <xs:annotation>
52:    <xs:documentation>Time in yyyyMMddHHmmssffffff format</
     xs:documentation>
53:    </xs:annotation>
54:  - <xs:complexType>
55:  - <xs:simpleContent>
56:  - <xs:extension base="xs:nonNegativeInteger">
57:    <xs:attribute ref="org" />
58:    </xs:extension>
59:    </xs:simpleContent>
60:    </xs:complexType>
61:    </xs:element>
62:    </xs:sequence>
63:    </xs:complexType>
64:  - <xs:complexType name="t_plateid">
65:  - <xs:sequence>
66:  - <xs:element name="labwarename" minOccurs="0">
67:  - <xs:complexType>
68:  - <xs:simpleContent>
69:  - <xs:extension base="xs:string">
70:    <xs:attribute ref="org" />
71:    </xs:extension>
72:    </xs:simpleContent>
73:    </xs:complexType>
74:    </xs:element>
75:  - <xs:element name="barcode" nillable="false">
76:  - <xs:complexType>
77:  - <xs:simpleContent>
78:  - <xs:extension base="xs:normalizedString">
79:    <xs:attribute ref="org" />
80:    </xs:extension>
81:    </xs:simpleContent>
82:    </xs:complexType>
83:    </xs:element>
84:  - <xs:element name="forceNewObject" minOccurs="0">
85:  - <xs:complexType>
86:  - <xs:simpleContent>
87:    <xs:extension base="xs:normalizedString" />
88:    </xs:simpleContent>
89:    </xs:complexType>
90:    </xs:element>
91:  - <xs:element name="label" minOccurs="0">
92:  - <xs:complexType>
93:  - <xs:simpleContent>
94:  - <xs:extension base="xs:normalizedString">
```

```
 95:    <xs:attribute ref="org" />
 96:    </xs:extension>
 97:    </xs:simpleContent>
 98:    </xs:complexType>
 99:    </xs:element>
100:    </xs:sequence>
101:    </xs:complexType>
102:  - <xs:attribute name="org">
103:  - <xs:annotation>
104:    <xs:documentation>originator of value</xs:documentation>
105:    </xs:annotation>
106:  - <xs:simpleType>
107:  - <xs:restriction base="xs:string">
108:    <xs:enumeration value="evo" />
109:    <xs:enumeration value="std" />
110:    </xs:restriction>
111:    </xs:simpleType>
112:    </xs:attribute>
113:  - <xs:complexType name="t_position">
114:  - <xs:annotation>
115:    <xs:documentation>position of a container</
      xs:documentation>
116:    </xs:annotation>
117:  - <xs:sequence>
118:    <xs:element name="grid" type="xs:Integer" />
119:    <xs:element name="site" type="xs:nonNegativeInteger" />
120:    </xs:sequence>
121:    </xs:complexType>
122:    </xs:schema>
```

10 Validation

Purpose of This Chapter

The following chapter describes the testing and verification conditions.

All Application Software scripts and processes must be validated for correct functioning and for correct results before they are used for pipetting with real samples.

Note: *Refer to the Application Software Manual for further guidelines concerning the validation of Application Software.*

10.1 Testing and Verification

Purpose

This section provides a method to verify the proper operation of the Tecan Sample Tracking Add-on.

Note: *This section does not contain detailed procedures. Refer to the respective manuals for further information.*

The following section is derived from the Installation Qualification form doc. no. 393848.

10.1.1 Operation Qualification

In order to ensure appropriate error mapping, verify the Tecan Sample Tracking Add-on operation with the following tasks listed in the table below.

Tasks	Reference
Check in EVOware configure for module 'Sample Tracking'	Application Software Manual

11 Error Codes

Purpose of This Chapter

This chapter provides a description of the each Tecan Sample Tracking Add-on error codes.

11.1 Error Code Description

General

The list of error codes provides a description of defined default error codes.

Delimitations

The error concept in Tecan ST Add-on is extensible to enable the tracking of errors from new devices. Errors not yet known by Sample Tracking will automatically be added to the Tecan ST Add-on error list.

