Desktop Digitizer
User Guide
version 1.0

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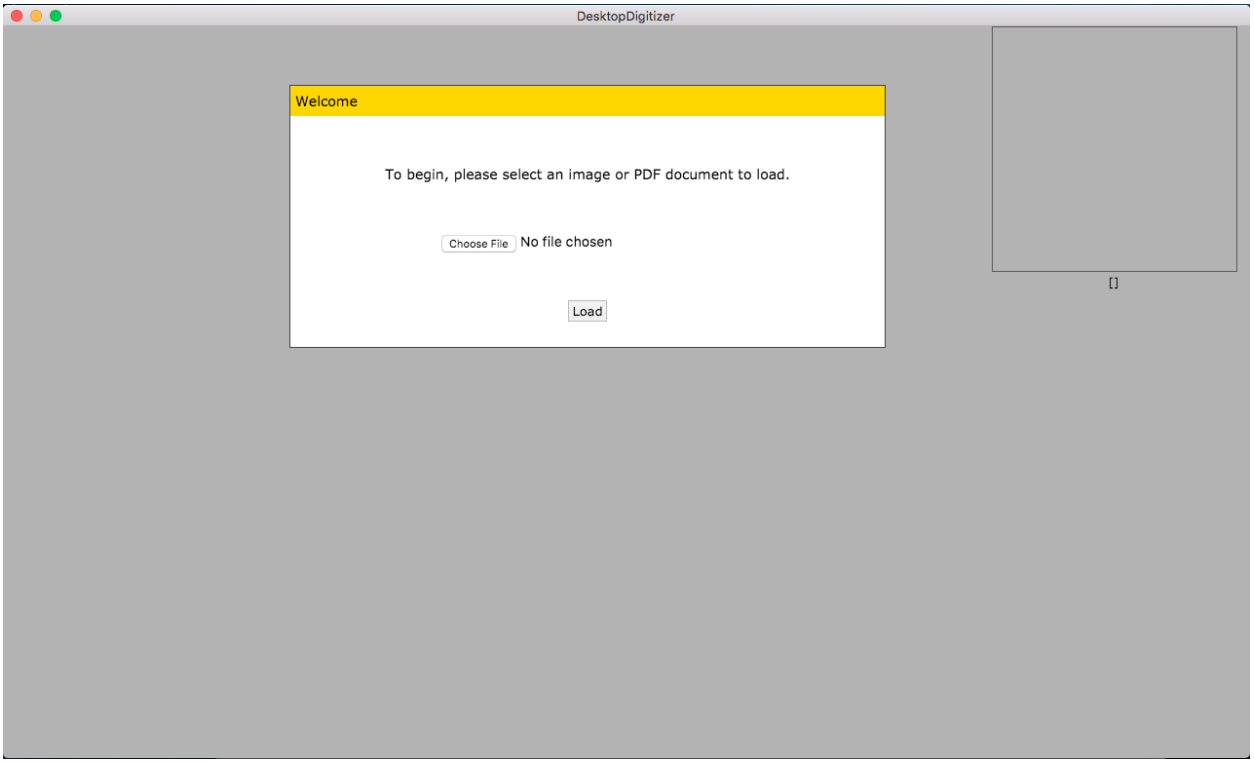
INTRODUCTION

This user guide is an addendum to Ankit Rohatgi's WebPlotDigitizer user guide which is the basis for the Desktop Digitizer application. As such, this user guide will focus on the functionality of which the Desktop Digitizer was intended for which is to facilitate the extraction of numerical data from pump performance plots.

