

ScaleWiz User Guide

Starting the program

The program is launched by issuing the following command from the source code directory, which is `pct-scalewiz/source`

```
python3 core.py
```

Starting the program is more convenient when you use a script to issue that command.

On Windows, you can use a batch script like

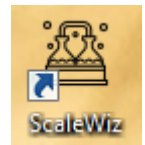
```
1 call cd "C:\Users\P\Documents\GitHub\pct-scalewiz\source"
2 call python3 core.pyw
```

A Linux equivalent shell script would be something like

```
1 #!/usr/bin/env sh
2 cd "pct-scalewiz/source/"
3 python3 core.pyw
```

I created these scripts already and put links to them on the desktop of each computer.

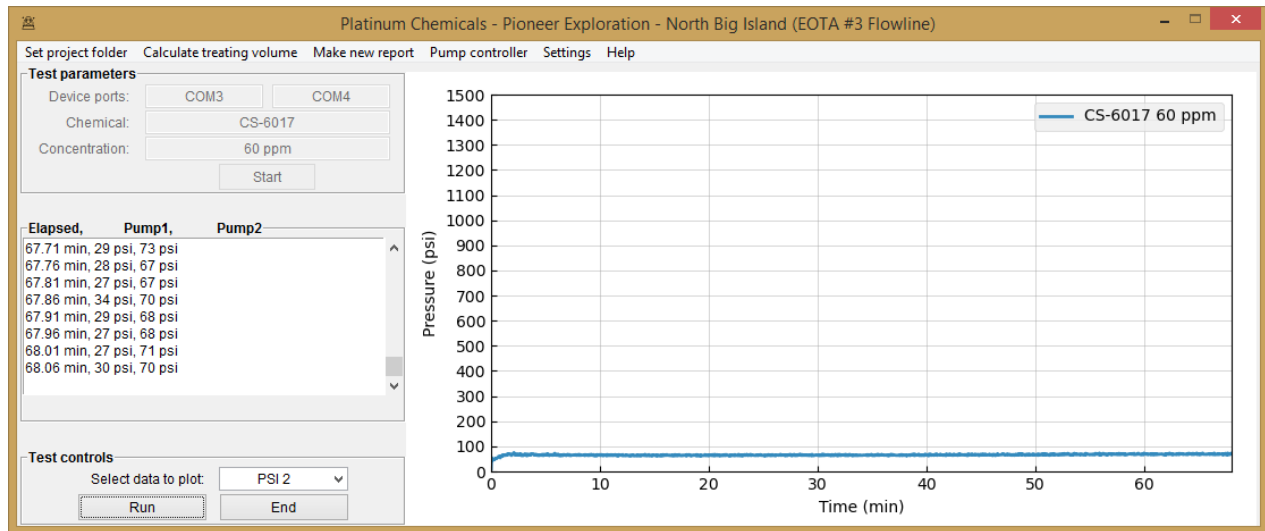
You can just double-click them to start the program.



Setting up a project

Suppose you get a new project for a new customer, let's call them NewCustomer
They are managing a project for some production company called
ProductionCompany

