
Data Digitizer Documentation

Release 1.0.x

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INTRODUCTION

1.1 Description

DataDigitizer is a simple graphical tool for digitizing data from images.

In terminal enter the following command:

```
python -m datadigitizer
```

The cursor is used to point a specific position in the graph whereas all operations are done through keyboard combinations or through the main menu.

Legend:

- Red crosses are data points
- Blue crosses are Xmin and Xmax
- Green crosses are Ymin and Ymax

Commands:

- <Ctrl-o> for loading image.
- <Ctrl-a> add data point.
- <Hold a+Left Click> add data point.
- <Left Click> select a data point.
- <Hold Ctrl+Left Click> multiple data point selection.
- <Ctrl-g> set Xmin from last data point or from selected data point.
- <Ctrl-h> set Xmax from last data point or from selected data point.
- <Ctrl-j> set Ymin from last data point or from selected data point.
- <Ctrl-k> set Ymax from last data point or from selected data point
- <Ctrl-l> set all limits from last 4 data points or from last 4 selected data points.
- <Ctrl-n> remove all limits.
- <Ctrl-z> remove last data point.
- <Ctrl-d> remove selected data point.
- <Ctrl-D> remove all data points.
- <Ctrl-m> compute the data points.
- <Ctrl-s> save data points.
- <Ctrl-w> clear all.

A pdf version of the documentation can be found [here](#) DataDigitizer

1.2 How to install

```
$ python setup.py install

or

$ pip install datadigitizer
```

1.3 Dependencies

```
numpy>=1.17
matplotlib>=3.0.0
Pillow>=6.0.0
```

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```
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```

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TUTORIAL

2.1 Open the app

Start the application by entering in the terminal:

```
python -m datadigitizer
```

