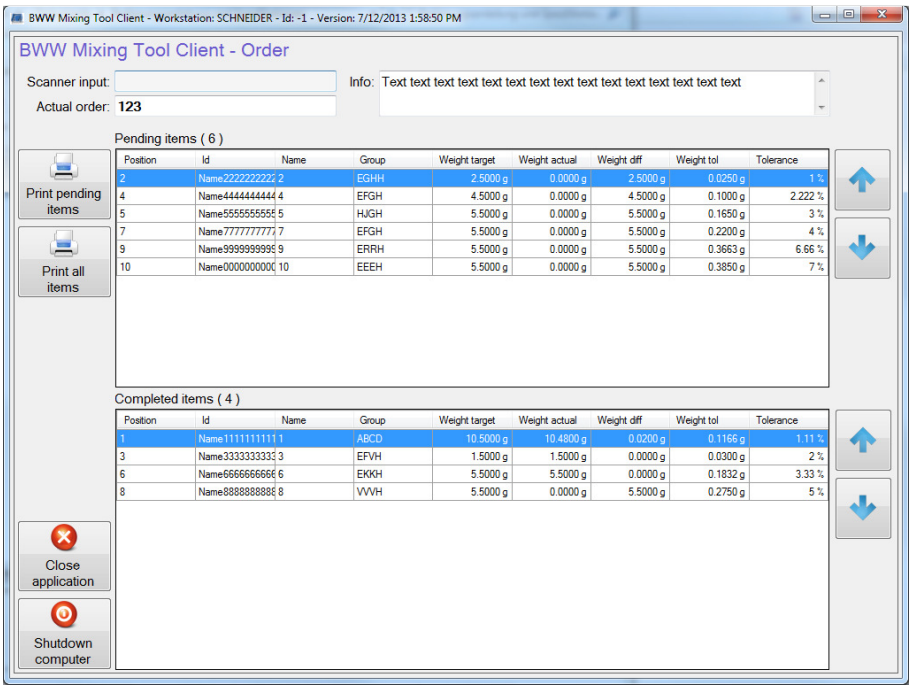
Mixing Tool Client
Manual



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1.1 About this manual

This documentation describes the "Mixing Tool Client" software.

1.2 General facts

The "Mixing Tool Client" software is a tool that serves to manually control the charging of recipes in complete or pre-produced mixing orders.

2 Files and paths

C:\Program Files\BWW\BWW Mixing Tool**BWW Mixing Tool Client.exe**

The "Mixing Tool Client.exe" file is the application itself and requires Microsoft .Net Framework 3.5 in order to be executed. Being a single instance application, the file may only be run one at a time at each workstation.

C:\ProgramData\BWW\BWW Mixing Tool Client**db.sdf**

The file "db.sdf" is a Microsoft SQL Server Compact 4.0 database. It will be created automatically, if it cannot be found when the program is opened.

C:\ProgramData\BWW\BWW Mixing Tool Client**error.txt**

The file "error.txt" contains the messages which are generated in case an error occurs. These messages are only created at the time the error occurs.

C:\ProgramData\BWW\BWW Mixing Tool Client**scale.txt**

All communication between scale and application is stored in the "scale.txt" file if the configuration parameter "scale log data" is set.

3 System requirements

- Ethernet interface for communication with webservices
- RS232 interface for communication with scale
- USB port for barcode scanner
- Microsoft .Net Framework 3.5

4 Local database Windows SQL Server CE 4.0

General program parameters and order data are stored in a local Windows SQL Server CE 4.0 database. If the database cannot be found, an according message is displayed and the database is newly created with default parameters when the program is opened.

4.1 Database path

The database can be found under the following path:
C:\ProgramData\BWW\BWW Mixing Tool Client\db.sdf
Write and read rights are required for the database file.

4.2 Table Parameters

The table "parameters" contains general program parameters as well as several pieces of information on the order as soon as an order is successfully triggered via webservice. The table always contains only one line.

