




PrepGilsonST

Preparation Gilson with SampleTrack
User Manual

Version 005



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1 Introduction

1.1 Introduction

Preparation Gilson + SampleTrack (PrepGilsonST) is a sample preparation program which controls a Gilson "215" or "235" instrument with additional "8xx" valves and "ValveMate".

Predefined preparation step procedures can be modified by the user and will be executed.

Depending on the application type, a barcode reader identification can be used and orders can be defined by the "SampleTrack" program.

The type of destination racks can be specified and used to define destination positions automatically.

When SampleTrack is not used, the user can create orders when defining source samples, procedures, and push solvents.

Note: Throughout this manual Preparation Gilson + SampleTrack will simply be referred to as **PrepGilsonST**.

1.2 Warnings and Notes

There are two types of information notices used in this manual. These notices highlight important information or warn the user of a potentially dangerous situation. The following notices will have the same level of importance throughout this manual.

Note: Indicates important information or helpful hints

WARNING: Indicates the possibility of severe personal injury, loss of life or equipment damage if the instructions are not followed.

1.2.1 Note on SPE Tube Transfer

For information on the "SPE-TT System" refer to the SPE-TT tutorials 1.1 and 11 or the manual SPE-TT system Installation and Users Manual for Solid Phase Extraction Tube Transfer Systems available from Bruker.

1.3 Contact for Additional Technical Assistance

For further technical assistance on the PrepGilsonST, please do not hesitate to contact your nearest BRUKER dealer or contact us directly at:

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2 Safety

2.1 General Safety Instructions

The PrepGilsonST program controls the NMR 215 Liquid Handler machine.

For safety reasons you should read this manual before setup and first usage of the NMR 215 Liquid Handler. Keep this manual near the Liquid Handler for later reference. It must be ensured that all persons who have to perform activities on the machine, have access to the operating manual at all times.

- The machine may only be operated by persons who have been specially trained, briefed and authorized. They must be familiar with the operating manual and act in accordance with it.
- Never touch moving parts on the device. Always wait until all parts come to a complete stop. With a cover installed, the operating status is indicated with a green light on the cover. The PrepGilsonST program shows in this case the status „finished OK” (with a green icon) or „Error” (with a red icon) for each order in the order table on the screen.
- After the final sample preparation the device must come to a complete stop, and the needle must have reached its home position, before any further work can be started at the liquid handler or before it is left unattended.
- Always switch the power to off when making adjustments to the liquid handler. The potential exists for bodily harm if you interfere with the work area of the instrument while it is running.
- The supply voltage must be identical to the specifications on the rating plate.
- All labels on the machine which display safety and operating instructions must always be kept legible. Worn or damaged labels must be replaced immediately.
- If erroneous behavior of the NMR 215 Liquid Handler or accessories occurs during operation, shut the machine down, remove the power supply and contact customer service.
- If there is visible damage to any of the devices or the power cables, these must not be operated. Consult a technician before reactivating the device again.
- Improper repairs may result in major hazards for the user. Never disassemble the device on your own nor try to repair it yourself.
- Use only original equipment manufacturer (O.E.M.) accessories.

2.2 Correct Usage

The machine NMR 215 Liquid Handler is intended exclusively for:

- Preparing and transferring a liquid sample out of a suited vessel into a NMR flow probe or into another vessel.
- Preparing means to dilute and mix a sample using the dilutor of the NMR 215 Liquid Handler and the probe mounted to the Z-arm. The sample can also be moved into another vessel.
- Transferring means to take a prepared sample into the NMR 215 Liquid Handler capillary, connecting the capillary to an injection port and pushing it via a transfer capillary to the measurement cell of the NMR flow probe or MS instrument.
- Correct usage also includes reading this operating manual and complying with all the instructions it contains - in particular the safety instructions. Furthermore, all inspection and maintenance work must be carried out at the stipulated intervals.

The machine is not designed for applications other than those listed here - this is considered improper use! In particular we advise that the following is prohibited:

- When the liquid handler is used inside the cover (hood) the service doors in the rear must be closed during operation. These doors are to be used for service and set-up only and must be kept closed during normal operation. The extra safety functionality of the cover only apply if these doors remain closed. In addition, the inert gas atmosphere will escape and provide a danger for personnel.

If the machine NMR 215 Liquid Handler is not used in accordance with these conditions, safe operation of the machine cannot be guaranteed.

The NMR 215 Liquid Handler manufacturer is not responsible for any injury or damage to persons or property resulting from improper use of the device.

2.2.1 Danger of Injury from the Liquid Handler



The robotic movement of the liquid handler is very fast and may surprise anyone not familiar with its operation. While the arm of the liquid handler will stop if there is something in its way, it might still cause bruises or may, for example, push your arm into glass tubes and cause cuts.



The needle is meant to pierce thick septa and has the power to cause deep painful cuts. If it should hit a nerve or joint, it might also cause a permanent defect of the hand. Therefore do not reach within the work area of the robot while it is operational and ensure that others are protected from injuries as well.

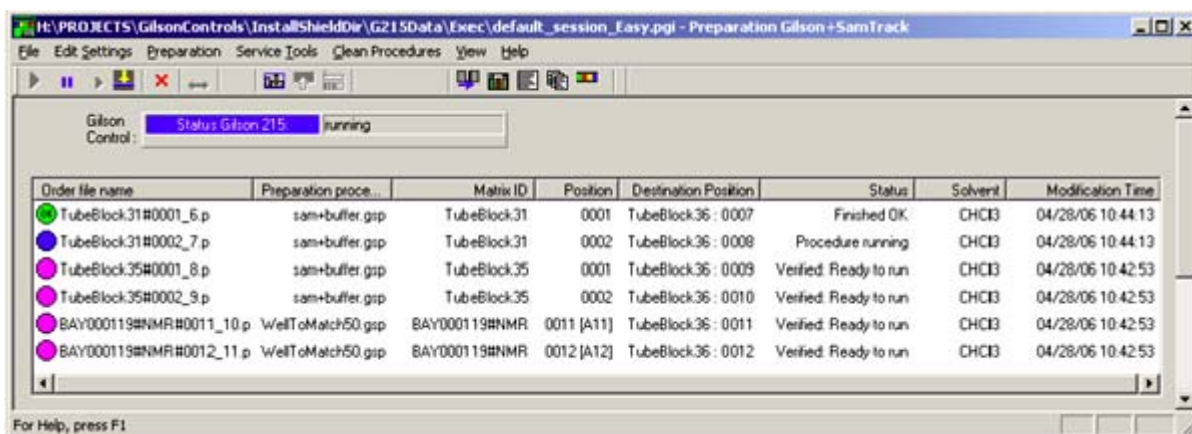
Our cover (hood) provides added safety to operating personnel and helps prevent accidents. The cover must be installed also in the ["Base Configuration" on page 49](#) of the PrepGilsonST software.

After starting a preparation with a cover installed, the user must wait until the green or red light on the cover is ON before accessing parts of the Gilson manually.

Without a cover installed, the NMR 215 Liquid Handler is working after the user has

started the automation. The working status is indicated with a blue status background color and status text „running” of the „Gilson Control” of the PrepGilsonST program view. At least one order in the order table on the screen has the status „Procedure running” or „Verified: Ready to run”.

When all working operations are finished for each order in the order table on the screen the status „finished OK” (with a green icon) or „Error” (with a red icon) is displayed. The „Gilson Control” shows a green or red status background color and the status text „finished” or „error”.



With the cover installed, the checkbox "Reaction when opening the cover (stop and wait until closed)" must be selected in the "Gilson Cover & LED Configuration" on page 65, to provide the higher security level.

2.2.2 Danger from Samples and Other Substances



For the operation of the BEST - NMR 215 Liquid Handler no dangerous liquids, solvents or gases are required. However you may wish to use potentially dangerous substances or samples (poisonous, corrosive, infectious, radioactive, etc) for your experiments. The usage of these substances requires special attention and different safety regulations may apply. The operator is responsible to meet these special requirements (ventilation, first aid installations, personal protection, etc). Also observe any instructions on the liquids, solvents or gases containers.



When operating with dangerous substances, you must be particularly aware of the potential threat of the needle or breaking glass. While injuries from the needle would be painful, the threat of substances reaching the bloodstream through open wounds is potentially lethal.



.Therefore never reach within the work area of the robot while it is operational and make sure others are protected from this danger





If the liquid handler is used in an inert gas atmosphere, it may be necessary to monitor the oxygen levels or ensure adequate ventilation.


2.2.3 Before Starting

Familiarize yourself sufficiently with:

- The machine's operating and control elements.
- The machine's fittings.
- How the machine works.
- The immediate environment of the machine.
- The safety devices.
- Measures to be taken in case of an emergency.

2.3 Explanation of the Safety Symbols

	<p>This symbol indicates primarily danger to personal health, but damage to the machine, property or the environment is also possible.</p> <p>Failure to observe these warnings could result in serious, even fatal, injuries.</p>
<p>Caution</p>	<p>This symbol is found on the rear of the Cover above and on the service doors. When these doors are open one can reach within the work area of the needle, without disabling the robot. These doors are intended for easier handling and set up, but must be closed during normal operation. Make sure these doors are in their proper position before starting the machine. When you intend to make adjustments through these openings make sure that the robot is shut down and that you do not reach in the work area of the robot.</p>
	<p>This symbol indicates danger of injuries to hands or arms.</p> <p>Failure to observe these warnings could result in serious cuts and bruises and may even result in permanent damages.</p>
<p>Warning</p>	<p>This symbol is found near the needle of the robot. The strong Z-drive of this robot is meant to pierce thick septa. Keep your hands clear of the entire work area and especially from the needle.</p>

	<p>This symbol indicates danger of automatic moving parts.</p> <p>Failure to observe these warnings could result in cuts and bruises.</p>
<p>Warning</p>	<p>This symbol is found on the arm of the robot. The robot moves at high speeds and might push your arm or hand against a wall or into glass tubes. Always be aware of sudden movements. Never reach into the work area of the robot while the robot is operational.</p>

2.4 During Service

The servicing tasks defined in the „SamplePrep & BEST NMR” operating manual - tuning, cleaning, lubrication, maintenance - must be performed when due.

Before performing the service work, you must observe the following:

- Personally ensure that all potentially dangerous substances have been removed. Be aware that capillaries, the syringe, the needle or other devices may still contain unknown substances.
- Switch off the central power supply using the master switch, whenever an operation does not specifically require the robot to be switched on.
- Strictly follow the procedures described in the manual. Repairs, inspections or servicing procedures not described in the operating manual must be performed by BRUKER technicians.
- Replace all defective machine parts immediately
- Use only OEM replacement parts

After completing the service work and before starting the machine, you must observe the following points:

- Check that all previously removed protective devices, covers, container lids and filters have been replaced correctly. The service doors on the rear of the BEST Cover, if used, must be in place.
- Make sure that all previously used tools, materials and other equipment are removed from the operating area.
- Make sure that all the machine's safety devices are functioning properly.

2.4.1 Changes to the Machine

For safety reasons, no unauthorized changes may be made to the machine.

The safety features must not be changed, removed or otherwise altered.

All planned changes must be authorized in writing by the responsible BRUKER company.

Use only OEM replacement parts. These parts are especially designed for the machine. With non-OEM parts there is no guarantee that they have been designed and built to comply with the stress and safety requirements of the machine.

Parts and special fittings which were not supplied by BRUKER are also not approved for use in/on the machine.

2.5 Safety Evaluation

It is recommended, and in some countries is required, that the operator evaluates the safety of the set-up and environment of the machine. On the bases of this report he should prepare special work instructions and procedures for the employees to ensure maximum safety.

3 Menus

3.1 The Main Menu

The main menu consists of:

"File Menu Commands"

"Edit Settings Menu"

"Preparation Menu Commands"

"Service Tools Menu Commands"

"Clean Procedures Menu Commands"

"View Menu Commands"

"Help Menu Commands"

3.2 File Menu Commands

The **File** menu offers the following commands:

Table 3.1 The File Menu Commands

Application Settings	Open Current Session	Opens the current session file curr_session.pgi .
	Open Old Session	Opens an old session file *.pgi
	Save...As	Saves the current session file under a different file name.
Save Current Protocol (...log) Files		Saves the current protocol files.
Open Print Dialog		Opens the print dialog box allowing selection of print options for the current order protocol.
Compare Procedures Dialog		Opens a dialog box allowing the comparison of procedures.
Configuration save/load		Used to backup and reload configuration files *.cfg and *.735 .
Exit		Exits the PrepGilsonST program.

3.2.1 Application Settings

3.2.1.1 Open Current Session

Use this command to reload the current session (settings) file (**curr_session.pgi**) after checking an old session file.

The current session file is loaded automatically when the program is opened and the application type is selected (see "[Default Procedure Selection](#)" on page 45).

The name of the current session file is visible in the caption of the main window. The content of the current session file can be viewed in the Edit Settings dialog box (see "[Edit Settings Menu](#)").

Shortcut Keys: CTRL+O

3.2.1.2 Open Old Session

Use this command to open an old session file (*.pgi) in the PrepGilsonST program.

This is used only to view the old session file contents in the "[Edit Settings Menu](#)". Several menus will be disabled and the contents cannot be changed and saved. After opening an old session the program should be closed and reopened for automatic preparation.

The name of the current session file of the selected application will remain visible in the caption of the main window.

3.2.1.3 Save... As

Use this command to save the active session as a file with another name (only used for checking the settings at later time!).

PrepGilsonST displays the **Save As** dialog box so you can name the file.

3.2.2 Save Current Protocol (... log) Files

Saves the current protocol files. During this procedure a copy of the current protocol files are produced as follows:

log_current.log saved to ...\\G215Data\\Exec\\saved_log_current.log

log_exec.log saved to ...\\G215Data\\Exec\\saved_log_exec.log

A copy of the session file is also made:

curr_session.pgi saved to ...\\G215Data\\Exec\\saved_curr_session.pgi

3.2.3 Open Print Dialog

Selecting this menu option will open the **Print Order List** dialog box where all information for the automatically generated print list can be selected:

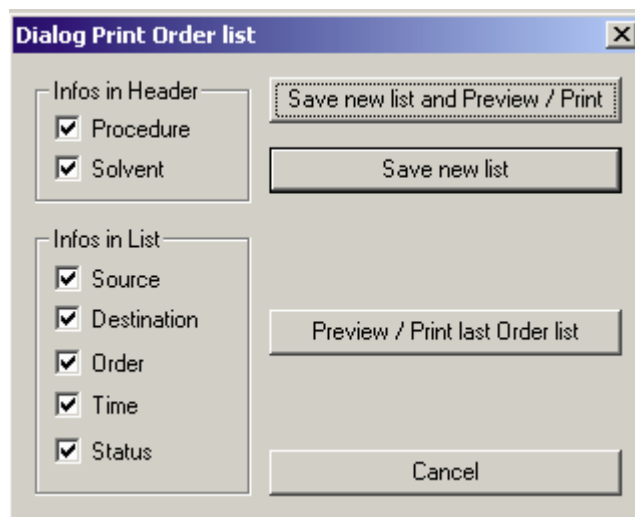
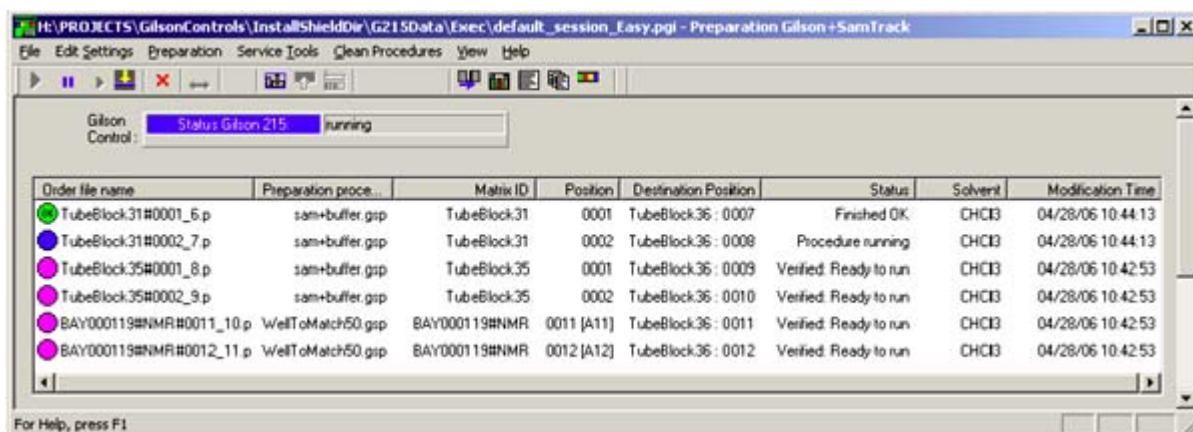
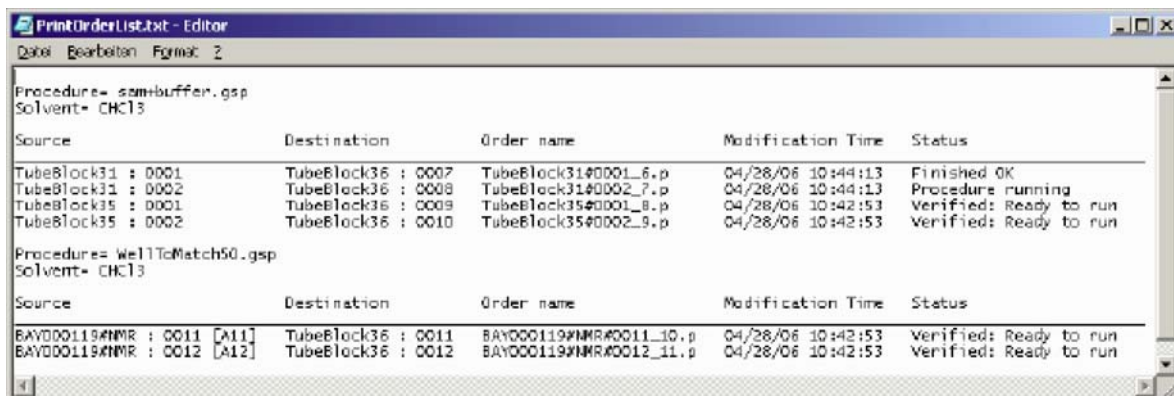


Figure 3.1 Print Order List Dialog Box

For each header combination of procedure files and solvents, one separate list will be generated. For example for the order list...



...the following print list will be generated, saved in the PrintOrderList.txt file and then be displayed in the Notepad program.



The Print List will be saved in the default print file:

[Order Folder]\bstdata\gilson\out\protocol\PrintOrderList.txt (when running with SampleTrack)

[Order Folder]\bstdata\gilson\out_no_ST\protocol\PrintOrderList.txt (when running without SampleTrack)

3.2.4 Compare Procedures Dialog Box

With the Checkbox “Compare folders” disabled, two single procedures can be compared.

With the Checkbox “Compare folders” enabled, all procedures of the selected folder can be compared.



The two procedures or folders to compare must be selected in the upper text input fields:

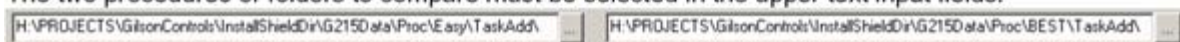


Figure 3.2 Compare Step Procedures Dialog Box

When comparing all procedures in two folders the color in the Procedure List shows the procedure status:

- **Green:** No differences between the procedure in first and second folder.
- **Blue:** Differences detected between the procedure in first and second folder.
- **Red:** The procedure in the first folder does not exist in the second folder.

In the two procedure text boxes for the first (left) and the second folder (right) different lines of the selected procedure are displayed "blue" (in the column "NR"), e.g. line 3 and 5 in the example.

3.2.5 Configuration Save/Load

Backups and reloads the configuration files *.cfg and *.735 of the current application in the working folder [Install Folder Data]\G215Data\Config\.

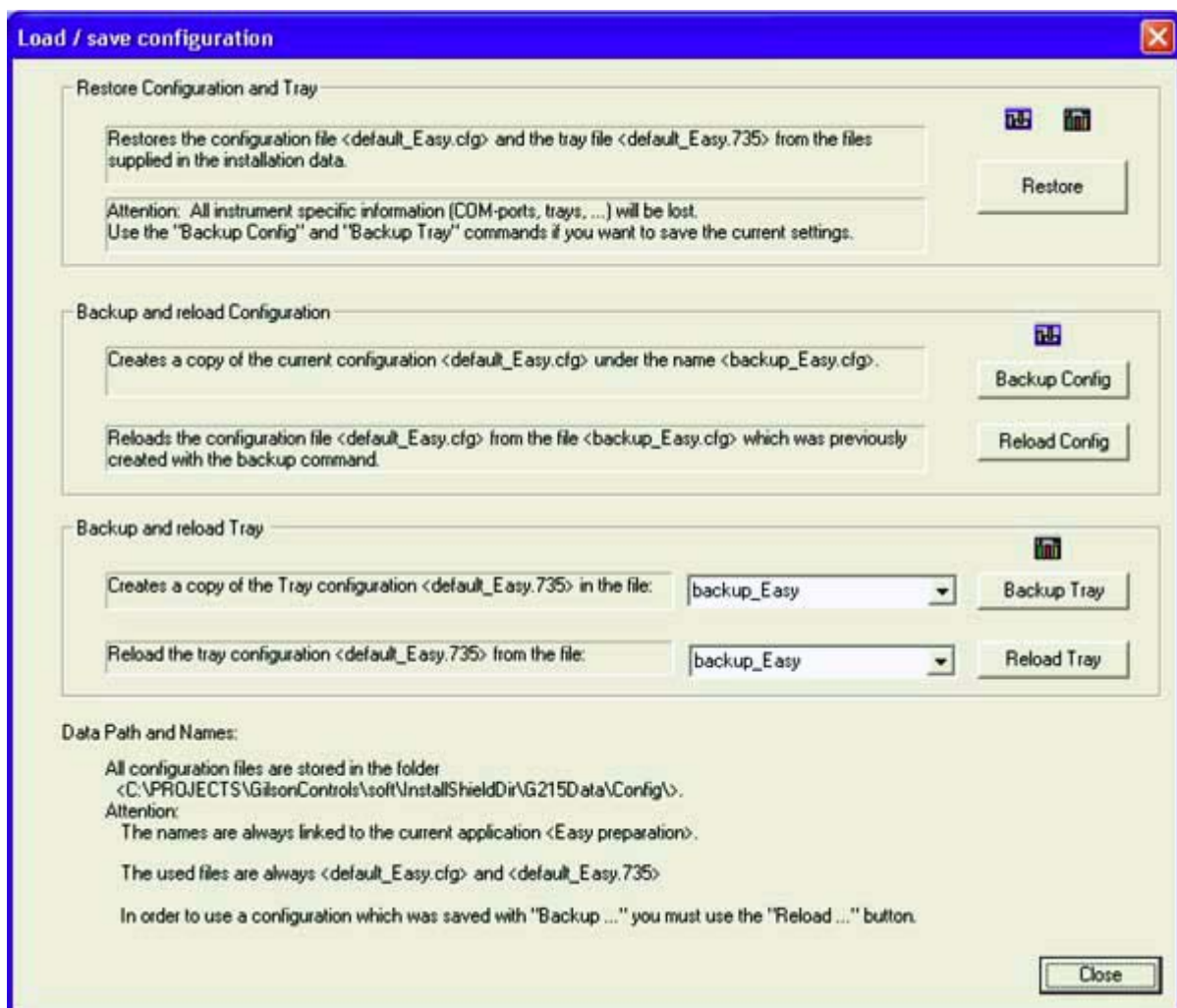


Figure 3.3 The Load/Save Configuration Dialog Box

Default config files for each Application are written at Installation time into the Install folder: **[Install Folder Data]\G215Data\Config\Restore**

When starting an Application the program is checking if config files are existing in the working folder: **[Install Folder Data]\G215Data\Config**

If there are no files found, a copy of the default files from the Install folder **...\Restore** will be moved automatically into the working folder.

Note: For applications with SampleTrack (Profiler, SampleTrack) the tray configuration is grayed (only automatically changeable using the barcode reader).

3.2.6 Exit

Exits the PrepGilsonST session. You can also use the **Close** command on the application control menu. The program will prompt you to save documents with any unsaved changes if applicable.

Shortcuts:

- Double-click the applications control menu button, or
- click on the close button,
- or press ALT + F4.

3.3 Edit Settings Menu

3.3.1 For Applications with SampleTrack (Profiler, SampleTrack)

The **Edit Settings** menu opens the Edit Settings dialog box from SampleTrack where the following preparation modes can be defined:

- Web service server URL.
- Procedure export folder.
- SampleTrack order folder.