The main windows looks like in figure *Main Window*

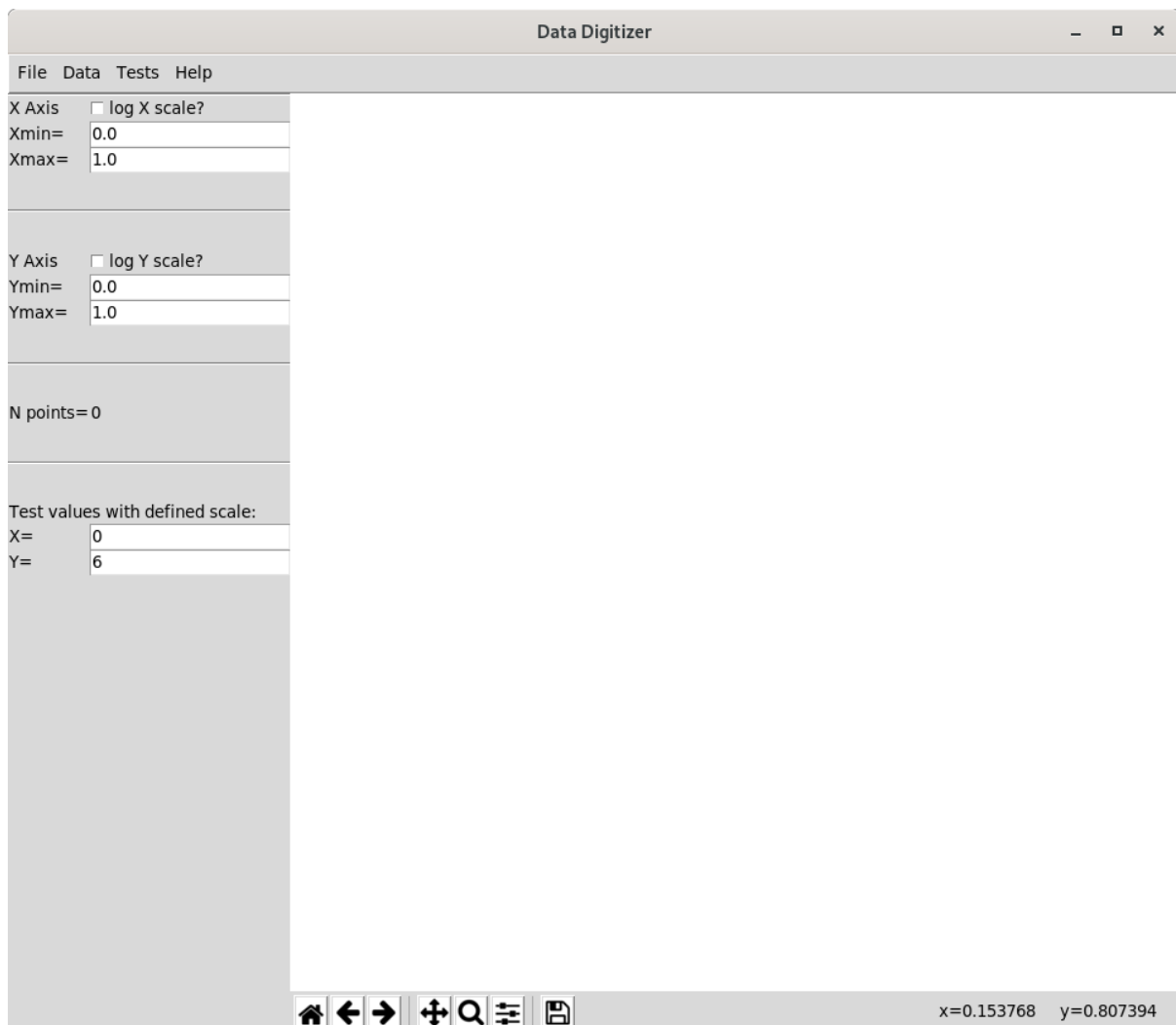


Fig. 1: Main Window

A quick overview of the different commands are shown in Help->How to use.

2.2 Open the image

Open an image from which you want to extract data by pressing <Ctrl-o>. Browse to the image and click OK.