Structure

Column	*Type of data*	*Field description*	*Exemplary values*
ID	int	Data set identification always has the number 1.	1
WsId	int	Workstation identification.	1
Service password	nvarchar(255)	Service password is required in order to access software configuration.	CFG202122
EncryptionAesIv	nvarchar(255)	AES IV encryption (currently not required).	
EncryptionAesKey	nvarchar(255)	AES Key encryption (currently not required).	
ScaleType	int	Type of scale connected. Currently only 0 = Mettler SICS	0
ScaleWeightUnit	nvarchar(4)	Weight unit of the scale connected as it is printed to forms.	g
SP_PortName	nvarchar(10)	Name of serial interface port to which the scale is connected.	"COM1"
SP_BaudRate	int	Baud rate of the scale connected.	9600
SP_DataBits	int	Number of data bits for the scale connected. (7 or 8)	7
SP_Parity	int	Parity of the scale connected. 0 = none 1 = odd 2 = even 3 = mark 4 = space	2
SP_StopBits	int	Number of stop bits of the scale connected. 0 = none 1 = 1 2 = 2 3 = 1.5	1
SP_Handshake	int	Handshake procedure of the scale	1

		connected. 0 = none 1 = software (recommended setting) 2 = hardware 3 = hardware/software	
SP_ReceiveTimerMs	int	Time interval at which incoming scale data is cyclically requested and verified. Unit is milliseconds.	50
AppAutorun	bit	If this value is set to true, the application is entered for autostart into Windows registry. This may only take place, if the application is run with administrator rights.	True
OrderIsLoaded	bit	This value shows whether there currently is a local order in the system. If this value is set to true when the application is opened, order data will be loaded into the program.	True
OrderNo	nvarchar(50)	Number of the order that is currently in the system. As soon as an order is transferred back to the master system, this field will be emptied.	"PCG4803-45A"
Info	nvarchar(255)	Order information and/or for displaying a message when requesting an erroneously detected order. As soon as an order is transferred back to the master system, this field will be emptied.	"text text text text" or "Order not found!"
Printable	bit	This value is used to activate the printing of items and is passed with every order. As soon as an order is transferred back to the master system, this field will be emptied.	True

4.3 Table Items

This table contains the parameters of the individual items after every successful request of an order.