LOADING PLOTS

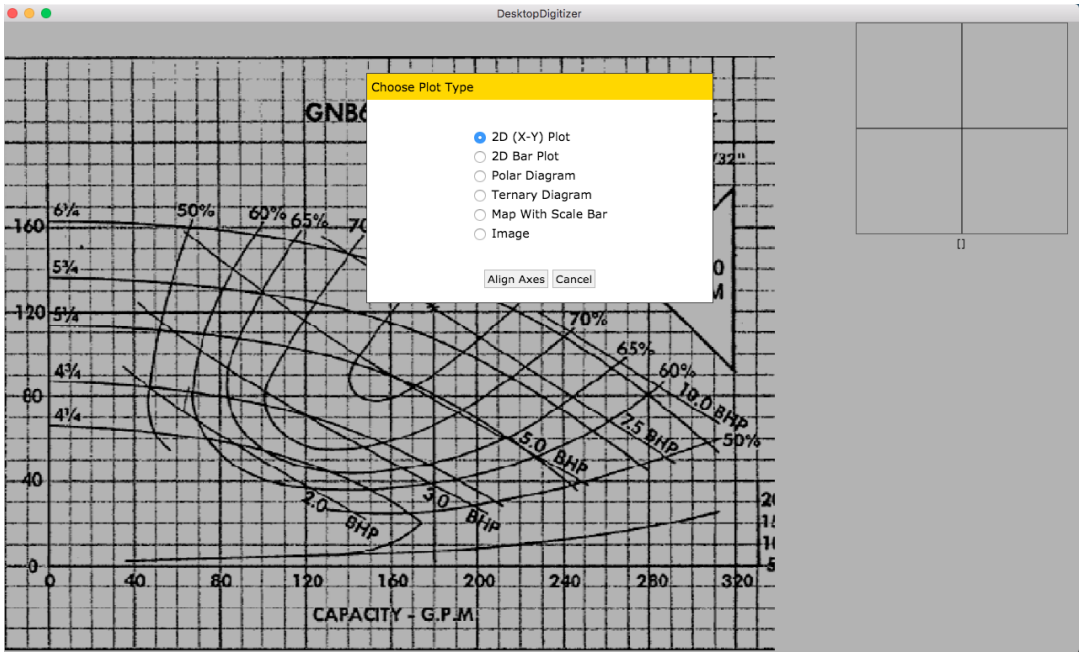


There are two ways to load an image:

1. When the application is loaded, you are prompted to load an image or PDF document.
2. You can also go to **File → Load Image** in the application menu.

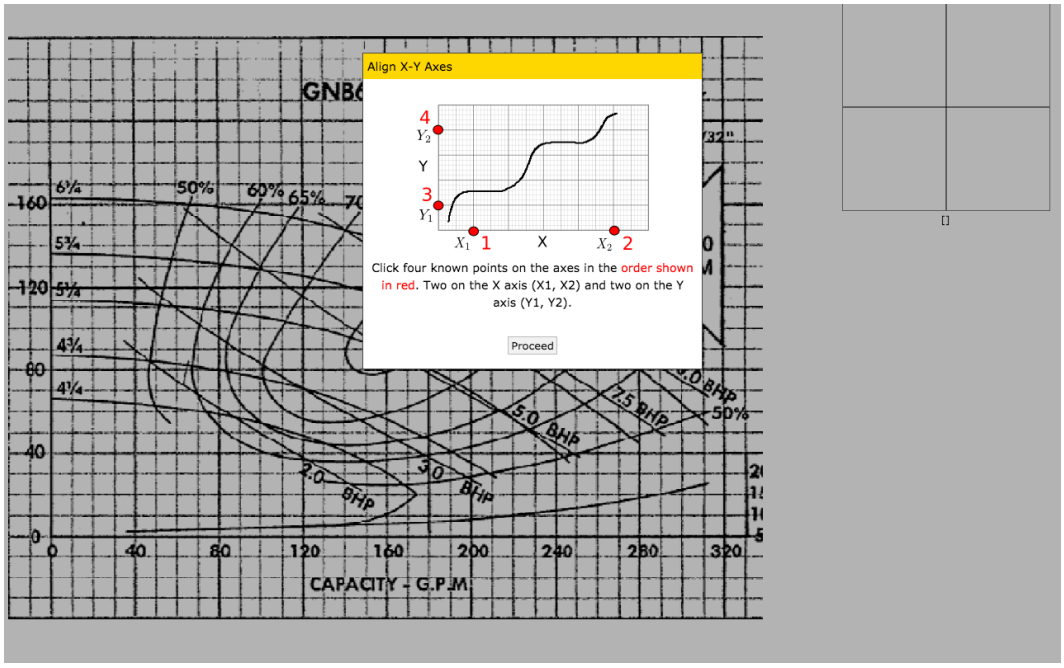
Acceptable image formats include JPG, PNG, BMP, GIF, etc.