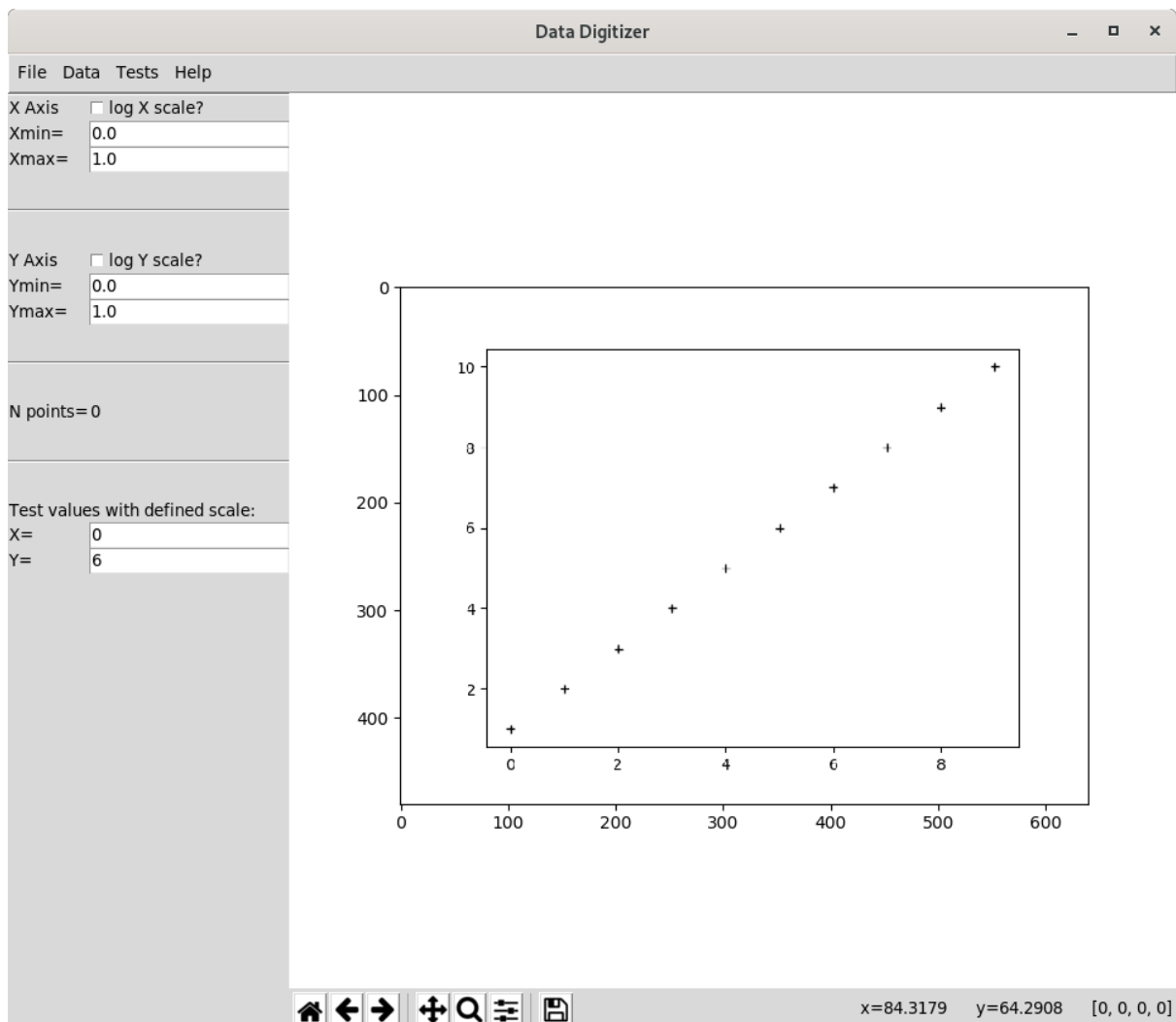


Fig. 2: Open graphic from which to extract data

2.3 Position XY Limits

Position 4 crosses for the axis limits in the order Xmin, Xmax, Ymin, Ymax by pointing them with the mouse and adding them by clicking <Ctrl-a>. You can hold down <a>, point with the mouse and left click for adding a red cross.

