

USER MANUAL

Pipetting Aid PlatR™

Version: 2.1.4

Document ID: PD01-15

Confidentiality: PUBLIC



Table of Contents

1. Introduction.....	10
2. Description.....	11
2.1. PlatR software	11
2.2. PlatR accessories	12
3. Getting started.....	14
4. Settings	16
5. Create a pipetting plan.....	19
5.1. Draw plan – manual pipetting plan preparation.....	19
5.1.1. Importing Reagents/Samples into PlatR.....	21
5.1.2. Adding Reagents and Samples	25
5.1.3. Handling layers.....	27
5.1.4. Set pipetting sequence	28
5.1.5. Adding tags	31
5.1.6. Saving the pipetting plan	32
5.2. Guided plan – instant pipetting plan preparation.....	33
5.2.1. The direction of pipetting by guided plan logic.....	34
6. Load plan	36
6.1. Load one plan.....	36
6.1.1. Editing pipetting plans in Excel	37
6.2. Load list of plans	38

7.	Placing holder and pipetting.....	40
7.1.	Placing adhesive holder	40
7.2.	Pipetting	42
7.3.	More options	44
7.4.	Multichannel.....	44
7.5.	Progress bar.....	44
7.6.	Traceability.....	45
7.7.	Switching among wells	46
7.8.	Setting up Bluetooth footswitch.....	47
7.8.1.	Bluetooth footswitch troubleshooting.....	51
7.9.	Set plate position.....	53
8.	Diagnostic module	54
8.1.	Introduction.....	54
8.2.	Brief workflow description.....	55
8.2.1.	Pipetting single sample per well.....	56
8.2.2.	Diagnostic Sample pooling mode.....	57
8.3.	Diagnostic mode settings	60
8.4.	Diagnostic module button.....	61
8.5.	Supported barcode scanners.....	61
8.6.	Setting up the Zebra Bluetooth barcode scanner	62
8.6.1.	Step 1 – UNBOXING & CONNECTION	62

8.6.2.	Step 2 – PAIRING	62
8.6.3.	Step 3 – SET AS KEYBOARD and ADD ENTER KEY	63
8.6.4.	Troubleshooting	64
8.6.5.	Scanner volume adjustment	64
9.	Cleaning, decontamination, and maintenance.....	65
10.	PlatR updates	66
10.1.	PlatR update link.....	66
10.2.	What happens if you accidentally uninstall PlatR software?	
	66	

COPYRIGHT

Every effort has been made to ensure that all the information contained in PlatR User's Manual is correct at the time of printing.

However, BioSistemika d.o.o. reserves the right to make any changes necessary without notice as part of ongoing product development.

The software part of the package – PlatR Software Version: 2.1.4.

DECLARATION OF CONFORMITY



PlatR package contains electrical components that meet the requirements laid down in Directive 2014/53/EU.

WARRANTY

BioSistemika warrants this product against defects in material under regular use and service for 12 months from the date of purchase.

TRADEMARKS

BioSistemika logo is a registered trademark of BioSistemika d.o.o.

PlatR™ and PlatR logo are trademarks of BioSistemika d.o.o.

SAMSUNG and the SAMSUNG logo are registered trademarks of Samsung Electronics.

CORNING and GORILLA are registered trademarks of Corning Incorporated.

All other trademarks and copyrights are the property of their respective owners.

ANDROID UPDATES

Updating and upgrading Android can interfere with PlatR functionalities.

CONTACT ADDRESS

www.biosistemika.com

platr@biosistemika.com

BioSistemika d.o.o.

Koprska ulica 98

1000 Ljubljana

Slovenia

PLATR AND ACCESSORIES



P-10

SAMSUNG Galaxy Tab with pre-installed PlatR application and power adapter



P-10-02

Stand for adjustable inclination (foot and base)



P-10-03

Adhesive plate holder



P-10-04

Bluetooth footswitch



P-10-05

Screen protector



P-10-06

Touch pen



P-10-07

Holder for ELISA stripes



P-10-08

Holder for PCR plates



P-10-10

Barcode reader

PlatR Basic (P-10) contains SAMSUNG Galaxy Tab with pre-installed PlatR application, EU power adapter and adhesive holder for microtiter plates and strip holders (P-10-03). For ordering individual components, please:

- Contact your BioSistemika distributor
- Request a quote on [PlatR webpage](#)
- Send an e-mail to platr@biosistemika.com

1. Introduction

PlatR is a tablet application for effortless manual pipetting. It is easy to use and suitable for every lab.

PlatR represents the holistic approach that combines the software with integrated expert knowledge, a tablet computer, and specifically designed lab-ware. Its primary purpose is to help lab personnel do more, avoid mistakes, and stay focused while pipetting full plates.

Pipetting plan preparation - Scientific knowledge has been integrated throughout the PlatR so you can prepare your pipetting plan fast and straightforwardly.

Adhesive holder - Place the plates and holders (for strips and 96- and 384-well microtiter plates) in the correct position.

PlatR's pipetting assistance – PlatR illuminate wells according to your pipetting plan.

2. Description

2.1. PlatR software

It is pre-installed and pre-activated software that operates only on authorized and validated SAMSUNG Galaxy Tab devices originally shipped in PlatR packages. This tablet computer is one of the best on the market; it is small, handy, and resilient. Its size is suitable for lab use, and it can be a reliable host for PlatR software.

Basic information on how to use SAMSUNG Galaxy Tab can be found in the enclosed [Quick Start Guide](#).

PlatR software was specifically developed and internally validated for Samsung Galaxy Tab to ensure exact and precise light guidance and the illumination of wells while pipetting.

Depending on the purchased package the PlatR software also offers activated extendable diagnostic module. A detailed description of this module is described in section 8. **NOTE: Diagnostic module is accessible for 1-month free trial post registration. After the trial period it may be disabled depending on the purchased package.**

2.2. PlatR accessories

Adhesive holder



The adhesive holder adheres to the surface of the Samsung Galaxy Tab. It should be placed on the Samsung Galaxy Tab's screen just before you start pipetting.

The microtiter plate will fit snugly into it. The holder's purpose is to hold the plate in the exact place so that PlatR can guide you and illuminate the wells according to your pipetting plan.

The adhesive holder is suitable for all SBS standard plates e.g., 96 and 384-well PCR plates, ELISA plates, deep-well plates, strip holders, etc.

Stand for adjustable inclination

Place the Samsung Galaxy Tab on the stand and adjust the inclination for easier pipetting. Choose your preferred way of using the stand.



Footswitch

The footswitch is ideal for hands-free operation. Read more in point 7.8.

Barcode scanner

The Barcode scanner is a key component of the Diagnostic module that enables adding Plate ID, automatic Well navigation and Sample IDs import.

Screen protector

To further protect the Samsung Galaxy Tab screen, use the protective foil. After opening, place it carefully over the dry and previously cleaned screen. The foil will hold firmly on the screen and present additional protection from possible scratches etc.

HOLDERS

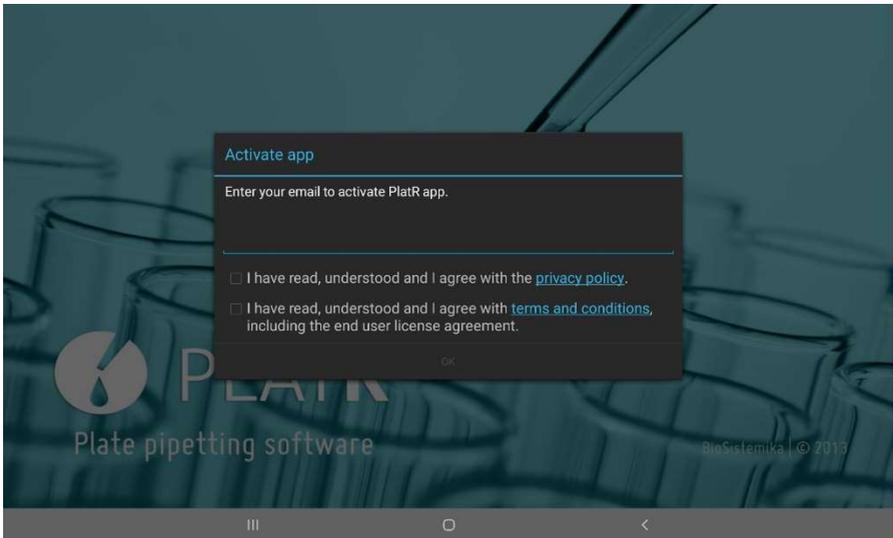
Holders for ELISA strips and PCR plates and strips.

