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# **Data Digitizer Documentation**

***Release X.Y.Z***

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# CONTENTS

<b>1</b>	<b>Introduction</b>	<b>1</b>
<b>2</b>	<b>Tutorial</b>	<b>13</b>
<b>3</b>	<b>Release Notes</b>	<b>19</b>
<b>4</b>	<b>Autogenerated Documentation</b>	<b>21</b>
<b>5</b>	<b>Indices and tables</b>	<b>23</b>
	<b>Python Module Index</b>	<b>25</b>
	<b>Index</b>	<b>27</b>



## INTRODUCTION

### 1.1 Description

DataDigitizer is a simple graphical tool for digitizing data from images (png, jpeg, tif).

In terminal enter the following command:

```
python -m datadigitizer
```

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

### 1.2 How to install

```
python setup.py install
```

### 1.3 Dependencies

```
numpy>=1.16.3  
matplotlib>=2.2.0
```

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```
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This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.
```

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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*

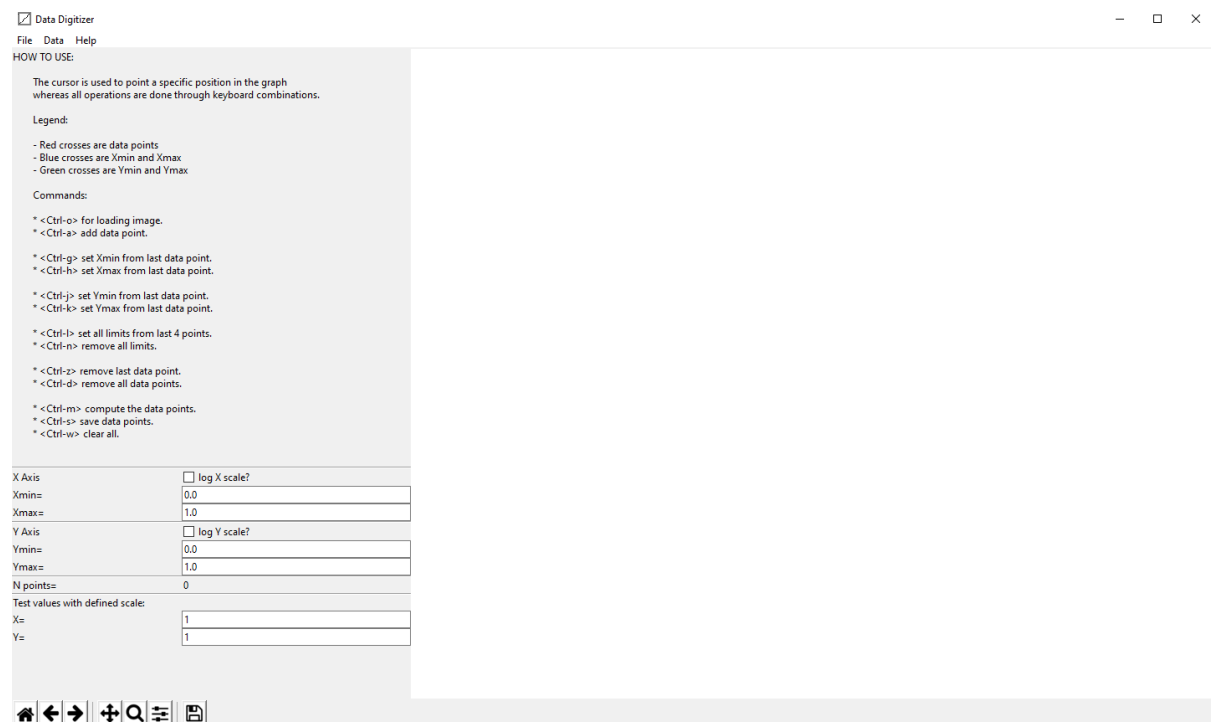


Fig. 1: Main Window

## 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.

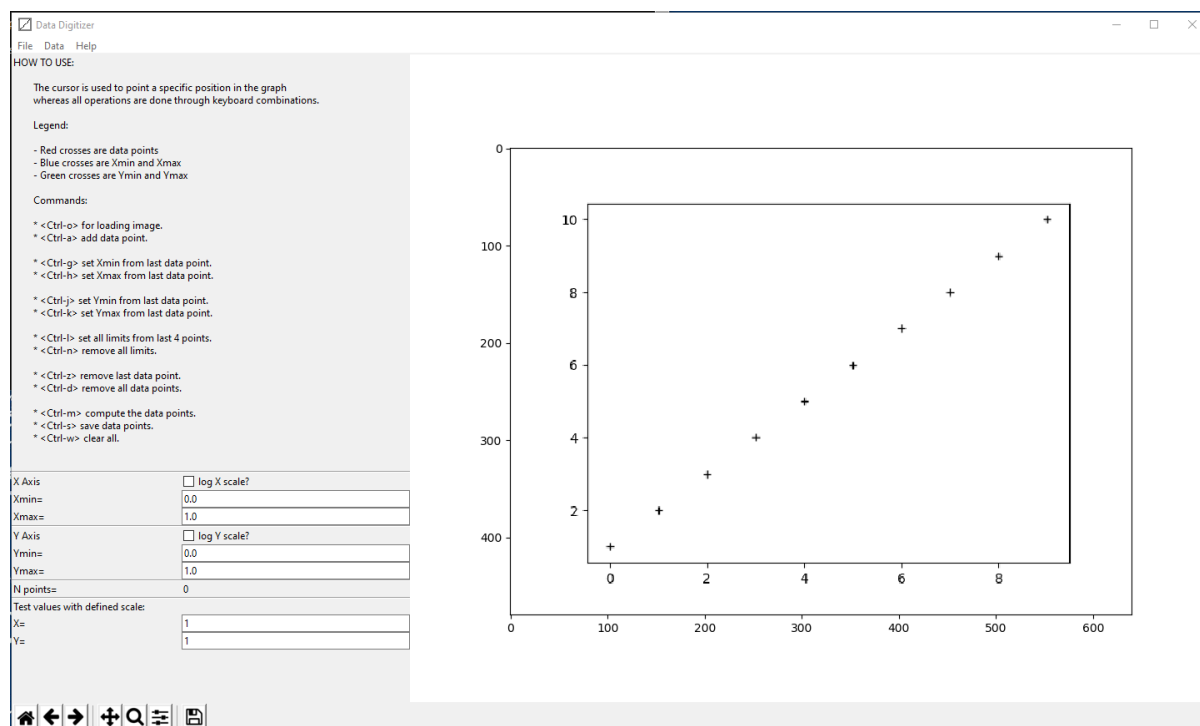


Fig. 2: Open graphic from which to extract data

## 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>.

## 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 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-k> 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.

You can also set all the limits at once from the last 4 data points (red crosses) by pressing <Ctrl-l>.

The limits can be deleted by pressing <Ctrl-n>.

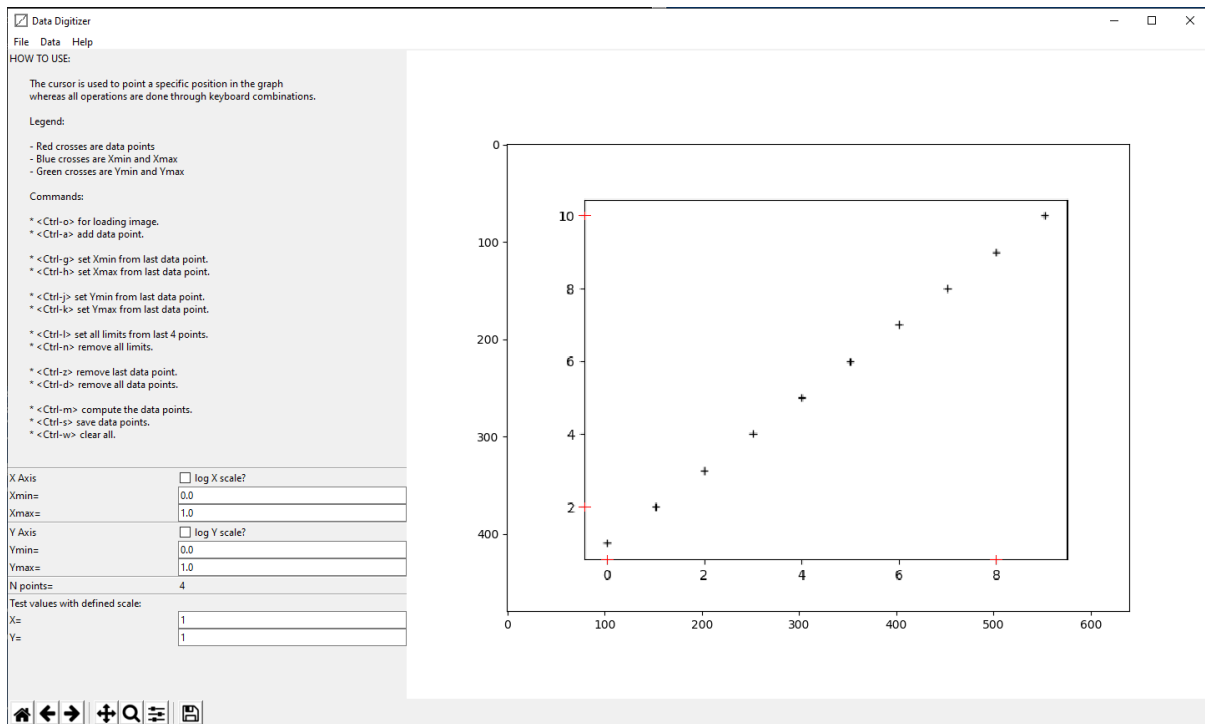


Fig. 3: Open graphic from which to extract data

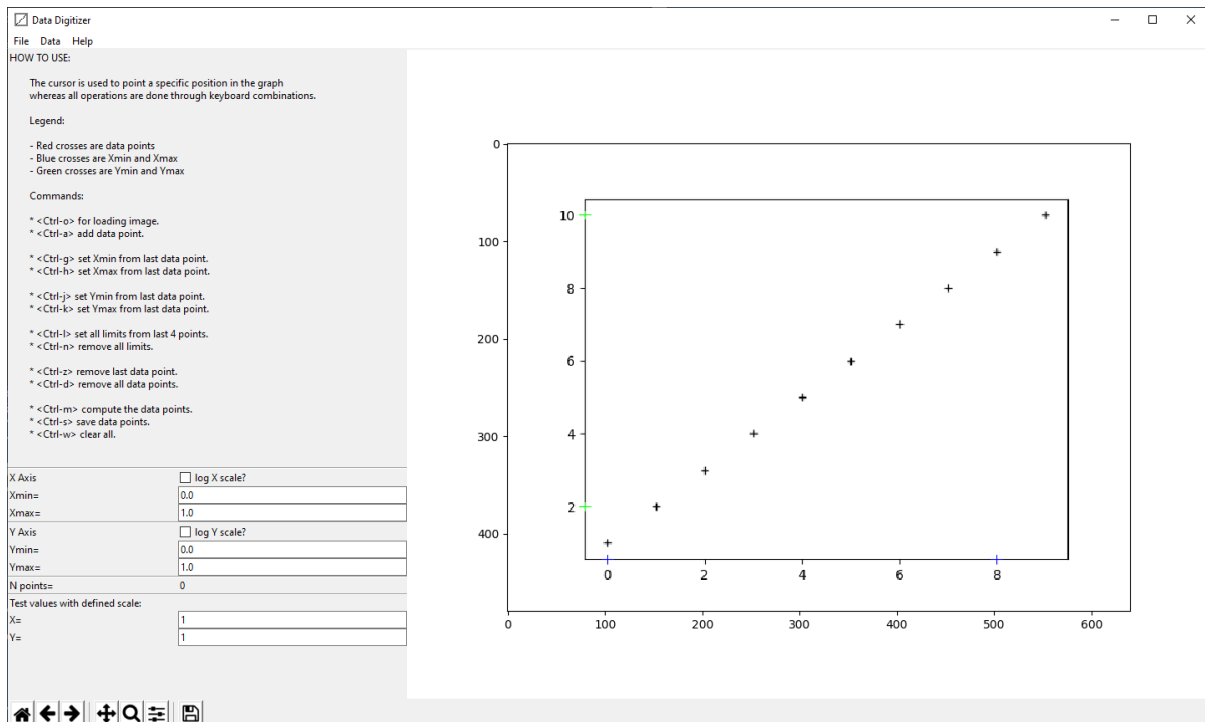


Fig. 4: Set XY limits

