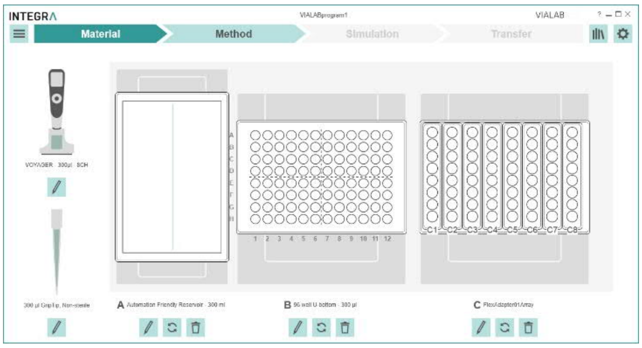


VIALAB Operating Instructions

Document Change History

Vers.	Status:	Name:	Date:	Change:
V00	Draft	ULe, SSt	07-12-2017	Document issued
V01	Released	SSt	15-03-2018	Document released
V02	Released	SSt	10-10-2018	download information added, troubleshooting “Program Transfer To Pipette” added
V03	Released	ULe, SSt	09-01-2019	New Software V 2.0
V04	Released	SSt	13-02-2019	System Requirements for VIALAB 2.0 changed
V05	Released	SSt	04-03-2020	New Software V 2.1 – new features
V06	Released	MFr	21-04-2020	Update Pipette Communication Module
V07	Released	JBa2	13-08-2020	Typos removed
V08	Released	ULe, JBa2, SSt	08-04-2022	New Software V 3.0
V09	Released	SSt	05-12-2022	System Requirements updated

Table of Contents

1 Introduction

1.1 Purpose

VIALAB enables creating programs and transfers programs to INTEGRA multichannel VIAFLO/VOYAGER electronic pipettes and D-ONE single channel pipetting modules. VIALAB programs for use with ASSIST PLUS only.

Programming in VIALAB can be created without a connected pipette.

1.2 Scope

These operating instructions describe the installation and operation of VIALAB V 3.0 or higher.

1.3 Third party licenses

VIALAB contains copyrighted open source software components. Please refer to the list in the Download center of our website under "Open Source Licenses".

For other requests concerning open source and instrument software or if you encounter problems accessing above, please contact INTEGRA BIOSCIENCES via support@integra-biosciences.com or call us on +41 81 286 95 11. This service is free of charge. If you request physical copies you will be charged a fee covering the cost of reproduction and shipment.

2 System requirements

2.1 Personal computer / laptop

CPU:	INTEL or AMD (not older than 5 years)
USB port:	2.0 / 3.0
Bluetooth:	optional
Memory:	> 4 GB
Internet access:	recommended during installation, required for updates
Operating system:	MS Windows 8.1, MS Windows 10.x, MS Windows 11.x,
Framework:	Microsoft .NET 4.7.2 (or later)
Resolution:	1920 x 1080, Scaling/Zoom factor 100 %

2.2 Compatibility

Pipette:	**Serial No.:**	**Pipette Firmware connectable to**			
		VIALAB V 1.0.x	**VIALAB V 2.0.x**	**VIALAB V 2.1.x**	**VIALAB V 3.0.x**
VIAFLO electronic multichannel pipette	7000000 and higher	4.12 and higher	4.20 and higher	4.21 and higher	5.04 and higher
VOYAGER electronic adjustable tip spacing pipette	7000000 and higher	4.12 and higher	4.20 and higher	4.21 and higher	5.04 and higher
D-ONE single channel pipetting module	7000000 and higher	-	-	-	5.04 and higher

2.3 Useful accessories

Part No.	Name	Description
4211	Charging/communication stand for 1 pipette, incl. mains adapter	Connect the stand to the USB port of your PC and place the pipette/D-ONE on the stand. The stand can be used to charge the battery and enables the communication between the PC and the pipette/D-ONE.
4221	Pipette communication module	For wireless communication between pipette/D-ONE and PC or ASSIST PLUS.
4549	Charging cable for pipette on ASSIST PLUS	For charging of pipette/D-ONE on ASSIST PLUS.

3 Installation of VIALAB

3.1 Preparation

Download VIALAB from www.integra-biosciences.com/download-vialab. Register, download the ZIP file and unzip the file.

3.2 First time installation

Log in to your computer with administrator log in.

- Run the setup routine and choose a directory where VIALAB should be installed (e.g. C:\Programs\Integra Biosciences AG\VIALAB). If you are not logged in as administrator, you may be prompted for the administrator login.
- VIALAB can also be installed on a network drive. Choose your network drive during installation.

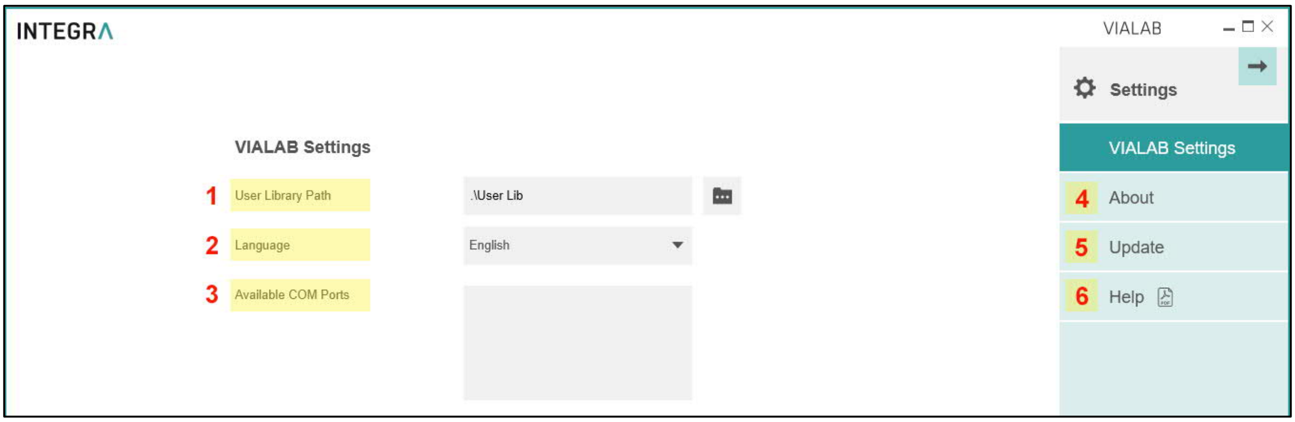
3.3 Running VIALAB without installation

VIALAB can be run from a USB drive or any other program folder. Simply copy the installed directory (e.g. C:\Programs\Integra Biosciences AG\VIALAB) to your specific drive.

4 Settings

4.1 VIALAB settings and information

⚙ Click on the Settings button in the top right corner. Use the VIALAB Settings to define your preferences and get additional information.



VIALAB Settings

1 User Library Path: .\User Lib

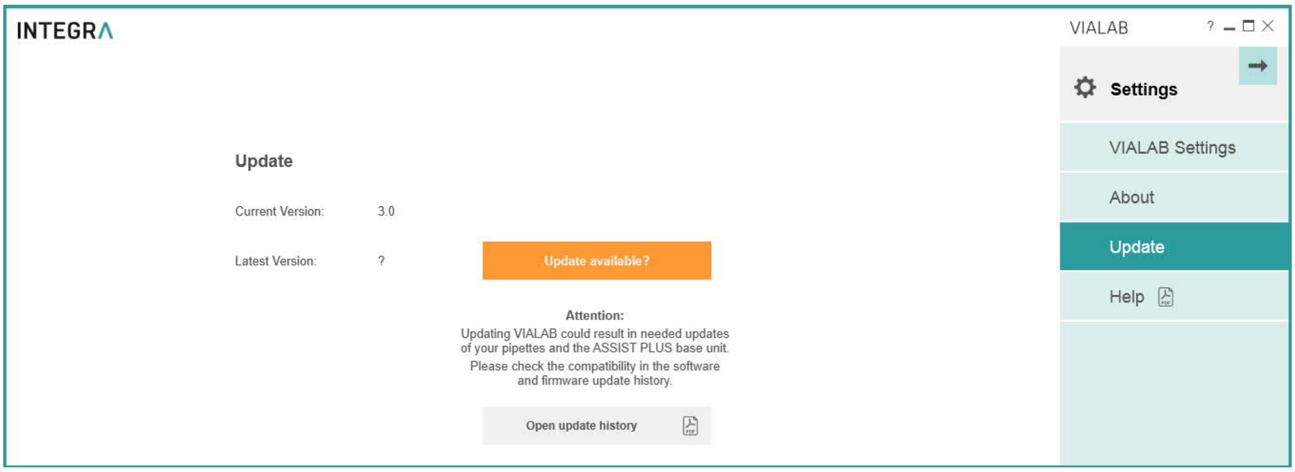
2 Language: English

3 Available COM Ports

1 **User Library Path**: define the storage path of your labware library.
2 **Language**: choose your preferred language.
3 **Available COM Ports**: shows all available communication ports.
4 **About**: information about the VIALAB software version and the INTEGRA contact data
5 **Update**: check for new updates, see 4.2.
6 **Help**: download the latest VIALAB operating instructions.

4.2 Update VIALAB

If an update for VIALAB is available and you are connected to the internet you can check for new updates.



Update

Current Version: 3.0

Latest Version: ?

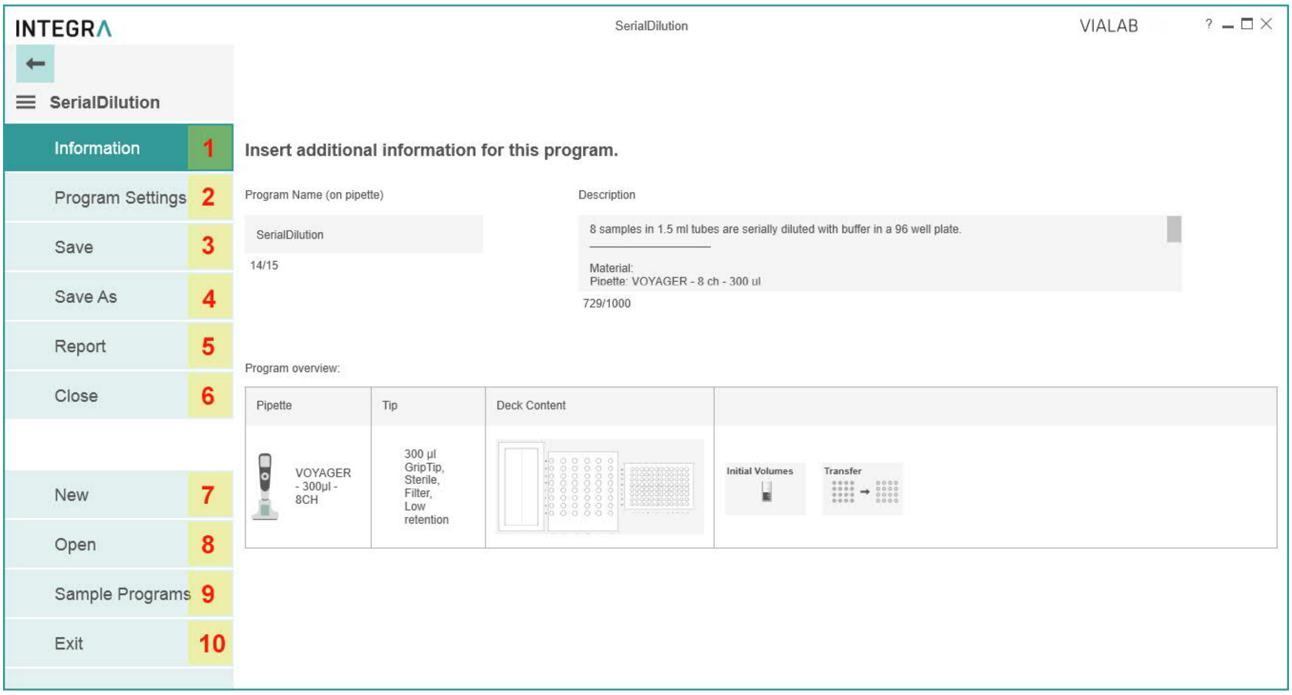
Attention:
Updating VIALAB could result in needed updates of your pipettes and the ASSIST PLUS base unit. Please check the compatibility in the software and firmware update history.

Click on Open update history to download information about software versions of VIALAB and VIALINK as well as firmware information of VIAFLO/VOYAGER pipettes, D-ONE module and ASSIST / ASSIST PLUS.

5 Main menu

5.1 Information and saving options

☰ Within a program, click on the Menu button in the top left corner to open the main menu. Here information about the program is displayed and saving options are listed.



Insert additional information for this program.

Program Name (on pipette)

SerialDilution

14/15

Description

8 samples in 1.5 ml tubes are serially diluted with buffer in a 96 well plate.

Material:
Pipette: VOYAGER - 8 ch - 300 ul

729/1000

Program overview:

Pipette	Tip
VOYAGER - 300µl - 8CH	300 µl GripTip, Sterile, Filter, Low retention

1 **Information**: change the Program name and add a description, if desired.

2 **Program Settings**: define the clearance height and offsets of each deck position for your program.

3 **Save**: save your program.

4 **Save As**: save you program under a new name.

5 **Report**: generate a printable PDF-report of your program, e. g. for standard operating procedures.

6 **Close**: close your program.

7 **New**: create a new program.

8 **Open**: open an existing program, recently used programs are listed.

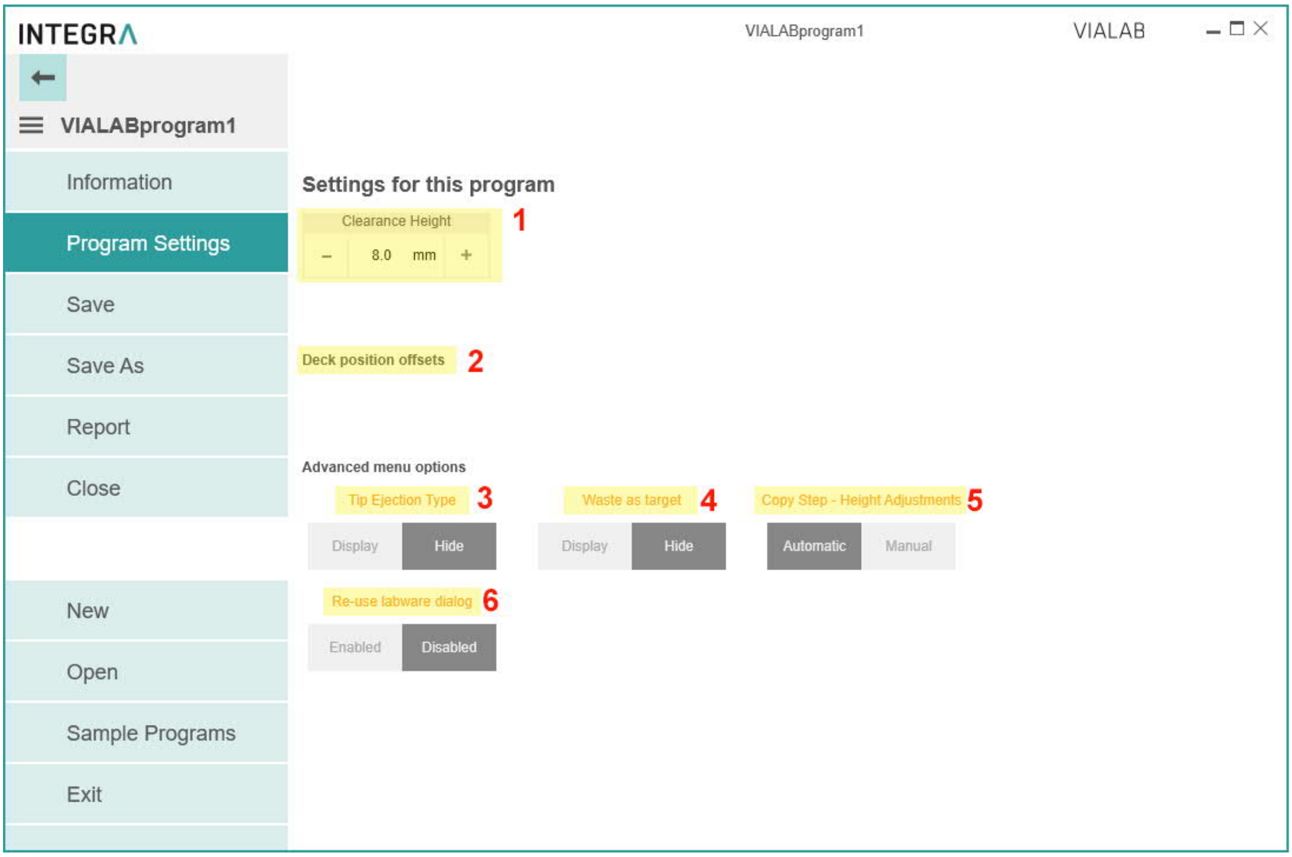
9 **Sample Programs**: select and open a sample program.

10 **Exit**: exit VIALAB.

ⓘ **Note:** You should save your current VIALAB program on your computer to have a backup or if you need to transfer the program to more than one pipette.

5.1.1 Program Settings

The following settings apply to each VIALAB program individually.



Settings for this program

Clearance Height: – 8.0 mm +

Deck position offsets

Advanced menu options

Tip Ejection Type: Display | **Hide**

Waste as target: Display | **Hide**

Copy Step - Height Adjustments: **Automatic** | Manual

Re-use labware dialog: Enabled | **Disabled**

1 **Clearance Height**: distance over the highest point of the labware at which the pipette moves over the labware.

2 **Deck Position Offsets**: deck positions A, B or C can be shifted in X, Y and Z axis for max. 2 mm.

3 **Tip Ejection Type**: choose whether to display or hide an additional option for the tip ejection. If activated in the tab “Tip Change” the tips can be ejected either at the ejector ledge (**Ledge**) or directly in the waste bin without touching the ejector ledge (**Waste**) during tip ejection.

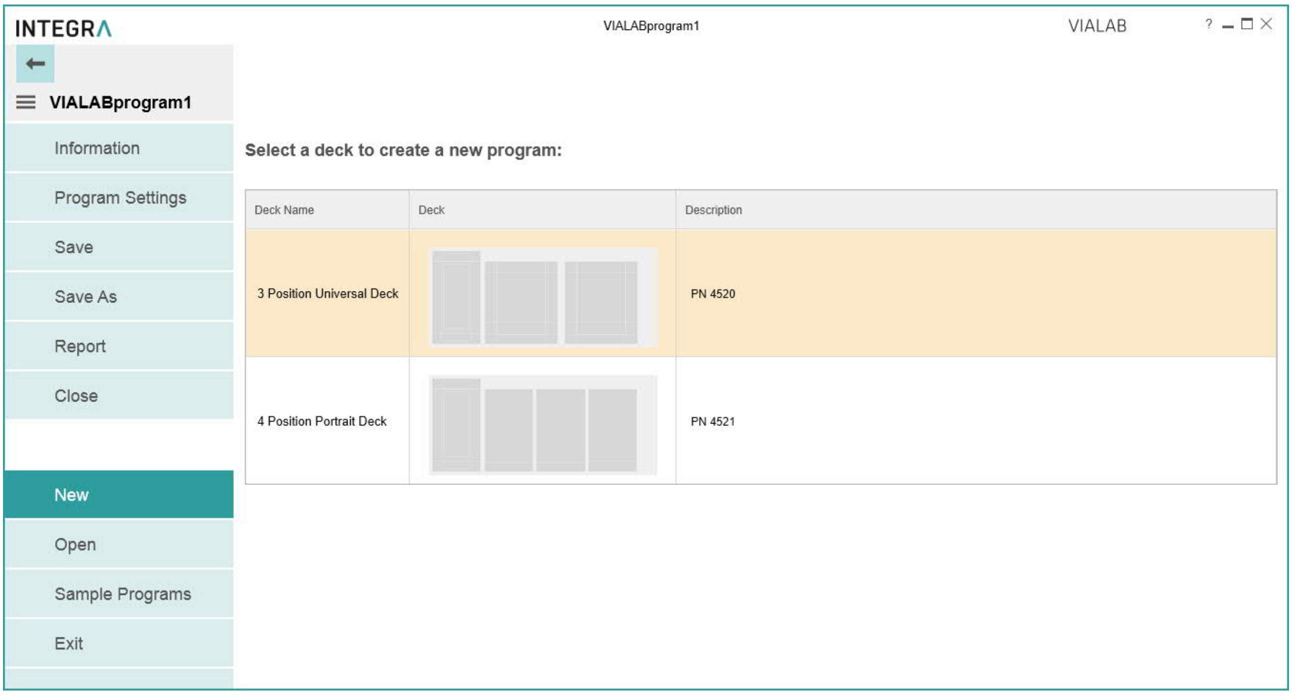
4 **Waste as target**: choose whether to display or hide the option to dispense directly into the waste bin. If activated the waste bin can be selected as target position in a Multi Aspirate step or in Serial Dilution step as a waste position for the last aspiration.

5 **Copy Step – Height Adjustments**: when copying steps, the liquid level changes for the copied step. If tip travel is activated in a step, the heights are automatically adjusted relative to the new liquid level (Automatic). Alternatively, the heights of a copied step aren’t changed and identical to the original step (Manual).

6 **Re-use Labware Dialog**: it is helpful to enable this function when working with more than one labware layout (see section 6.2). If you (accidentally) delete a labware in one of the following layouts, clicking on its position opens a dialog from which the recently used labware can be re-used.

