

User's Guide

TRILUTION® micro Software



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# OVERVIEW

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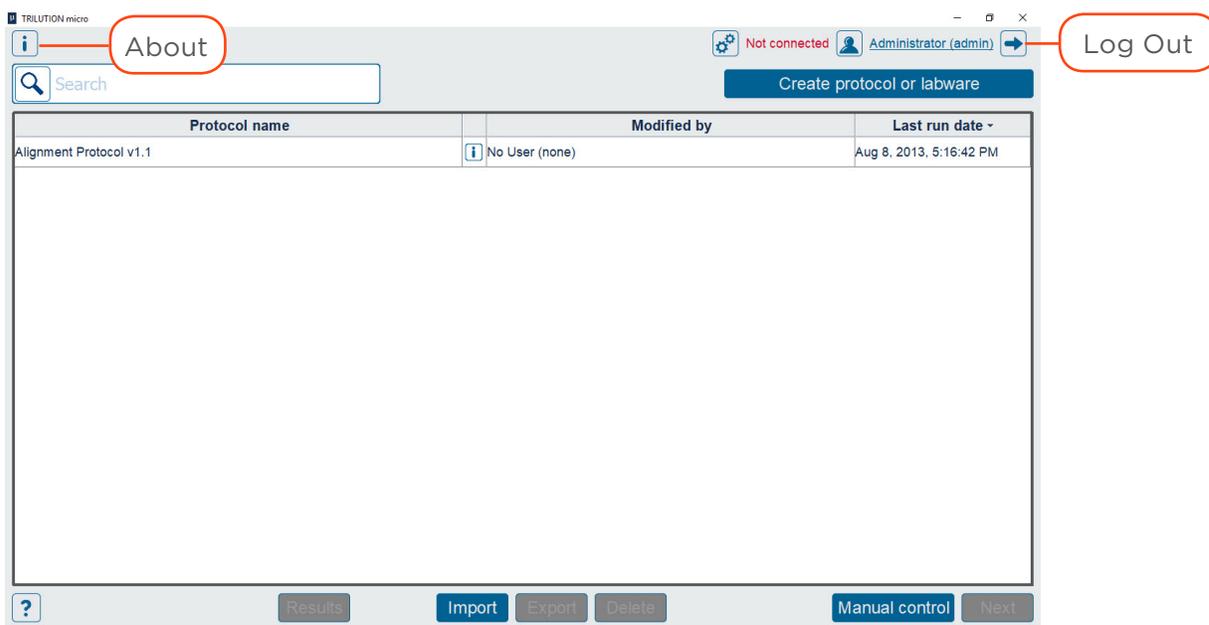
# TRILUTION® micro Software Overview

TRILUTION® micro Software is the primary runtime control software for PIPETMAX®.

TRILUTION micro enables:

- Protocol management, including importing, exporting, and deleting protocols
- Starting support software and utilities (Labware Creator, Normalization Assistant, and qPCR Assistant)
- Simulating and running protocols
- Manual control

When you start the software, the **Protocol Selection** screen appears.



**Figure 1**  
Protocol Selection Screen (Default)

## About

On the **Protocol Selection** or **Run Setup** screen, select  to access the **About** screen that lists the software version and provides access to the **System Info**.

### SYSTEM INFO

On the System Info screen, optionally select **Export** to export the system information to a text file or select **Clipboard** to copy the system information to the clipboard for pasting in another file.



**Figure 2**  
About Screen with Access to System Info

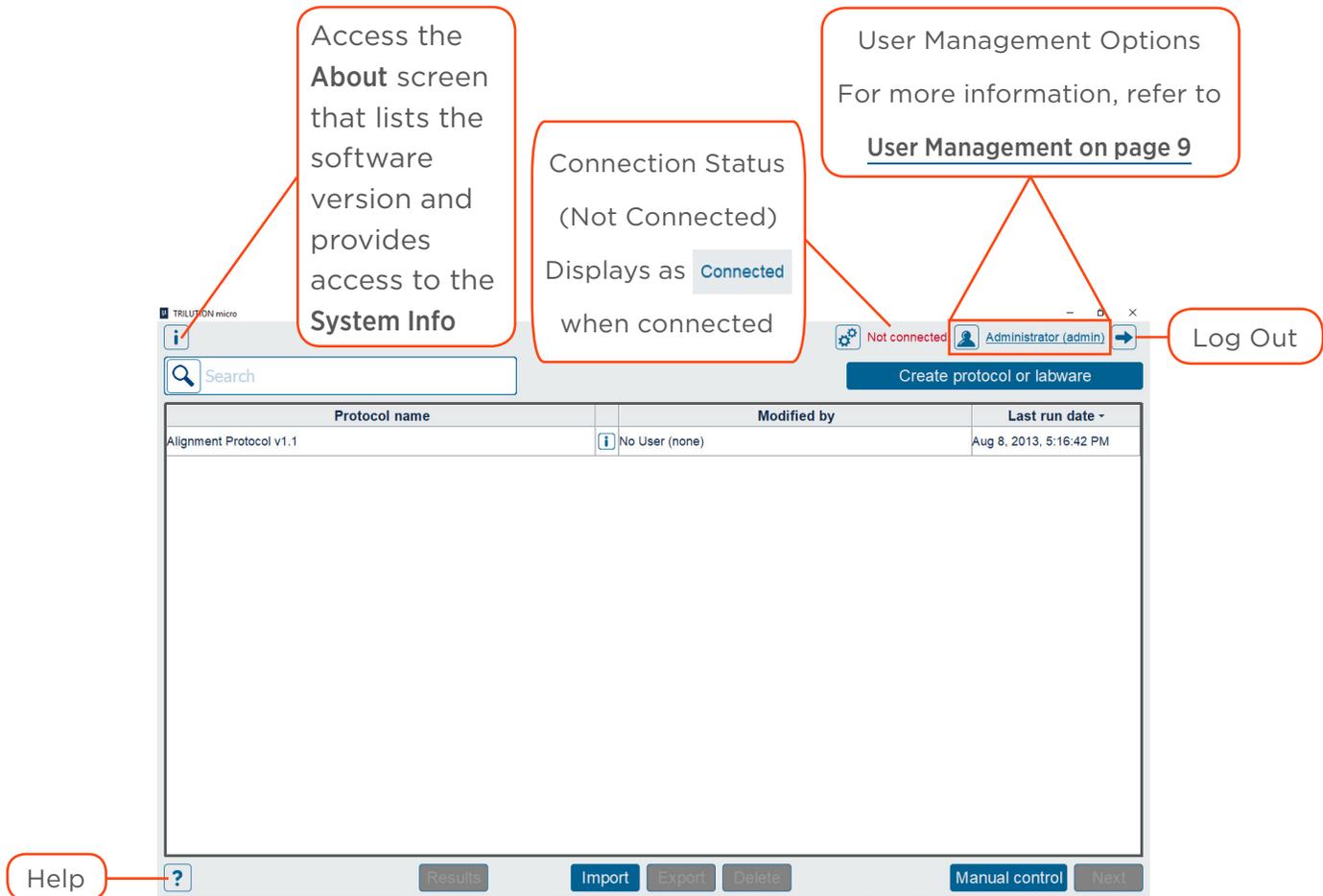
## Log Out

On the **Protocol Selection** or **Run Setup** screen, select  to log the current user out of the software. The **Log in** screen appears to allow another user to log in.

## Connection Status

On the **Protocol Selection** or **Run Setup** screen, the connection status is displayed.

If not connected or not communicating with PIPETMAX, simulation is possible, but running a protocol is not.



**Figure 3**  
Protocol Selection Screen (Default)

## Help

Context-sensitive help is available in the software by selecting . A .PDF download of this user's guide is available at [www.gilson.com](http://www.gilson.com).



## Start the Software

The first time you start the software, no login or password is required. Optionally, set up users with permissions and require a password. For more information, refer to [User Management on page 9](#).

## Set the Serial Number

If the serial number is not entered, then the software will not be able to communicate with PIPETMAX.

To set the serial number:

1. On the **Protocol Selection** screen, select  to access the **Settings** screen.
2. On the Settings screen, select **Protocol settings**.
3. Enter or verify the serial number for PIPETMAX in the **Serial number** field. The serial number for PIPETMAX is located on the inside panel of the right support.

**NOTE**

The serial number is set on the tablet by Gilson. PC installations require the user to enter the serial number.

4. Select **Back** to return to the **Settings** screen.

**NOTE**

If you change the serial number, you will be prompted to restart the software. Select **X** in the upper right corner of the screen and then when prompted select **Yes** to close the software.

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# USER MANAGEMENT

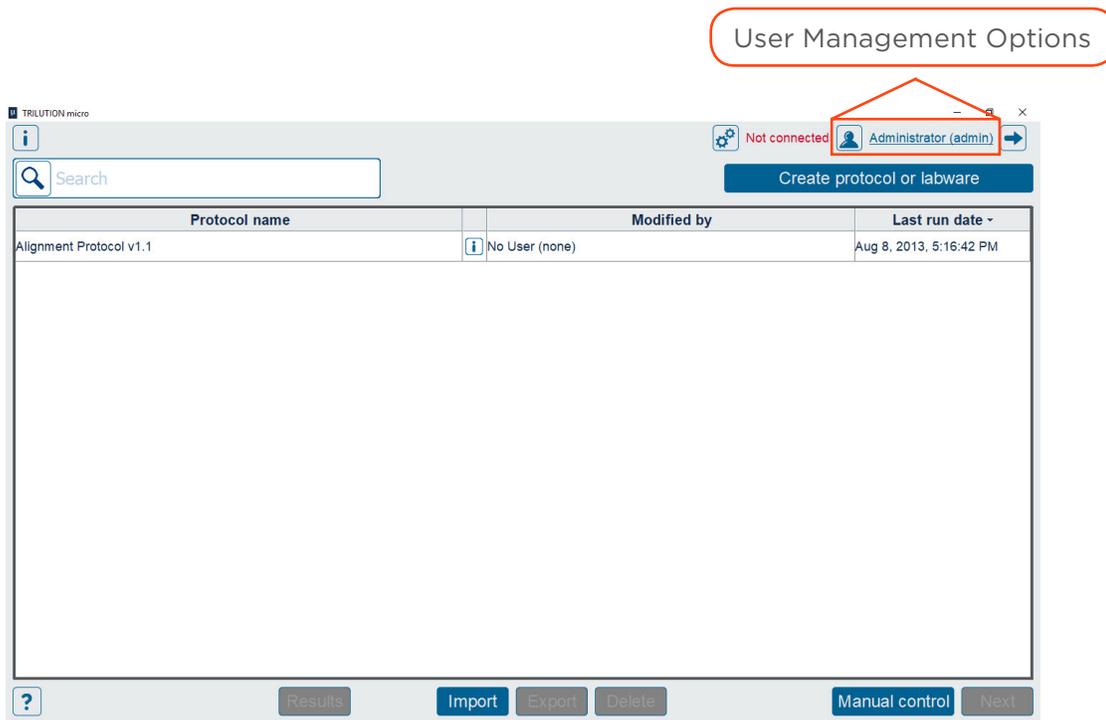
## IN THIS CHAPTER

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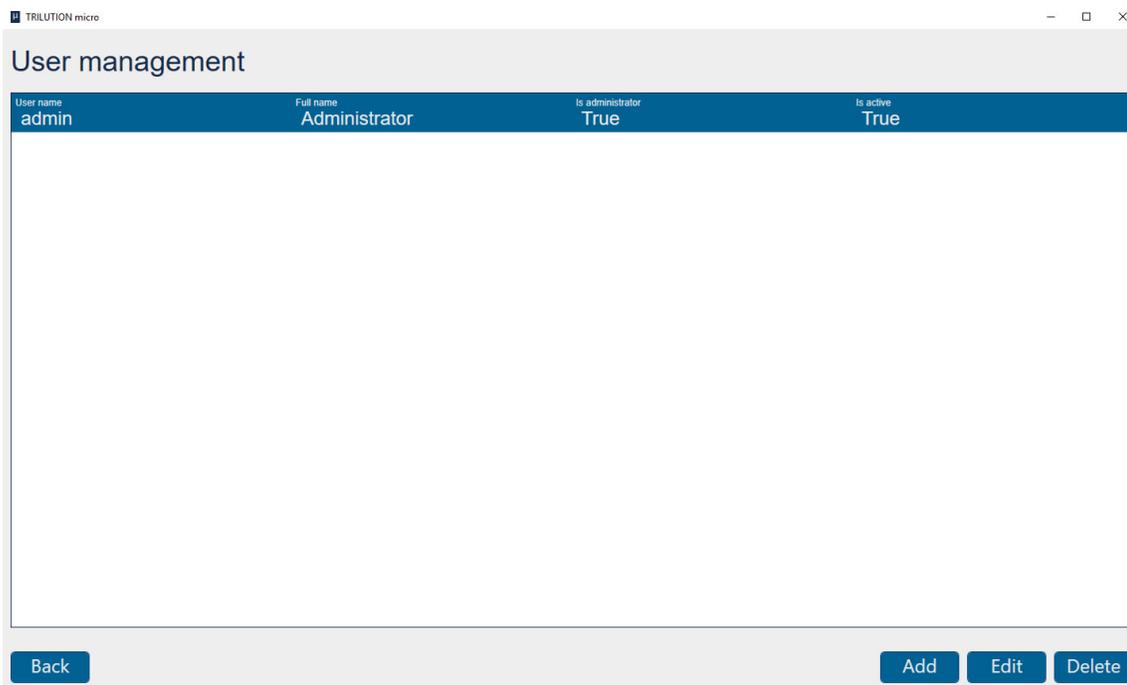
## Overview

User management provides a way for administrators to grant or restrict users access to features in the software.