SELECTING PLOT TYPE

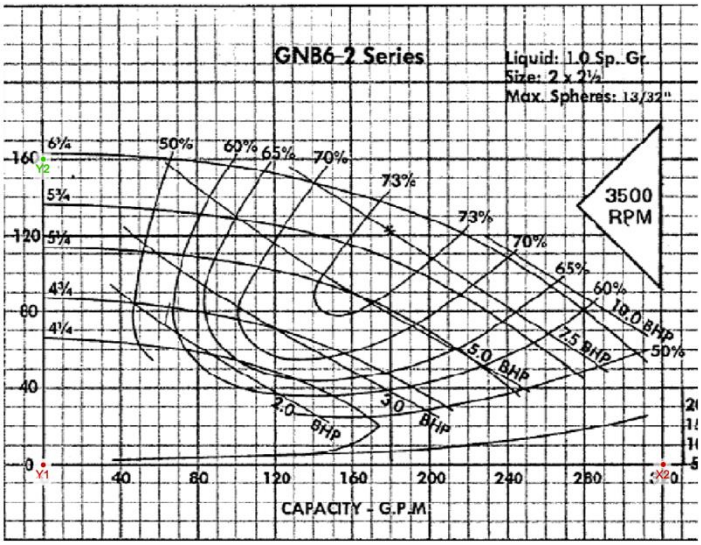


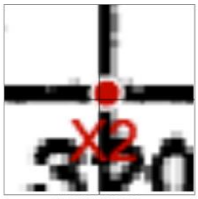
After loading your image or PDF document, you will be prompted to select from the plot types supported. For use with the pump performance curves, we shall select **2D (X-Y) Plot**.

AXES ALIGNMENT



Depending on the plot type selected, you will be given instructions on how to properly align your axes.

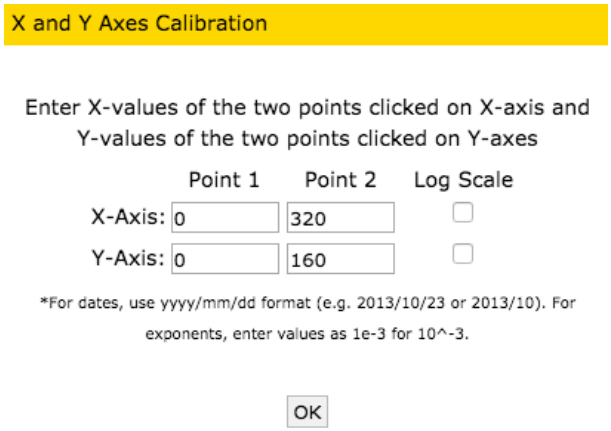




In order to align a X-Y Plot, you have to select four known points on the plot. Mark two points on the X-axis (x_1, x_2) and two points on the Y-axis (y_1, y_2). It is best to choose points that are as far away from each other as possible in order to provide better accuracy.

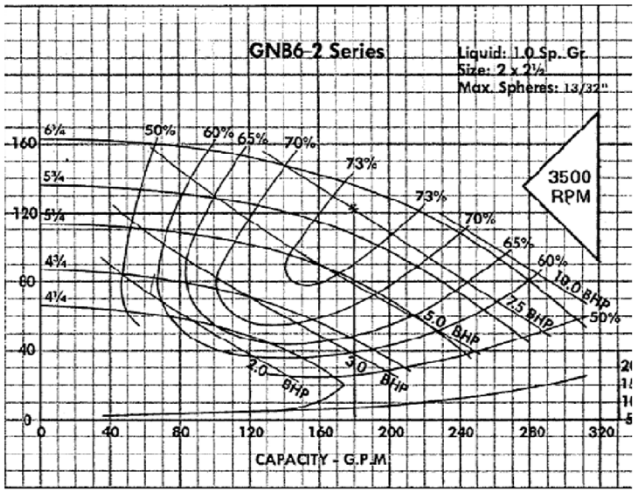
Note: When a point is first entered it is green, meaning you can adjust the point using the arrow keys.

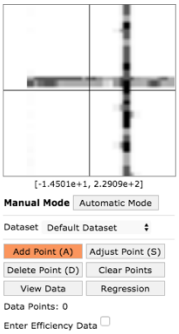
Once you are done selecting the axes corners, and click on the **Complete** button, you will be prompted to enter the button the values corresponding to each x_1, $x_{2,}$ y_1, and y_2 as shown below.