6 Programming

6.1 Overview



Select a deck to create a new program:

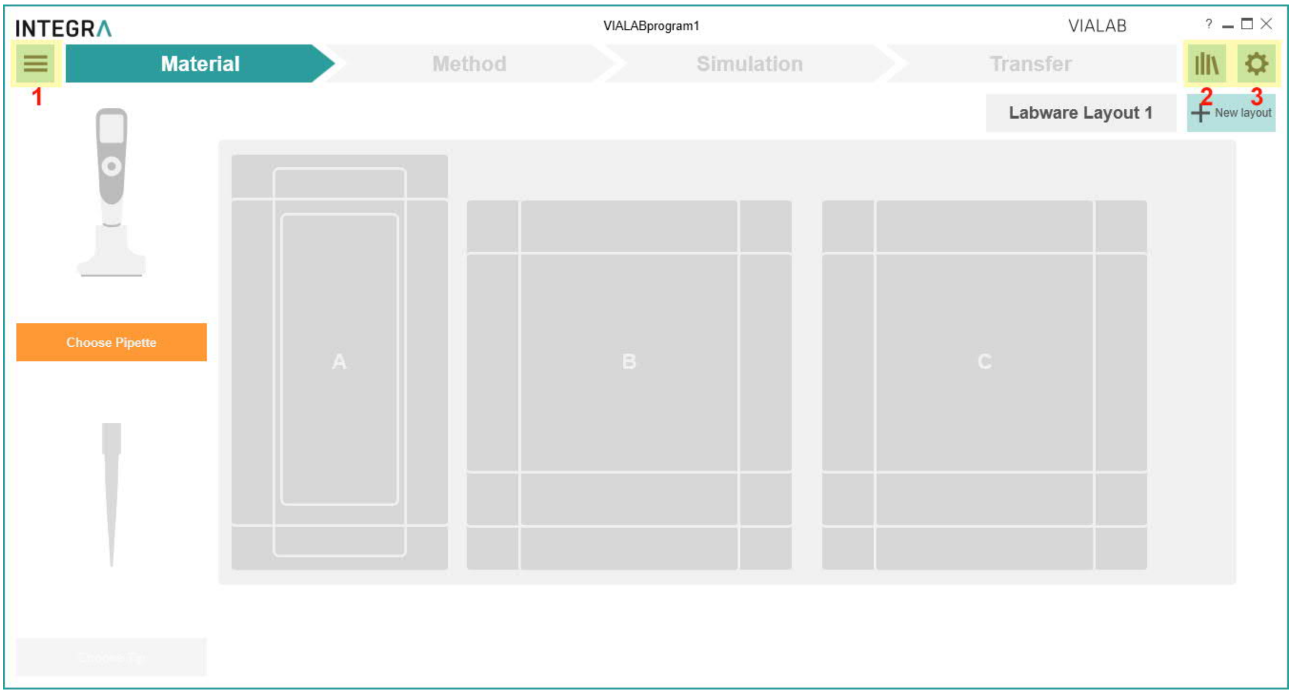
Deck Name	Deck	Description
3 Position Universal Deck		PN 4520
4 Position Portrait Deck		PN 4521

After starting VIALAB, you can create a new pipetting program, open an existing or recently used program or get started with a sample program.

To create a new program, select first the deck you want to use, e.g. the 3 Position Universal Deck with one reservoir position and two spring loaded plate positions.

Note: The D-ONE pipetting module requires its own tip deck (PN 4535) which need to be installed on the ASSIST PLUS.

The program menu will be displayed:



1 **Main Menu**: information and saving options of the defined program (see chapter 5).

2 **Library:** labware library listing available decks, pipettes, tips, reservoirs, plates, tube racks, and COMBI systems with COMBI bases which can be used for a program. You can also define new reservoirs, plates, tube racks and COMBI systems. Alternatively, import already defined labware files to the labware library.

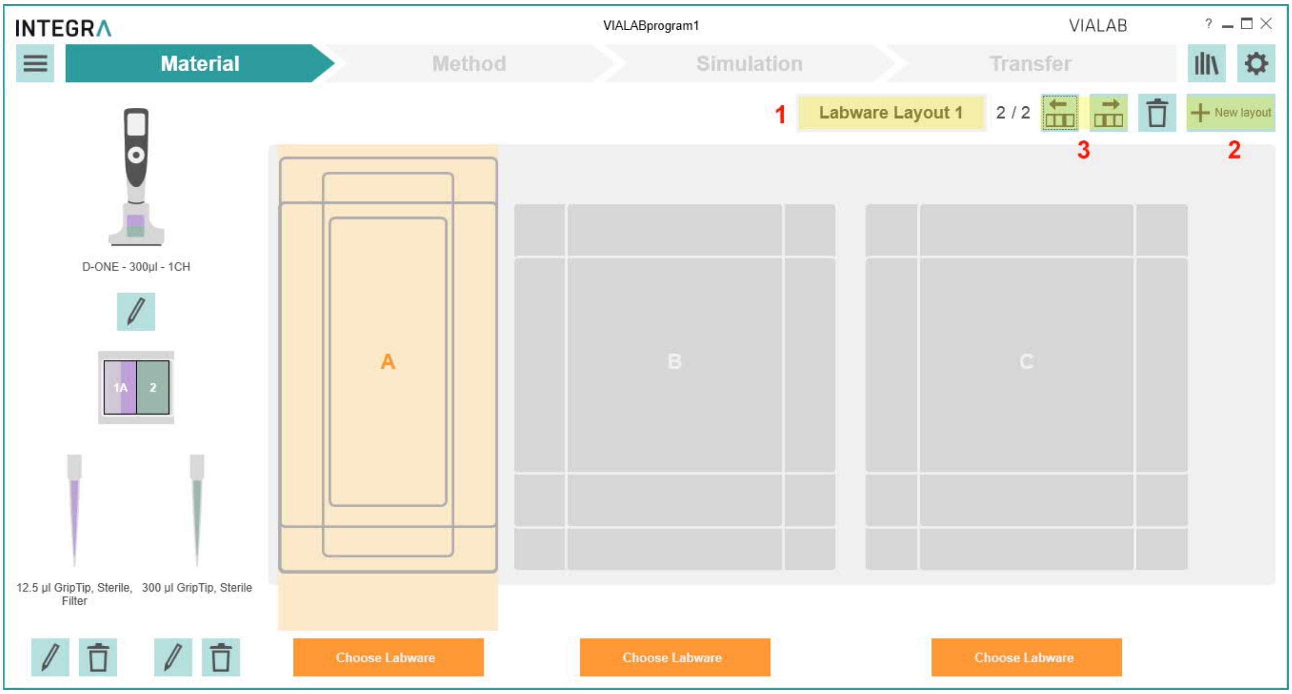
3 **Gear Wheel**: settings and updates of VIALAB.

The table below shows the different sections for creating a program. After one section is completed, the next can be defined.

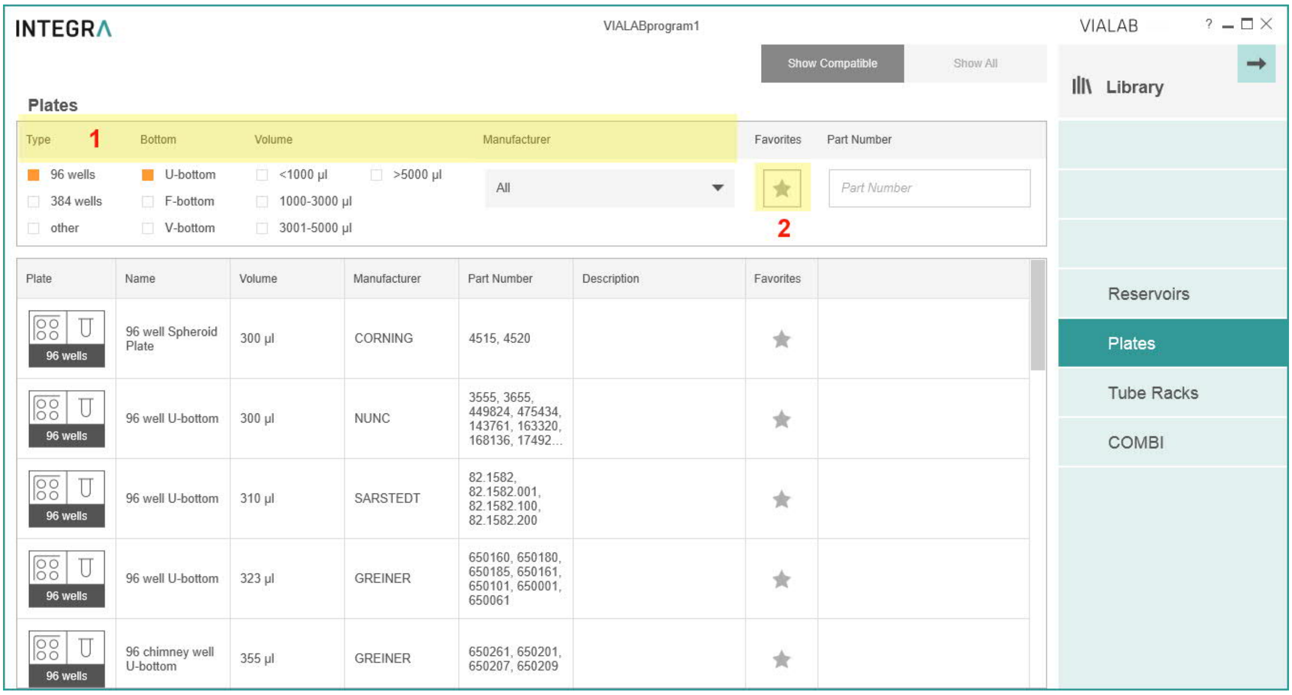
Section	Description
Material	Choose the pipette with tips and the labware on the deck, e.g. the reservoir used as source container and the kind of well plates with orientation.
Method	Create your individual pipetting program
Simulation	Review a simulation of all steps in your pipetting program.
Transfer	Transfer your VIALAB program to your pipette and run it from your pipette. Alternatively connect the ASSIST PLUS via USB to the PC, connect the Pipette and start a program from VIALAB directly.

6.2 Material

First click on the orange square to choose any multichannel VIAFLO/VOYAGER pipette or D-ONE module and afterwards select the GripTips. This enables the selection of the other labware used in the program.



Click on an orange button or directly on the deck position to choose the predefined labware on all required positions. Click on the Labware Layout button (1) to name the deck. To create an additional labware layout, click on New layout (2). Use the arrow keys to switch between all available labware layouts (3).



Type: ■ 96 wells ☐ 384 wells ☐ other

Bottom: ■ U-bottom ☐ F-bottom ☐ V-bottom

Volume: ☐ <1000 µl ☐ 1000-3000 µl ☐ 3001-5000 µl ☐ >5000 µl

Manufacturer: All

Favorites: ★

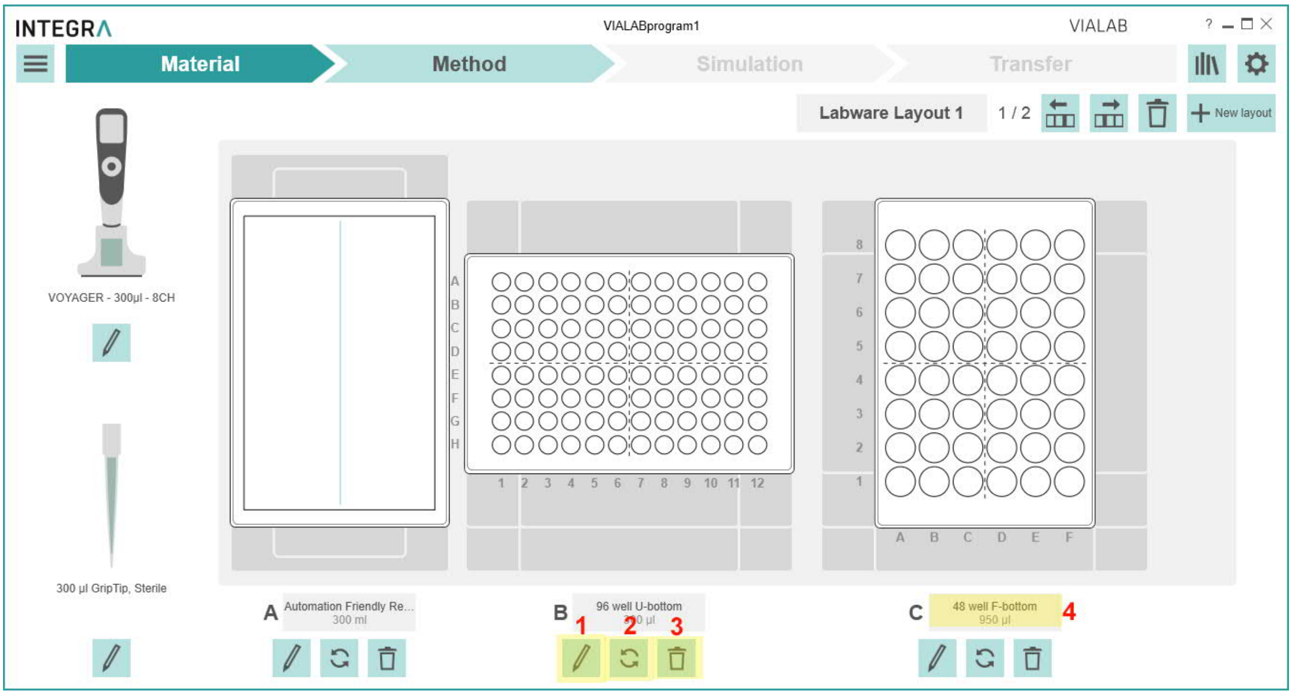
Part Number: Part Number

Plate	Name	Volume	Manufacturer	Part Number	Description	Favorites
96 wells	96 well Spheroid Plate	300 µl	CORNING	4515, 4520		★
96 wells	96 well U-bottom	300 µl	NUNC	3555, 3655, 449824, 475434, 143761, 163320, 168136, 17492...		★
96 wells	96 well U-bottom	310 µl	SARSTEDT	82.1582, 82.1582.001, 82.1582.100, 82.1582.200		★
96 wells	96 well U-bottom	323 µl	GREINER	650160, 650180, 650185, 650161, 650101, 650001, 650061		★
96 wells	96 chimney well U-bottom	355 µl	GREINER	650261, 650201, 650207, 650209		★

Select the desired properties or manufacturer (1) to quickly show reservoirs/plates/tube racks/COMBI Systems which are compatible with the selected pipette and deck position. Click on the star (2) to show favorites only (to be defined in the labware library).

Scroll to one reservoir, plate, tube rack or COMBI System and select it by clicking on it.

Labware	Description
Reservoirs	Select an INTEGRA reservoir or define a new reservoir, see Library icon.
Plates	Select one of predefined, commercially available plates. Search for any plate or enter the part number directly, if known. Alternatively, define the dimensions of a new plate, see Library icon.
Tube Racks	Select a tube rack or define a new one, see Library icon.
COMBI System	To add a COMBI System, select a COMBI BASE and fill each selected column with modules, e.g. plates, tube racks or reservoirs and click on Apply COMBI System, see also section 7.5.



1 **Edit**: change the chosen labware.

2 **Change orientation**: rotate counterclockwise by 90° (all 4 possible orientations).

3 **Delete**: delete the selected labware on this position.

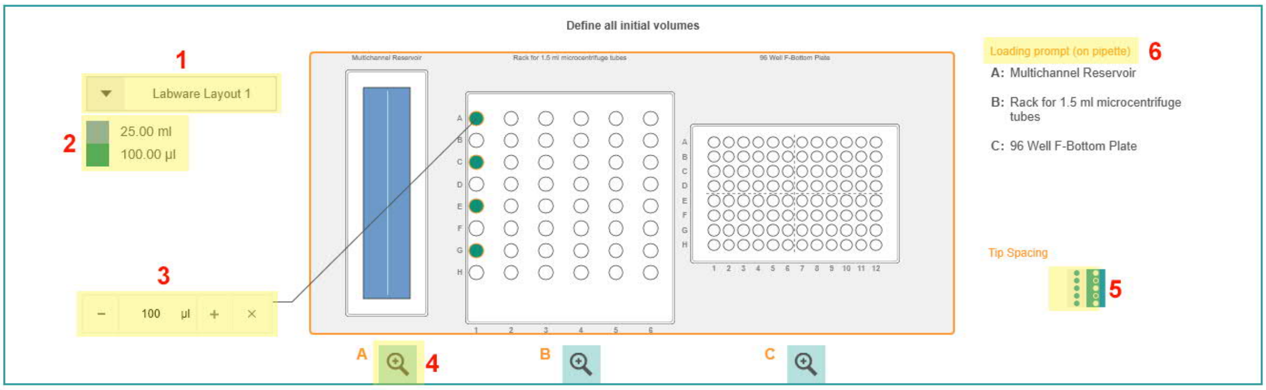
4 **Rename:** name the chosen labware.

ⓘ **Note:** changing the material of an already defined program, e.g. pipette or plate orientation, will delete all subsequent program steps in the “Method” section, if they are not compatible with the previous settings.

6.3 Method

Your pipetting program is composed of several steps.

When you open the section Method the first time, the first step “Initial Volumes” is already preset, and you are prompted to set the volumes of the labware which are already filled.



1 **Choose labware layout**: if more than one is available, choose the corresponding layout.

2 **Color legend**: shows the pre-fill (initial) volume of the labware on position A, B or C. Each color represents one pre-fill volume.

3 **Pre-fill volume**: click on the vessel which is already filled at the start of your program and enter the pre-fill volume.

4 **Zoom**: displays a close-up view of one deck position.

5 **Tip spacing**: choose a different tip spacing to change the filling pattern of your plate e.g. as shown with plate on position C (only for VOYAGER tip spacing pipettes).

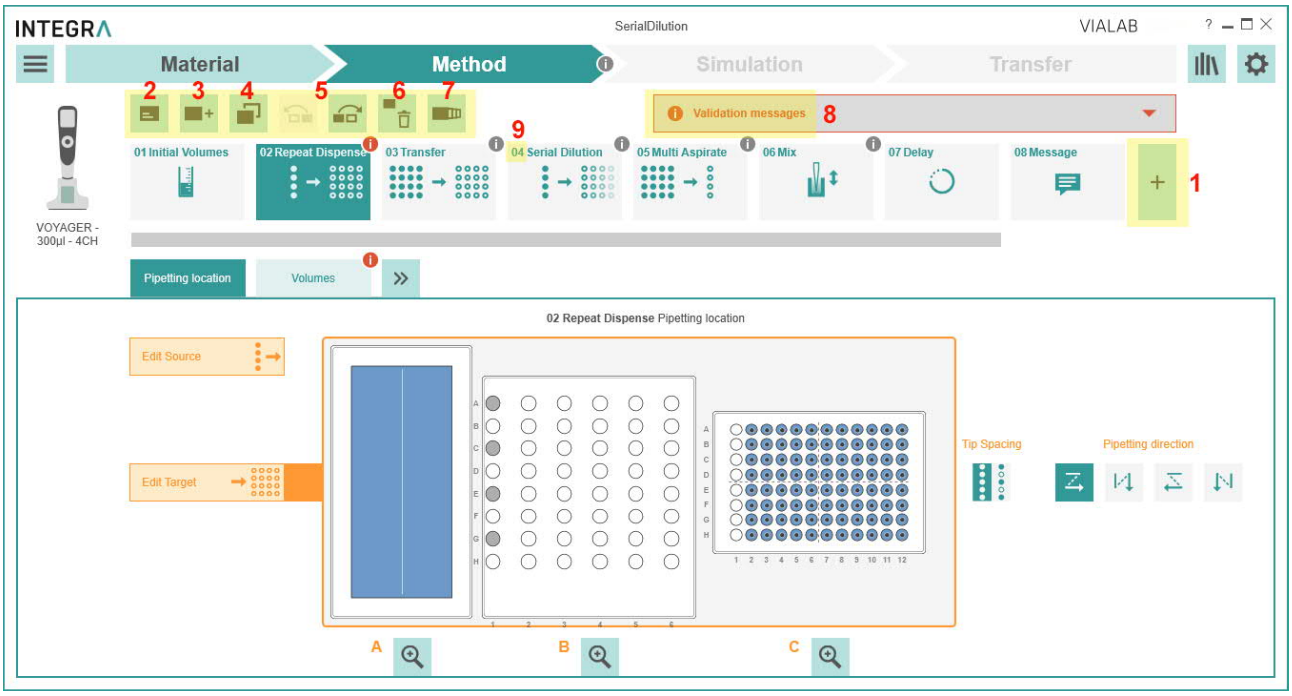
6 **Loading prompt (on pipette):** shows the used labware inclusive deck position of every available labware layout within the current VIALAB program.

Select the wells which are prefilled at the start of your program via click or drag and drop. In the pop-up window you type in the dedicated volume in the given unit to assign a volume.

To view or edit the assigned volume select wells and the current volume is displayed. If needed, edit the volume, or delete it.

Note: If you’re using D-One pipetting modules, this step can be skipped as D-One features liquid level detection.

To add further steps, click on a plus square (1, 3). To move, copy or delete steps click on the corresponding icon (4, 5, 6). The steps are processed sequentially according to the step number (9).



1 **Plus square**: add a new step to the end of the method.

2 **Add Description**: add a description for the current step. The first 15 characters are displayed at the bottom of the step icon.

3 **Add Step**: add a new step after a selected step to the method.

4 **Copy Step**: copy selected step to the end.

5 **Move left/right**: move the selected step forwards or backwards.

6 **Delete Step**: delete selected step.

7 **Multi-Selection**: click on this button to select multiple steps in parallel to copy or delete them.

8 **Validation messages**: click on this field for programming error details.

9 **Step number**: the step number indicates the step sequence in the program.