Touch pen

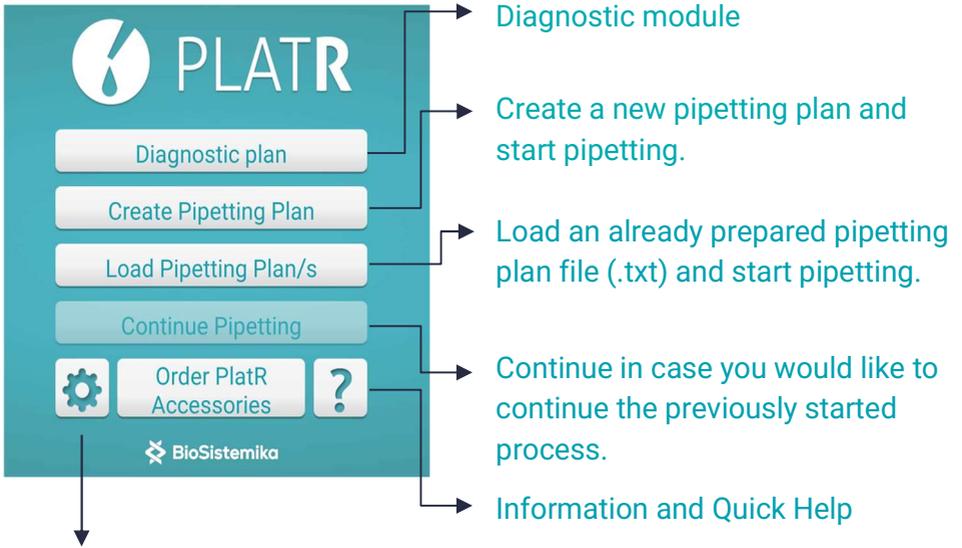
The touch pen is ideal for drawing pipetting plans and for more comfortable operation.

3. Getting started

After turning ON your SAMSUNG Galaxy Tab, find the PlatR icon on the screen and tap on it to activate the software. With the first launch, a pop-up will appear where you will enter your email and confirm that you have read the PlatR Terms and Conditions, and PlatR Privacy Policy. Both are required to have access to future updates. Once filled you will not be prompted to fill in this information again.



PlatR will open and offer you these options:



Settings - Here you can modify different settings. You can also access these settings during pipetting.

Proceed to point 4.

4. Settings

Maximum brightness – If you choose this option, the screen will always be adjusted to maximum brightness when using PlatR.

The character encoding used when importing reagents & samples – Choose the same encoding as the one used in the imported .txt or .csv file. PlatR supports the following encodings: UTF-8, ISO-8859-1, windows-1252, US-ASCII, UTF-16BE, UTF-16LE, UTF-16.

! **NOTE:** When you save your excel file as a .txt or .csv file, the encoding can be changed in the dialog box that appears when you click the "Save as" option in excel. Choose "Tools" (bottom right of the dialog box) and select Web Options. Among all the options, choose Encoding, select appropriate encoding, and save the file.

TIP: UTF-8 encoding is recommended for importing files to PlatR.

Show tags – Enable tag functionality by choosing this option. You can use tags to represent volumes or any other information. If this option is not selected only General information about the Reagents and Samples will be seen.

Validated plan for Diagnostic – This enables setting up a validated plan that will be used within the Diagnostic module. Plan can be changed by clicking on the option and selecting another plan stored in the tablet that was either created or imported.

Default folder for saving reports – Change the default directory used for saving .CSV reports generated within the Diagnostic module.

Send Diagnostic plan report to remote URL – Enable automatic report export functionality by choosing this option. Reports will be sent to

the previously defined URL address under the “File upload URL” option

File upload URL – Enables you to define the URL path to which .CSV report will be sent. PlatR support either http:// or https:// option

Simple view of samples – Simple view will show you only sample indexes on the pipetting scheme (e.g., "1"), otherwise, the full sample name will be displayed (e.g., "1: Sample 1").

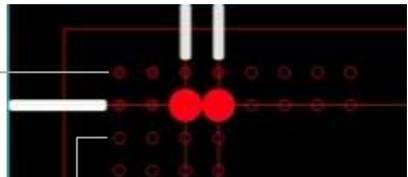
Reagent dot color – When pipetting Reagents, you can use Reagent color to illuminate the wells.

Dot color – This is the color of the Position light that will illuminate the well into which you should load your next Sample/Reagent. Just tap on the little square on the right. PlatR will enable you to choose among various colors. After you select the color you want, tap on it to select it.

! TIP: We recommend using the red color of the Position light so that light-sensitive reagents such as fluorescently labeled qPCR probes will not be photobleached during pipetting.

Large Wells – Use this option if you need better visibility. This option is recommended for white plates.

Track history – Wells onto which you already loaded your samples will appear in a color you choose using a **History well color** option.



Display all wells – PlatR will display an empty circle around the unused wells.

Pipette white plates – For some plates (e.g., white plates), better visibility is achieved if wells are blinking.

Enable timestamps – If you choose this option, the log file will be generated when pipetting.

Detailed timestamps – If you choose this option, all coordinates in the log file generated while pipetting, will also include the Reagent/Sample names of the corresponding coordinates.

Timer – Enable/disable the timer. PlatR will automatically switch from one well to the next according to the **time interval of pipetting** selected.

Select time interval of pipetting – When you use the timer option, set the number of seconds, you need to load the Samples/Reagents from one well to the next.

Bluetooth pedal options – When using a Bluetooth footswitch, it is possible to decide whether both pedals trigger the Next action, or the left one triggers Back and the right one Next action.

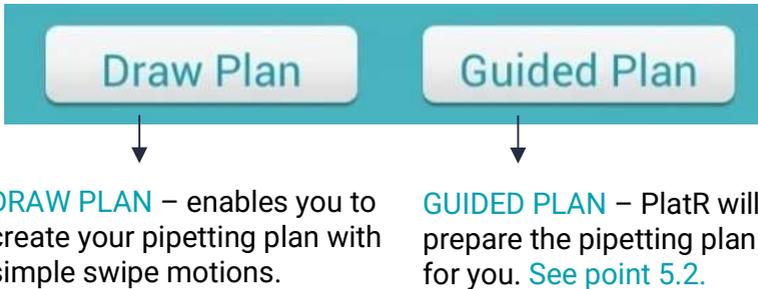
Set plate position – Fine-tune the position of the plate, e.g., if the holder is not aligned correctly with the plate in pipetting stage ([see section 7.9](#)).

The default directory for opening & saving files – Change the default directory PlatR will use when displaying dialogs for saving or opening files.

About PlatR – Provide the information about the current PlatR version.

5. Create a pipetting plan

After choosing [Create Pipetting Plan](#), PlatR will let you choose the way you want your pipetting plan to be created:

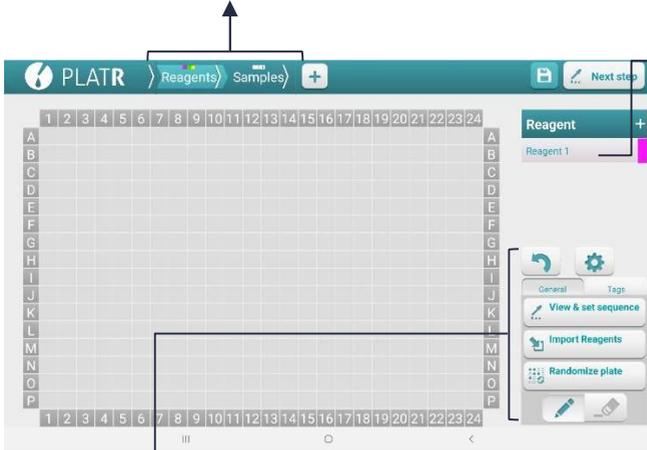


5.1. Draw plan – manual pipetting plan preparation

After choosing the type of plate you will be using – 384 or 96, PlatR will present you with a 2-layer pipetting plan editor. Here you can add [Reagents](#) and [Samples](#) to the microtiter plate scheme.