Note: *The default reports contain a list and description of the displayed errors on the last page of the printed report.*

Tab. 11-1 *List of error codes*

Code	Description
1	A barcode could not be read by the PosID scanner
2	The same labware was scanned again and the scanned barcode did not match the previously scanned barcode
3	An identical barcode was scanned at an unexpected grid position
4	The user entered the barcode manually after a scanning error
5	The user chose RETRY after a barcode scanning error
6	The user chose IGNORE after a barcode scanning error
7	No liquid was detected
8	Not enough liquid was detected
9	Clot was detected
10	A diluter error occurred during pipetting
11	Liquid Arrival Check, liquid error: The dispensed volume was outside of the tolerance specified in the liquid class
12	Liquid Arrival Check, technical error: time out or hardware malfunction such as balance overload
13	The PMP option detected a tip orifice occlusion (e.g. clot aspirated)
14	The PMP option detected estimated deficient pipetting volume
15	The diluter was initialized after a diluter error
16	The diluter was deactivated after a diluter error
17	The user chose Retry after a clot-detection error

Tab. 11-1 List of error codes

Code	Description
18	The user chose Ignore after a clot-detection error
19	The user chose Continue after a clot-detection error
20	The user chose Retry after a liquid-detection error
21	The user chose Pipette Air after a liquid-detection error
22	The user chose Go to Z-max after a liquid-detection error
23	The user chose Pipette Nothing after a liquid-detection error
24	The PMP option detected an instrument error
25	The PMP option detected another failure
26	General warning
27	General error
28	Needle not washed before aspirate
29	Orientation error as source plate
30	Orientation error as destination plate
31	Well Position error (calculated position is not the same as the one in the db)
32	Unknown EVOware error type
33	Device Error
34	System pause requested by user
35	System pause requested by module
36	System resumes
37	Emergency stop
38	Well has not been washed successfully
39	Valid target temperature range exceeded
40	Current temperature exceeds valid temperature limits!
41	(Time-out)
42	(Execution error)
43	(Fatal execution error)
44	(Parameters error)
45	(Warning message)
46	(Error message)
47	Empty tips performed over this well
48	Runner has been removed and replaced

Tab. 11-1 *List of error codes*

Code	Description
49	Retract supervision not possible
50	Discard tip
51	Reported volume might differ from actual volume (e.g. positive pressure or evaporation)
52 -	Any error code bigger than 50 is an automatically assigned error code for new devices. ***Note:*** *After an upgrade of Sample Tracking later added error codes may have different codes than stated in this table.* ***Note:*** *The default reports contain a list and description of the displayed errors on the last page of the printed report.*

12 Customer Support

Purpose of This Chapter

This chapter informs you how to contact us in case help is needed. It lists addresses and telephone numbers of the manufacturer's representatives.

How to get Help

Tecan and its representatives maintain a fully trained staff of technical specialists around the world. For any technical question, contact the nearest Tecan representative.

Feedback on This Manual

If you have any comments on this Software Manual or suggestions for improvement, please send them by e-mail to **docfeedback@tecan.com**.
In your e-mail, please specify the manual name, the document ID and the manual version. This information is shown at the bottom of each printed page and on the first page of the help file (context-sensitive help of software products).

12.1 Contacts

Addresses

Contact your local distributor or one of the addresses below.