Following steps are available for VIAFLO/VOYAGER pipettes and D-ONE modules:

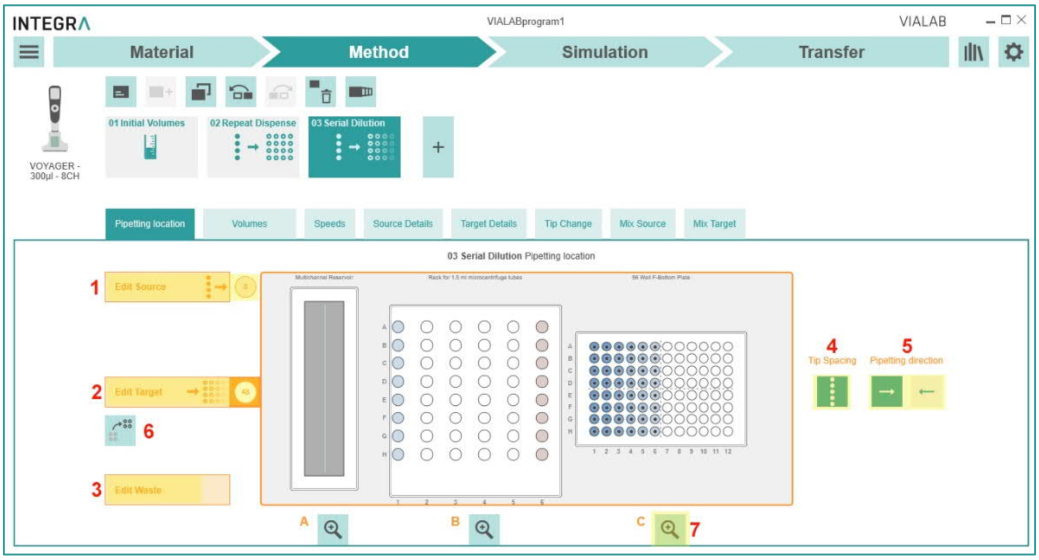
Symbol	Step	Description
Transfer	Transfer	Transfers an equal number of samples from a source to target (N:N), e.g. plate copy.
Repeat Dispense	Repeat Dispense	Dispenses from one source into multiple targets (1:N), e.g. reagent addition
Serial Dilution	Serial Dilution	Aspirates sample from a source and performs a serial dilution in the defined number of wells.
Multi Aspirate	Multi Aspirate	Collects several samples from one source and transfers into one target (N:1).
Mix	Mix	Mixes a sample by pipetting up and down in the selected vessel.
Delay	Delay	Defines a pause between the last and the next step in seconds.
Message	Message	Pauses the program and displays a message. Three lines with 12 characters each are available.
Volume Change	Volume Change	Enter the filling volume of the vessels e.g. after manual filling steps within a method. The volume defined in this step is an absolute volume. It does not consider previous liquid handling steps.
AUX Port	AUX Port	Turning devices on and off which are connected to the auxiliary port of the ASSIST PLUS.
Labware Change A B C	Labware Change	Change labware items on the deck within the same program. Switch between the labware layouts defined under Materials.

For D-ONE pipetting module additional steps are available, see 6.4.

Within one step, adjust the following parameters:

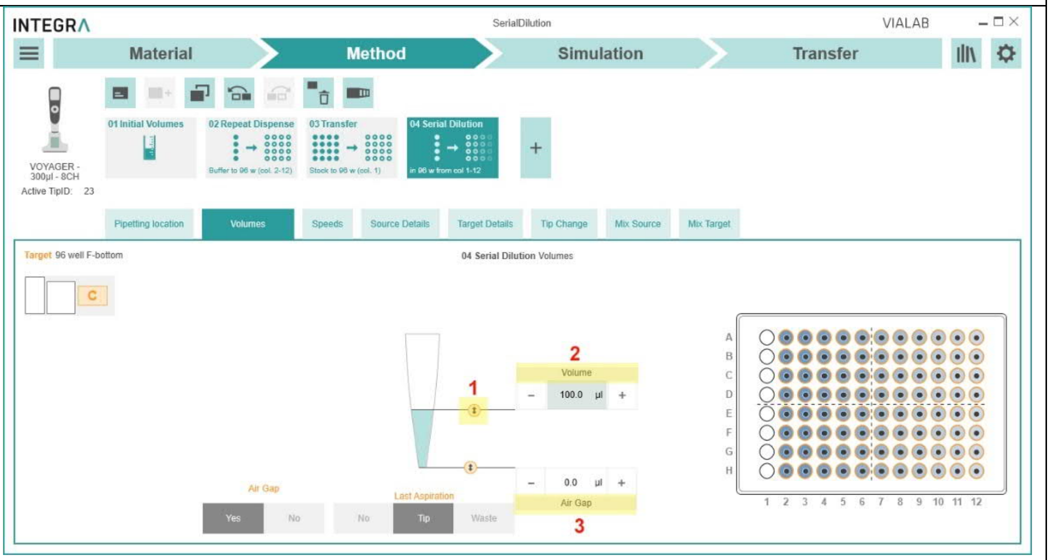
<table>
<tr><th>Parameter</th><th>Description</th></tr>
<tr><td>Pipetting location</td><td>

- **Edit Source (1)**: click on the button and then select the wells (for plates on upmost well of column) where the liquid should be aspirated from. It will be colored. The number of source wells is displayed next to it, e.g. 8.
- **Edit Target (2)**: click on the button and then select the wells (for plates on upmost well of column) where the liquid should be dispensed in. It will be marked with a black dot in the middle of the well. The number of target wells is displayed next to it, e.g. 48.
- **Edit Waste (3)**: only for step “Serial Dilution” and if under Volumes “Last aspiration back to “Waste” was selected. Click on the button to select waste vessel location.



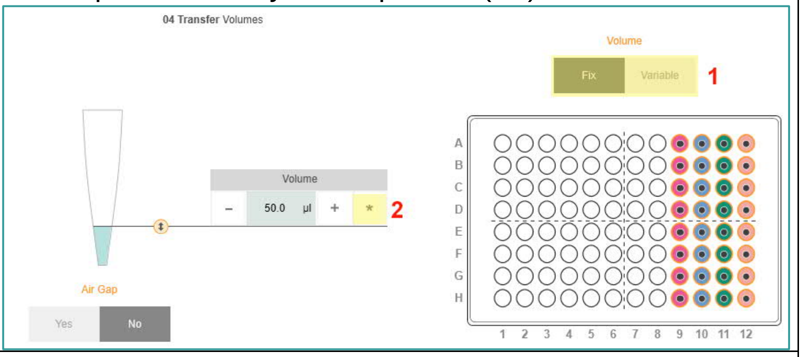
If needed, adapt the tip spacing (4) or the pipetting direction (5).
For changing the selected wells deselect the chosen ones or move all selected wells together within one plate (6). For a detailed view of the plates, use the zoom-in function (7).

</td></tr>
<tr><td>Volumes</td><td>



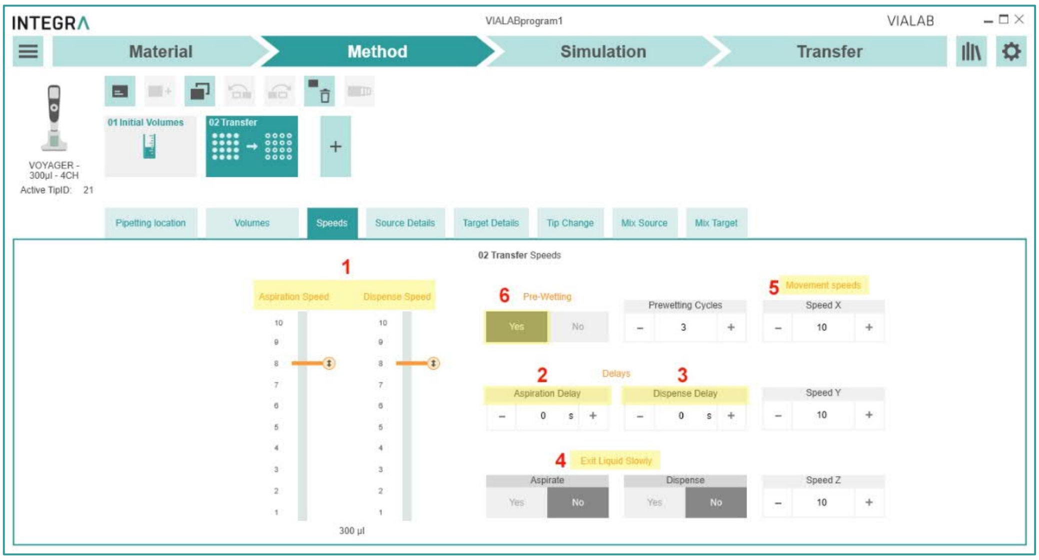
Move the slider up or down (1), type in the volume (2) or use the “+” and “-” buttons to set the desired **Volume**(s) for the current step. An **Air Gap** (3) can be set to aspirate a defined air volume after an aspiration of liquid.

</td></tr>
</table>

Volumes	Step Type	Volume description
	Transfer	**Volume**: define whether the volume is variable or fix for all transfers (1). If variable, select each individual column and assign a volume. If the calculated volume exceeds the tip volume, the volume is dispensed multiple times with the same tip, indicated by a multiplicator (*,2). 
	Repeat Dispense	**Post-Dispense Location**: select if the post-dispense should be purged in the source vessel of aspiration or should remain in the tips. **Reuse Post-Dispense**: click on “Yes” if the post-dispense should remain in the tip and be used for the next aspiration. **Dispense Type**: click on “Single” to aspirate and dispense the selected volume or on “Multi” to aspirate a multiple of the selected volume and perform several dispenses. **Volume**: define whether the volume(s) to be dispensed (for every dispense step) is fix or variable. If variable, select each individual column and assign a volume. Set the pipetting direction. Additionally, to the dispense volume set also the **Pre-Dispense** and the **Post-Dispense** volume. Note: we recommend a pre- and post-dispense volume of 3-5 % of the nominal volume of the pipette.
	Serial Dilution	**Last Aspiration**: - “No”: the last aspiration is not performed; the liquid remains in the last row. - “Tip”: the last aspiration remains in the tips that are ejected into the Waste bin. - “Waste”: the last aspiration is purged in a dedicated liquid waste vessel. The location must be defined in “Pipetting location”. **Volume:** the sample volume that will be transferred from well to well.
	Multi Aspirate	**Aspirate Type**: click on “Single” to aspirate only one volume or on “Multi” to perform several aspirations consecutively. **Volume**: define whether the volume to be aspirated (for every aspirate step) is fix or variable. If variable, select each individual column and assign a volume. Set the aspiration volume.

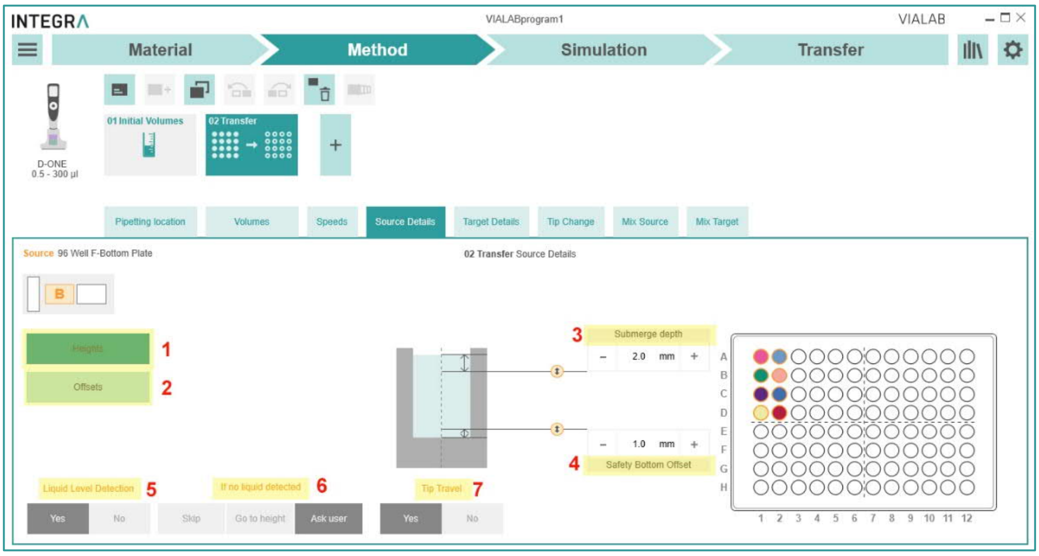
<table>
<tr><th>Parameter</th><th>Description</th></tr>
<tr><td>Speeds</td><td>

- **Aspiration and Dispense Speed** (1): set the aspiration and dispense speeds for this step. Set the slider to the appropriate speed from 1 (slow) to 10 (fast).
- If necessary, adapt parameters for viscous and volatile liquids:
  Aspiration Delay (2): a delay in seconds after aspiration before moving out of the liquid.
  Dispense Delay (3): a delay in seconds after dispensing before moving out of the liquid.
  Exit Liquid Slowly (4): the tips move slowly out of the liquid (for aspiration and for dispense).

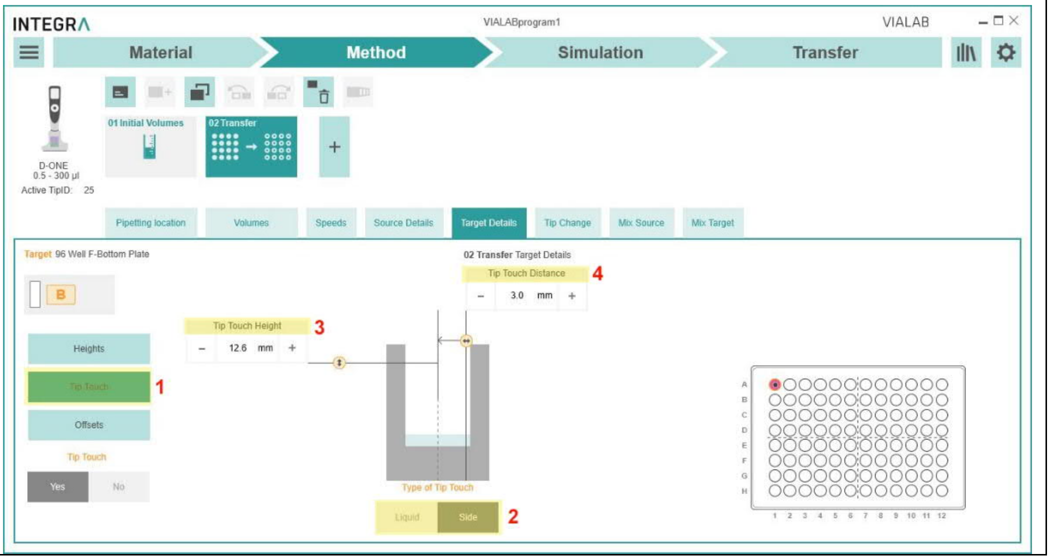


- **Movement Speeds** (5): changes the speeds of the Tower in X-direction, of the Pipette arm in Z-direction or the Pipette holder in Y-direction [1 (slow) to 10 (fast)].
- **Pre-Wetting** (6): if pre-wetting of the tips is desired activate it and set the number of cycles. All fresh tips are pre-wetting with the following aspiration volume and speeds.

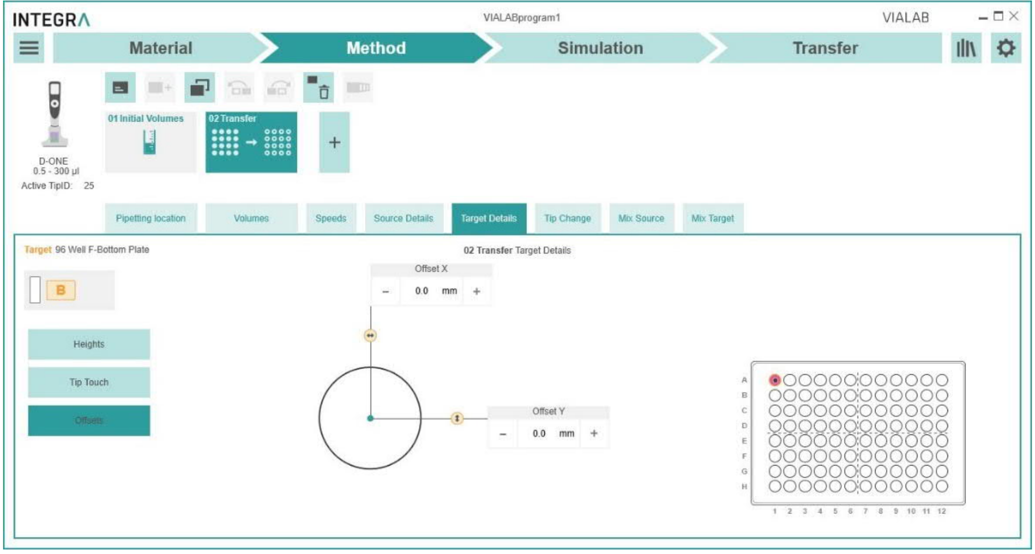
</td></tr>
</table>

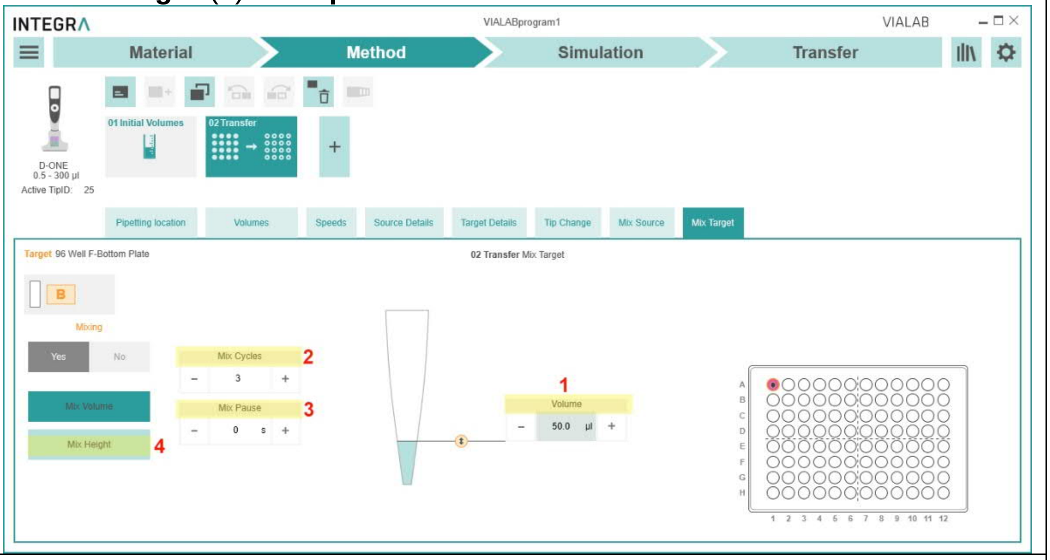
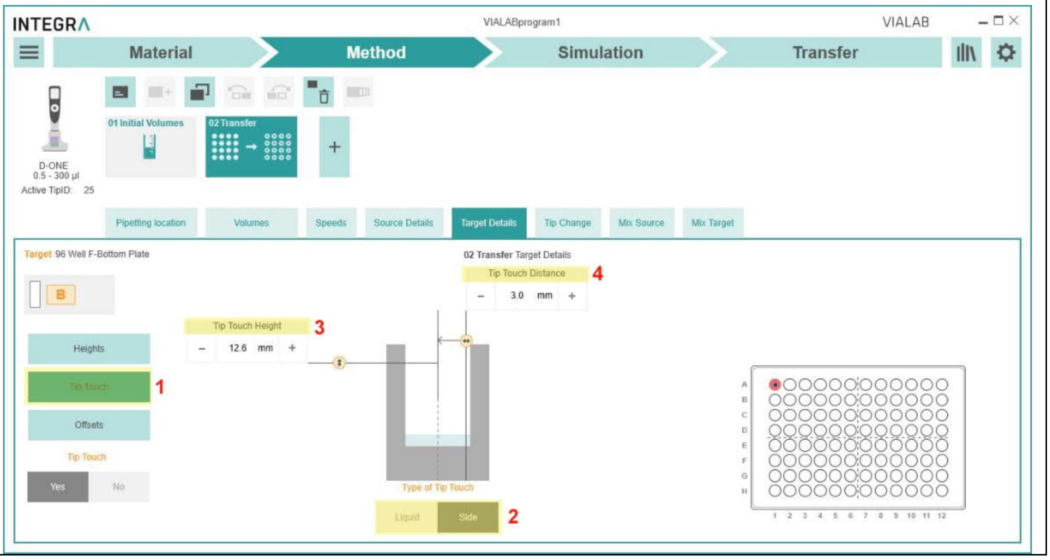
Parameter	Description
Source Details Target Details	The calculated liquid level in the well is displayed to ease height definition graphically. Click on **Heights** (1) and move the line up or down to enter the heights for aspiration/dispense referring to the deck (deck height is 0 mm). The **Safety Bottom Offset** (4) defines the minimum distance of the tips to the bottom of the labware and is calculated automatically according to the labware dimensions and pipetting volume. If the **Heights** are variable, define the pipetting heights for every column. **Tip Travel** (7) is the movement of tip during one aspiration/dispense to compensate the decrease/increase of the liquid level. It is recommended for high pipetting volumes in vessels with small diameter. If activated, aspiration/ dispense starts at the **Start Height / Submerge Depth** (3) and ends at the **End Height / Safety Bottom Offset** (4), which is calculated automatically according to the labware dimensions and pipetting volume. If Tip Travel is deactivated the aspiration/dispense is performed at a constant **Height** (1).  Source 96 Well F-Bottom Plate 02 Transfer Source Details Submerge depth – 2.0 mm + – 1.0 mm + Safety Bottom Offset **D-ONE only:** **Liquid Level Detection** (5) is on per default and the **Submerge depth** (3) is displayed on top of the well. The liquid level is detected by the D-ONE automatically. If "No" is selected, the pipetting start height must be set manually. Define the error handling, **If no liquid detected** (6). "Skip" automatically continues with the next source well. "Go to height" continues by aspirating from a pre-defined pipetting height. "Ask user" stops and asks the user to select one of these options: Skip, Repeat and Go to height. **Note**: it is possible to fine-tune the Pipetting Height / Start Height directly on the pipette to optimize the heights according to the used liquid (see ASSIST PLUS Operating Instructions chapter 5.4 “Adjust heights and positions”).