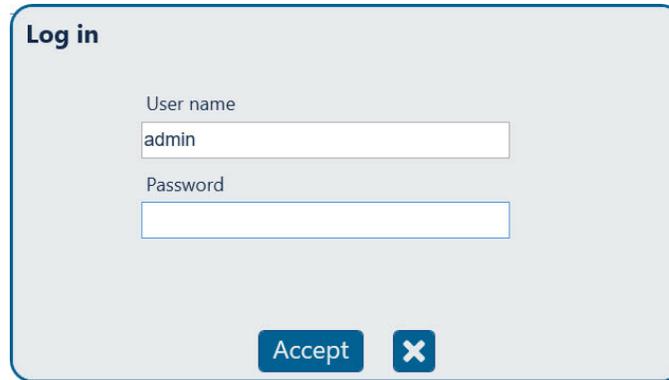
**Figure 4**  
Protocol Selection Screen\*

\*User management options also available from the **Run Setup** screen.



**Figure 5**  
User Management

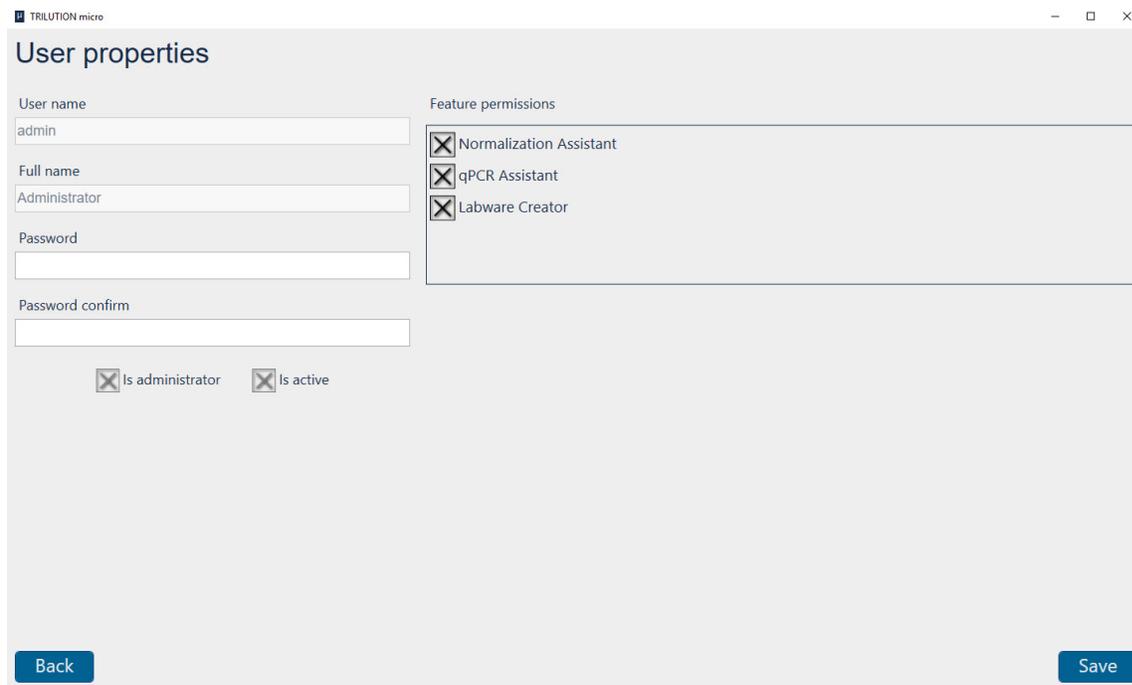
By default there is one user who is an administrator with no password. Optionally, create additional users. Creating additional users will require each user to log in to use the software.



The image shows a 'Log in' dialog box with a light gray background and a blue border. At the top left, the text 'Log in' is displayed in bold. Below this, there are two input fields: 'User name' containing the text 'admin' and 'Password' which is currently empty. At the bottom of the dialog, there are two buttons: 'Accept' and a close button represented by a white 'X' on a blue square background.

**Figure 6**  
Log In

## User Properties



The image shows a 'User properties' dialog box from the TRILUTION micro software. The title bar reads 'TRILUTION micro' and 'User properties'. The dialog is divided into several sections. On the left, there are input fields for 'User name' (containing 'admin'), 'Full name' (containing 'Administrator'), 'Password', and 'Password confirm'. Below these fields are two checked checkboxes: 'Is administrator' and 'Is active'. On the right, there is a 'Feature permissions' section with three checked checkboxes: 'Normalization Assistant', 'qPCR Assistant', and 'Labware Creator'. At the bottom left is a 'Back' button and at the bottom right is a 'Save' button.

**Figure 7**  
User Properties

## Edit User Properties

1. Select **Edit** on the **User Management** screen.
2. Edit the **Full name** and/or **Password**. If **Password** was edited, re-enter the password in the **Password confirm** field. **User name** may not be modified for the logged in user.
3. Select **Is Administrator** to make the user an administrator or clear the check box to create a standard user.
4. Select **Is Active** to make a user active or clear the check box to make the user inactive.





5. Edit **Feature permissions** to allow or disallow the selected user to access Normalization Assistant and/or qPCR Assistant and/or Labware Creator.

**NOTE**

Only a user designated as an administrator may edit feature permissions for a user, make the user an administrator, or activate or deactivate a user.

6. Select **Save** to save, or **Back** to return to the previous screen without saving.

## Add Users

1. Select **Add** to add a new user. The **New user** screen appears.
2. Enter a **User name**.
  - It cannot be the same as any other “User name”.
  - It can be 1 to 50 characters in length, must begin with an English letter or number, and may contain the following special characters: \_ ( ) - @ . and ,. Spaces are valid.
3. Enter the **Full name** for the user.
  - It can be 1 to 100 characters in length, must begin with an English letter or number, and may contain the following special characters: \_ ( ) - @ . and ,. Spaces are valid.
4. Optionally, enter a **Password** for the user. The user can change the “Password” at any time.
  - It can be 1 to 50 characters in length, must begin with an English letter or number, and may contain the following special characters: \_ ( ) - @ . and ,. Spaces are valid.
  - It is case-sensitive, but is not required. (Password can be blank.)
5. If a **Password** was entered, re-enter the password in the **Password confirm** field.
6. Select **Is administrator** to assign administrator access to the user.
7. By default, **Is active** is selected. Clear the check box to deny the user access to the software. The user remains in the user list and can be changed to active by an Administrator at any time.
8. Under **Feature permissions**, clear the check box for any software to which the user should not have access. (By default, a new user has access to all software.)
9. Select **Save** to save, or **Back** to return to the previous screen without saving.

## Delete Users

1. Select a user from the list.
2. Select **Delete**. A message will appear asking if you wish to delete the user.
3. Select **Yes** to delete the user. Or, select **No** to close the message without deleting the user

## Back

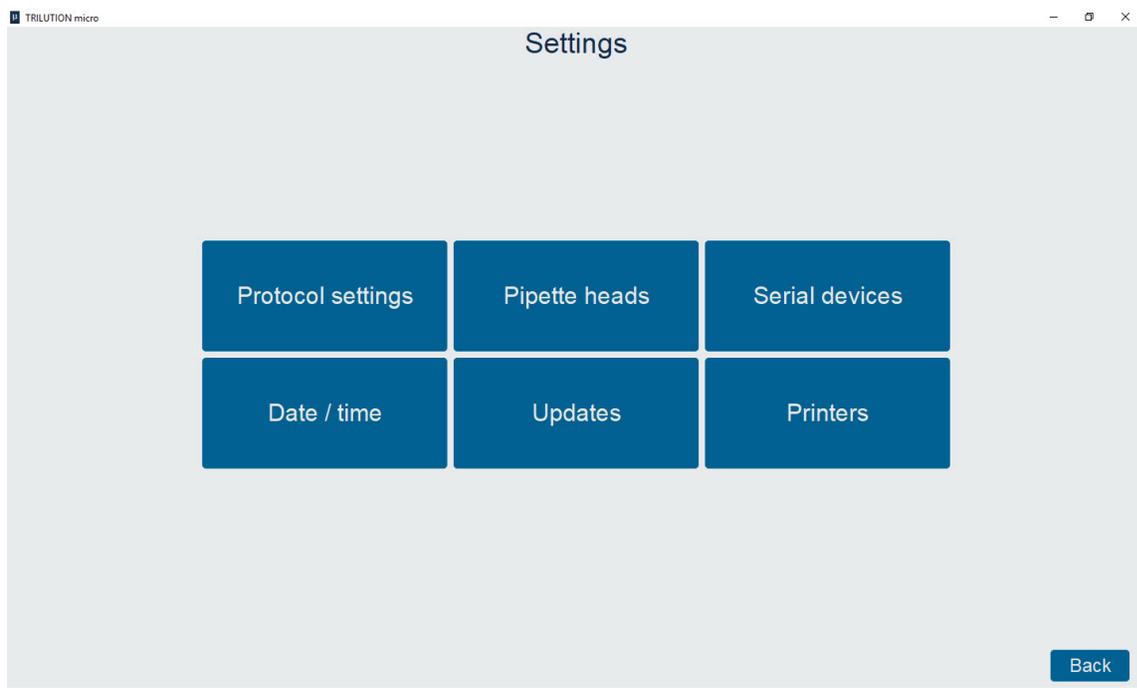
Select **Back** to return to the access point for user management, either the **Protocol Selection** screen or the **Run Setup** screen.

---

# SETTINGS

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**Figure 8**  
Settings

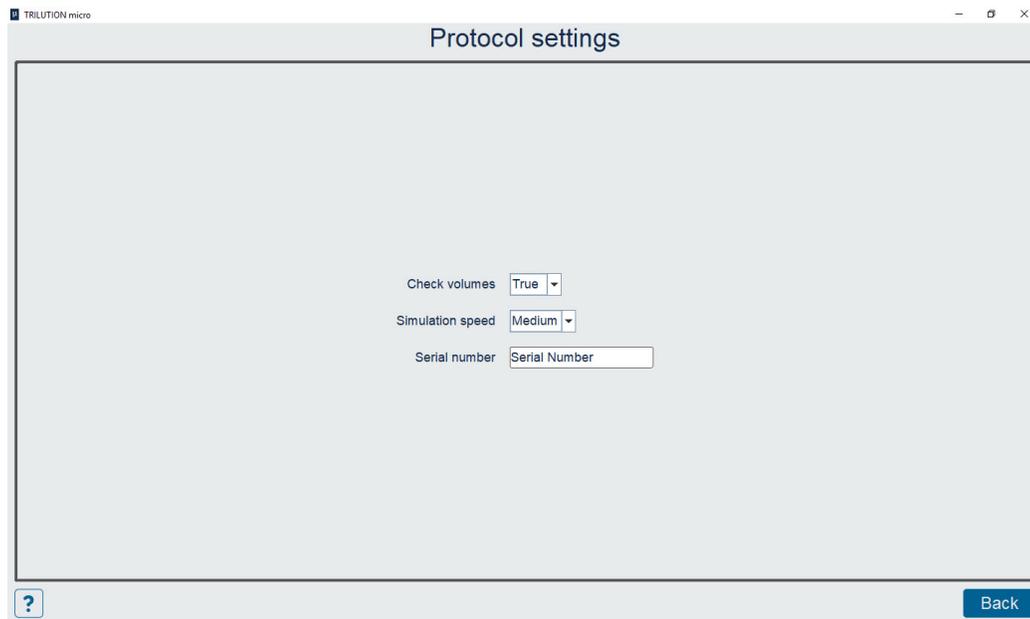


## Protocol Settings

The **Protocol settings** screen displays options for the software. A user who is an administrator can view or modify these settings.

- **Check volumes** is for setting whether to be notified of insufficient or excessive volume. Select **True** or **False**.
- **Simulation speed** is the speed at which a protocol simulation runs. Select **Fast**, **Medium**, or **Slow**.
- The **Serial number** field is for entering the serial number for PIPETMAX. If the serial number is not entered, the software will not be able to communicate with PIPETMAX

The serial number for PIPETMAX is located on the inside panel of the right support.



**Figure 9**  
Protocol Settings

## Navigation

Select **Back** to return to the **Settings** screen.

## Pipette Heads

The **Pipette head management** screen displays a list of pipette heads that have been configured and the calibration values for each. On this screen, a user who is an administrator can view, create, import, edit, and delete pipette heads.

**Figure 10**  
Pipette head management

### View

To view the calibration values for a configured pipette head, select its serial number from the drop-down list next to **Open pipette head**.

### Add

- Do any of the following:
  - Select **Scan**, and then select **Camera**. Optionally, select the icon to switch between the front and rear camera. When prompted, scan the bar code on the pipette head.
  - Enter the serial number and the values for the calibration values supplied in the documentation with the pipette head.
  - Using the optional bar code scanner (ordered separately), select **Scan**, and then scan the bar code on the pipette head.
- Select **Save**.

### Import

If necessary, your local Gilson representative will provide you with a file to import.

### Clear

To clear all fields, select **Clear**.



## Delete

To delete a pipette head:

1. Select the pipette head to delete from the drop-down list next to **Open pipette head**.
2. Select **Delete**.

A message will appear asking if you want to delete the current pipette head file.

3. Select **Yes** to delete the file. Or, select **No** or **X** to close the message without deleting the file.

## Navigation

Select **Back** to return to the **Settings** screen.

## Serial Device Discovery

The **Serial Device Discovery** screen is used to confirm which serial port a device is connected through and to save the serial device configuration for later use.

**Figure 11**  
Serial Device Discovery

### Configuration name

Lists the names of all saved serial device configurations. Selecting a saved configuration populates all fields below with the information for that configuration.

#### NOTE

Preloaded serial device configurations may be present. To use these configurations, select and confirm the correct **Com port**, and then select **Save**.

### Com port

Lists all available serial ports on the system. After selecting a **Com port**, setting all communications settings, and entering data, select **Send**, and then view the response to check that the correct **Com port** was selected.

### Data bits, Baud, Stop bits, Parity, Flow control

When importing a file to create a configuration, these values are automatically populated. Confirm the value and then modify, if necessary.

### End of line character

When importing a file to create a configuration, this selection is automatically populated. This data is added to the end of the data that is sent when **Send** is selected. Confirm the value and then modify, if necessary.



## Data to send

When importing a file to create a configuration, this selection is automatically populated. Enter a valid command string for the serial device. Confirm the value and then modify, if necessary.

## Send

Select to test communication with the device through the selected **Com port**.