Two upper buttons – Reagents, Samples – show whether you distribute Reagents or Samples on the plate. If you long press, PlatR will offer you the option to rename these "tabs" or delete them.

With the "+" button you can add more (up to 10) layers, which can either be Color (Reagents) layer type or Text (Samples) layer type.



On the right side of the screen, PlatR will show you the **list of Reagents** and the colors with which the reagents are marked. Here you can see that Reagent 1 is marked pink. If you hold the button, you can rename and change the color of the reagent.



Undo the last step – This option will revert up to 50 user actions that have been done.



Settings – Using this button you can access settings (point 6.7).



View and set sequence – Hold this button and PlatR will show you the pipetting sequence for the selected layer.



Import Reagents – Please see point 5.1.1.



Randomize plate – This option will randomly distribute the filled wells all over the plate (reagents & samples in the specific well will be moved together to the new position).



Pen – For adding Reagents and Samples to the plate: swipe with your finger (or Touch pen) over the desired wells.



Eraser – To erase mistakes, tap on the eraser, and swipe with your finger over the well where you made a mistake. By switching between layers, the eraser is switched off automatically.

5.1.1. Importing Reagents/Samples into PlatR

PlatR enables you to import a list of Reagents/Samples or already a table of Reagents/Samples with corresponding locations on the plate.

If you have a list of Reagents/Samples on your computer, it is easy to import it into PlatR following the steps below:

- In Excel, put your Reagents/Samples into columns with titles in the header row. Why? Because PlatR will later recognize the titles of the columns and you will be able to select which one to import according to the title of the column.

Reagents	Samples	XY
Name 1	Name 1	Xy1
Name 2	Name 2	Xy2
Name 3	Name 3	Xy3

- Save your Excel file in the .txt format (File -> Save as)
- Transfer the .txt file to the SAMSUNG Galaxy Tab - using USB cable, e-mail, Bluetooth ...
- Open PlatR software, proceed to the Draw Plan option
- Click on the Import Reagents or Import Samples button
- Choose "Import from a list format or from existing pipetting plan". Only .txt files should be visible to selection
- PlatR will ask you to choose the COLUMN you would like to import (It will offer you the titles of the columns in your .txt file)
- When you choose the column, the list will be imported.

You can also import Reagents/Samples and their locations on the plate from a table format, following the steps:

- In Excel, prepare the table which corresponds to your microtiter plate format. For example, the table for the 96-well microtiter plate format should have 13 columns and 9 rows. The first column should contain letters, and the first row

should contain numbers corresponding to the ones on the plate.

	1	2	3	4	5	6	7	8	9	10	11	12
A												
B												
C												
D												
E												
F												
G												
H												

- Put your Reagents'/Samples' names on the tables. Note that two separate tables should be prepared for Reagents and Samples; e.g., Table with Samples if sample names are S1, S2, S3 ...

	1	2	3	4	5	6	7	8	9	10	11	12
A	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
B	S13	S14	S15	S16	S17	S18	S19	S20	S21	S22	S23	S24
C	S25	S26	S27	S28	S29	S30	S31	S32	S33	S34	S35	S36
D	S37	S38										
E												
F												
G												
H												

- Save your Excel.csv format (File -> Save as)

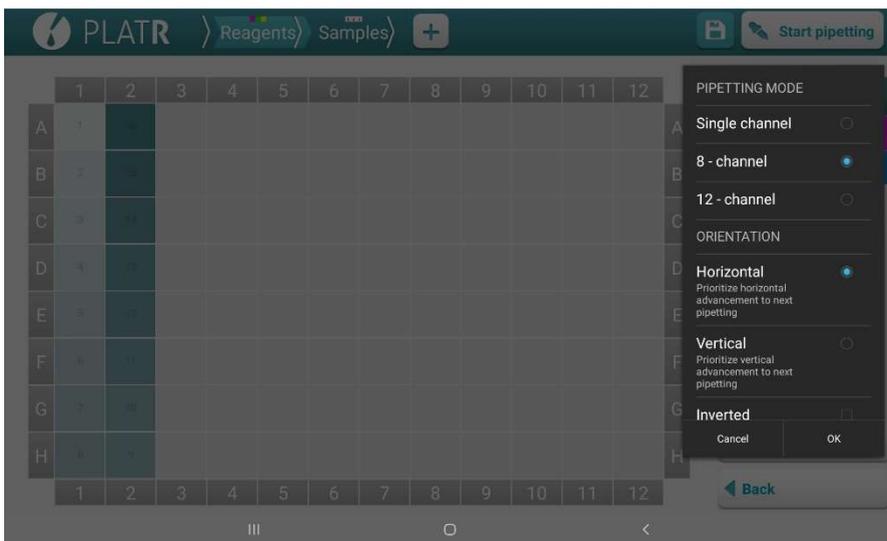
IMPORTANT: Excel uses system separators for .csv files. The separator used in .csv files must be a comma. If the currently set separator for .csv is other than a comma, the file cannot be imported correctly into PlatR. You can change the default separator under regional settings (Control Panel -> Clock, Language, and Region -> Region -> Additional Settings -> List Separator).

- Transfer the .csv file to the SAMSUNG Galaxy Tab - using a USB cable, e-mail, Bluetooth, ...
- Open PlatR software, proceed to the Draw Plan option
- Click on the Import Reagents/Samples button
- Choose "Import from a table format file", select the preferred sequence of pipetting, and choose .csv file from which you want to import the table with your Reagents/Samples
- When you select the sequence of pipetting and .csv file, the table will be imported.

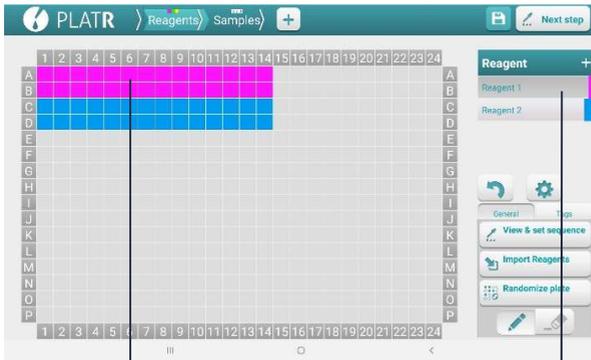
5.1.2. Adding Reagents and Samples

When you create a pipetting plan, PlatR will remember your finger movement when adding Reagents/Samples to the plate and the same sequence pattern will be used as you want to pipette them later.

IMPORTANT: However, you can always change the pipetting sequence by clicking on the View & set sequence button. A pop-up window with set sequence options will appear, that will enable you to change the pipetting pattern (e.g., Horizontal, Vertical, Inverted, etc.) or set up single or multichannel pipetting. For more details see point 5.1.4.



TIP: If you wish, you can delete Reagents and only add Samples to your pipetting plan. Or the opposite you can add only Reagents and delete Samples (just hold the Samples button and select Delete). When adding Reagents select the **Reagents** tab on the top of the screen and add the first reagent (Reagent 1) to the list on the right by pressing the "Reagent +" button.



After adding Reagent 1, tap on the **Reagent +** button and PlatR will automatically add Reagent 2 to the list below.

Swipe over the wells into which you would like to add Reagent 2. You can **switch among Reagents** by tapping on them.

You can also Import a list of Reagents (point 4.1.1). Total number of available colors for Reagents is 60.

Add **Reagent 1** to the plate using the simple **swipe motions** – just swipe over the wells into which you would like to add Reagent 1.

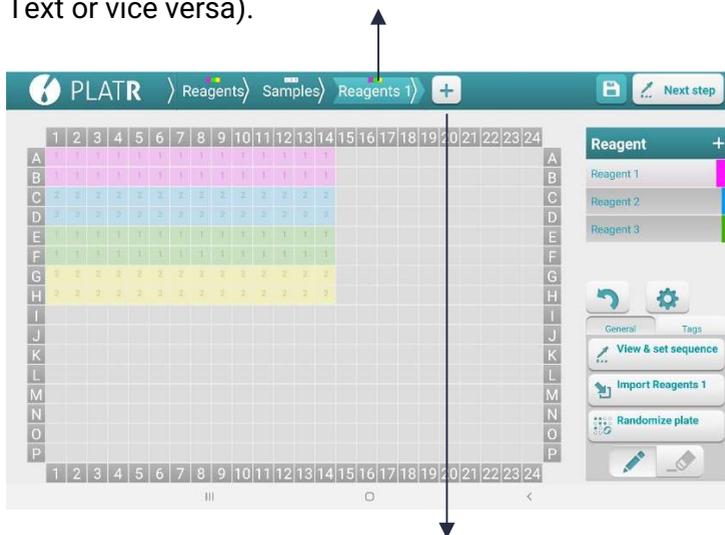
Another option is to **tap on the letter** corresponding to the row **or number** corresponding to the column and entire row/column will be filled with selected Reagent 1. Note that in this case direction of pipetting will be from the selected letter/number to the end of the selected

Changing names: you can RENAME any **Reagent** or "**Reagent +**" button by holding your finger on the chosen button.

