

Mohawk User Guide



Manual Version 2.5

Mohawk™ User Guide

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This is Version 2.5 of the Mohawk™ User Guide



Contents

Figures.....	4
Introduction	6
Installation of drivers	6
Mohawk Components.....	6
Connecting the Instrument.....	7
Software Installation.....	8
Registration/Licencing	8
Automatic registration.....	8
Manual registration	9
Mohawk 48	11
All operations are the same as a 96 well Mohawk with the following exceptions:	11
User interface.....	11
General settings	12
Replace Licence Key	13
Information about the Mohawk software	14
Exit the Mohawk software.....	15
Information bar, Temperature Level and Lid status	15
Configuration	16
Mohawk Settings	16
Scanner configuration.....	19
Disconnection	21
Operation.....	21
Automatic Mode	21
Worklist.....	22
Processing a worklist.....	26
Optional Scanning.....	33
Generating a report	38
Cancel a worklist	41
Manual mode.....	41
Appendix A: CE and RoHS Certificates	44



Figures

Figure 1 : Mohawk and Ziath Linear Rack Barcode Scanner	6
Figure 2 : USB cable and two part power supply for Mohawk (note power plug may change on country).....	7
Figure 3 : Photograph of the back of the Mohawk.....	7
Figure 4: Activate Licence Dialog	8
Figure 5: License registration dialogue	9
Figure 6 : No internet connection dialogue	9
Figure 7 : Manual license registration dialogue.....	10
Figure 8 : Manual license registration webpage.....	10
Figure 9 : Manual license registration download	10
Figure 10: 48 well mohawk	11
Figure 11 : Complete Mohawk interface	12
Figure 12: Hamburger icon	12
Figure 13: General settings, appear upon clicking the Hamburger icon	13
Figure 14: Licence Key Icon.....	13
Figure 15 : Install new license dialogue	14
Figure 16: Icon to give extra information about the Mohawk	14
Figure 17: Additional information about the Mohawk.....	14
Figure 18 : Icon to exit the Mohawk.....	15
Figure 19 : Additional popup to exit the Mohawk.....	15
Figure 20 : Additional features shown in the Mohawk user interface	15
Figure 21 : Lid status with closed lid	16
Figure 22 : Icon for configuration settings.....	16
Figure 23: Configuration Settings	17
Figure 24: Example of the image shown by the 1D reader.....	19
Figure 25: Mohawk scanner settings icon	19
Figure 26: Mohawk scanner settings	20
Figure 27: A completed scan result.....	20
Figure 28: Reconnect Dialog	21
Figure 29 : Example of a worklist containing rack barcodes and locations.	22
Figure 30: Template tool icon	22
Figure 31: Template tool to create a worklist file in excel.....	23
Figure 32: Creating a template in the Mohawk software with only Rack Barcode	24
Figure 33: Template created by the Mohawk software with only Rack Barcode selected	24
Figure 34: Open a worklist icon	26
Figure 35: List of Rack barcodes / Tube barcodes (Worklist Process)	26
Figure 36: Icon to run a work list	27
Figure 37: The Mohawk user interface when a rack in the work list is placed onto the Mohawk.....	27
Figure 38: The Mohawk user interface when the lid is closed and the Mohawk pin(s) are up.....	28
Figure 39: Rack already picked dialogue.....	28
Figure 40: The Mohawk user interface when a new rack is placed onto the unit.....	29
Figure 41: The Mohawk user interface when the lid is closed and the pin(s) are up (#2)	29
Figure 42: Error when a rack is placed on the Mohawk that is not in the worklist	30
Figure 43: Dialogue to generate a report when finishing a worklist	30
Figure 44: Icon to open a worklist.....	31



Figure 45: Format of a worklist containing only tube barcodes	31
Figure 46: Worklist process when tube barcodes are not assigned to a rack	31
Figure 47: Icon to scan a rack.....	32
Figure 48: Rack barcode popup	32
Figure 49: Mohawk user interface after scan has been completed	33
Figure 50:Icon to run a worklist	33
Figure 51: Scan rack to confirm popup	34
Figure 52: Enter rack barcode popup.....	35
Figure 53: Scan rack to confirm popup with scanned tubes.....	36
Figure 54: Scan rack to confirm exported file	37
Figure 55: Picklist sheet report example	38
Figure 56:Picklist sheet report example (with scan to confirm)	38
Figure 57: Scan list sheet report example.....	39
Figure 58: Icon to cancel a worklist	41
Figure 59: Cancelling a worklist popup	41
Figure 60: Mohawk user interface with random tubes selected.....	42
Figure 61: Icon to bring the pin(s) up in manual mode	42
Figure 62: Mohawk user interface with Pins Up in manual mode.....	43
Figure 63: Icon to bring the pins down in manual mode	43

Introduction

Individual tubes can be retrieved from a rack using the Mohawk tube picker. The Mohawk tube picker can select tubes by automatically by loading a worklist from a LIMS system or manually select tubes to be picked via the user interface. This allows for rapid collection of individual samples from multiple storage tube racks (SBS 96-Well Format). The Mohawk uses rack identification by an integrated linear barcode reader to establish which individual tubes are presented when a rack is placed on the Mohawk.

Installation of drivers

Installation drivers are typically not needed but they can be accessed on the installation media if necessary. Only install the drivers if the Mohawk device is not detected by the computer.

1. Access the installation folder on the installation media
2. Open the Tubepicker driver folder
3. Double click Mohawk Driver.exe to install the drivers
4. Run the installer

Mohawk Components

After unpacking the instrument, there should be the following items:

1. Mohawk + 1DRM linear scanner

Note: The linear reader support can be adapted for racks depending on where their linear barcode lies. The bracket for the linear reader can be seen attached to the Mohawk in the picture below but it will not come attached to the Mohawk. It can be attached to any side of the Mohawk.

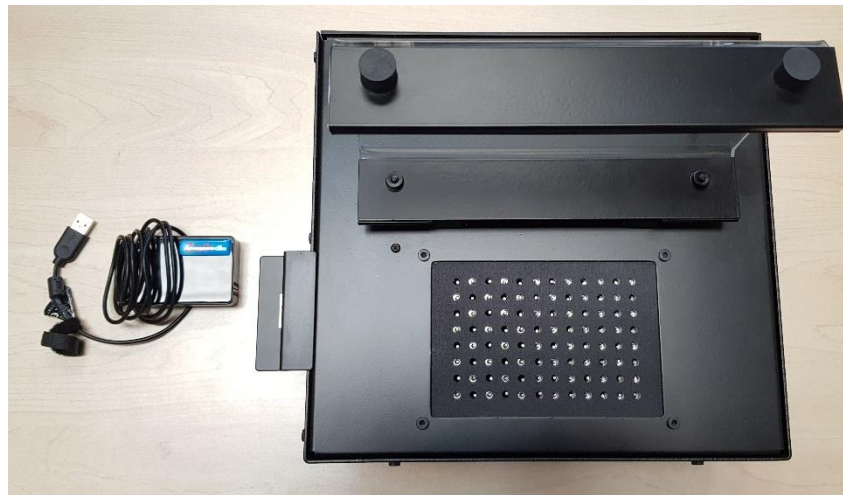


Figure 1 : Mohawk and Ziath Linear Rack Barcode Scanner

2. USB Cable + 12V Power supply



Figure 2 : USB cable and two part power supply for Mohawk (note power plug may change on country)

Connecting the Instrument

Observe the rear of the machine

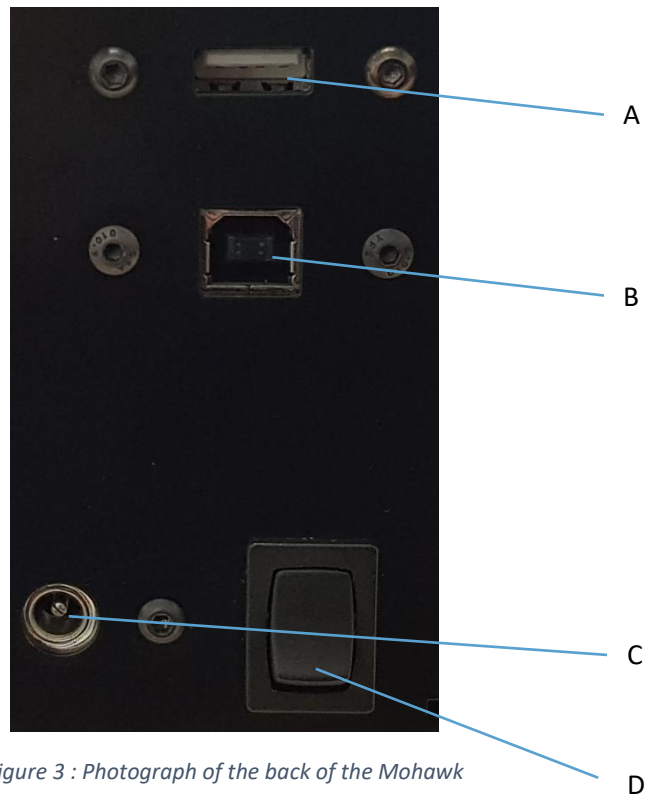


Figure 3 : Photograph of the back of the Mohawk

- A: 1DRM Scanner socket
- B: USB cable socket
- C: Power supply socket
- D: Mohawk switch

1. Connect the power supply (C)
2. Connect the USB cable (B)
3. Connect the 1DRM Scanner (A)
4. Turn on the Mohawk (D)

Software Installation

1. Access the installation folder on the installation media
2. Double click the installation file

The Mohawk should work with the standard windows drivers, however if drivers are required

1. Open the Tubepicker driver folder
2. Double click Mohawk Driver.exe to install the drivers

Registration/Licencing

Automatic registration

1. The first time the software is run, an activate your software screen will appear

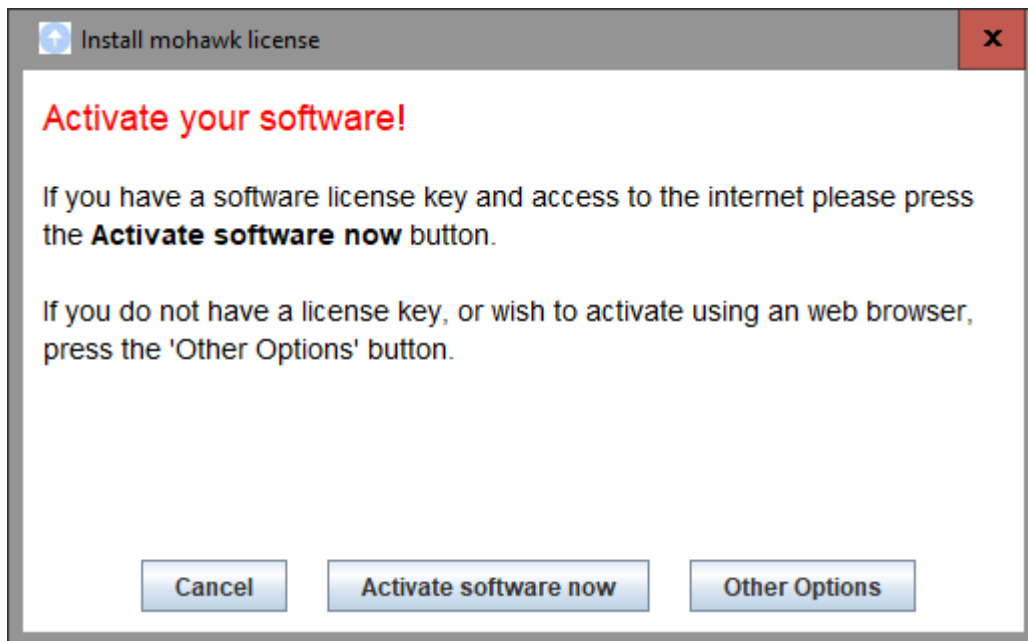


Figure 4: Activate Licence Dialog

2. Click on activate software now and a new window will appear

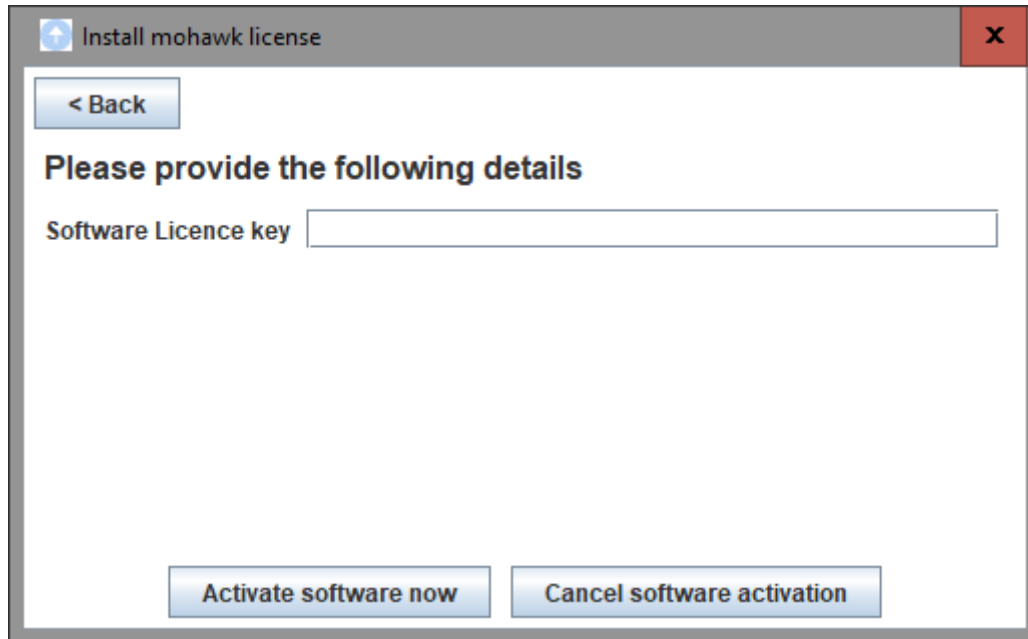


Figure 5: License registration dialogue

3. Ensure the computer is connected to the internet and enter the license key enclosed with the scanner.
4. Click *Activate software now* to start to register the installation

Manual registration

If the following window appears, there is a problem registering the license automatically, this is usually caused by security software on the computer.