## 2.5 Enter XY Limits

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

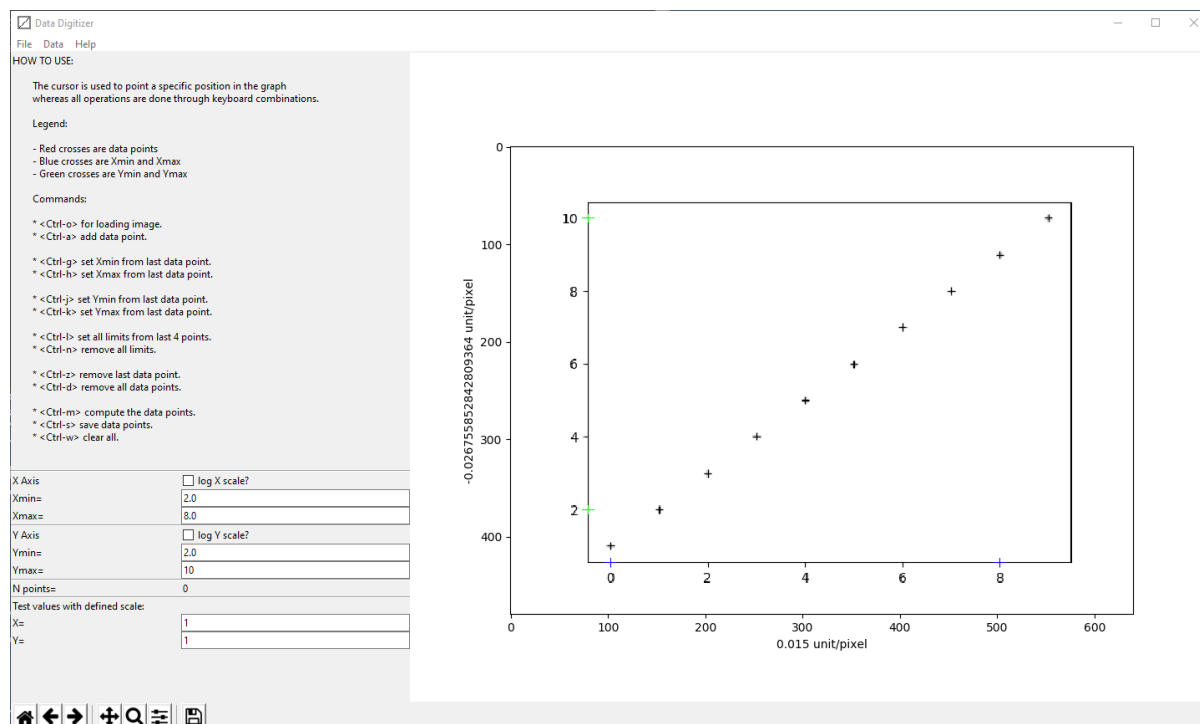


Fig. 5: Set XY values

## 2.6 Add Data Points

Add data points by pointing them with the mouse and adding them by clicking <Ctrl-a>. 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.

## 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.

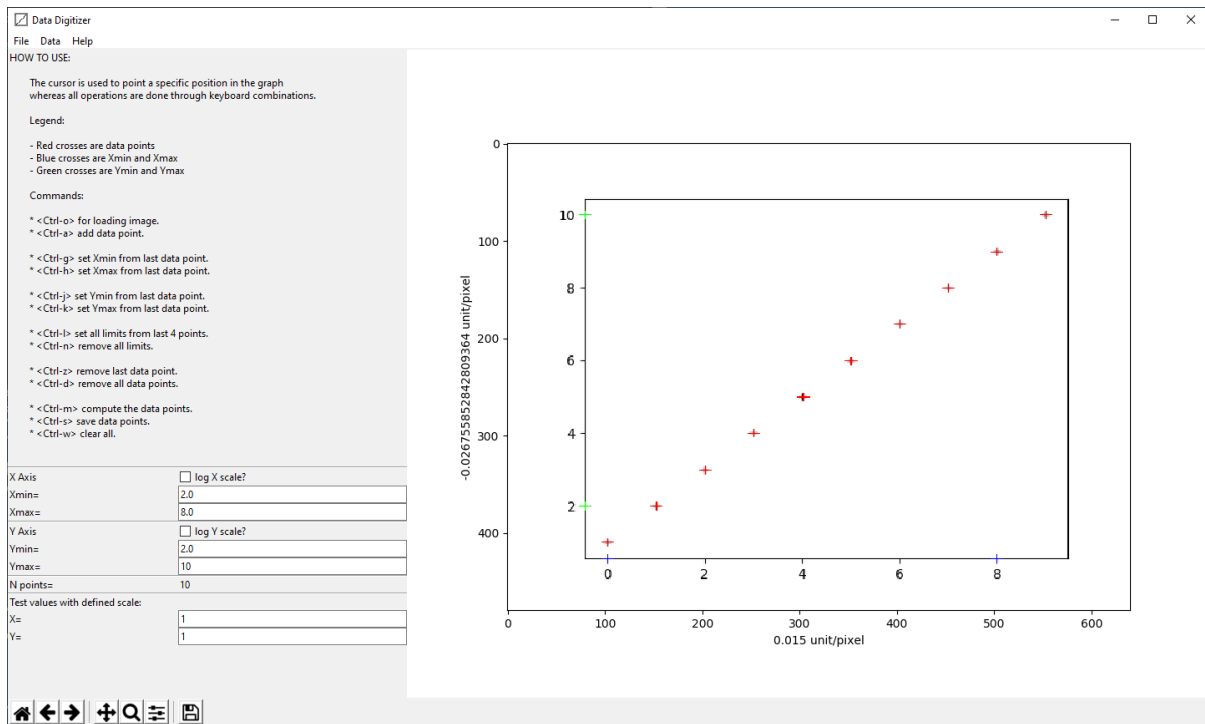


Fig. 6: Set data values

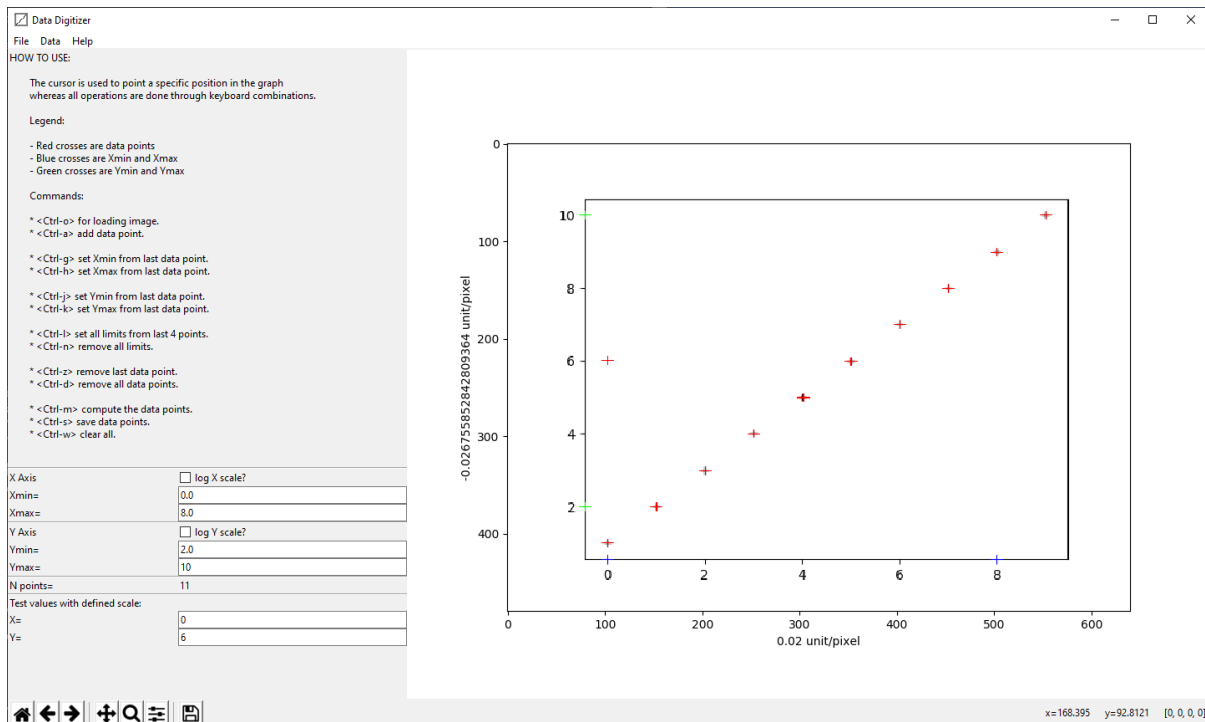


Fig. 7: Test scale



## 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 Changes

#### 3.1.3 Contributors

Milan Skocic

#### 3.1.4 Commits

[#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.

[#6304ab4](#)-Milan Skocic-Refractoring.

[#72bd7d1](#)-Milan Skocic-Refractoring.

[#55d8b2d](#)-Milan Skocic-Added TODO for fixing the label width in the About window.

[#f28aa6b](#)-Milan Skocic-Added Documentation and Sources link in the help menu.