5.1.3. Handling layers

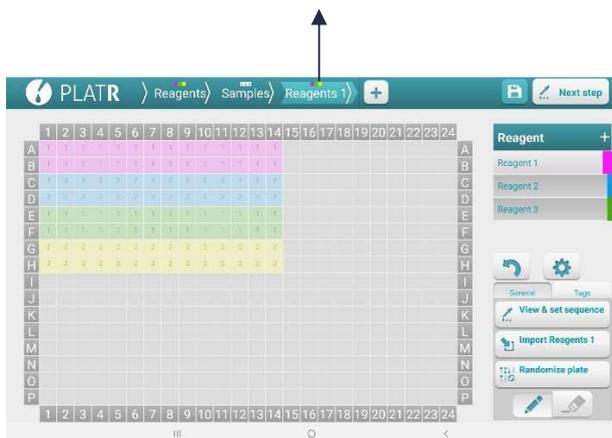
When creating pipetting plans, there are by default two layers present: Reagents (Colors layer type) and Samples (Text layer type). You can add a new layer of either Colors or Text layer type, by simply clicking on the "+" button in the header row. At least one should be present, and up to 10 layers can be added. The layers feature is handy when performing ELISA experiments.

Long press the name of the layer you want to modify. You can **RENAME** or **DELETE** a layer or **CHANGE the layer type** (from Colors to Text or vice versa).



ADD new layer. PlatR will add a layer that is a different type from the last one (e.g., if the previous layer is Colors type, a Text type layer will be added and vice versa). The default layer name, which can be changed, will be assigned automatically when a new layer is created. The currently selected layer is highlighted. To select another layer, click on its button. There can only be three layers visible at the same

time. If there are more than three layers, a scroll bar will appear. You can scroll between layers with a simple swipe left or right motion.



When a new layer is added and selected, the last Colors type layer and last Text type layer will be **transparent**. Transparent layers DO NOT interfere with the currently selected layer but are only shown **as a guide** for the user. When reagents/samples are added to the new layer, the information of the last layer of the same type as the new layer (Colors or Text type layer) will not be shown anymore but will be saved and shown when you select that layer.

5.1.4. Set pipetting sequence

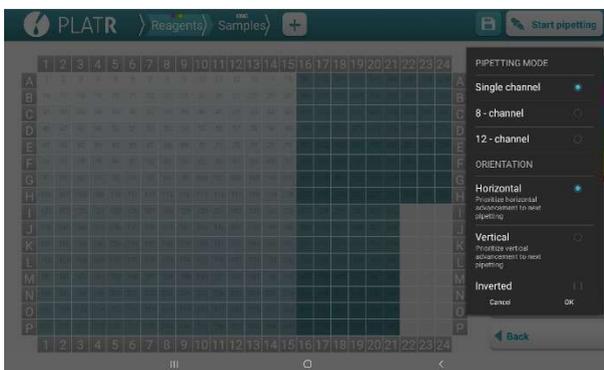
Once the pipetting plan is created you can always modify the pipetting order. This can be achieved in the next workflow step or by clicking on a "View & Set sequence" mode button.

Here you will have the option to review and modify the sequence set by adding the samples to the plate and define whether to use the single or multichannel option.



View the current sequence on the panel.

By pressing the Set order button, a pop-up opens(see below) to select options.



In the Set order panel, there are several options to modify the pipetting order:

- When selecting a multichannel pipetting mode, the orientation of the selected pipette will be calculated to take into account the minimum number of transfers. By default, a single-channel mode will be selected, but there are two additional options to select 8-channel and 12-channel pipetting.
- Horizontal means that the next wells (of the same liquid) will be set to the right of the first.

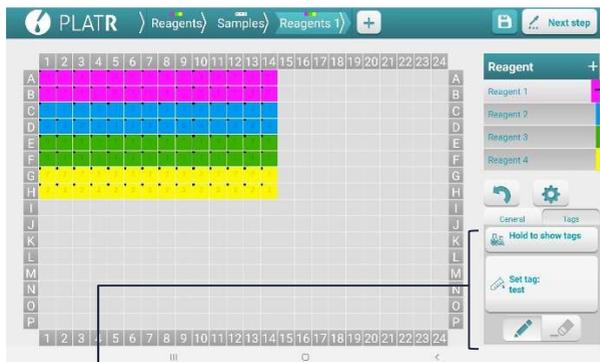
- Vertical means that the next well will be below the first.
- Inverted is a checkbox, if activated, the pipetting order will start from the bottom right corner instead of A1 and go backward.
- Sorting by liquid means that all wells of the same liquid will be pipetted before moving to the next liquid.
- Sorting by plate means that the next well will be the first non-empty well in the selected direction, regardless of which liquid is in it.

NOTE:

- To be able to switch to the multichannel mode in the pipetting plan execution, it must be activated through this step.
- Pressing cancel below the menu will discard any changes
- Pressing OK below the menu will recalculate the pipetting order regarding the selected preferences

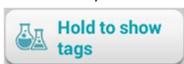
5.1.5. Adding tags

If you would like to add any other information such as volume etc., to Reagents/Samples wells on the plate, enable the **Show tags** option in the Settings (see point 4) and start adding tags.



➤ Add or Change the tag on all wells that contain the specific Reagent/Sample by holding finger on the Reagent/Sample, selecting checkbox "Update tag ...", entering the tag name and confirming action.

➤ Tags button will appear beside General button when Show tags option is enabled in Settings.



Hold to show tags - Hold this button to see the tags currently set for Reagents/Samples.



Set tag - Tap on this button to specify a tag. Type in the name of the tag (Set the tag) and click OK. Select the wells you want to tag - simply tap/swipe your finger over the wells you want to tag.



If the tag you added applies to the Reagent, a black square will appear on the left upper part of the well. If the tag applies

to the specific sample a white square will appear on the right upper part of the well.



Pen - Use a pen to add/change the tag on Reagents/Samples.

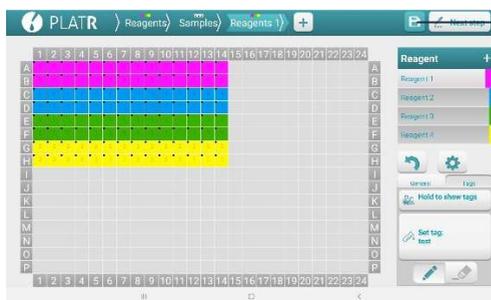


Eraser - Use the eraser to remove the tag from Reagents/Samples.

When you proceed to the pipetting step, the tags will be shown on the Reagents/Samples list next to the name of each tagged Reagent/Sample (see section 7.2).

5.1.6. Saving the pipetting plan

After the pipetting plan is prepared, you can start pipetting. When you tap on the **Pipetting** button (on the top of the screen), PlatR will ask you whether you would like to **Save** Pipetting plan or **Export it to PDF**, or directly **Proceed to pipetting** (see section 7.2).



You can **Save** Pipetting plan or **Export it to PDF** anytime during editing and pipetting.

PlatR will Save and Export your Pipetting plan to the predetermined folder "PlatR" or any other selected destination folder. **Folder PlatR** is located under **My Files** → **Device storage** on the SAMSUNG Galaxy Tab.

5.2. Guided plan – instant pipetting plan preparation

If you choose the guided plan option, PlatR will prepare/draw the pipetting plan according to your wishes. All you have to do is to **specify a few parameters:**



→ The Plate format you would like to use

→ Number of Reagents on your plate

→ Number of Samples

→ Number of Sample replicates

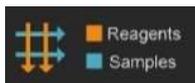
→ Pipetting directions you prefer – whether you prefer to pipette your Samples/Reagents horizontally or vertically, left-to-right or right-to-left

Tap **Create** and PlatR will instantly prepare the Pipetting plan for you.