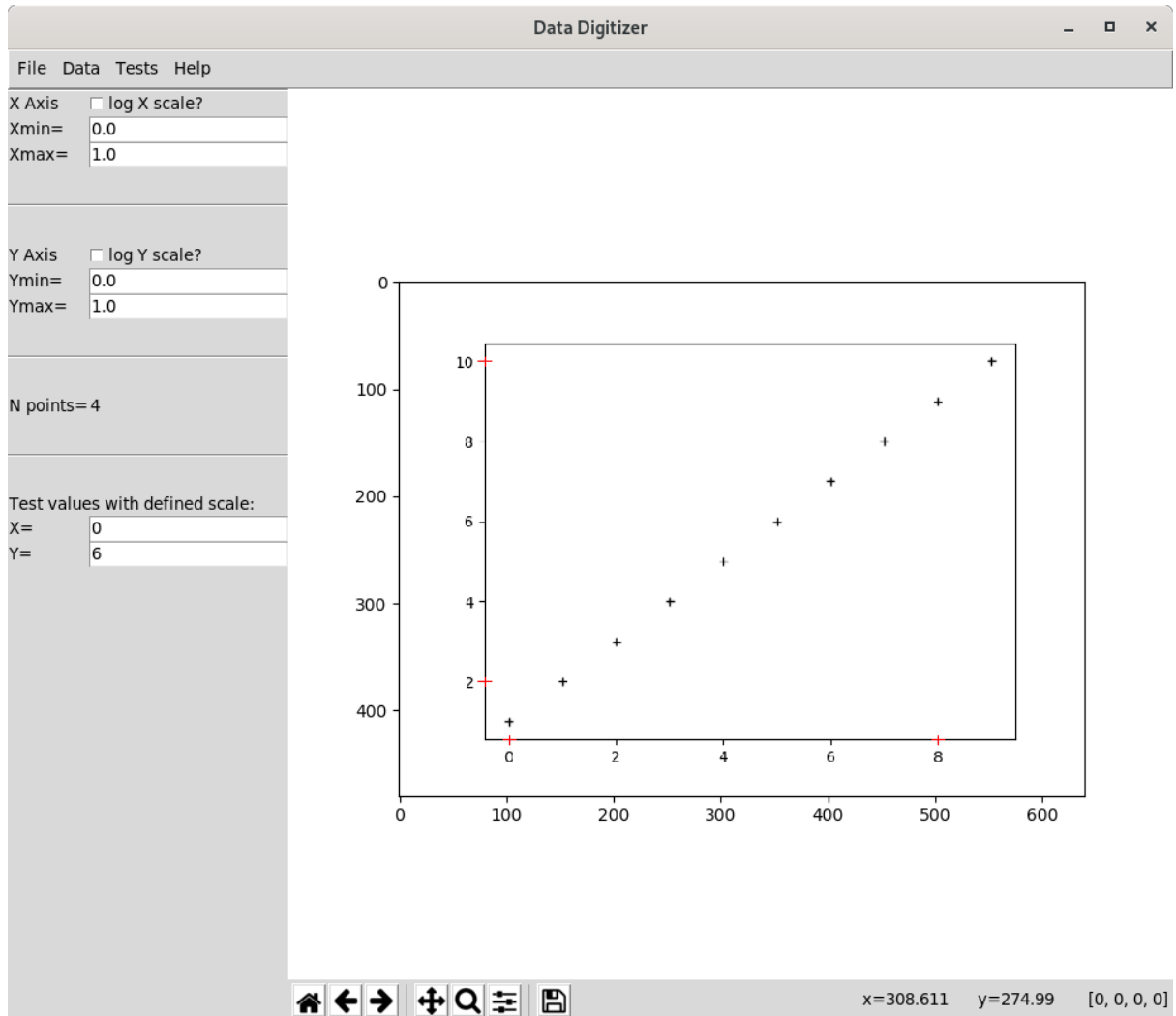


Fig. 3: Open graphic from which to extract data

2.4 Set XY Limits

Press in the order <Ctrl-k>, <Ctrl-j>, <Ctrl-h>, <Ctrl-g>. It will set the Ymax, Ymin, Xmax and Xmin from the last (selected) data point, respectively. * When <Ctrl-k> is pressed The last of the 4 red crosses will become the Ymax value and will colored in blue. * When <Ctrl-j> is pressed The last of the 3 red crosses will become the Ymin value and will colored in blue. * When <Ctrl-h> is pressed The last of the 2 red crosses will become the Xmax value and will colored in green. * When <Ctrl-g> is pressed The last red cross will become the Xmin value and will colored in green.

You can set the XY limits in the different order if needed and you can also set all the limits at once from the last 4 data points (red crosses) by pressing <Ctrl-l>.

It is also possible to select a limit with a left click and adjust it by pressing left, right, up and down.

The limits can be reverted to data by pressing <Ctrl-n>.