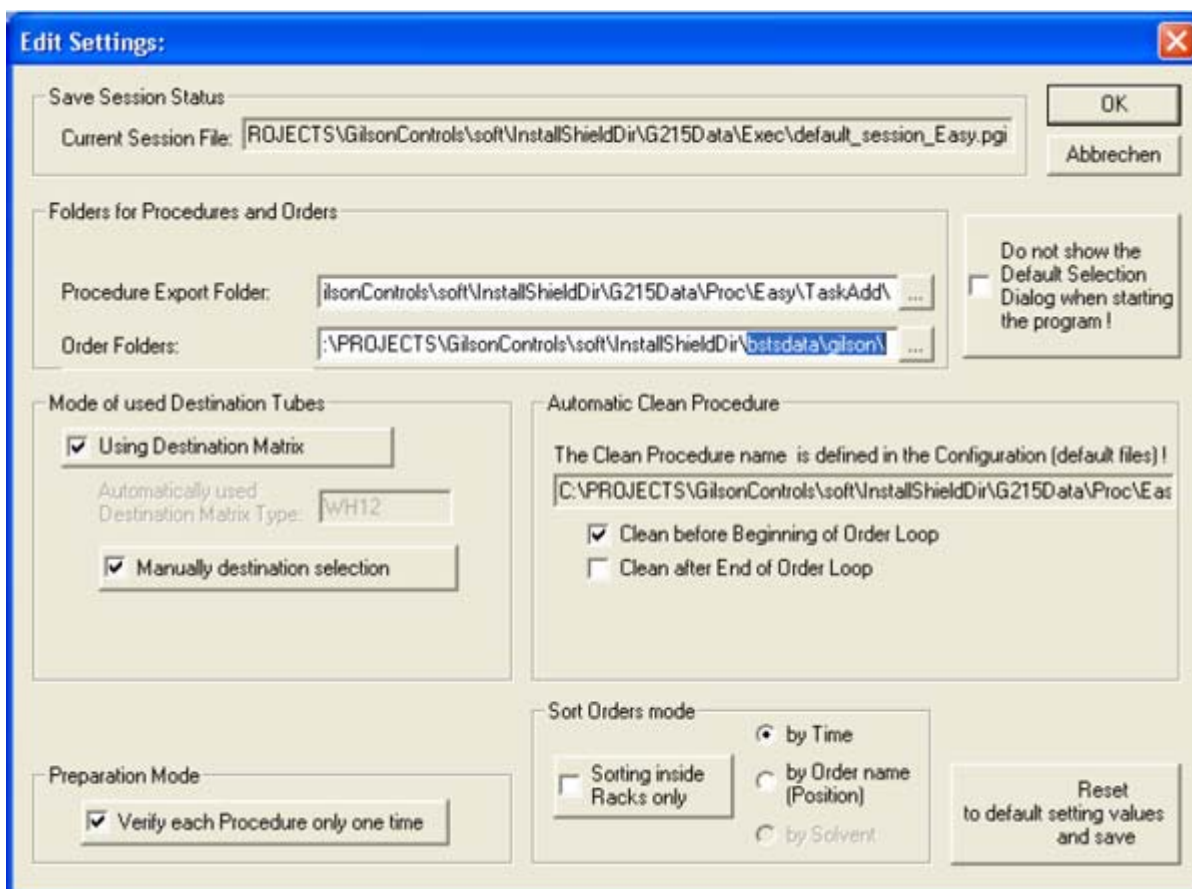


Figure 3.4 The Edit Settings Using Web Service Dialog Box

Reset to default settings values and save:

Restores all setting values to the default values delivered with the installation in the file „...\\G215Data\\Exec\\Restore\\default_session_xxxx.pgi“ (“xxxx” depends on the selected application type).

3.3.2 For Applications without SampleTrack (Easy, SPETT)

The **Edit Settings** menu opens the Edit Settings dialog box where the following preparation modes can be defined.

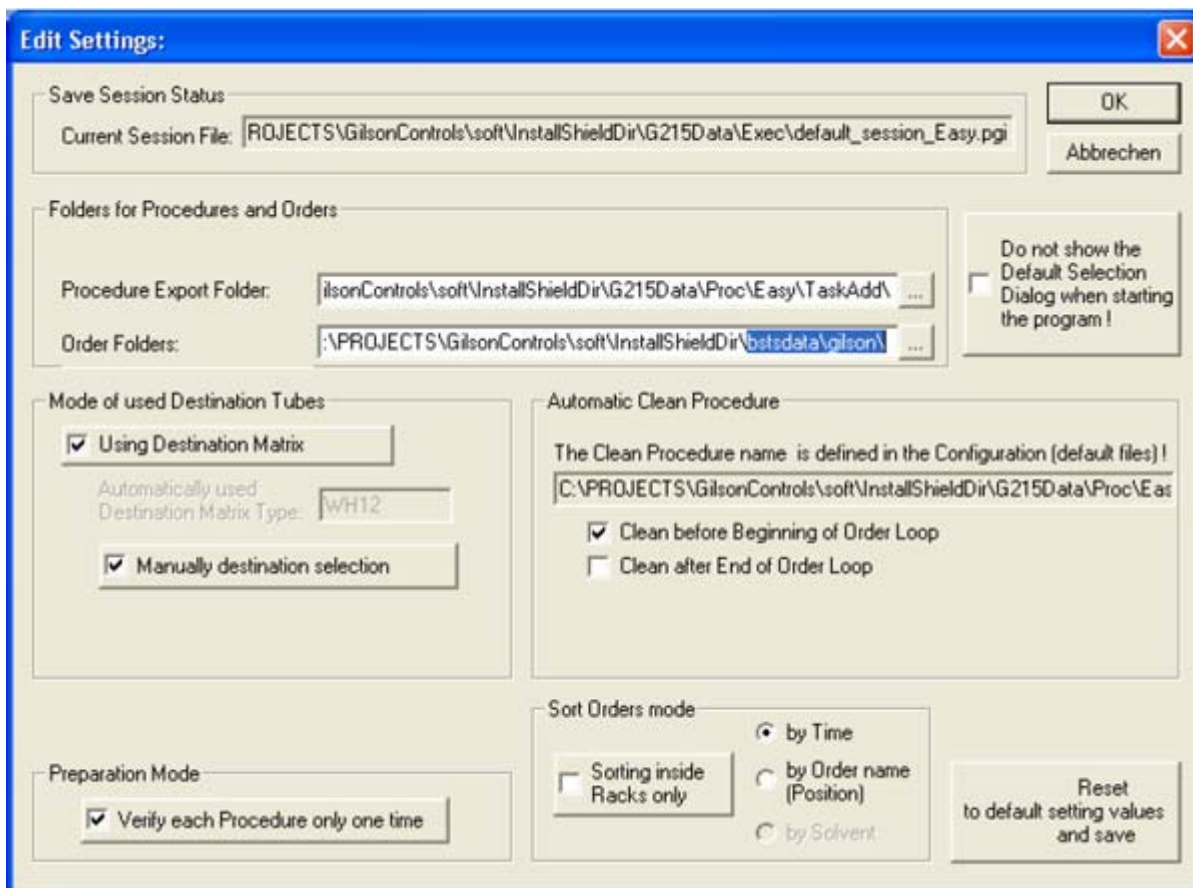


Figure 3.5 The Edit Settings Dialog Box

Table 3.2 Description of the Edit Settings Fields

Folders for Procedures and Orders	Order Folders	Orders and protocols are stored in the path of the edit box Order Folders + \in_no_ST\
Mode of Used Destination Tubes	Using Matrix Destination	If checked, the field Destination Matrix Type is used to find an empty destination matrix of this type for orders loaded in the currently inserted source racks.







Table 3.2 Description of the Edit Settings Fields

	Manually Destination Selection	If checked source tubes and destination tubes can be defined in the Create Orders dialog box (see "Create Orders" on page 97).
		If this is not checked only source tubes can be defined in the Create Orders dialog box and destination racks shown in the Automatically used Destination Matrix Type field will be used automatically.
Preparation Mode	Verify Each Procedure Only One Time	Procedures with the same name will be checked only one time before execution.
Automatic Clean Procedure		The Clean Procedure name is defined in the "Configuration" section (see also "Clean Procedures Menu Commands"). Select the appropriate options to run this procedure before the beginning of the order procedure loop OR/AND after the last order.
Sort Orders mode	Sort Orders Inside Rack By	Orders can be sorted inside racks by Creation time (default), Position , or Solvent .
Reset Default Values		The reset default values button restores all setting values to the default values delivered with the installation in the file: <code>„...\G215Data\Exec\Restore\default_session_xx.xx.pgi</code> („xxx“ depends on the selected application type).

3.4 Preparation Menu Commands

The **Preparation** menu offers the following commands:

Table 3.3 The Preparation Menu Commands

	Start Preparation Automation	Start Automation = Init + Read Barcodes + Read Orders + Verify + Preparation
	Start Verify Test All Orders Test Loop	Starts the verify test loop for Profiler applications.
	Pause after current movement	Stops after the current movement and waits. Select the menu Continue to continue the preparation.
	Continue	Continues the preparation after Pause .
	End after current order	Stops after the current order and finish order loop.
	Abort current order	Aborts the current order and finish order loop.

3.4.1 Start Preparation Automation

3.4.1.1 For Applications without SampleTrack (Easy, SPETT)


When the automation is started using one of the shortcuts listed below, a new preparation loop for all available orders will be started:


- **Initialize** Gilson
- **Read Barcodes** if the barcode reader is selected in the configuration.
- Deletes all old orders.
- **Load orders**
- **Verify orders**
- Run default **Clean** procedure if selected in the settings dialog box.
- Run **Preparation** procedures loop (for all available orders).
- Run default **Clean** procedure if selected in the settings dialog box.


3.4.1.2 For Applications with SampleTrack (Profiler)

A new preparation loop will be started:

- One order will be loaded via the web service server, verified and executed before the next order will be requested.
- All urgent order will be delivered from the SampleTrack web service server first.

Select the menu "Preparation Pause" or the Toolbar  to stop the preparation.

Select the menu "End After Current Order" or the Toolbar  to stop after current order and to finish the order loop.

Select the menu "Abort Current Order" or the Toolbar  to abort the preparation immediately.

Shortcuts: Toolbar:  or Keys:CTRL+A

3.4.2 Start Verify Test Loop for All Orders

If the user wants to check all available orders when starting the program this menu could be used.

3.4.2.1 For Applications without SampleTrack (Easy, SPETT)

A new verification test loop for all orders will be started:

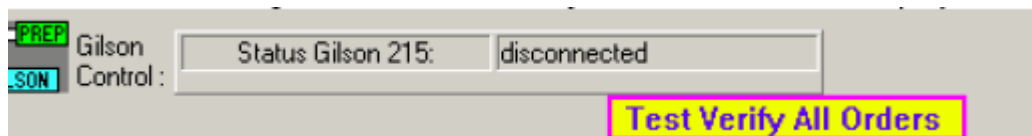
- **Initialize** Gilson.
- **Read Barcodes** if the barcode reader is selected in the configuration.
- Deletes all old orders.
- **Create orders** in the Create New Orders dialog box.
- **Load orders.**
- **Verify orders.**

3.4.2.2 For Applications with SampleTrack (Profiler)

A new verification test loop for all orders will be started:

- A test loop will be started.
- All available orders will be loaded from the Web Services server.
- All available orders will be verified.
- All available orders will be removed from the order list and the status will be reset via Web Services.

When the Test is running, the text "Test Verify All Orders" will be displayed:



3.4.3 Preparation Pause

Preparation pause: Stops after current movement and waits for the menu "Continue". Select the menu "Continue" or the Toolbar  button to continue the preparation.


3.4.4 Continue

Select this menu to continue the preparation after **Pause**.

Shortcuts: Toolbar 

3.4.5 End After Current Order

Stops after the currently running order and finishes the order loop.

Shortcuts: Toolbar 

3.4.6 Abort Current Order

The currently running order will be stopped immediately with an error status and if the order loop was running it will be stopped. A **Home Seek** will be performed automatically.

Shortcuts: Toolbar 


3.5 Service Tools Menu Commands

The **Service Tools** menu offers the following commands:

Table 3.4 The Preparation Menu Commands

	Initialize Gilson	Initializes the Gilson instrument.
	Initialize Pump	Initializes the Gilson instrument and the dilutor pump.
	Initialize + Home	Initializes the Gilson instrument and performs a home seek.
	Read Barcodes	Runs the Read Barcodes task.

Table 3.4 The Preparation Menu Commands

	Create New Orders Dialog	Creates new orders dialog box.
	Load New Orders and Verify	Loads orders from order directory and verifies orders.
	Prepare all Orders	Prepares the orders.
	Modify Procedure	Shows or hides a Procedure View in the main window in order to modify task procedures at a high edit level for customers.
	Connect Gilson	Connects the Gilson after changing the configuration.
	Delete Map: Source-Destination Matrix	Delete Map: Source destination matrix
	Change Syringe	For service personnel only! Used to change the syringe.
	Delete all Orders and Protocols in ST Folders	Reloads the configuration file.
	Test: Check Positions in Tray	Special dialog box used to check all XYZ positions in the tray (racks, ports, etc.).

3.5.1 Initialize Gilson

Note: Menu enabled only for applications without SampleTrack (Easy, SPETT).

Runs the **Initialize Gilson** task:

1. Write procedure List file of all usable procedures in SampleTrack.
2. Write solvent List file of all defined solvents for SampleTrack.
3. Start to write a new Current protocol file.
4. Reset Errors.
5. Set Gilson Z Tower clamp height variable.
6. Set Gilson liquid level detection threshold variable.
7. Initialize barcode reader (if installed).
8. Checking Z axis.
9. Checking XY axis.
10. Checking Dilutor pump (not homing!)

3.5.2 Initialize Pump

Runs the **Initialize Pump** task:

1. Writes a procedure list file of all usable procedures in SampleTrack.
2. Writes a solvent list file of all defined solvents for SampleTrack.
3. Starts to write a new current protocol file.
4. Resets errors.
5. Sets the Gilson Z-tower clamp height variable.
6. Sets the Gilson liquid level detection threshold variable.
7. Initializes the barcode reader (if installed).
8. Checks the Z-axis.
9. Checks the XY-axis.
10. Checks the dilutor pump at the rinse station.

3.5.3 Initialize + Home Gilson

Note: Menu enabled only for applications without SampleTrack (Easy, SPETT).

Runs the **Initialize + Home Gilson** task.

1. Write procedure list file of all usable procedures for order creation.
2. Write solvent list file of all defined solvents for order creation.
3. Start to write a new current protocol file.
4. Reset Errors.
5. Set Gilson Z-tower clamp height variable.
6. Set Gilson liquid level detection threshold variable.
7. Initialize barcode reader (if installed).
8. Homing Z axis.
9. Homing XY axis.
10. Homing dilutor pump at rinse station.

3.5.4 Read Barcodes

Note: Menu enabled only for applications without SampleTrack (Easy, SPETT).

- Called automatically when starting automation loop with the start tool bar button.

Runs the **Read Barcodes** task.

1. Reads both **ID** and **TYPE** barcodes at all defined barcode racks (displayed with red frames in the barcode view of the tray configuration).
2. Deletes old barcode defined racks in the tray configuration if they are removed from the Gilson.
3. Creates new barcode defined racks and zones (with the name of the Rack ID bar-

code) in the tray configuration if the barcodes are found.

All sites in the tray can be defined as barcode defined sites: See also "[Barcode Zone Configuration](#)" on page 58.

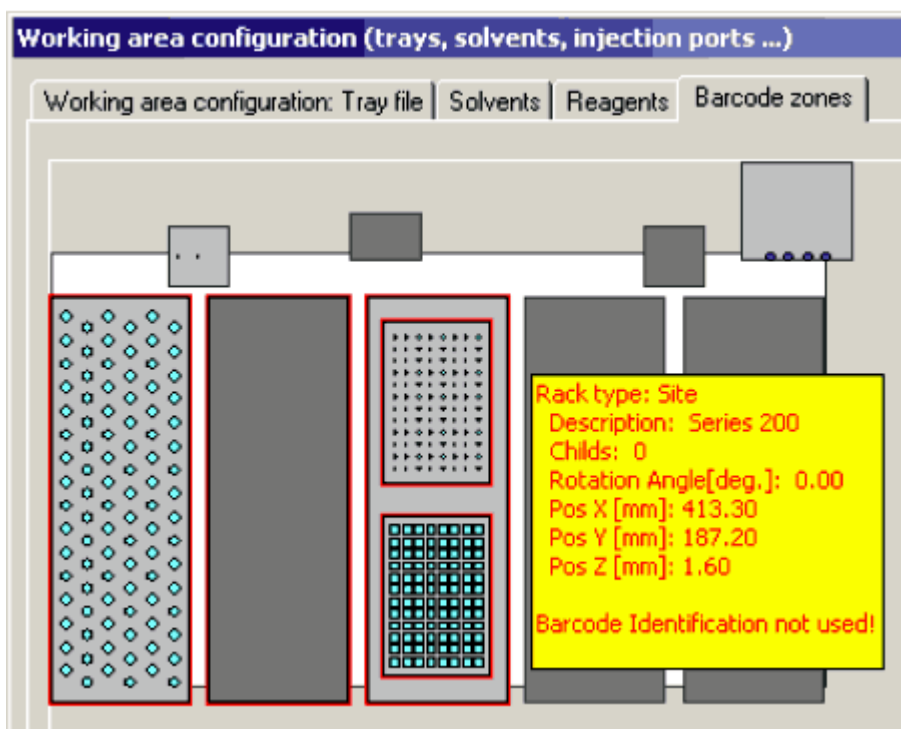


Figure 3.6 Working Area Configuration: Barcode Zones

3.5.5 Create New Orders Dialog Box

Note: Menu enabled only for applications without SampleTrack (Easy, SPETT).

- Called automatically when starting the automation loop with the start tool bar button. Orders can be created in this dialog box without SampleTrack.

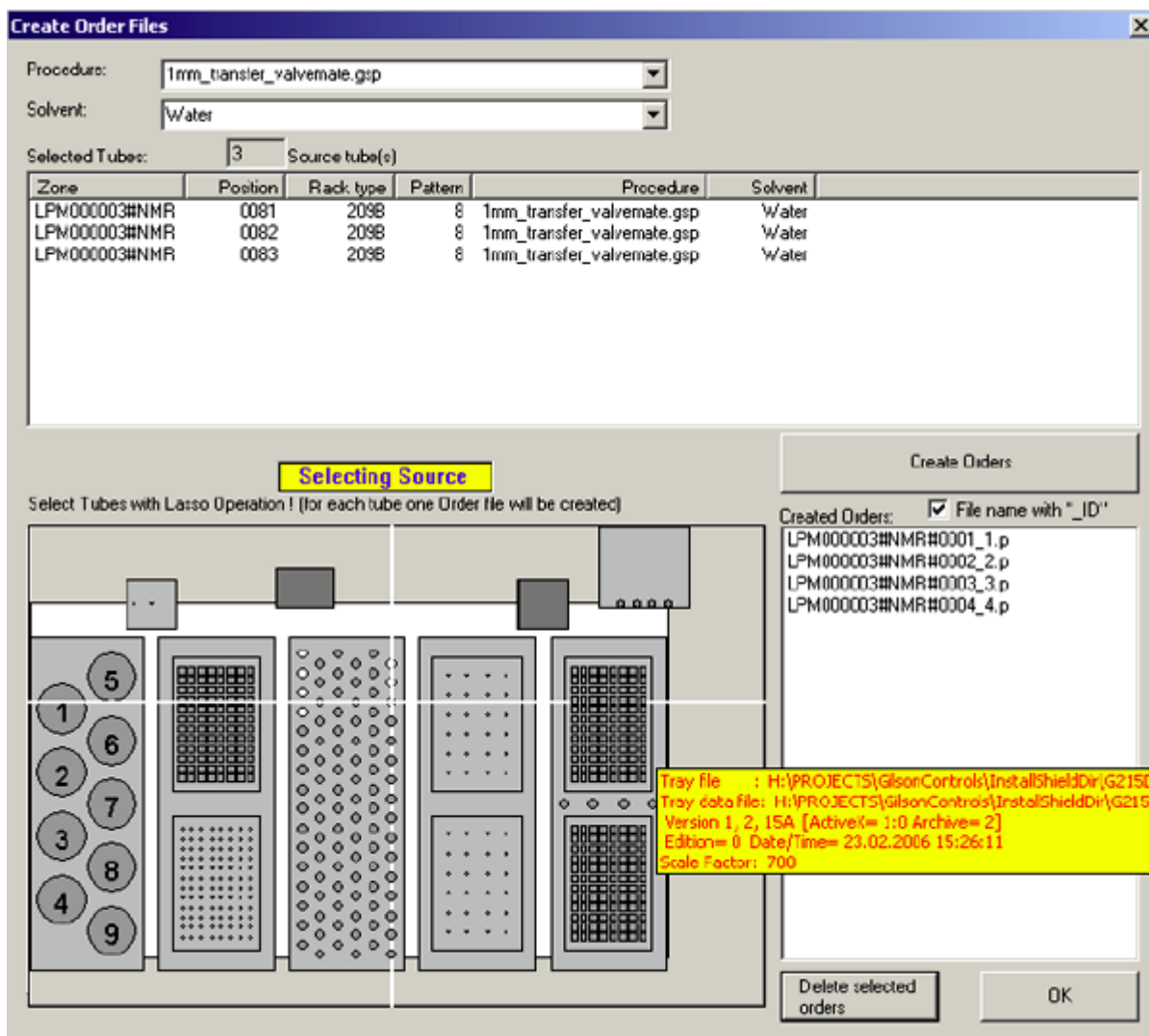


Figure 3.7 The Create Order Files Dialog Box

When checking **File name with '_ID'** an additional number will be added to the order name, so multiple orders for the same source position are possible.

3.5.5.1 Create Orders SPE Tube Transfer

The solvent selection is grayed. The Delete Created Orders is enabled.

3.5.6 Load Orders and Verify

Note: Menu enabled only for applications without SampleTrack (Easy, SPETT).

Runs the Load Orders and Verify task (without **Automation after Initialize** and **Read**

Barcodes).

- Called automatically when starting automation loop with the start tool bar button.

For applications with SampleTrack (Profiler):

- Only called automatically when starting automation loop with the start tool bar button.
- One order will be loaded via WEB SERVICE Server, verified and executed before the next order will be requested.
- All Urgent orders will be delivered from the SampleTrack Web Service Server first.

3.5.7 Prepare Orders

Note: Menu enabled only for applications without SampleTrack (Easy, SPETT).

Runs the procedures preparation loop (for all available orders without **Automation after Initialize, Read Barcodes, and Load Orders and Verify**).

Called automatically when starting automation loop with the start tool bar button.

3.5.8 Copy Orders Back From... \in\save\

Copies orders from the directory **..\in\save** into the directory **... \in**

Used for tests or if racks with the same Barcode ID and the same samples are used again.

Not used for „1 mm Sample preparation“ or „SPE Tube Transfer“ applications.

3.5.9 Modify Procedure

See ["Edit Procedures" on page 85](#).

3.5.10 Delete Map: Source/Destination Matrix

Deletes all relations between the source Matrix ID Racks and Destination Matrix ID Racks.

Not used for 1mm Sample Preparation or for SPE tube transfer applications!

Only relevant with option „**Preparation Mode: Using Destination Matrix**“ in the ["Edit Settings Menu"](#) dialog box!

After reading the Rack ID barcodes during the „Loading and Verifying Orders“ procedure, all orders will be checked if they need a new Destination Rack of the Destination Rack Type, as defined in the field „**Destination Matrix Type**“ of the ["Edit Settings Menu"](#) dialog box.

If there is no Destination Rack defined for the current Source Rack in the Source/Desti-

nation Map, and an empty Destination Rack is found in the tray, then the current Source Rack of the Order and the empty Destination Rack will be written as “connected” into the **Source/Destination Map**.

The Source/Destination Map will then be saved.

After restarting the program, or for new Source Rack orders in the Source/Destination Map, the Destination Rack will be the same.

If a Barcode ID is used more than one time (not recommended!):

- The customer must clear the Destination Rack and fill the Source Rack.
- If only the Source or the Destination ID has changed, this menu has to be used to delete all relations between Source Matrix ID Racks and Destination Matrix ID Racks.

3.5.11 Connect Gilson

NOTE: Not for BEST or Profiler applications!

This menu could be used to connect the Gilson liquid handler, if the Gilson is disconnected after an Error when starting this program.

Typically the Gilson will be connected automatically when starting this program. If another configuration is used when starting the program with different values in the Gilson “non volatile memory” (e.g. Z-tower clamp height or syringe size) the Gilson reports an error and will be disconnected. In this case the user could close this program and restart again or use this command for correct connection to the Gilson.

3.5.12 Delete all Orders and Protocols in ST folders

Typically all executed orders and protocols will be saved in the appropriate file folders. This menu can be used to delete all orders and protocols in the appropriate file folders. The folder names are different depending on whether the current application is using SampleTrack or not (see ["Directory Structure of Order Files" on page 81](#)).

3.5.13 Test

3.5.13.1 Check Positions in Tray

Special dialog box used to check all XYZ positions in the tray (racks, ports, etc.).

3.6 Clean Procedures Menu Commands

The **Clean Procedures** menu offers the following commands, which enable you to

arrange multiple views of multiple documents in the application window:

Table 3.5 The Clean Procedures Menu Commands

Clean Needle	The clean needle menu command starts the clean needle procedure.
Prime Dilutor - Purge System	Runs the Prime Dilutor procedure.
Prime Inject Port	Runs the Prime Inject Port procedure.
Set ValveMate default solvent position	Moves ValveMate to the default solvent position (defined in the Dilutor configuration).
Modify Clean Procedure	Opens the Clean TASK procedure edit dialog box.

The procedures **Clean Needle**, **Prime Dilutor** and **Prime Inject Port** are defined in the default file configuration.