Note: LLD feature exclusive for the D-ONE modules and not for VIAFLO/VOYAGER pipettes.

Parameter	Description
Tip Touch	Set a tip touch (1) after dispensing to remove drops that may cling on the pipette tips. Set whether the tip touch should be performed into the **Liquid** or on the **Side** (2) of the wells. Enter the **Tip Touch Height** (3) and the **Distance** (4) to the vessel wall.  Tip Touch Height 12.6 mm Tip Touch Distance 3.0 mm Tip Touch: Yes Type of Tip Touch: Side

Note: If red exclamation marks appear, the program contains errors. Click on “Validation messages” for further details.

Parameter	Description
Offset	 Offset X 0.0 mm Offset Y 0.0 mm Define a well **Offset**, if you want to pipette off the well center or even out of wells, this is helpful for processing e. g. for transwell plates.

Parameter	Description
Tip Change	Set when tips should be changed. The Tip change options can vary from step to step in VIALAB. Here some examples: **Continue next step without change**: same tips will be used for next step. **After step complete**: change tips after completing the current step **After each transfer/dispense/dilution**: change tips after each dispense **Before each new aspiration**: change tips before each new aspiration If the "Tip Ejection Type" is activated in the Program Settings (see chapter 0), the tips can be either positioned on the ejector ledge before ejection (**Ledge**) or are directly ejected into the middle of the waste bin (**Waste**). Tips may stack up and the waste bin needs to be emptied more often.
Mix	Define, if the sample should be mixed in the source well before aspiration and in the target well after dispensing. Define the mix **Volume** (**1**), the number of **Cycles** (**2**), if a **Pause** (**3**) should be performed in between mixing cycles. Define the **Mix Height** (**4**) and **Speed**.  Mix Cycles: 3 Mix Pause: 0 s Volume: 50.0 µl
Tip Touch	Set a tip touch (**1**) after dispensing to remove drops that may cling on the pipette tips. Set whether the tip touch should be performed into the **Liquid** or on the **Side** (**2**) of the wells. Enter the **Tip Touch Height** (**3**) and the **Distance** (**4**) to the vessel wall.  Tip Touch Height: 12.6 mm Tip Touch Distance: 3.0 mm

Note: If red exclamation marks appear, the program contains errors. Click on "Validation messages" for further details.

6.4 Method steps only for D-ONE pipetting module

These additional steps are only available for D-ONE pipetting module (PN 4531, 4532):

Symbol	Step	Description
Master Mix	Master Mix	Add multiple master mix reagent components from individual tubes to one target tube or well. A Master Mix reaction calculator generates reagent volumes required.
Hit Picking	Hit Picking	Individual wells from multiple source plates are transferred to one target plate (condense the hits). Create and import a worklist containing the source plate and sample location.
Normalization	Normalization	Sample of different concentrations are diluted to a final concentration. Pipetting location, sample identifier and concentration data are entered manually by the user.
Normalization W	Normalization Worklist	Sample of different concentrations are diluted to a final concentration. Pipetting location, sample identifier and concentration data is imported from a worklist file.
Worklist	Worklist	Pipetting steps are created based on an imported worklist. Allows higher pipetting flexibility useful for e.g., NGS Library Pooling and any sample transfers imported in a table format.

6.4.1 Importing worklists

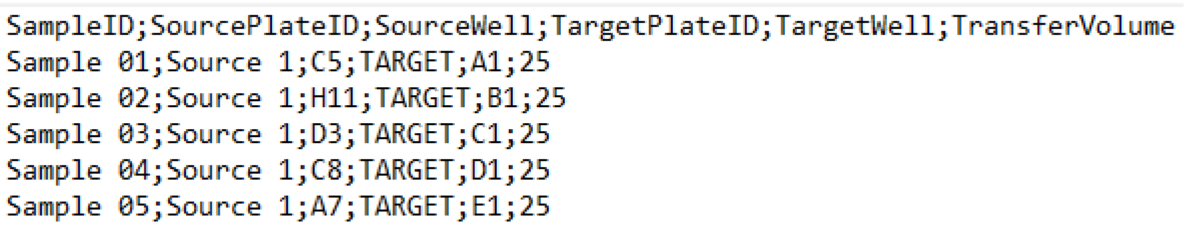
D-ONE module allows importing worklists that either follow a specific worklist format or have been created using the worklist templates provided by INTEGRA. The pipetting steps Hit Picking, Normalization Worklist and Worklist allow import of worklists with max. 384 lines.

6.4.1.1 Worklist format

Hit Picking worklist:

File format:	.csv
Column separator:	semicolon
Number of columns	6
Column header	SampleID, SourcePlateID, SourceWell, TargetPlateID, TargetWell, TransferVolume

Find below an example of a Hit Picking worklist:

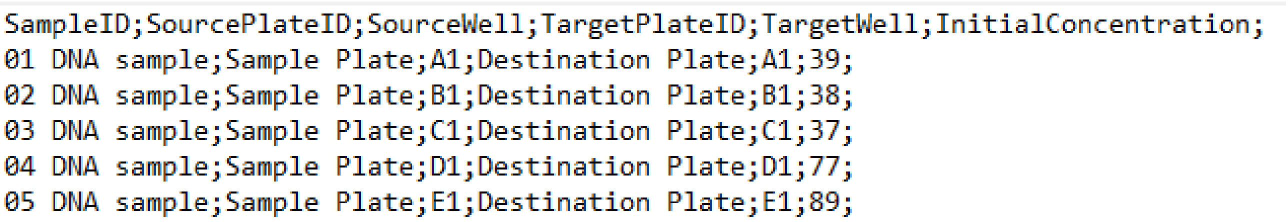


```
SampleID;SourcePlateID;SourceWell;TargetPlateID;TargetWell;TransferVolume
Sample 01;Source 1;C5;TARGET;A1;25
Sample 02;Source 1;H11;TARGET;B1;25
Sample 03;Source 1;D3;TARGET;C1;25
Sample 04;Source 1;C8;TARGET;D1;25
Sample 05;Source 1;A7;TARGET;E1;25
```

Normalization worklist:

File format:	.csv
Column separator:	semicolon
Number of columns	6
Column header	SampleID, SourcePlateID, SourceWell, TargetPlateID, TargetWell, InitialConcentration

Find below an example of a Normalization worklist:

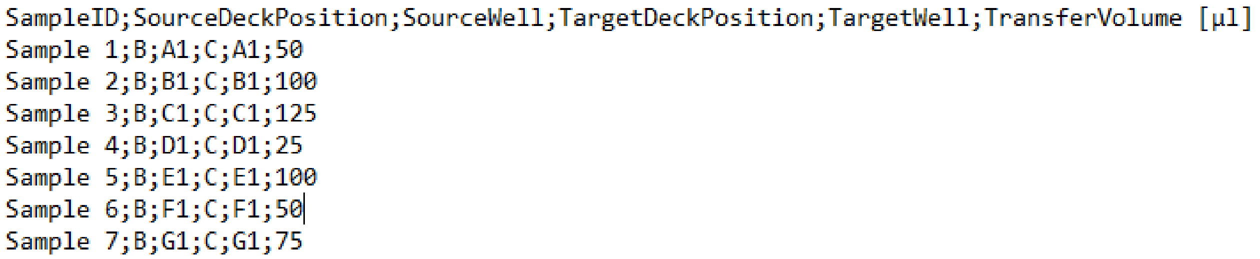


```
SampleID;SourcePlateID;SourceWell;TargetPlateID;TargetWell;InitialConcentration;
01 DNA sample;Sample Plate;A1;Destination Plate;A1;39;
02 DNA sample;Sample Plate;B1;Destination Plate;B1;38;
03 DNA sample;Sample Plate;C1;Destination Plate;C1;37;
04 DNA sample;Sample Plate;D1;Destination Plate;D1;77;
05 DNA sample;Sample Plate;E1;Destination Plate;E1;89;
```

Worklist:

File format:	.csv
Column separator:	semicolon
Number of columns	6
Column header	SampleID, SourceDeckPosition, SourceWell, TargetDeckPosition, TargetWell, TransferVolume [µl]

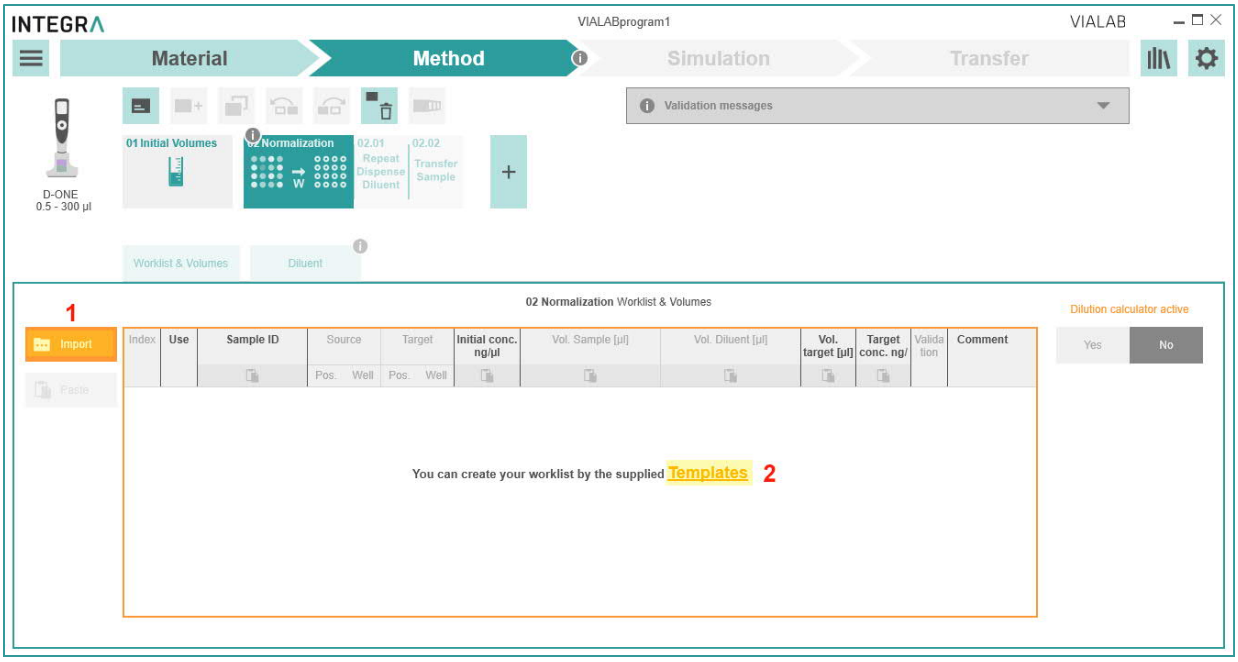
Find below an example of a Worklist:



```
SampleID;SourceDeckPosition;SourceWell;TargetDeckPosition;TargetWell;TransferVolume [µl]
Sample 1;B;A1;C;A1;50
Sample 2;B;B1;C;B1;100
Sample 3;B;C1;C;C1;125
Sample 4;B;D1;C;D1;25
Sample 5;B;E1;C;E1;100
Sample 6;B;F1;C;F1;50
Sample 7;B;G1;C;G1;75
```

6.4.1.2 Create a worklist with INTEGRA`s template

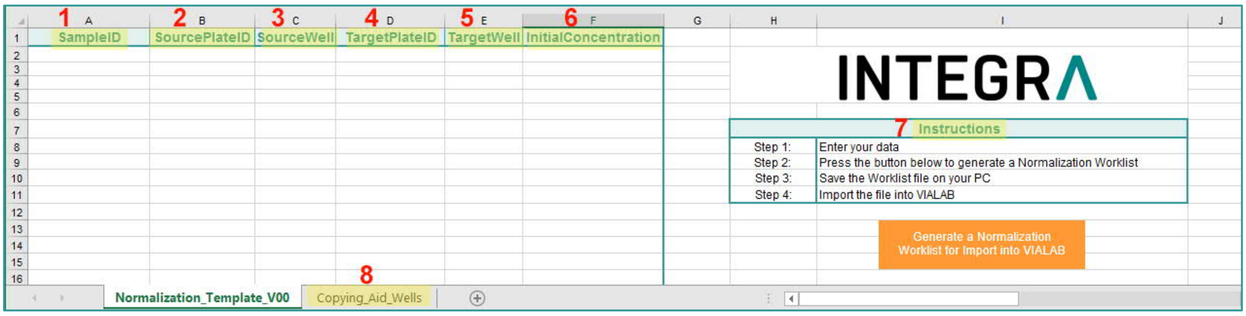
- If the worklist is already defined, just press **Import** (**1**) to import the worklist into VIALAB.
- To create a new worklist, press on **Templates** (**2**) and you are automatically directed to the VIALAB folder "MyWorklists" containing templates and sample work lists for Hitpicking and Normalization.



You can create your worklist by the supplied Templates

Note: Always use the templates provided by INTEGRA to generate a worklist.

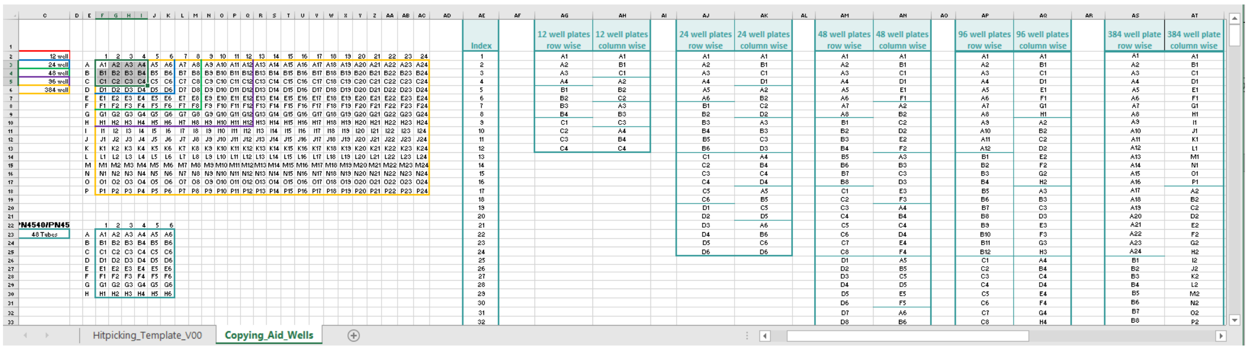
- Open the corresponding template, e.g. the normalization template:



Step 1: Enter your data
Step 2: Press the button below to generate a Normalization Worklist
Step 3: Save the Worklist file on your PC
Step 4: Import the file into VIALAB

1 **SampleID**: name of sample, e.g. barcode.
2 **SourcePlateID**: name of source plate, e.g. barcode or source plate 1, source plate 2, etc.
3 **SourceWell**: position of source well, e.g. A1, B3, etc.
4 **TargetPlateID**: name of target plate, e.g. target plate.
5 **TargetWell**: position of target well.
6 **TransferVolume [µl]**: transfer volume.
7 **Instructions**: follow the instructions to generate the Normalization template.
8 **Copying_Aid_Wells**: list of well numbers which can be used to copy source and target wells into the template.

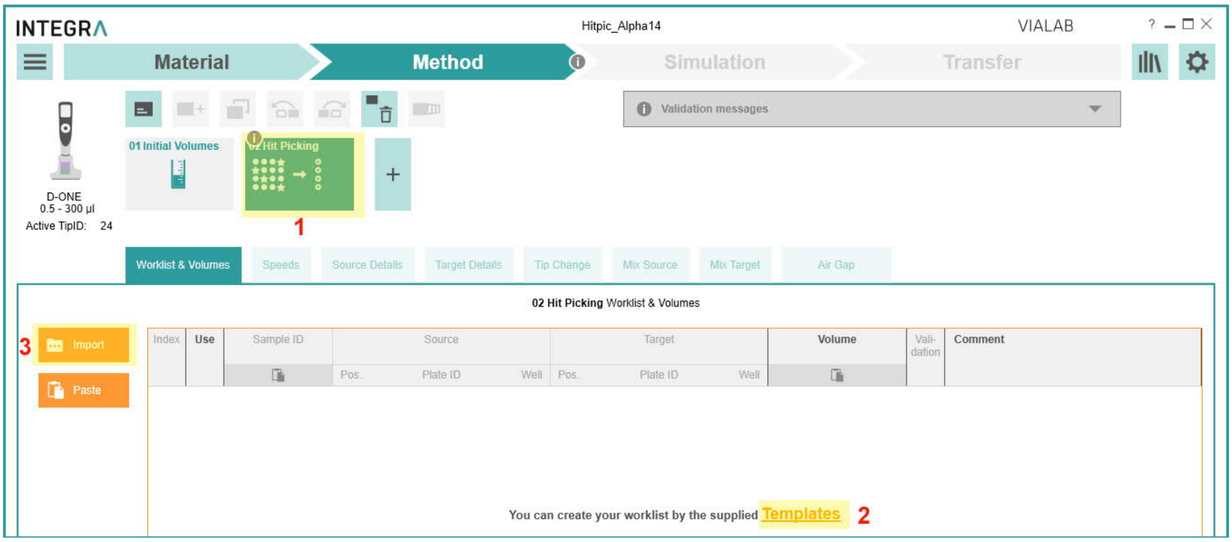
- Copy data from e.g. another excel file column by column into the template file, or use Copying_Aid_Wells (8):



- After the template is filled out press on the orange button "Generate a Normalization Worklist", and a worklist.csv file is automatically generated. Name the file and save on e.g. your local drive.
- Go back to VIALAB and import the previous defined worklist.csv file.

6.4.2 Hit Picking

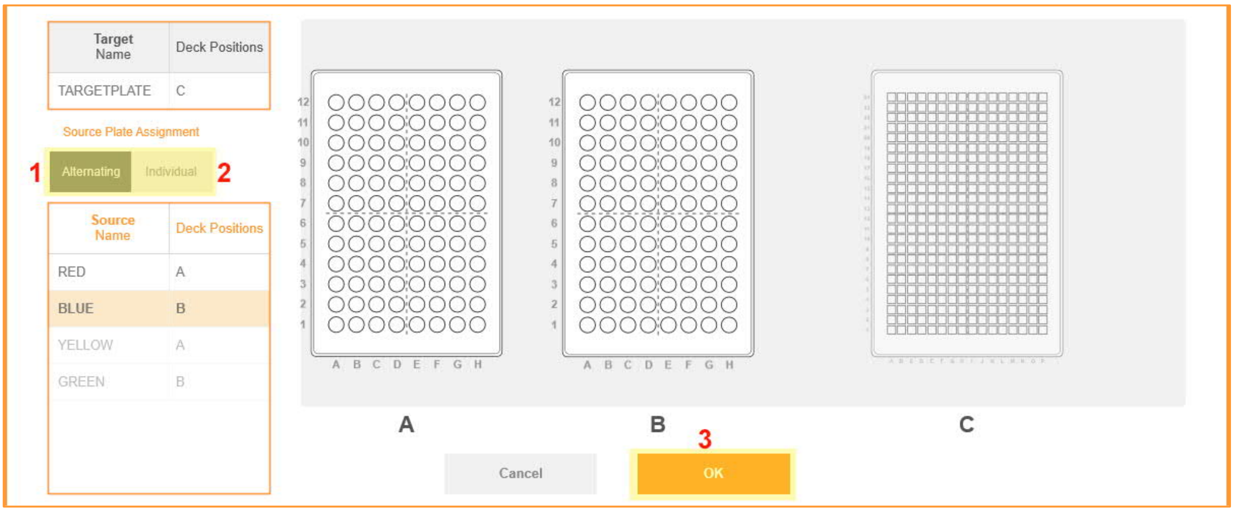
- Start your method by adding a **Hit Picking** (1) step.



02 Hit Picking Worklist & Volumes

You can create your worklist by the supplied Templates

- Click on **Templates** (2) to open an EXCEL file and define a worklist with source and target wells, see 6.4.1. After pressing the orange button in the template, a worklist in a csv file format necessary for import into VIALAB is generated. Click on **Import** (3) to load the worklist.
- You are requested to assign the deck position where the target plate is placed.



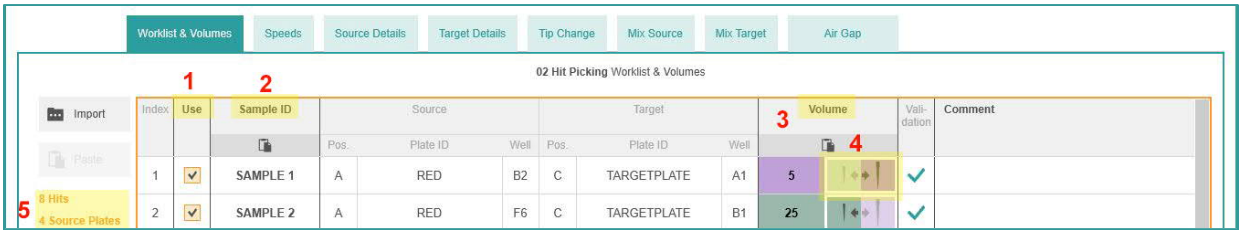
Target Name	Deck Positions
TARGETPLATE	C

Source Plate Assignment

Source Name	Deck Positions
RED	A
BLUE	B
YELLOW	A
GREEN	B

If the source plates should be processed in a fix pattern, select **Alternating** (1) and just assign plates and corresponding deck positions of the first layout. Click on **Individual** (2) if the source plates should be assigned individually to each deck position. Press **OK** (3).