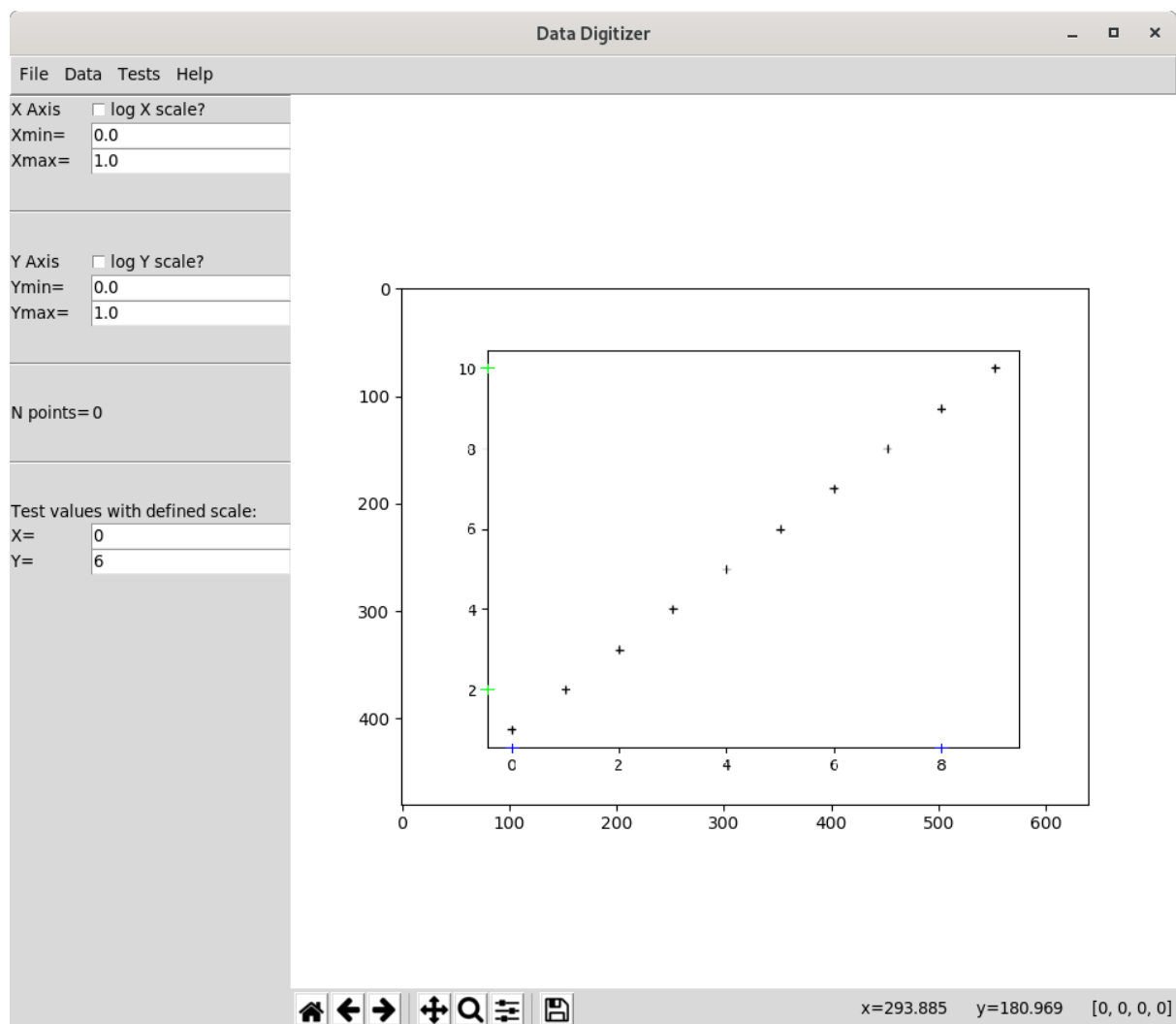


Fig. 4: Set XY limits

2.5 Enter XY Limits

Enter the corresponding value for Xmax, Xmin, Ymin and Ymax and press <Enter>. Switch to log scales if needed.

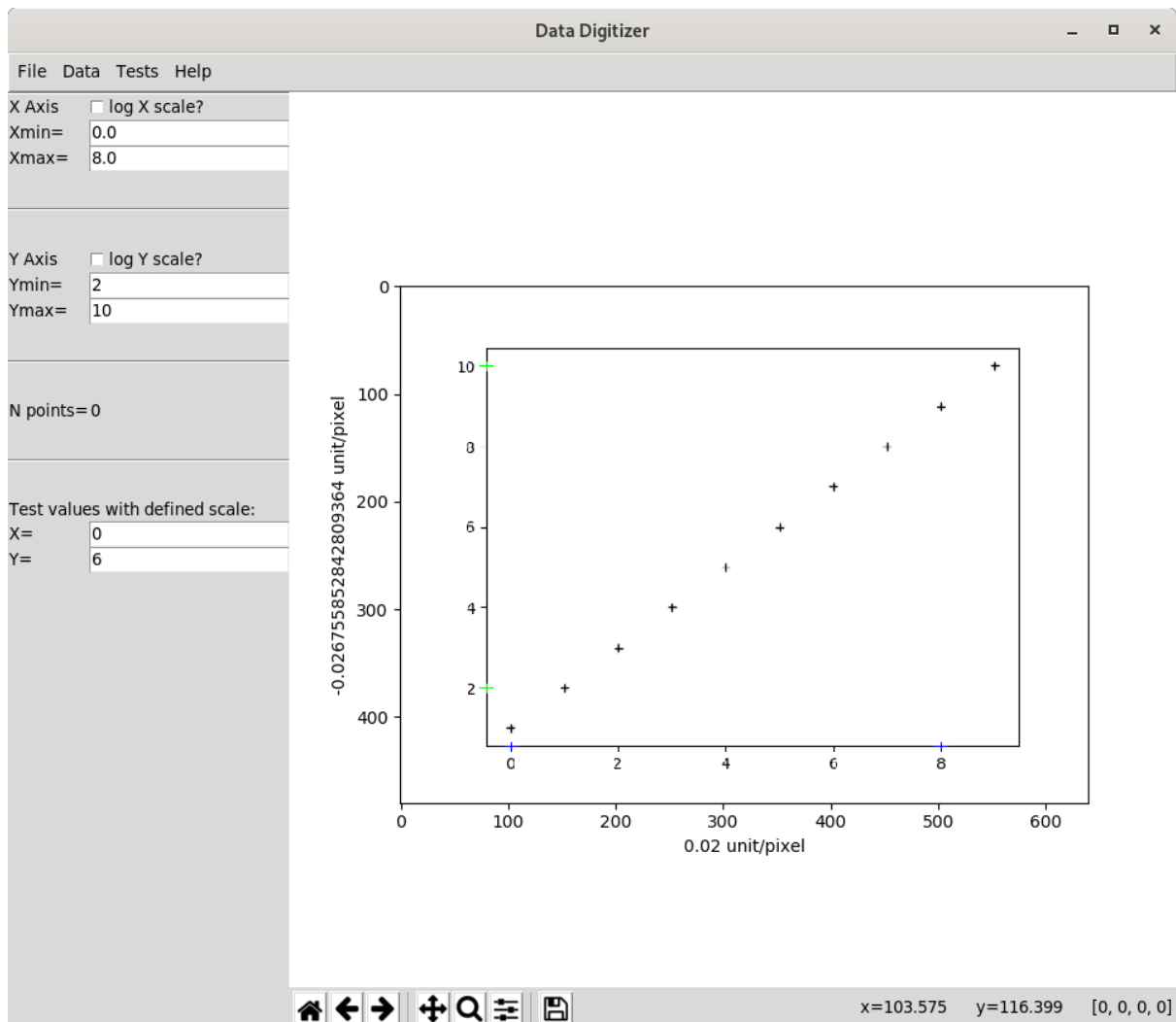


Fig. 5: Set XY values

2.6 Add Data Points

Add data points by pointing them with the mouse and adding them by clicking <Ctrl-a>. You can hold down <a>, point with the mouse and left click for adding a red cross. Once a data point is added you can adjust its position by pressing left, right, up and down arrows. Press <Ctrl-m> to compute the data with the defined XY scales. Press <Ctrl-s> to save data.