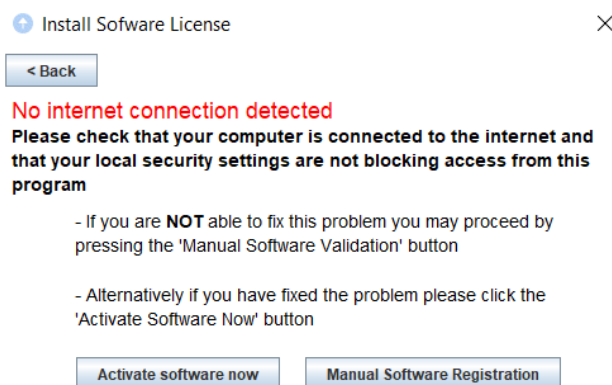


Figure 6 : No internet connection dialogue

Click on manual software registration and the following window will appear.

Enter License Code

Cannot register Licence, this is typically due to a firewall blocking access to the licence server. You will need to register your software manually. Please follow these steps:

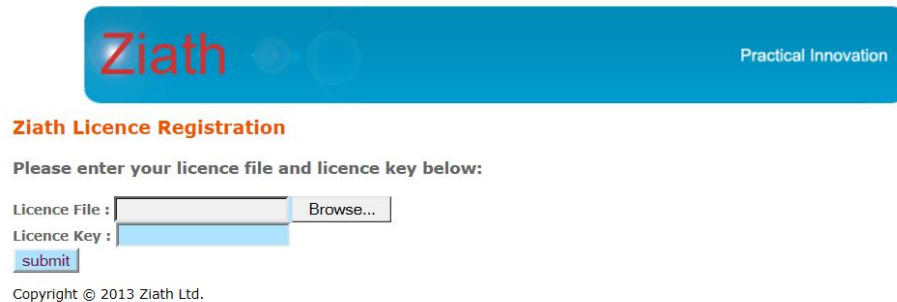
- **Step 1.** Click the 'Save Device ID' button below
- **Step 2.** Save the file to your computer
- **Step 3.** Visit <http://www.ziath.com/licencemanager/getLicence.html>
- **Step 4.** When prompted by the web browser select the file that you created in step 1 and fill in all the other details as requested
- **Step 5.** Finally press the 'Load Licence File' button and select the licence file that you saved using your web browser

Save Device ID Load Licence File Cancel

Figure 7 : Manual license registration dialogue

Follow the steps provided and click on the link shown above.

- Click “Save Device ID” and save the file to the Desktop
- Navigate to the link shown, either by clicking on it, or by typing directly into your browser.
- Select the file that was just created on the Desktop
- Enter the license key
- Click “submit”



Ziath Practical Innovation

Ziath Licence Registration

Please enter your licence file and licence key below:

Licence File : Browse...

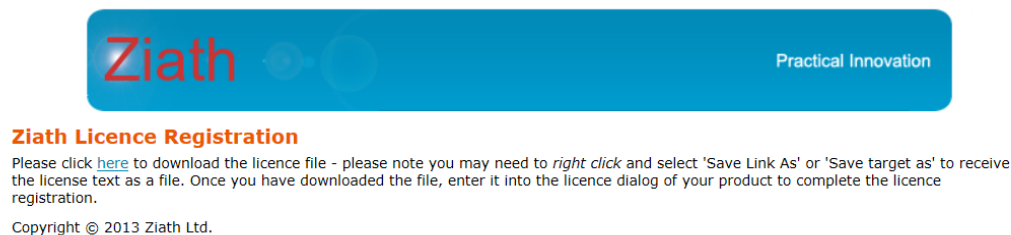
Licence Key :

submit

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Figure 8 : Manual license registration webpage

The browser will show this page:



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Ziath Licence Registration

Please click [here](#) to download the licence file - please note you may need to *right click* and select 'Save Link As' or 'Save target as' to receive the licence text as a file. Once you have downloaded the file, enter it into the licence dialog of your product to complete the licence registration.

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Figure 9 : Manual license registration download

- Download the license file by right clicking on the “here” link
- Select “Save Link As” (Firefox and Chrome) Or Save Target As (Internet explorer)
- Save the file to the Desktop
- Return to software interface
- Select Load License File

- Load the downloaded file (from the last step)
- Mohawk™ will register the installation

If you do not have a license key or experience problems with this step, contact support@ziath.com.

Mohawk 48

All images shown are for the 96 well version of the Mohawk; however there is also a 48 well version with the user interface shown below:

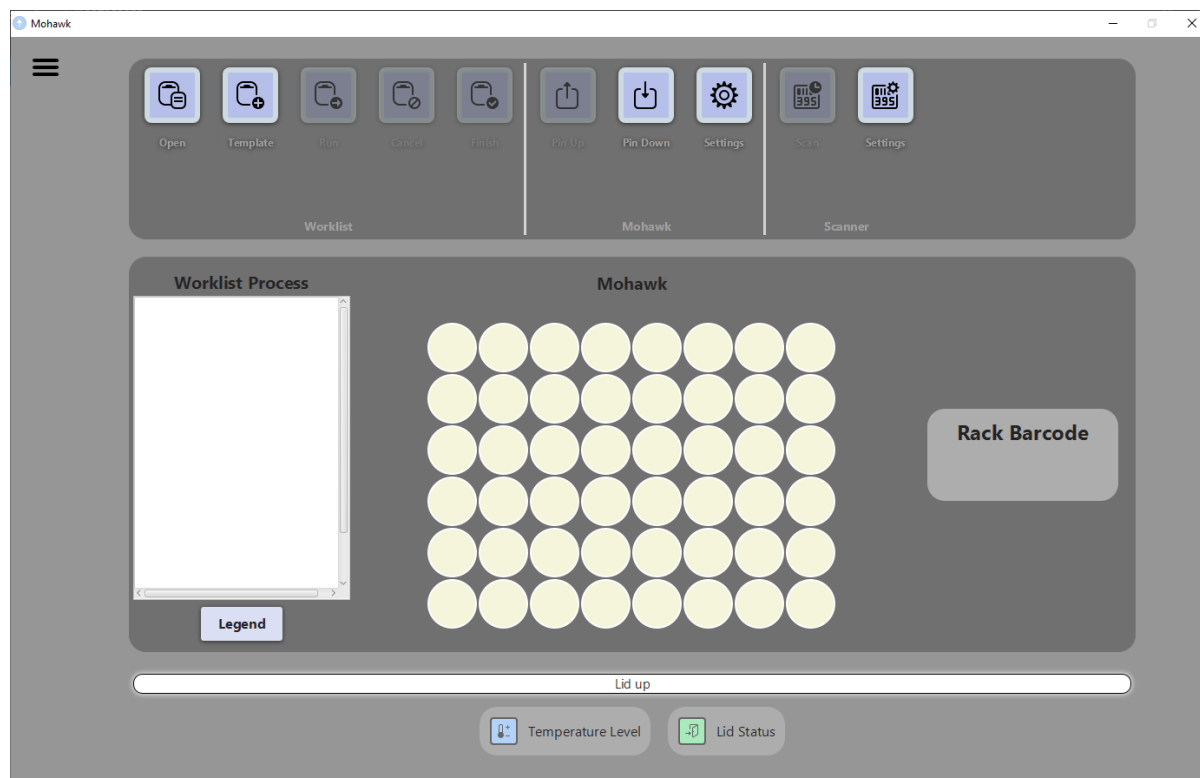


Figure 10: 48 well mohawk

All operations are the same as a 96 well Mohawk with the following exceptions:

- When configuring the related Ziath rack scanner, only 48 well container configurations will be shown
- If using a picklist, it will be checked to see if it is out of bounds for a 48 well plate
- When viewing temperature of the unit only one temperature is shown as there is only one temperature sensor inside the Mohawk

User interface

This section details the use of the control software. The interface as a whole can be seen below.