When the Default File Configuration is called from the clean procedures menu, the Gilson Liquid Handler 215 configuration is displayed in the configuration view.

3.6.1 Clean Needle

The clean needle menu command starts the clean needle procedure. The procedure is defined in the Gilson Liquid Handler 215 section of the configuration.

3.6.2 Prime Dilutor

Runs the **Prime Dilutor** procedure.

The procedure is defined in the Gilson Liquid Handler 215 section of the configuration.

3.6.3 Prime Inject Port

Runs the **Prime Inject Port** procedure.

The procedure name is defined in the Gilson Liquid Handler 215 section of the configuration.

3.6.4 Set ValveMate Default Solvent Position

Moves ValveMate to the default solvent position (defined in ["Dilutor Configuration" on page 52](#)).








3.6.5 Modify Clean Procedures

Opens the Clean TASK procedure edit dialog box (see "[Task Procedure Clean](#)" on page 87).

3.7 View Menu Commands

The View menu offers the following commands:

Table 3.6 The View Menu Commands

	Toolbar	Shows or hides the toolbar.
	Status Bar	Shows or hides the status bar.
	Barcode List	Shows or hides the barcode list of connected source and destination barcode racks.
	Modify Procedure	Shows or hides a Procedure View in the main window to modify Task procedures at a high edit level for customers.
	Configuration	Shows or hides the configuration dialog box.
	Tray	Shows or hides the tray dialog box.
	Main Protocol File	Shows or hides the main protocol in the protocol dialog box.
	Current Protocol File	Shows or hides the current protocol in the protocol dialog box.
	Procedure Steps	Shows or hides the current master step procedure dialog box.
	Solvent Consumption Information	For applications without SampleTrack only. This command is used to show a message box with the required solvent amounts for all orders after the verification.
	Error History	Shows the error history dialog box with all the errors which have occurred after starting the program. In each line of the list one error will be displayed. When clicking on an error line all details of the error will be displayed in the information field.

3.7.1 Toolbar














Use this command to display and hide the Toolbar, which includes buttons for some of the most common commands in PrepGilsonST, such as **File Open**. A check mark appears next to the menu item when the Toolbar is displayed.

The Toolbar

The Toolbar is displayed across the top of the application window, below the menu bar. The Toolbar provides quick mouse access to many tools used in PrepGilsonST.

To hide or display the Toolbar, choose Toolbar from the View menu (ALT, V, T).

Table 3.7 Menu with Toolbar Buttons

	Start Preparation Automation	Start Automation = Init + Read Barcodes + Read Orders + Verify + Preparation.
	Pause after current movement	Preparation Pause: Stop after current movement and wait. Select the Menu Continue to continue the preparation.
	Continue	Continue the preparation after a pause.
	End After Current Order	End after current order and finish order loop.
	Abort Current Order	Abort current order and finish order loop.
	Move Arm to Other Side	Moves the Gilson arm into a different position if the barcode reader did not allow the rack exchange.
	Configuration	Shows or hides the Configuration View to see configuration details or to perform modifications if the instrument is not running.
	Modify Procedure	Shows or hides a Procedure View in the main window to modify task procedures at a high edit level for customers.
	Start Verify Test All Orders	Starts the verify test loop.
	Barcode List	Shows or hides the barcode list of connected source and destination barcode racks.
	Tray View	Shows or hides the tray dialog box.
	View Main Log File	Shows or hides the main protocol in the protocol dialog box.
	Log File	Shows or hides the current protocol in the protocol dialog box view.
	Procedure Steps	Shows or hides the current master step procedure dialog box.

3.7.2 Status Bar

Use this command to display or hide the **Status Bar**, which describes the action to be executed by the selected menu item or depressed Toolbar button, and the keyboard latch state. A check mark appears next to the menu item when the status bar is displayed.

The status bar is displayed at the bottom of the PrepGilsonST window. To display or hide the status bar, use the Status Bar command in the View menu.



Figure 3.8 The Status Bar

The left area of the status bar describes actions of menu items as you use the arrow keys to navigate through menus. This area similarly shows messages that describe the actions of Toolbar buttons as you depress them, before releasing them. If after viewing the description of the Toolbar button command you wish not to execute the command, then release the mouse button while the pointer is off the Toolbar button.

The right areas of the status bar indicate which of the following keys are latched down:

IndicatorDescription

CAPThe Caps Lock key is latched down.

NUMThe Num Lock key is latched down.

SCRLThe Scroll Lock key is latched down.


3.7.3 Modify Procedure

Shows or hides a Procedure View in the main window, which is used to modify Task procedures at a high edit level for customers.

See ["Modifying the Procedure Dialog Box" on page 91](#).

3.7.4 Configuration

Shows or hides the configuration view in order to see configuration details or to perform modifications if the instrument is not running (see ["Open Configuration View" on page 47](#)).

Shortcuts: Toolbar 

3.7.5 Tray View

Shows or hides the tray dialog box. By moving the cursor over **Containers** (dark gray), **Racks** (light gray) or **Tubes** (colors defined) different information for the object under the cursor will be displayed in a yellow pop-up window:

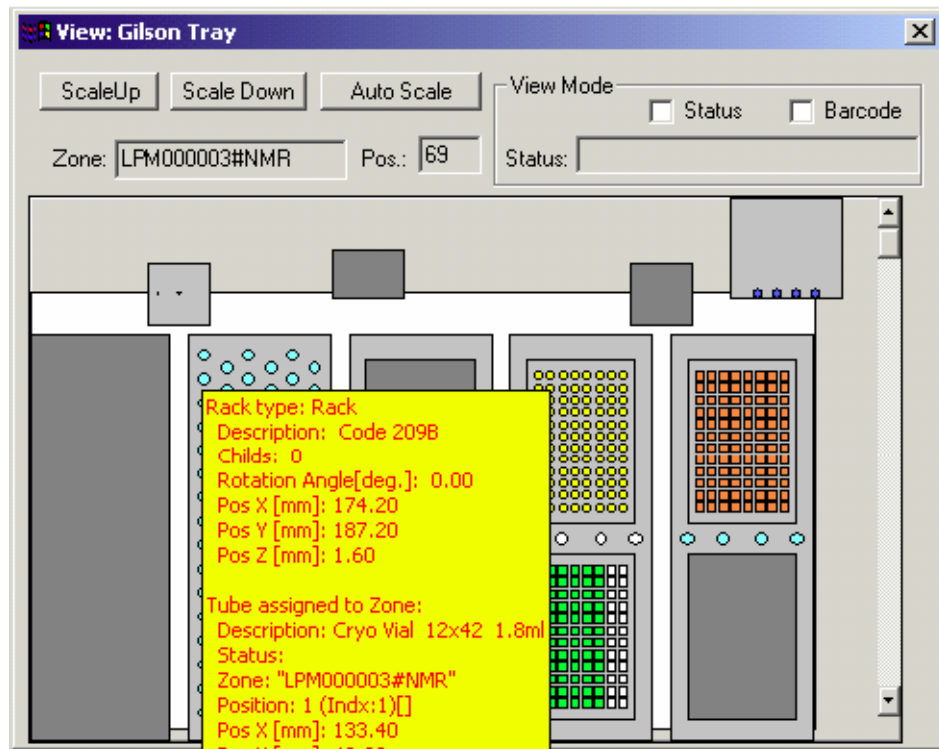



Figure 3.9 The Tray View Dialog Box

Different view modes can be selected by checking the „Status“ or „Barcode“ check boxes in the View Mode block.

- When **Status** is checked the status information for each tube will be shown.
- When **Barcode** is checked the barcode defined racks will be highlighted within a red frame.

Shortcuts: Toolbar 

3.7.6 View Main Protocol File

Shows or hides the main protocol file with all the important information after the program is started.

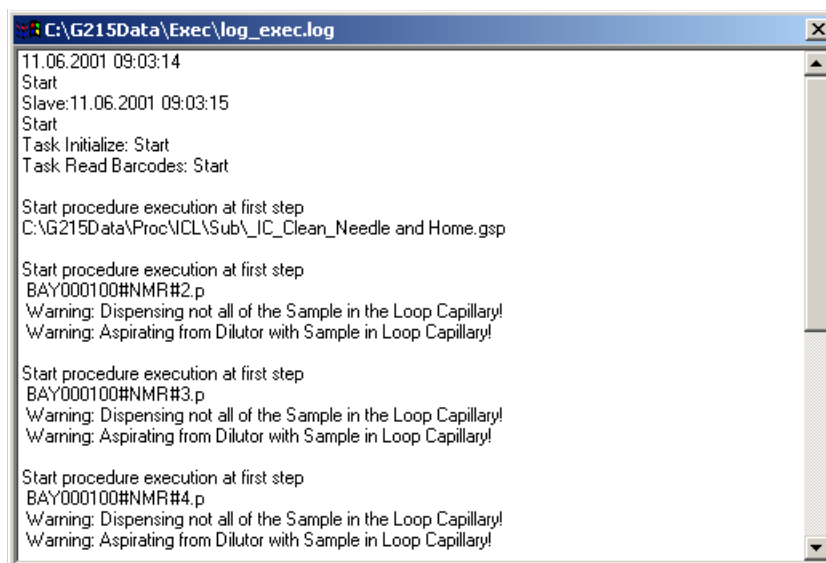


Figure 3.10 Main Protocol File

This view can also be used to display other information:

1. Input order files from SampleTrack.
2. Output result order files to SampleTrack.

3.7.7 View Current Protocol File

Shows or hides the current protocol file with all the important information from the selected/current order.

This view can also be used to display other information:

1. Input order files from SampleTrack.
2. Output result order files to SampleTrack.

Shortcuts: Toolbar

3.7.8 Error History

This command is used to show a dialog box with all errors after starting the program:

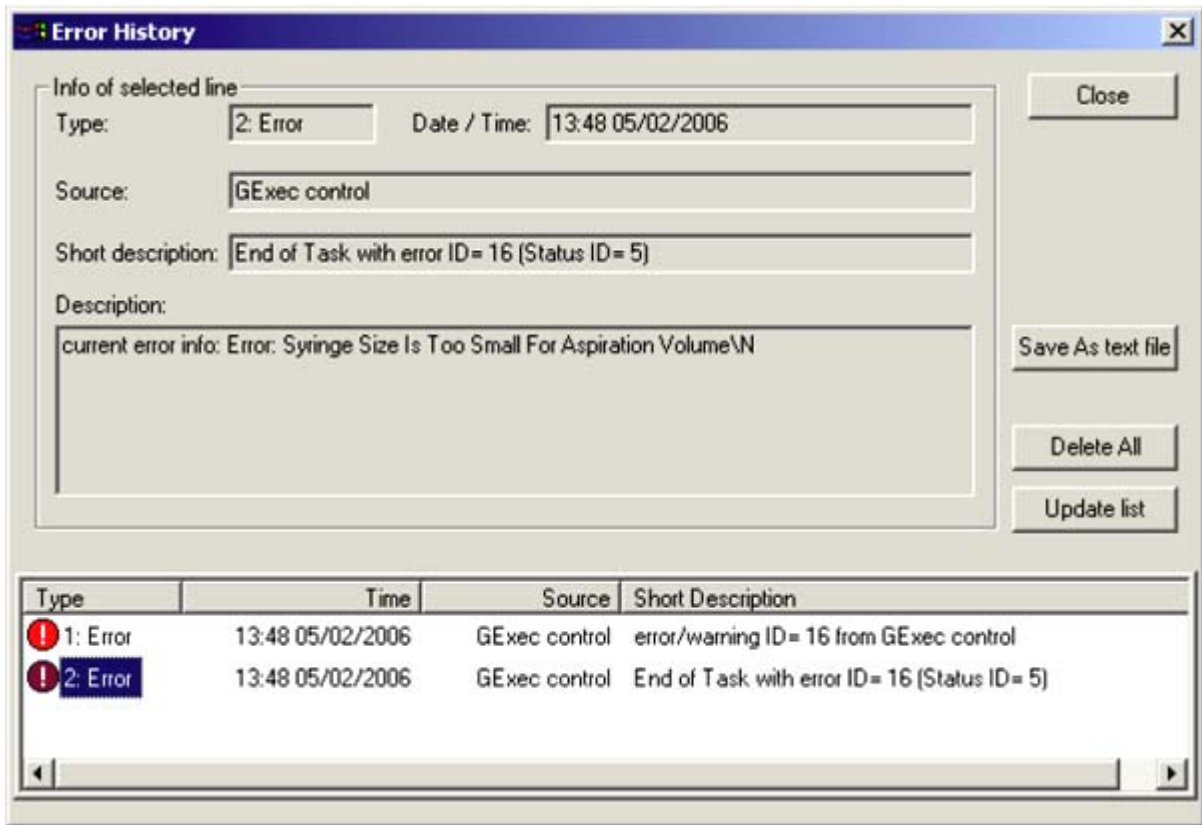


Figure 3.11 The Error History View

In each line of the list one error will be displayed (old errors on the top of the list based on the time stamp).

When clicking on one error line all details of the error will be displayed in the information fields.

3.7.9 Procedure Step View

Shows the **Procedure Step View**:

- Move the mouse cursor over one step, or click on the step icon to see details of one step!
- Shows the currently loaded or running main procedure in the upper part of the window.
- If there is a sub-procedure running, it is shown in the lower part of the window.

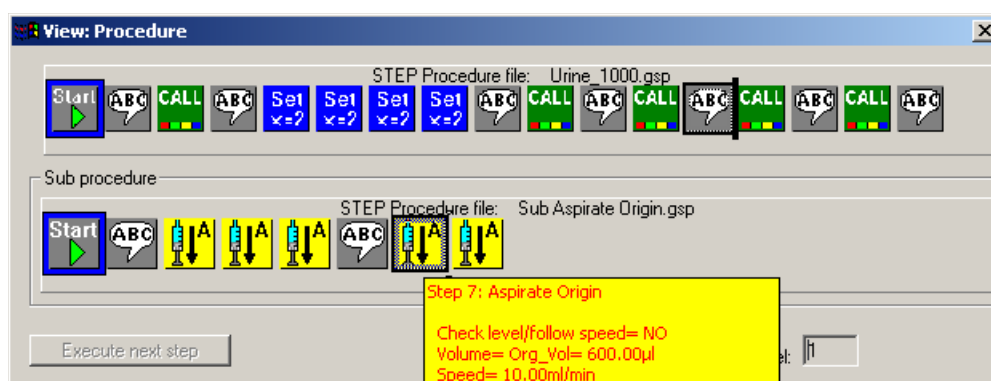


Figure 3.12 Procedure Step View

Note:

- It is not possible to display the procedure as a text file, but only as a protocol text file after execution.
- **For service personal only:** Procedures that are not running can be displayed in the Procedure Editor program.

Shortcuts: Toolbar 

3.8 Help Menu Commands

The **Help Menu** offers various options which provide assistance with this application:

Table 3.8 The Preparation Menu Commands

Help Tutorials	Opens the explorer with the tutorials folder.
Help Manuals	Open the explorer with the documents folder containing the manuals.
About	Displays the version number of this application

3.8.1 Help Tutorials

Use this command to open the windows explorer with the folder containing all tutorials as PDF and Powerpoint files.

3.8.2 Help Manuals

Use this command to open the windows explorer with the folder containing the manuals.

3.8.3 About

Use this command to display the copyright notice and version number of your copy of PrepGilsonST.

4 Start Selections

4.1 Defining Procedure Type

When starting the program the first time after installation the "Default Procedure Selection" dialog box appears enabling you to define the type of procedure and configuration settings in the registry.

Five types of procedures can be selected:

- Easy Preparation
- SPE Tube Transfer
- Profiler Preparation
-

After performing an initialization using the menu "Service tools" -> "Initialize Pump", all procedures in the Export directory (defined in the "Edit Settings Menu" dialog box) will be exported to enable a selection of these procedures in the selection box of SampleTrack or in the BEST program.

4.2 Default Procedure Selection

When starting this program after installation, the following box appears which allows you to define the application type (to perform different settings in the Registry), or to modify the path inside all the procedures:

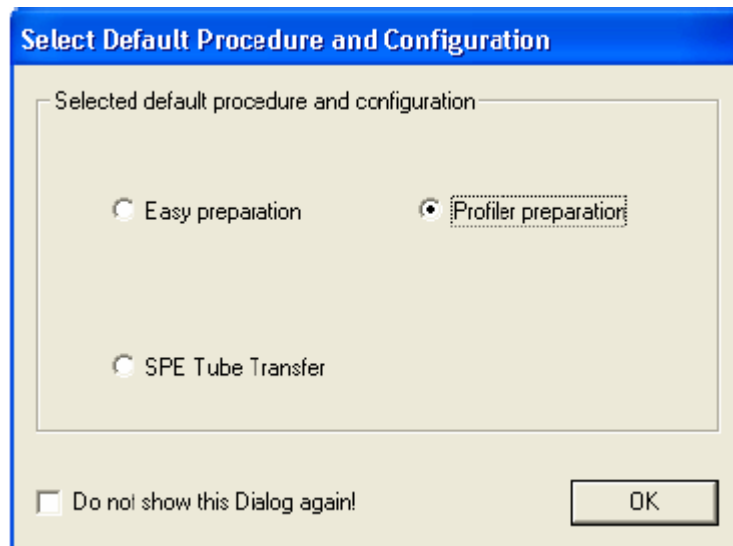


Figure 4.1 The Select Default Procedure and Configuration dialog box

The following files will be set in the registry (in HKEY_LOCAL_MACHINE->SOFT-

WARE->Bruker BioSpin->):

- | | |
|---|-------------------------------------|
| 1. Easy Preparation: | ->Gilson Control->ApplicType=7 |
| ->Gilson Control->GExecCtrl->Config file= | \Config\default_Easy.cfg |
| ->Gilson Control->EditProcedure->Procedure= | \Proc\Easy\default_Easy.gsp |
| 2. SPE Tube Transfer: | ->Gilson Control->ApplicType= 5 |
| ->Gilson Control->GExecCtrl->Config file= | \Config\default_SPETT.cfg |
| ->Gilson Control->EditProcedure->Procedure= | \Proc\SPETT\default_SPETT.gsp |
| 3. Profiler Preparation: | ->Gilson Control->ApplicType= 6 |
| ->Gilson Control->GExecCtrl->Config file= | \Config\default_Profiler.cfg |
| ->Gilson Control->EditProcedure->Procedure= | \Proc\Profiler\default_Profiler.gsp |

The following „Current session” default files will be copied into the file
\exec\curr_session.pgi:

- | | |
|--------------------------|------------------------------|
| 1. Easy Preparation: | default_session_Easy.pgi |
| 2. SPE Tube Transfer: | default_session_SPETT.pgi |
| 3. Profiler Preparation: | default_session_Profiler.pgi |

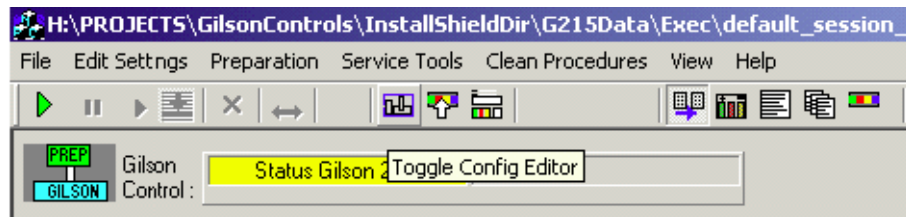
If it is desired that this box does not appear the next time the program is started, please select:

- The check box „**Do not show this dialog box again!**” in this dialog box, or,
- The check box „**Do not show the Default Selection dialog box when starting the program!**” in the ["Edit Settings Menu"](#) dialog box.

5 Configuration

5.1 Open Configuration View

To open the configuration view, start the program:



Then press the **Configuration View** button from the tool bar.

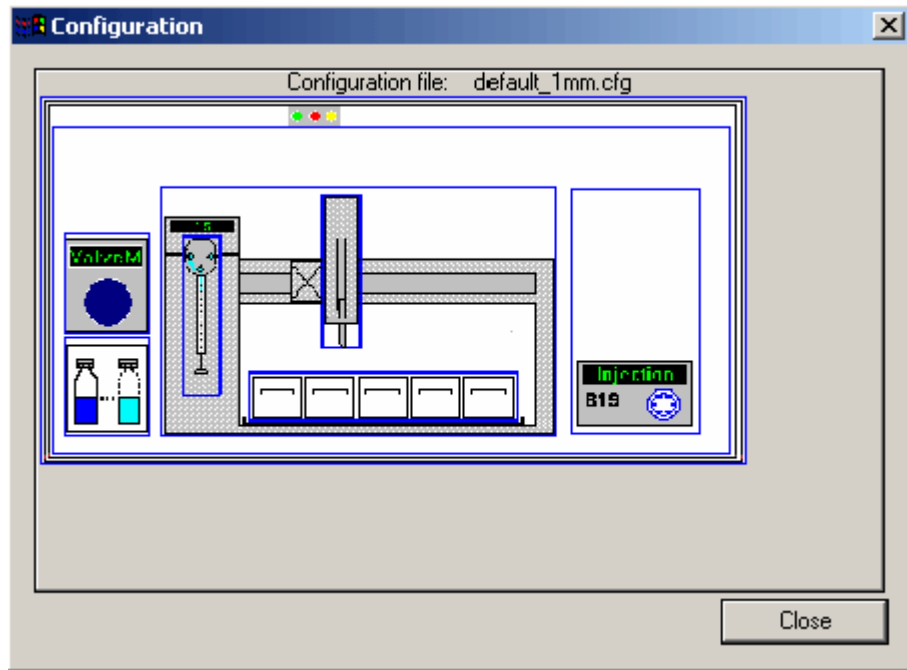


Figure 5.1 The Configuration View dialog box

Each of the different configuration sections are displayed inside a blue frame.

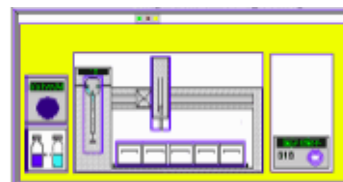
Configuration

By moving the mouse cursor around inside the blue frames, various configuration tool tips will be displayed:

By clicking inside the blue frames (here shown as yellow areas) special dialog boxes will open shown various configurations.

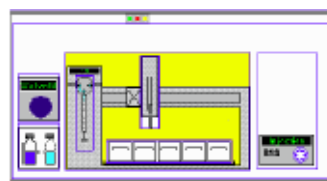
"Base Configuration"

Defines the installed components of the configuration.



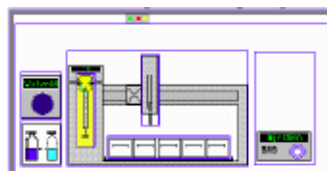
"Gilson Liquid Handler 215 Configuration"

Defines default files and Gilson instrument type specific configuration.



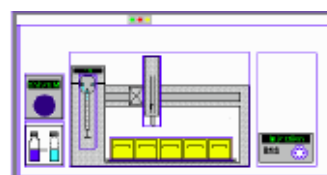
"Dilutor Configuration"

Defines the usable solvent list, the dilutor syringes and the default solvent.



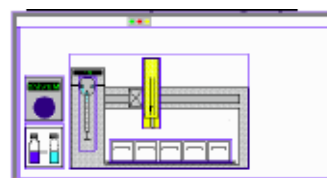
"Working Area Configuration"

Defines the working area:
- "Tray File Configuration"
- "Solvents in Tray Configuration"
- "Reagent in Tray Configuration"
- "Barcode Zone Configuration"



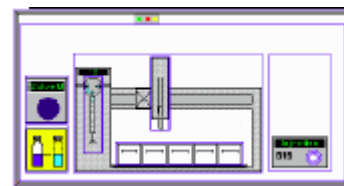
"Z-Tower Configuration"

Defines the needle adjustment.



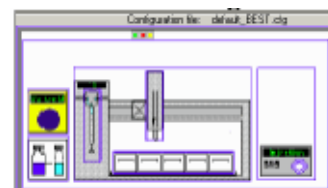
"Solvent Names Configuration"

Defines the solvent names.



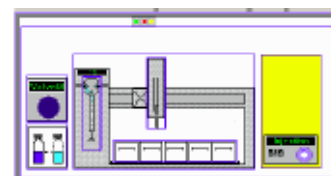
"ValveMate Configuration"

Defines the Valvemate solvents.



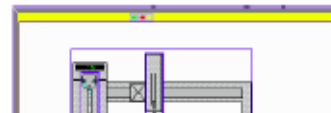
"Valves & Capillary Configuration"

Defines the valves and capillary configuration.



"Gilson Cover & LED Configuration"

Defines the reaction after opening the cover.



5.2 Base Configuration

In the base configuration dialog box the following items can be defined:

- The liquid handler type, either '215' or '235'.
- The basic GSIOC ID.
- The serial ports (RS232) used (for the Gilson, barcode reader, and SPE tube transfer).
- Other additional installation options used.