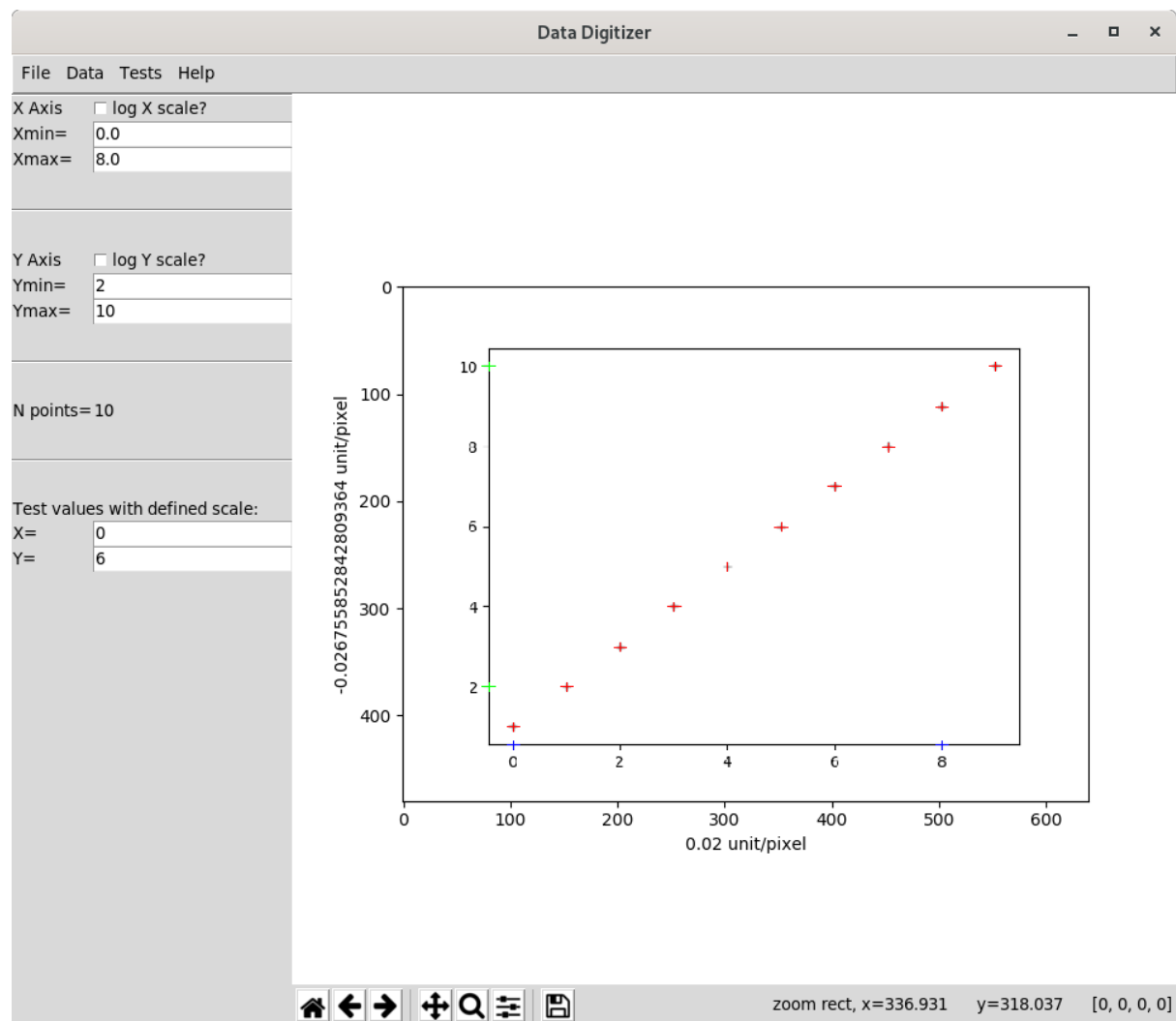


Fig. 6: Set data values

2.7 Test Scale Values

It is also possible to test the X/Y scales by entering values, e.g. $X=0$ and $Y=6$, to check if the scales are properly set.