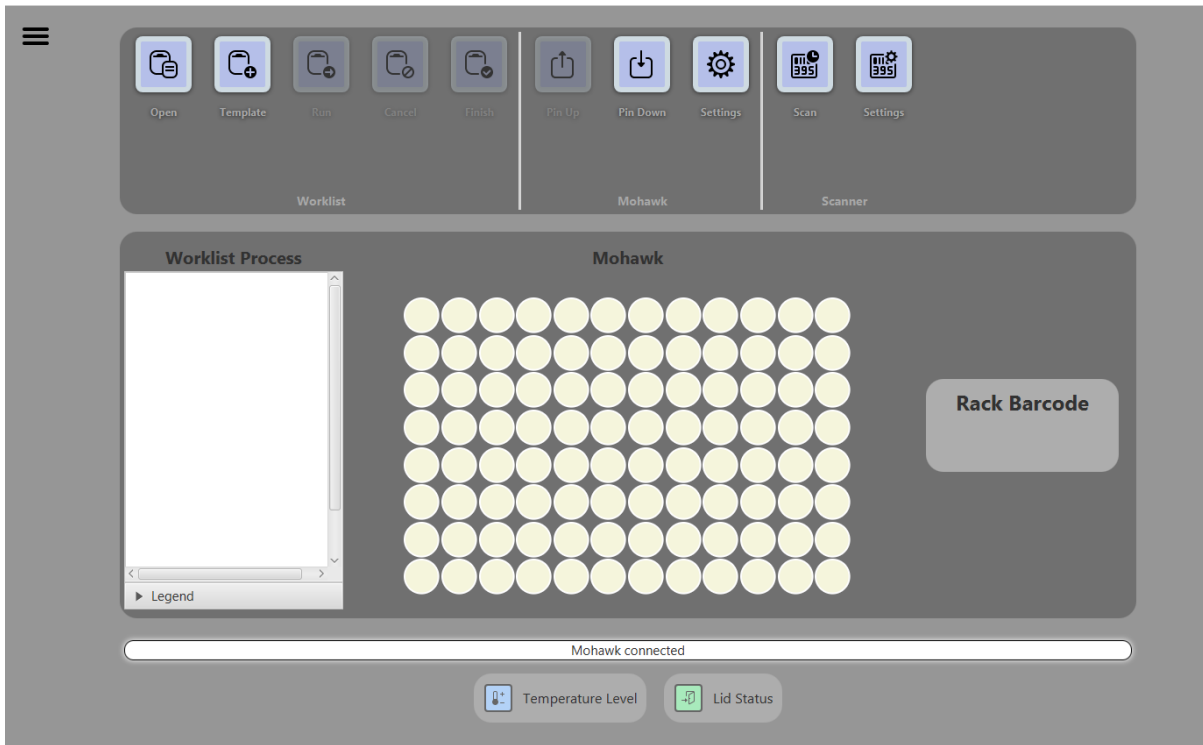


Figure 11 : Complete Mohawk interface

General settings

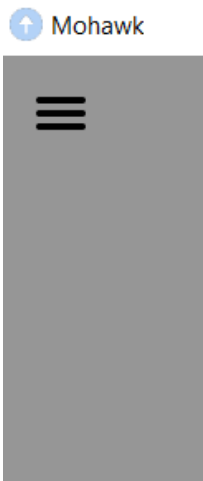


Figure 12: Hamburger icon

Upon clicking the Hamburger icon the following dialog is displayed

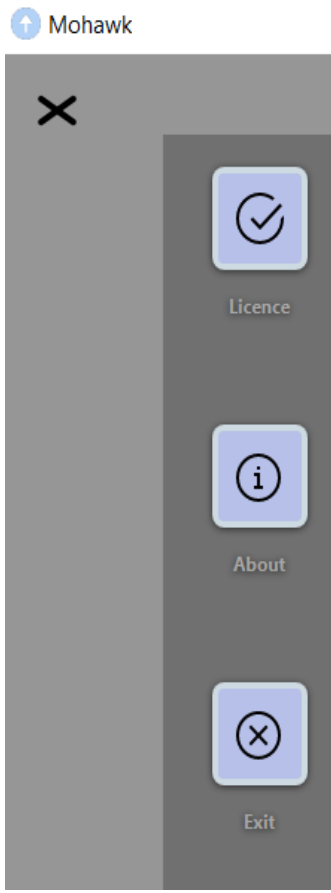


Figure 13: General settings, appear upon clicking the Hamburger icon

Replace Licence Key

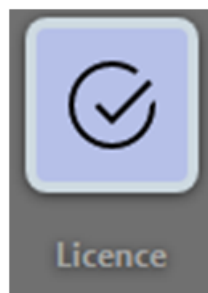


Figure 14: Licence Key Icon

Upon clicking this icon, a prompt will be displayed as below

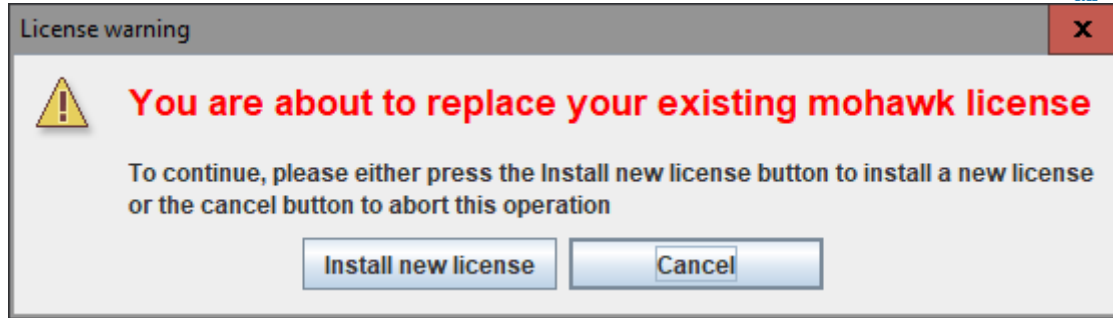


Figure 15 : Install new license dialogue

To replace the license please click 'Install new license' and follow the prompts as detailed earlier in this manual.

Information about the Mohawk software

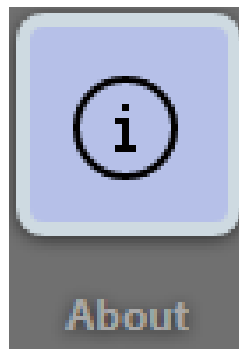


Figure 16: Icon to give extra information about the Mohawk

Upon clicking this icon, additional information will be shown (displayed below)



Figure 17: Additional information about the Mohawk

Exit the Mohawk software

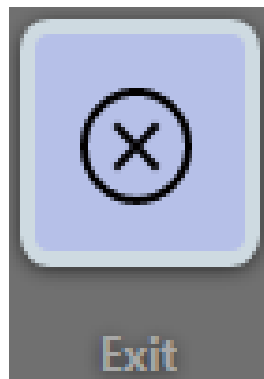


Figure 18 : Icon to exit the Mohawk

Upon clicking this icon, the popup will be displayed as below

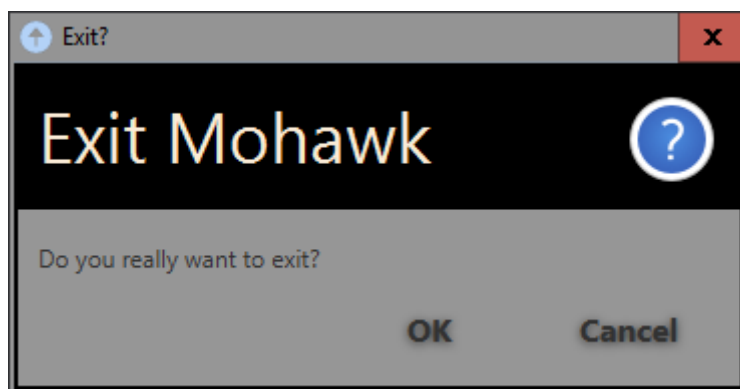


Figure 19 : Additional popup to exit the Mohawk

Information bar, Temperature Level and Lid status

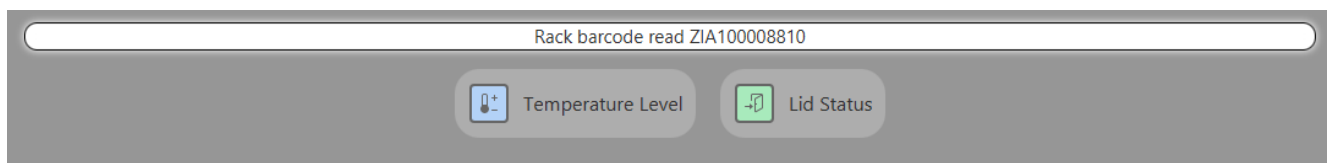


Figure 20 : Additional features shown in the Mohawk user interface

- **Information bar:** Shows the last process that the Mohawk undertook
- **Temperature Level:** Illustrates whether the Mohawk is overheating
- **Lid status:** Alternates between green when open (shown above) and blue when closed (shown below)



Figure 21 : Lid status with closed lid

Configuration

There are two items to configure, the Mohawk and the scanner, if used.

Mohawk Settings

Before using the instrument, the Mohawk settings must be configured.

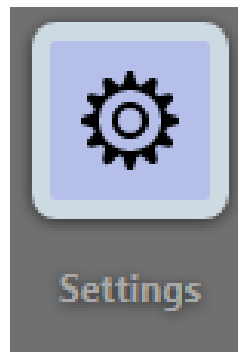


Figure 22 : Icon for configuration settings

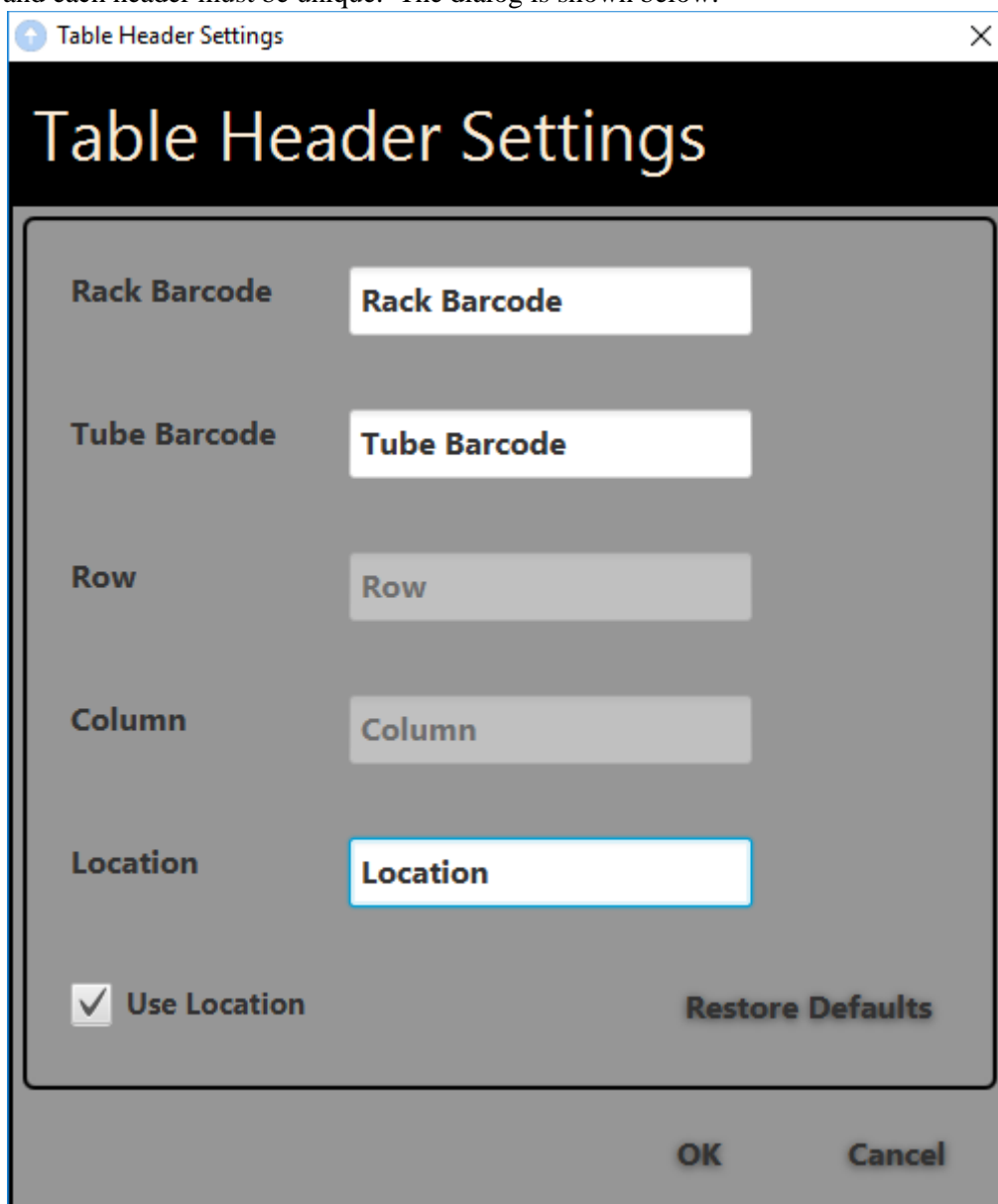
Upon clicking this icon, the Mohawk settings will popup as below



Figure 23: Configuration Settings

1. **Communication Port:** Select the communication port for the computer to interact with the scanner, for most computers there will only be one option
2. **CSV Delimiter Character:** Select the separator between elements when reading a .csv file. The default setting is Comma.
3. **Order for Pins Pick** – This allows you to sort by column, sort by row, sort by entry line in the worklist or random sort. This defined which pins will be fired in the rack first in the situation that more pikcs are requested than can be fired in one pin fire cycle.

4. **Scan to Confirm Worklist Finished:** Select this option to present another screen to confirm that the correct samples have been placed into the destination rack. This option is only enabled if DataPaq is installed.
5. **Linear Reader Type:** Select the linear reader to use with the Mohawk, this is necessary in order to carry out a worklist. If no linear scanner available select 'No linear scanner' (see No linear scanner section). When no linear scanner is selected in the Mohawk settings the rack barcode label is converted into a text field and the barcode can be entered manually; except for this the system operates identically. However to drop the pins you can simply push the space bar and the pins will drop in this mode.
6. **Max pin up number** – by default the picker will not fire more than 16 pins in one pin up fire cycle, this can be reduced here.
7. **Enable DataPaq Integration** – this will disable integration with Ziath's DataPaq software even if it is installed. Note that if DataPaq is not installed this option is disabled.
8. **Show Header Settings** – This allows you to change the headers used for CSV and Excel files; enter the values you require and click Save. Note that this will only change the worklist and each header must be unique. The dialog is shown below:



The screenshot shows a dialog box titled "Table Header Settings" with a close button (X) in the top right corner. The dialog has a dark header with the title "Table Header Settings" in white. Below the header, there are five input fields, each with a label on the left and a text box on the right. The labels and their corresponding text box contents are: "Rack Barcode" with "Rack Barcode", "Tube Barcode" with "Tube Barcode", "Row" with "Row", "Column" with "Column", and "Location" with "Location". The "Location" text box has a blue border. At the bottom left, there is a checked checkbox labeled "Use Location". At the bottom right, there is a button labeled "Restore Defaults". Below the dialog box, there are two buttons: "OK" and "Cancel".

9. **Show 1D Reader Debug:** Upon clicking an additional window will open (shown below). This window shows the image produced by the camera on the 1D Reader. There is an additional option to save the current image. Note: The image will be shown tilted this is the way it is designed.

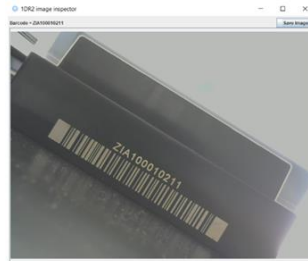


Figure 24: Example of the image shown by the 1D reader

Scanner configuration

These extra functions will only be enabled when using a Ziath 2D barcode rack reader. Before running a scan, click 'Scanner Settings' to set up the scanner in the Mohawk software.