## Response

Displays the response string from the connected device after a command is sent. Confirm that the correct response was received from the device.

The correct response from the PolyScience AD-Series heater/chiller is vxxxx, where xxxx is the version.

The correct response from the Big Bear Automation HT-91100 is HT-91100.

**NOTE**

Response may not be immediate.

## Import

Allows for importing a serial device configuration from a properly formatted text file. Populates all the fields with the data read from the file. After importing, select Save to save the configuration.

## Clear

Select to clear the Response field.

## Delete

To delete a serial device configuration from the system:

1. Select the configuration to delete from the drop-down list next to **Configuration name**.
2. Select **Delete**. A message will appear asking if you want to delete the current serial device configuration.
3. Select **Yes** to delete the configuration. Or, select **No** or **X** to close the message without deleting the configuration.

## Save

Select to save the serial device configuration (baud rate, etc.) with a name so that the user can then select it later from the drop-down at the top.

## Navigation

Select **Back** to return to the **Settings** screen.



## Date / time

Selecting this option opens the **Date and Time** options screen for the operating system.

## Updates

Selecting this option opens a dialog for browsing an update file. Use this option when running a package updater.

## Printers

Selecting this option opens the **Devices and Printers** screen for the operating system.

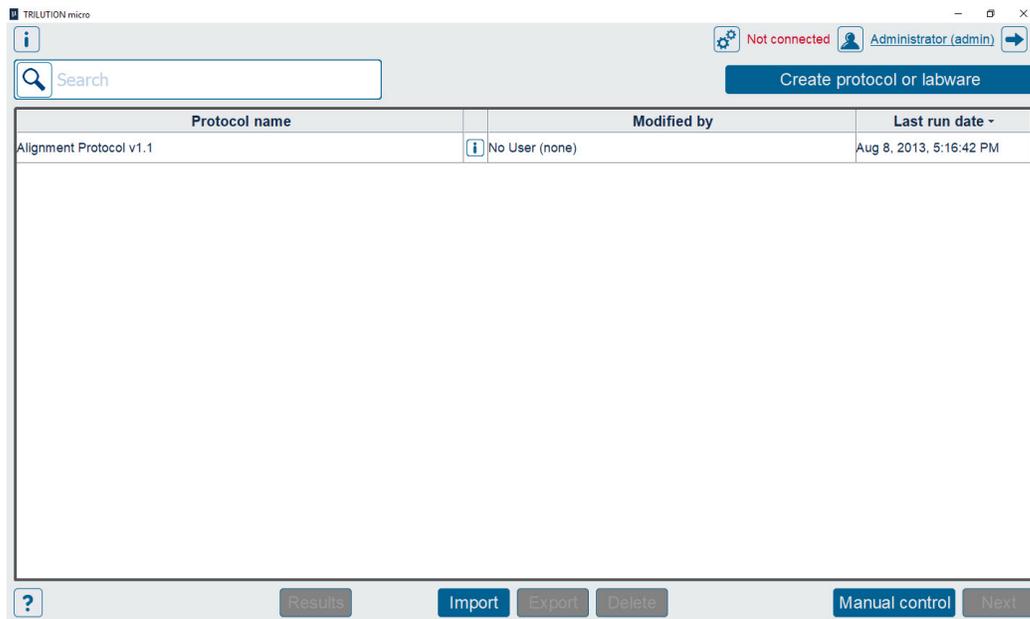


# PROTOCOL SELECTION

## IN THIS CHAPTER

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In addition to displaying a list of available protocols, the **Protocol Selection** screen is the main screen and enables navigation to all other screens in the software.



**Figure 12**  
Protocol Selection Screen (Default)



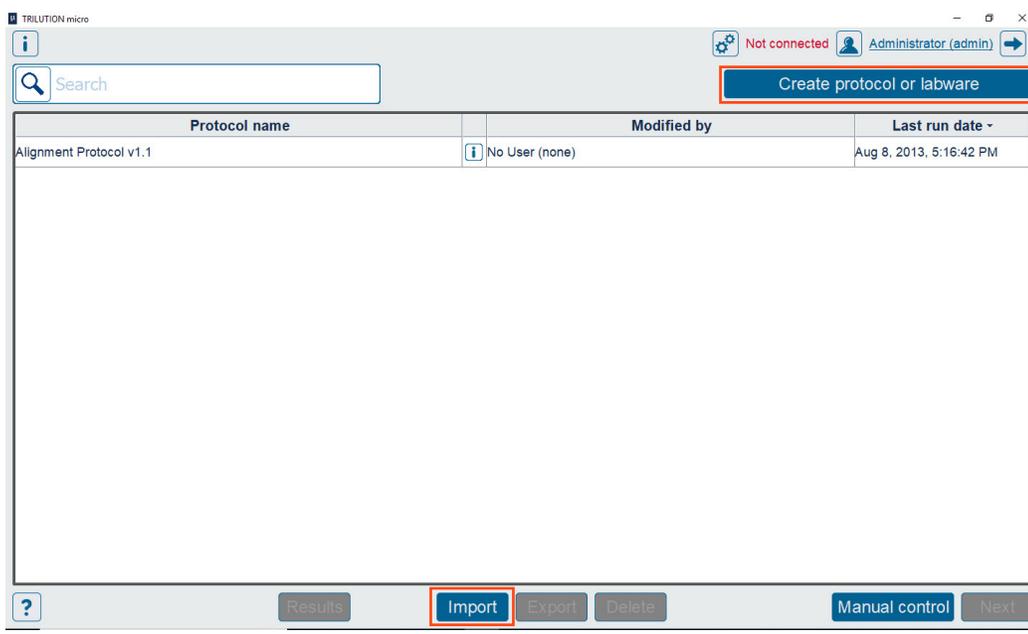
## Manage Protocol List

To build a protocol list, do either of the following:

- Import a protocol that was created in Protocol Builder. For more information, refer to [Import](#) below.
- Create protocols using Normalization Assistant or qPCR Assistant. For more information, refer to [Create Protocol or Labware on page 57](#).

**NOTE**

It is necessary to import any labware needed to create the protocol. Labware will need to be exported/obtained from the source, which is likely Labware Creator. Obtain the files from the person who created them. For more information about Labware Creator and how to export labware, refer to the *Labware Creator User's Guide* (part number LT313126).



**Figure 13**  
Import Protocol or Create Protocol or Labware

## Import

To import a protocol:

1. Select **Import**.
2. Browse for and select a **PIPETMAX protocol file** (.sqlite). The file name may or may not match the name of the protocol, depending on how it was saved.
3. Select **Open**. The imported protocol appears in the protocol list.

**NOTE**

If a protocol with the same name exists and you choose to replace the protocol, you will be prompted to log in and must be an administrator. Replacing the protocol overwrites the protocol and deletes the results for the existing protocol, which requires administrator access.



## Create protocol or labware

Select to access the **Normalization Assistant** or **qPCR Assistant** for creating protocols and the **Labware Creator** for creating labware for use in the software. For more information, refer to [Create Protocol or Labware on page 57](#).

## Export

To export a protocol:

1. Select a protocol in the list. It will highlight when selected.
2. Select **Export**.
3. Browse for and select the destination for the protocol file, and then select **Open**. The protocol is saved to the location with a .sqlite extension.

## Delete

A user who is an administrator is allowed to delete protocols.

**NOTE**

When a protocol is deleted, run results for that protocol are also deleted.

To delete a protocol:

1. Select a protocol in the list, it will highlight when selected.
2. Select **Delete**.

When asked if you want to delete the protocol and its associated results, select **Yes** to delete or select **No** or  to cancel and close the message.



## Sort

Protocol name	Modified by	Last run date -
Alignment Protocol v1.1	No User (none)	Aug 8, 2013, 5:16:42 PM

The name of the last user who ran the protocol. This field is empty if the protocol has not been run.

The last date the protocol was run. (A protocol that has not been run displays **Never** as the **Last run date**.)

**Figure 14**  
Protocol List

To sort the protocol list:

- The list is initially sorted by the **Last run date**, with the most recently run protocol at the top of the list.
- Select a column header to sort the list by that column. To sort in the reverse order, select the column header again.
- An up or down arrow next to the column header indicates that the list is currently sorted by that field.

## Search

To filter the list of protocols:

1. Select in the **Search** field next to the magnifying glass.



**Figure 15**  
Search Field

2. Enter the text to filter by and then press **Enter**.
  - The filter applies only to the **Protocol name**.
  - The filter is not case sensitive.
  - The filter is applied to any part of the text in the **Protocol name**.

Select  in the search field to clear the filter and refresh the list of protocols.

## Run/Simulate a Protocol

To select a protocol to set up for run or simulation:

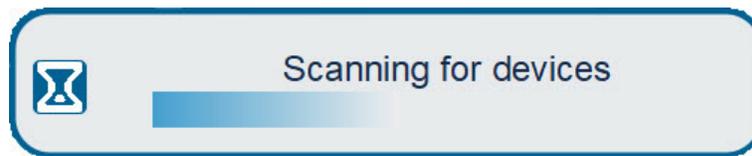
1. Select a protocol in the list. It will highlight when selected.

**NOTE**

 next to a protocol indicates that the protocol has a description associated with it. Right-click  to display the description.

2. Select **Next** to go to the next screen. The **Next** button is disabled if a protocol has not been selected.

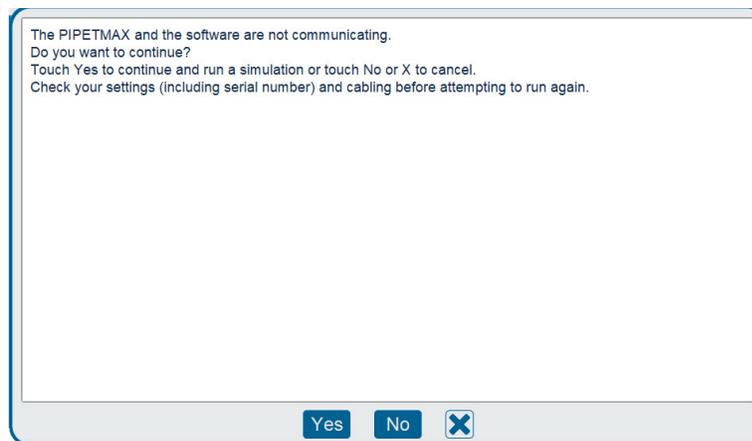
After selecting **Next**, the **Scanning** dialog appears while the software checks that the PIPETMAX is connected.



**Figure 16**  
Scanning Dialog

If connected, the software goes to the next screen.

If not connected, a message appears notifying you that you are not connected and asking if you want to simulate or check your cabling connections and try again to run.



**Figure 17**  
Not Connected - Prompt to Simulate or Check Connections

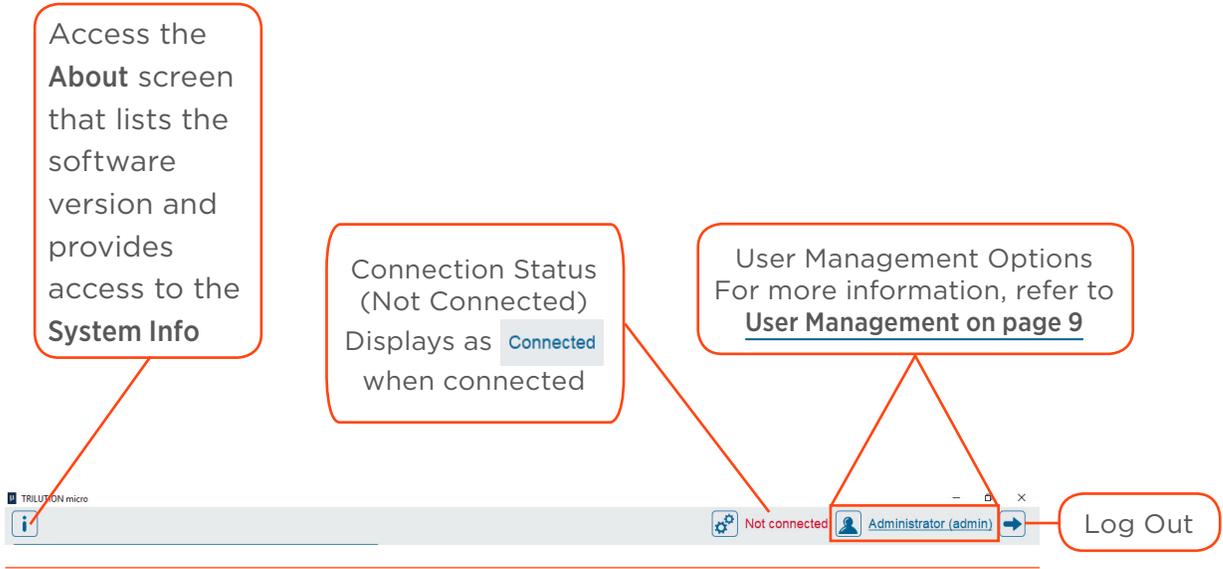
3. Continue with run setup. For more information, refer to [Run Setup on page 27](#).

## Results

Select a protocol in the list and then select **Results** to view results for attempted and completed protocol runs. For more information, refer to [Results on page 49](#).