- Open up the program to be greeted by a screen like this

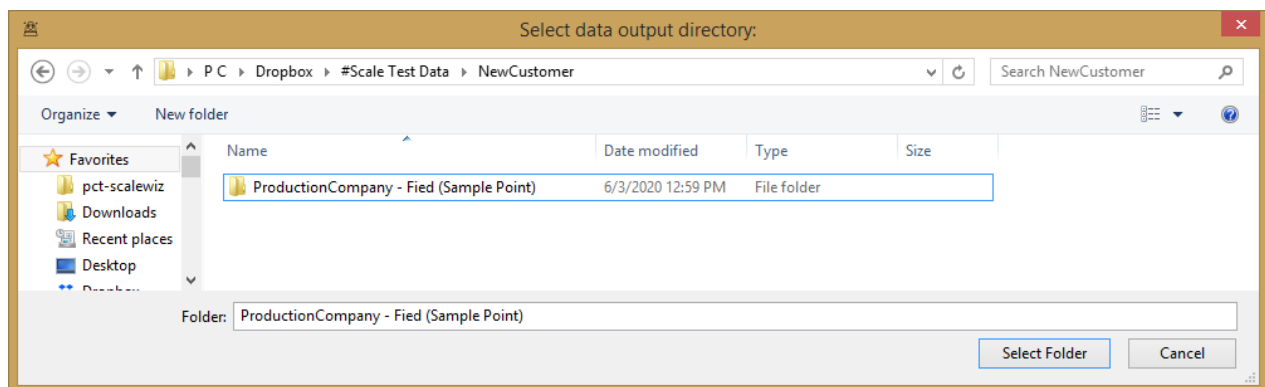


- Click **Set project folder** from the toolbar, and navigate to the scale data folder in Dropbox.

Since we haven't done work for NewCustomer yet I'll make a new folder for them. Inside of that folder, I'll make a new folder titled "ProductionCompany - Field (Sample Point)"

For me right now this looks like

```
C:\...\Dropbox\#Scale Test Data\NewCustomer\ProductionCompany - Field (Sample Point)
```



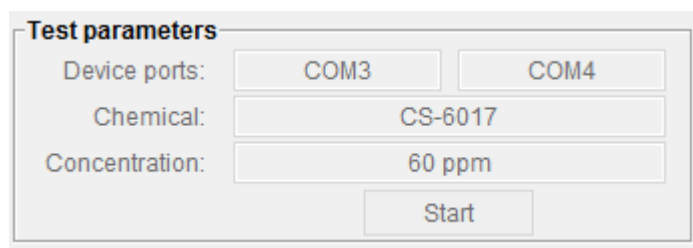
This is the folder where any files we make for the project will be stored.

Setting up an experiment

If the pumps are connected and turned on the **Device ports:** fields in the main window should already be populated. Simply type in the chemical name and

concentration, and hit the **Start** button. This will set up the data output file and make sure the pumps are available.

The **Test parameters** frame should lock if this is successful.

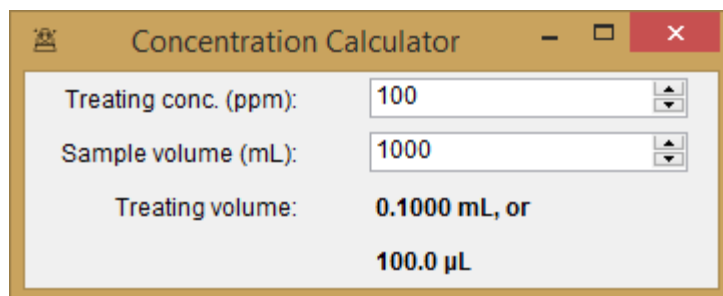


The 'Test parameters' dialog box contains the following fields and buttons:

Device ports:	COM3	COM4
Chemical:	CS-6017	
Concentration:	60 ppm	
Start		

If you haven't already put them there, the pump tubes should be in their respective brine. For a chemical trial, at least one of them should be treated.

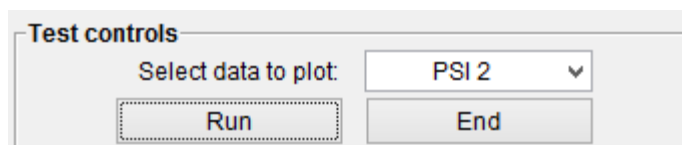
The **Calculate treating volume** button in the main toolbar will open a simple calculator. You can type in numbers, or use the scroll wheel or arrow keys to change the numbers.



The 'Concentration Calculator' dialog box shows the following values:

Treating conc. (ppm):	100
Sample volume (mL):	1000
Treating volume:	0.1000 mL, or 100.0 µL

From there, just hit the **Run** button



The 'Test controls' dialog box contains the following elements:

Select data to plot:	PSI 2
Run	End

You may change the **Select data to plot:** option at any time.

Generating a report

Click the **Make new report** button in the main window's toolbar.