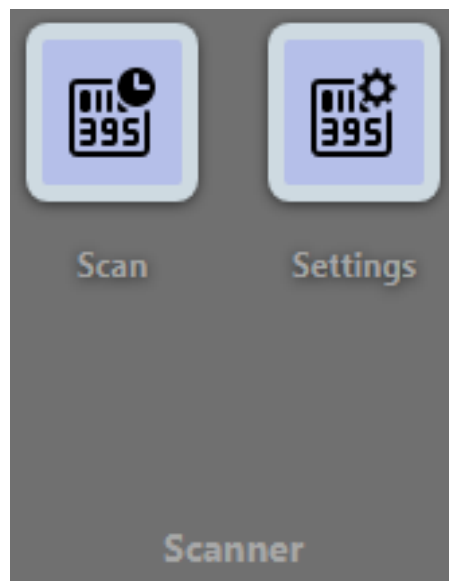


Figure 25: Mohawk scanner settings icon

Upon clicking settings, the following dialog will be shown

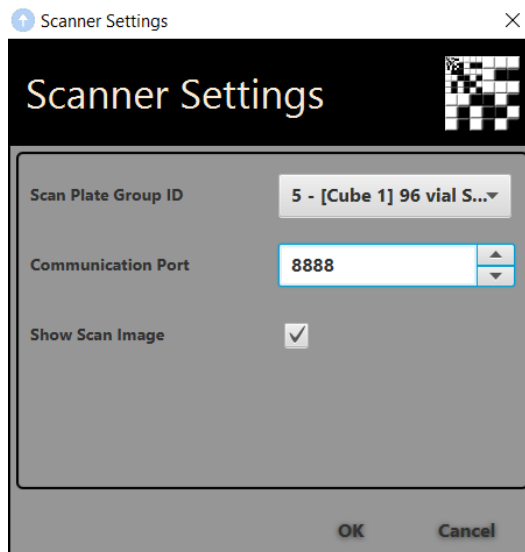


Figure 26: Mohawk scanner settings

- **Scan plate Group ID:** Select the scanner from the list, in most cases there will only be one option. It is possible to select a plate with an orientation barcode to identify a rack. Otherwise to use the linear reader barcode reader, select a plate group ID with no orientation.
- **Communication Port:** Select the port for the computer to interact with the scanner, the default port will be 8888
- **Show Scan Image:** After a scan is complete, when this option is enabled the results of the codes are shown. If a tube is correctly read it will be outlined green, if missing it will be boxed grey and if present but damaged it will be boxed red.

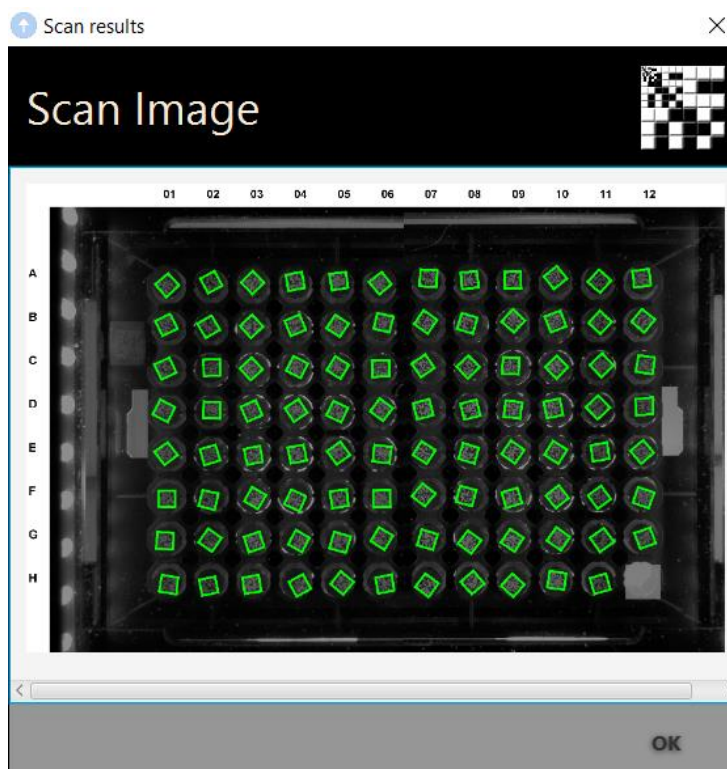


Figure 27: A completed scan result

Disconnection

Should the Mohawk becoming unexpectedly disconnected the following dialog will appear:

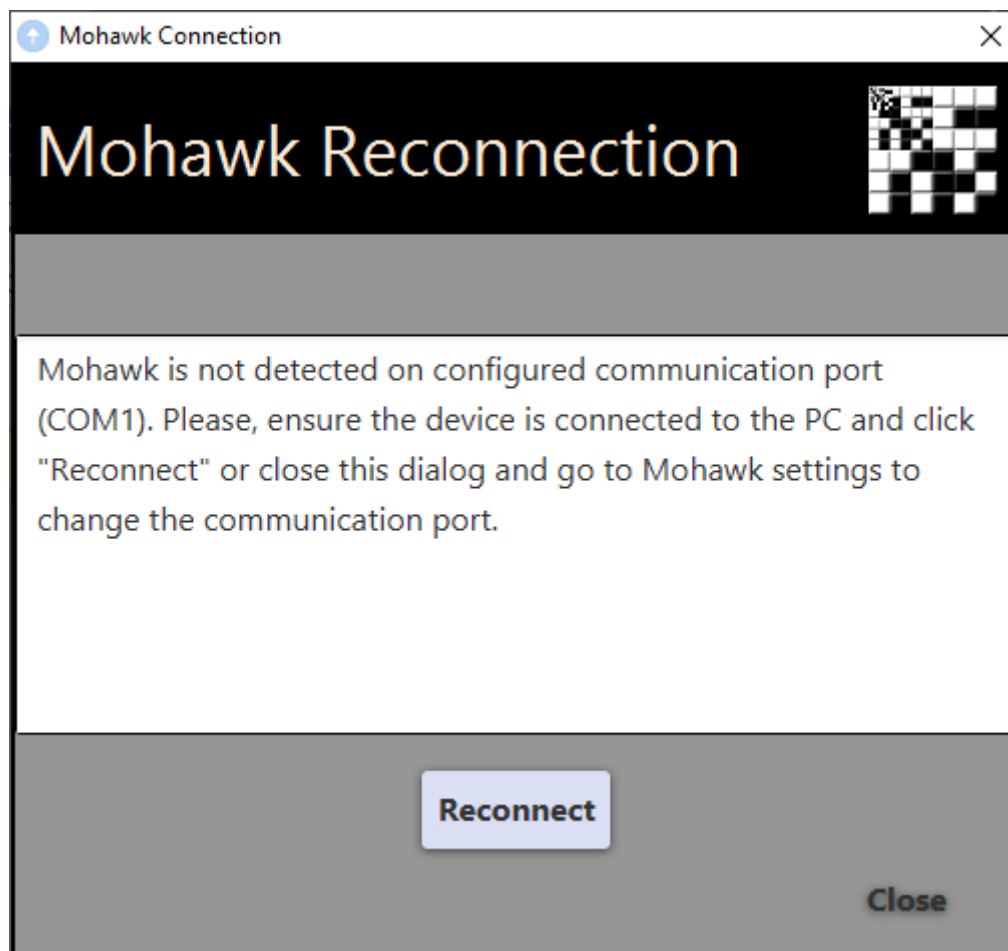


Figure 28: Reconnect Dialog

Reconnect the Mohawk and click reconnect as requested. Note that if you plug the USB cable into a different USB port the COM port may change; in this case change the port in the settings as detailed above.

Operation

The Mohawk is designed to select tubes from a series of racks; the operation of this can be manual or automatic. The automatic mode is operated via the use of a worklist; both modes will be detailed below.

Automatic Mode

The automatic mode is designed to allow for operation of the Mohawk with minimal interaction with the control PC. As previously detailed it works on the basis of a worklist file.

Worklist

The worklist file is a file that describes the tubes that are to be selected, there are multiple formats available.

Creating a worklist

There are four formats of worklist available, CSV, Excel, JSON and XML.

Excel

A worklist can be created manually in excel or by using the Mohawk software template tool.

The worklist has headers which are by default Rack Barcode, Row, Column and optionally Tube Barcode. It is also possible to change the row and column to a location such as A1. As detailed in the settings the name of the headers can be changed in the settings.

	A	B	C
1	Rack Barcode	Row	Column
2	MATRIX02217	1	2
3	MATRIX02217	5	6
4	MATRIX02217	6	9
5	ZIA100010264	2	4
6	ZIA100010264	6	10
7	ZIA100010264	6	11

Figure 29 : Example of a worklist containing rack barcodes and locations.

When using the template tool accessed with the button displayed below. A dialog will appear allowing the selection of column headers for the worklist.



Figure 30: Template tool icon

Upon clicking the icon, the template dialog will appear

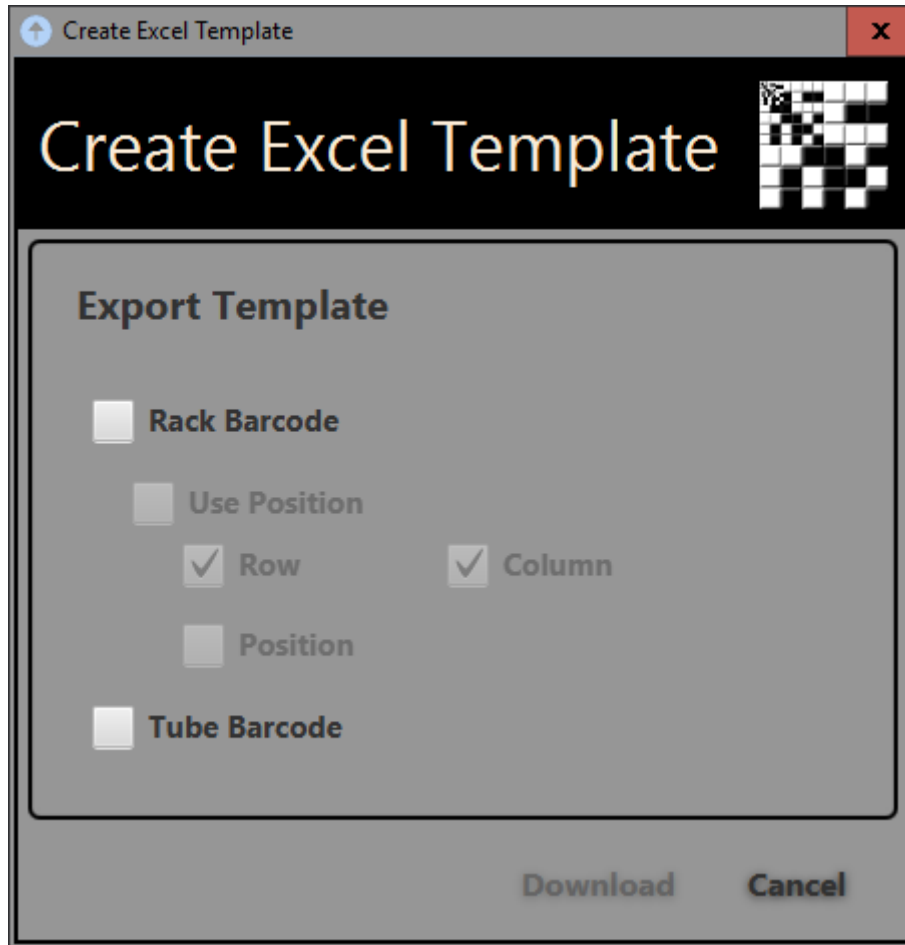


Figure 31: Template tool to create a worklist file in excel

Selecting Rack Barcode will automatically select 'Row' and 'Column'. It is possible to select only Tube Barcode if a scanner is enabled with the Mohawk. If use position is selected then the position will be in the format of A1, B1 otherwise row and column can either be 1,1 or A,1.