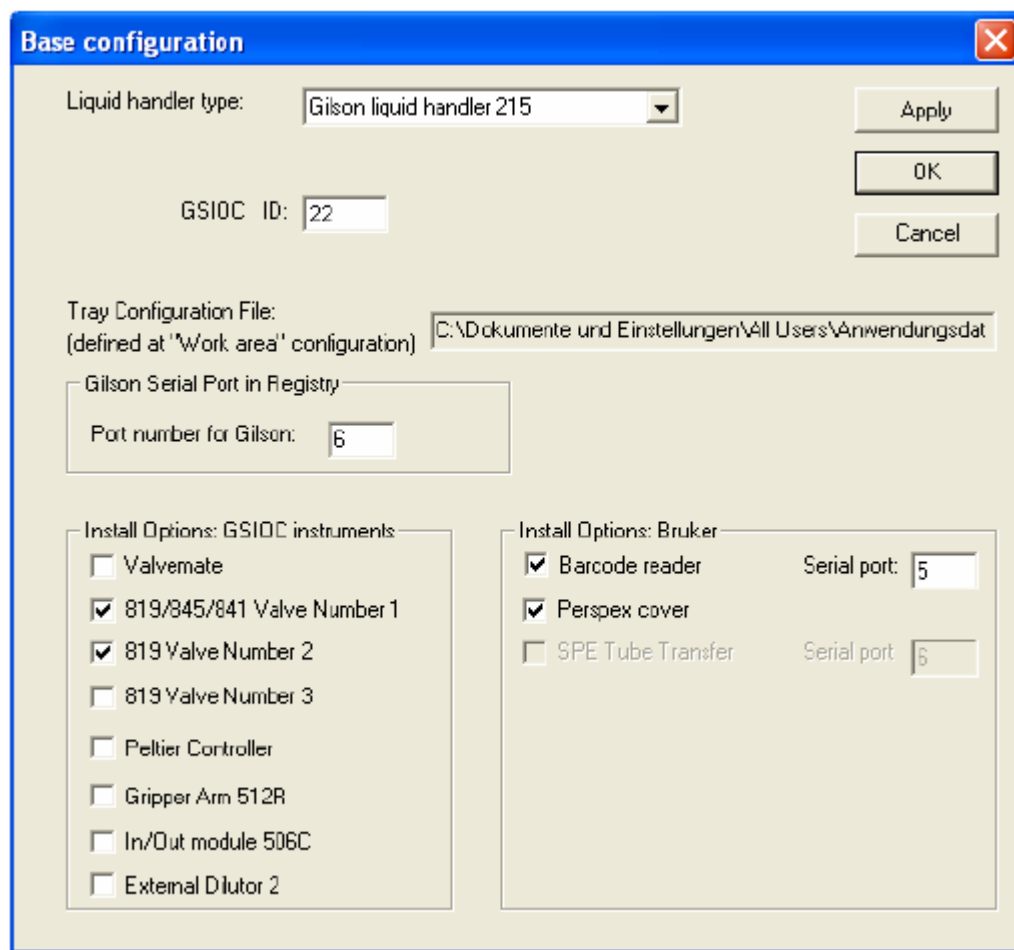


Figure 5.2 The Base Configuration dialog box

5.3 Gilson Liquid Handler 215 Configuration

The Gilson Liquid Handler 215 configuration defines default files and the Gilson execution mode configuration.

5.3.1 Default Files Configuration

In the Default Files configuration, the following Gilson liquid handler 215 files can be configured:

- A default path for all procedures can be defined (application specific).
- When clicking on a line in the list, a default file for the selected type can be defined in a dialog box.

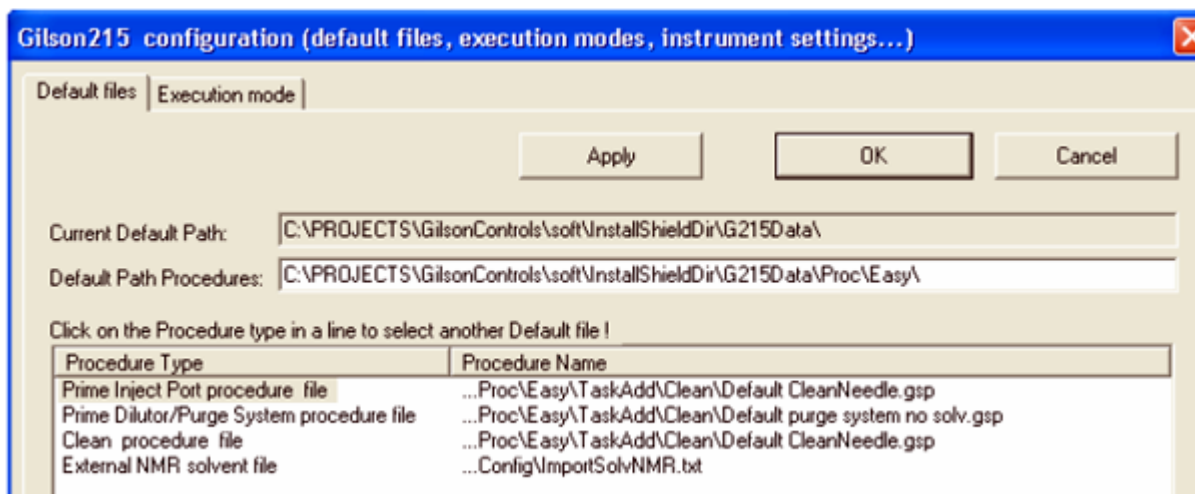


Figure 5.3 The Gilson Default Files Configuration Dialog Box

5.3.2 Execution Mode Configuration

In the Execution Mode configuration, the following Gilson liquid handler 215 information can be configured:

- When the program is running, protocol files can be written.
- Different wash procedures can be defined for various ValveMate solvent changes.
- The **Solvent Configuration** button can be used to define solvent names in the "[Dilutor Configuration](#)".
- The **Edit Solvent Positions at ValveMate** button can be used to define solvent positions in the "[ValveMate Configuration](#)".

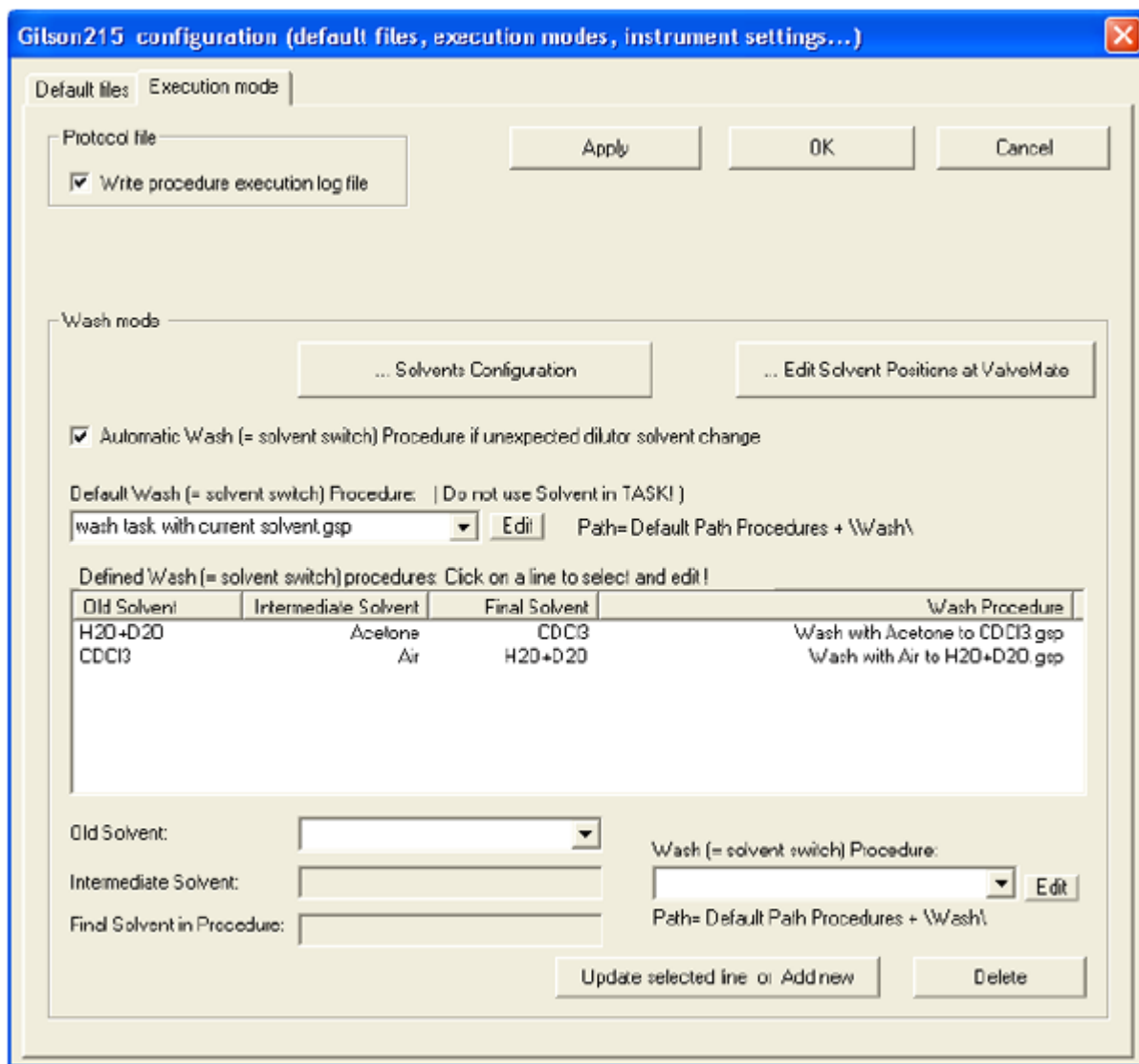


Figure 5.4 Gilson 215 Execution Mode Configuration

5.4 Dilutor Configuration

The Dilutor Configuration dialog box can be used to define:

- The dilutor type (currently only "Type 402" is supported);
- The number of syringes that can be used (currently only one syringe is supported);
- The size and the maximum speed of the syringe;
- A reduced maximum speed of the syringe.

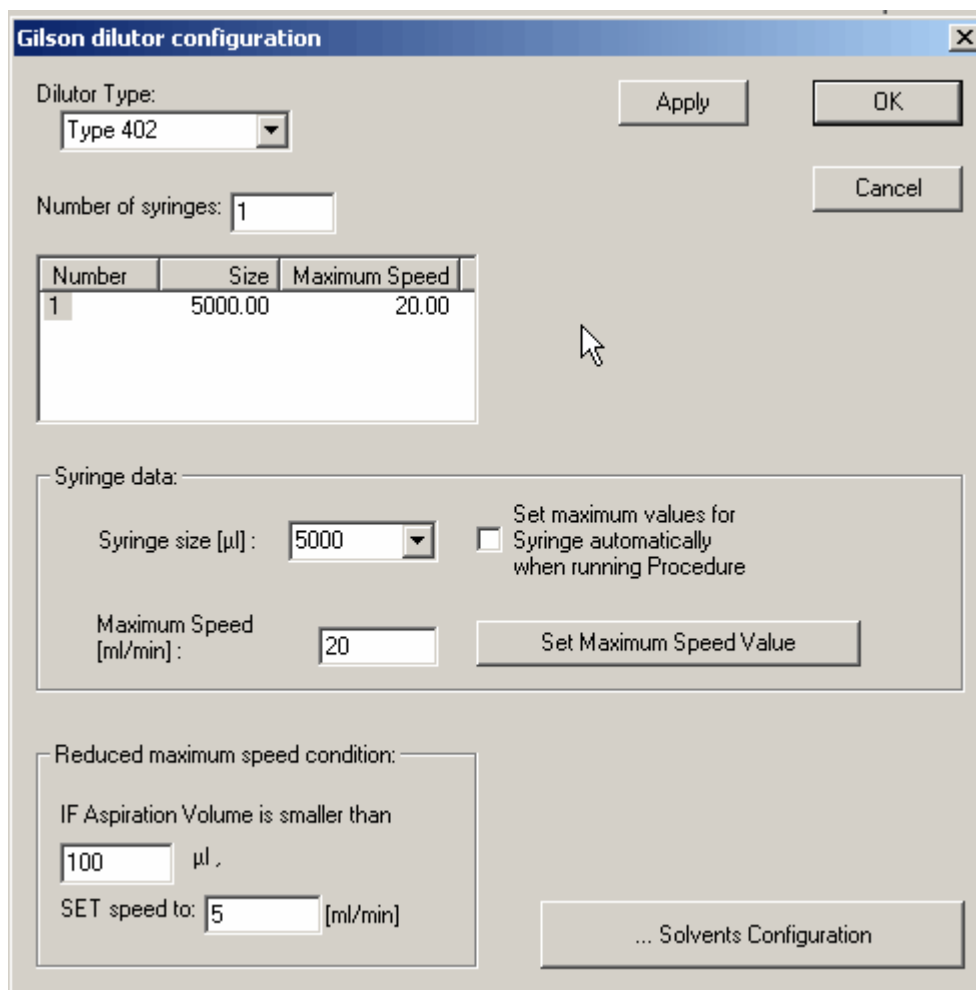


Figure 5.5 The Dilutor Configuration dialog box

The **Solvents Configuration** button can be used to define solvent names in the "[Solvent Names Configuration](#)" dialog box and provides a link to define solvent positions in the ("[Tray File Configuration](#)") dialog box.

5.5 Working Area Configuration

The **Working Area Configuration** allows configuration of the working area. The areas that can be configured depend on the applications that will be used. The working area for applications using SampleTrack are slightly different then those used without SampleTrack.

5.5.1 For Applications with SampleTrack (Profiler)

Four configuration dialog boxes are available for applications with SampleTrack:

- ["Tray File Configuration"](#)
- ["Solvents in Tray Configuration"](#)
- ["Reagent in Tray Configuration"](#)
- ["Ports in Tray Configuration"](#)

5.5.2 For Applications without SampleTrack (Easy, SPETT)

Four configuration dialog boxes are available for applications without SampleTrack:

- ["Tray File Configuration"](#)
- ["Solvents in Tray Configuration"](#)
- ["Reagent in Tray Configuration"](#)
- ["Barcode Zone Configuration"](#)

Each application uses a different predefined default tray configuration file (*.735):

Application **Easy**:default_Easy.735

Application **SPETT**:default_SPETT.735

Application **Profiler**:default_Profiler.735

The current default path can be checked in the Gilson Liquid Handler 215 configuration.

The solvent and reagent information and the tray file name can be saved in the *.cfg file (path written in the tool tip on the configuration name) and the tray information in the tray file *.735 when the **Apply** and **OK** buttons are pressed.

5.5.3 Tray File Configuration

For applications with SampleTrack (Profiler):

- Modification of racks and zones in the tray area are **not** allowed.
- All rack insert and remove operations are done automatically with the barcode reader.

For applications without SampleTrack (Easy, SPETT):

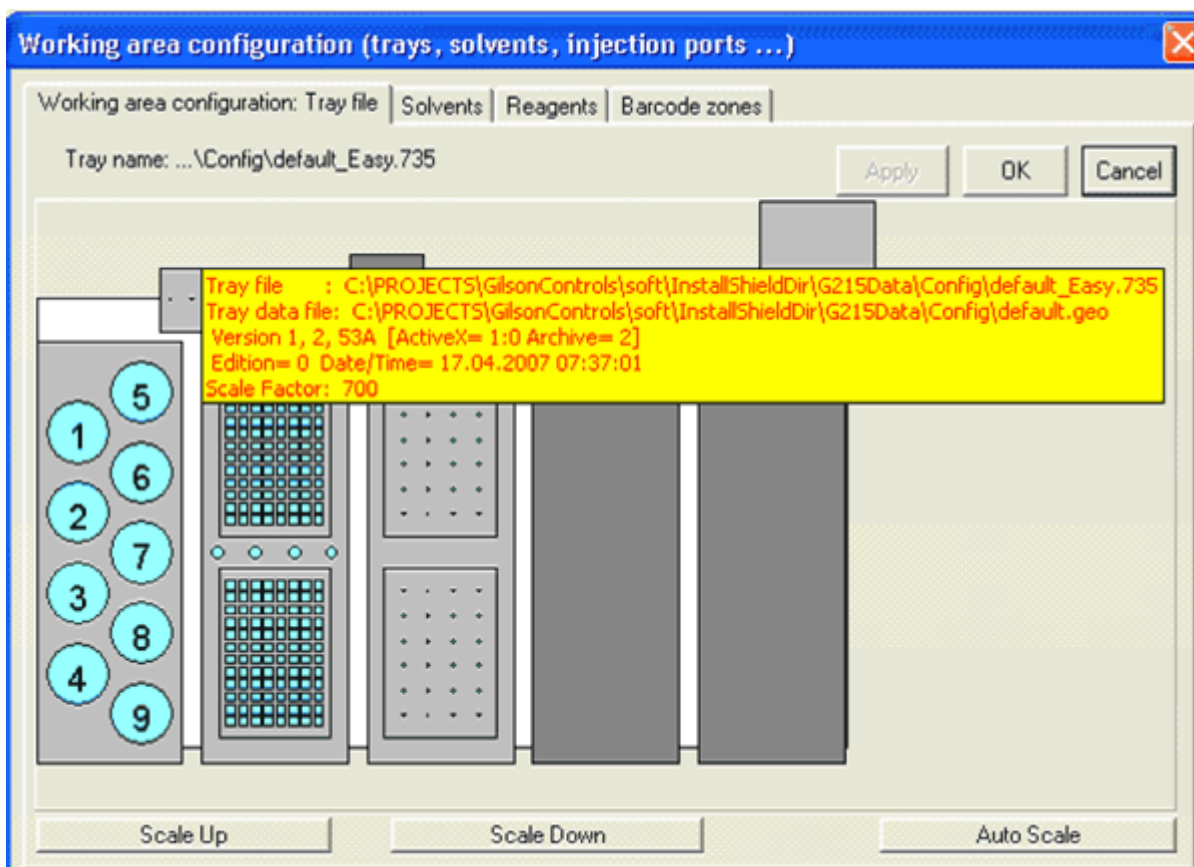


Figure 5.6 The Tray Configuration dialog box for Applications without SampleTrack

Press the **Apply** or **OK** button to save the tray configuration to the *.735 file.

5.5.3.1 Adding Rack Tubes to a Zone

Only tubes assigned to a zone can be used in other configuration dialog boxes or in procedure steps.

1. Insert rack with a zone and tubes for one rack.
 - A very fast way to define a tube when inserting a new rack manually.
 - A new zone is defined after inserting the rack and all tubes of the rack will be added to the zone.
 - See "[Insert Racks with Barcode Simulation](#)" on page 100.

2. Inserting rack tubes with a zone for more than one rack or for a part of one rack.
 - The very flexible tube definition will be performed manually in three steps:
 - Insert a rack into a carrier (shown as a dark gray area, other names „container“ or

„site“.

- Add a new zone (see ["Adding Zones and Tubes to a Zone" on page 102](#)).
- Add tubes to a zone (see ["Adding Zones and Tubes to a Zone" on page 102](#)).

3. Insert racks with a zone and tube using the barcode reader.

- When a barcode reader is installed, tube definition will be done automatically when reading the barcodes of barcode defined racks (see ["Barcode Zone Configuration" on page 58](#)).

New customer racks could be created and modified using the context menu Rack Editor of the tray control (see ["The Rack Editor" on page 67](#)).

5.5.4 Remove Racks from the Tray

- Open the Tray Configuration in the Configuration View.
- Double-click on the gray rack area (not on a tube) or use the context menu **„Remove selected rack“**.
- Confirm the delete operation in the popup message with **„Yes“**.

5.5.5 Solvents in Tray Configuration

Solvent can be defined at all positions in the tray configuration. The position must be a member of a zone (see ["Adding Zones and Tubes to a Zone"](#) on page 102).

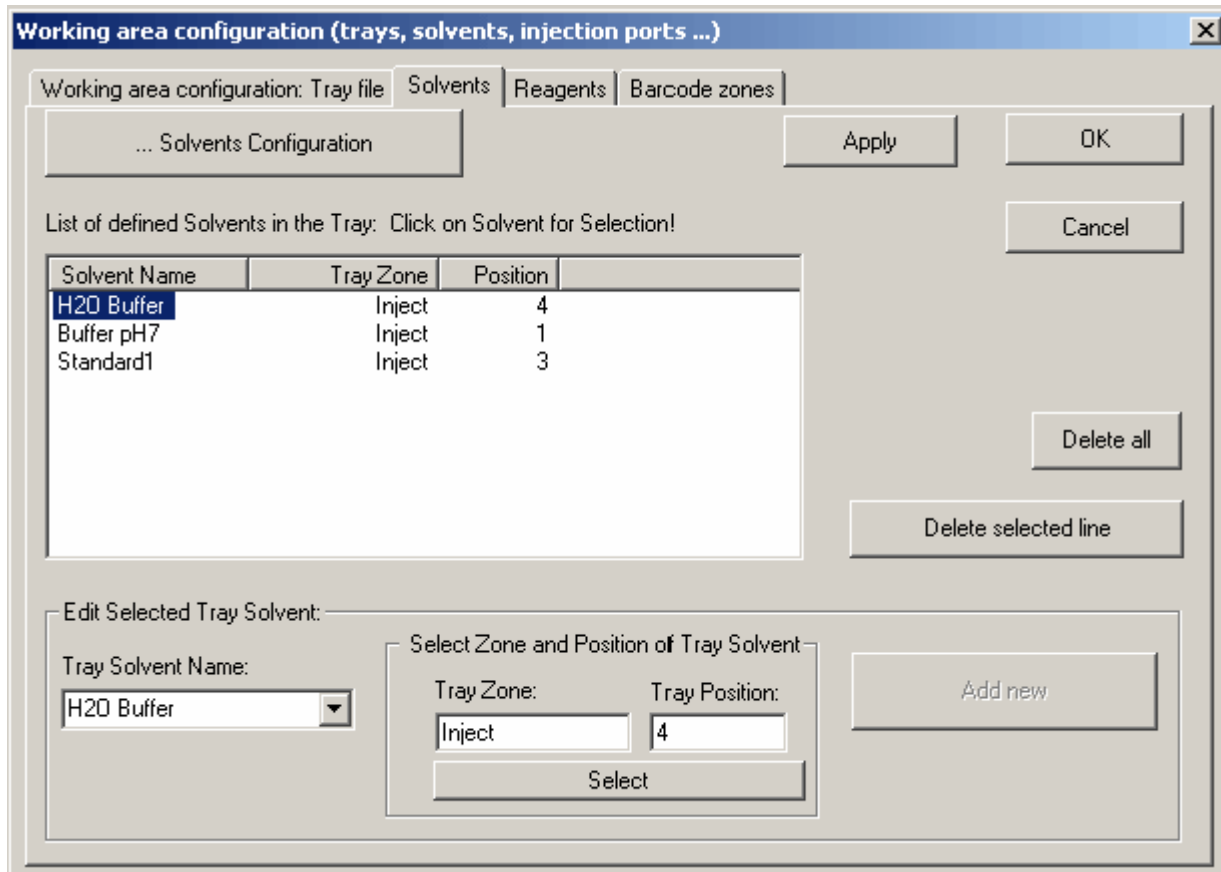


Figure 5.7 The Solvent Configuration dialog box

The **Solvents Configuration** button can be used to define solvent names in the ["Solvent Names Configuration"](#).

5.5.6 Reagent in Tray Configuration

Reagents can be defined at all positions in the tray configuration. The position must be a member of a zone (see ["Adding Zones and Tubes to a Zone"](#) on page 102).

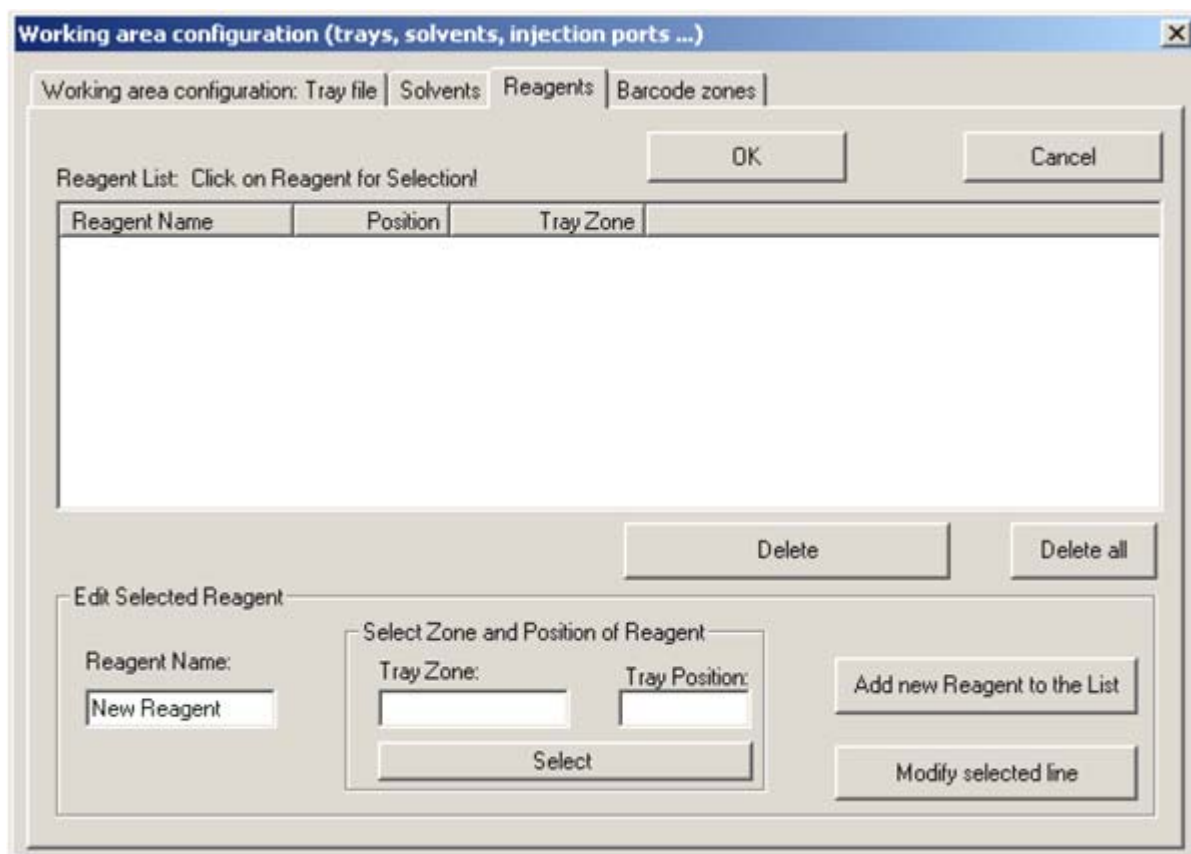


Figure 5.8 The Reagent Configuration dialog box

Reagents can be used in TASK procedures with the type "ADD".