Structure

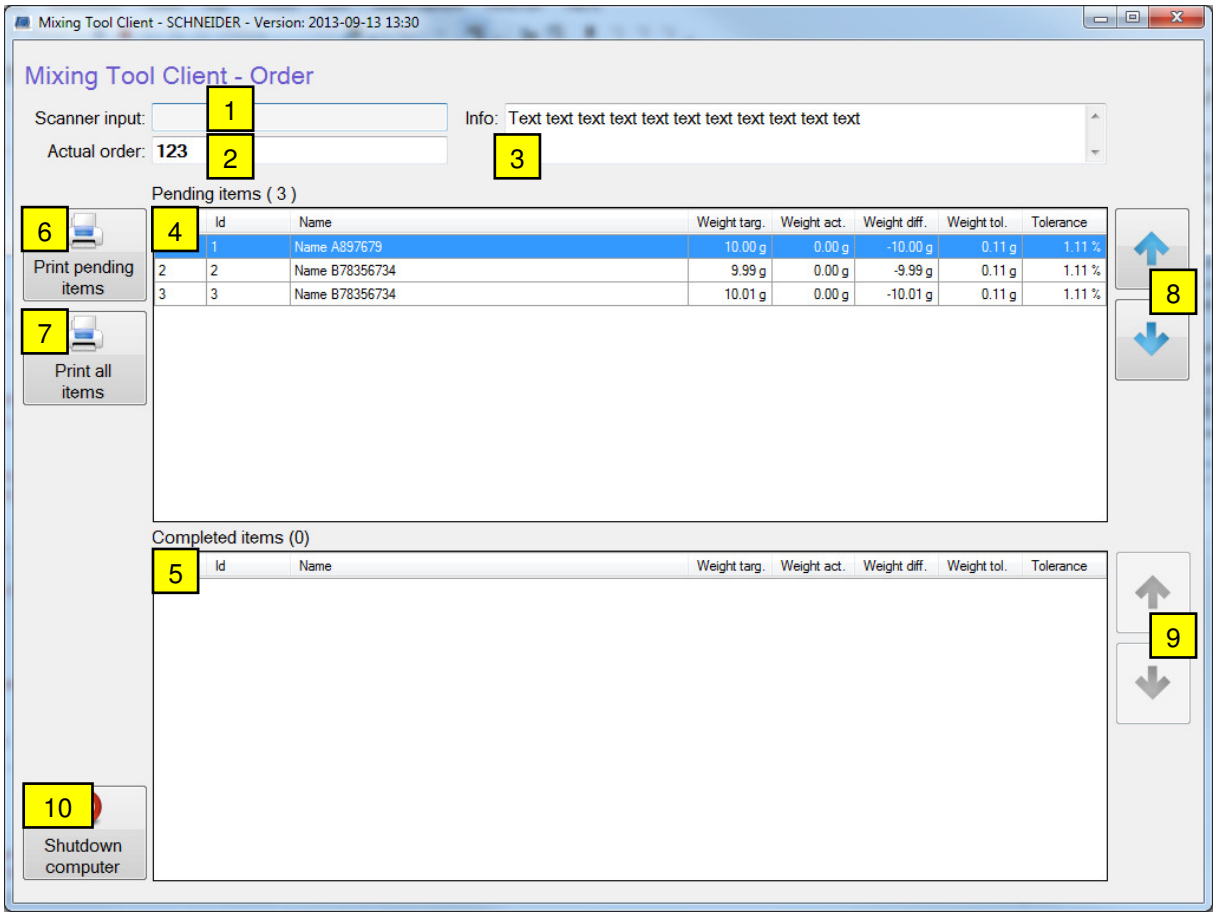
Column	*Type of data*	*Field description*	
ItemID	nvarchar(15)	Article number (ERP)	"A897679"
ItemName	nvarchar(255)	Article description	"Name A897679"
PosNo	int	Formula position number	1 or 22
Group	nvarchar(4)	Code material group	"ABCD"
WgtTarget	numeric(14, 4)	Target weight that is to be dosed in grams.	123.1234
WgtActual	numeric(14, 4)	Actual dosing weight in grams.	0
Tol	numeric(8, 4)	Maximum +/- tolerance, indicated as percentage value	1.1234
WsId	int	Distinct identification of work station	1
WsName	nvarchar(255)	Computer name of work station	"Computer123"
DT	datetime	Date and time of dosing	7/24/2013 3:14:43 PM
DosingDuration	numeric(18, 3)	Time required for dosing of items. Indicated in seconds.	12.345
State	int	0 Order waiting	10
		10 Print out of bar code label, order ready to start	
		20 Order is currently produced in mixing installation "Frieda"	
		25 Order partially produced in mixing installation, needs to be completed manually	
		35 Order is currently being produced at mixing work station	
		40 Order completed	
ItemDosed	Bit	This value is set to True as soon as the item has been dosed. Only items with set True value will be transferred when the order is sent back.	True

5 User interfaces

The application consists of the main form into which several forms may be implemented.
When the program opens, the main form (frmMain) loads first and maximizes to the total size of the screen. According to the individual program sequence further forms load into this form, center justified with a resolution of 1024 x 768 pixels.

5.1 User interface "Order"

After starting the "Mixing Tool Client" software the standard form "order" (frmOrder) loads into the main form and is displayed. It serves for the request, display and feedback of orders. After order request the user interface shows the items that are to be dosed and those that already have been dosed. Items that are to be dosed yet may be requested for dosing by scanning their ID.



5.1.1 Field: Scanner input

Alpha numeric input field for bar code scanner, which is always in focus in order to capture all incoming scans. By scanning a bar code, orders can be requested and sent back and in addition individual items can be requested to be dosed. Furthermore, the configuration form may be selected from this field.

5.1.2 Field: Actual order

After an order has been successfully scanned the number of the actual order appears in this field.

5.1.3 Field: Info

After an order has been successfully scanned information on the order appears in this field.

5.1.4 Data table: Pending items

This table of the software shows the items that are yet to be dosed. The number of items that are yet to be dosed is parenthesized in the description above the table. The columns beneath show: position, item ID, item name, target weight, actual dosed weight, difference between actual and target weight, maximum tolerance in weight as well as maximum tolerance in percent.

5.1.5 Data table: Completed items

This table of the software shows the items that already have been dosed. The number of items that already have been dosed is parenthesized in the description above the table. The same columns as in the "pending items" data table are displayed.

5.1.6 Button: Print pending items

Use this button to create a print out of items that are not completed yet. By doing so, the webservice function "printorder" is called up with the parameter "printtype=1".