You can save the pipetting plan. You can directly proceed to the Next step or you can edit the plan before pipetting.

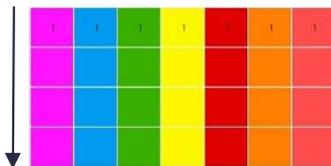
5.2.1. The direction of pipetting by guided plan logic



Reagents will be added vertically to the plate

Samples will be added horizontally left-to-right to the plate

The direction of pipetting Samples (Sample 1 etc.)



The direction of pipetting Reagents: Reagent 1, Reagent 2, Reagent 3, etc.

If you choose the opposite option, Samples will be added vertically to the plate and Reagents horizontally from left to right. Both options are possible also on the contrary (right-to-left) direction. Samples and Reagents can also be added both vertically, horizontally left-to-right, or horizontally right-to-left.

6. Load plan

After choosing [Load Pipetting Plan/s](#), PlatR will let you choose the way you want your pipetting plan/s to be loaded depending on how many plan/s you select:

- If you select [one plan](#), PlatR will enable you first to edit a previously prepared and saved pipetting plan and then proceed to pipetting.
- If you select [more than one plan](#), PlatR will go directly to pipetting step. [Proceed to section 6.2.](#)



6.1. Load one plan

You can simply re-use a previously prepared and saved pipetting plan, or edit it in the PlatR software or even on your computer in Excel. It is easy; just follow the instructions below.

THREE DIFFERENT OPTIONS:

- Pipetting plan can be created in PlatR, saved, and re-used later. You can always edit it in PlatR ([see section 5.1](#))
- The previously saved PlatR pipetting plan can be edited in Excel on your computer and re-used in PlatR (see the explanation below)

6.1.1. Editing pipetting plans in Excel

If you already have a pipetting plan which was created in PlatR and saved and would like to edit it (change the sample names, change reagents, etc.) in Excel on your computer, here is how you can easily do it:

- Find the previously prepared pipetting plan which you would like to edit on your computer. It should be saved on the SAMSUNG Galaxy Tab in the folder: [My Files](#) → [Device storage](#) → [PlatR](#). Transfer it from SAMSUNG Galaxy Tab to your computer using a USB cable, e-mail, Bluetooth ...
- Open the file in Excel
- Edit/change the information that you want to change:
- [Plate format](#) (available plate formats: 384 well, 96 well), [Experiment ID](#), [PlatR pipetting plan version](#), [layers' names](#), [sequence of pipetting](#) (which sample will you pipette first, second, third...), a [coordinate of Reagents/Samples](#), [Reagents/Samples-ID \(=reagent/sample name\)](#) (if you have a list of Reagents/Samples, you can just copy them) and [Reagents/Samples-Tags](#). The [Layer-name](#) does not need to be changed when importing, as it is there only for information, so the user knows on which layer the corresponding Reagent/Sample is located.

Reagents-Sequence	Reagents-Coordinate	Reagents-ID	Reagents-Tags	Layer-Name
1	A1	Reagent1	10 µl	Reagents
2	B1	Reagent2	15 µl	Reagents
3	C1	Reagent3	20 µl	Reagents

- When you finish editing, save the Excel file in the .txt format (File → Save as ...)
- Transfer your file back to the SAMSUNG Galaxy Tab
- Open PlatR software, proceed to the Load Plan option, and choose Open Plan
- Choose the .txt file you just formatted, import it, and start pipetting

6.2. Load list of plans

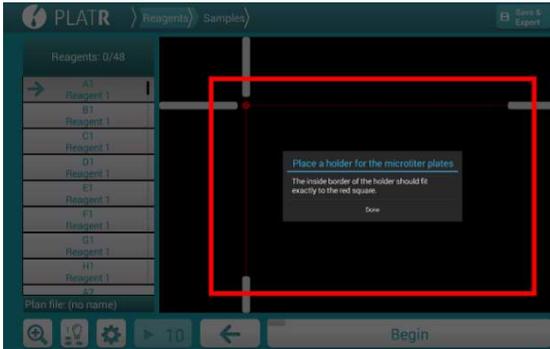
You can select a list of previously prepared and saved pipetting plans if you wish to pipette more microtiter plates one after another.

You just need to select the names of the plans you wish to pipette and tap the [Load Plan/s](#) button. If you want to rearrange the plans in a different order, you can move them up/down with your finger. Proceed to [Pipetting](#) by tapping on the [Start](#) button.

When you reach the last coordinate of the first plan, tap on the [Proceed to next plan button](#), and PlatR will ask you if you want to continue to the next plan. After confirmation, the next plan, according

to your selection, will be automatically loaded. Experiment ID (saved in the plan file) of the [Plan file](#) that you are currently pipetting and its sequence (e.g., 1/4 = 1st plan of 4) will appear on the left part of the screen above the list of Reagents/Samples. In the end, a QA pop-up will appear that to insert additional information if desired.

7. Placing holder and pipetting



Once your pipetting plan is prepared, tap on the **Pipetting** button on the top of the screen and select **Proceed to Pipetting** option. A black screen with a red square that enables the exact positioning of the holder for microtiter plates will appear.

7.1. Placing adhesive holder

Place an adhesive holder on the tablet over the screen

By following these three simple steps:

1. If you are using a holder for the first time, remove protection stickers from the holder's sides before you place an adhesive holder on the screen.
2. Position the holder onto the screen. The holder's inside border should fit exactly to the red square's outside line on the screen.



3. Press Done and the pipetting screen (next page) will open. Now you can place your microtiter plate in the holder and start pipetting. If using PCR non-skirted plates or strips or ELISA strips, first place the corresponding holder for the plate or strips.

IMPORTANT! Whenever placing the holder on the screen make sure that the tablet screen and the black surface on the holder are completely clean (without any dust or liquids). The holder can be cleaned underwater or with 70 - 96% ethanol. After cleaning, leave it to dry completely before the next use.

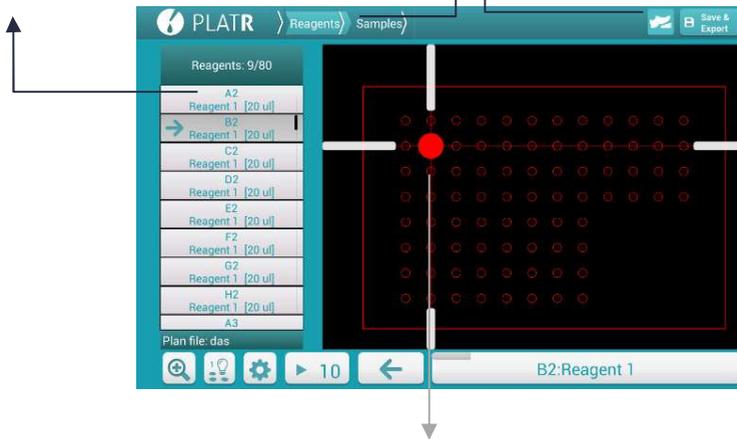
7.2. Pipetting

Place a microtiter plate on the holder. If using PCR non-skirted plates or strips or ELISA strips, first place the corresponding [holder for the plate or strips](#).

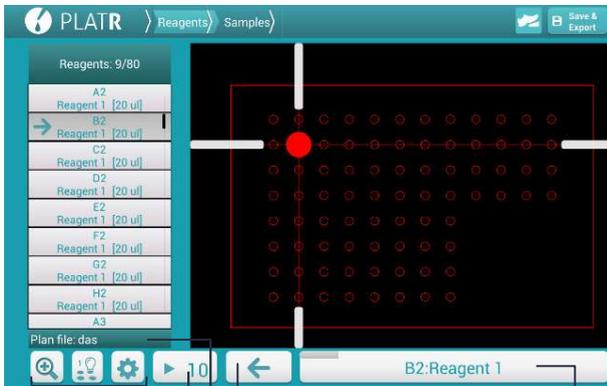
On the left side of the pipetting screen, you can see the [complete list of Reagents or Samples \(including Tags\)](#). By adding an arrow next to the name PlatR will show you which Reagent/Sample should be loaded on the plate.

Here you can [switch between layers](#).

The foot switch icon will be displayed when [footswitch is connected](#).