5.5.7 Barcode Zone Configuration

The barcode configuration dialog box can only be used if a barcode reader is installed.

Containers (carriers for racks) can be defined as "barcode defined racks", whereas an automatic barcode reading can be performed here when starting the preparation program.

5.5.7.1 Defining Barcode Defined Racks

- “Double click” on the rack area, or on a dark gray container area, to define it as a “barcode defined rack” (or to undo this definition).

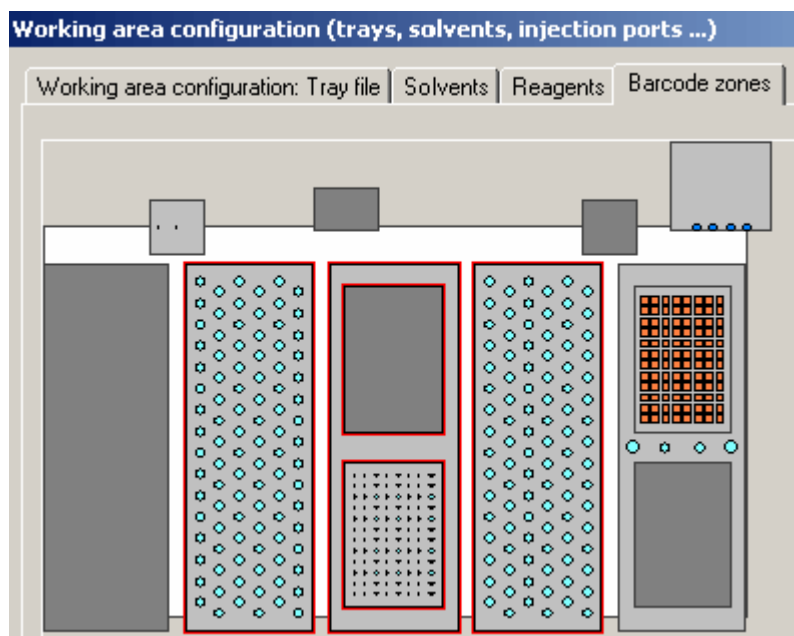


Figure 5.9 The Barcode Zones Configuration dialog box

5.5.7.2 Checking Barcode Rack Information

Open the Tray View and select the “Barcode” view mode to see all “barcode defined racks”:

- A red frame will be displayed if the rack is a “barcode defined rack”
- See Tool tips for details on rack information

When starting the preparation with “Autostart”, two barcodes from each “barcode defined rack” are read automatically:

- If a valid **Type Barcode** and **Barcode ID** are read when executing the program, any older rack will automatically be removed and the new rack inserted.

See also: ["Insert Racks with Barcode Simulation" on page 100.](#)

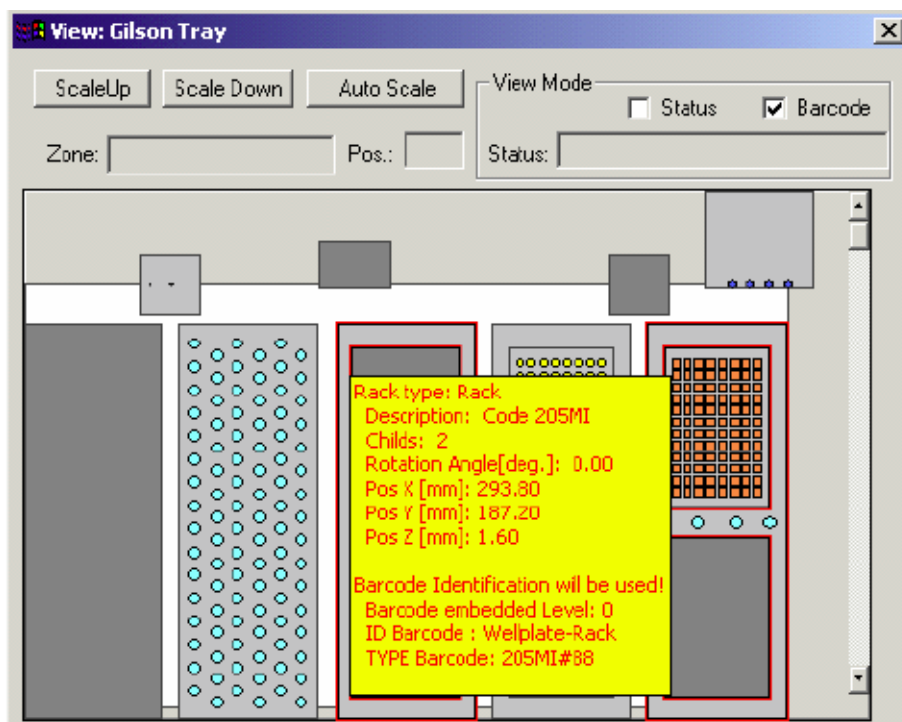


Figure 5.10 Example of a Gilson Tray Configuration

(The example shows a tray configuration file (*.735) with only two “barcode defined racks”)

5.5.8 Ports in Tray Configuration

This configuration dialog box is for use only with applications used **with** SampleTrack (Profiler, SampleTrack)!

Ports with predefined names can be defined in predefined zones (one position only) in the tray configuration. Automatically defined ports include **Injection** and **InjectionMS**.

The **Switch NMR and MS Port** button can be used to switch the right/left position of the valves 819 in the tray.

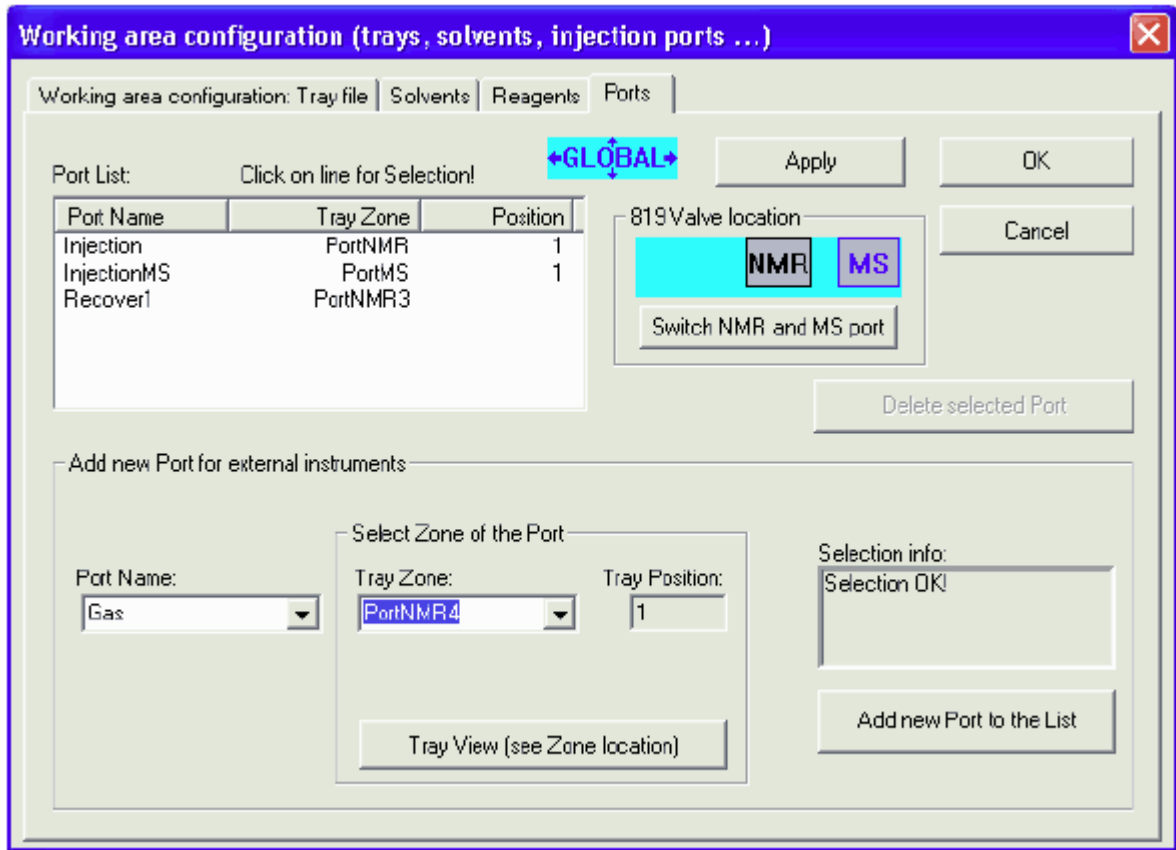


Figure 5.11 Example of a Ports in Tray Configuration

5.6 Z-Tower Configuration

The Z-Tower configuration dialog box allows the following settings to be changed:

- The Z-Tower size can be defined to 125 mm or 175 mm.
- The Z-Tower calibration clamp height can be defined (use the value written on the adjustment tube!).
- The barcode reader mounting position can be defined (old position: X = -49).

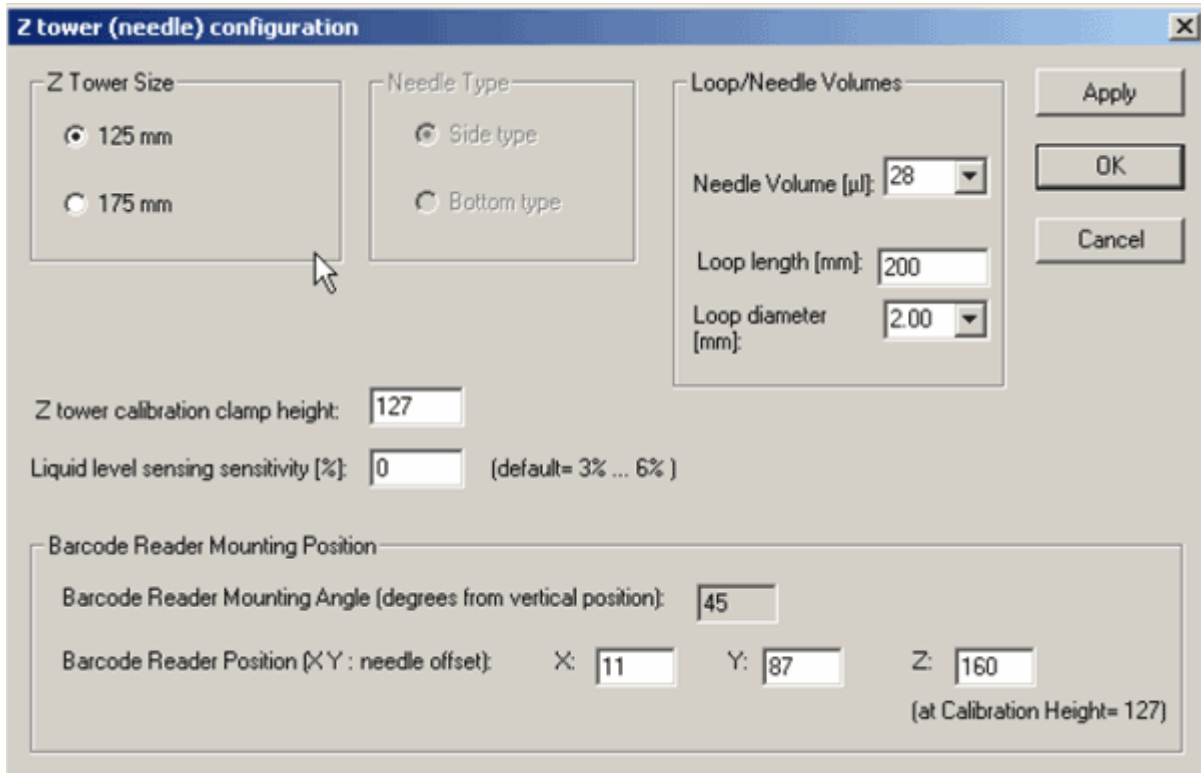


Figure 5.12 The Z-Tower Configuration dialog box

Note: Liquid level sensing is not used!

5.7 Solvent Names Configuration

The Solvent Names Configuration dialog box is used to define the names of the solvents used in experiments.

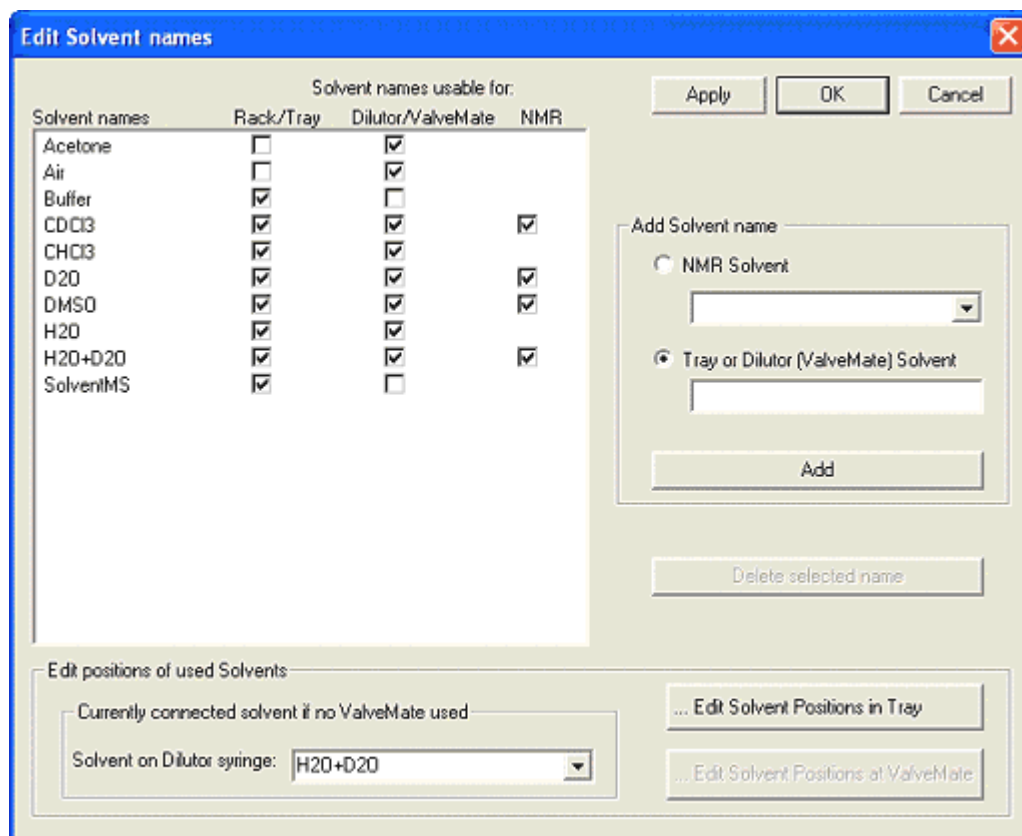


Figure 5.13 The Edit Solvent Names Dialog Box

To insert a solvent name select the name from the NMR Solvent list or enter a tray or dilutor solvent. Press **Add** to add the solvent to the list.

5.8 ValveMate Configuration

In the ValveMate configuration dialog box, solvents can be assigned to the ValveMate positions.

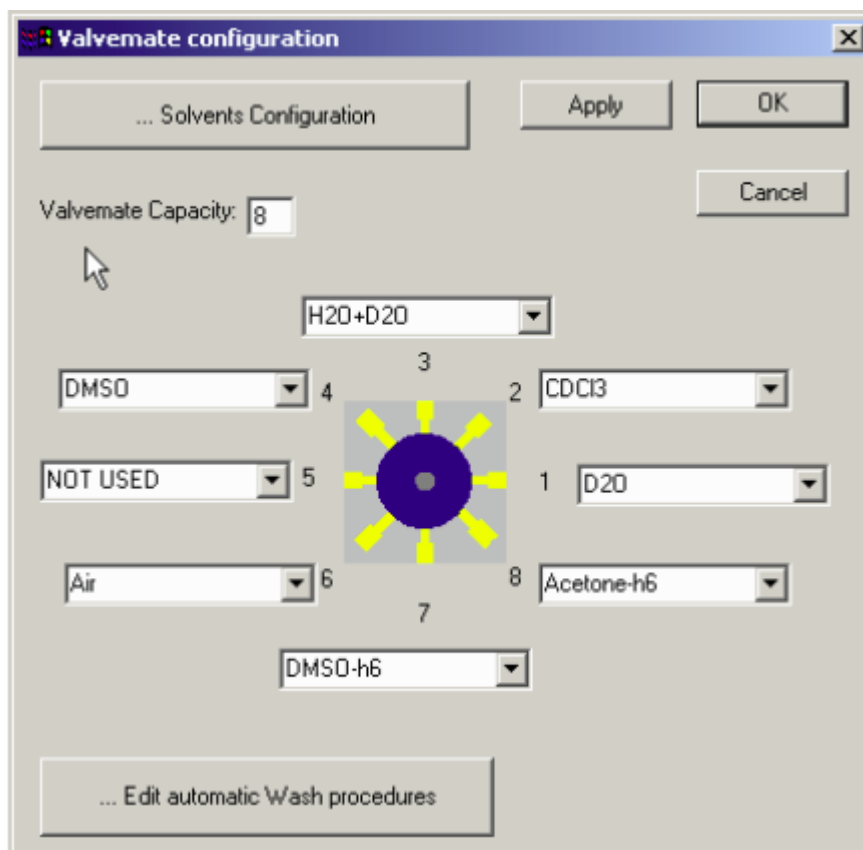


Figure 5.14 The ValveMate Configuration dialog box

The **Solvents Configuration** button can be used to define solvent names in the "[Solvent Names Configuration](#)" dialog box.

The **Edit Automatic Wash Procedures** button can be used to define wash procedures in the "[Execution Mode Configuration](#)".

5.9 Valves & Capillary Configuration

In the Valves & Capillary Configuration dialog box:

- Properties of “Gilson 819” valves can be defined: name, GSIOC ID, default position.
- Properties of additional Bruker valves can be defined: name, Gilson output connector, default position.

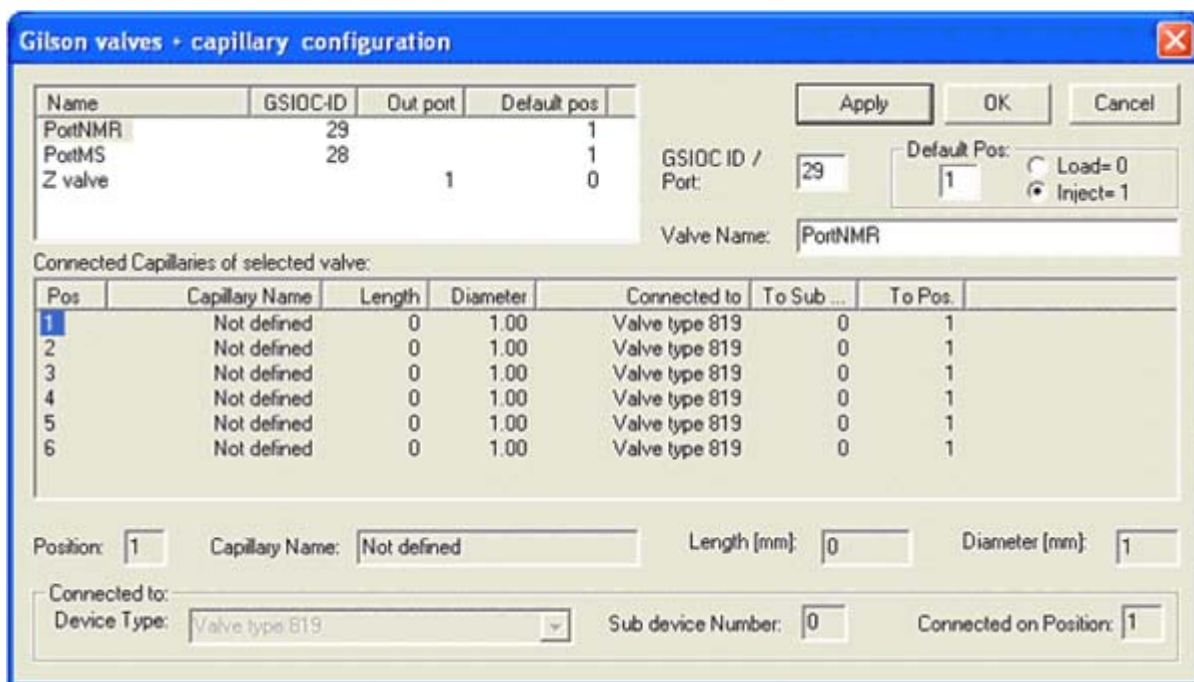


Figure 5.15 The Valves & Capillary Configuration Dialog Box

5.10 Gilson Cover & LED Configuration

The Gilson Cover & LED Configuration dialog box is used to define the reaction after the cover is opened. Specifically:

- The input port of the “cover open switch”.
- The output ports of the Gilson status LED’s.
- The reaction when opening the cover (stop and wait until closed).
- The reaction when closing the cover (reading all barcodes again).

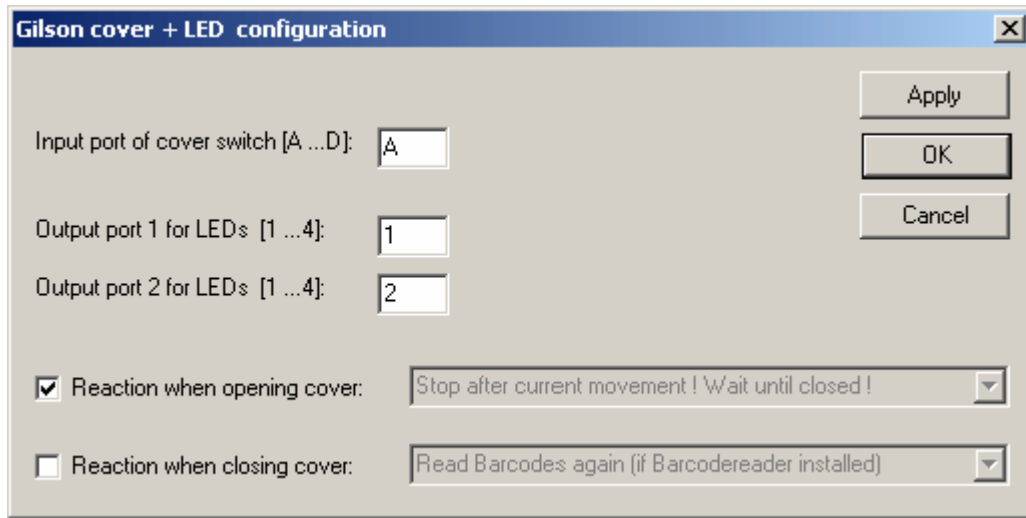
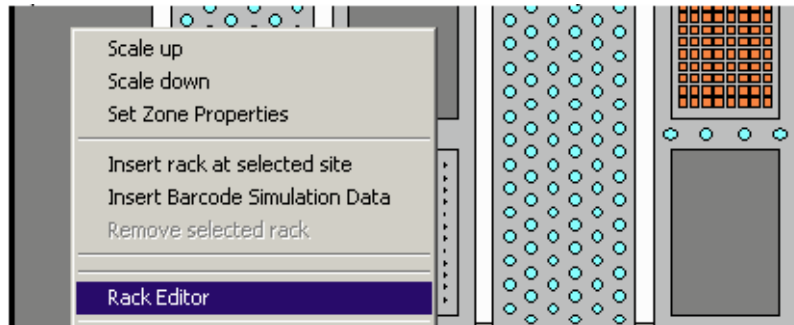


Figure 5.16 The Cover Configuration Window

6 The Rack Editor

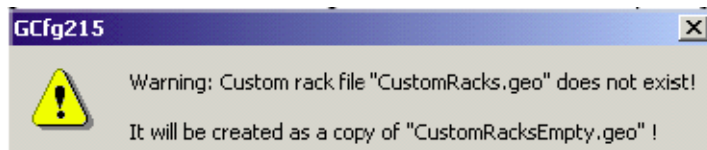
6.1 Opening the Rack Editor

To open the Rack Editor select „Rack Editor“ from the Tray Control in the Tray Configuration dialog box.