# Navigation



**Figure 18**  
Navigation

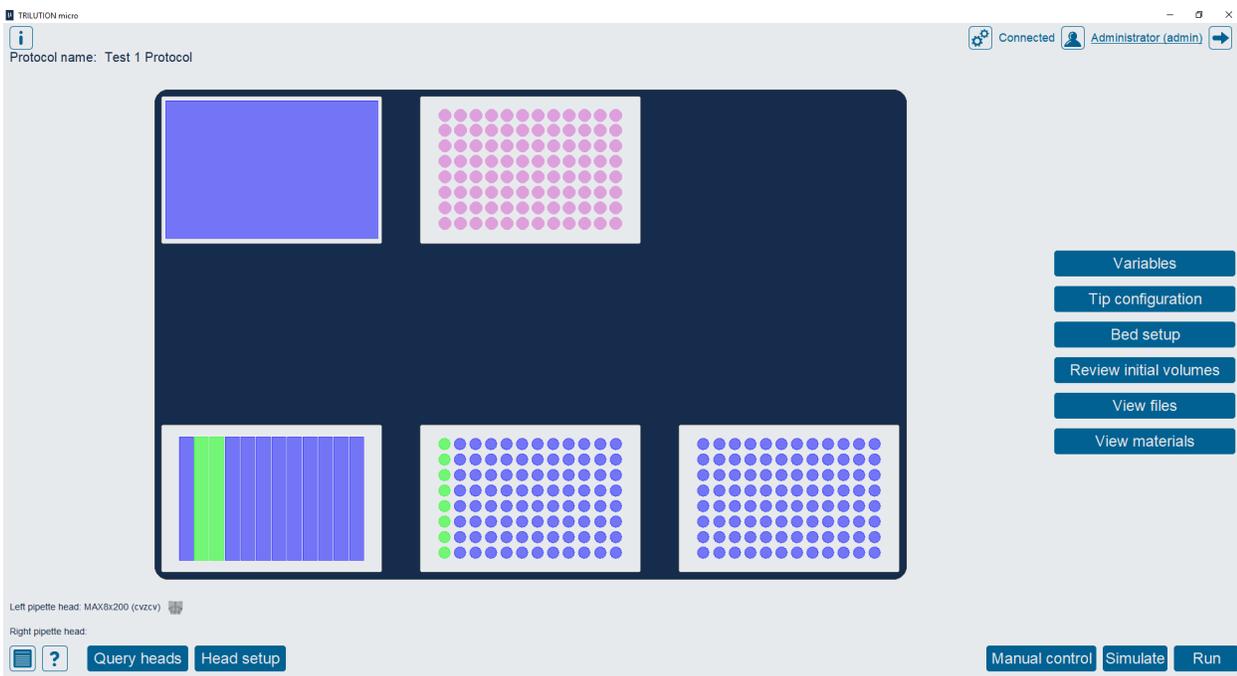
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# RUN SETUP

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After selecting a protocol to run on the **Protocol Selection** screen, complete run setup. This chapter provides information about run setup in a suggested, but not required order.



**Figure 19**  
Run Setup

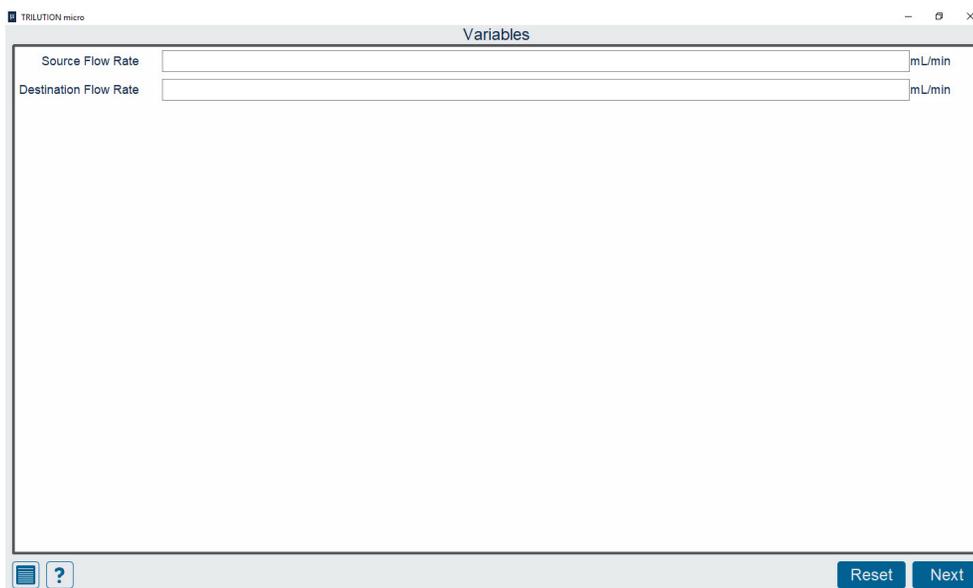


## Variables

The **Variables** screen displays a list of variables that must be satisfied before running the protocol.

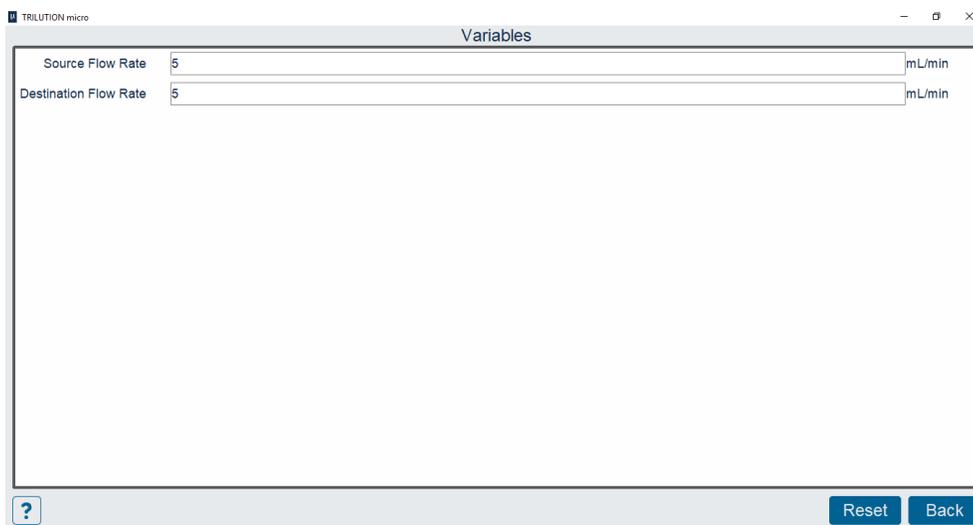
The **Variables** screen is displayed:

- Automatically if there are variable(s) in the selected protocol without a default value.  
If the selected protocol has no variables or all variables have a default value, the **Run setup** screen is displayed.



**Figure 20**  
Variables Screen (Variable List)

- When **Variables** is selected on the **Run setup** screen.



**Figure 21**  
Variables Screen (Variable List)

## Variable List

- The **Variable name** is displayed.

### NOTE

 next to a variable name indicates that the variable has a description associated with it. Right-click  to display the description.

- Use the variable entry field to enter a value for the variable. For a protocol that has never been run, the variables are set to the default values. For a protocol that has been previously run, the variables are set to the values used in the most recent run. Simulating a protocol does not update the values.
- Unit of measure, range, etc. is informational text only. Right-click on the text to display additional text not shown on screen.

## EDIT

To change the value of a variable:

- Select the variable entry field.
- Enter a value for the variable.

When entering a value for a location, the following applies:

- Use a colon (:) to specify a range.
- Ranges can be numeric or alphanumeric.
- Numeric ranges will be processed sequentially.
- Alphanumeric ranges will be processed in a batch, if possible.
- Use a comma (,) to separate values or ranges.
- Specify the starting location first.
- A dash (-) is not valid.

## INVALID DATA AND ERROR INDICATORS

If invalid data is entered in a variable entry field:

- The border of the variable entry will turn red.
- An error icon () will be displayed on the right side and on the same line as the variable with invalid data. Right-click the error icon to display details about the error.

## Reset

To reset the variables to the default values:

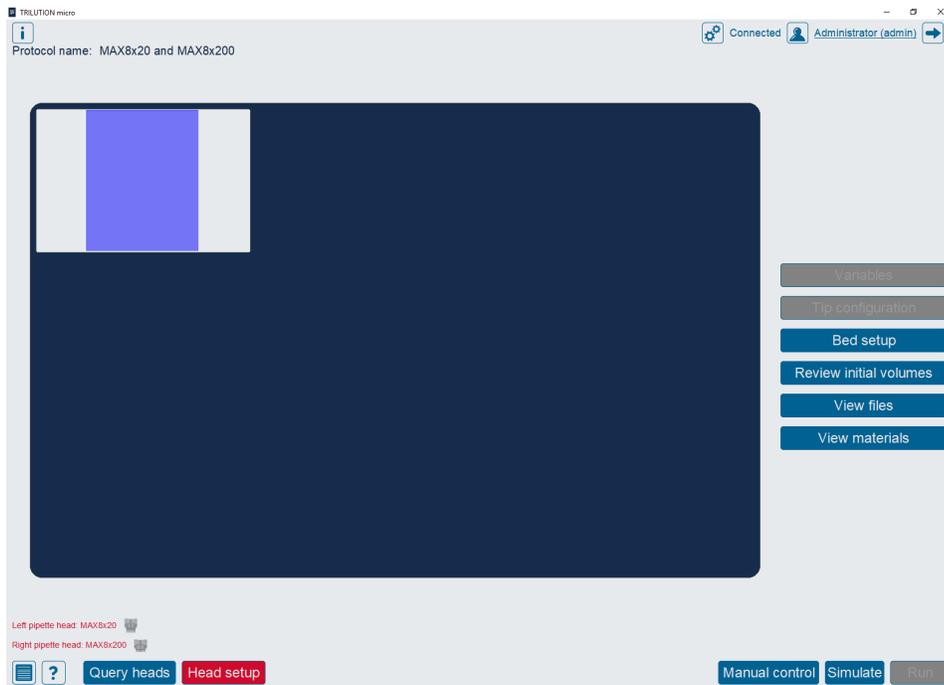
- Select **Reset**. The following message appears, “Resetting to the defaults will result in your losing any custom values. Do you wish to continue?”
- Select **Yes** to reset the values or select **No** or **X** to cancel and close the message.



## Head Setup

Select **Head setup** to go to the screen for selecting or adding pipette heads. This is necessary if the pipette head is not set up correctly. The pipette head selected must match the pipette head used in the protocol.

The software will remember your selection. On this screen is also where you confirm that your hardware configuration matches what the software expects.



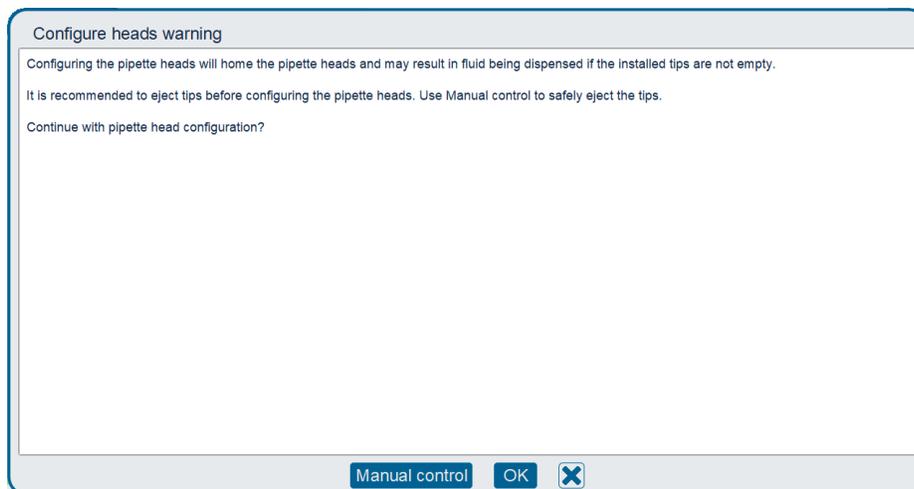
**Figure 22**  
Run Setup Screen - Pipette Heads Selected Do Not Match Pipette Heads Used in Protocol.

To select or add pipette heads:

1. Select **Head setup** on the **Run Setup** screen.

**NOTE**

Eject any installed tips. The pipette head will home and dispense any fluid that is in the tips.

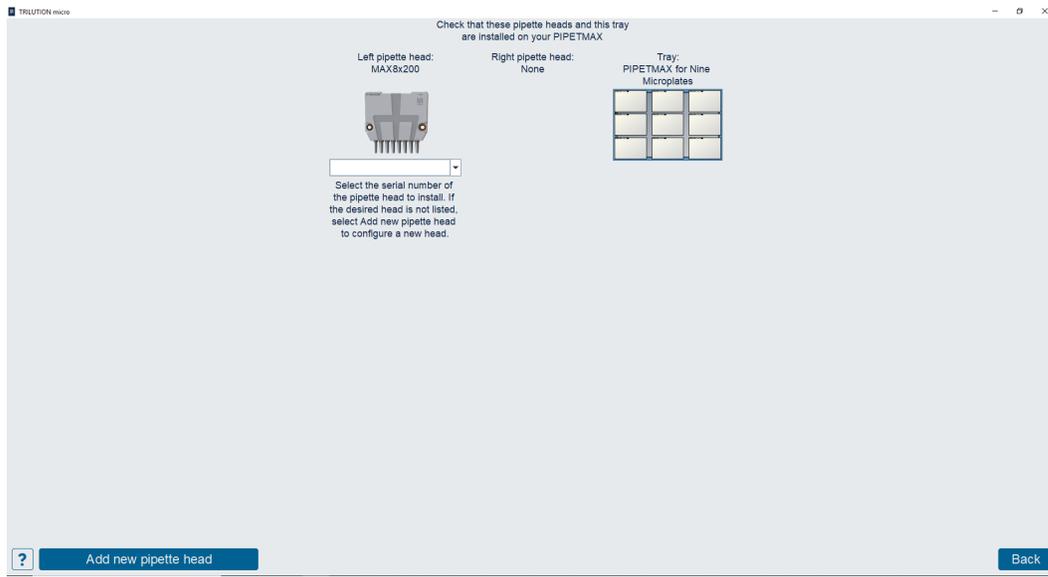


**Figure 23**  
Configure Heads/Head Setup Warning

- From the drop-down list below each pipette head image, select the serial number of the pipette head installed in each position (left and/or right). The software automatically filters pipette heads that have been added by type.

If the drop-down list is empty or the installed pipette head is not available for selection, select **Add new pipette head** to go to the **Pipette head management** screen. For more information, see [Pipette Heads on page 15](#).

Tray shows the name and image of the template required for the protocol.



**Figure 24**  
Run Setup - Head Setup

- Select **Back**. The software configures the pipette head(s) in the PIPETMAX.