- The worklist is displayed:



02 Hit Picking Worklist & Volumes

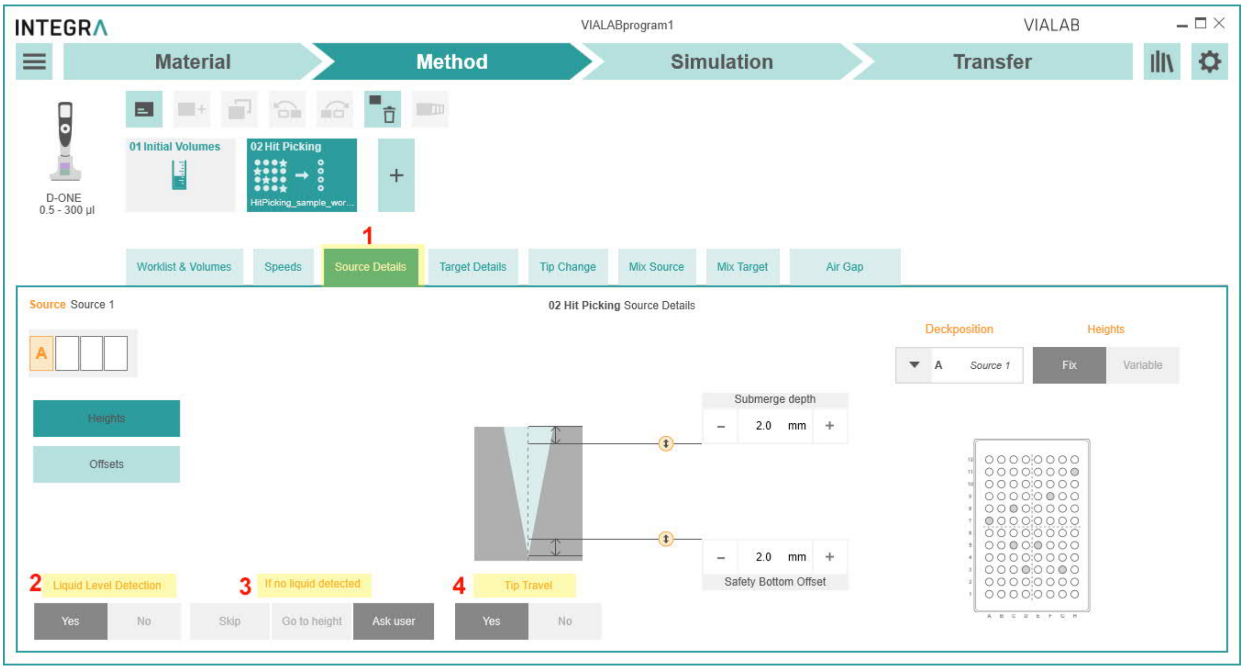
Index	Use	Sample ID	Source			Target			Volume		Vali-dation	Comment
			Pos.	Plate ID	Well	Pos.	Plate ID	Well				
1	☑	SAMPLE 1	A	RED	B2	C	TARGETPLATE	A1	5		✓	
2	☑	SAMPLE 2	A	RED	F6	C	TARGETPLATE	B1	25		✓	

8 Hits
4 Source Plates

By removing the checkmark under Use (1), you can exclude samples from processing. You can also change the sample ID (2), the volume (3) and the tip type (4) and. The number of hits and source plates are shown at the side (5).

- Adjust the other parameters like Speeds, Source and Target Details, Tip Change.
- Under **Source Details** (1) **Liquid Level Detection** (LLD, 2) and **Tip Travel** (4) are default switched on. Consequently, the aspiration height and the initial volume must not be defined.

Note: LLD is only possible with new and dry tips.



Submerge depth – 2.0 mm +

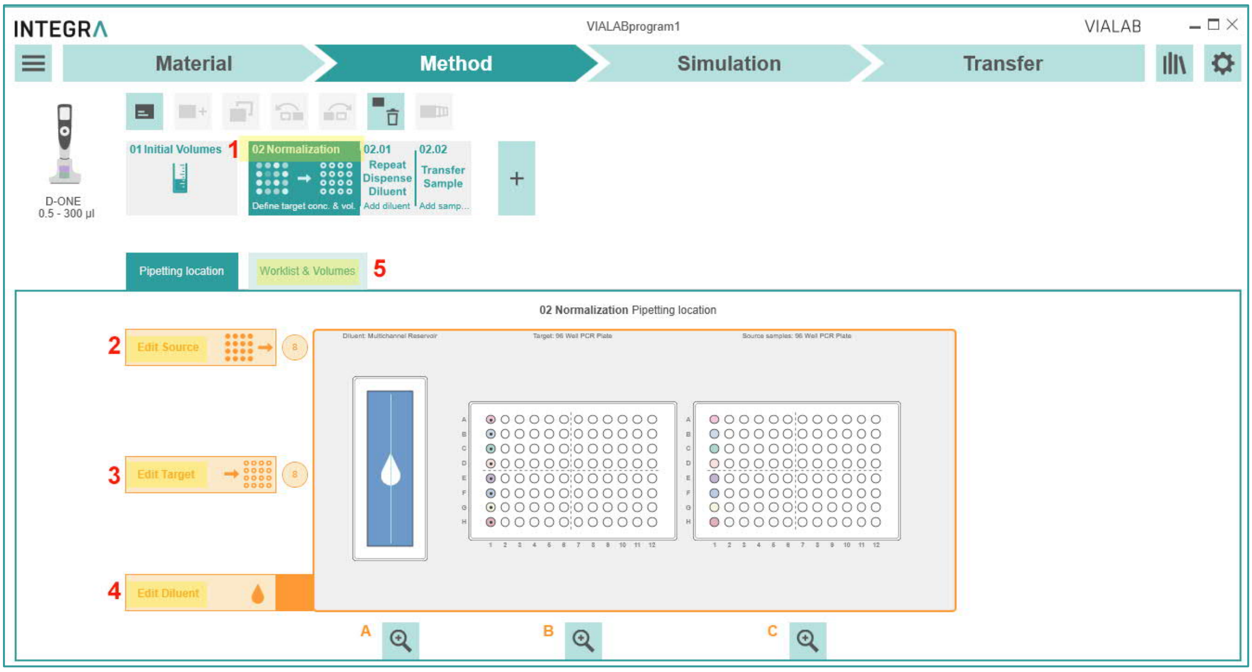
– 2.0 mm +
Safety Bottom Offset

Define the error handling, **If no liquid detected** (3), as described under Method, see 6.3.

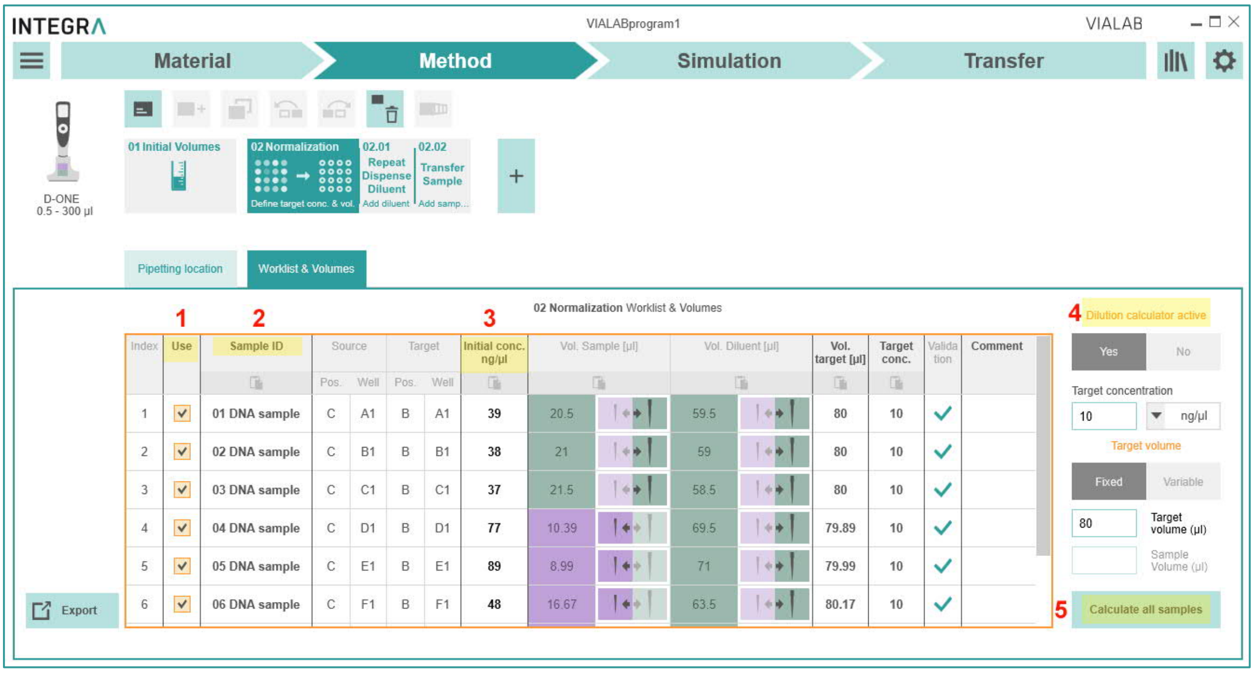
6.4.3 Normalization

With this step the samples which need to be normalized must be chosen in the graphics.

- Add a **Normalization** (1) step to your method. Define the source (2), target (3) wells and then the diluent (4).



- Under **Worklist & Volumes** (5) the worklist is displayed:



02 Normalization Worklist & Volumes

Index	Use	Sample ID	Source		Target		Initial conc. ng/µl	Vol. Sample [µl]	Vol. Diluent [µl]	Vol. target [µl]	Target conc.	Validation	Comment
			Pos.	Well	Pos.	Well							
1	☑	01 DNA sample	C	A1	B	A1	39	20.5	59.5	80	10	✓	
2	☑	02 DNA sample	C	B1	B	B1	38	21	59	80	10	✓	
3	☑	03 DNA sample	C	C1	B	C1	37	21.5	58.5	80	10	✓	
4	☑	04 DNA sample	C	D1	B	D1	77	10.39	69.5	79.89	10	✓	
5	☑	05 DNA sample	C	E1	B	E1	89	8.99	71	79.99	10	✓	
6	☑	06 DNA sample	C	F1	B	F1	48	16.67	63.5	80.17	10	✓	

Dilution calculator active: Yes

Target concentration: 10 ng/µl

Target volume: Fixed

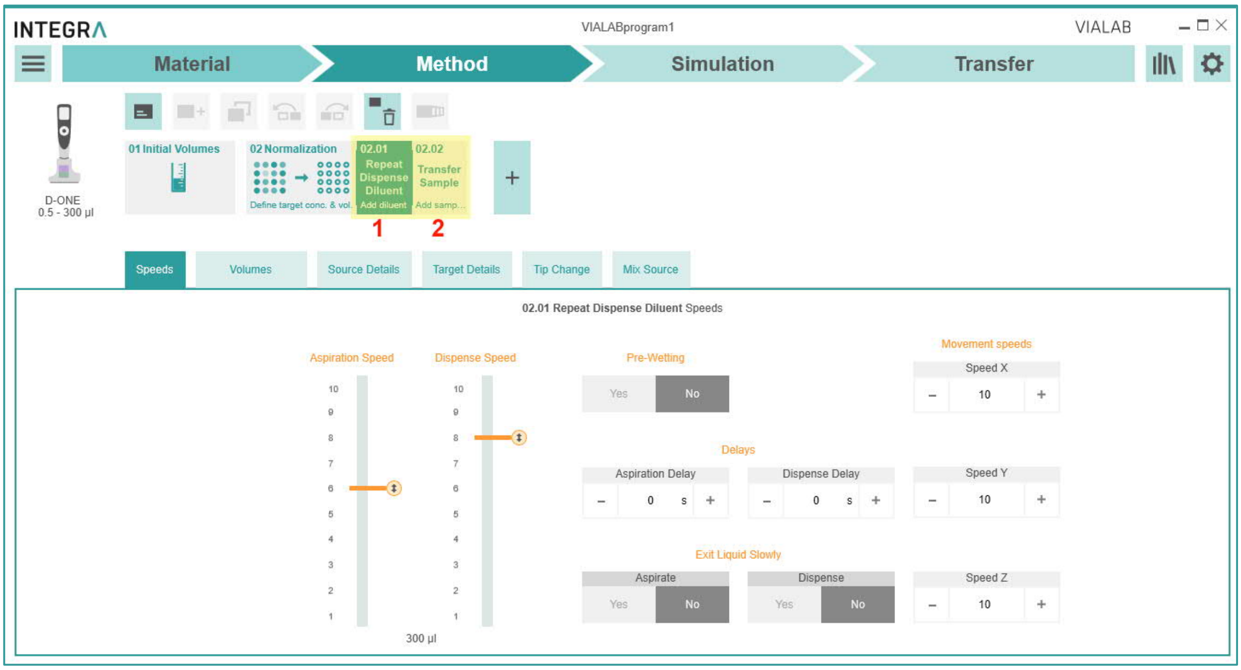
Target volume (µl): 80

Sample Volume (µl):

Calculate all samples

- By removing the checkmark under Use (1), you can exclude samples from processing. Copy or type sample details, i.e. the name/barcode (Sample ID, 2) and the initial concentration (3).
- If you switch on the **Dilution calculator** (4), you can adjust the target volume and concentration. Click on **Calculate all samples** (5) to automatically calculate all parameters (volumes, pipette tips) automatically.

- The step **Repeat Dispense Diluent** (**1**) first transfers the diluent, followed by **Transfer Sample** (**2**). Both steps allow to set pipetting parameters such as Speeds.



02.01 Repeat Dispense Diluent Speeds

Aspiration Speed: 6

Dispense Speed: 8

300 µl

Pre-Wetting: Yes [✓ No]

Delays

Aspiration Delay: 0 s

Dispense Delay: 0 s

Exit Liquid Slowly

Aspirate: Yes [✓ No]

Dispense: Yes [✓ No]

Movement speeds

Speed X: 10

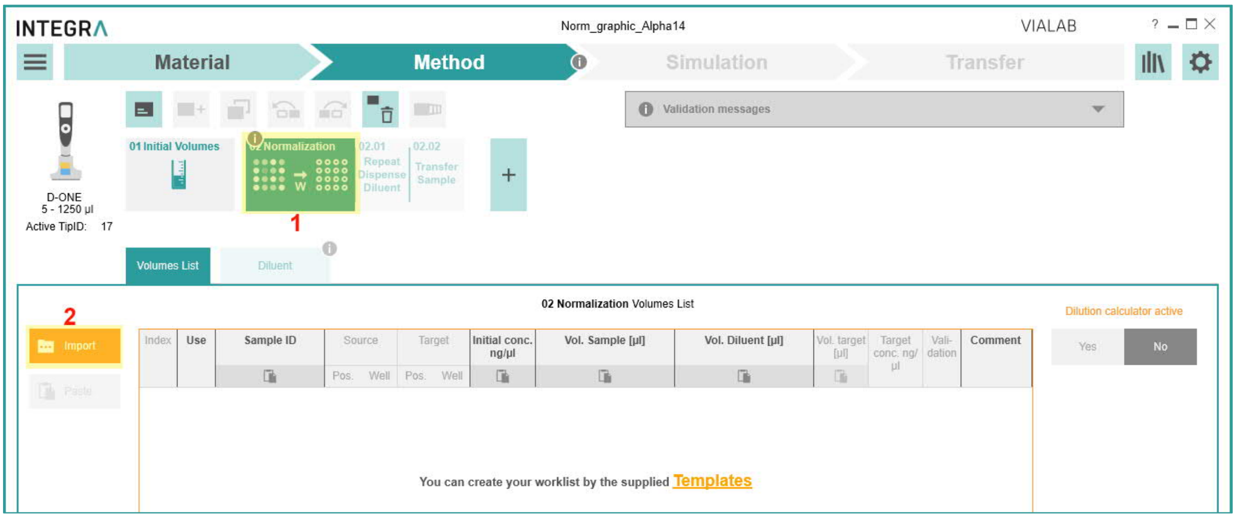
Speed Y: 10

Speed Z: 10

6.4.4 Normalization Worklist

With this step the samples which need to be normalized must be previously defined in a worklist and imported.

- Add a **Normalization Worklist** (1) step to your method. Click on **Import** (2) to load the worklist file, see 6.4.1.

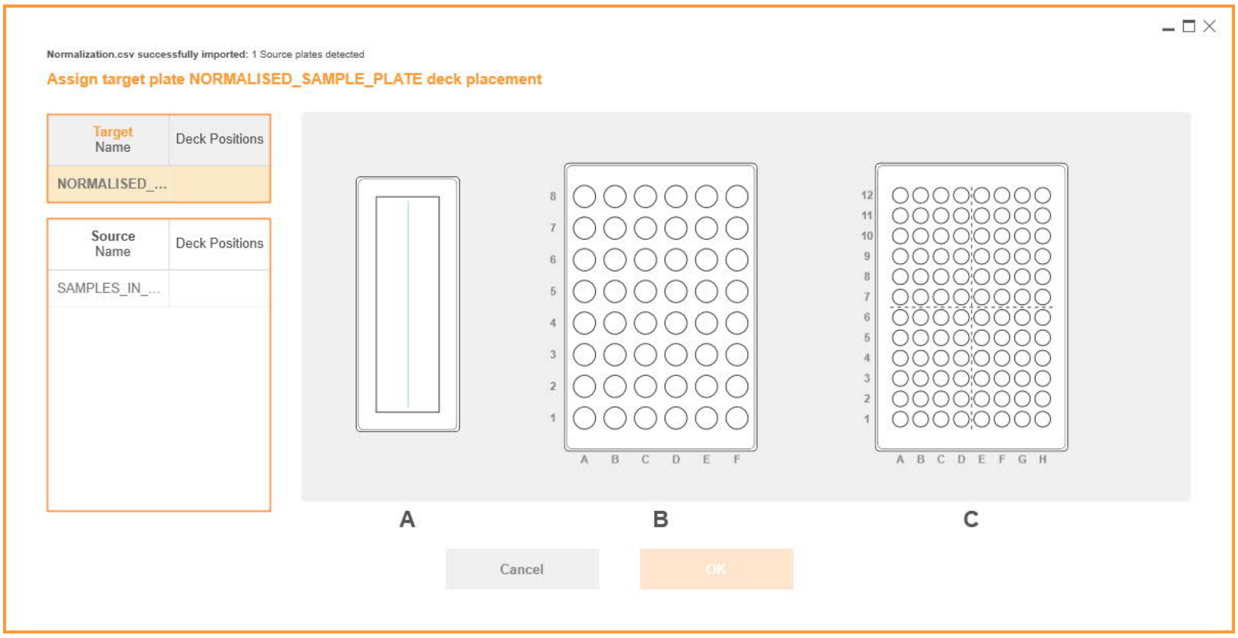


02 Normalization Volumes List

Index	Use	Sample ID	Source		Target		Initial conc. ng/µl	Vol. Sample [µl]	Vol. Diluent [µl]	Vol. target [µl]	Target conc. ng/µl	Vali-dation	Comment
			Pos.	Well	Pos.	Well							

You can create your worklist by the supplied Templates

- Assign where the target and source plates are placed on deck. Then assign the position of the diluent.