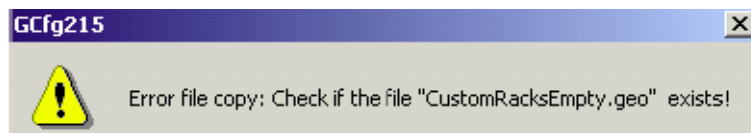


The file “**CustomRacks.geo**” is used for customer defined racks. By a new installation it is not overwritten if it already exists. If it does not exist, it will be created as a copy of the empty rack file “**CustomRacksEmpty.geo**” (delivered with the setup file).

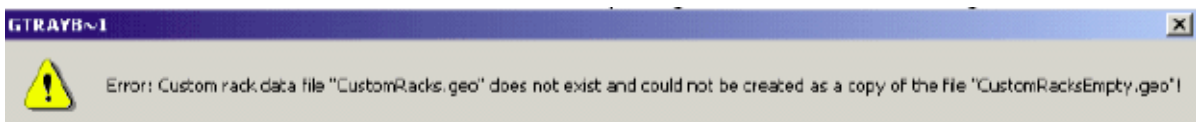
Warning shown when the file “CustomRacks.geo” does not exist when opening the Tray Configuration dialog box:



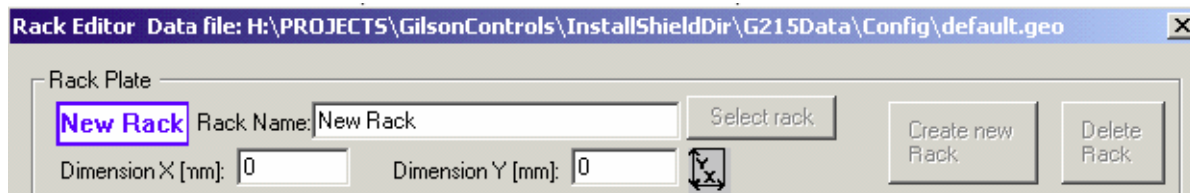
Warning shown when the file “CustomRacks.geo” can not be created:



Error shown if both custom rack files do not exist when opening the „Rack Editor“ dialog box:



Rack Editor without a **carrier** (other names: **container** or **site**) selected:



See also:

1. ["Rack Selection"](#)
2. ["Creating a New Rack"](#)
3. ["Bruker or Custom Racks"](#)
4. ["Modifying Racks"](#)

6.2 Rack Selection

When you click on a rack (that is placed in a carrier) it will show a light blue frame around the selected carrier, and the rack information will be displayed in the Rack Editor.

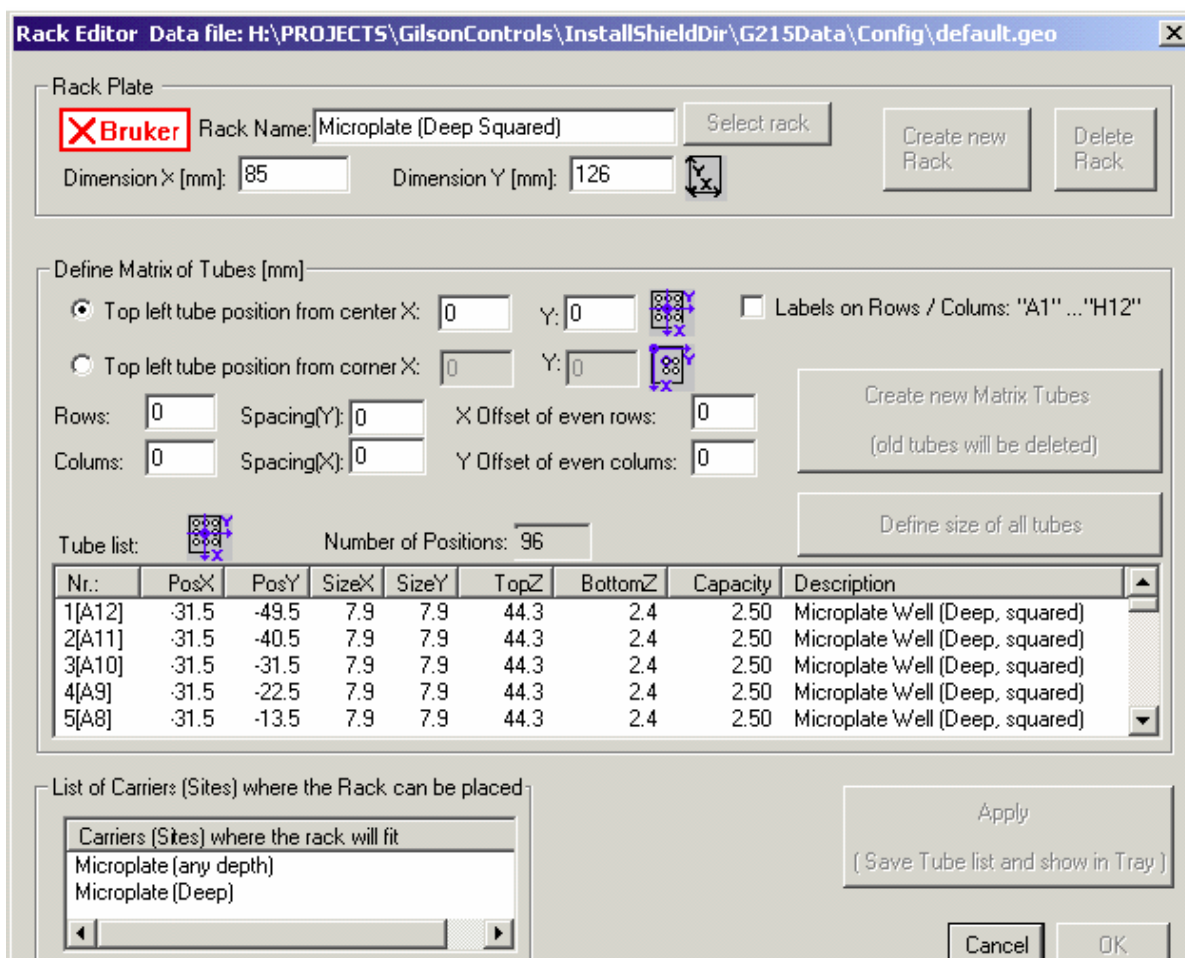


Figure 6.1 Rack Editor with Rack Selected

Old Gilson defined racks do not have values for rows or columns. Only tube values in the tube list can be displayed!

6.2.1 Carrier Selection

When you click on a dark gray carrier area, it will show a light blue frame around the selected carrier and the **Select rack** button will be enabled:

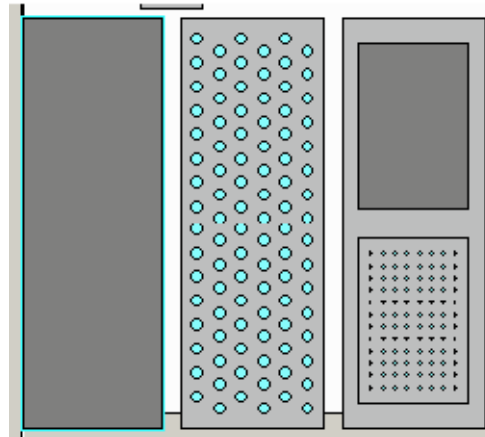


Figure 6.2 Selecting a Carrier

Using the **Select rack** button, a rack can be selected from a list of all racks that can be used for the selected carrier.

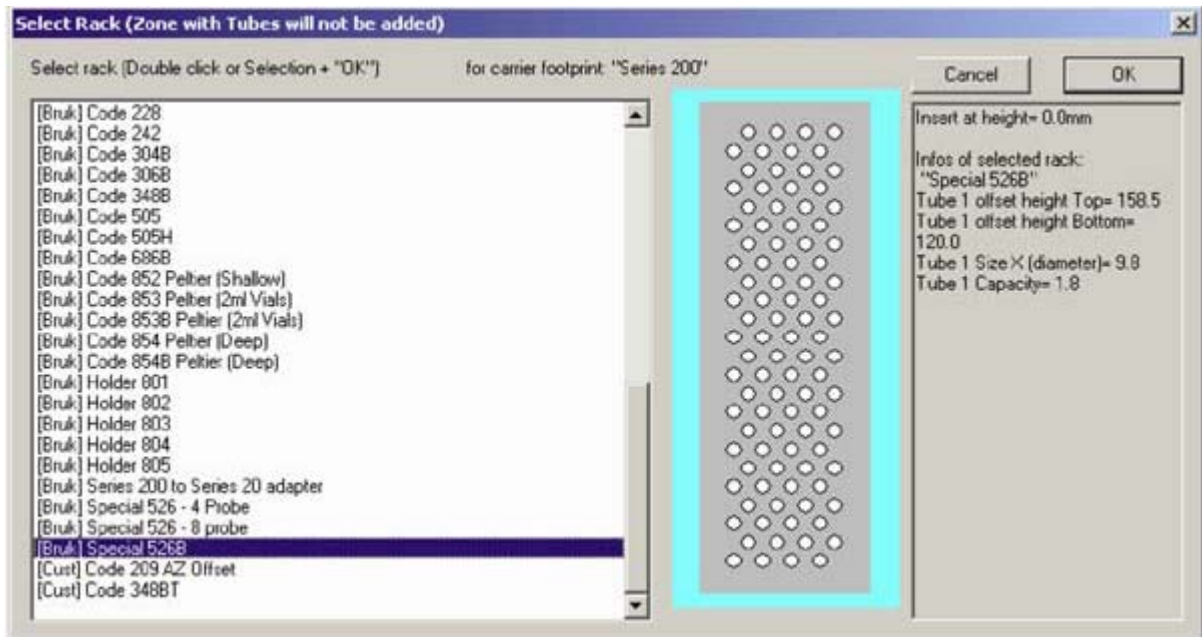


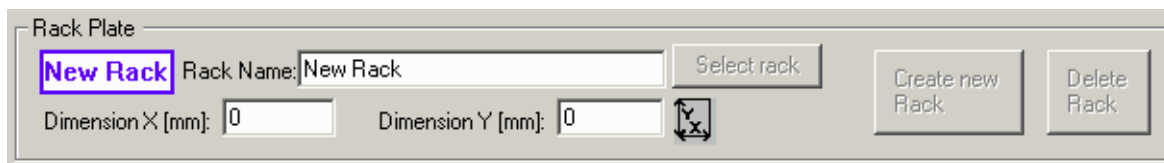
Figure 6.3 Selecting a Rack

“[Bruk]” racks in the selection list are delivered from Bruker with the installation and cannot be modified.

“[Cust]” racks in the selection list (at the end) are customer racks and can be modified.

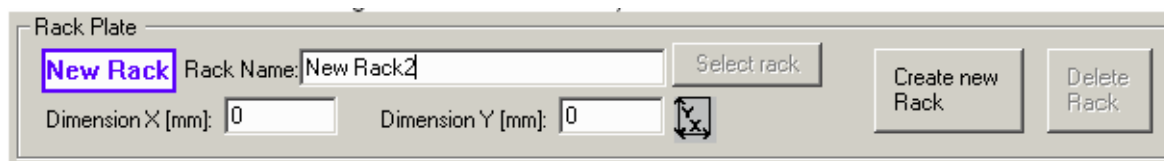
6.3 Creating a New Rack

After opening the Rack Editor the button “**Create new Rack**” is disabled:



Existing rack values can be used by clicking on an existing rack in the tray view! Use existing rack values to add the new rack to the carrier list of an existing rack!

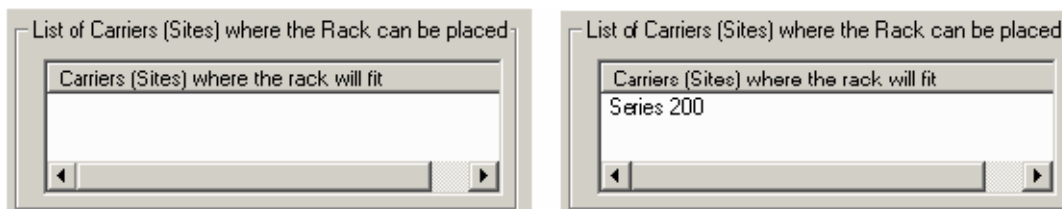
After manually changing the “Rack Name” edit field to a new rack name (not an existing Bruker rack name or custom rack name!) the button “**Create new Rack**” will be enabled.



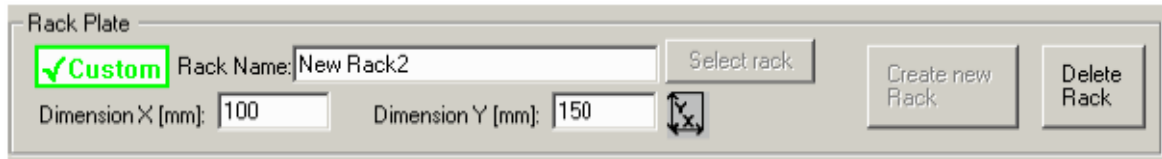
Define the total size of the new rack in the fields “**Dimensions x**” and “**...y**” (the values of an existing rack can be used by clicking on the rack in the tray view before changing the name).

Define the **Carrier** (list), where the new rack can be placed by clicking on an existing rack in the tray view (otherwise the new rack can only be displayed in the current selected carrier after typing the rack name manually)

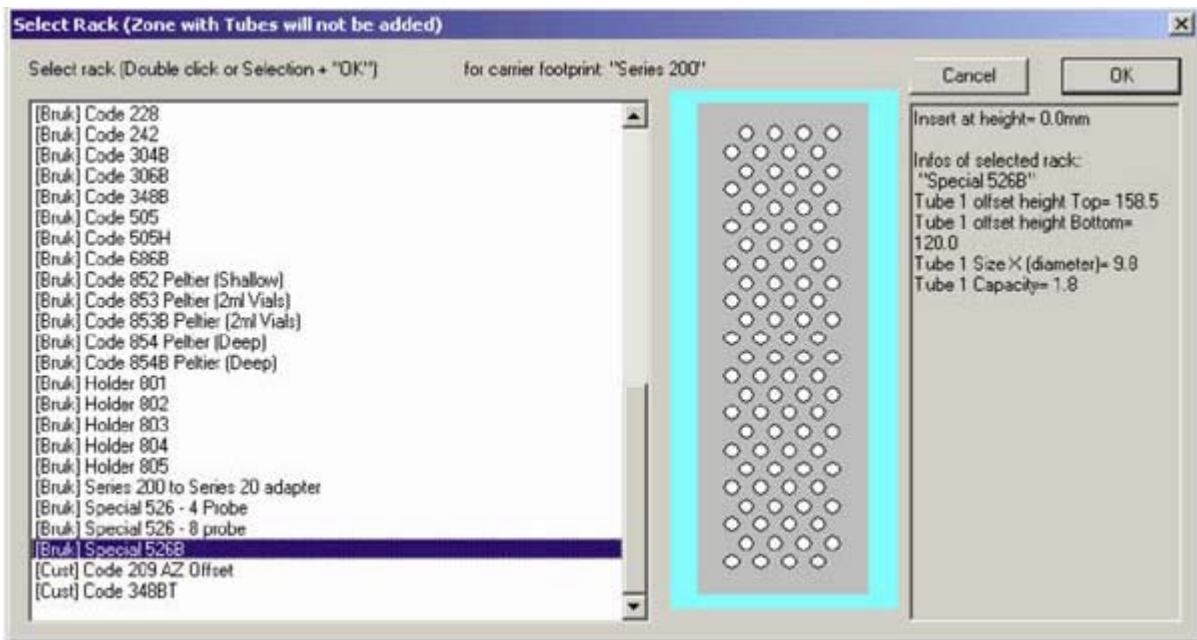
List with no carriers defined (left) - List with carriers defined (right):



The **Create New Rack** button will create the new rack as a “Custom” rack:



When the button is pressed and a carrier is defined for the new rack, the new rack will be added to the bottom of the selection list:



“[Bruk]” racks in the selection list are delivered from Bruker with the installation and cannot be modified.

“[Cust]” racks in the selection list (at the end) are customer racks and can be modified.

6.3.1 Deleting a Rack

A custom rack can be deleted using the **Delete Rack** button. Bruker racks cannot be deleted.

6.4 Bruker or Custom Racks

Racks can be defined as **Bruker** racks or **Custom** racks.

6.4.1 Bruker Racks

- **Bruker** is shown in the upper left corner of the Rack Editor:



- Rack data is delivered from Bruker with the installation and cannot be modified
- Rack data is defined only in the file "default.geo"
- Racks are displayed in the selection list with the prefix: "[Bruk]"

6.4.2 Custom Racks

- **Custom** is shown in the upper left corner of the Rack Editor:



- Rack data is defined by the customer and can be modified and deleted.
- Rack data is defined in the file "default.geo" and in the file "CustomRacks.geo".
- Racks are displayed in the selection list with the prefix: "[Cust]"

6.5 Modifying Racks

First select an existing rack in the Rack Editor (see "[Rack Selection](#)" on page 68).

Note: Only custom racks can be modified!

The Rack Editor can be used to define a Tube Matrix in a rack.


Old Gilson defined racks do not have values for rows or columns. Only tube values in the tube list can be displayed!


The total rack size can be defined in the edit fields "Dimension X" and "Dimension Y":

Dimension X [mm]:	<input type="text" value="110"/>	Dimension Y [mm]:	<input type="text" value="310"/>	
-------------------	----------------------------------	-------------------	----------------------------------	---

The position of the top left tube of the matrix can be defined relative to the center of the rack or relative to the top left corner of the rack.

Define Matrix of Tubes [mm]

Top left tube position from center X: Y: 

Top left tube position from corner X: Y: 

The values of the opposite mode are calculated automatically using the total rack size in the fields "Dimension X" and "Dimension Y".

The number of rows and columns can be defined in the edit fields "Rows" and "Columns".

The space between two rows can be defined in the edit field "Spacing (Y)".

The space between two columns can be defined in the edit field "Spacing (X)".

An additional offset of even rows/columns can be defined in the edit fields "X Offset of even rows" and "Y Offset of even columns".

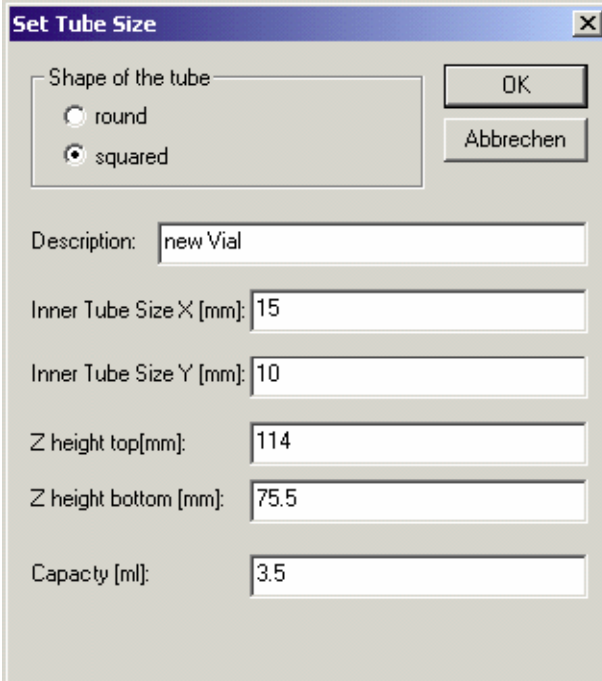
Rows: Spacing(Y): X Offset of even rows:

Columns: Spacing(X): Y Offset of even columns:

The **Create New Matrix Tubes** button will create all matrix tubes and display them in the tube list:

Tube list:		Number of Positions: 6		Define size of all tubes				
Nr.:	PosX	PosY	SizeX	SizeY	TopZ	BottomZ	Capacity	Description
1[]	-25.0	-55.0	40.0	20.0	114.0	75.5	3.50	new Vial
2[]	-25.0	-25.0	40.0	20.0	114.0	75.5	3.50	new Vial
3[]	-25.0	5.0	40.0	20.0	114.0	75.5	3.50	new Vial
4[]	25.0	-55.0	40.0	20.0	114.0	75.5	3.50	new Vial
5[]	25.0	-25.0	40.0	20.0	114.0	75.5	3.50	new Vial

The **Define size of all tubes** button is used to open the “Set Tube Size” dialog box where the matrix tube size can be defined:

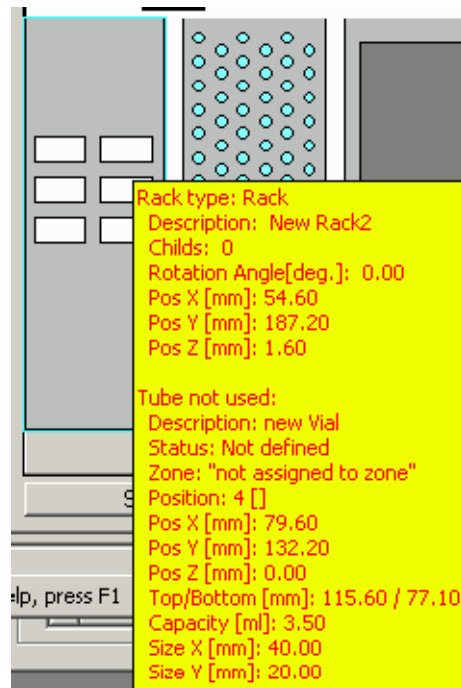


The "Set Tube Size" dialog box is shown with the following fields and values:

- Shape of the tube: round, squared
- Description: new Vial
- Inner Tube Size X [mm]: 15
- Inner Tube Size Y [mm]: 10
- Z height top[mm]: 114
- Z height bottom [mm]: 75.5
- Capacity [ml]: 3.5

The mode **Labels on Rows / Columns:** „A1“ ...“H12“ should be only selected if there is no offset defined for even rows or columns!

Pressing the **Apply** button saves the modified rack data in the files “default.geo” and “CustomRacks.geo” files and displays the data in the selected carrier highlighted with the light blue frame:



The yellow pop-up window displays all the tube values for easy verification!

6.6 Service Tools

The Service Tools are for trained Bruker Service Personnel Only!

7 Preparation Data Files

7.1 Data Directory Structures

Structure:

[Install Folder Data]\G215Data\
 \Config\
 \Config\Restore\
 \Proc\
 \Easy\
 \SPETT\
 \Profiler\
 \Test\for release test files
 \ProcTest\
 \Easy\
 \Profiler\
 \Exec\
 \Exec\Restore\

Obsolete folders:

\1mm\
\SampleTrack\
\Custom\
\BEST\

7.1.1 Main Folder

[Install Folder Data]\G215Data\ (defined when installing the program)

7.1.2 Configuration Files Directory

[Install Folder Data]\G215Data\Config\

1. All data in the current configuration (file extension: ***.cfg**), including the tray file name, e.g. Current_Config_data.cfg.
2. Data in the current tray (file extension: ***.735**), including the tray geometry database file name, e.g.: Current_Tray_Config.735.

3. Data of tray geometry database (file extension: ***.geo**). This file is used when inserting racks (e.g. after barcode reading). e.g.: GRack_data_all.geo.

7.1.3 Preparation Procedure Files Directory

[Install Folder Data]\G215Data\Prep\

Common procedure files used for initial control settings (file extension: ***.gsp** or ***.gfp**).

7.1.4 Temporary Settings Files

[Install Folder Data]\G215Data\Exec\

1. Saved Session file after an error or Menu ["Save Current Protocol \(... log\) Files"](#).
2. Current preparation status file (file extension: ***.sts** - currently not used).

[Install Folder Data]\G215Data\Exec\Restore\

All default setting files (file extension: ***.pgi**) to restore to installation values.

7.1.5 Temporary Protocol Files

[Install Folder Data]\G215Data\Exec\

1. Current main protocol file of the current session (**log_exec.log**).
2. Current protocol file of the running procedure (**log_current.log**).
3. Saved protocol files (saved_log_exec.log and saved_log_current.log) after an error occurs or after saving the file with the menu ["Save Current Protocol \(... log\) Files"](#).

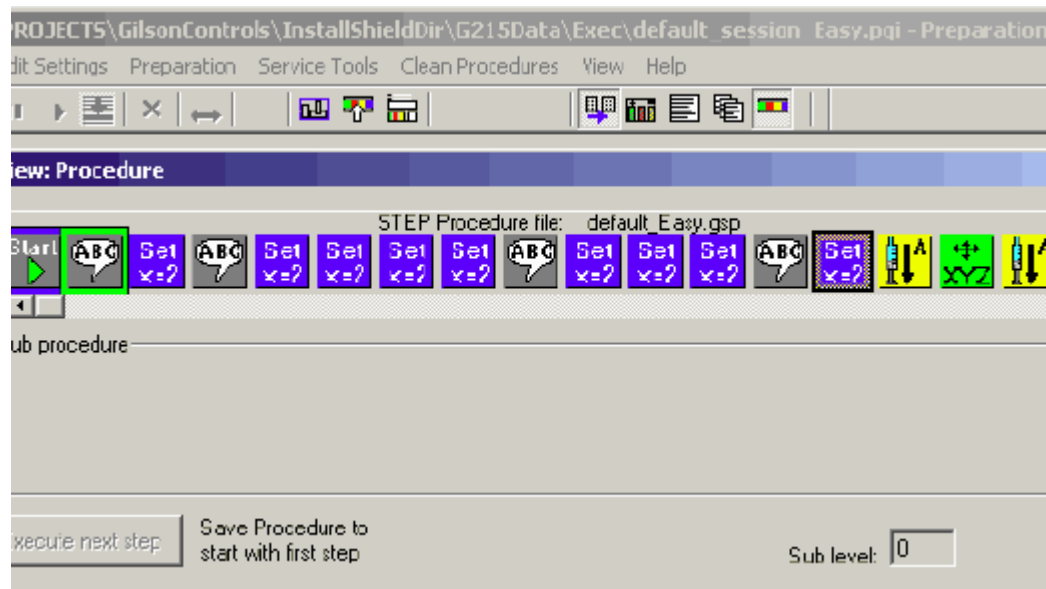
After completion of the SampleTrack order procedure the current protocol file, **[Install Folder Data]\G215Data\Exec\log_current.log**, will be renamed (to the order name) and saved in the SampleTrack order files directory:

[Order Folder]\bstsdata\gilson\out...\protocol\

See also: ["View Current Protocol File" on page 40](#)) and the ["Directory Structure of Order Files" on page 81](#).