5.1.7 Button: Print all items

Use this button to create a print out of all items that are part of the order. By doing so, the webservice function "printorder" is called up with the parameter "printtype=0".

5.1.8 Button: Scroll up/down pending items

Use these buttons to scroll the cursor line up and down the "pending items" data table.

5.1.9 Button: Scroll up/down completed items

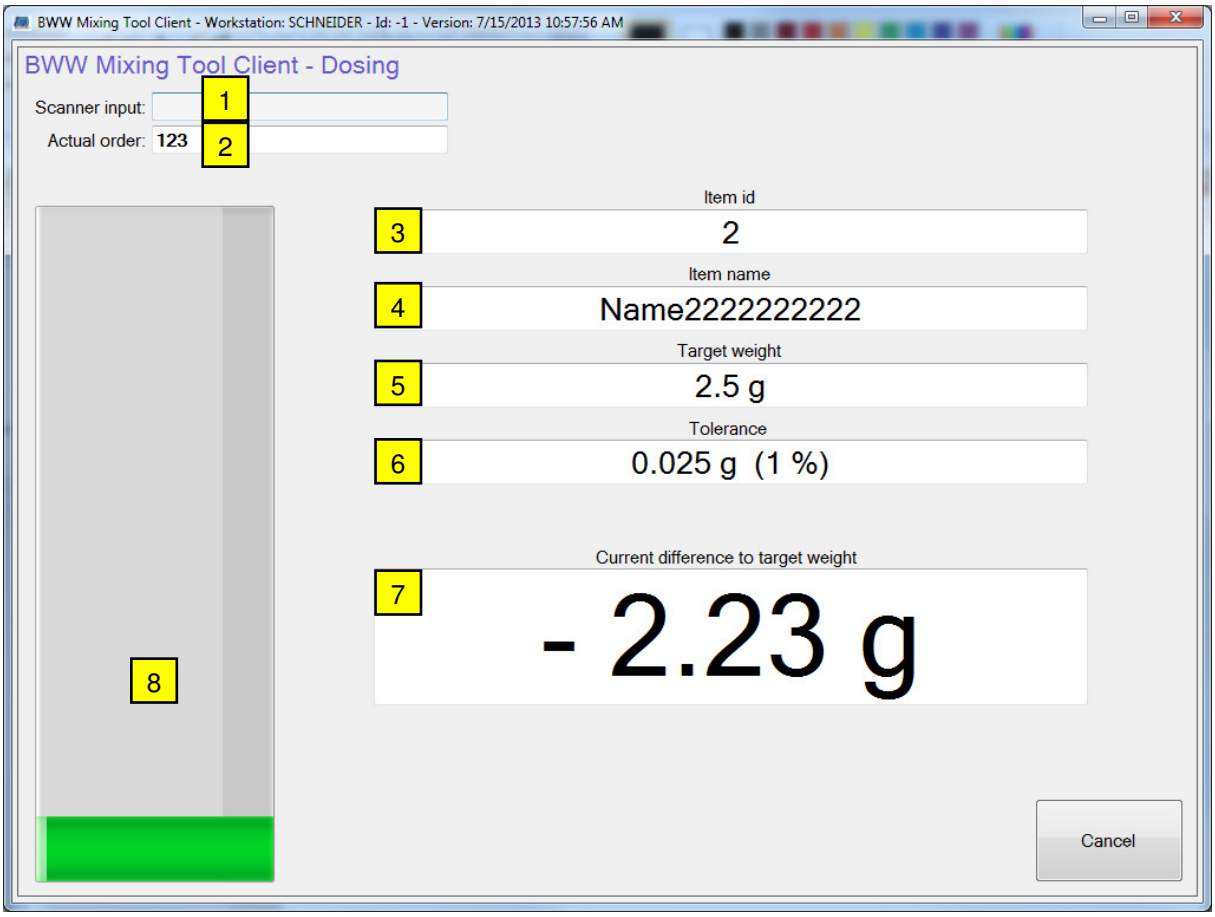
Use these buttons to scroll the cursor line up and down the "completed items" data table.

5.1.10 Button: Shutdown computer

Use this button in order to close the application and shutdown the computer. A confirmation prompt appears asking if you really like to shut the computer down.