## Query Heads

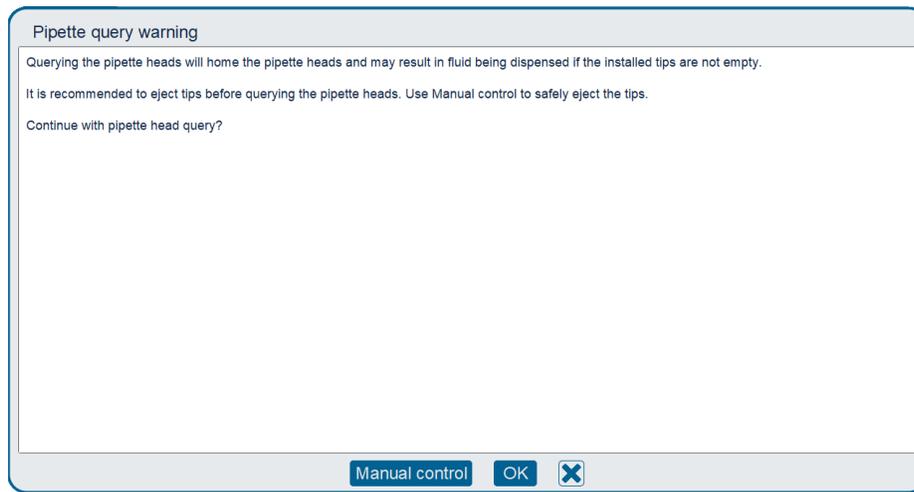
Query the heads to check that the installed pipette heads match the ones defined in the selected protocol.

To query the heads:

1. Select **Query heads** on the **Run Setup** screen.

**NOTE**

Eject any installed tips. The pipette head will home and dispense any fluid that is in the tips.



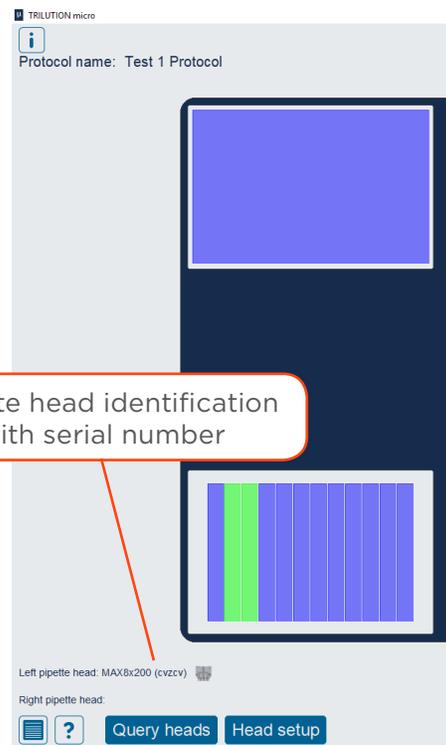
**Figure 25**  
Pipette Query /Query Heads Warning

If the heads match, the serial number for each head will appear.

If **Not Installed** is displayed in place of the serial number, add the heads. Refer to [Head Setup on page 30](#).

If the heads do not match, set up the heads. Refer to [Head Setup on page 30](#).

2. Visually confirm that the serial number(s) shown on screen match that on the actual installed pipette head(s). The serial number (and some additional information, such as the volume range) is viewable on the pipette head, even when installed.

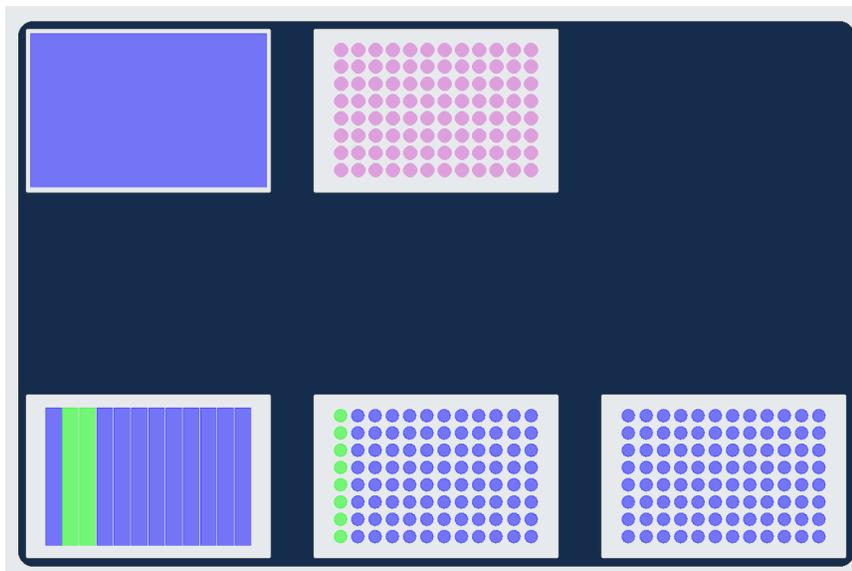


**Figure 26**  
Updated Screen After Query Heads

## Labware Setup

The labware setup features of the **Run Setup** screen display:

- The location of the labware on the tray (tray view)
- The name (and type, by color) of the labware.
  - White - Empty tip location
  - Pink - Tips
  - Red - Negative volume
  - Green - Volume in the tube or well
  - Blue - Empty tube or well
- The well label and initial volume for a tube or well. Right-click on a label to display additional text not shown on-screen.



**Figure 27**  
Run Setup - Tray View



## Review/Edit Tip Setup

There are two ways to review/edit tip setup:

- Select the tip box in the tray view. This is the recommended way if you are only using one tip box.

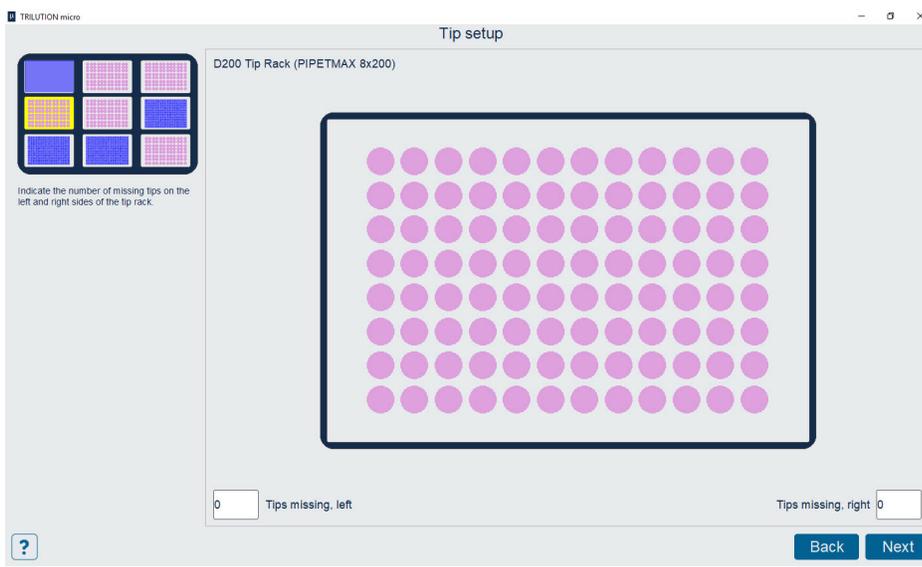


**Figure 28**  
Tip Setup - One Tip Box

- Select **Tip configuration** on the **Run Setup** screen. This is the recommended way if you are using multiple tip boxes.

Select **Next** to advance to the next tip box on the bed. The tray image in the upper left identifies the current, selected tip box. If the last tip box is selected, selecting **Next** returns to the **Run Setup** screen.

Select **Back** to return to the previously selected tip box. Or, if the first tip box is selected, selecting **Back** returns to the **Run Setup** screen.



**Figure 29**  
Tip Configuration - Multiple Tip Boxes

When a tip rack is selected:

- The left side of the screen displays the location of the tip rack on the bed.
- The right side of the screen displays the type of tips, name of the tip rack, and an image.
- The **Tips missing, left** and **Tips missing, right** fields can be filled in to indicate the number of tips that are missing from a tip rack.

## TIP SETUP/CONFIGURATION

### Missing tips

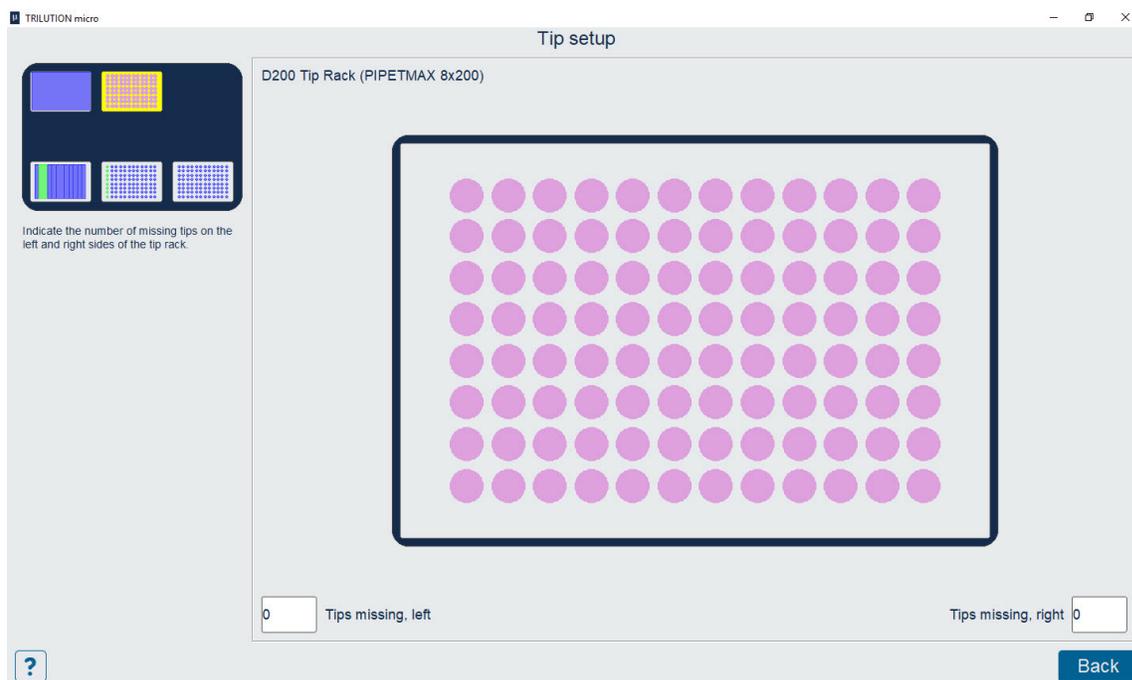
Ensure that the illustration matches your tip setup.

The colors indicate the following information:

- White - Missing tips
- Pink - Tips

To indicate missing tips:

1. Select in the **Tips missing, left** or **Tips missing, right** field. The keyboard appears.
2. Specify the number of missing tips from the left or right side of the tip rack.
  - The software will indicate missing tips starting from the bottom left corner for **Tips missing, left**.
  - The software will indicate missing tips starting from the top right corner for **Tips missing, right**.



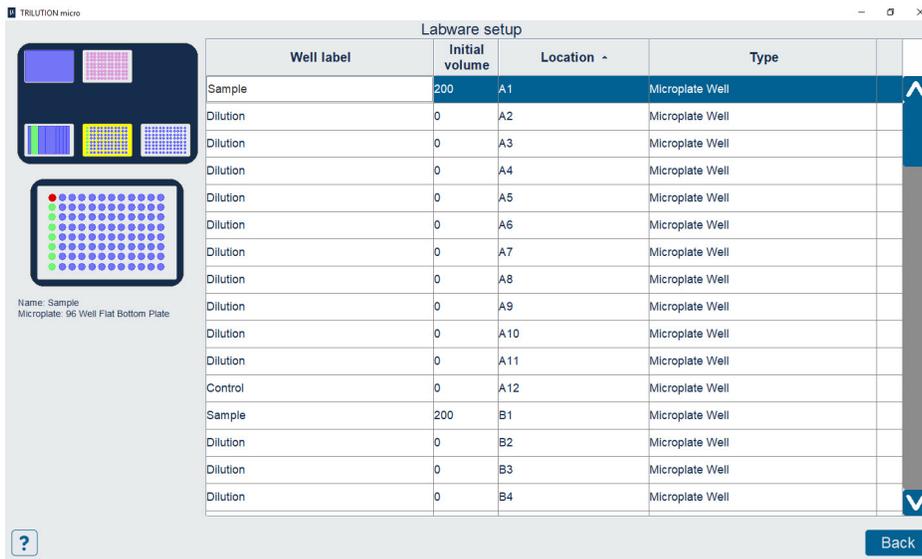
**Figure 30**  
Tip Setup Showing a Full Tip Rack



## Review/Edit Bed Setup

There are two ways to review/edit bed setup.

- Select the bed element in the tray view.

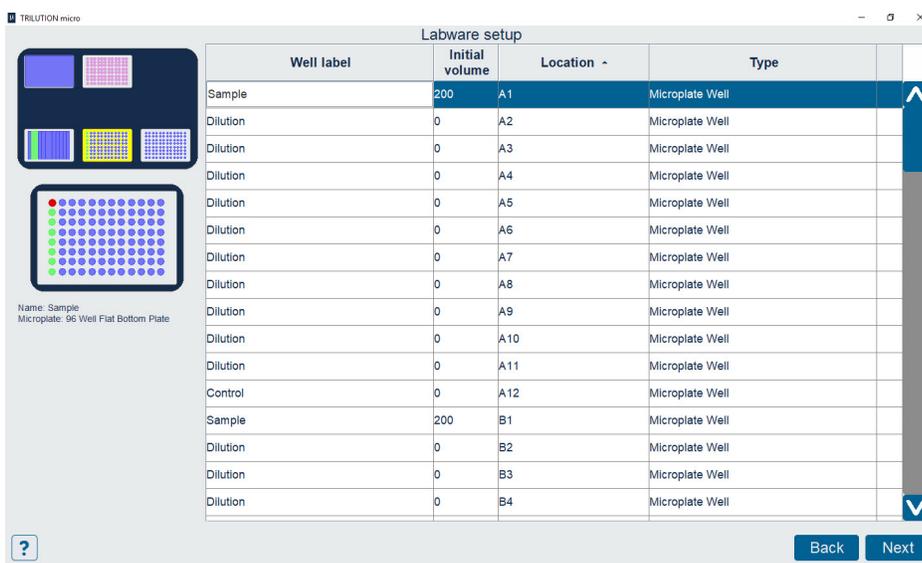


**Figure 31**  
Run Setup - Labware Setup - Bed Element Selected - Well Selected

- Select **Bed Setup** on the **Run Setup** screen. The tip waste bin will always be the first bed element displayed.