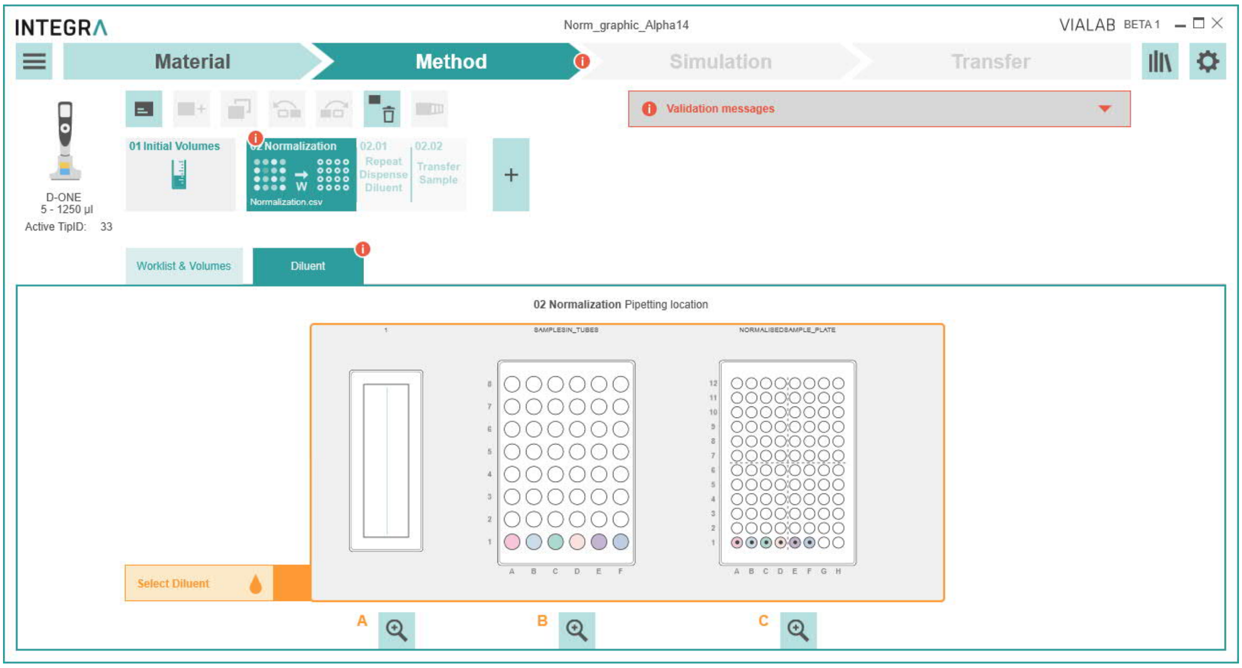


Normalization.csv successfully imported: 1 Source plates detected

Assign target plate NORMALISED_SAMPLE_PLATE deck placement

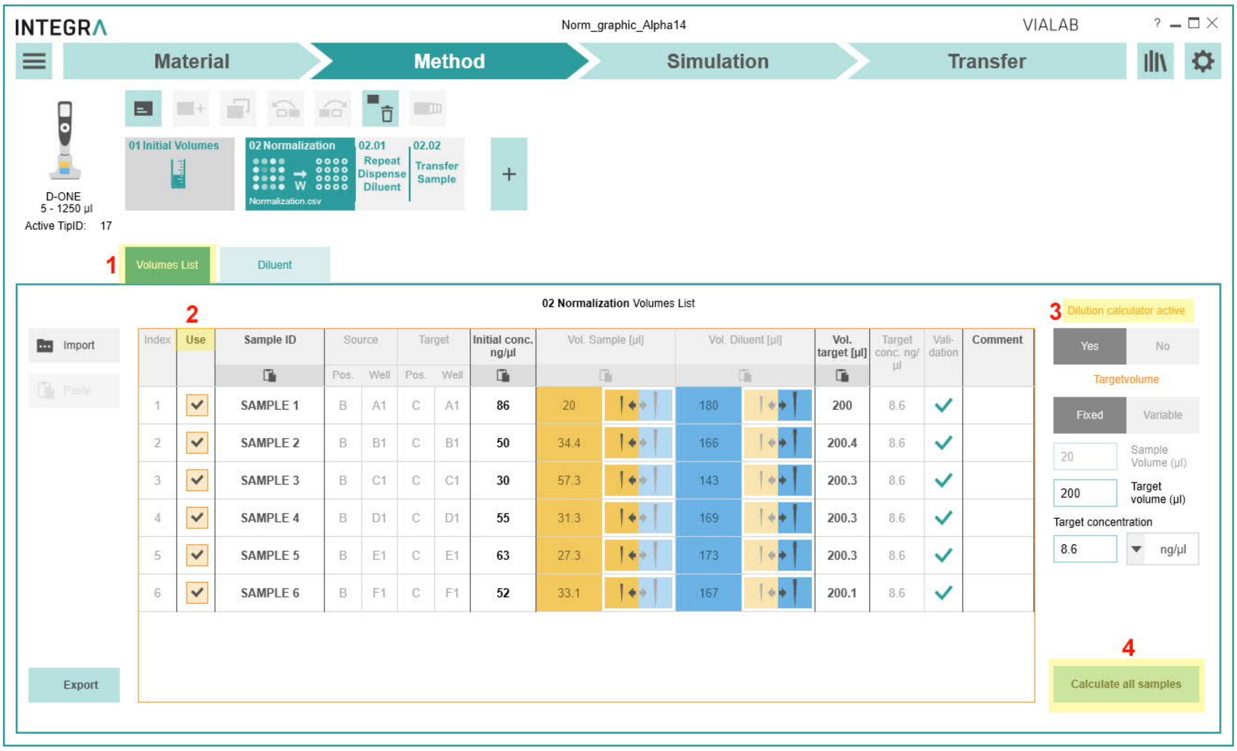
Target Name	Deck Positions
NORMALISED_...	

Source Name	Deck Positions
SAMPLES_IN_...	



Click on the diluent, i.e. the reservoir in the example above.

- Under **Volumes List** (1) the worklist is displayed. By removing the checkmark under Use (2), you can exclude samples from processing.



02 Normalization Volumes List

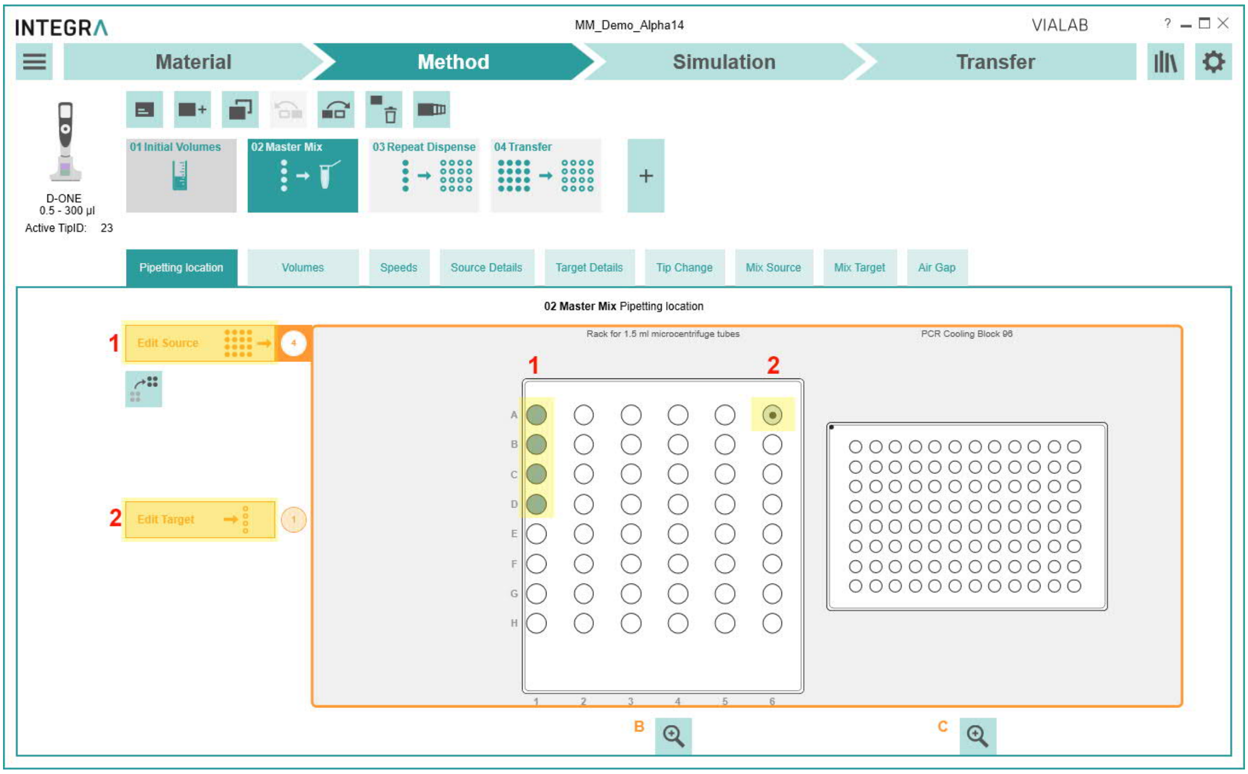
Index	Use	Sample ID	Source		Target		Initial conc. ng/µl	Vol. Sample [µl]	Vol. Diluent [µl]	Vol. target [µl]	Target conc. ng/µl	Vali-dation	Comment
			Pos.	Well	Pos.	Well							
1	☑	SAMPLE 1	B	A1	C	A1	86	20	180	200	8.6	✓	
2	☑	SAMPLE 2	B	B1	C	B1	50	34.4	166	200.4	8.6	✓	
3	☑	SAMPLE 3	B	C1	C	C1	30	57.3	143	200.3	8.6	✓	
4	☑	SAMPLE 4	B	D1	C	D1	55	31.3	169	200.3	8.6	✓	
5	☑	SAMPLE 5	B	E1	C	E1	63	27.3	173	200.3	8.6	✓	
6	☑	SAMPLE 6	B	F1	C	F1	52	33.1	167	200.1	8.6	✓	

Dilution calculator active: Yes / No
Targetvolume: Fixed / Variable
Sample Volume (µl): 20
Target volume (µl): 200
Target concentration: 8.6 ng/µl
Calculate all samples

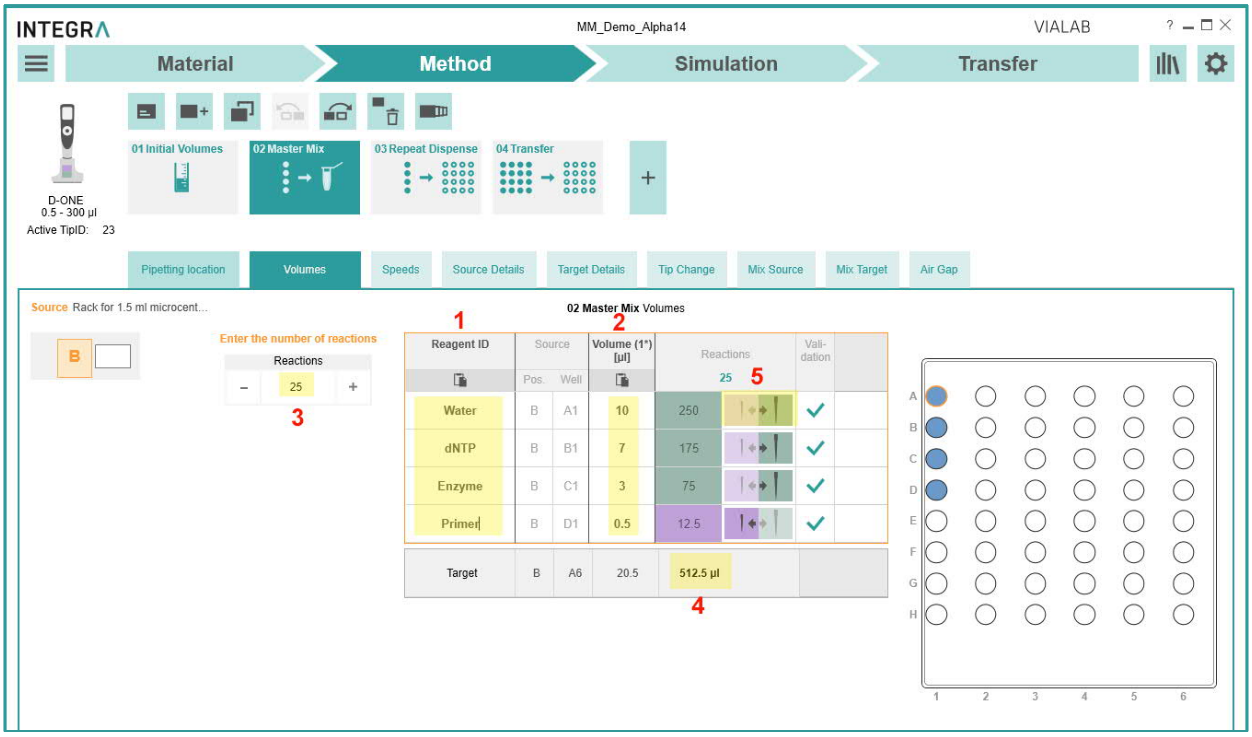
If you switch on the **Dilution calculator** (3), you can adjust the target volume and concentration. Click on **Calculate all samples** (4) to automatically calculate all parameters (volumes, pipette tips) automatically.

6.4.5 Master Mix

- Define the location of the source (1) and the target (2) tubes.



- Under **Volumes** name the reagents (1), e.g. water, dNTP, enzyme, primer, and enter the Volume (2) for a single reaction.



Source Rack for 1.5 ml microcent...

B

Enter the number of reactions

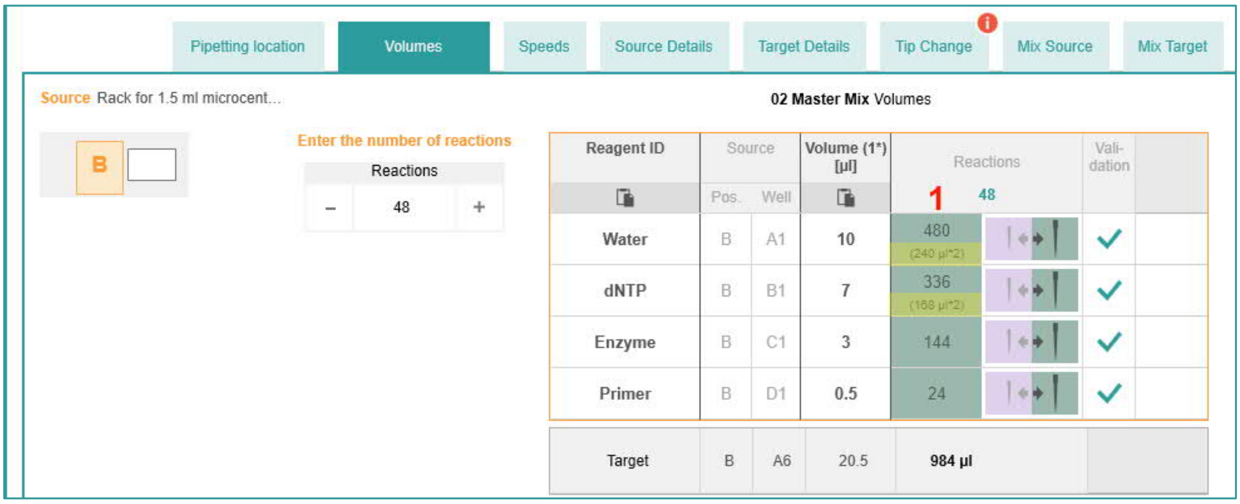
Reactions: 25

02 Master Mix Volumes

Reagent ID	Source Pos.	Source Well	Volume (1*) [µl]	Reactions 25		Vali-dation
Water	B	A1	10	250		✓
dNTP	B	B1	7	175		✓
Enzyme	B	C1	3	75		✓
Primer	B	D1	0.5	12.5		✓
Target	B	A6	20.5	512.5 µl		

Enter the number of reactions (3). The total reagent volumes and the Target (4) volume are calculated automatically. The correct tip size is also selected automatically by VIALAB. If desired, the tip type can be manually changed by the user (5).

Note: If the calculated volume exceeds the tip volume, the volume is dispensed multiple times with the same tip, indicated by a multiplicator (*, 1).



Source Rack for 1.5 ml microcent...

Enter the number of reactions

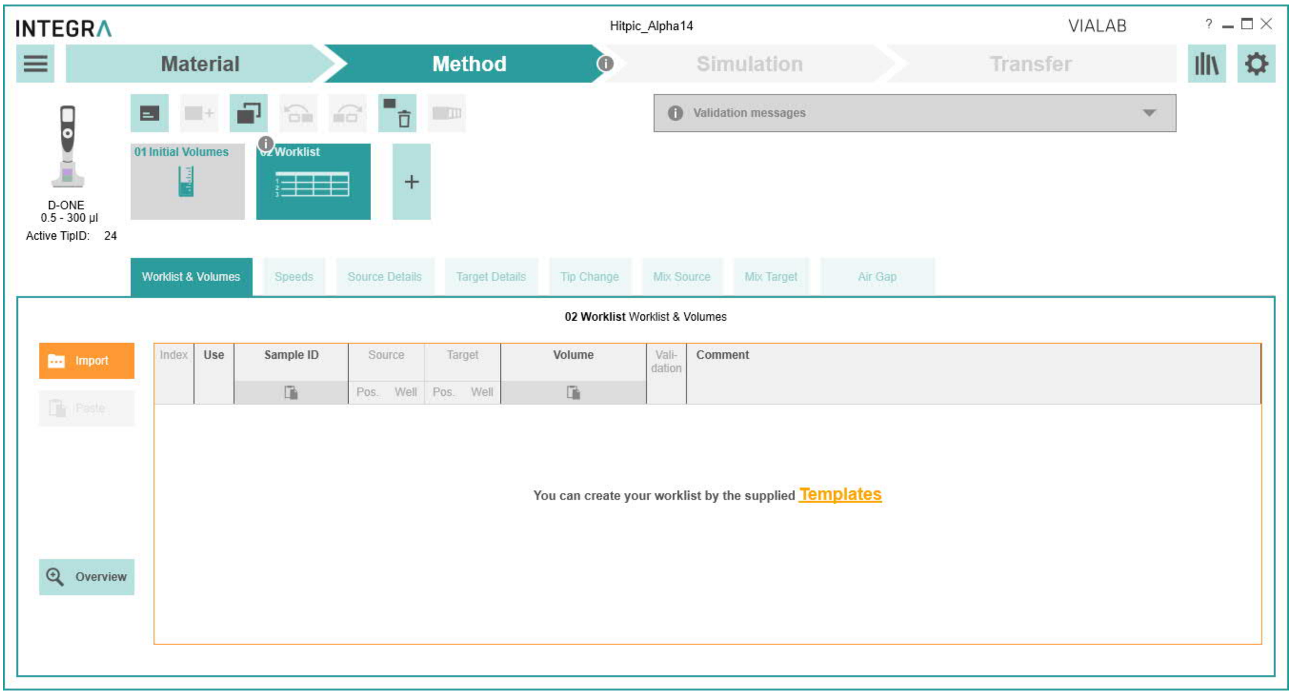
Reactions: 48

02 Master Mix Volumes

Reagent ID	Source		Volume (1*) [µl]	Reactions		Vali-dation
	Pos.	Well		48		
Water	B	A1	10	480 (240 µl*2)		✓
dNTP	B	B1	7	336 (168 µl*2)		✓
Enzyme	B	C1	3	144		✓
Primer	B	D1	0.5	24		✓
Target	B	A6	20.5	984 µl		

6.4.6 Worklist

Use the Worklist step to set up a customized program based on an imported worklist, see 6.4.1.



D-ONE
0.5 - 300 µl
Active TipID: 24

02 Worklist Worklist & Volumes

Index	Use	Sample ID	Source		Target		Volume	Vali-dation	Comment
			Pos.	Well	Pos.	Well			

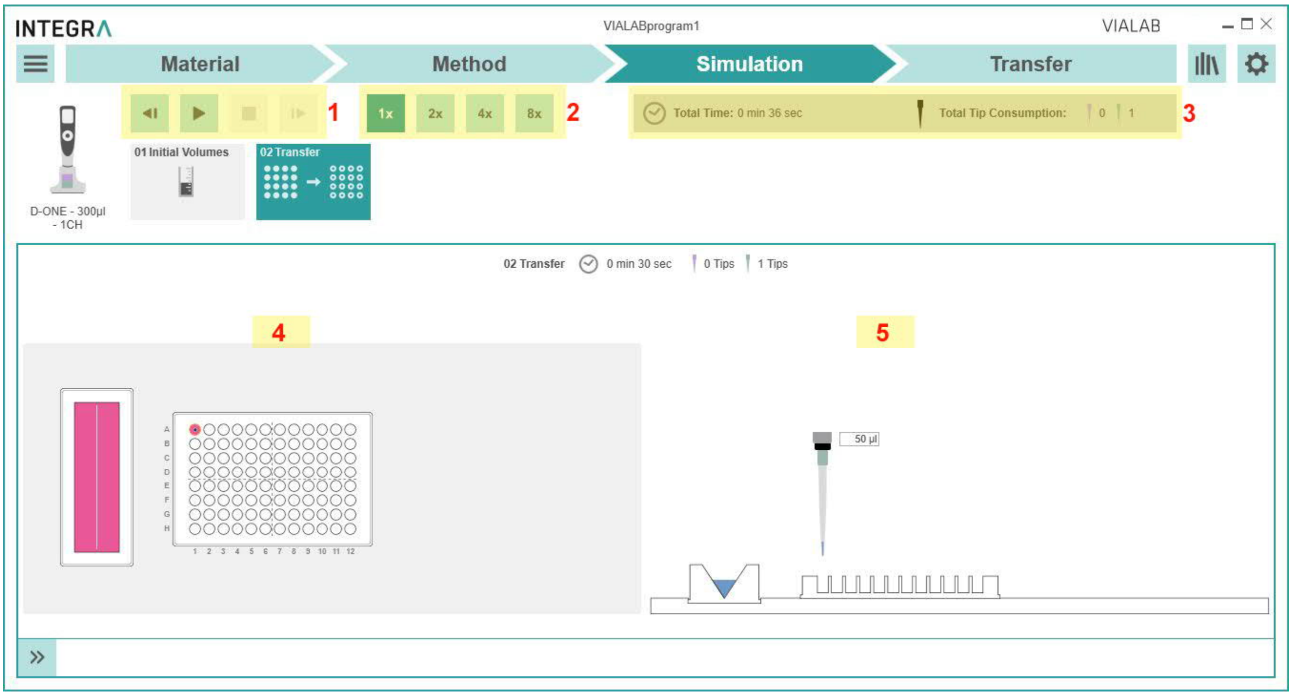
You can create your worklist by the supplied Templates

6.5 Simulation

In the simulation window the deck with the defined labware is displayed. On the top all steps are listed. Click on the play button to start the simulation of your program. Watch the whole simulation or navigate between steps or stop the simulation (**1**).

To speed up the simulation to 2-, 4- or 8-fold speed, select the appropriate button (**2**). An estimation of the Total Time and the Total Tip Consumption is listed (**3**).

The simulation is displayed as top (**4**) and side (**5**) view of the deck.



For all error-free programs a report is generated by clicking on the Main Menu and selecting “Report”. A report in pdf format with all settings of the program is generated.

6.6 Transfer

Transfer your VIALAB program to your pipette and run it from your pipette. Alternatively connect the ASSIST PLUS via USB to the PC, connect the Pipette and start a program from VIALAB directly.

6.6.1 Connect pipette or pipetting module to the PC

Connection via charging/communication stand (#4211)

Connect the USB cable to the stand and a free USB port on your computer. It is recommended to connect the stand to the mains power supply. Then hang the pipette or the D-ONE module onto the stand.

Go to the “Toolbox” of the pipette/D-ONE. In the menu “Communications” select “USB”. Stay in this menu for transfer.