5.2 User interface "Dosing"

The "dosing" form (frmDosing) serves the controlled manual dosing of one individual item of a mixing order, respectively. After the bar code of an item has been scanned, this user interface can be accessed from the "order" form (frmOrder). In case the user tries to complete the order with items that are not dosed yet, a warning prompt appears which has to be confirmed by the user.



5.2.1 Field: Scanner input

Alpha numeric input field for bar code scanner, which is always in focus in order to capture all incoming scans. The current item may be taken over after dosing by making a scan.

5.2.2 Field: Actual order

This field shows the actual order number.

5.2.3 Field: Item ID

This field shows the actual item ID.

5.2.4 Field: Item name

This field shows the name of the actual item.

5.2.5 Field: Target weight

This field shows the target dosing weight of the actual item.

5.2.6 Field: Tolerance

This field shows the maximum permissible tolerance in weight and in per cent.

5.2.7 Field: Current difference to target weight

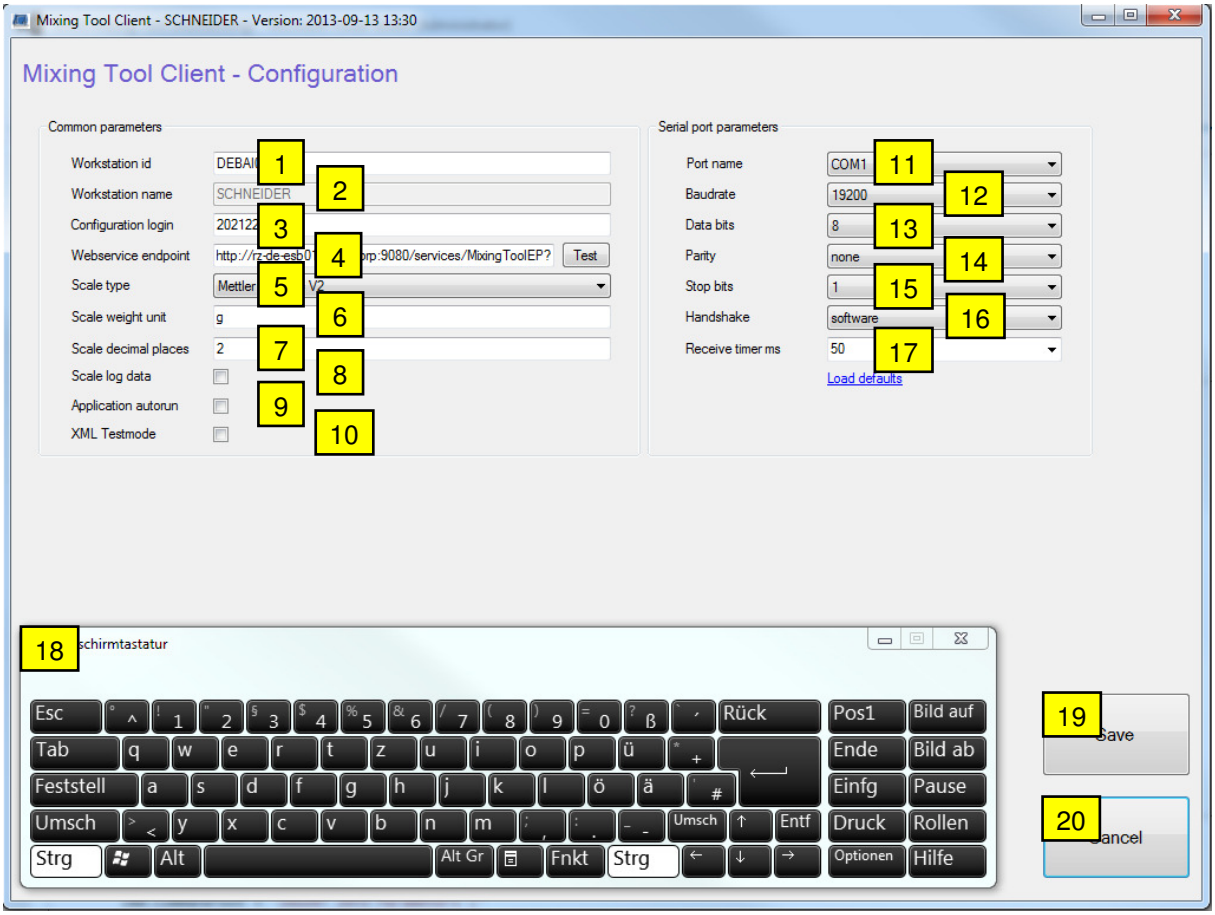
This field shows the current difference of the weight at the scale in reference to target weight. In accordance to the way the actual weight approaches or surpasses target weight, the background color of the field changes.
If the weight is below the lower tolerance threshold, the background display turns white.
If the weight is equal to or lies above the lower tolerance threshold and is below target weight, the background display turns yellow.
If the weight equals target weight, the background display turns green.
If the weight lies above target weight and is below or equal to the upper tolerance threshold, the background display turns yellow.
If the weight is above the upper tolerance threshold, the background display turns red.