Report Generator

Save project Load from project Export report Help

File path:

Series title:

Data to evaluate:

<input type="radio"/> PSI 1	<input checked="" type="radio"/> PSI 2	Remove
<input type="radio"/> PSI 1	<input checked="" type="radio"/> PSI 2	Remove
<input type="radio"/> PSI 1	<input checked="" type="radio"/> PSI 2	Remove
<input type="radio"/> PSI 1	<input checked="" type="radio"/> PSI 2	Remove
<input type="radio"/> PSI 1	<input checked="" type="radio"/> PSI 2	Remove
<input type="radio"/> PSI 1	<input checked="" type="radio"/> PSI 2	Remove
<input type="radio"/> PSI 1	<input checked="" type="radio"/> PSI 2	Remove
<input type="radio"/> PSI 1	<input checked="" type="radio"/> PSI 2	Remove
<input type="radio"/> PSI 1	<input checked="" type="radio"/> PSI 2	Remove
<input type="radio"/> PSI 1	<input checked="" type="radio"/> PSI 2	Remove

Plot parameters

Time limit (min):

Max pressure (psi):

Baseline pressure (psi):

Evaluate

- Clicking a **File path:** field will open a file dialog allowing you to select a .csv data file.
- The **Series title:** field will be automatically populated with a title based on the file's name. You are free to change this.
- The **Data to evaluate:** radio buttons to select which pump's pressure data you want to evaluate.

The only **Plot parameters** setting you'll likely need to change is the baseline pressure. The three values here are used when calculating the results.

The **Save project** and **Load from project** buttons in the toolbar will save the form contents to a file that may be loaded from later. This is optional and purely for convenience when working with many sets of data.

Once you click **Evaluate** you'll get a pop-up plot of the data, as well as a small results panel. These are for convenience and you may dismiss them. The plot image

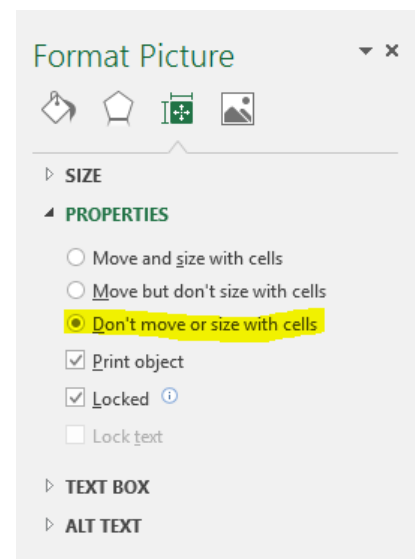
will be automatically saved in the project folder as a .png file. A timestamped log detailing the calculation steps/results will also be output in the project folder.

If you want to change the colors used in the plot, modify the **Color cycle:** field in the program settings (accessed from the main window toolbar)

To export a report, click **Export report** in the toolbar. This will make a copy of the report template specified in the program settings, then populate it with the results. The resultant report should require little intervention

- just add the missing header info and verify that the results are correct
- fill out the water quality column
- Right click on the plot image > Size & Properties > Properties > Don't move or size with cells (this will ensure visual consistency whether printing from Excel or exporting to PDF)

As a matter of personal preference, I reduce the decimals on perfect scores from 100.0% to 100%
The extra 0 just seems silly in this context, but do as you will



Excel image settings

Syncing the data

On Windows, you can just run Dropbox. I usually pause syncing while a test is running so it isn't constantly uploading the data as it is collected.

On Linux I avoided using Dropbox because there's no Dropbox support for Raspberry Pi. Instead, I used a free software called [Rclone](#) to transfer data directly to the Dropbox server.

This is already installed and set up on our Linux laptop. There is a script called "Sync Data" on the desktop. This syncs the local data on the computer with what's in our

Dropbox's scale data folder. It will need to be run whenever you want to upload data at the end of a project.