Also see our homepage on the web: **www.tecan.com**

Country/Region	Address	Telephone/Telefax/E-mail	
Asia	Tecan Asia Pte Ltd. 18 Boon Lay Way, #10-106 TradeHub 21 Singapore 609966 Singapore	Phone Fax E-mail	+65 6444 1886 +65 6444 1836 tecan@tecan.com.sg
Australia New Zealand Pacific Islands	Tecan Australia Pty Ltd 21 / 3 Westside Avenue Port Melbourne Vic 3207 Australia	Phone Phone Fax E-mail	Toll Free: 1300 808 403 +61 3 9647 4100 +61 3 9647 4199 helpdesk-aus@tecan.com
Austria	Tecan Austria GmbH Untersbergstrasse 1a 5082 Grödig Austria	Phone Fax E-mail	+43 6246 8933 256 +43 6246 72770 helpdesk-at@tecan.com
Belgium	Tecan Benelux B.V.B.A. Mechelen Campus Schaliënhoevedreef 20A 2800 Mechelen Belgium	Phone Fax E-mail	+32 15 42 13 19 +32 15 42 16 12 tecan-be@tecan.com
China	Tecan (Shanghai) Trading Co., Ltd. Room 1802-1804 and Room 205, No. 388, Fushan Road, Pudong New Area, 200122 Shanghai, P.R.China	Phone Fax E-mail	+86 21 2206 32 06 +86 40 0821 38 88 +86 21 2206 52 60 helpdesk-cn@tecan.com

France	Tecan France S.A.S.U 6, Avenue du Châteaux de Gerland F-69007 Lyon France	Phone Fax E-mail	+33 820 88 77 36 +33 4 72 76 04 99 helpdesk-fr@tecan.com
Germany	Tecan Deutschland GmbH Werner-von-Siemens-Straße 23 74564 Crailsheim Germany	Phone Fax E-mail	+49 1805 8322 633 or +49 1805 TECAN DE +49 7951 9417 92 helpdesk-de@tecan.com
Italy	Tecan Italia, S.r.l. Via Brescia, 39 20063 Cernusco Sul Naviglio (MI) Italy	Phone Fax E-mail	+39 800 11 22 91 +39 (02) 92 72 90 47 helpdesk-it@tecan.com
Japan	Tecan Japan Co., Ltd. Kawasaki Tech Center 580-16, Horikawa-cho, Saiwai-ku Kawasaki, Kanagawa 212-0013 Japan	Phone Fax Phone E-mail	+81 44 556 7311 (Kawasaki) +81 44 556 7312 (Kawasaki) +81(0) 6305 8511 (Osaka) helpdesk-jp@tecan.com
Netherlands	Tecan Benelux B.V.B.A. Industrieweg 30 NL-4283 GZ Giessen Netherlands	Phone Fax E-mail	+31 20 708 4773 +31 183 44 80 67 helpdesk.benelux@tecan.com
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Spain Portugal	Tecan Ibérica Instrumentación S.L. Edificio Mapfre C/ de la Marina 16 - 18, Planta 11a C-1 E-08005 Barcelona Spain	Phone Fax E-mail	+34 93 40 91 237 +34 93 330 87 00 helpdesk-sp@tecan.com
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13 Glossary

Purpose of This Chapter

This chapter contains a glossary to explain terms and expressions used in this Software Manual.

Application Programming Interface (API)
A set of functions that a developer can call programmatically in order to “interface” with other application programs or their components.

Barcode
A barcode (also bar code) is a machine-readable representation of information in a visual format on a surface.

Carrier
A carrier is a mount for microplates or other racks. It is positioned on the worktable.

Cavity
A well in a microplate or a tube or in something else that can contain liquid.

Container
A piece of labware or a carrier that contains one or more cavities.

Liquid Handling Arm (LiHa)
A Freedom EVO component mounted on the X-slide containing and holding the pipetting tips.

Microplate
A plate of standardized size, containing 96, 384 or 1536 containers (cavities).

Sample
The liquid inside a cavity. It has its identity either from the cavity identity in the case of tubes, or it obtains the identity from the source liquid. It can also obtain the identity from a file when a plate or labware (containing samples) is registered.

Sample ID
The sample ID is a sample identifier created by Sample Tracking.

Cavity ID
Cavity ID is a tube barcode or a generated identifier to identify a well in a plate (container).

Samplealias
Refer to Sample ID

Web server
The Web server is a free, 100% managed code, community-supported Web server written entirely in C#. The Web server has developed out of Microsoft's Web Matrix project.

14 Index

Purpose of This Chapter

This chapter contains an alphabetical index which offers you help in finding information more quickly.

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