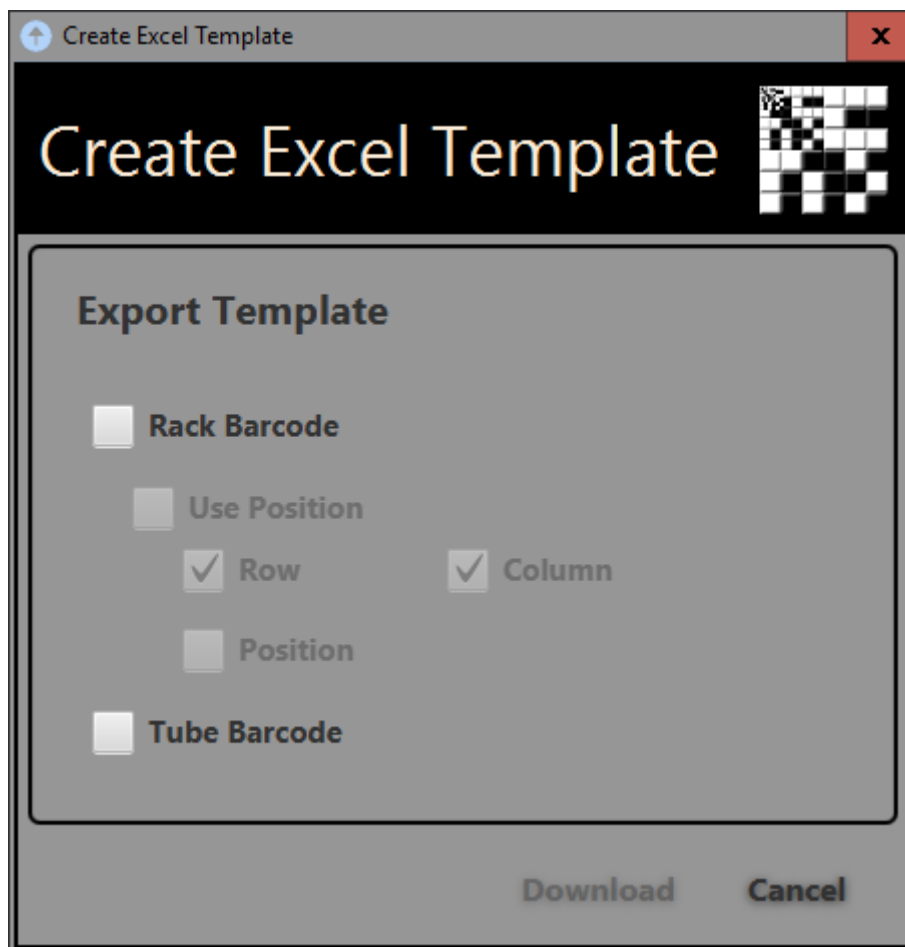


Figure 32: Creating a template in the Mohawk software with only Rack Barcode

This will produce an excel file with these columns.

	A	B	C
1	Rack Barcode	Row	Column
2			
3			
4			
5			

Figure 33: Template created by the Mohawk software with only Rack Barcode selected

CSV

This operates in the same way as the Excel file but will produce a CSV file format. The separator is by default a comma but this can be changed to a semi-colon or a tab character.

JSON

This must be created manually using the following instructions

- **worklist** key has a json Array as value. This array is formed by json objects representing the items that are going to be picked.
 - **Item:** json object, contains the following key/value pairs:
 - **rackBarcode:** rack linear barcode identifier.
 - **row:** row tube position. Can be a number [1-8] or a letter [A-H].
 - **column:** column tube position. Can be a number [1-12] or a letter [A-L].
 - **tubeBarcode:** tube barcode identifier. *Optional*

```
{  
  "worklist": [  
    {  
      "rackBarcode": "Rack1",  
      "row": 1,  
      "column": 7  
    },  
    {  
      "rackBarcode": "Rack2",  
      "row": 3,  
      "column": 2  
    },  
    {  
      "rackBarcode": "Rack2",  
      "row": 2,  
      "column": 7  
    }  
  ]  
}
```

Example: Worklist to pick A7 tube from

[XML](#)

This must be created manually using the following instructions

Base worklist xml file structure

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>  
<worklist>  
</worklist>
```

The root element is **worklist** and it contains **pick** XML elements. Each pick element represents a tube to be picked.

```
<pick column="7" rackBarcode="ZIA100000754" row="1"/>
```

Attributes:

- **rackBarcode:** rack linear barcode identifier.
- **row:** row tube position. A number [1-8] or a letter [A-H].
- **column:** column tube position. A number [1-12] or a letter [A-L].

- **tubeBarcode:** tube barcode identifier.

Example:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>  
<worklist>  
  <pick column="7" row="A" rackBarcode="Rack1"/>  
  <pick column="2" row="C" rackBarcode="Rack2"/>  
  <pick column="7" row="B" rackBarcode="Rack2"/>  
</worklist>
```

Worklist to pick A7 tube from *Rack1* and C2 and B7 tubes from *Rack2*.

Processing a worklist

A worklist can be operated through the Mohawk software

Opening a worklist

Click on the 'Open' button shown below which will produce a window to select a worklist file.



Figure 34: Open a worklist icon

Upon clicking the icon a load file dialog will appear, after opening the worklist file the worklist process should then show the name of the worklist, with rack barcodes shown underneath.



Figure 35: List of Rack barcodes / Tube barcodes (Worklist Process)

Running a worklist

Click 'Run' to start the worklist.



Figure 36: Icon to run a work list

Place a rack onto the Mohawk, ensure the A1 position is in the left top corner. The position of the desired tubes can also be seen on the interface after the rack barcode has been read.

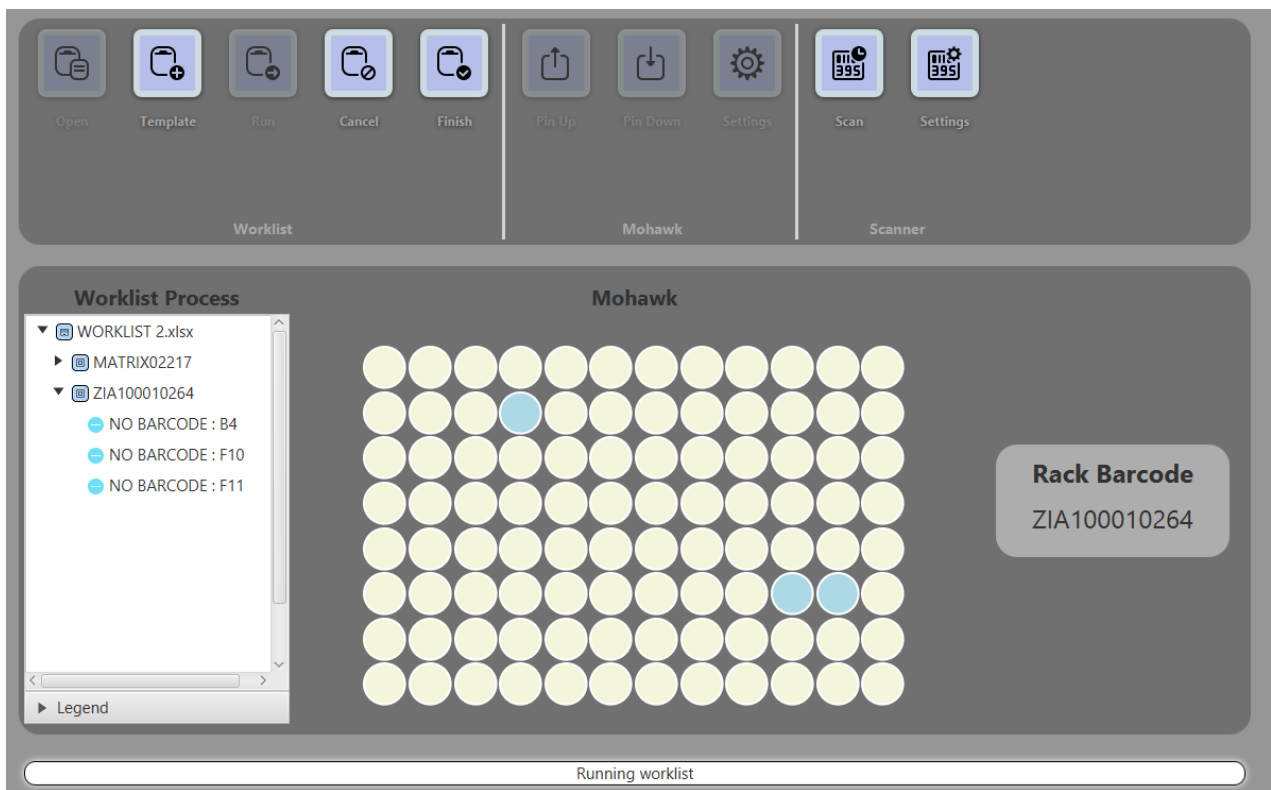


Figure 37: The Mohawk user interface when a rack in the work list is placed onto the Mohawk

Close the lid to push the pins up for the desired tubes

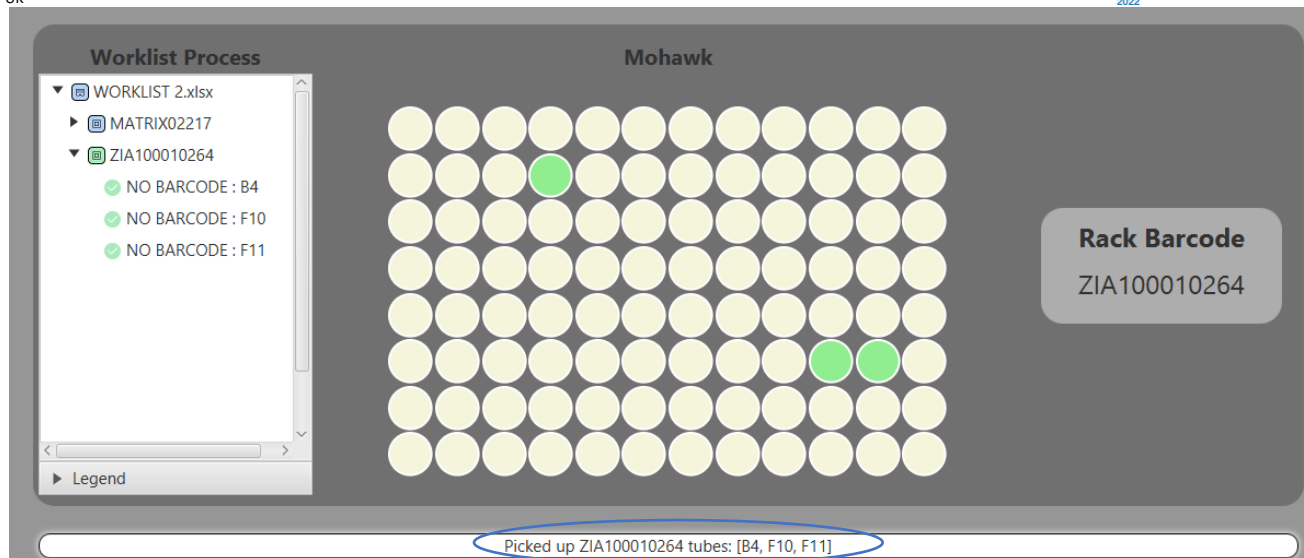


Figure 38: The Mohawk user interface when the lid is closed and the Mohawk pin(s) are up.

Picked tubes are shown in the white box at the bottom of the screen, while their onscreen colour changes from blue to green. If more than 12 tubes are requested the system will fire up the tubes in batches of 12 on each lid open/close cycle.

Please note: That pins will automatically reset after approximately 60 seconds.

If a rack is replaced on the scanner that has already been picked, a resultant window will pop up to ask if you wish to repack the tubes. Click yes to repick the tubes.

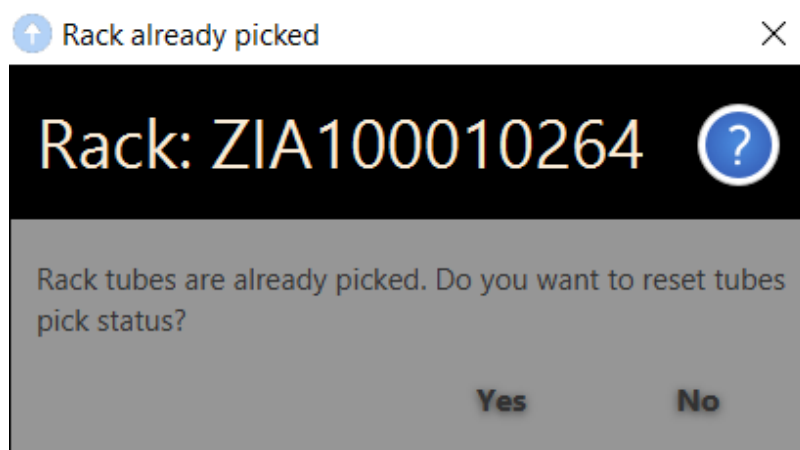


Figure 39: Rack already picked dialogue

While leaving the lid open, place the next rack onto the Mohawk. Note that this will reset the pins; you can also reset the pins by pushing the space bar on the computer controlling the Mohawk.