Connection via communication module for pipette (#4221)

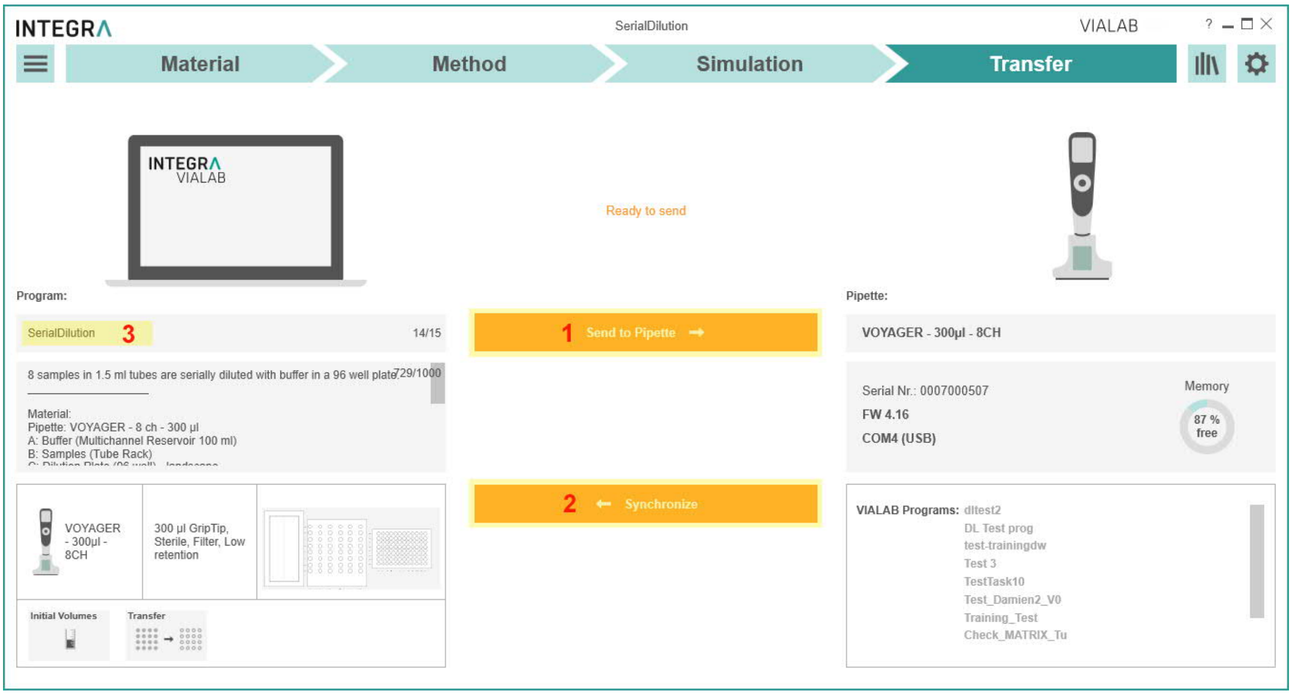
Pipette or D-ONE and PC need to be paired for the first connection. Please refer to MS Windows Help to learn how to pair Bluetooth devices. The following pairing code may be required: 12345.

Go to the “Toolbox” of the pipette. In the menu “Communications” select “via ASSIST PLUS”.

6.6.2 Transfer

In VIALAB switch to the section “Transfer” for saving the program to the pipette.

Upon establishing the connection successfully, the pipette details, such as pipette model, serial number, and firmware version, are displayed on the right side. All VIALAB programs already saved on the pipette are also listed.



Ready to send

Program:

SerialDilution 14/15

8 samples in 1.5 ml tubes are serially diluted with buffer in a 96 well plate 729/1000

Material:
Pipette: VOYAGER - 8 ch - 300 µl
A: Buffer (Multichannel Reservoir 100 ml)
B: Samples (Tube Rack)

Pipette:

VOYAGER - 300µl - 8CH

Serial Nr.: 0007000507
FW 4.16
COM4 (USB)

87 % free

VIALAB Programs: dltest2
DL Test prog
test-trainingdw
Test 3
TestTask10
Test_Damien2_V0
Training_Test
Check_MATRIX_Tu

Send to Pipette (1) starts the transfer of the current program to the pipette. If certain parameters of the program are directly modified on the pipette (offsets, pipetting heights), synchronization of the program to VIALAB is possible (2).

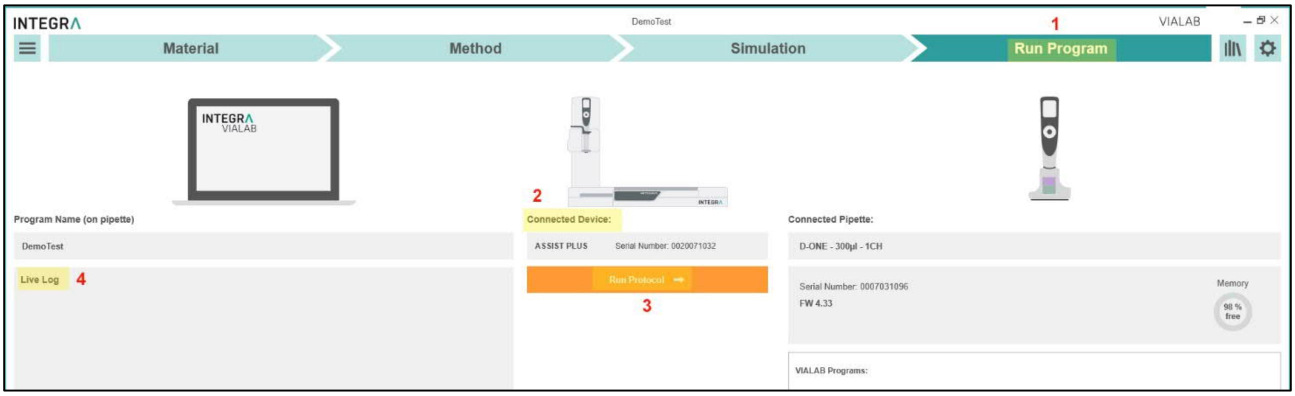
To change the program display name on the pipette type in an alternative program name with max. 15 characters (3).

Successful saving or synchronization of the program to the pipette / to VIALAB is indicated by a temporary message at the bottom of the window.

6.7 Run a program directly from VIALAB

To run a program directly from VIALAB, connect your ASSIST PLUS to your PC via USB. Then connect your pipette via ComModule to the ASSIST PLUS.

Enable a connection on the pipette under Toolbox – Communication, select PC Control A+.



Program Name (on pipette): DemoTest

Connected Device: ASSIST PLUS Serial Number: 0020071032

Connected Pipette: D-ONE - 300µl - 1CH

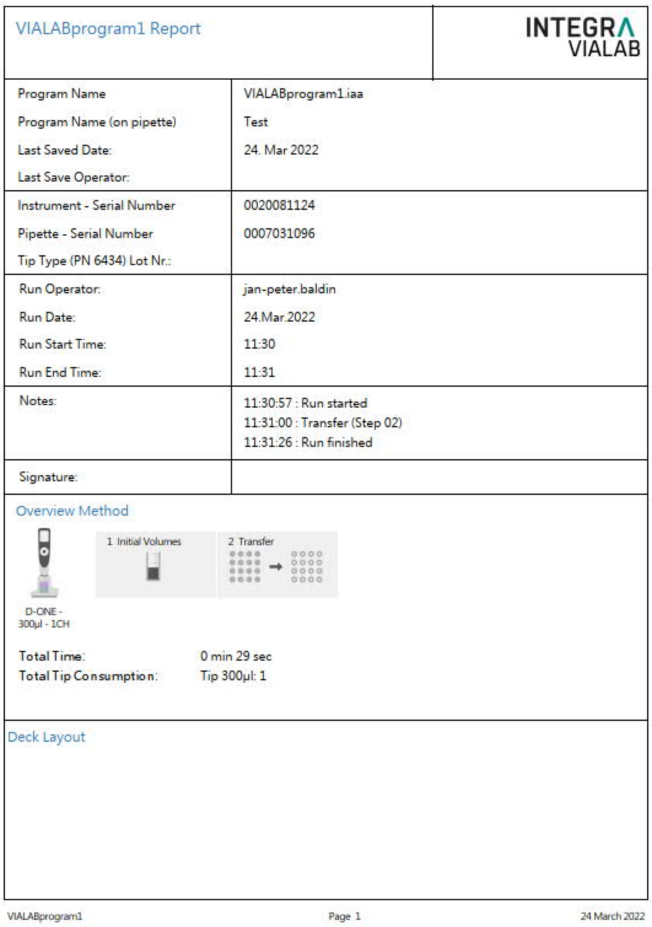
Serial Number: 0007031096
FW 4.33

VIALAB Programs:

As soon as the connection is successfully established the Transfer tab changes to Run Program (**1**) and the connected device is displayed with serial number (**2**).

Press Run Protocol (**3**). The VIALAB program is transferred automatically to the pipette. Under Live Log (**4**) the actual steps are displayed.

After the Run is done, the run report is generated automatically, showing all information such as serial numbers of ASSIST PLUS, pipette, user information, deck layout, method.



VIALABprogram1 Report

INTEGRA VIALAB

Program Name	VIALABprogram1.iaa
Program Name (on pipette)	Test
Last Saved Date:	24. Mar 2022
Last Save Operator:	
Instrument - Serial Number	0020081124
Pipette - Serial Number	0007031096
Tip Type (PN 6434) Lot Nr.:	
Run Operator:	jan-peter.baldin
Run Date:	24.Mar.2022
Run Start Time:	11:30
Run End Time:	11:31
Notes:	11:30:57 : Run started 11:31:00 : Transfer (Step 02) 11:31:26 : Run finished
Signature:	

Overview Method

Total Time: 0 min 29 sec
Total Tip Consumption: Tip 300µl: 1

Deck Layout

VIALABprogram1 Page 1 24 March 2022

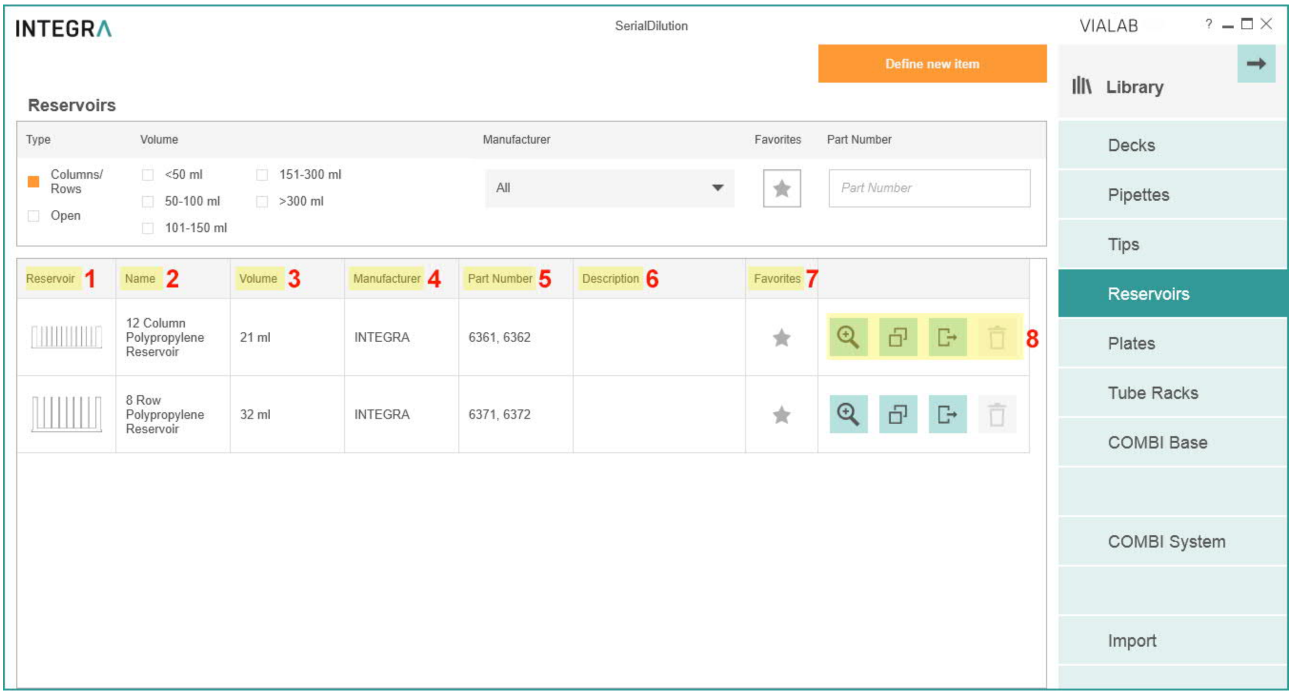
7 Labware library

You can access the labware library by clicking on the Library icon in the top right corner.

Within the labware library, you can define the dimensions of decks, reservoirs, plates, tube racks and COMBI Bases/Systems. Pipettes, GripTips and reservoirs from INTEGRA are already defined and cannot be modified.

7.1 Reservoirs

In the reservoir menu all predefined plates are listed. Select a desired property, e.g. Type, to quickly show already defined reservoirs of this property.



Type: ■ Columns/ Rows ☐ Open
Volume: ☐ <50 ml ☐ 50-100 ml ☐ 101-150 ml ☐ 151-300 ml ☐ >300 ml
Manufacturer: All
Favorites: ★
Part Number: Part Number

Reservoir 1	Name 2	Volume 3	Manufacturer 4	Part Number 5	Description 6	Favorites 7
	12 Column Polypropylene Reservoir	21 ml	INTEGRA	6361, 6362		★
	8 Row Polypropylene Reservoir	32 ml	INTEGRA	6371, 6372		★

1 **Reservoir**: the icon shows the number and shape of the wells and well bottom.

2 **Name**: indicates the number and shape of the wells and well bottom, as well as other properties such as half-area.

3 **Volume**: shows the maximal well volume of the reservoir or compartment as defined by the manufacturer.

4 **Manufacturer**: name of the reservoir manufacturer

5 **Part Number**: part number in accordance to the reservoir manufacturer

6 **Description**: optional

7 **Favorites**: select to mark as favorite. The material section in the program set-up has a filter to show only favorites.

8 **Tools:** Edit/View details, Copy, Export or Delete the selected labware. It is not possible to edit or delete INTEGRA items. To modify other predefined labware, create a copy first and then edit the copy.

To add new reservoirs to the library, click on “Define new item”. In the Configure Reservoir menu enter a unique name, the manufacturer, the part number of the reservoir and a description, if applicable. The description can also be used for lab personal to identify the reservoir.

Reservoir Width 161.43 mm

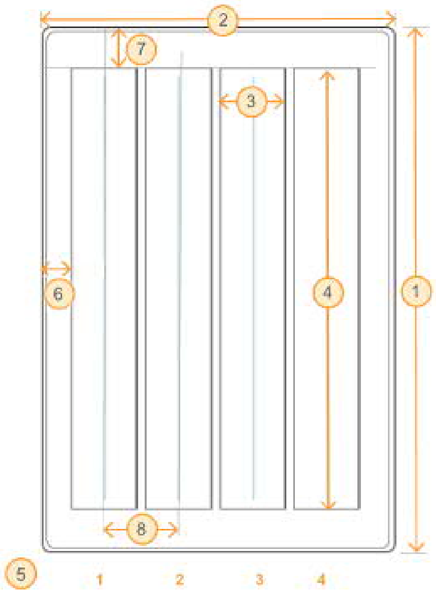
Reservoir Length 84.10 mm

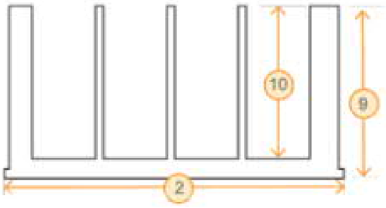
Compartment Width 59.74 mm

Compartment Length 136.83 mm

Compartment Count 1

Enter the reservoir dimensions. You will be supported by live drawing of the defined reservoir.



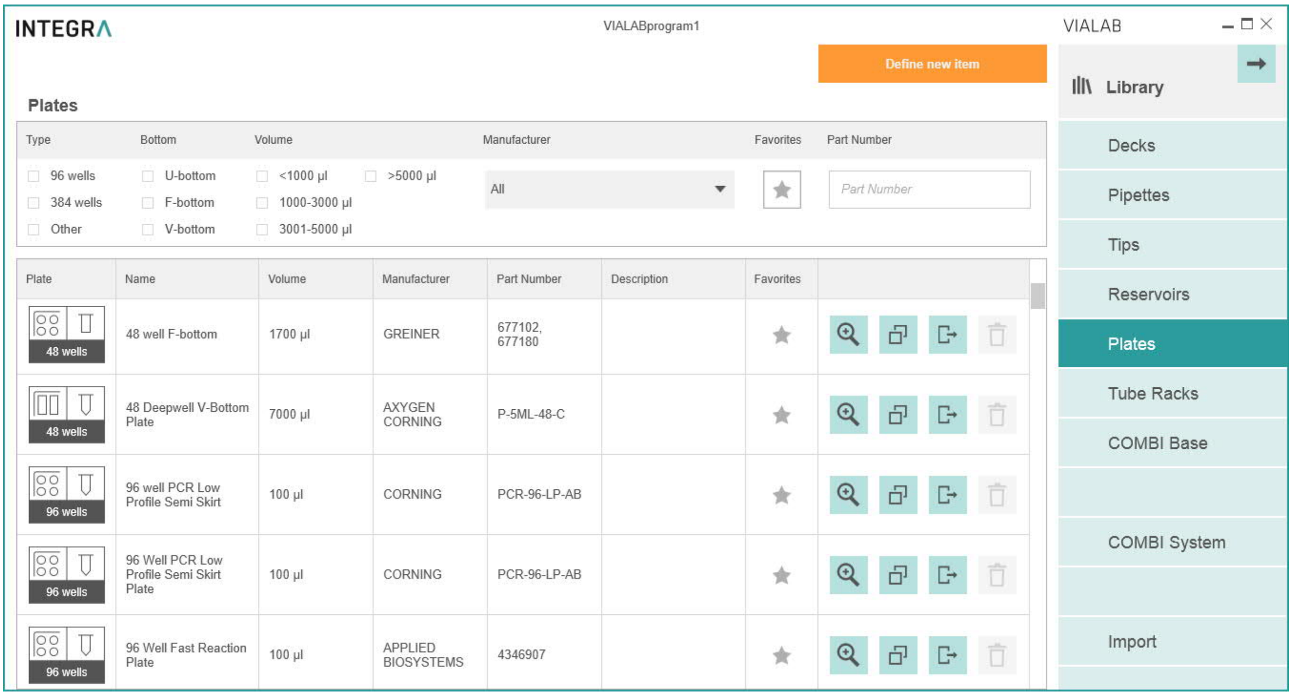


Note: Reservoirs are always set up with their compartment(s) in vertical direction.

Dimension	Description
Reservoir Width	The outside Width (1) of the reservoir including the bottom outside flanges, i.e. the displayed dimension from back to front.
Reservoir Length	The outside Length (2) of the reservoir including the bottom outside flanges, i.e. the displayed sideward dimension.
Compartment Width	The width of the compartments, i. e. the inner sideward dimensions (3).
Compartment Length	The length of the compartments, i. e. the inner distance from back to front (4)
Compartment Count	The number of the compartments (5), e. g. 4.
Left edge offset of First Compartment	The distance between the left outside edge of the reservoir and the left edge of the first compartment, including the bottom outside flange (6).
Top edge offset of First Compartment	The distance between the top outside edge of the reservoir and the top edge of the first compartment including the bottom outside flange (7).
Distance between Compartment Positions	The distance between the compartments, from the middle of one compartment to the middle of the next (8), e. g. 9 mm. This is the compartment width plus the spacing wall.
Type	Block. Rectangular flat bottom reservoirs can be defined.
Reservoir Height	The outside height (9) of the reservoir.
Compartment Depth	The inner depth (10) of the reservoir.
max. Volume	The maximal filling volume of one compartment.

7.2 Plates

In the plate menu all predefined plates are listed.



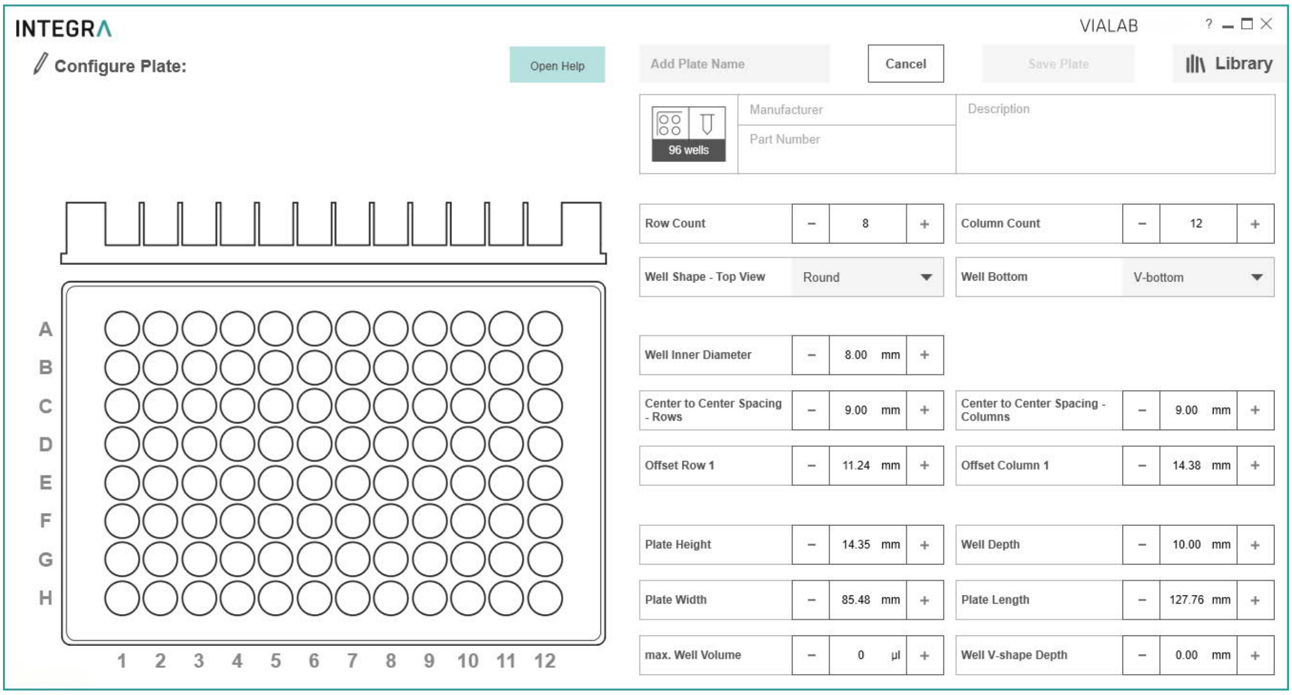
Plates

Type	Bottom	Volume		Manufacturer	Favorites	Part Number
☐ 96 wells	☐ U-bottom	☐ <1000 µl	☐ >5000 µl	All	★	Part Number
☐ 384 wells	☐ F-bottom	☐ 1000-3000 µl				
☐ Other	☐ V-bottom	☐ 3001-5000 µl				

Plate	Name	Volume	Manufacturer	Part Number	Description	Favorites
48 wells	48 well F-bottom	1700 µl	GREINER	677102, 677180		★
48 wells	48 Deepwell V-Bottom Plate	7000 µl	AXYGEN CORNING	P-5ML-48-C		★
96 wells	96 well PCR Low Profile Semi Skirt	100 µl	CORNING	PCR-96-LP-AB		★
96 wells	96 Well PCR Low Profile Semi Skirt Plate	100 µl	CORNING	PCR-96-LP-AB		★
96 wells	96 Well Fast Reaction Plate	100 µl	APPLIED BIOSYSTEMS	4346907		★

To add new plates to the library, click on “Define new item”.