7.2 Viewing Preparation Procedure Data Files

Press the Step View button in the Tool bar to display the currently loaded/running master step procedure.



The menu selection Compare Procedures can be used to check/compare any procedure. All steps are displayed in a text file similar to the current protocol file.

To find the file directory see the ["Data Directory Structures" on page 77](#).

7.3 Protocol Files

Current Preparation Protocol File Directory: (see also: ["View Current Protocol File" on page 40](#)).

[Install Folder Data]\G215Data\Exec\

Two protocol files are written automatically:

1. Current main procedure protocol file: log_exec.log
2. Current protocol file of running procedure: log_current.log

After an error or when selecting menu option ["Save Current Protocol \(... log\) Files"](#) a copy of the current protocol files will be performed:

log_current.logto ...\G215Data\Exec\saved_log_current.log

log_exec.logto ...\G215Data\Exec\saved_log_exec.log

After completion of the order procedure the current protocol file, **[Install Folder Data]\G215Data\Exec\log_current.log**, will be renamed (to the order name) and saved in the order files directory:

C:\btsdata\gilson\out...\protocol\

(See the ["Data Directory Structures"](#) on page 77)

Directory of saved protocol files after execution of orders:

[Order Folder]\btsdata\gilson\out\protocol\ - (when running with SampleTrack)

[Order Folder]\btsdata\gilson\out_no_ST\protocol\ - (when running without Sample-Track -

e.g. BAY000100 NMR 31.log

(See the ["Directory Structure of Order Files"](#) on page 81).

8 Order Files

8.1 Directory Structure of Order Files

Note: To allow access to old order information, old files will not be automatically deleted!

The user should delete all old orders in the subdirectories listed below by using:

The menu option „Service Tools“ + the button:



Delete all orders and protocols in ST folders

Note: „order files“ in the JCAMP format will be used when working **without** SampleTrack

Note: „order files“ in the JCAMP format will be used when working **with** SampleTrack using the old file system (1 mm applications)!

Note: „order files“ in the XML format will be used when working **with** SampleTrack via a **SOAP** server (Profiler and SampleTrack applications)!

Directory Structure for Order Files:

[Order Folder]\bstdata\gilson\

\in\

\in\exec\

\in\save\

\in\error\

\out\

\out\save\

\out\error\

\out\protocol\

\in_no_ST\

\out_no_ST\

8.1.1 Main Directory

[Order Folder]\bstdata\gilson\ (defined by SampleTrack)

8.1.2 Input Order Files Directory

[Order Folder]\bstdata\gilson\in\ (when running with SampleTrack).

[Order Folder]\bstdata\gilson\in_no_ST\ (when running without SampleTrack).

Contains all order files (file extension: *.p) to carry out.

After pressing OK, the files will be moved into the directory `\in...\exec\`.

After verifying an error the files will be moved into the directory `\in...\error\`.

After execution of the order, the files will be moved into the directory `\in...\save\`.

8.1.3 Output Order Files Directory

This results after execution.

`[Order Folder]\btsdata\gilson\out\` (when running with SampleTrack).

`[Order Folder]\btsdata\gilson\out_no_ST\` (when running without SampleTrack).

Contains all order files with results after execution (file extension:*.r).

After result handling by the SampleTrack Communicator, the files will be moved into the directory `\out\save\` if status OK, or into the directory `\out\error\` if an error occurs.

8.1.4 Order Protocol Files Directory

Results after running the order procedure.

`[Order Folder]\btsdata\gilson\out\protocol\` (when running with SampleTrack).

`[Order Folder]\btsdata\gilson\out_no_ST\protocol\` (when running without SampleTrack).

After completion of the SampleTrack Order procedure, the current protocol file **[Install Folder Data]\G215Data\Exec\log_current.log** will be renamed (to the order name) and saved in the SampleTrack order files directory:

`[Order Folder]\btsdata\gilson\out...\protocol\`

(See also "[Data Directory Structures](#)" on page 77).

8.2 Viewing Order Files

To see the JCAMP SampleTrack order files:

1. Right-click on the order in the order list and select **Show input order file** to display the order information.
2. Right-click on the order in the order list and select **Show output report file** to see the report information.

To see the protocol files: Double-click on the order in the order list!

To find the file directory refer to "[Directory Structure of Order Files](#)" on page 81.

9 Solvents

9.1 Defining Solvents for Preparation

To edit the solvents names used for preparation, open the "[Solvent Names Configuration](#)", whereas:

- All defined external NMR solvents can be used.
- Additional solvents can only be defined for the preparation.

To define the solvent positions in the Gilson tray area for preparation, open the configuration dialog box (see "[Solvents in Tray Configuration](#)" on page 57) and click on the place where you want to use the solvent:

To define the solvent positions at the Gilson ValveMate open the "[ValveMate Configuration](#)".

9.2 Defining External NMR Solvents

The external NMR solvents are used inside the "[Solvent Names Configuration](#)", which is a dialog box used to define the preparation solvents used.

For **Profiler applications** the external NMR solvents are delivered by the Web Services server directly.

For other applications:

- The external NMR solvents are defined inside a text file (e.g. solvents.txt).
- The name of this text file can be defined in the configuration dialog box (see "[Default Files Configuration](#)" on page 50) or by clicking on the Gilson liquid handler 215 (default files,...) to open the configuration Gilson 215 dialog box.

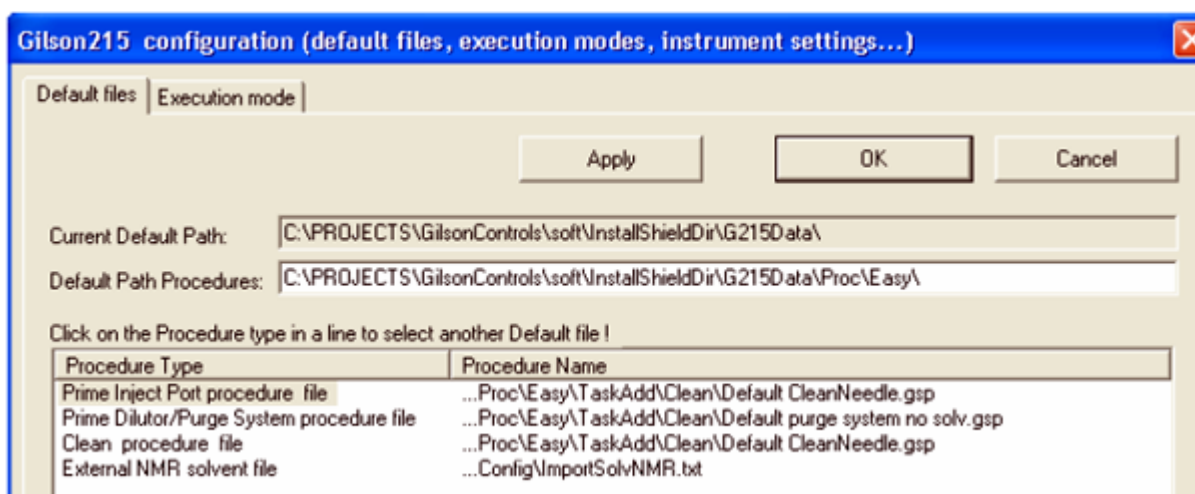


Figure 9.1 External NMR Solvent Configuration

In the property sheet **Default Files**, the default file name and directory of the type External NMR solvent file can be changed to define the ambient solvent file used.

To view or edit the configuration see "[Open Configuration View](#)" on page 47.

10 Edit Procedures

10.1 Modifying TASK Procedures

If the source TASK procedure is selected in the registry, then you must:

1. Modify the procedure in the menu "Service tools" -> "[Modify Procedure](#)" or using the Tool bar button. Select another TASK procedure if there is no correct TASK procedure in the Registry entry.
2. Export the procedures and display them in the SampleTrack selection box using the menu "Service tools" -> "[Initialize Pump](#)"

10.2 TASK Procedures

TASK procedures are special procedures with a customer dialog box for each different type, used to easily change procedure parameters.

10.2.1 Common TASK dialog box Elements

In the top of the dialog box the name of the procedure and the **Custom** (green) or **Bruker** (red) type is shown:



(see "[Bruker or Custom Racks](#)" on page 72)

With the '...' button another TASK procedure of the same type can be loaded.

TASK procedures can be saved using the '**Save As**' button (for all procedures) or using the '**Save**' button (for CUSTOM procedures only). Names of existing Bruker procedures can not be used!

The '**Cancel**' button can be used to close the dialog box without saving modifications.

10.3 Types of TASK Procedures

1. Common TASK procedures:
 - "Task Procedure Wash"
 - "Task Procedure Clean"
 - "Task Procedure Add"
 - "Task Procedure Dispense"
 - "Task Procedure Mix"
2. Application specific TASK procedures:
 - "Task Procedure 1MM Samples (not supported)"

10.3.1 Task Procedure Wash

Wash tasks are only used to perform an automatic wash procedure for a different Valve-Mate solvent if this option is selected in the execution mode configuration (see "[Execution Mode Configuration](#)" on page 51).

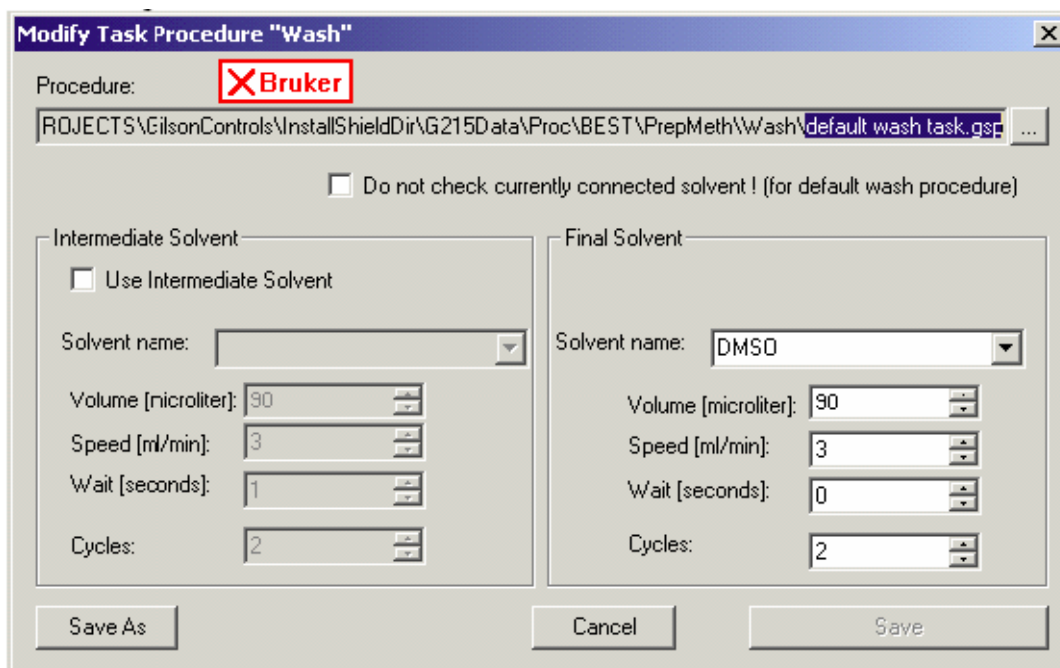


Figure 10.1 Editor Dialog Box of a Wash TASK

Optionally an intermediate solvent can be used.

If the Wash TASK will be used as the default wash procedure in the configuration, the

following check box must be selected:

Do not check currently connected solvent ! (for default wash procedure)

The default wash procedure can be selected in the configuration dialog box:

Automatic Wash Procedure if unexpected dilutor solvent change

Default Wash Procedure: (Do not use Solvent in TASK!)

wash task no list entry.gsp Path= Default Path Procedures + \Wash\[user\]

10.3.2 Task Procedure Clean

Clean tasks can be defined as sub-procedures in each line of an **Add Task!**

Figure 10.2 The Modify Task Procedure Clean dialog box

Clean tasks can be started using the menu without adding a task. To edit or to run clean procedures: see ["Clean Procedures Menu Commands" on page 34](#).

10.3.2.1 Automatic Cleaning

The clean procedure name is defined in the default files configuration (see ["Clean Procedures Menu Commands" on page 34](#)).

Select the appropriate options in the Settings dialog box (see ["Edit Settings Menu" on page 22](#)) to run this procedure. Automatic cleaning can be performed before the beginning of the order procedure loop, and/or after the last order.

 This feature works only when starting with AutoStart button (shown at left)!

10.3.3 Task Procedure Add

An **Add** task is a flexible procedure that is designed to be modified by the user. All lines in the Add Task procedure list are executed from the top of the list to the bottom.

In the Add Task the user can modify a selected line (after selecting a line by clicking in the left column of the list) or add additional lines or delete lines.

In each line of an Add Task other tasks of the type can be defined and modified with the **Edit** button:

- Task Dispense
- Task Mix
- Task Clean

At execution time they will be performed after the execution of the line. In each line of an Add Task modifications must be updated in the list with the button!

The procedure list will be saved with the buttons **Save As** or **Save**.

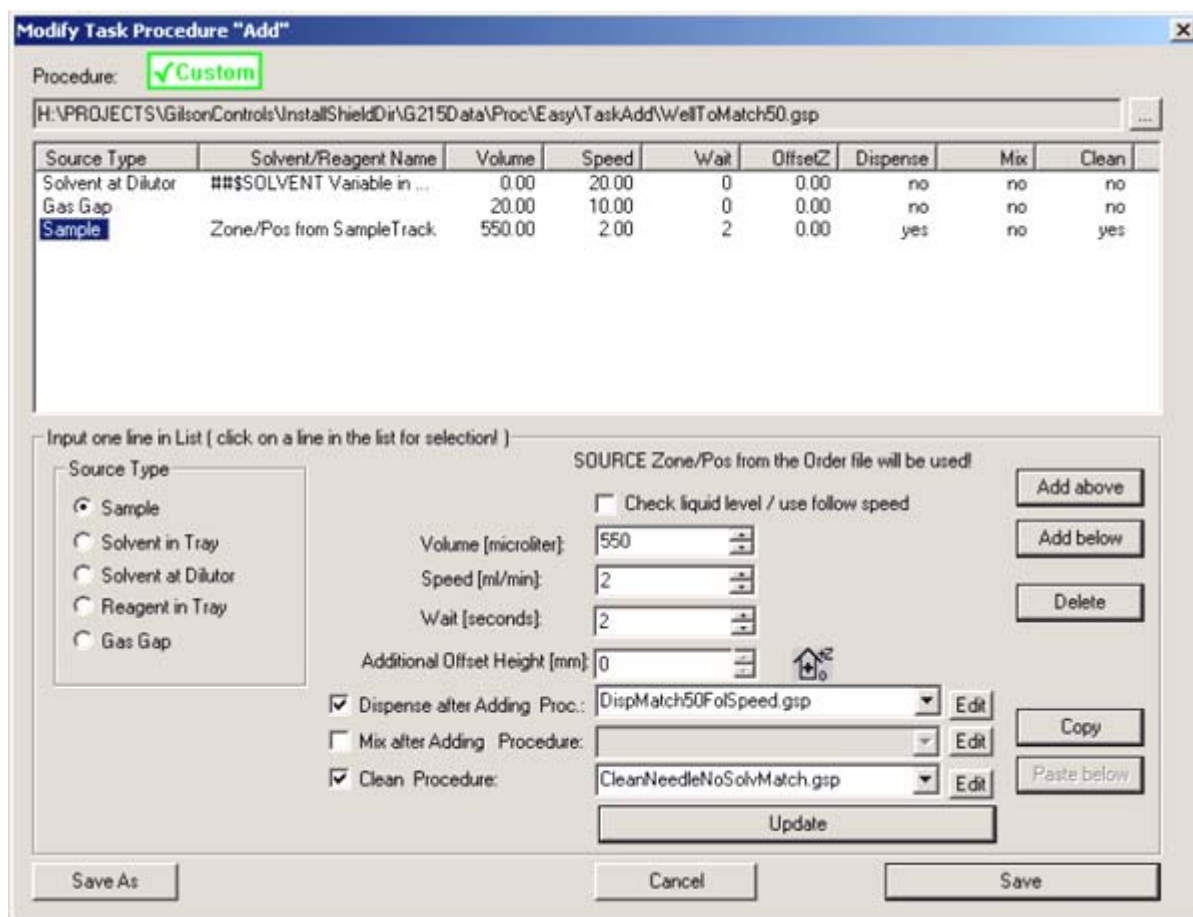


Figure 10.3 Modify Task Procedure ADD

10.3.4 Task Procedure Dispense

Dispense tasks can be defined as sub-procedures in each line of an Add Task.

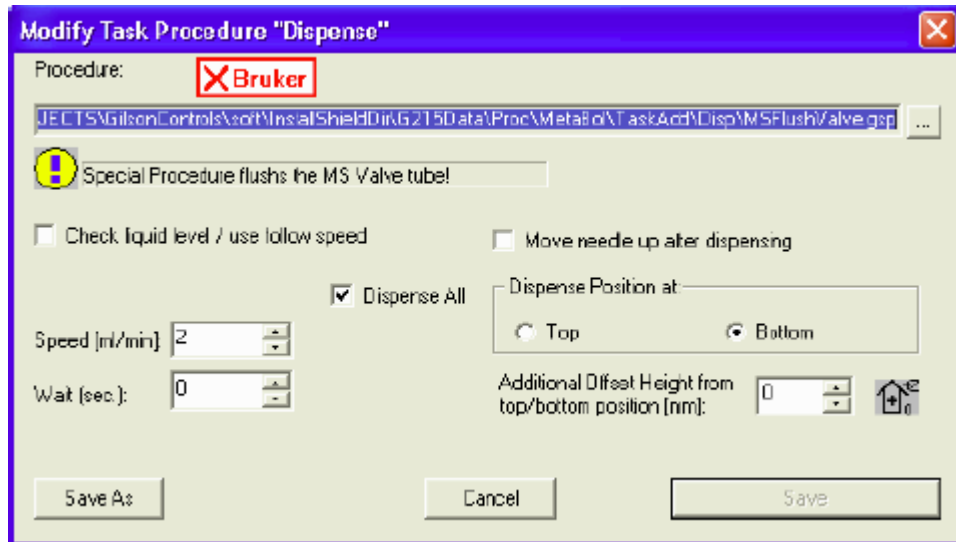


Figure 10.4 Modify Task Procedure Dispense

10.3.5 Task Procedure Mix

Mix tasks can be defined as sub-procedures in each line of an Add Task, but only after a

Dispense Task in the list.

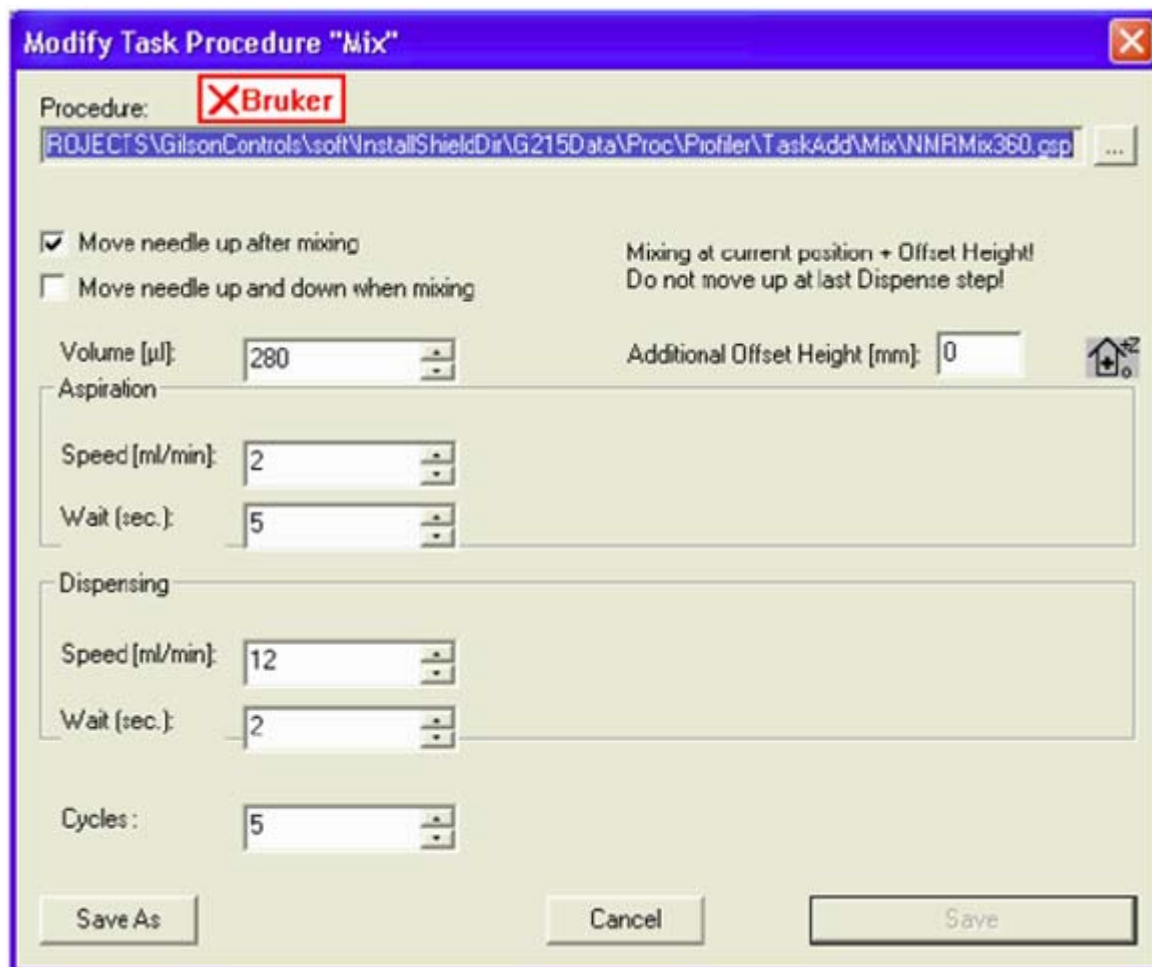


Figure 10.5 Modify Task Procedure Mix

10.3.6 Task Procedure 1MM Samples (not supported)

Note: The „1MM” Application will not be supported from version 1.3 and it is recommended that you use the "Task Procedure Add" of the „Easy” application in most circumstances!

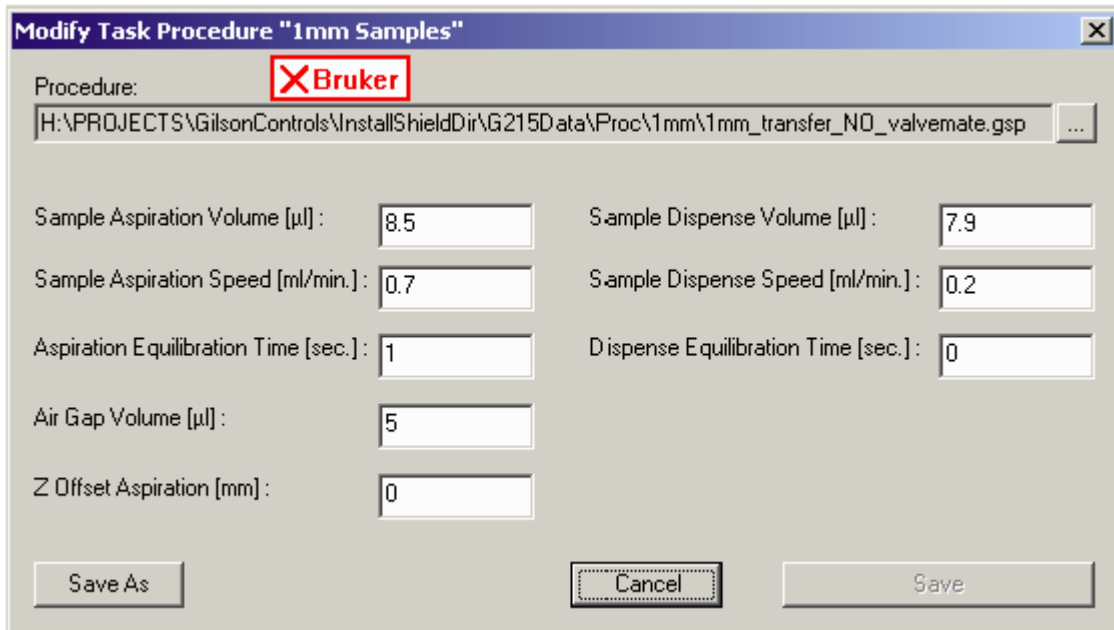


Figure 10.6 Modify 1mm Samples Task

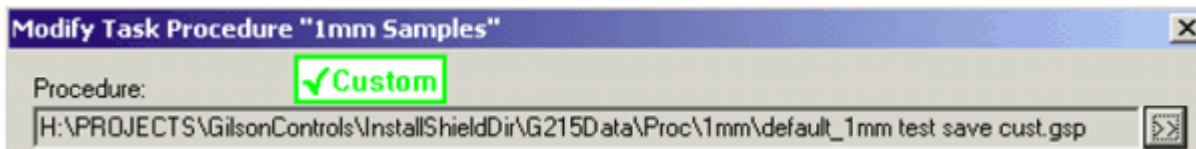
10.4 Modifying the Procedure Dialog Box

This dialog box is called from the Modify Procedure option in the View menu (see ["View Menu Commands" on page 36](#)). When selected this option shows or hides a Procedure View in the main window, which is used to modify Task procedures at a high edit level for customers.