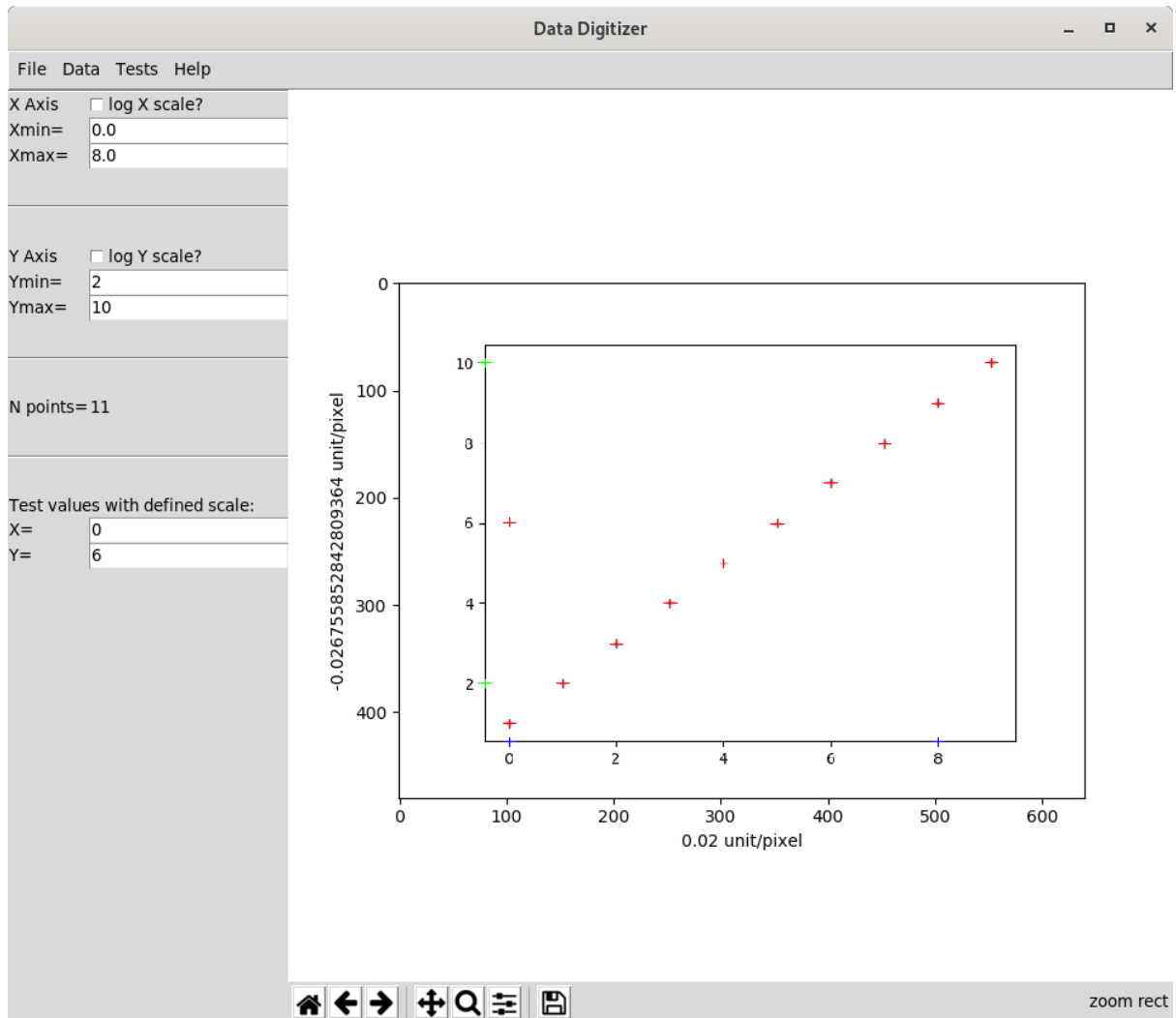


Fig. 7: Test scale

RELEASE NOTES

3.1 Data Digitizer 1.0.0 Release Note

3.1.1 Highlights

Initial release with basic functional features:

- Import image
- Set scale
- Compute and save data

3.1.2 Contributors

Milan Skocic

3.1.3 Commits

#63fa293-MilanSkocic-Implementing FigureFrame in main app.

#e183c7e-MilanSkocic-Preparing FigureFrame for implementing in main app.

#a4273d6-Milan Skocic-Refractoring in menu names. Changed sizes of How To Use window and About window.

#a4092c6-Milan Skocic-Changed column weights of left and right sides in main window. Cleanup.