5.2.8 Bargraph

Display of the bargraph in order to visualize dosing. In accordance to the weight, the bargraph shows the same color as the background of the field "Current difference to target weight".

5.3 User interface "Config"

The user interface "config" serves to configure the software. It can be accessed through the input field of the user surface with the help of a configuration password and loads into the main form (frmmain). Several operational parameters can be cofigured via this surface. By opening the surface the Windows screen keyboard will be activated automatically.



5.3.1 Field: Workstation ID

Numeric input field for the distinct identification of work station.

5.3.2 Field: Workstation name

Displays the actual computer name.

5.3.3 Field: Configuration login

Alpha numeric input field for access to configuration. This code has to be entered in the "order" surface, either by scanning it with the bar code scanner or by entering it via keyboard.

5.3.4 Field: Webservice endpoint

Alpha numeric input field for entering the webservice end point. Use the "test" button in order to test the availability of the entered end point address.
Address example: http://example.com:9080/services/MixingToolEP?wsdl

5.3.5 Selection field: Scale type

Use this field to select which type of scale is connected and which communication protocol is used.

5.3.6 Field: Scale weight unit

Alpha numeric input field to set the weight unit. This unit is displayed in several places by the software.

5.3.7 Field: Scale decimal places

Numeric input field to set the decimal places of the scale. Serves to format several ways the software displays weight.

5.3.8 Chekbox: Scale log data

A log file of the data communication of the scale is created by the software, if this checkbox is activated.

5.3.9 Chekbox: Application autorun

The software opens automatically the next time the system is booting, if this checkbox is activated. This parameter may only be changed, if the application is run with administrator rights.

5.3.10 Chekbox: XML testmode

The application will not communicate with webservice, if this checkbox is activated. Data will load from and be written to XML files instead.
Path for XML test files: "C:\ProgramData\BWW\BWW Mixing Tool Client\"
In order to load an order with the number „123“ from an XML file, the file "GetOrder_**123**.xml" has to be present.
The file "SetOrder_**123**.xml" will be created automatically when the order is written back.
As soon as an item of the order has been dosed the software automatically creates an XML file with the item ID "SetItem_**2**.xml".

5.3.11 Selection field: Serial port -> Port name

Use this field to select the serial COM port to which the scale is connected.

5.3.12 Selection field: Serial port -> Baudrate

Use this field to select the baud rate of the serial interface.

5.3.13 Selection field: Serial port -> Data bits

Use this field to select the data bits of the serial interface.

5.3.14 Selection field: Serial port -> Parity

Use this field to select the parity of the serial interface.

5.3.15 Selection field: Serial port -> Stop bits

Use this field to select the stop bits of the serial interface.

5.3.16 Selection field: Serial port -> Handshake

Use this field to select the handshake procedure of the serial interface.

5.3.17 Selection field: Serial port -> Receive timer ms

This value indicates at what cycle times in milliseconds data is read from the serial interface of the scale.

5.3.18 Screen keyboard

By opening the surface the Windows screen keyboard automatically activates; and terminates on leaving. Use this keyboard to enter data, as there is no keyboard connected to the panel PC.

5.3.19 Button: Save

Use the "save" button in order to apply changes made in the configuration.

5.3.20 Button: Cancel

Use this button to discard all changes made to the configuration and close the surface.