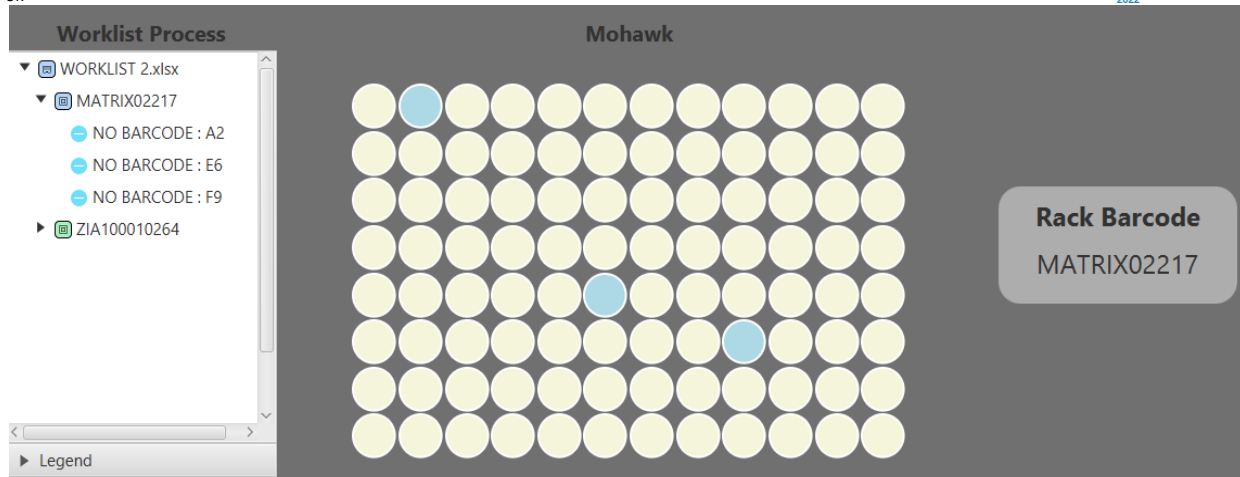


Figure 40: The Mohawk user interface when a new rack is placed onto the unit

Picked racks will show as green in the Worklist Process, the user interface will change to show the next rack barcode and show the positions of the tubes to be picked. After having placed the new rack on the scanner, once again close the lid to push the pins up for the desired tubes

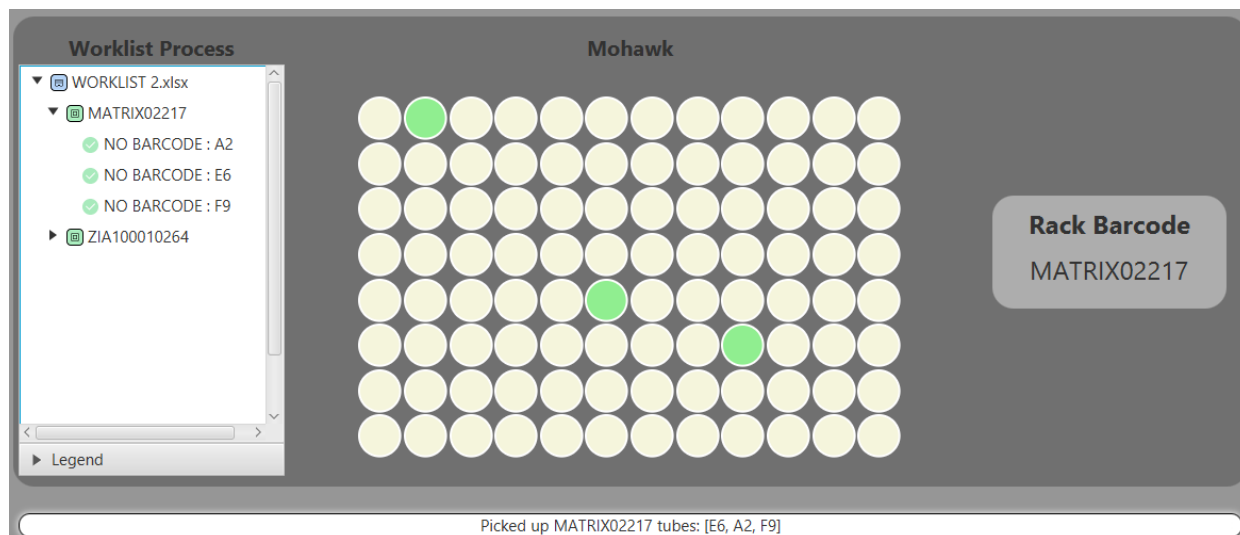


Figure 41: The Mohawk user interface when the lid is closed and the pin(s) are up (#2)

Repeat this process for all the racks in the chosen worklist. While processing the racks, if a rack is placed on the scanner that is not in the work list, the following error will appear:

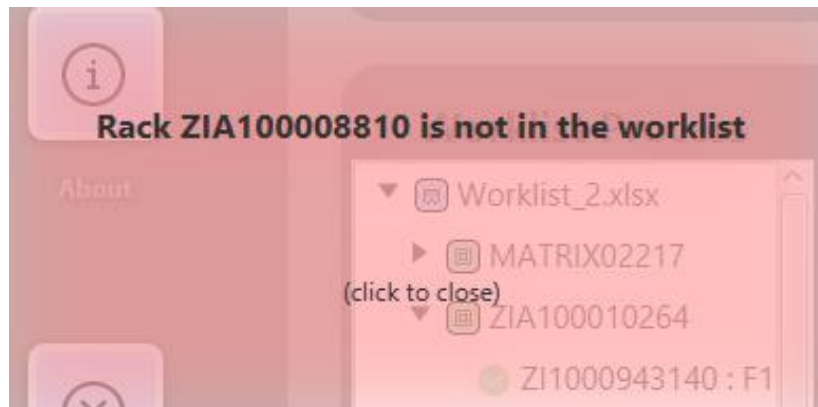


Figure 42: Error when a rack is placed on the Mohawk that is not in the worklist

Click finish once the worklist is complete, an option to scan to confirm the worklist will appear if enabled or an option to generate a report if not.

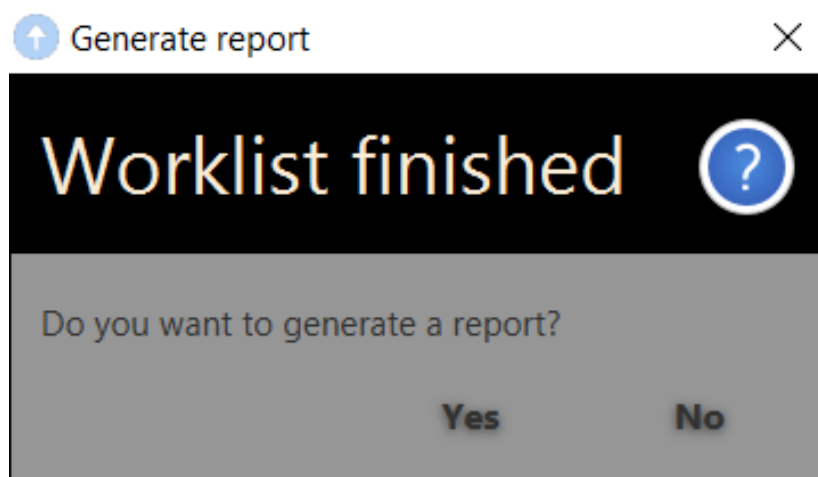


Figure 43: Dialogue to generate a report when finishing a worklist

Running a worklist with only tube barcodes

A worklist may also only contain tube barcodes. An additional feature of the Mohawk involves using a 2D scanner to locate the position of the tubes in a rack. The rack(s) can then be moved onto the Mohawk to present the tubes.

Open a worklist containing only tube barcodes



Figure 44: Icon to open a worklist

	A	B
1	Tube Barcode	
2	S300000407	
3	S300000460	
4	S300000480	
5	ZI1000943073	
6	ZI1000943140	
7	ZI1000943153	
8		

Figure 45: Format of a worklist containing only tube barcodes

Initially the Worklist Process will show the tube barcodes under 'NO RACK'

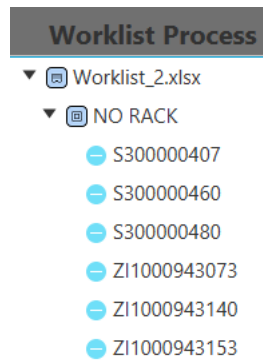


Figure 46: Worklist process when tube barcodes are not assigned to a rack

Place a rack onto the 2D Scanner and press scan to identify the position of the tubes in the rack.



Figure 47: Icon to scan a rack

A prompt will appear to enter the rack barcode. This will only appear if a plate group ID is selected containing no orientation barcode.

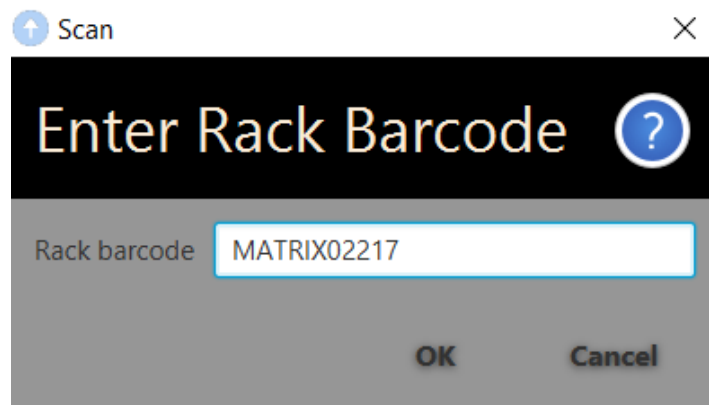


Figure 48: Rack barcode popup

Once the scan is complete the tube barcodes will be shown under the rack barcode alongside their location in the rack. While unidentified tube barcodes will remain under 'NO RACK'

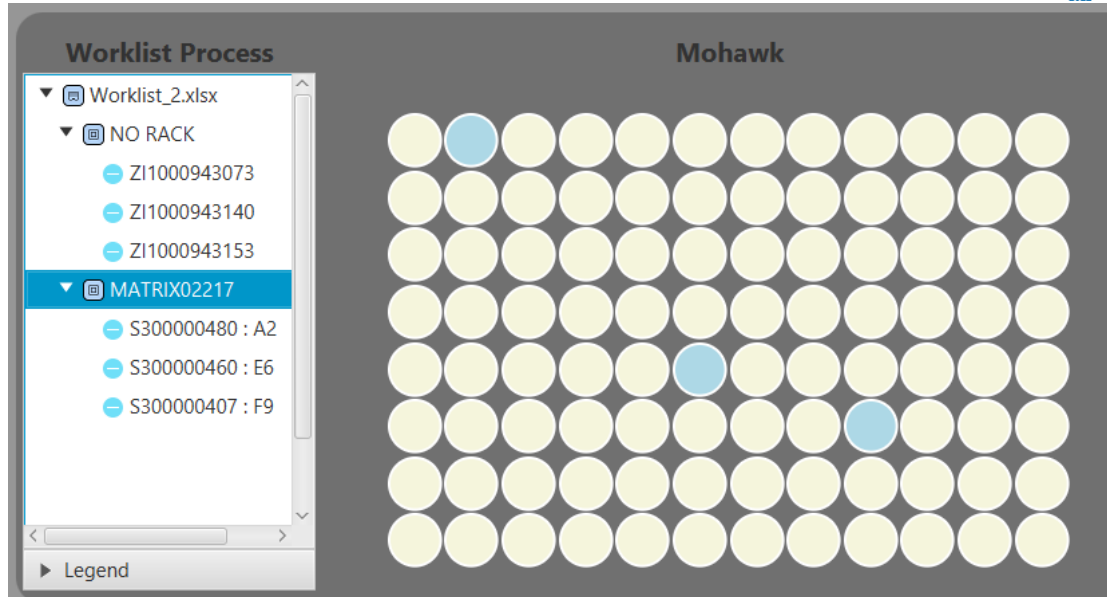


Figure 49: Mohawk user interface after scan has been completed

Once scans are completed, run the worklist.



Figure 50: Icon to run a worklist

Complete the worklist using the same steps as before, once more the Mohawk can only select tubes from racks that are already present in the Worklist Process.

Optional Scanning

If no scanner installed, please skip this section. Firstly configure the scanner which is described in the section titled Configuration. In addition for this section to operate you need to select Scan to Confirm Worklist in the settings and you must have Tube Barcode in the worklist.

After the worklist has been completed and finished; an additional screen will be presented.