#b817c9b-Milan Skocic-Removed help in the main window and moved it to a transient window in the Help Menu called Quick Help.

#bb738a6-Milan Skocic-Updated include of icon.png.

#41e92e2-Milan Skocic-Removed literalinclude from root files INSTALL.txt LICENSE.txt requirements.txt and use the copies in the include folder.

#97693e8-Milan Skocic-Copied INSTALL.txt LICENSE.txt requirements.txt in doc folder for making the doc folder independent.

#f28aa6b-Milan Skocic-Added Documentation and Sources link in the help menu.

#92e483b-Milan Skocic-Changed import of version through the package directly.

#12e83d3-Milan Skocic-Added import of dunder names in datadigitizer from version.py.

#03067fa-Milan Skocic-Added explicitly python_requires in setup.py.

#2f6b48d-Milan Skocic-Deleted not used variable for transient window.

#a8a24fc-Milan Skocic-Fixed wrong labeling of figures in tutorial.rst

#a75f2f7-Milan Skocic-Fixed module name in documentation after refractoring (datadigitizer instead of digitizer)

[#7b08127](#)-Milan Skocic-Updated tutorial

[#0b8f18c](#)-Milan Skocic-Fixed name issues after refractoring

[#8db27ed](#)-Milan Skocic-Refractored module name and updated documentation structure

[#6b25247](#)-Milan Skocic-Initial commit

AUTOGENERATED DOCUMENTATION

4.1 Graphical FrontEnd

Main GUI.

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class datadigitizer.gui.AboutWindow (master)

About window.

master: tkinter widget Container.

class datadigitizer.gui.App (master=None)

The cursor is used to point a specific position in the graph whereas all operations are done through keyboard combinations or through the main menu.

Legend:

- Red crosses are data points
- Blue crosses are Xmin and Xmax
- Green crosses are Ymin and Ymax

Commands:

- <Ctrl-o> for loading image.
- <Ctrl-a> add data point.
- <Hold a+Left Click> add data point.
- <Left Click> select a data point.
- <Hold Ctrl+Left Click> multiple data point selection.
- <Ctrl-g> set Xmin from last data point or from selected data point.
- <Ctrl-h> set Xmax from last data point or from selected data point.
- <Ctrl-j> set Ymin from last data point or from selected data point.
- <Ctrl-k> set Ymax from last data point or from selected data point

- <Ctrl-l> set all limits from last 4 data points or from last 4 selected data points.
- <Ctrl-n> remove all limits.
- <Ctrl-z> remove last data point.
- <Ctrl-d> remove selected data point.
- <Ctrl-D> remove all data points.
- <Ctrl-m> compute the data points.
- <Ctrl-s> save data points.
- <Ctrl-w> clear all.

master: tkinter.Tk instance Root instantiation of tkinter.

run()
Start the application.

class datadigitizer.gui.**FigureFrame** (*master, **kwargs*)
Construct a Tk Frame with parent master.

STANDARD OPTIONS

class, cursor, style, takefocus

WIDGET-SPECIFIC OPTIONS

borderwidth, relief, padding, width, height

class datadigitizer.gui.**HowToUse** (*master*)
How to use window.

master: tkinter widget Container.

class datadigitizer.gui.**ScrolledFrame** (*master, **kwargs*)
Scrolled Frame widget which may contain other widgets and can have a 3D border.

master: tkinter widget Master container.

kwargs: dict, optional Keyword arguments for the scrolled frame.

property canvas
Return the canvas that contains the scrollbars.

property frame
Return the frame that contains the widgets.

class datadigitizer.gui.**Transform** (*values_min: float, values_max: float, pix_min: Union[int, float], pix_max: Union[int, float], which: str = 'linear'*)

Transform class converting values coordinates into pixel coordinates.

values_min: int, float Minimum value.

values_max: int, float Maximum value.

pix_min: int, float Minimum pixel.

pix_max: int, float Maximum pixel.

which: str, optional Which kind of transform i.e. linear or log.

backward (*x: Union[int, float, numpy.ndarray]*)
Transform pixels to values.

x: int or floats or array-like, shape(n,) Pixels to be transformed.

values: int or floats or array-like, shape(n,) Values corresponding to the pixels.

property backward_scale

Return the scale for transforming pixels into values.

forward (*x*: *Union[int, float, numpy.ndarray]*)

Transform values to pixels.

x: int or floats or array-like, shape(n,) Values to be transformed.

pixels: int or floats or array-like, shape(n,) Values corresponding to the pixels.

property forward_scale

Return the scale for transforming values into pixels.

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