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# **gnuplotpy Documentation**

***Release 0.2***

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# CHAPTER 1

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## Introduction

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The documentation for gnuplotpy. Gnuplotpy facilitates communicating to Gnuplot from Python, namely passing Python variables and data to Gnuplot scripts.





Two example scripts.

## 2.1 Example 1

### 2.1.1 Code

```
import numpy as np
import gnuplotpy as gp

amplitude = 3.
x = np.linspace(0., 2*3.14, 100)
y = amplitude*np.sin(x)

args = {
    'the_title': 'Example 1',
    'amp': amplitude,
    'x_max': x[-1],
    'filename': 'example1.png'
}
data = [x, y]
gp.gnuplot('example1.gpi', args, data)
```

```
set datafile separator ','
set term pngcairo size 20cm,20cm
set out filename

unset key
set grid
set border lw 1.5

set title the_title
```

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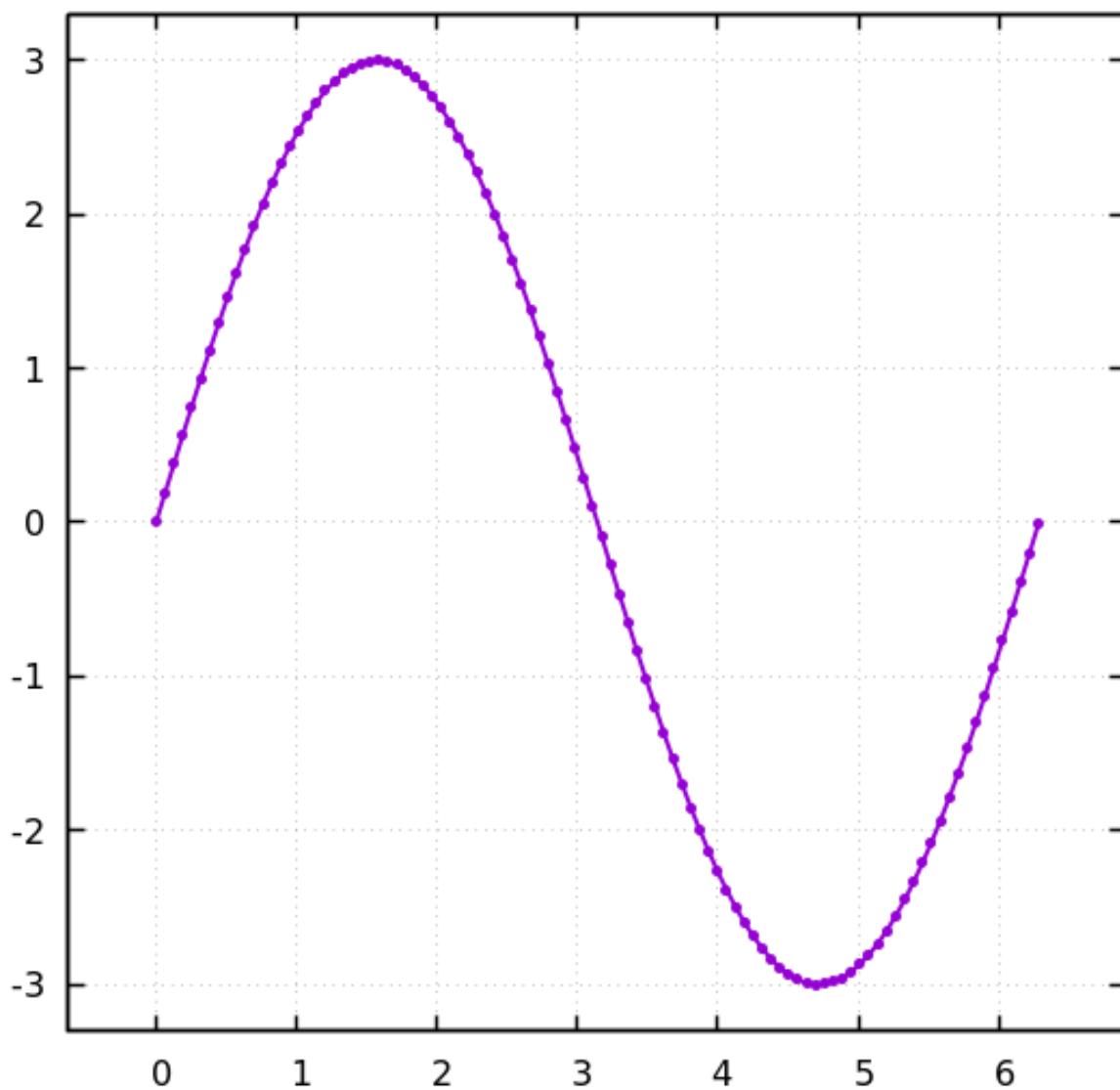
```
set xrange [x_max-1.1*x_max:x_max*1.1]
set yrange [-1.1*amp:1.1*amp]

plot data u 1:2 w lp pt 7 ps 0.5 lw 2

set out
```