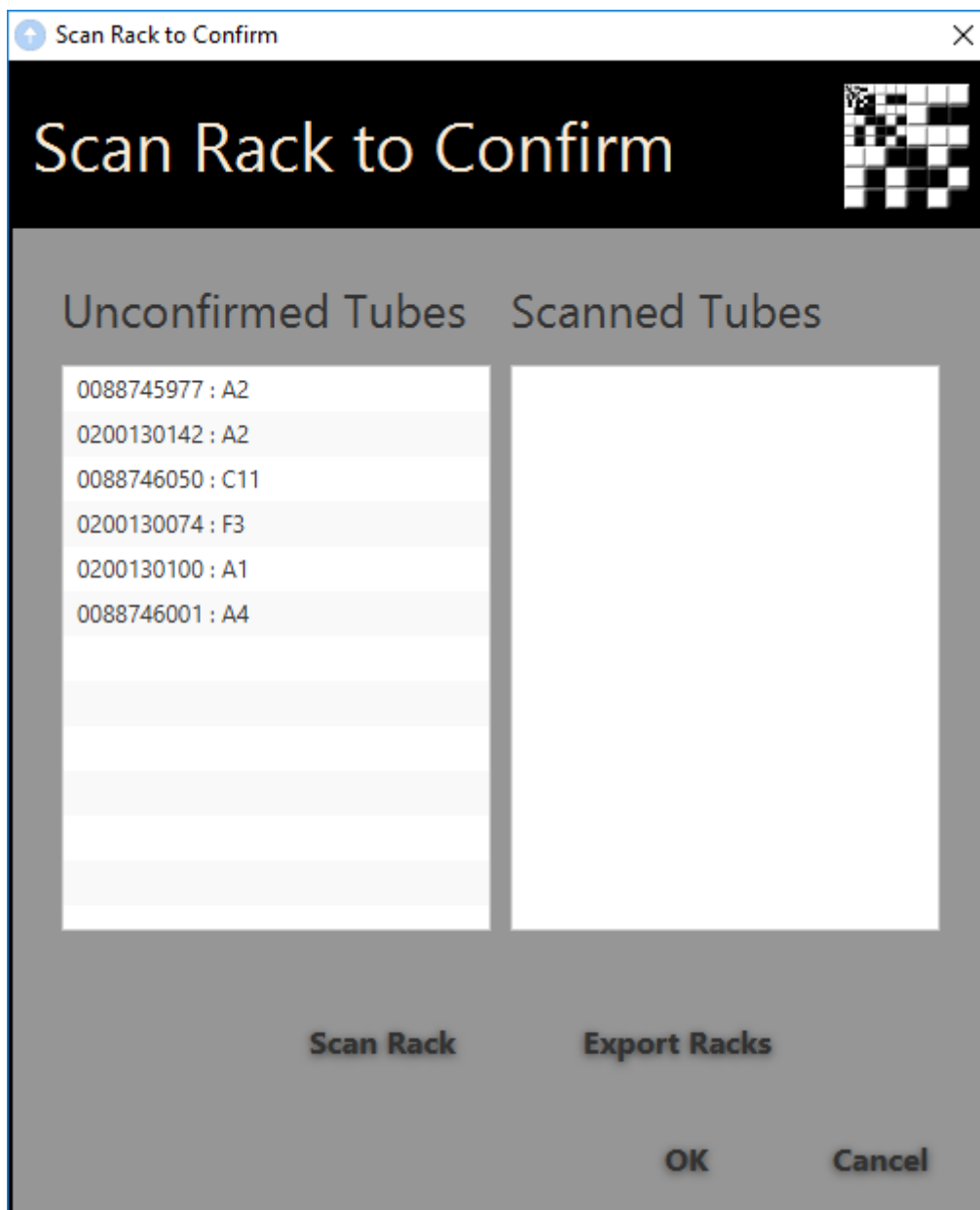


Figure 51: Scan rack to confirm popup

The tube barcodes can be seen in the right box, along with their locations. Then place the destination rack, which contains the picked tubes to be confirmed on the scanner and press Scan Rack. There will be a prompt to enter the rack barcode if the scanner does not have orientation barcode configured or a linear scanner attached.

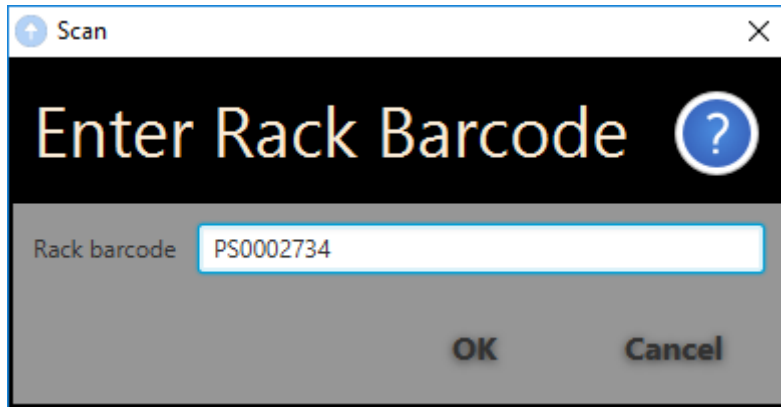


Figure 52: Enter rack barcode popup

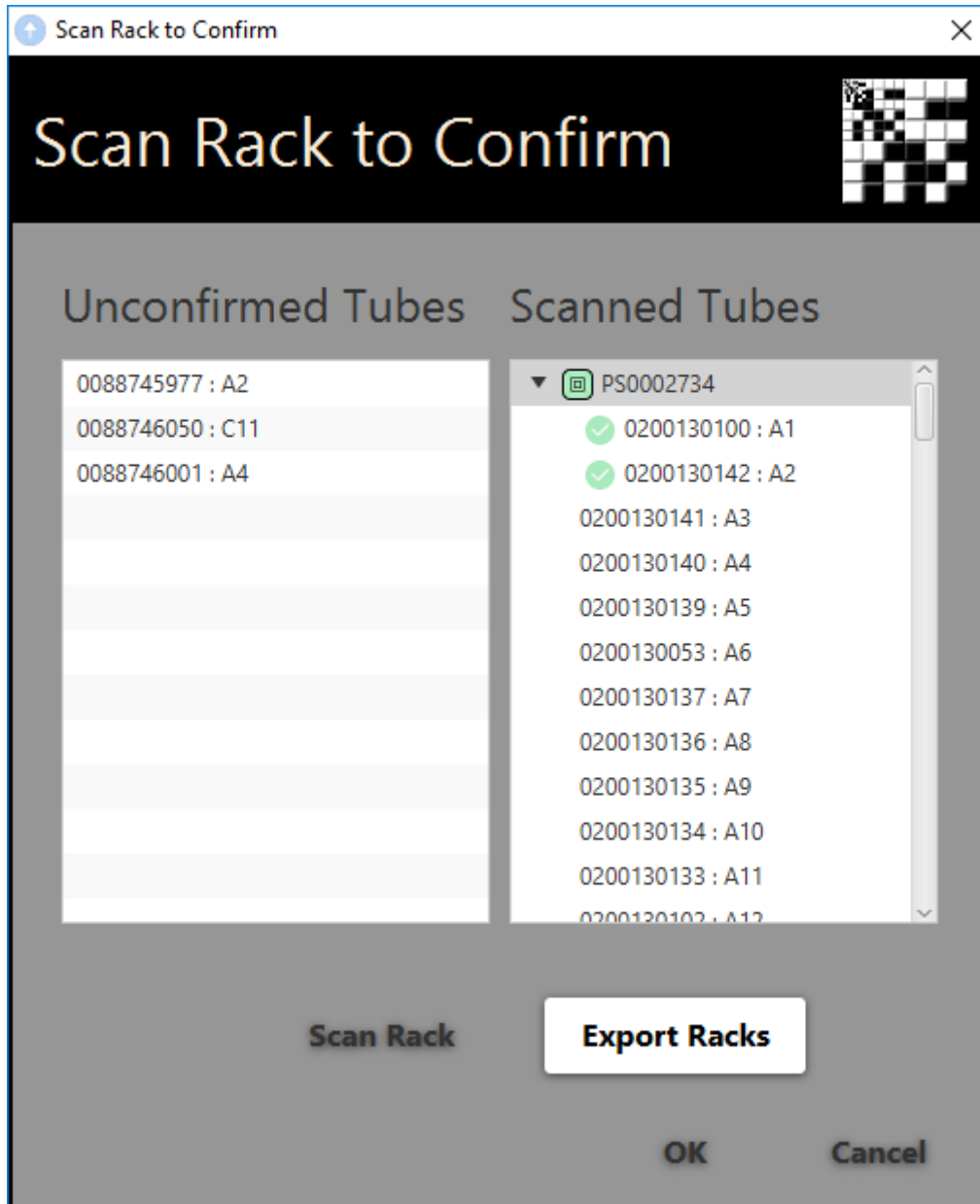


Figure 53: Scan rack to confirm popup with scanned tubes

Scanned tubes will be shown on the left, click the dropdown arrow next to the rack barcode to show the position of each individual tube in the rack. This information can then be exported into an excel file by clicking on Export Racks. There are several formats available; Excel will be used for illustration purposes:

	A	B	C	D	E	
1	Rack Barcode	Tube Barcode	Row	Column	In Worklist	
2	ZIA1000004	0151874061	1	1	Y	
3	ZIA1000004	0151874048	1	2	Y	
4	ZIA1000004	0151874081	1	3	Y	
5	ZIA1000004	EMPTY	1	4	N	
6	ZIA1000004	EMPTY	1	5	N	
7	ZIA1000004	EMPTY	1	6	N	
8	ZIA1000004	EMPTY	1	7	N	

Figure 54: Scan rack to confirm exported file

- **Column A** – Rack barcode
- **Column B** – Tube barcode
- **Column C** – Row the tube is located in
- **Column D** – Column the tube is located in
- **Column E** – Whether the tube was in the worklist

CSV

The CSV file is the same as the Excel file but in CSV format

JSON

The format of the JSON file is as follows:

- **racks** – each rack that was scanned
 - **rackBarcode** – the barcode of the scanned rack
 - **timestamp** – the time the rack was scanned
 - **tubes** – each tube in the rack that was scanned; note that it is possible to have more than one rack if the scanner is capable of this
 - **column** - the column of the tube
 - **row** – the row of the tube
 - **tubeBarcode** – the barcode of the tube, empty if the location was empty and decode error if it was not
 - **inWorklist** – true if the tube was in the worklist and false in not

XML

The structure of the XML file is as follows:

- **racks** – the racks that were scanned
- **rack** - the rack that was scanned with the following attributes
 - **rackBarcode** – the rack that was scanned
 - **timestamp** – the time the rack was scanned
- **tube** – an element describing each tube that was scanned with the following attributes
 - **column** – the column of the tube In the rack
 - **row** – the row of the tube in the rack
 - **inWorklist** – true if the tube is in the worklist and false if not
 - **tubeBarcode** – the barcode of the tube, EMPTY if empty and DECODE FAILURE if the tube failed to scan



Generating a report

When completing a worklist, an option will appear to generate a report. As with the worklist there are several formats for the report.

Excel

The Excel report has two worksheets in the workbook; the first concerns the worklist and the second concerns the scan results. The first sheet is shown below:

	A	B	C	D	E	F	G	H
1	Rack Barcc	Row	Column	Tube Barcode	Picked	Scan Conf	Finished T	Worklist
2	LVL100074	A	2	S300000407	Y	N	24-Apr-20	C:\Users\Kare
3	LVL100074	E	6	S300000460	Y	N	24-Apr-20	C:\Users\Kare
4	P0009	F	9	S300000480	Y	N	24-Apr-20	C:\Users\Kare
5	P0009	B	4	ZI1000943073	Y	N	24-Apr-20	C:\Users\Kare
6	123456785	F	10	ZI1000943140	Y	N	24-Apr-20	C:\Users\Kare
7	123456785	F	11	ZI1000943153	Y	N	24-Apr-20	C:\Users\Kare
8	123456785	F	12	ZI1000943152	Y	N	24-Apr-20	C:\Users\Kare

Figure 55: Picklist sheet report example

Note: If scan to confirm is selected then the first sheet will look as:

	A	B	C	D	E	F	G	H	I	J	K
1	Rack Barcode	Row	Column	Tube Barcode	Picked	Scan Conf	Finished T	Worklist	Destination Rack	Row	Column
2	P0009	E	11	0161853770	Y	Y	24-Apr-20	C:\Users\Karem	10347465	H	4
3	P0009	E	12	0161853741	Y	Y	24-Apr-20	C:\Users\Karem	10347465	H	5
4	1234567890	A	7	0151874031	Y	Y	24-Apr-20	C:\Users\Karem	10347465	B	1
5	1234567890	A	8	0151874061	Y	Y	24-Apr-20	C:\Users\Karem	10347465	C	2
6	1234567890	A	9	0151875067	Y	Y	24-Apr-20	C:\Users\Karem	10347465	D	3
7											
8											

Figure 56: Picklist sheet report example (with scan to confirm)

- **Column A** – Rack barcode
- **Column B** – Row the tube was picked from its original rack
- **Column C** – Column the tube was picked from its original rack
- **Column D** – Tube barcode
- **Column E** – Information on whether the tube was picked, indicated by ‘Y = Yes’, and ‘N = No’
- **Column F** – Only enabled if Datapaq is installed, indicates whether a scan was carried out. See scan to confirm worklist.
- **Column G** – The time the worklist was completed
- **Column H** – The file path and file name of the worklist
- **Column I (only with scan to confirm)** – The destination rack ID
- **Column J (only with scan to confirm)** – The destination row position
- **Column K (only with scan to confirm)** – The destination column position
-

The second worksheet is as shown below:

	A	B	C	D	E	F	G	H
1	In Worklist	Rack Barcode	Row	Column	Tube Barcode	Scan Success	Scan Time	
2	N	P0009	A	1	AL10021552	Y	24-Apr-2019 14:54:58	
3	N	P0009	A	2	AL10022586	Y	24-Apr-2019 14:54:58	
4	N	P0009	A	3	AL10023351	Y	24-Apr-2019 14:54:58	
5	N	P0009	A	4	AL10021553	Y	24-Apr-2019 14:54:58	
6	N	P0009	A	5	AL10020532	Y	24-Apr-2019 14:54:58	
7	N	P0009	A	6	AL10022621	Y	24-Apr-2019 14:54:58	

Figure 57: Scan list sheet report example

This shows the worklist from the point of view of the scan and lists every tube that was scanned and if the scanned tube was a pick item on the worklist or not.