Select **Next** to advance to the next bed element that is not a tip box. The tray image in the upper left identifies the current, selected bed element. If the last bed element is selected, selecting **Next** returns to the **Run Setup** screen.

Select **Back** to return to the previously selected bed element. Or, if the first bed element is selected, selecting **Back** returns to the **Run Setup** screen.



**Figure 32**  
Run Setup - Labware Setup - Bed Element Selected - Well Selected

When a bed element is selected:

- The tray image in the upper left identifies the current, selected bed element.
- The initial volume list is displayed. Optionally, edit the **Well label** and/or **Initial volume** for each well/tube. For more information, refer to [Initial Volume List](#) below.
- If a well/tube is selected, it is highlighted red in the plate/rack image.

### INITIAL VOLUME LIST

- **Well label** is the name of the well or tube. For a protocol that has never been run, the well labels are set to the default values. For a protocol that has been previously run, the well labels are set to the values used in the most recent run (if completed successfully). The field is limited to 100 characters.
- **Initial volume** is the initial volume for the well or tube. For a protocol that has never been run, the initial volumes are set to the default values defined in the protocol. For a protocol that has been previously run, the initial volumes are set to the values used in the most recent run (if completed successfully).
- **Location** is the location of the well or tube on the labware. The **Location** field is not editable.

**NOTE** Right-click on the Location field to display additional text not shown on-screen.

- Type is the type of well (microplate, vial, etc.). The **Type** field is not editable.

**NOTE** Right-click the Type field to display additional text not shown on-screen.

### Enter or Edit Well Label

To add or change a well label:

1. Select the well label field.
2. Enter the well label.

### Edit Initial Volume

To change an initial volume:

1. Select the initial volume field.
2. Enter the initial volume.

### Sort

To sort the list:

- Select a column header to sort the list by that column. To sort in the reverse order, select the column header again.
- An up or down arrow next to the column header indicates that the list is currently sorted by that field.



### Invalid Data and Error Indicators

- The border of the field with invalid data turns red.
- An error icon will be displayed in the last column of the table in the row that contains invalid data.

**NOTE**

Right-click the error icon to display details about the error.

Well label	Initial	Location	
Reservoir 1	20000000	Reservoir / 9:16	
Reservoir 2	10000	Reservoir / 17:24	
Sample	200	Sample / A1	
Sample	200	Sample / B1	
Sample	200	Sample / C1	
Sample	200	Sample / D1	
Sample	200	Sample / E1	
Sample	200	Sample / F1	
Sample	200	Sample / G1	
Sample	200	Sample / H1	

**Figure 33**

Initial Volumes Screen with Error Indicator

## Review Initial Volumes

Select **Review initial volumes** to view and/or edit a complete list of all wells/tubes with a non-zero volume in all labware in the protocol.

Optionally, edit the **Well label** and/or **Initial volume** for each well/tube. For more information, refer to [Initial Volume List on page 37](#).

Additionally, in this view, there is an option to reset initial volumes to those set in the protocol. Select **Reset**.

Well label	Initial	Location ^
Reservoir 1	16000	Reservoir / 9:16
Reservoir 2	10000	Reservoir / 17:24
Sample	200	Sample / A1
Sample	200	Sample / B1
Sample	200	Sample / C1
Sample	200	Sample / D1
Sample	200	Sample / E1
Sample	200	Sample / F1
Sample	200	Sample / G1
Sample	200	Sample / H1

Buttons: ? (Help), Reset, Back

**Figure 34**  
Review Initial Volumes



## View Files

Select **View files** to open PDF files or export files generated during protocol creation (if the protocol was created in Normalization Assistant or qPCR Assistant). The **Documentation viewer** screen displays the selected PDF document.

## Print

Select the print button to print to the default printer.

To set up a printer:

1. Log in as an administrator.
2. Go to the **Settings** screen.
3. Select **Printers**.

## Document Navigation

- Select **|<** to go to the first page of the document.
- Select **>|** to go to the last page of the document.
- Select **<** to go to the previous page in the document.
- Select **>** to go to the next page the document.
- Enter a number in the page field to go to that page in the document.

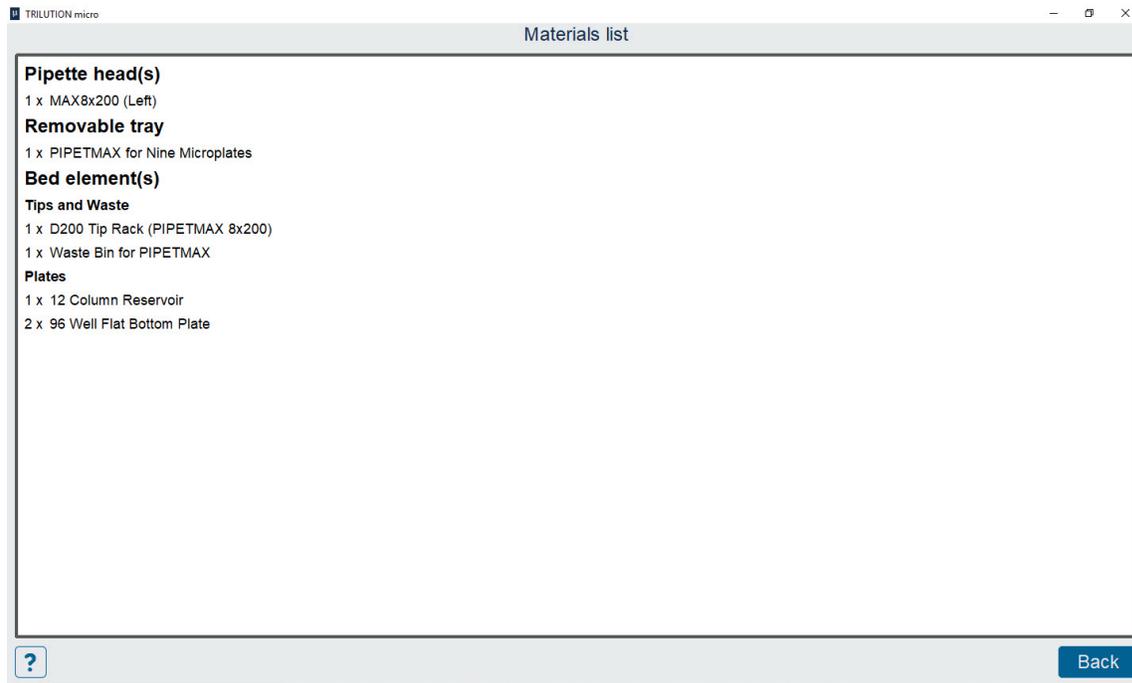
## View Materials

The **Materials list** screen displays a list of the items necessary to run the selected protocol. Use this screen as a reference when gathering the following items for the protocol:

- Pipette head(s)
- Removable tray
- Bed element(s)

**NOTE**

A tip reload block is required for each tip rack installed on the tray.



**Figure 35**  
Materials List

## Simulate

Select to view a simulation of your protocol.

## Run

Select to run the protocol you just set up, with the option to simulate first if it is a new protocol or the values have changed. For more information about running protocols, refer to [Run on page 43](#).



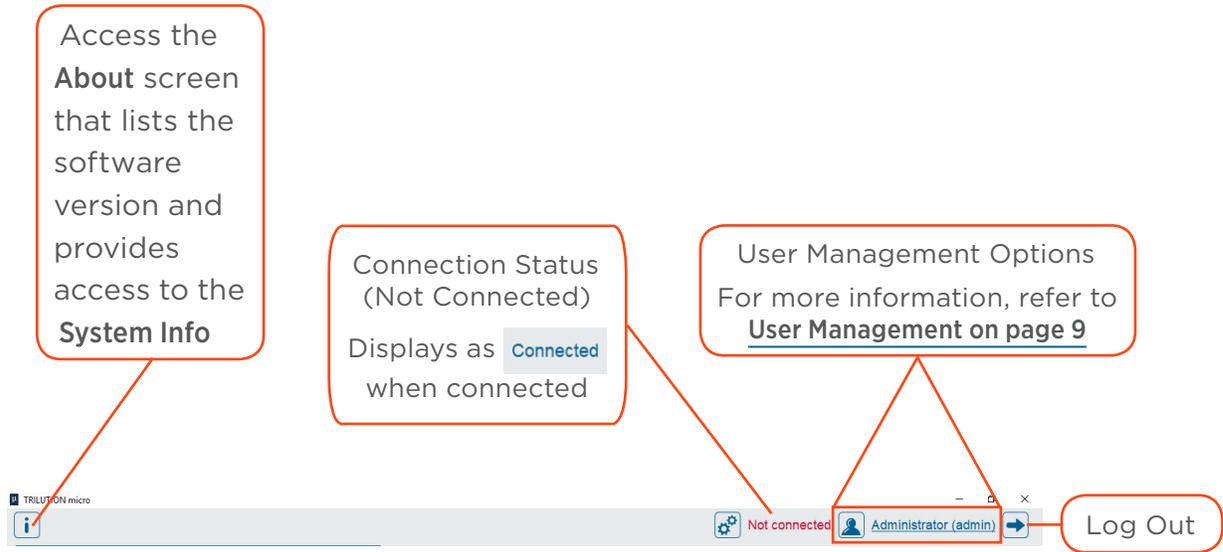
## Navigation

### Return to List

Select  to go back to the **Protocol Selection** screen.

When selected, the following message appears, “Navigating to this screen will result in your losing your protocol configuration. Do you wish to continue?”

Select **Yes** to continue to the **Protocol Selection** screen, or select **No** or **X** to cancel and close the message.



**Figure 36**  
Navigation

---

# RUN

## IN THIS CHAPTER

- Tray View | 44
- Steps View | 45
- Volume View | 46
- PIPET STATUS | 46
- Pause | 46
- STOP | 47
- Run Complete | 47

After reviewing and or editing the **Run Setup**, select **Run**. This chapter describes view options while the protocol runs.

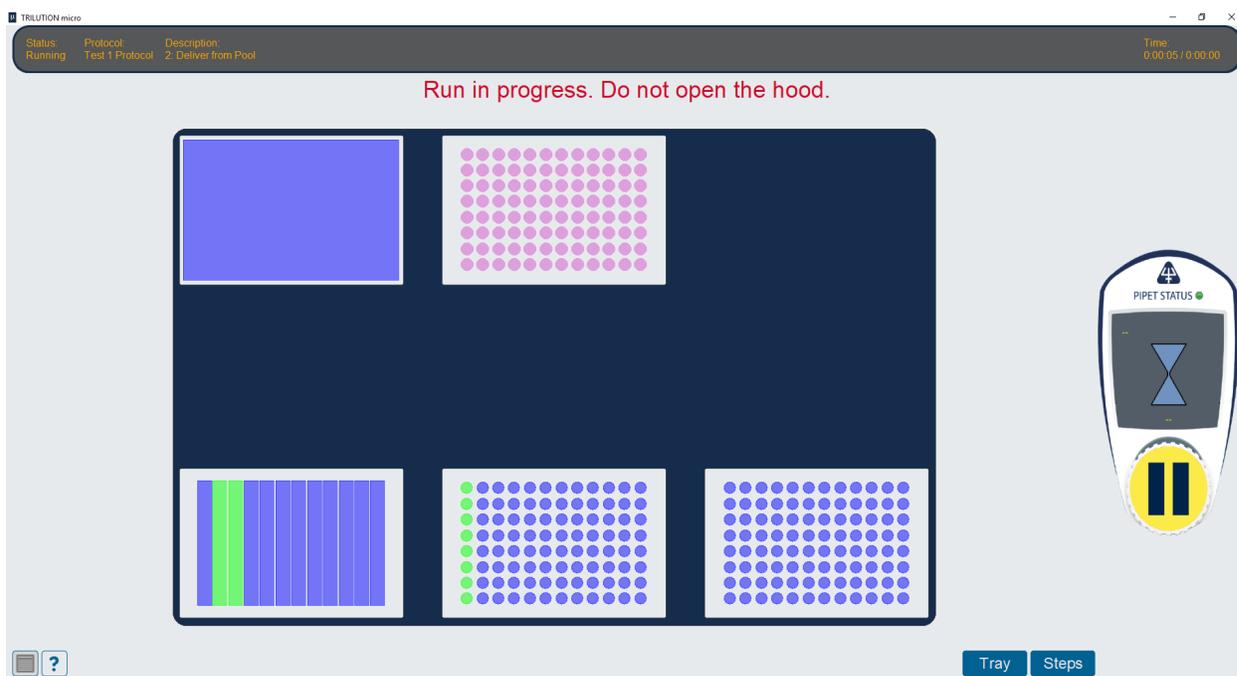


## Tray View

Select **Tray** to view the running or completed run in a tray view. In tray view, the screen displays an image of the labware in the protocol (tip rack, plate, rack, etc.), and when selected, the bed element name assigned to it. The cross hairs indicate the current position of the loaded tips.

**NOTE**

While the run is in progress, **DO NOT** open the hood; however, if the hood has been opened and you choose to continue the run, observe that the run resumes as expected.



**Figure 37**  
Run - Tray View

Select a well or tube for more information about the selection.

The colors indicate the following information:

- Red - Negative volume
- Green - Volume in the tube or well
- Blue - Empty tube or well
- Pink - Tips
- White - Missing tips

Select a tip rack, plate, or rack for more information about the selection.

The top of the screen shows the status, the name of the protocol, the description for the current running step, the protocol run timer, and the expected total run time.