6 Webservice commands

The customer provides webservice commands on an Apache Tomcat Server for data exchange between "Mixing Tool Client" and "Mixing Tool Master". That way, orders can be fetched and written back, also print outs can be made. Please refer to the following document for more details on web service commands: "Mixing Tool Client Interfaces v1.3.docx".

6.1 GetOrder command

The webservice GetOrder command is required to request an order, including all items that are to be dosed.

6.2 SetItem command

The webservice SetItem command is required to return an item as soon as it has been dosed.

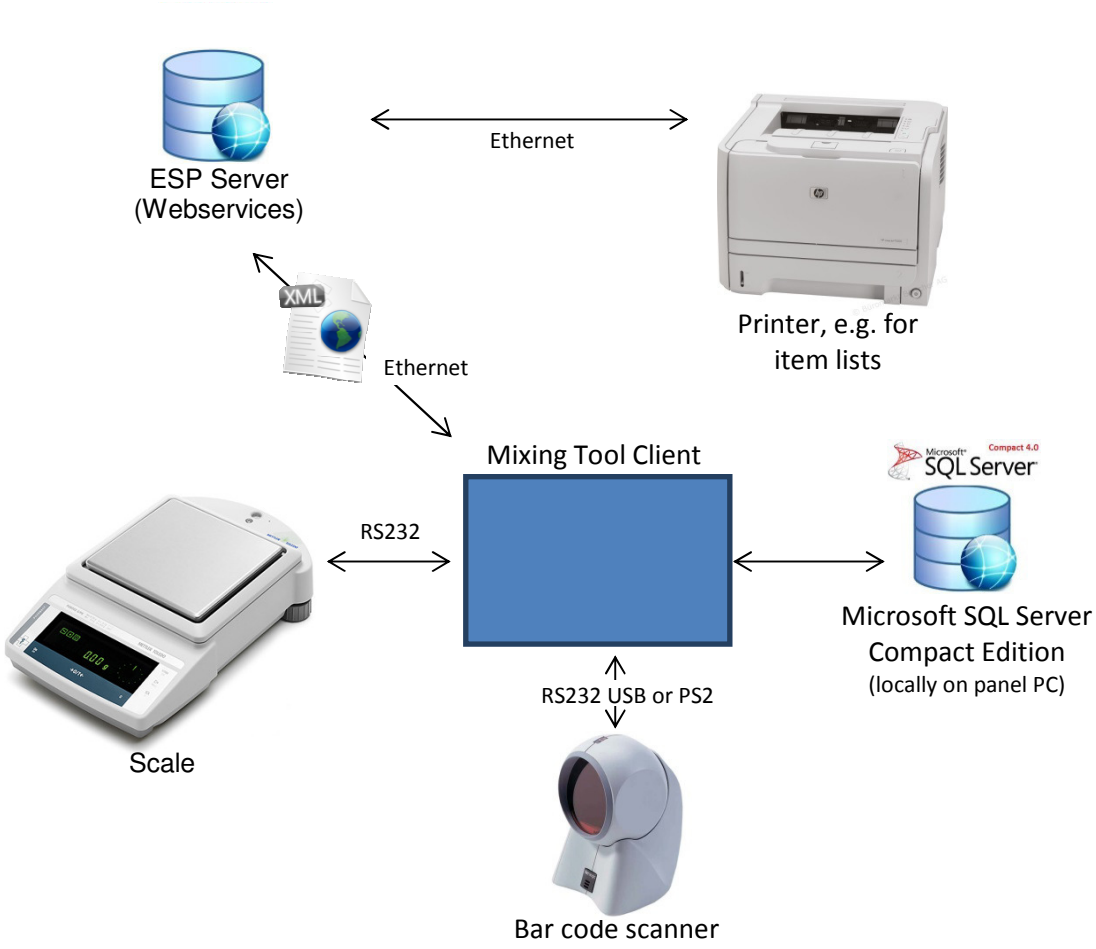
6.3 SetOrder command

The webservice SetOrder command is required to return an order, including all items that are to be dosed. Incomplete returned orders can be completed later and/or at another work station.

6.4 PrintOrder command

The webservice PrintOrder command is required to trigger off a print out of the order with its items from the client. Referring to these print outs, the operator is for example able to prepare the according items that are to be dosed.

7 System architecture



8 Configuration of login password

This password is required in order to access software configuration. The password may be changed in configuration.

CFG202122