[#d2bb0e1](#)-Milan Skocic-Changed conf.py to be configured manually and automatic imports.

[#92e483b](#)-Milan Skocic-Changed import of version through the package directly.

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

[#61fb089](#)-Milan Skocic-Refractoring.

[#40bcee0](#)-Milan Skocic-Refractoring.

[#33ff831](#)-Milan Skocic-Refractoring.

[#d47d31b](#)-Milan Skocic-Refractoring.

[#5fa143d](#)-Milan Skocic-Refractoring.

[#03067fa](#)-Milan Skocic-Added explicitly python\_requires in setup.py.

#28ee015-Milan Skocic-Refractoring REQUIREMENTS.txt to requirements.txt. Deleted python requirements.  
#2f6b48d-Milan Skocic-Deleted not used variable for transient window.  
#e88f49c-Milan Skocic-Updated commits for 1.0.0-changelog.rst.  
#c0d507c-Milan Skocic-Updated format for git log.  
#6ff6243-Milan Skocic-Updated commit list in changelog.rst.  
#a8a24fc-Milan Skocic-Fixed wrong labeling of figures in tutorial.rst  
#9319e10-Milan Skocic-Added format for git log  
#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

**class** `datadigitizer.gui.AboutWindow` (*master*)  
About window.

**master:** `tkinter.widget` Container.

**class** `datadigitizer.gui.App` (*master=None*)  
HOW TO USE:

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

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.
- <Ctrl-g> set Xmin from last data point.
- <Ctrl-h> set Xmax from last data point.
- <Ctrl-j> set Ymin from last data point.
- <Ctrl-k> set Ymax from last data point.
- <Ctrl-l> set all limits from last 4 points.
- <Ctrl-n> remove all limits.
- <Ctrl-z> remove last 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 Ttk Frame with parent master.

STANDARD OPTIONS

class, cursor, style, takefocus

WIDGET-SPECIFIC OPTIONS

borderwidth, relief, padding, width, height

**class** `datadigitizer.gui.HowToUse` (*master*)

Quick Help 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.

## INDICES AND TABLES

- `genindex`
- `modindex`
- `search`



## PYTHON MODULE INDEX

### d

`datadigitizer.gui`, [21](#)



## INDEX

### A

AboutWindow (*class in datadigitizer.gui*), 21

App (*class in datadigitizer.gui*), 21

### B

backward() (*datadigitizer.gui.Transform method*),  
22

backward\_scale() (*datadigitizer.gui.Transform  
property*), 22

### C

canvas() (*datadigitizer.gui.ScrolledFrame prop-  
erty*), 22

### D

datadigitizer.gui  
module, 21

### F

FigureFrame (*class in datadigitizer.gui*), 21

forward() (*datadigitizer.gui.Transform method*), 22

forward\_scale() (*datadigitizer.gui.Transform  
property*), 22

frame() (*datadigitizer.gui.ScrolledFrame property*),  
22

### H

HowToUse (*class in datadigitizer.gui*), 22

### M

module  
datadigitizer.gui, 21

### R

run() (*datadigitizer.gui.App method*), 21

### S

ScrolledFrame (*class in datadigitizer.gui*), 22

### T

Transform (*class in datadigitizer.gui*), 22