PlatR will [illuminate the wells](#) according to your pipetting plan and show you where the particular Reagent/Sample should be loaded. [Two white lights](#) will illuminate the exact row and column and [the red Position light](#) (or any other color you like) will illuminate the well into which you should load your next Reagent/Sample.



More options, Multichannel and Settings (see next pages).

Start or pause the timer. If the timer option is enabled, PlatR will illuminate each well for a certain number of seconds and then automatically switch to the next well. You can adjust time or enable/disable the timer under Settings.

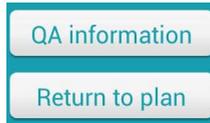
Back button

Name of the Plan file

Tap when you are ready to **Begin pipetting**. After you begin, this button will become the **Next button** and will show you the coordinates on the plate and the Reagent/Sample that should be loaded. If a list of plans has been loaded this button will become **Proceed to next plan** when you reach the last coordinate of the current plan.

7.3. More options

More options can be seen by clicking on the magnifying glass button.



QA information – fill in various QA (Quality Assurance) information, such as Username and surname, Plate ID, Environment temperature, etc. When you confirm the selection, PlatR will ask you to save QA information to pipetting plan PDF (QA information will be added to the end of the PDF). QA information will also be added by default every time you export PDF.

Return to plan – returns to plan to edit.

CAREFUL! If you return to the pipetting plan, any pipetting progress will be lost!

7.4. Multichannel

You can set up Multichannel pipetting, which will enable you to pipette replicates according to the pipetting plan. You can enable the multichannel pipetting option in the last step of the pipetting plan creation workflow or by pressing View and set sequence ([see section 5.1.4](#)).

7.5. Progress bar

A progress bar on the **top of the next button** shows the **current liquid's progress** (Reagent/Sample). For example, on the button below, we can see that we are currently located on 50% of "Reagent 1" (i.e., if we had 4 wells with "Reagent 1", we are currently positioned on the 2nd well).



7.6. Traceability

If the [Enable timestamps](#) option is enabled in Settings, PlatR will keep track (log) of your actions while pipetting. Log files will be saved on the fly to the [logs folder](#) located in the [PlatR home folder](#). [PlatR home folder](#) is located in [My Files → Device storage](#) on the Samsung Galaxy Tab.

Tracked actions:

- [Pipetting started](#): when you tap on the Begin button.
- [Switching between layers](#): whenever you switch to a different layer.
- [Taps on the Next button](#): the action will be seen as "+" followed by the coordinate (or coordinates in case of use of multichannel mode) that was pipetted in that step.
- [Taps on the Back button](#): the action will be seen as "-" followed by the coordinate that was "taken back."
- [Timer enabled/disabled](#): whenever you enable/disable the timer
- [Timer interval changed](#): whenever the timer is enabled, and you change its interval
- [Changes in the number of channels](#): whenever you change the number of channels used while pipetting
- [Paused](#): whenever you exit the pipetting screen or pause the timer

- **Resumed:** whenever you come back to the pipetting screen (**Paused** action has to happen before **Resumed action** can occur)
- **Pipetting completed:** whenever you disable the Enable timestamps option, end pipetting or load another plan while pipetting

Example log file:

```
[2015/05/28 14:38:42 CET] Log file created.
[2015/05/28 14:38:45 CET] Pipetting started.
[2015/05/28 14:38:47 CET] Switched to "Samples" layer.
[2015/05/28 14:38:48 CET] Timer enabled (1s).
[2015/05/28 14:38:49 CET] +P17.
[2015/05/28 14:38:52 CET] Paused.
[2015/05/28 14:38:53 CET] Timer disabled.
[2015/05/28 14:38:55 CET] Resumed.
[2015/05/28 14:38:57 CET] -H17.
[2015/05/28 14:39:03 CET] Changed to 4 multichannel mode.
[2015/05/28 14:39:05 CET] +H17, A12, P13, I13.
[2015/05/28 14:39:15 CET] Paused.
[2015/05/28 14:42:12 CET] Pipetting completed.
```

Additionally, the user can enable **Detailed timestamps** in **Settings** (see section 6.7), and the Reagent/Sample name will be displayed next to the coordinate.

7.7. Switching among wells

After you load one Reagent/Sample to the well, you can switch to the next well using:

- **TIMER** - Enable/disable the timer. PlatR will automatically switch from one well to the next according to the **time interval of pipetting** selected.

- **BEGIN/NEXT BUTTON** – Enables to start plan execution or to move through the pipetting plan

FOOTSWITCH operates wirelessly using Bluetooth 4 technology (low-energy Bluetooth)

! **NOTE:** To ensure optimal connectivity, we recommend that you press the power ON/OFF button  on the Bluetooth footswitch only when the PlatR software is active on the tablet.

! **NOTE:** We also advise not to use the mode button  as it may cause the footswitch to stop communicating correctly with PlatR. There are six modes, and only modes 2 - 5 can communicate with PlatR. Mode two is selected by default.

7.8. Setting up Bluetooth footswitch

Pairing and connecting the Bluetooth footswitch for the first time

If you have ordered PlatR with the Bluetooth footswitch in the same package, then the footswitch and the tablet are already paired so you can skip this step.

Bluetooth footswitch can be paired in a few simple steps:

- Turn ON the tablet and open Settings. This action will open the Android settings for the tablet.
- Under Connections, find the Bluetooth section and turn Bluetooth ON.
- Switch the Bluetooth footswitch ON by pressing the ON/OFF button  for one second. The red battery LED  should flash once. When the footswitch is on, the blue Bluetooth LED



will start blinking 2 times per second until pairing is initiated.

- Tap the "Scan" button on the top right of the tablet under Bluetooth settings. The tablet will now start searching for all Bluetooth devices. It should detect the footswitch with the name "PED" (followed by a set of version numbers, the last four representing the footswitch's serial number). You can find it under the category Available devices.
- On the list of Available devices, select the Bluetooth footswitch (PED – version – serial number) that you would like to pair with the tablet.
- The selected Bluetooth footswitch should appear under the category Paired devices. The status of the Bluetooth footswitch should state "Paired."
- Find the footswitch on the list and tap on it. The Footswitch state should now be changed first to "Connecting..." and then to "Connected". Should the footswitch not connect immediately, tap on the list again in a few seconds, and repeat until successfully connected. Should the connection fail, see the Bluetooth footswitch Troubleshooting section below.
- Start using the footswitch (see the following chapter)

Connecting and using the Bluetooth footswitch after it was paired with the tablet.

- Turn ON the tablet and make sure Bluetooth is enabled (access Settings → Connections and then switch Bluetooth on)
- Start PlatR on the tablet.
- Switch the Bluetooth footswitch ON by pressing the ON/OFF button  for one second. The red battery LED  should flash once. Once the footswitch is on, the blue Bluetooth LED  will start blinking 2 times per second until connectivity is established.
- On all screens in PlatR (except the Home screen) you will see the "Footswitch connected" icon , whenever the footswitch is connected
- Once in the Pipetting step, press the footswitch to move from one to the next position on the plate.
- When finished with pipetting, turn the Bluetooth footswitch OFF by pressing the ON/OFF button  for two seconds. The red battery LED  should flash twice

Additional settings for Bluetooth footswitch:

- Pedal options:
 - You can select the option for both the left and right pedal on the Bluetooth footswitch to work as the action NEXT during the Pipetting step (access Settings in PlatR and under the Bluetooth footswitch category select "Pedal options" and choose "Use both pedals for Next action")
 - You can select the option for the left pedal on the Bluetooth footswitch to work as the action BACK and for the right pedal to work as the action NEXT during the Pipetting step (access Settings in PlatR and under Bluetooth footswitch category select "Pedal options" and choose "Use left pedal for Back and right pedal for Next action")
- Sound: Sound is always accompanying actions BACK and NEXT during the Bluetooth footswitch's operation. You can mute the sound or change its volume by using the tablet's volume buttons (next to the on/off tablet button)

! **NOTE:** Bluetooth footswitch will power OFF automatically after 2 hours of inactivity.

Bluetooth footswitch battery

The Bluetooth footswitch's battery will last for about 300 hours of operation before needing to be replaced. An extra battery is provided on the cover of the battery door. Be sure to replace the spare whenever you use it. When the battery is low, the battery icon  will flash red.