The last selected TASK procedure is written in the registry (entry: ProcedureLastTask)

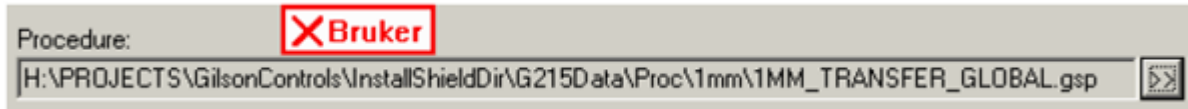
Modification:

- "Custom" procedures have a green „Custom“ identification at the top of the dialog box and can be modified:

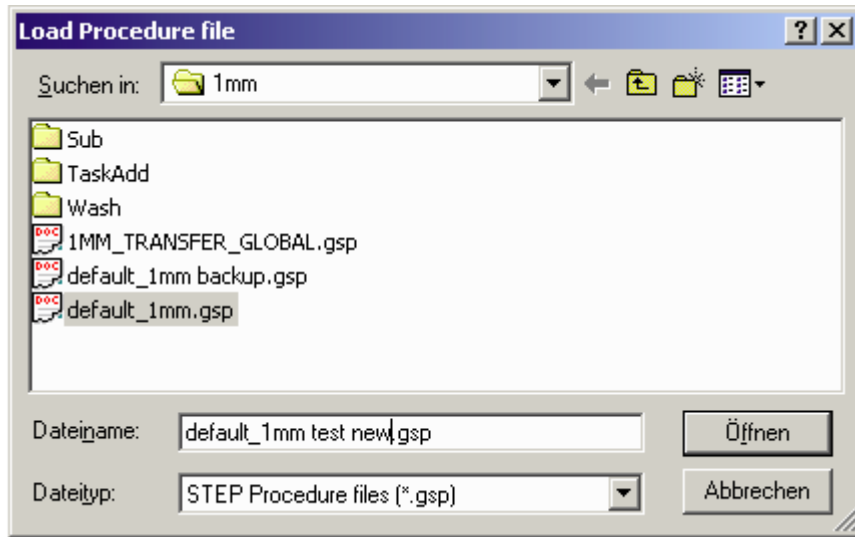


- "Bruker" procedures are delivered from Bruker with the installation, have a red „Bruker“ identification and can NOT be modified.

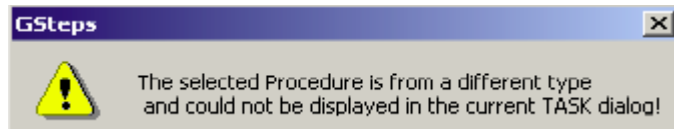
Edit Procedures



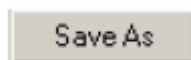
With the button on the right, which is found on the right side of the current procedure, another TASK procedure of the same type can be selected:



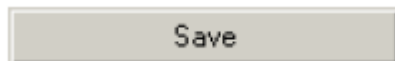
- If there was a TASK procedure of a different type selected the following message box appears:



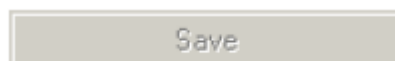
All procedures can be saved as a file with another name with the button:



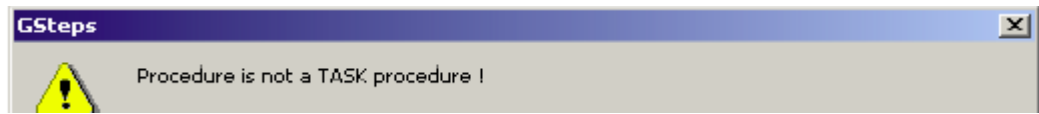
But only „Custom“- procedures can be saved in the current file with the button:



For „Bruker“ procedures the following button is not active:



If the current procedure in the Registry is not a TASK procedure the following message box appears:



11 Test/Service Tips

11.1 Service Information

1. Default Speed Z Axis

- Can be defined in the registry:

Software > Bruker Biospin > Gilson Control > GExecCtrl > Z Speed

- Values 1...5 (default= 4)

How To...

A

A.1 Introduction

The following tasks are discussed in the appendix:

["Define Application Type"](#)

["Create Orders"](#)

["Modify Task Procedures"](#)

["Insert Racks"](#)

["Insert Racks with Barcode Simulation"](#)

["Adding Zones and Tubes to a Zone"](#)

["Define Sort Orders"](#)

A.2 Define Application Type

When starting the program the first time after installation the default procedure selection dialog box appears, allowing you to define the type of procedure and config settings in the registry.

Types of applications: (5 different types of applications can be selected)

- Easy Preparation (working only without SampleTrack)
- SPE Tube Transfer (working only without SampleTrack)
- Profiler Preparation (working only without SampleTrack)
-

After performing an initialization using menu "**Service tools**" -> **Initialize Pump**, all procedures in the export directory (defined in the "[Edit Settings Menu](#)") will be exported to enable a selection of these procedures in the Create Orders dialog box (without SampleTrack) or in the selection box of SampleTrack.

A.3 Create Orders

The Create Orders dialog box is used to create test order files if SampleTrack is not selected in the Edit Setting dialog box (see "[Edit Settings Menu](#)" on page 22).



The Tool bar button shown to the left is used to open the Create Test Order Files dialog box. If SampleTrack is selected in the Edit Settings dialog box, then the button will be shadowed and unavailable.

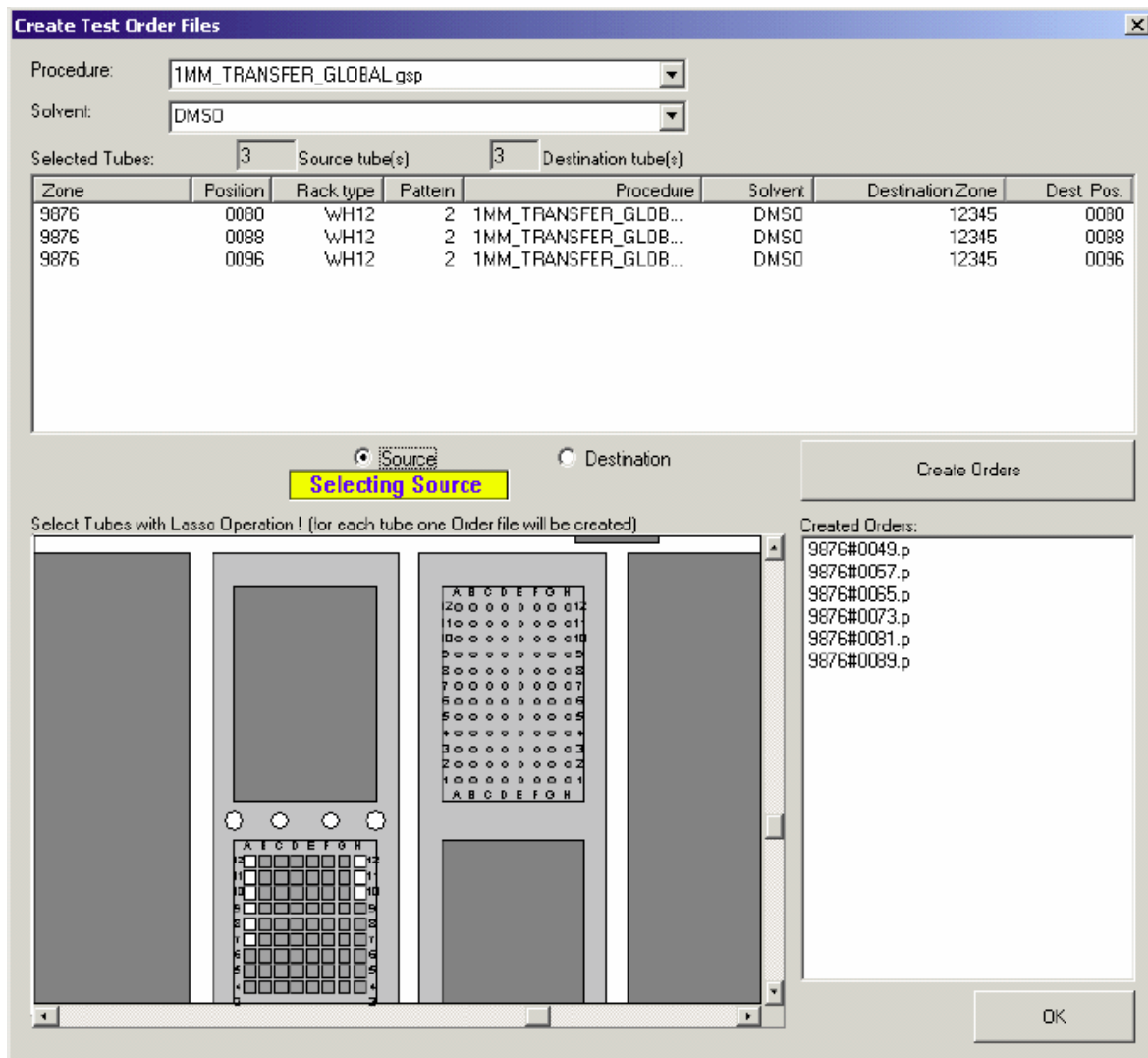


Figure A.1 Create Test Order Files

Variants for different settings:

["Insert Racks with Barcode Simulation"](#)

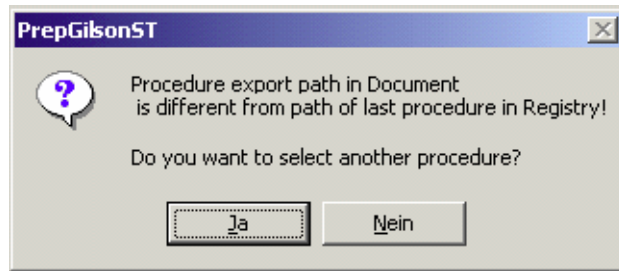
A.4 Modify Task Procedures

To modify a task procedure:

1. Open the modification dialog box with the menu "Service tools" -> Modify Procedure (see ["Modifying the Procedure Dialog Box" on page 91](#)) or Tool bar button.

If the procedure export path is not correct, (e.g. another application was running) a

message box will appear:



In this case select another TASK procedure in the current application folder.

2. Export procedures with the menu "Service tools" -> Initialize Pump (see ["Initialize Pump" on page 29](#)).

Exported procedures will be displayed it in the selection box of SampleTrack or in the „Create Orders Dialog Box“ (without SampleTrack).

A.5 Insert Racks

For applications with SampleTrack (Profiler, SampleTrack):

- Modifications of racks and zones in the ray area are not allowed!
- All rack insert and remove operations will be done automatically with the barcode reader!

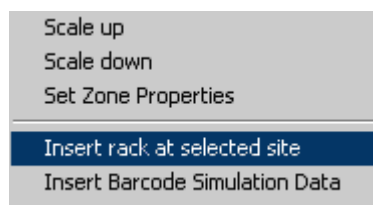
In this step only the rack will be inserted. A zone will not be created and tubes will not be added to a zone! Use this method to define a zone for more than one rack or for a part of one rack.

To insert racks with a new zone and to add rack tubes to a zone see ["Insert Racks with Barcode Simulation" on page 100](#).

A.5.1 Inserting a New Rack

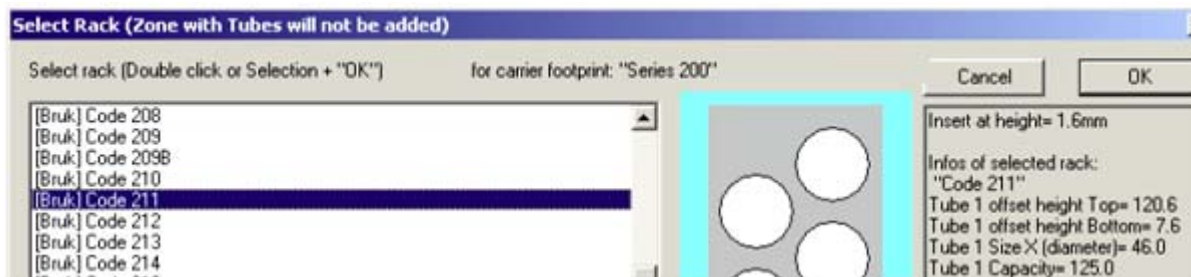
Open the tray configuration in the configuration view.

With the mouse right-click on an empty (gray) container area (= site), which will open the following context menu:



Select „**Insert rack at selected site**“.

This will open the Select Rack dialog box where you can select a rack (you can also double-click on “Create Order Dialog” with your mouse):



“**[Bruk]**” racks in the selection list are delivered from Bruker with the installation and cannot be modified.

“**[Cust]**” racks in the selection list (at the end) are customer racks and can be modified.

All tubes from the inserted rack are **not** assigned to a zone (with the color „white“). Only tubes assigned to a zone can be used in other configuration dialog boxes or in procedure steps.

A.6 Insert Racks with Barcode Simulation

Barcode racks could be simulated manually without a barcode reader when defining the barcodes in a special input dialog box:

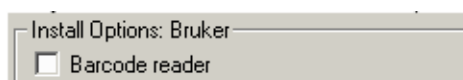
There are two ways to open the Tray Configuration:

1. Using the Configuration View

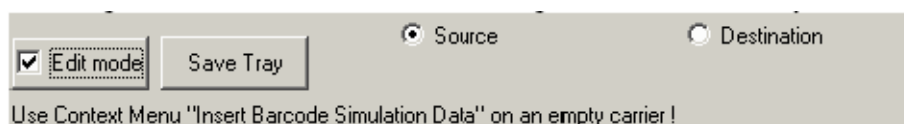
Open the **Tray Configuration** in the Configuration View.

2. Using the edit mode in the “Create Order” dialog box.

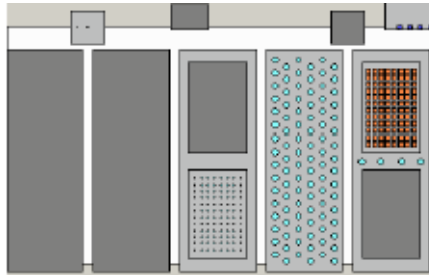
Use this only if no barcode reader is installed (defined in the base configuration):



Selecting the checkbox “Edit Mode” will change the mode of the tray control:



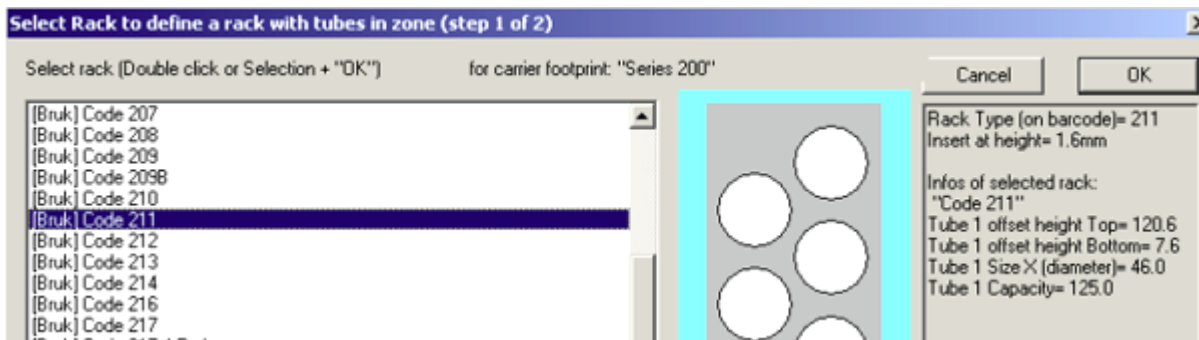
Tray Configuration:



Step 1: Insert a barcode rack

With the mouse double-click on an empty (dark gray) container area or right-click on an empty (gray) container area, and select „**Insert Barcode Simulation Data**“ from the context menu.

In either case this will open the Select Rack dialog box where you can select a rack:

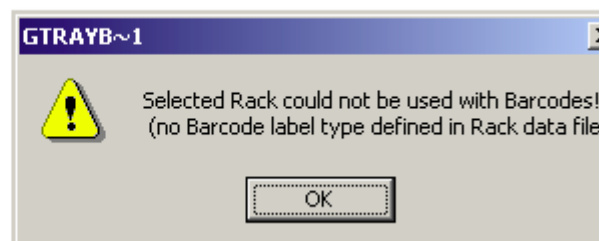
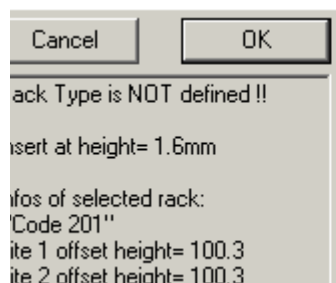


“**[Bruk]**” racks in the selection list are delivered from Bruker with the installation and cannot be modified.

“**[Cust]**” racks in the selection list (at the end) are customer racks and can be modified.

Selection Error:

- The following selection error occurs when no barcode type label is defined for the selected rack (e.g. „Code 202“):



Please contact Bruker or use another rack type if this error occurs!

Step 2: Insert zone and add tubes to zone

After selecting the Rack Type, the tube numbering order and the rack ID must be defined:

Edit Data for Barcode Reader Simulation (step 2 of 2)

Barcode defined Site

OK

Cancel

ID Barcode: (will be used as automatically created zone name!)

Wash1

TYPE Barcode (e.g.:209B#8): 211#8

Selected Gilson Rack name: Code 211

Starting corner

Left & Back Right & Back

Left & Front Right & Front

Set Color of Rack type

Pattern

Diagram showing four 3x3 grids of numbered circles (1-9) with arrows indicating the numbering sequence for each grid.

To insert well plates into a container rack, first insert the container rack (e.g. “205” or “205MI”), then the well plates (e.g. “WH12” or “WH12@1MM”).

The automatically assigned zone can be checked in the tool tip information of the new tubes.

When using a barcode reader to detect barcode racks automatically, refer to ["Barcode Zone Configuration" on page 58](#) for information on the configuration!

A.7 Adding Zones and Tubes to a Zone

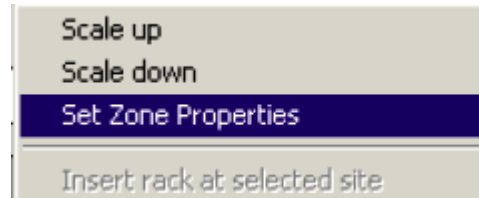
Open the Tray Configuration in the Configuration View.

Note: Only tubes assigned to a zone can be used in other configuration dialog boxes or in procedure steps.

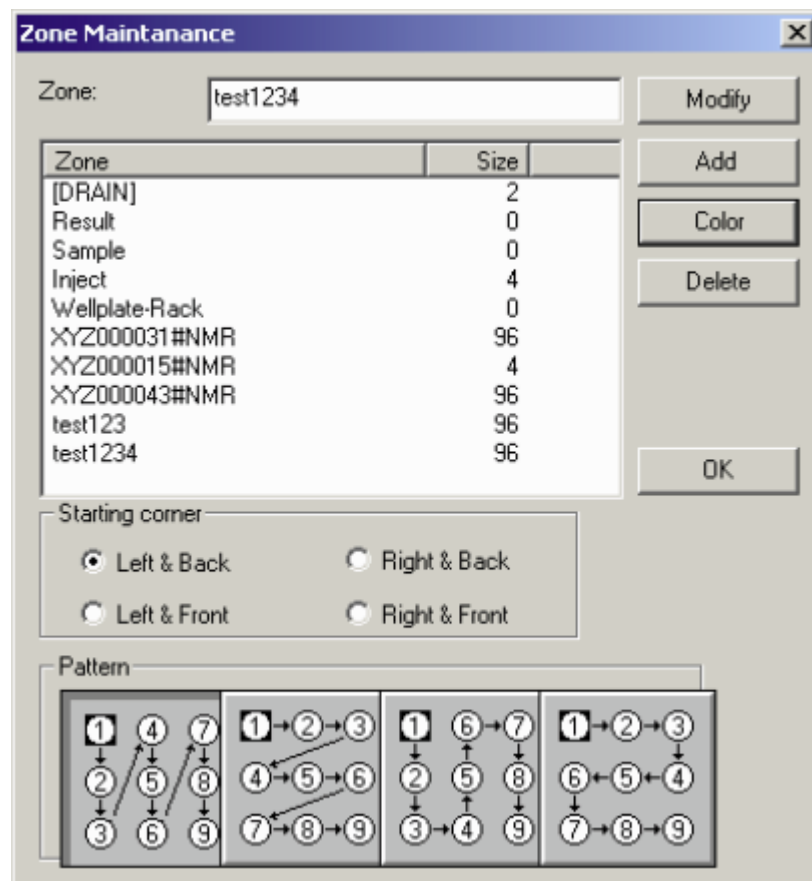
When using ["Insert Racks"](#), all tubes are not assigned to a zone (displayed with the color white).

A.7.1 Adding a Zone Manually

- Open the context menu **Set Zone Properties** from the tray control menu:



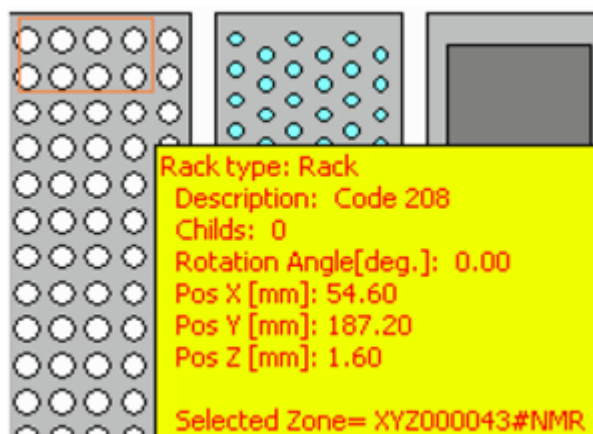
- In the Zone Maintenance dialog box select a zone from the zone list, or write a new zone name in the edit field, and press the **Add** button.



- Modify the color of the zone pressing the **Color** button.
- Modify the numbering order of the tubes that will be added to the zone in the section **Starting Corner** and **Pattern**.
- Press the **OK** button to temporarily save the new zone definitions in the tray configuration dialog.

A.7.2 Adding Tubes to a Zone Manually

- Select a defined zone in the Zone Maintenance dialog box list, or click on a tube already assigned to this zone (the selected zone will be displayed in the zone edit dialog box).
- Use a „Lasso“ mouse operation (the Lasso frame will have the color of the selected zone) to add all tube in the lasso frame to the selected zone (only white-colored tubes that are not yet assigned to a zone can be added to the selected zone).



A.7.3 Removing Tubes from a Zone Manually

Tubes can not be removed individually from a zone, the whole rack with the tube must be removed (see ["Deleting a Rack" on page 71](#)).

A.7.4 Adding Zones and Tubes Automatically

A barcode reader must be installed for this procedure.

Two barcodes will be read on each rack automatically:

1. Type Barcode
2. ID Barcode

During this procedure:

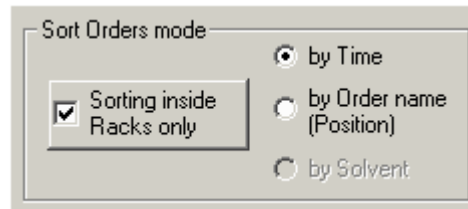
- A new rack of the type **Type Barcode** will be automatically inserted.
- A new zone with the name **ID Barcode** will be automatically created.
- All tubes for the rack will be automatically assigned to the new zone with the name „ID Barcode“ (see ["Barcode Zone Configuration" on page 58](#)).

A.8 Define Sort Orders

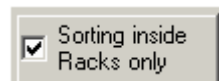
Only for applications without SampleTrack!

Sorting orders defines which order will be at the top of the order list and prepared first.

Select the sorting mode in the Edit Setting dialog box



All orders for all currently inserted racks can be sorted, or all orders inside one rack can be executed together:



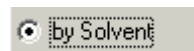
Orders can be prepared according to their creation time (first created order will be prepared first) - check **by Time**:



The sorting **by Order name (Position)** sorts the preparation in ascending order:



Sorting by Solvent sorts the preparation in ascending order (when ValveMate is installed), but all orders with the currently connected solvent will be prepared first.





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