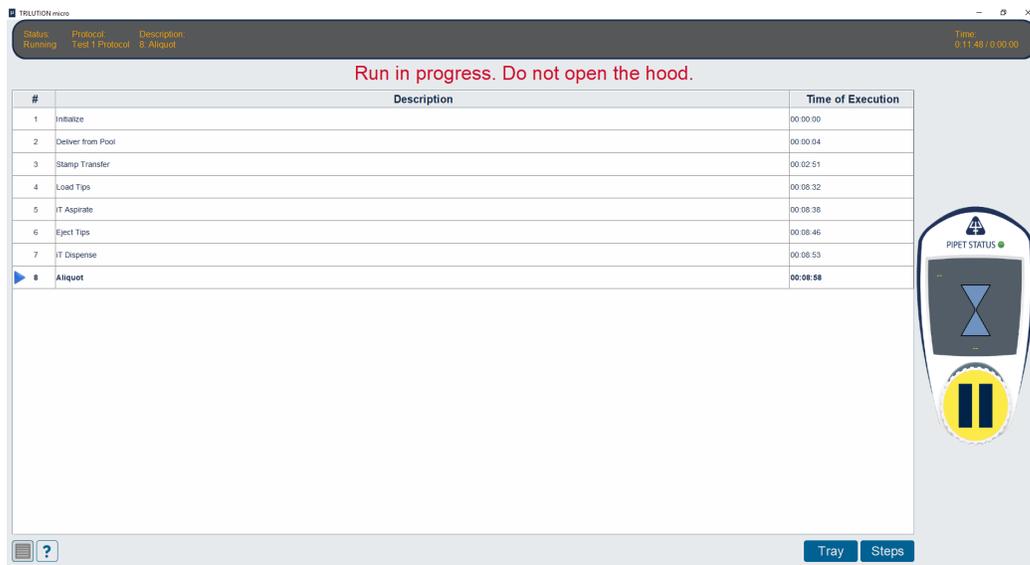
## Steps View

Select **Steps** to view the running or completed run in steps view. The **Steps view** screen displays the current running step in the protocol (indicated by a blue arrow) and the time of execution for each completed step.

### NOTE

While the run is in progress, **DO NOT** open the hood; however, if the hood has been opened and you choose to continue the run, observe that the run resumes as expected.

The top of the screen shows the status, the name of the protocol, the description for the current running step, the protocol run timer, and the expected total run time.



**Figure 38**  
Run - Steps View



RUN



## Volume View

The **Volume view** screen displays information about the volume in the selected tube or well.

**NOTE**

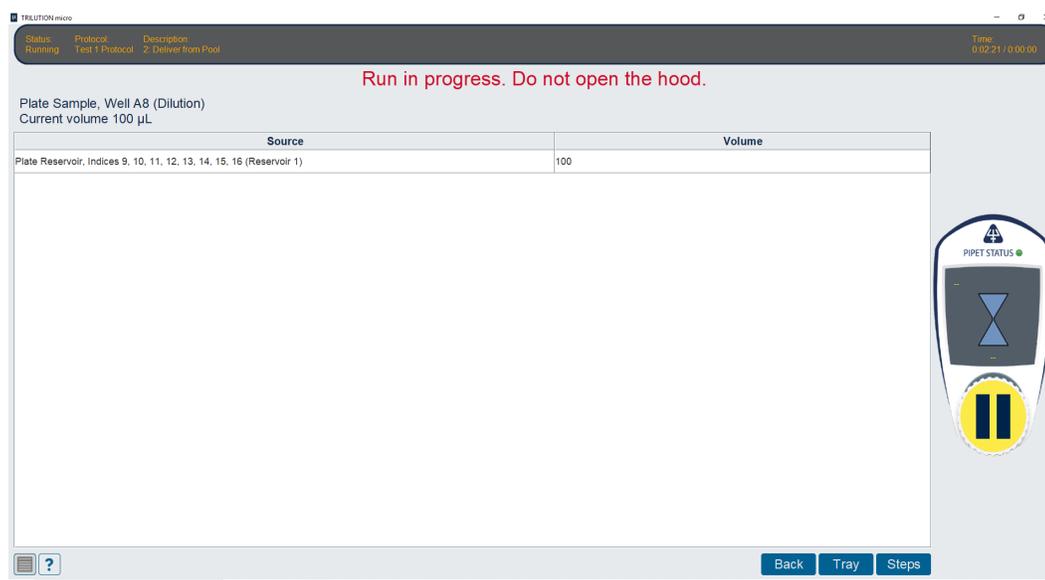
While the run is in progress, **DO NOT** open the hood; however, if the hood has been opened and you choose to continue the run, observe that the run resumes as expected.

The top of the screen shows the status, the name of the protocol, the description for the current running step, the protocol run timer, and the expected total run time.

The text above the table lists the bed element name, the well location and label, and the current volume in the well.

The table lists the actions in the well or tube as they occur:

- Initial volume (if any)
- Volume added and the source of the volume added (bed element name and plate index or tube number)
- Volume removed



**Figure 39**  
Run - Volume View

## PIPET STATUS

From the **Tray view** or **Steps view**, view the PIPET STATUS for a visual representation of aspirate and dispense actions.

## Pause

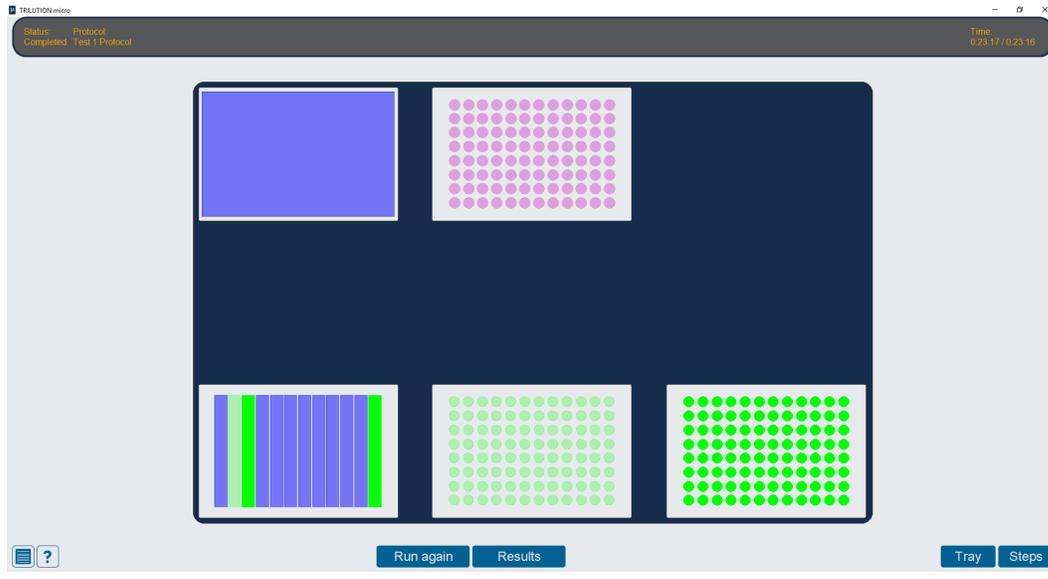
From the **Tray view** or **Steps view**, select anywhere on the PIPET STATUS image to pause the run. The run will stop when it finishes its current action. The protocol run timer keeps advancing during the pause. When prompted, select **Continue** to resume the run, or **Stop** to end the run and view the results.

## STOP

To stop PIPETMAX immediately, press the red STOP button on the front of PIPETMAX.

## Run Complete

When the run is complete, the following options are available.



**Figure 40**  
Run Complete

## Results

Results are automatically displayed at the end of a protocol run. Select **Results** to view other attempted and completed protocol runs for the protocol that was just run. For more information, refer to [Results on page 49](#).

## Run Again

Select **Run again** to return to the **Run Setup** screen. Edit the run setup, or rerun with the same settings.

## Return to list

Select  to go back to the **Protocol Selection** screen.

Select **Yes** to continue to the **Protocol Selection** screen, or select **No** or **X** to cancel and close the message.





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# RESULTS

## IN THIS CHAPTER

- Select a Result | 50
- Manage Results | 51
- Tray View | 52
- Steps View | 53
- Volume View | 54

Access results via the button on the **Protocol Selection** or **Run Complete** screen.



## Select a Result

The **Results Selection** screen is a list of runs and simulations for a specific, previously selected protocol (Run List).

### Run List

- **Run date** is the date of a run or simulation that has results.
- **Ending status** indicates the status at the end of the run: **Completed Successfully**, **Failed with Errors**, or **Stopped by User**.
- **Simulated** indicates a simulation by a selected check box.

### View Result

To view results:

1. Select a run from the list. It will highlight when selected.
2. Select **View**.

Run date -	Ending status	Simulated
Jul 17, 2019, 10:37:35 AM	Completed Successfully	<input type="checkbox"/>
Jul 17, 2019, 10:37:26 AM	Completed Successfully	<input checked="" type="checkbox"/>

**Figure 41**  
Result Selection Screen

### Sort

To sort the run list:

- The list is initially sorted by **Run date**, with the most recently run protocol at the top of the list.
- Select a column header to sort the list by that column. To sort in the reverse order, select the column header again.
- An up or down arrow next to the column header indicates that the list is currently sorted by that field.

## Search

To filter the list of runs:

1. Select in the **Search** field next to the magnifying glass.



**Figure 42**  
Search Field

2. Enter the text to filter by and then press **Enter**.
  - o The filter applies only to the **Run date**.
  - o The filter is not case sensitive.
  - o The filter is applied to any part of the text in the **Run date**.

Select  in the search field to clear the filter and refresh the list of runs.

## Manage Results

### Export

1. Select a run in the list, it will highlight when selected.
2. Select **Export**.
3. Select the file type for the exported file: .htm (default, run report), .xml, or .csv.
4. Browse for and select the export location USB drive (or local), name the file (or accept the default name, which is the name of the protocol), and then select **Save**.

### Delete

A user who is an administrator is allowed to delete results.

To delete results:

1. Select a run in the list, it will highlight when selected.
2. Select **Delete**.

The following message appears, “Do you wish to delete the protocol results?”

Select **Yes** to delete the results or select **No** or  to cancel and close the message.



## Tray View

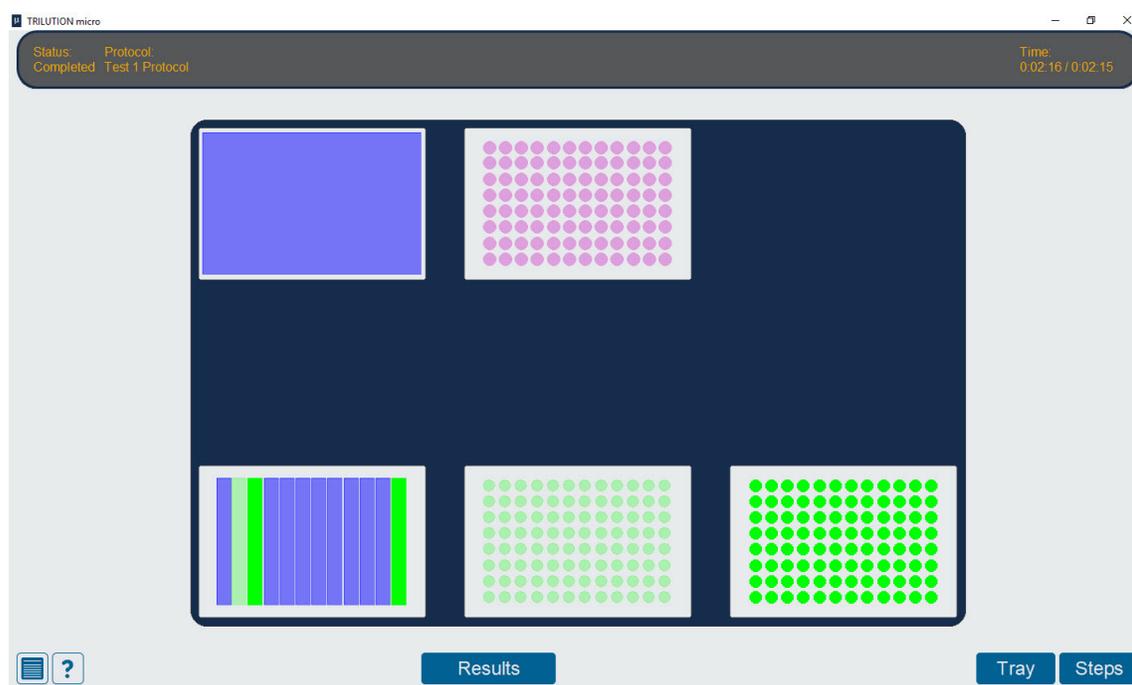
Select **Tray** to view the results in a tray view. The **Tray view** screen displays an image for the selected labware (tip rack, plate, rack, etc.) and the bed element name assigned to it.

The colors indicate the following information:

- Red - Negative volume
- Green - Volume in the tube or well
- Blue - Empty tube or well
- Pink - Tips

Select a well or tube for more information about the selection.

The top of the screen shows the status, the name of the protocol, the time it took to run or simulate the protocol and generate the results, and the time of execution for the last step.