To replace the battery, pull back on the small handle on the battery case to release the latch. Use a small knife or a screwdriver to remove the battery. Use a twisting motion to prevent damage to the circuit board. Insert a new CR2032 battery with a positive side facing towards you.

7.8.1. Bluetooth footswitch troubleshooting

My Bluetooth footswitch does not pair with the tablet

When pairing the Bluetooth footswitch for the first time with the tablet, the pairing may not work immediately. Turn Bluetooth on the tablet OFF, turn the Bluetooth footswitch OFF, and then turn Bluetooth on both devices ON again. Should the devices not connect, try again. Should that not work, perform the full recovery cycle described below.

Full recovery cycle for the Bluetooth footswitch

This action includes resetting the Bluetooth footswitch and should be used when pairing repeatedly fails.

- Make sure Bluetooth on the tablet is switched OFF
- Make sure that the Bluetooth footswitch is turned ON
- Press and hold the ON/OFF button  on the Bluetooth footswitch for at least 6 seconds (after 2 seconds, the footswitch will appear to be switched off; continue pressing the power button)
- Both LED lights ( and ) will blink three times at the 6th second. After the third blink, release the power button. The footswitch has been reset

- Turn ON the Bluetooth on the tablet
- Turn the footswitch ON and follow the instructions for pairing above (under 7.8)

I had turned on the Bluetooth footswitch before I started to use PlatR, and the icon for footswitch connectivity is not displayed in PlatR

- Tap one of the Bluetooth footswitch pedals, and the connectivity icon should appear in a few seconds (wait for up to 15 seconds)
- If the previous step doesn't work, turn OFF the Bluetooth footswitch by pressing and holding the ON/OFF button  for two seconds until the red light disappears.
- Open PlatR and turn ON the Bluetooth footswitch again by pressing and holding the ON/OFF button  for one second until the red light disappears.
- The connectivity icon should appear on PlatR's Editing or Pipetting screen.

7.9. Set plate position

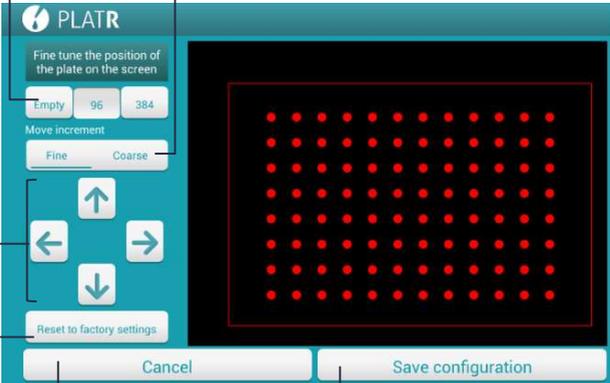
To calibrate the position of the plate, open the general Setting in PlatR and click on the [Set plate position](#) option.

Select empty plate or plate with 96 or 384 wells.

Navigate plate with arrows.

Reset plate to the default position.

When clicking on navigation arrows, plate can move for smaller steps - [Fine](#) or bigger steps - [Coarse](#).



[Discard any changes and close.](#)

[Save configuration when you are happy with the plate position.](#)

8. Diagnostic module

8.1. Introduction

PlatR diagnostic module enables the import of sample IDs (e.i., barcodes) while pipetting without prior sample orientation.

For seamless progress, the use of a barcode scanner is supported as well as automated reporting. It can be used for single samples per well or for pooling mode where you can have multiple samples per well (used primarily for group testing).



Scanning the barcode triggers two actions: (i) it renames the placeholder (e.g., Sample 2) to sample barcode ID and (ii) triggers movement to the next well. The functionality of pressing the button to advance or using the foot pedal is kept normally functioning.

After completion of a diagnostic plan, a plate status report is created in CSV form. The report contains:

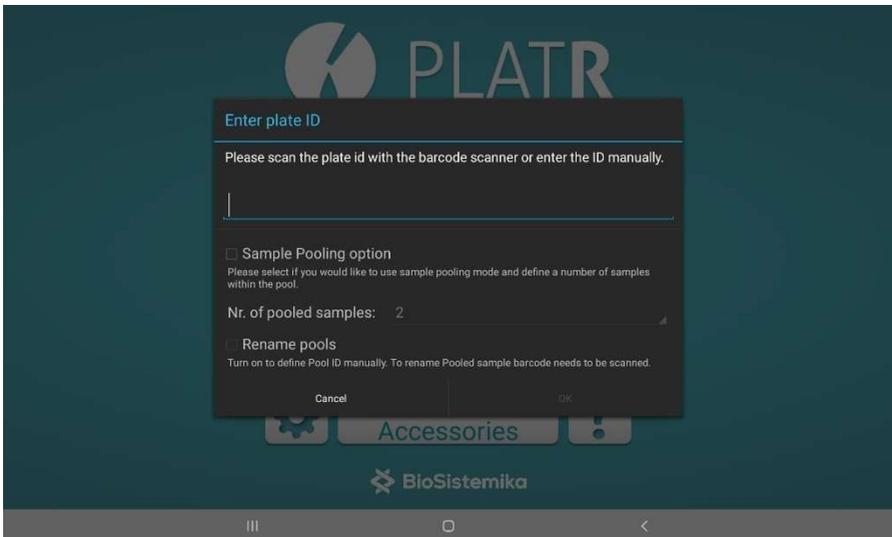
- Plate identification
- Timestamps – the start of pipetting, and the time when the sample was scanned (a new row for every well on the plate)
- Scanned barcodes or default name of samples if not scanned
- An OK/NOK function, to quickly mark which samples were skipped or not pipetted

The last line in the report is an end line with a finishing timestamp. In the case of Sample pooling, the sample name/barcode is replaced by

the pool name/barcode. Additional columns for each sample will be added to the report, matching the well position.

8.2. Brief workflow description

To start a diagnostic workflow, you need to press the "Diagnostic plan" button on the main screen. It begins with an input box to define which mode to use: (i) pipetting single sample per well or (ii) *sample pooling mode*. You can set the Plate ID either by scanning a barcode of the plate or entering it manually. In the case of *sample pooling mode*, it is obligatory to define the number of samples in a pool (min number is 2) and the pool naming style (see). After every run, a plate status report will be created and stored in the ~/PLATR/Reports directory on the tablet, as well as sent to the online location defined in settings (see).



8.2.1. Pipetting single sample per well

In this mode, every well contains one liquid and can be represented by one barcode, and a well report is presented after the pipetting is finished.

- You need to define Plate ID either by scanning a barcode of the plate or entering it manually. Then press OK.
- You need to confirm the placement of the plate holder frame.
- You can start scanning the barcode for the first sample. Scanning the code will highlight the first well and rename the first sample to the scanned code.
- If the first well is selected (after manually pressing the "begin" button), scanning the first barcode with the sample will not advance to the next sample but rename the current sample.
- Scanning the next code will advance to the following well/sample and rename it with the new code.
- If you wish, you can scroll anywhere on the left list of samples and select any sample. If the well has already been used, a pop-up will ask if you wish to override the current well.
 - If you press Yes, the current well will remain selected; if you press No, the first available empty well will become selected. Then scanning the barcode will rename the currently selected well.
- When you reach the end of the layer, you need to press the bottom button to advance to the next layer.
- If you scan another barcode without advancing to the next layer, a warning message "Plate full" will be displayed. After

the warning message, you still need to advance to the next layer manually.

- When you are at the last well of the last layer, you need to confirm the last well by pressing the large button manually. A pop-up will then open on the left:
 - If you press "No", the experiment run will not be closed, you can go back to any well to change it, or you can use options available under the (+) icon.
 - If you press "Yes" the run will be finished, and the plate status will be saved both on local and online storage if defined correctly/network is available.
- After pressing no, you can press the big button "End pipetting" to open the pop-up again. The same pop-up will also open if you press the PlatR logo, which behaves as navigation to the main menu.
- If you scan another barcode at the last well of the last layer, the "Plate full" pop-up will be displayed. After pressing OK, a Pipetting completed pop-up will be displayed, with the same resolution as in number 8).