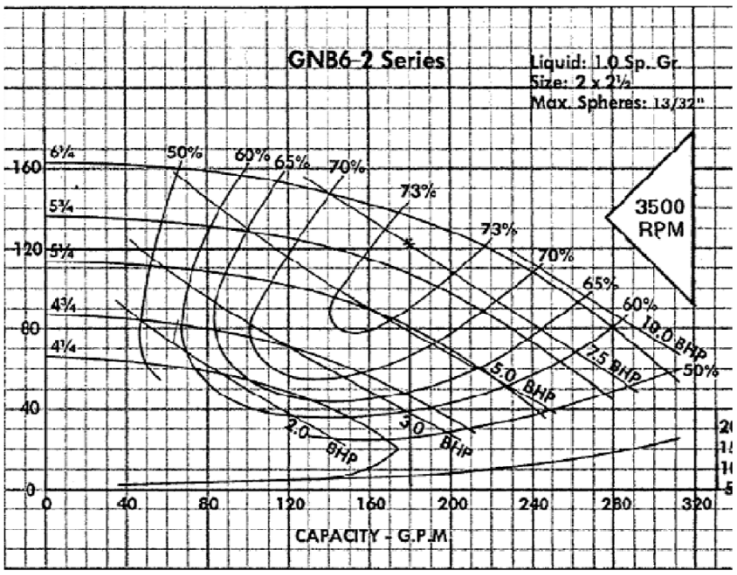
ACQUIRING DATA

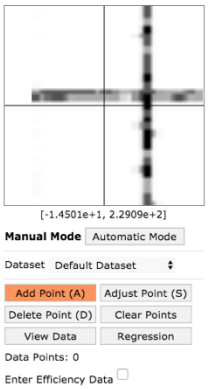
After successfully calibrating the axes, you will be able to select the desired data points on the image, and will be shown a set a tools on the sidebar to aid in the data collection as shown below.





As you can see you have a good amount of options displayed, and are described below:



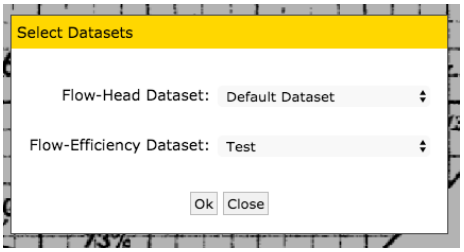


- **Add Point:** This button allows you to set different data points on a plot, initially corresponding to points on the X and Y axis which will be shown in red.

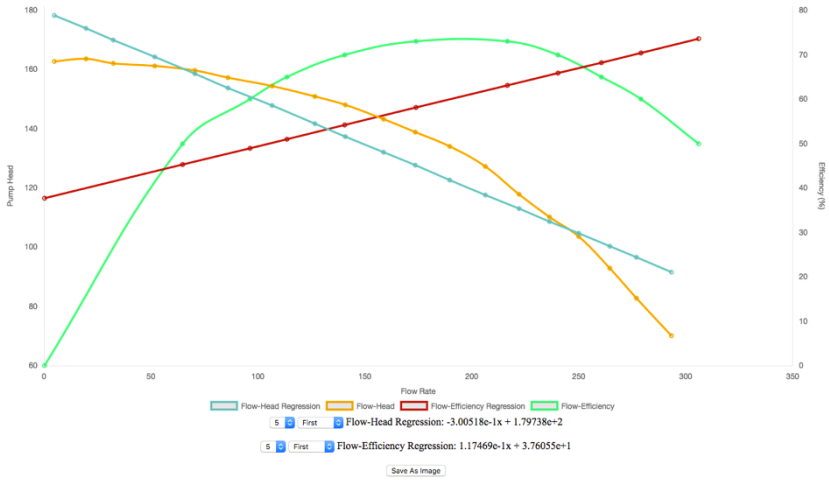
- **Adjust Point:** This button allows you to click on an existing data point to select. Selecting a point will turn it green as an indication that it can be adjusted using the cursor keys on the keyboard.
- **Delete Point:** This button allows for the deletion of any point that has been placed on the image by simply clicking on the data point you would like to delete.
- **Clear Points:** This button will delete **all** data points that have been placed on the image.
- **View Data:** This button allows you to view, sort and format all selected data points. In addition, this is where you would save your data to a CSV file.
- **Regression:** If you would like to view a regression of your data, clicking this button will open a separate window displaying a plot with a curve representing the data you selected as well as a curve representing the regression of your data.
- **Enter Efficiency Data:** Clicking this checkbox will prompt you to create a dataset that will store flow rate and efficiency data.
- **Dataset:** Allows you to switch between different datasets.
- **Manual/Automatic Modes:** You can switch between manual and automatic extraction modes, but it is recommended to use manual mode since the automatic mode does not function as expected.