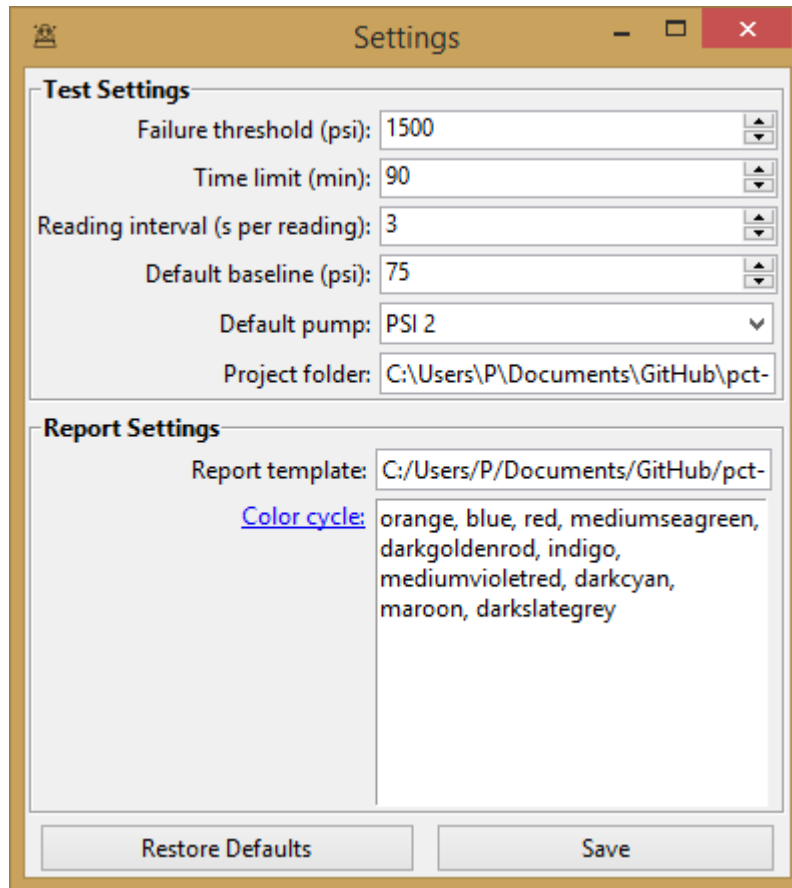
If you're extra lazy I encourage you to schedule the script to be run once a day at 6pm. It would be a good learning exercise.

If you don't want to use the sync script, you could also transfer the files using [Anydesk](#), a remote desktop application. It is free and installed on both laptops already. Ideally, this would be installed on the Raspberry Pi and used to control it remotely from another computer. I think using the Rclone sync script is more convenient than manually selecting the files for transfer using Anydesk, but do as you please.

Modifying the settings

Program settings are easily modified from the main toolbar's **Settings** button.

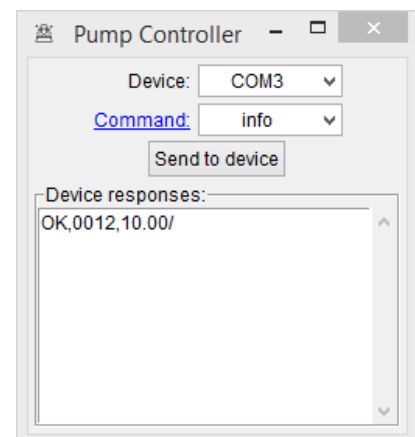
- Clicking either the **Project folder:** or **Report template:** fields will open a dialog prompting you to choose a file.
- Clicking the **Color cycle:** label will bring you to a list of valid color names. Please be sure to type them exactly. Hex color values are also acceptable (eg. [#FF5733](#))



Using the pump controller

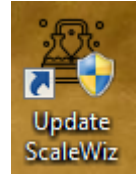
The **Pump controller** button in the main toolbar will give you this popup. It is good for operating pumps individually, such as for a rinse.

- The **Command:** label is a link to the pump's operator's manual, which has a complete list of commands and usage instructions.
- The pump controller will not allow you to interfere with a currently running test.



Updating the software

On each desktop there's also a script to update the program from the source code repository online. You're unlikely to need it, but it's there just in case.



On Windows:

```
1 call cd C:\Users\P\Documents\GitHub\pct-scalewiz
2 call git fetch
3 call git pull
4 pause # to keep the window open
```

On Linux:

```
1 cd /pct-scalewiz
2 git fetch
3 git pull
4 read -s foo # to keep the window open
```