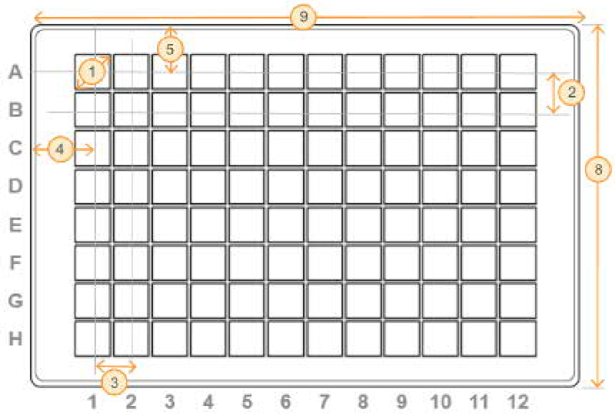
In the Configure Plate menu enter a unique name (e.g. well number and shape), the manufacturer and the part number of the plate.

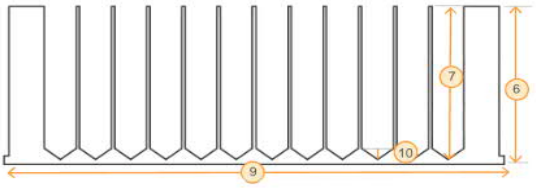


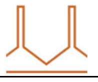
Row Count	8	Column Count	12
Well Shape - Top View	Round	Well Bottom	V-bottom
Well Inner Diameter	8.00 mm		
Center to Center Spacing - Rows	9.00 mm	Center to Center Spacing - Columns	9.00 mm
Offset Row 1	11.24 mm	Offset Column 1	14.38 mm
Plate Height	14.35 mm	Well Depth	10.00 mm
Plate Width	85.48 mm	Plate Length	127.76 mm
max. Well Volume	0 µl	Well V-shape Depth	0.00 mm

Note: For plates in adapters, e. g. in PCR 96 or 384 well cooling plates, define the dimensions of the inserted plate in combination with the adapter as one plate.

Enter all plate dimensions. You will be supported by live drawing of the defined plate.





Dimension	Description	
Row Count	A 96 well microplate is arranged as 8 rows by 12 columns. A 384 well microplate is arranged as 16 rows by 24 columns.	
Column Count		
Well Shape - Top View	Shape on the top of the well, is usually round.	
Well Bottom		U-bottom = round
		F-bottom = flat
		C-bottom = curved edges of flat bottom, e. g. for easy wash
		V-bottom = conical
Well Inner Diameter	Well diameter (**1**) on the top of the well	
Center to Center Spacing - Rows	The distance between the rows (**2**) /columns (**3**) from the middle of one well to the middle of the next well. 96 well: ANSI/SLAS-standard[1]: 9 mm 384 well: ANSI/SLAS-standard: 4.5 mm	
Center to Center Spacing - Columns		
Offset Row 1	The distance between the top outside edge of the plate and the center of the first row of wells (**4**).	
	96 well	ANSI/SLAS-standard: 11.24 mm
	384 well	ANSI/SLAS-standard: 8.99 mm
Offset Column 1	The distance between the left outside edge of the plate and the center of the first column of wells (**5**).	
	96 well	ANSI/SLAS-standard: 14.38 mm
	384 well	ANSI/SLAS-standard: 12.13 mm
Plate Height	Plate height (**6**). ANSI/SLAS-standard: 14.35 mm ± 0.76 mm	
Well Depth	Depth in the center of the well (**7**).	
Plate Width	The shorter side (**8**), ANSI/SLAS-standard: 85.48 mm ± 0.5 mm	
Plate Length	The longer side (**9**), ANSI/SLAS-standard: 127.76 mm ± 0.5 mm	
max. Well Volume	The total, calculated well volume, not the working volume	
Well V-shape Depth	Depth from start of conical narrowing to well bottom only for V-bottom wells (**10**).	

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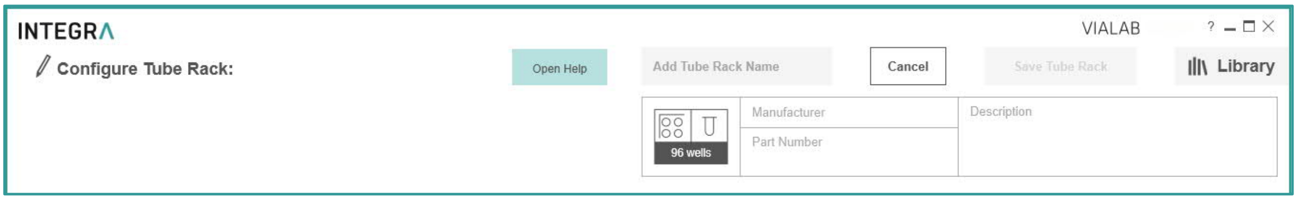
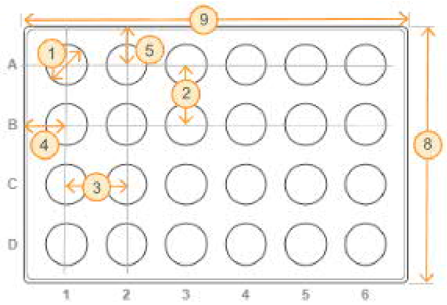
[1] ANSI: American National Standards Institute, SLAS: Society for Laboratory Automation and Screening.

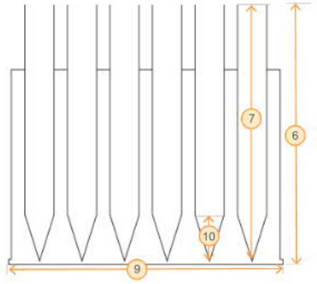
7.3 Tube Rack

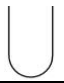
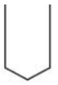
To create new tube racks, select Tube Racks and click on “Define new item”. In the Configure Tube Rack menu enter a unique name, the manufacturer, the part number and a description, if applicable.



Enter all tube rack dimensions and the tube type. You will be supported by live drawing of the defined rack.



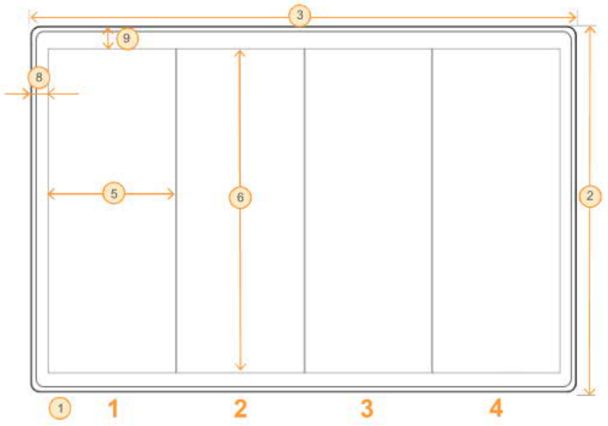


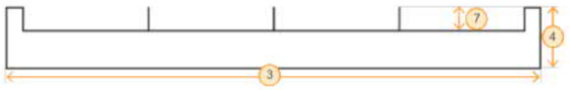
Dimension	Description	
Row Count	Number of rows.	
Column Count	Number of columns.	
Tube Shape - Topview	Shape on the top of the tubes, is usually round.	
Tube Shape - Bottom		U-bottom = round
		F-bottom = flat
		C-bottom = curved edges of flat bottom
		V-bottom = conical, including typical conical tube form with round bottom
Tube Inner Diameter	Tube inner diameter at the broadest position of the tube (1).	
Center to Center Spacing - Rows	The distance between the rows, from the middle of one tube to the middle of the next tube (2).	
Center to Center Spacing - Columns	The distance between the columns, from the middle of one tube to the middle of the next tube (3).	
Offset Column 1	The distance between the left outside edge of the rack and the center of the first column of tubes (4).	
Offset Row 1	The distance between the top outside edge of the rack and the center of the first row of tubes (5).	
Tube Rack Height	Total height of tube rack and tubes (6).	
Tube Depth	Depth in the center of the tube (7).	
Tube Rack Width	Width of the rack(8). ANSI/SLAS-standard: 85.48 mm ± 0.5 mm.	
Tube Rack Length	Lenght of the rack (9). ANSI/SLAS-standard: 127.76 mm ± 0.5 mm.	
Max. Tube Volume	The total, calculated tube volume, not the working volume.	
Tube V-shape Depth	Depth from start of conical narrowing to tube bottom, e. g. 3.1, only for V-bottom wells (10).	

7.4 COMBI Base

A COMBI Base is a platform where a module, i.e. a reservoir, plate or tube rack, can be placed on. It only acts as an adapter and you cannot choose a COMBI Base alone as a pipetting location (only a COMBI System see chapter 7.5)
To create a new COMBI Base, select COMBI Base and click on “Define new item”. In the Configure COMBI Base menu enter a unique name, the manufacturer, the part number of the COMBI Base and a description, if applicable.

Enter all COMBI base dimensions. You will be supported by live drawing of the defined COMBI base.





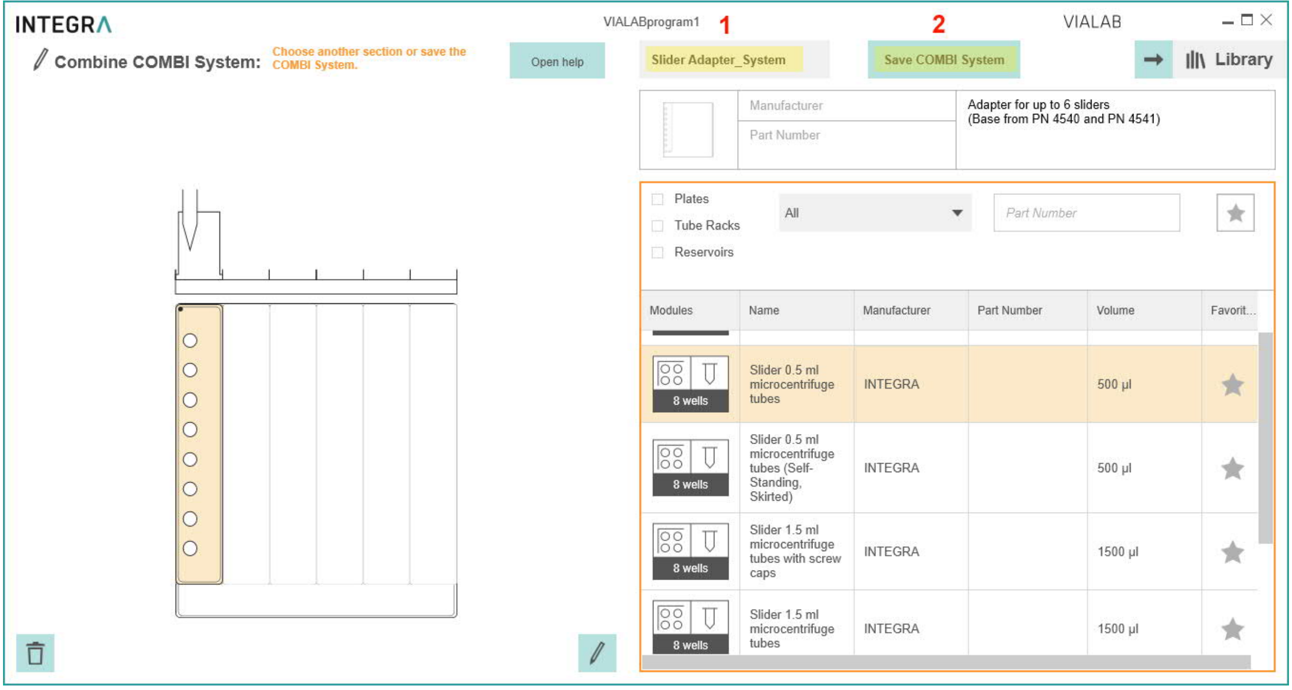
Dimension	Description
Division	**Regular**: a repeated number of identical sections are lined up. **Irregular**: sections are positioned freely within the outer dimensions of the base.
Sections	Number of sections (**1**).
Base Width	Width of the base (**2**). ANSI/SLAS-standard: 85.48 mm ± 0.5 mm.
Base Length	Length of the base (**3**). ANSI/SLAS-standard: 127.76 mm ± 0.5 mm.
Base Height	Total height of the base (**4**).
Sections Width	The width of a section (**5**).
Section Length	The length of a section (**6**).
Section Height	The height of a section (**7**). Negative values indicate that the bottom of the section is deeper than the whole COMBI base.
Left edge offset of section	The distance between the left outside edge of the base and the left edge of the first section, including the bottom outside flange (**8**).
Top edge offset of section	The distance between the top outside edge of the base and the top edge of the first section including the bottom outside flange (**9**).

Offset Row 1 The distance between the top outside edge of the rack and the center of the first row of tubes (**5**).

7.5 COMBI System

A COMBI System consists of a COMBI Base and individual modules, i.e. a reservoir, plate or tube rack, which are placed on the COMBI Base.

To create a new COMBI System, click on “Define new item”. In the Combine COMBI System menu select a COMBI Base.
Enter a unique name, the manufacturer, the part number and a description of the COMBI System, if applicable.



Slider Adapter_System

Adapter for up to 6 sliders
(Base from PN 4540 and PN 4541)

Modules	Name	Manufacturer	Part Number	Volume	Favorit...
8 wells	Slider 0.5 ml microcentrifuge tubes	INTEGRA		500 µl	★
8 wells	Slider 0.5 ml microcentrifuge tubes (Self-Standing, Skirted)	INTEGRA		500 µl	★
8 wells	Slider 1.5 ml microcentrifuge tubes with screw caps	INTEGRA		1500 µl	★
8 wells	Slider 1.5 ml microcentrifuge tubes	INTEGRA		1500 µl	★

1 **Name**: unique name under which the COMBI system is stored.
2 **Save COMBI system**: save button.

Click in a section and select a Module. Continue with the next section until all sections are filled. You will be supported by live drawing of the defined COMBI System. Click on Save COMBI System.

7.5.1 Slanted Plate Holder

The Slanted Plate Holder (PN 4510) can accommodate plates in three different angles: 10°, 20° and 30°.

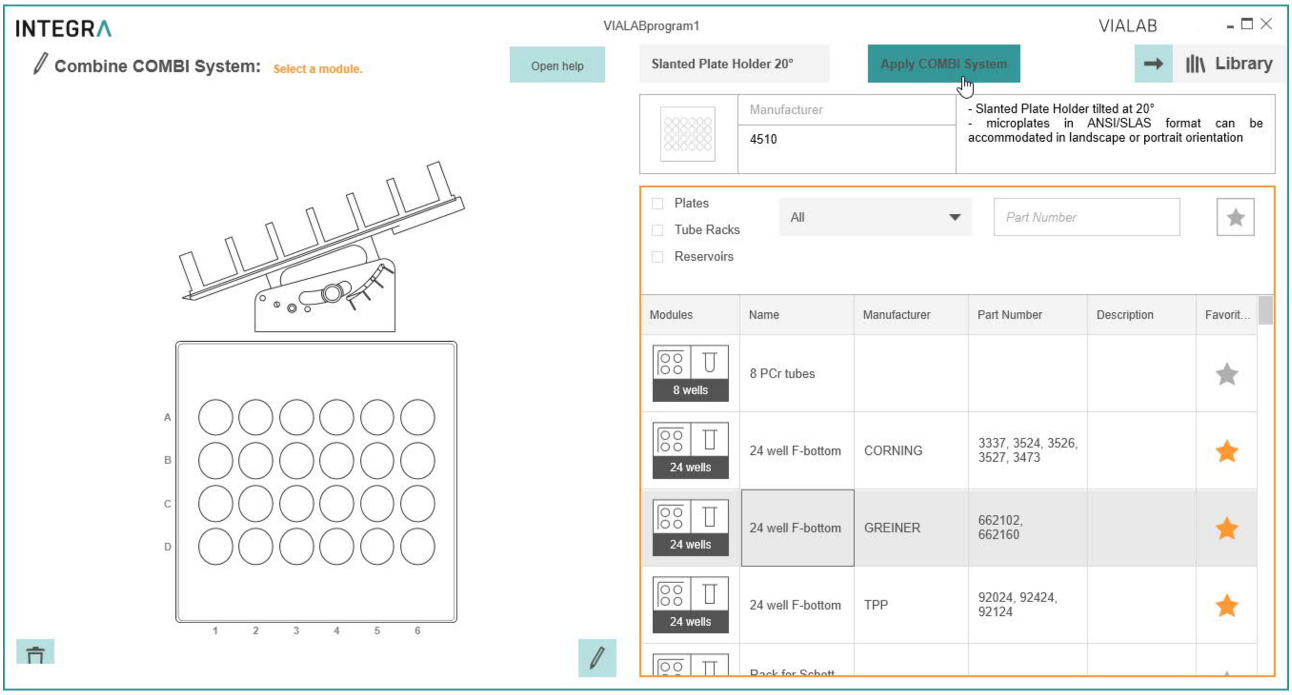
To assemble a Slanted Plate Holder with a plate select in “Material” deck position **B** or **C** on the 3 Position Universal deck. Choose the menu option “COMBI” on the right menu bar and select the COMBI Base “Slanted Plate Holder” at the desired angle.

Select either the landscape or portrait deck section on the Slanted Plate Holder and choose a compatible plate from the list on the right side.

Choose “Apply COMBI System” and use it for your program.

If you want to reuse a COMBI System, you can also create a new COMBI System in the labware library and save it with an appropriate name. Then the already assembled COMBI System (adapter and plate) can be used in your method.

Note: A change of the angle needs a change of the COMBI system used in the Material section. All steps in the Method section will be deleted then. We advise to define the appropriate angle in a test program first, before programming a lot of steps, which might be lost.



Manufacturer: 4510

- Slanted Plate Holder tilted at 20°
- microplates in ANSI/SLAS format can be accommodated in landscape or portrait orientation

☐ Plates
☐ Tube Racks
☐ Reservoirs

All

Part Number

Modules	Name	Manufacturer	Part Number	Description	Favorit...
8 wells	8 PCr tubes				★
24 wells	24 well F-bottom	CORNING	3337, 3524, 3526, 3527, 3473		★
24 wells	24 well F-bottom	GREINER	662102, 662160		★
24 wells	24 well F-bottom	TPP	92024, 92424, 92124		★
	Rack for Schott				

In the labware library, the Slanted Plate Holder (20°) is assembled e.g. with a 24 well plate.

8 Trouble Shooting

Topic	Issue	Remedy
Labware Library	I cannot place my labware item on the deck, although it is defined correctly in the labware library.	• Make sure the selected labware item is compatible with your pipette.
		• Make sure your labware item fits to the selected deck position e.g. a tube rack cannot be placed on deck position A.
Labware Library / Method	I created my labware item and placed it on the deck, but I cannot fill it with volume.	• Make sure the Max. Well Volume is > 0 µl.
Connection between pipette and computer	I cannot get a connection between pipette and VIALAB.	• Make sure the pipette is in communication mode (see chapter 6.6.1.) • Make sure the Charging/ communication stand or device is connected to the computer. • ComModule: The Communication module for pipette and PC need to be paired if connected for the first time. Refer to Windows Help to learn how to pair Bluetooth devices. The passcode 12345 may be required. • Make sure the drivers for the Charging/communication stand are installed. While the stand is connected, go to your System Settings -> Device Manager. Check under Ports (COM & LPT) if there is an entry “USB Serial Port (COM X)”. If there is not, install the drivers manually.
Synchronization of programs from pipette to VIALAB.	The “Synchronize” button is not activated.	• Make sure that no changes were made in VIALAB after saving the program to the pipette.
Pipette status in section Transfer.	I connected the pipette and its status is “Pipette is incompatible”.	• Make sure that the correct pipette model matching the current program is connected. You can only transfer programs to the pipette model used in the program.
Program Transfer To Pipette	The pipette is connected, after “Send To Pipette” the program is not saved on the pipette.	• Make sure, that you do not use any special characters in your program name on the pipette (Transfer Screen).