8.2.2. Diagnostic Sample pooling mode

- You need to define Plate ID either by scanning the barcode of the plate or entering it manually.
- Select the "Sample Pooling option", which will enable you to define several pooled samples. The minimum number is 2.
- If required, you can rename pools; if unmarked, a default name will be used, and position and Plate ID (e.g., A1-PlateID)

- To proceed to the pipetting step, press the OK button.
- You need to confirm the placement of the plate holder frame.
- If default pool names are used, you can start scanning the barcode for each sample within the pool. For the first sample, scanning the code will highlight the first well and rename the first sample within the pool to the scanned code.
- If the first sample within the pool is selected (after manually pressing the "Begin" button), scanning the first barcode will advance to the next available sample and rename it. The first one will be treated as already done manually and confirmed.
- You can scan as many individual samples within the pool as was defined at the beginning. Scanning the barcode will advance to the free slot within the pooled sample until all are used. For example, if 5 pooled samples are used, 5 individual samples can be scanned before proceeding to the next well position.
- If you wish, you can scroll anywhere on the left list of pooled samples. By pressing on an individual Pooled sample, it will reveal a list of individual samples within the pool.
- If you long-press on the pooled sample name, a pop-up will appear to enable you to rename it. Scanning a barcode now will change the pool name to the new scanned name.
 - If you press the "Use default name" button, it will use Plate ID and well position (e.g., A1-PlateID).
 - If you press "Cancel", the current name will remain.

- If you long-press on the individual samples within the pool, a pop-up will appear to enable you to rename samples. Scanning a barcode now will rename the current name (empty or already present)
 - If you press the "Use empty name" button, it will use enter a "-" for the sample name.
 - In case you press "Cancel" the current name will remain.
- You can skip individual samples within the pool by scanning a dedicated SKIP_SAMPLE barcode. It will automatically transfer you to the next available Pooled sample. If you are at the last well position, it will automatically end the experiment, and a pop-up will appear "End pipetting", by confirming YES, you will complete the experiment. If pressed NO, you will be able to navigate between samples and rename them.



- When you reach the end of the layer, you need to press the bottom button to advance to the next layer.
- If you scan another barcode without advancing to the next layer, a warning message "Plate full" will be displayed. After the warning message, you still need to advance to the next layer manually.

- When you are at the last well of the last layer, you need to manually confirm the last sample of the well by pressing the large button.
 - If you press "No", the experiment run will not be closed, you can go back to any well to change it, or you can use options available under the (+) icon.
 - If you press "Yes" the run will be finished, and the plate status will be saved both on local and online storage if defined correctly/network is available.
- After pressing no, you can press the big button "End pipetting" to open the pop-up again. The same pop-up will also open if you press the PlatR logo, which behaves as navigation to the main menu.
- If you scan another barcode at the last well of the last layer, the "Plate full" pop-up will be displayed. After pressing OK, a Pipetting completed pop-up will be displayed.
- Every step done during the pipetting will be recorded and timestamped, visible within the generated report.

8.3. Diagnostic mode settings

In settings, you can change the default diagnostic plan. You can create the plan according to your requirement with the "Create plan" and then "Draw plan".

When your plan is saved, you can go to settings, select "Validated plan for diagnostic," and from there, select your newly created plan and confirm the following pop-up.

In settings, you can also set the URL for automated plan uploading.

You need to enter a URL connection to the API of remote file storage, which supports http or https:// and has a <Filename> tag. All the other tags are optional and need to be communicated to your IT department.

8.4. Diagnostic module button

In case you purchased [the Basic package](#), the button for accessing the [Diagnostic module will stay active only for 30 days \(free trial\)](#). Afterward, it will be automatically disabled, and a pop-up will appear stating that you should contact BioSistemika to buy or prolong the subscription.

In case you purchased an [Advanced](#) or [Premium package](#), the button for [the Diagnostic module will stay active indefinitely, even after the free trial period](#).

8.5. Supported barcode scanners

Any Android-supported barcode scanner can be used, either via Bluetooth connection or a USB cable connection. The scanner must be set as a virtual keyboard device and add "Enter"/Carriage return mode.

For a better user experience, we also suggest checking your Android tablet settings (outside PlatR) / General management / Language and input, and under "Physical keyboard" settings turning on the option "Show on-screen keyboard".

When using a USB-connected barcode scanner, a "Power delivery" compatible USB hub is suggested for connection as you can then at the same time connect the barcode reader and charge your tablet.

If a hub is not available, any OTG USB-C/USB-A adapter will do besides a barcode reader with a USB-C cable.

8.6. Setting up the Zebra Bluetooth barcode scanner

Note: If the instructions are printed, use a high-resolution printer to avoid any barcode detail issues. Otherwise, it is recommended to scan directly from the screen.

8.6.1. Step 1 – UNBOXING & CONNECTION

Take the barcode scanner, the cradle, and the cable out of the box.

Connect the cable to the cradle and insert the digital barcode scanner in the cradle. The cradle can be connected to a USB-compatible power source.



NOTE: Cables may vary depending on configuration

8.6.2. Step 2 – PAIRING

To pair directly with your tablet, scan HID Bluetooth Classic barcode below.



HID Bluetooth Classic

Open Bluetooth settings on the tablet (long press on Bluetooth icon on the top of the screen). The barcode scanner will become visible

to the tablet. In case the DS2278 digital scanner is still not visible, tap Scan one more time. Select DS2278 digital scanner and pair devices.

8.6.3. Step 3 – SET AS KEYBOARD and ADD ENTER KEY

To communicate with the PlatR application, the barcode scanner must be set as a virtual USB keyboard. Additionally, it must be set to add an ENTER Key after every scan.

To set it as HID keyboard device, scan the bar code below.



***USB Keyboard (HID)**

To add an Enter key after scanning data, scan the bar code below.



Add Enter Key (Carriage Return/Line Feed)

8.6.4. Troubleshooting

In case the barcode scanner does not work correctly, you need to reset it to default settings. Please follow these steps:

- 1 Unpair the barcode scanner from the tablet → go to tablet Settings → select Bluetooth → select barcode scanner and click "Unpair".
- 2 Scan the "Restore Defaults" bar code below.



Restore Defaults

- 3 Pair the barcode scanner with the tablet again → go to tablet Settings → select Bluetooth → select the scanner and click "Pair".
- 4 Repeat Steps 2 & 3.

8.6.5. Scanner volume adjustment

To adjust the barcode scanner volume, scan the bar codes below.



Low Volume



Medium Volume



***High Volume**

9. Cleaning, decontamination, and maintenance

Clean PlatR with a soft cloth or lint-free tissue dipped in distilled water, simple soap solution, ethanol, and DNA/RNase remover. Allow it to air dry or dry it carefully with a soft cloth or lint-free tissue.

Use chemical solutions for decontamination or detergents for cleaning other than those specified above. You should check with your supplier that the solution or detergent is safe for use with the following materials: Gorilla glass and polystyrene.

Samsung Galaxy Tab screen is covered with a very resistant CORNING GORILLA glass. For specific cleaning instructions of Samsung Galaxy Tab, see the manufacturer instructions.

If it is exposed to ultraviolet light, the plastic housing might crack. UV light does not affect PlatR's functions.

WARNING: Do not autoclave!

10. PlatR updates

10.1. PlatR update link

The **PlatR application** can be updated by downloading the latest PlatR update .APK file.

IMPORTANT: To obtain the latest .APK file a link will be sent by email to the registered emails (provided at the first launch of the PlatR application).

To update PlatR, simply download provided file directly to your PlatR device (SAMSUNG tablet computer) or your computer and transfer it to the SAMSUNG tablet via the memory stick or the USB cable.

Once downloaded/transferred to the PlatR device, simply launch the .APK file (e.g. [platr_V2.1.4.apk](#)) from the folder and press the install button to install the new version of PlatR. It should automatically replace the previous version of PlatR, which should be visible within the PlatR setting.

IMPORTANT: PlatR will be updated only on the authorized SAMSUNG Galaxy Tab, which is a part of the PlatR original package.

10.2. What happens if you accidentally uninstall PlatR software?

SAMSUNG Galaxy Tab in the PlatR package is authorized (validated) to run PlatR software. If you accidentally uninstall PlatR software from the tablet, simply re-install the PlatR software from the download .APK or contact BioSistemika to provide you a link.

IMPORTANT: Make sure that the tablet is connected to the wireless network when you start the PlatR software for the first time after the re-installation. If you are not connected to the internet, PlatR will not start.

THE END



We hope you will enjoy using
PlatR in your lab!

Feel free to contact us anytime:
platr@biosistemika.com

<http://biosistemika.com/platr>

Best regards,
BioSistemika Team