CSV

This will output two files; the first is for the worklists pick results and the second is for the scan results. The files are the same format as the Excel work sheets and are named report_picklist.csv and report_scanlist.csv; the 'report' section of the filename is as selected and the '_scanlist' and '_picklist' sections are automatically added onto the end of the filenames.

JSON

The JSON format is as follows:

- **loadTime** – when the worklist was loaded
- **executedTime** – when the worklist was completed
- **path** – the location of the worklist
- **pickItems** - each tube requested in the worklist
 - **rackBarcode** – the barcode where the rack was
 - **row** – 1
 - **column** – 2
 - **tubeBarcode** – the barcode tube
 - **picked** - true if picked and false if not
- **scans**
 - **executedTime** – when the scan was completed
 - **scanItems** – each tube scanned in the scan confirm action
 - **row** – the row of the tube
 - **column** – the column of the tube
 - **tubeBarcode** – the barcode of the tube, empty if it is empty and 'decode error' if the barcode is not successfully read
 - **rackBarcode** – the barcode of the rack
 - **scanSuccess** – the reading success, true if a barcode was detected or the location was empty and false if there was a decode failure
- **confirmationScans** – the items that were to be picked and have been detected in the scan confirmation scan
 - **racks** – the racks that were scanned
 - **rackBarcode** – the barcode of the rack
 - **timestamp** – when the rack was scanned
 - **tubes** – list of all the tubes



- **row** – the row of the tube
- **column** – the column of the tube
- **tubeBarcode** – the barcode of a tube
- **inWorklist** – always true
- **unconfirmedTubes** – these are tubes that were requested to be picked but have not been detected in the scan confirmation
 - **row** – the row of the tube
 - **column** – the column of the tube
 - **tubeBarcode** – the barcode of the tube
 - **rackBarcode** – the rack the tube was requested to be picked from

XML

The XML format is as follows:

The XML format is as follows:

- **worklist** – an element called worklist with the following attributes
 - **loadTime** – when the worklist was loaded
 - **executedTime** – when the worklist was completed
 - **path** – the location of the worklist
- **pickItem** – an element in the worklist with the following attributes
 - **rackBarcode** – the barcode where the rack was
 - **row** – 1
 - **column** – 2
 - **tubeBarcode** – the barcode tube
 - **picked** - true if picked and false if not
- **scanLists** – an element containing the scanLists from the confirm rack scan
 - **scanList** – a scan which represents one scan on a scanner
 - **executedTime** – time when scan was completed.
 - **scanItem** – a tube which has been scanned with the following attributes
 - **row** – the row of the tube
 - **column** – the column of the tube
 - **tubeBarcode** – the barcode of the tube, empty if it is empty and 'decode error' if the barcode is not successfully read
 - **rackBarcode** – the barcode of the rack
 - **scanSuccess** – the reading success, true if a barcode was detected or the location was empty and false if there was a decode failure
- **confirmationScans** – an element containing racks that have the confirmed tubes
 - **rackList** – an element containing racks that were scanned and confirmed
 - **rack** – an element representing a confirmed rack
 - **rackBarcode** – the barcode of the rack
 - **timestamp** – when the rack was scanned
 - **Tube** – an element that represents a tube in the worklist
 - **row** – the row of the tube
 - **column** – the column of the tube
 - **tubeBarcode** – the barcode of a tube

- **inWorklist** – true if the tube was in the worklist and false if not
- **unconfirmedTubes** – these are tubes that were requested to be picked but have not been detected in the scan confirmation
 - **row** – the row of the tube
 - **column** – the column of the tube
 - **tubeBarcode** – the barcode of the tube
 - **rackBarcode** – the rack the tube was requested to be picked from

Cancel a worklist

At any time click ‘Cancel’ to stop the worklist.

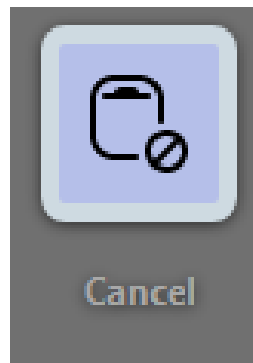


Figure 58: Icon to cancel a worklist

A second dialog will appear to confirm that the worklist needs to be cancelled.

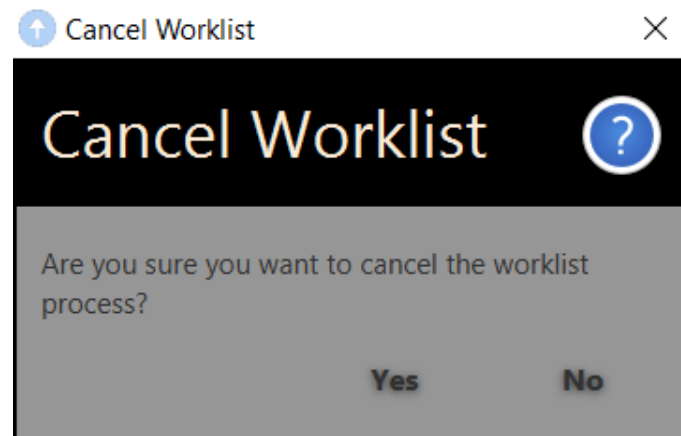


Figure 59: Cancelling a worklist popup

Manual mode

When a worklist is not loaded; the Mohawk is in manual mode. Selection of the required samples can be made by clicking on the specific tube locations in the software. Simply click the positions of the desired samples in the rack view which will turn their colour to blue.

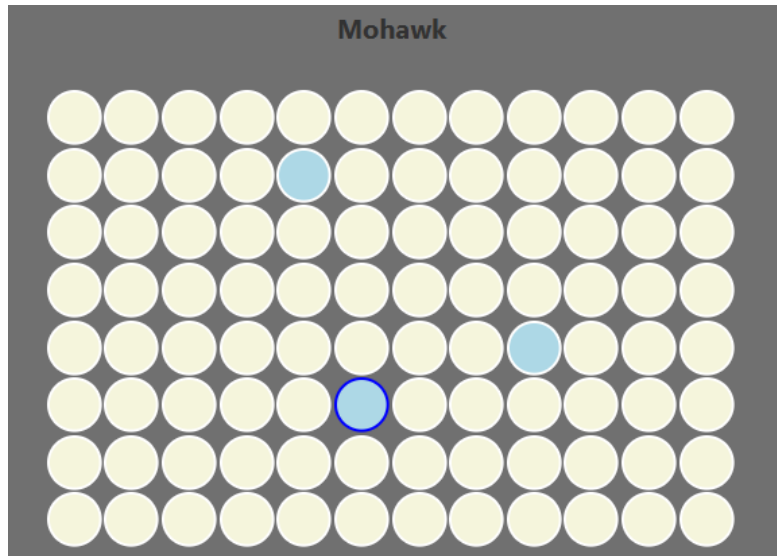


Figure 60: Mohawk user interface with random tubes selected

Then close the lids and select the Pin Up button.



Figure 61: Icon to bring the pin(s) up in manual mode

This will pick the pins up at the desired positions, the Picked up tubes will be shown in the white bar, while the software will indicate the Pin Up locations in green.

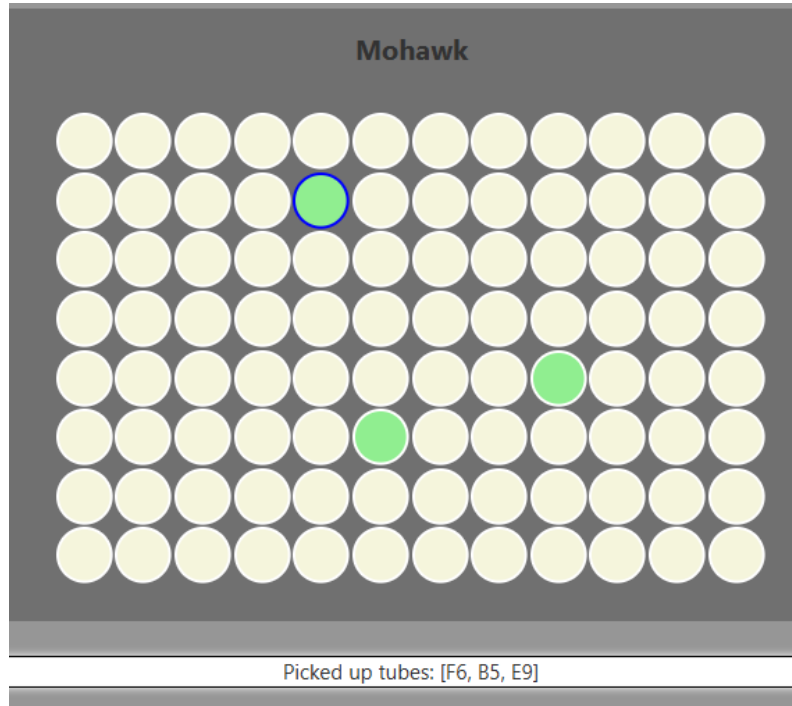


Figure 62: Mohawk user interface with Pins Up in manual mode

Click 'Pin Down' to reset the pins

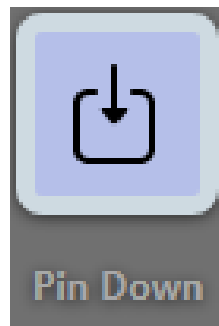





Figure 63: Icon to bring the pins down in manual mode



Appendix A: CE and RoHS Certificates

Please see the following pages for the CE and RoHS certificates for the Mohawk:

 
<p>ZIATH BV, PRINS HENDRIKLAAN 374, 6443AE, BRUNSSUM, NETHERLANDS. Company number : 83213228</p> <p><i>Ziath BV, certify with sole responsibility that the following equipment:</i></p> <p>Description : Mohawk Tube Picker</p> <p>Model Number : ZTS-MHK</p> <p><i>adheres to the requirements of 89/336/EEC for EMC and 73/23/EEC for low voltage safety based upon adherence to the following standards:</i></p> <p>EN 55022: 2006+A1:2007</p> <p>EN 61000-3-2: 2006</p> <p>EN 61000-3-3: 2008</p> <p>EN55024: 1998+A1: 2001+A2:2003</p> <p>IEC 61000-4-2: 2008</p> <p>IEC 61000-4-3: 2008</p> <p>IEC 61000-4-4: 2004</p> <p>IEC 61000-4-6: 2008</p> <p>IEC 61000-4-8: 2008</p> <p>IEC 61000-4-11: 2008</p> <p>Designed, manufactured and distributed by Ziath Ltd & Ziath BV.</p> <p></p> <p>Neil Benn/ Director</p>



RoHS



ZIATH BV, PRINS HENDRIKLAAN 374, 6443AE,
BRUNSSUM, NETHERLANDS.
Company number : 83213228

Ziath BV, certify with sole responsibility that the following equipment:

Description : Mohawk

Model Number : ZTS-MHK

adheres to the requirements of the directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS 2011/65/EU including amendment 2015/863/EU) and the harmonized standard EN IEC 63000:2018 and are verified as "RoHS compliant".

Designed, manufactured and distributed by Ziath Ltd & Ziath BV.

A handwritten signature in black ink, appearing to read "Neil Benn", is written over a diagonal line.

Neil Benn/ Director

18th January 2021