REGRESSION

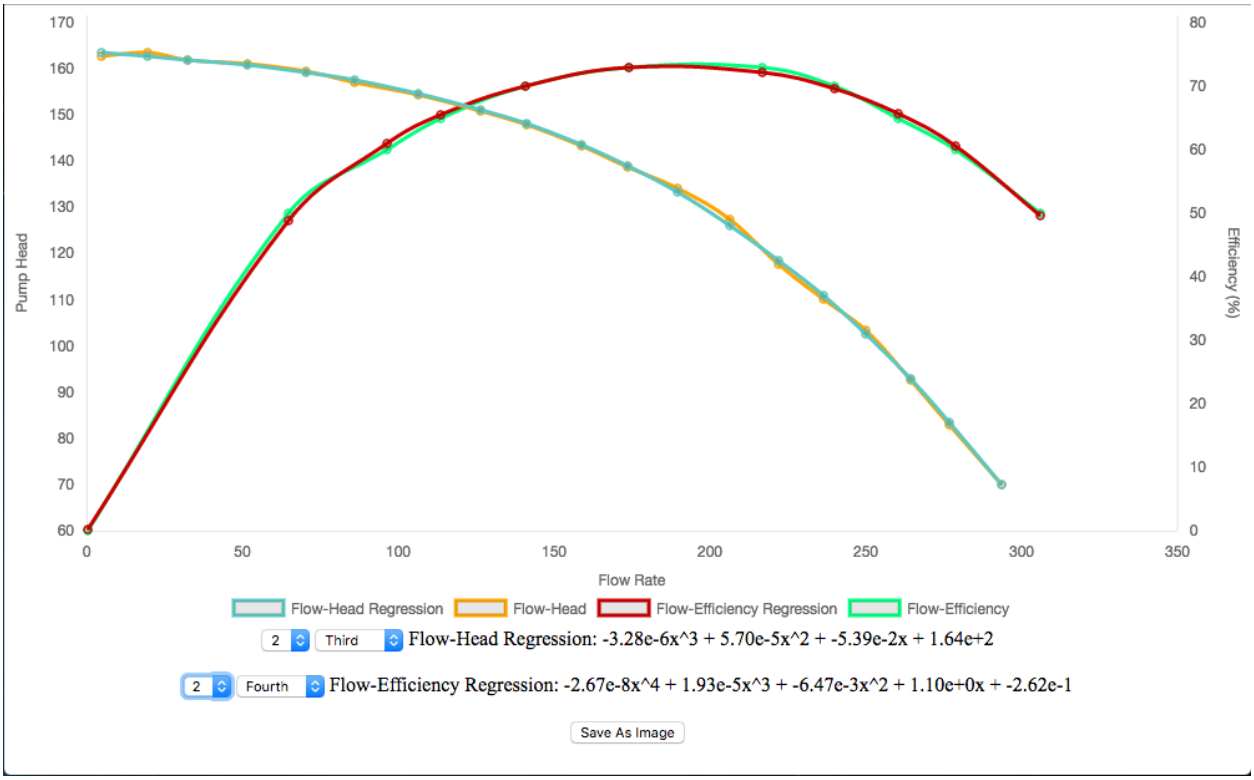
After selecting the data you would like and clicking on the **Regression** button, you must select data sets to be used for the regression. The sets will be separated according to the type of data they are representing: Flow-Head or Flow-Efficiency data.



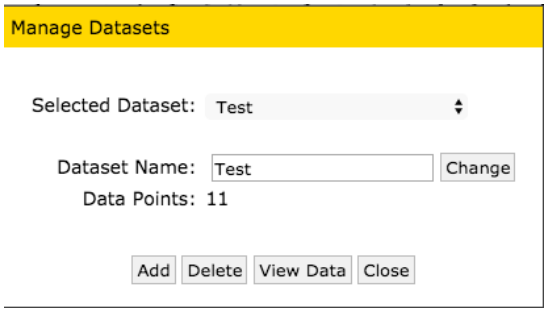
Having selected the datasets to use, you will be shown a plot like the one below:



You can adjust the order of growth to first, second, third, fourth, and fifth order regressions as well as adjust the level of precision as can be shown below.



MANAGE DATASETS



This is a very useful feature to allow you to store multiple sets of data. To add a dataset all you need to do is click on the **Add** button and then you can give your newly created dataset a meaningful name. Similarly, if you find that you do not need a certain dataset anymore, then you can delete it by simply selecting it and clicking the **Delete** button.

EXPORT/IMPORT JSON

To save your current progress go to **File → Export JSON**.

This will save your axes calibration and data points in all datasets to a JSON file. Keep in mind that this option does not save the image, but only the data.

Then in order to resume your work, go to **File → Import JSON** after loading the image or pdf document to the application in order to load the information stored in the JSON file.