## 2.1.2 Output

Example 1



## 2.2 Example 2

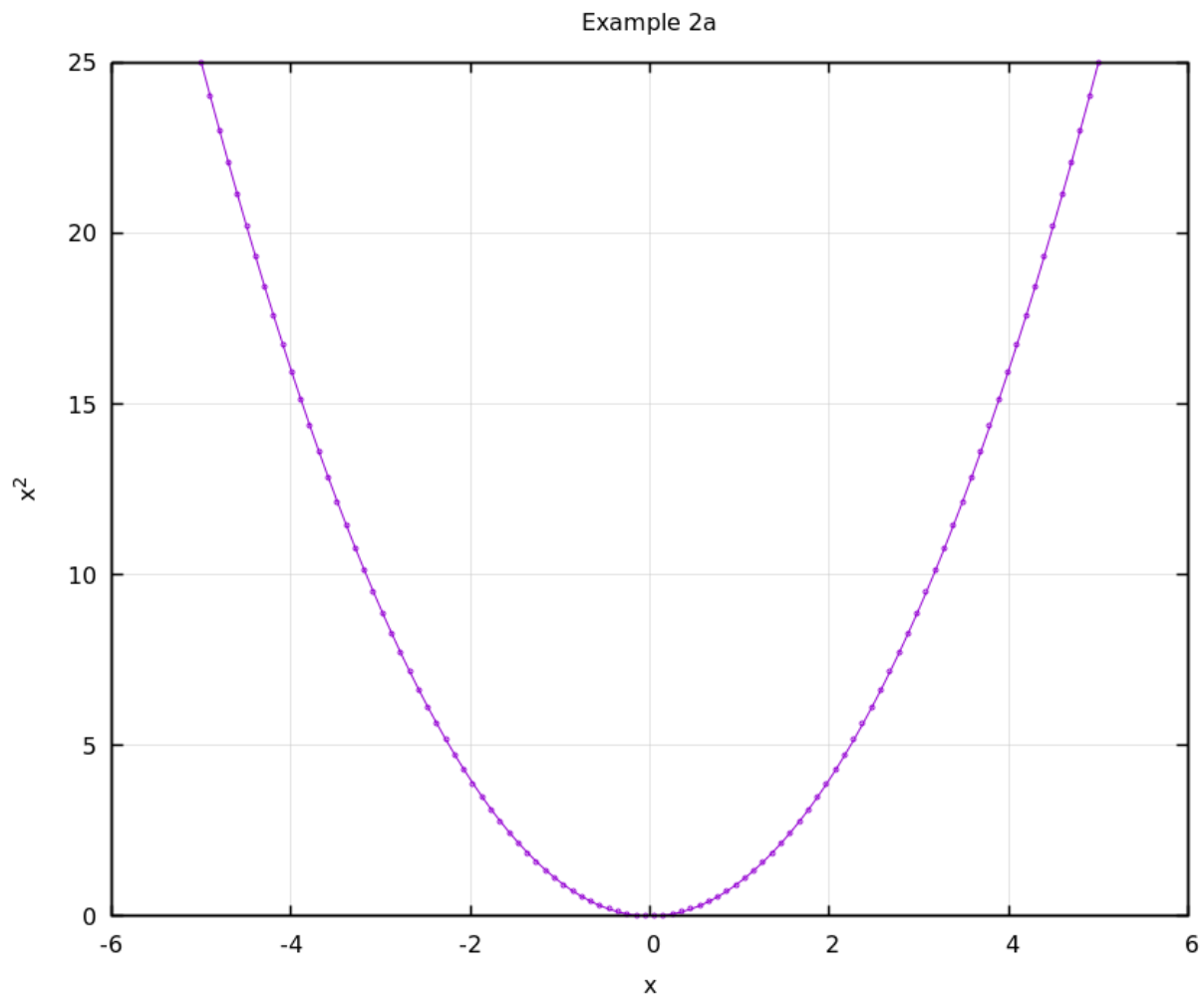
### 2.2.1 Code

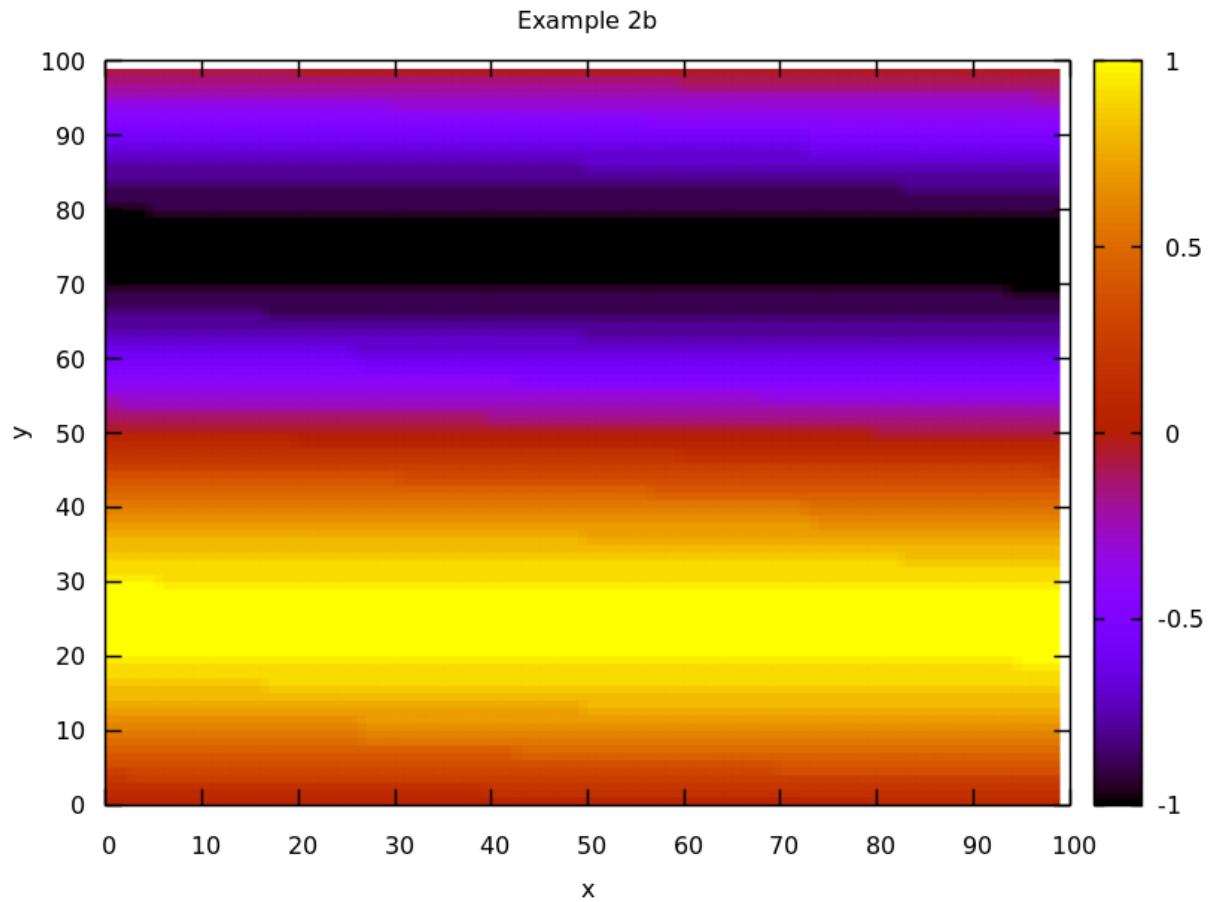
```
import numpy as np
import gnuplotpy as gp

x = np.linspace(-5, 5, 100)
y = x**2
gp.gnuplot_2d(x, y, 'example2a.png', 'Example 2a', 'x', 'x^2')

z = np.linspace(0., 2.*np.pi, 10000)
z = z.reshape(100, 100)
z = np.round(np.sin(z), 1)
gp.gnuplot_3d_matrix(z, 'example2b.png', 'Example 2b', 'x', 'y')
```