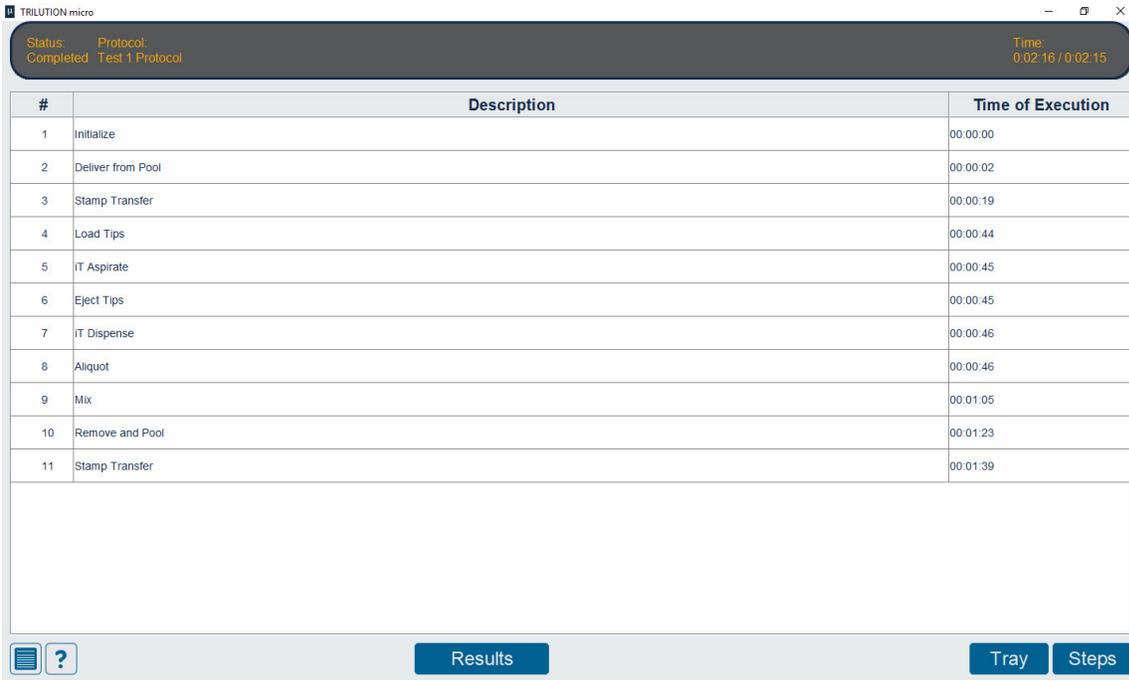


**Figure 43**  
Tray View

## Steps View

Select **Steps** to view the results in a steps view. The **Steps view** screen displays the steps that were run in the protocol in the order of execution.

The top of the screen shows the status, the name of the protocol, the time it took to run or simulate the protocol and generate the results, and the time of execution for the last step.



#	Description	Time of Execution
1	Initialize	00:00:00
2	Deliver from Pool	00:00:02
3	Stamp Transfer	00:00:19
4	Load Tips	00:00:44
5	IT Aspirate	00:00:45
6	Eject Tips	00:00:45
7	IT Dispense	00:00:46
8	Aliquot	00:00:46
9	Mix	00:01:05
10	Remove and Pool	00:01:23
11	Stamp Transfer	00:01:39

**Figure 44**  
Steps View





## Volume View

The **Volume view** screen displays information about the volume in the selected tube or well.

The top of the screen shows the status, the name of the protocol, the time it took to run or simulate the protocol and generate the results, and the time of execution for the last step.

The text above the table lists the bed element name, the well location and label, and the current volume in the well.

The table lists the actions that occurred in the well or tube in the following order:

- Initial volume (if any)
- Volume added and the source of the volume added (bed element name and plate index or tube number)
- Volume removed

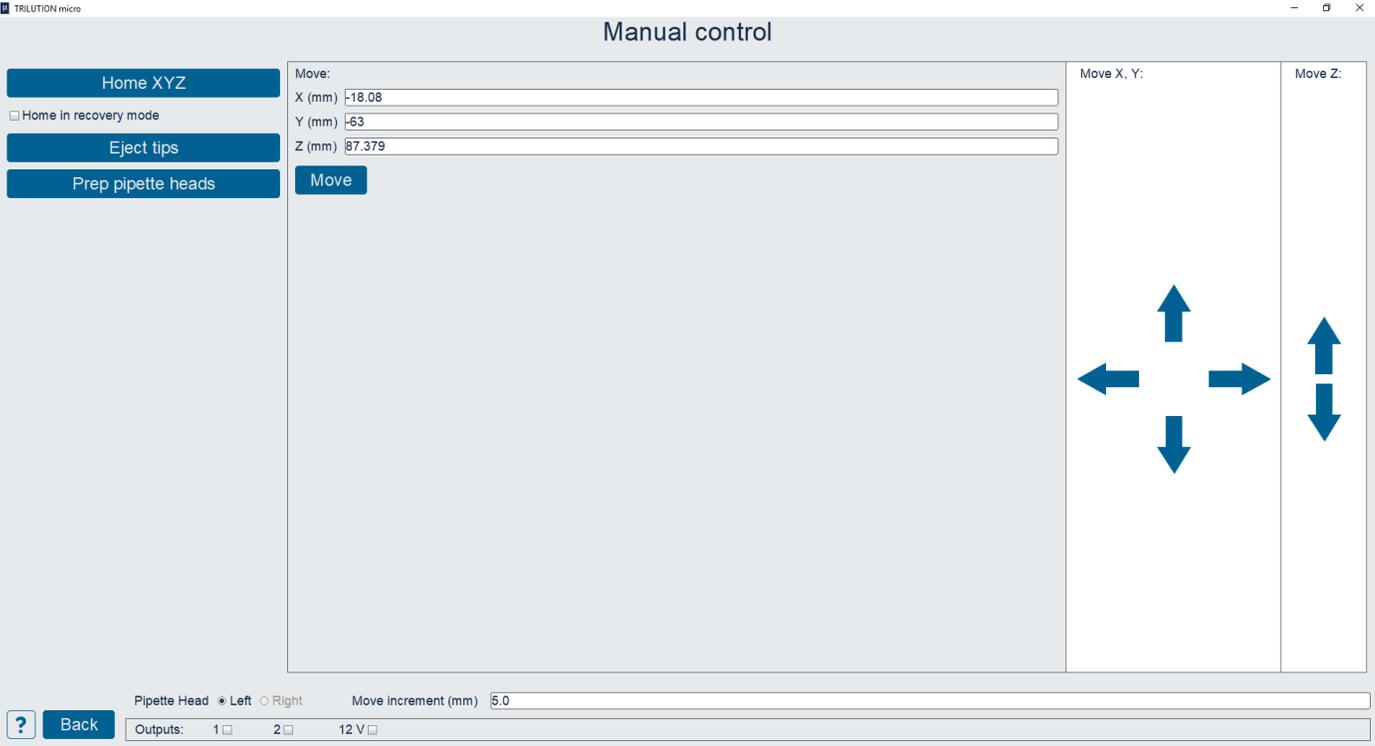
Source	Volume
Plate Sample, Well G12 (Control)	25

**Figure 45**  
Volume View

# MANUAL CONTROL

## IN THIS CHAPTER

- Manual control | 44



**Figure 46**  
Manual Control



## Manual Control

The Manual Control screen is used to perform basic movements.

- Select **Home XYZ** to home the instrument.
- Select **Eject Tips** to eject the tips.
- Select **Prep pipette heads** to move the pipette heads to a position at which they can be changed.

### Move

To move to a specified location:

1. Select a Pipette head: Left or Right.
2. Enter the X, Y, and Z values (in millimeters).
3. Select **Move** to move to the specified location.

### Home in recovery mode

If PIPETMAX has encountered an error and cannot home, try homing in recovery mode:

1. Select to select the check box next to **Home in recovery mode**.
2. Select Home XYZ

### Jog

After entering a value for the Jog increment (mm), select an arrow to move the pipette heads or the tray the jog increment distance in the direction of the arrow.

Selecting the left or right arrow moves the pipette heads along the lead screw. Selecting the forward or back arrow moves the tray. Selecting the up or down arrow moves the foot up or down.

### Outputs

The check box next to each output label indicates the state, and allows you to change the state of the contact. When the check box is selected, the contact is on. When the check box is cleared, the contact is off.

### Navigation

Select **Back** to return to the **Protocol selection** screen.

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# CREATE PROTOCOL OR LABWARE

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- Normalization Assistant | 58
- qPCR Assistant | 59
- Labware Creator | 60

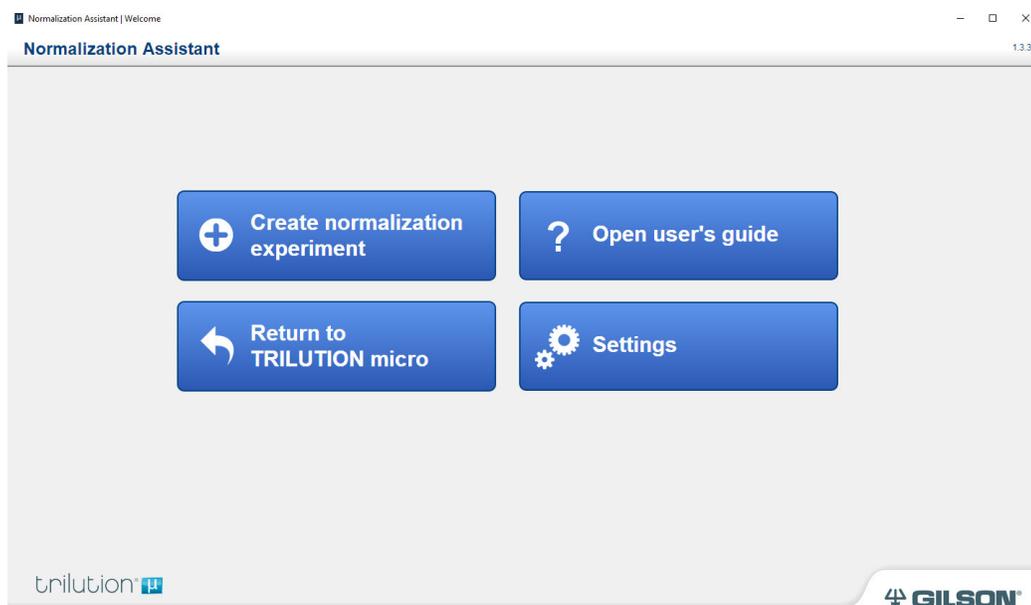
Selecting **Create protocol or labware** accesses software for setting up protocols and creating labware.

Help text is accessible in the software.



## Normalization Assistant

Normalization Assistant is software for creating protocols for normalization of nucleic acids (DNA/ RNA) to run on PIPETMAX®. Normalization Assistant is a workflow-based, easy-to-use software that minimizes the manual data input and eliminates possible calculation and pipetting errors.



**Figure 47**  
Normalization Assistant

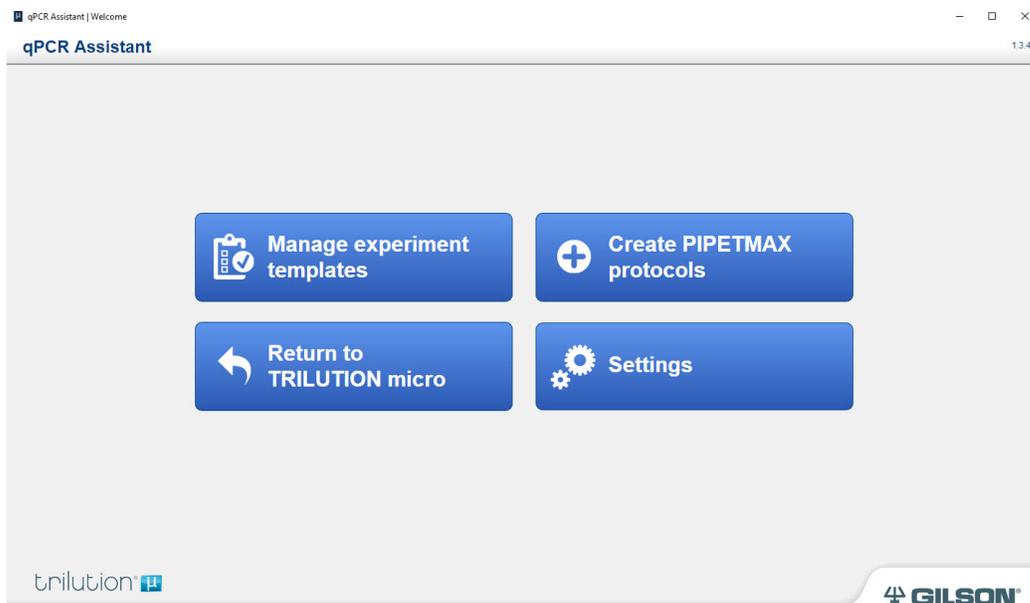
**NOTE**

It is necessary to import any labware needed to create the protocol. Labware will need to be exported/obtained from the source, which is likely Labware Creator. Obtain the files from the person who created them. For more information about Labware Creator and how to export labware, refer to the *Labware Creator User's Guide* (part number LT313126).

## qPCR Assistant

qPCR Assistant is software for creating qPCR protocols to run on PIPETMAX®. It is easy-to-use, workflow-based software to ease and speed-up qPCR experiments without having to understand all the details about automated liquid handling steps. It covers the complete qPCR workflow in a way that minimizes the manual data input and eliminates repetitive copy-pasting of information and enables users to store their assays and apply them to samples over and over again in a flexible way.

To access the user's guide, select **Settings** on the Home screen, and then select **Open user's guide**.



**Figure 48**  
qPCR Assistant

### NOTE

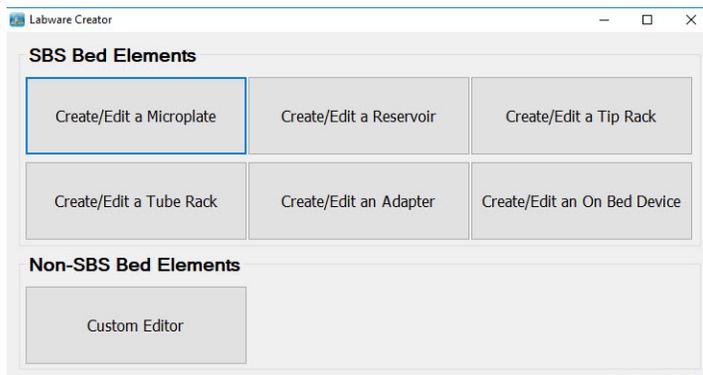
It is necessary to import any labware needed to create the protocol. Labware will need to be exported/obtained from the source, which is likely Labware Creator. Obtain the files from the person who created them. For more information about Labware Creator and how to export labware, refer to the *Labware Creator User's Guide* (part number LT313126).





## Labware Creator

Labware Creator is used to create bed elements that fit in an ANSI/SLAS (standard microplate) footprint: Microplate, Tube Rack, Reservoir, Adapter, and On Bed Device. These bed elements can be used in Protocol Builder, Normalization Assistant, and qPCR Assistant.



**Figure 49**  
Labware Creator