### 2.2.2 Output





## 3.1 Functions

<code>gnuplot(script_name[, args_dict, data, silent])</code>	Call a Gnuplot script, passing it arguments and datasets.
<code>gnuplot_2d(x, y, filename[, title, x_label, ...])</code>	Function to produce a general 2D plot.
<code>gnuplot_3d(x, y, z, filename[, title, ...])</code>	Function to produce a general 3D plot.
<code>gnuplot_3d_matrix(z_matrix, filename[, ...])</code>	Function to produce a general 3D plot from a 2D matrix.
<code>trim_pad_image(filename[, padding])</code>	Trims and pads an image.

### 3.1.1 gnuplot

**gnuplot** (*script\_name*, *args\_dict*={}, *data*=[], *silent*=True)  
Call a Gnuplot script, passing it arguments and datasets.

**Parameters**

- **script\_name** (*str*) – The name of the Gnuplot script.
- **args\_dict** (*dict*) – A dictionary of parameters to pass to the script. The *key* is the name of the variable that the *item* will be passed to the Gnuplot script with.
- **data** (*list*) – A list of lists containing lists to be plotted. The lists can be accessed by plotting the variable *data* in the Gnuplot script. The first list in the list of lists corresponds to the first column in data, and so on.
- **silent** (*bool*) – *True* if Gnuplot stdout should be silenced, *False* if not.

**Returns** The Gnuplot command used to call the script.

**Return type** *str*

### 3.1.2 gnuplot\_2d

**gnuplot\_2d**(*x*, *y*, *filename*, *title*="", *x\_label*="", *y\_label*="")

Function to produce a general 2D plot.

#### Parameters

- **x**(*list*) – x points.
- **y**(*list*) – y points.
- **filename**(*str*) – Filename of the output image.
- **title**(*str*) – Title of the plot. Default is "" (no title).
- **x\_label**(*str*) – x-axis label.
- **y\_label**(*str*) – y-axis label.

### 3.1.3 gnuplot\_3d

**gnuplot\_3d**(*x*, *y*, *z*, *filename*, *title*="", *x\_label*="", *y\_label*="", *z\_label*="")

Function to produce a general 3D plot.

#### Parameters

- **x**(*list*) – x points.
- **y**(*list*) – y points.
- **z**(*list*) – z points.
- **filename**(*str*) – Filename of the output image.
- **title**(*str*) – Title of the plot. Default is "" (no title).
- **x\_label**(*str*) – x-axis label.
- **y\_label**(*str*) – y-axis label.
- **z\_label**(*str*) – z-axis label.

### 3.1.4 gnuplot\_3d\_matrix

**gnuplot\_3d\_matrix**(*z\_matrix*, *filename*, *title*="", *x\_label*="", *y\_label*="")

Function to produce a general 3D plot from a 2D matrix.

#### Parameters

- **z\_matrix**(*list*) – 2D matrix.
- **filename**(*str*) – Filename of the output image.
- **title**(*str*) – Title of the plot. Default is "" (no title).
- **x\_label**(*str*) – x-axis label.
- **y\_label**(*str*) – y-axis label.

### 3.1.5 trim\_pad\_image

**trim\_pad\_image** (*filename*, *padding*=20)

Trims and pads an image.

**Parameters**

- **filename** (*str*) – The filename of the image to be acted on.
- **padding** (*int*) – The number of pixels in padding to add to the image after the image has been trimmed.





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