

# The `pst-2dplot` Package (version 1.0)

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## 1 Introduction

This document introduces the package `pst-2dplot`, which is an easy-to-use and intuitive tool for drawing 2-d plots in  $\text{\LaTeX}$  documents. It is based on the `xkeyval` and `pstricks-add` packages. Although `pstricks-add` also provides some tools for this purpose, I have not found them easy to use. The hope is that this package makes life easier. I have to mention that this package is still under development. There are many more features that I am planning to add. Nevertheless, I felt that the current version is still useful.

To use this package, simply add the following command in the preamble of your document.

```
\usepackage{pst-2dplot}
```

The package `pst-2dplot` defines the environment `pstaxes` for drawing 2-d curves. There are many *keys* associated with this environment to simplify its tuning. A complete list of keys is provided in Table 1. All horizontal and vertical keys are normalized to the `xunit` and the `yunit`, respectively. The keys are also visually demonstrated in Figure 1. In the example of this figure, `xgriddiv = ygriddiv = 4` since both the range and the domain of the curve are divided into 4 divisions.

The usage format of the `pstaxes` environment is as follows.

```
\begin{pstaxes}[\langle key \rangle = \langle value \rangle]  
:  
\end{pstaxes}
```

An optional list of comma-separated keys along with their values is provided inside brackets. `pstaxessetup` The keys can also be set using `\pstaxessetup` as follows.

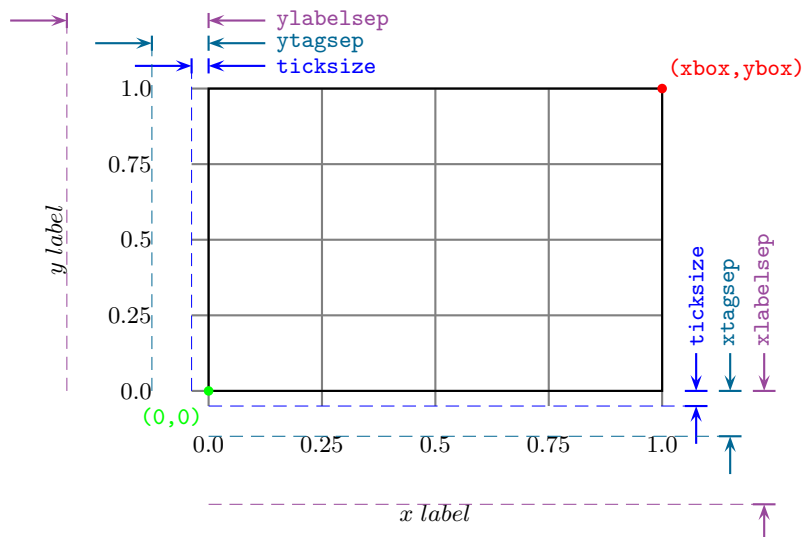
```
\pstaxessetup{\langle key \rangle = \langle value \rangle}
```

This command must appear anywhere in the document before the `pstaxes` environment.

**Table 1:** Keys of the `pstaxes` environment

Key	Default	Description
<code>xmin</code>	0	Minimum data value on the $x$ -axis
<code>xmax</code>	1	Maximum data value on the $x$ -axis
<code>ymin</code>	0	Minimum data value on the $y$ -axis
<code>ymax</code>	1	Maximum data value on the $y$ -axis
<code>xbox</code>	1	$x$ value of the top right corner of the drawing box
<code>ybox</code>	1	$y$ value of the top right corner of the drawing box
<code>gridwidth</code>	0.5pt	Width of the grid lines
<code>gridcolor</code>	gray	Color of the grid lines
<code>gridstyle</code>	solid	Drawing style of the grid lines. Other styles are <code>dash</code> , <code>dotted</code> , and <code>none</code> .
<code>xgriddiv</code>	1	Number of divisions made by the grid lines in the $x$ direction
<code>ygriddiv</code>	1	Number of divisions made by the grid lines in the $y$ direction
<code>xticksiz</code>	0.1	Size of the tick lines on the $x$ axis
<code>yticksiz</code>	0.1	Size of the tick lines on the $y$ axis
<code>xlabel</code>	$\langle empty \rangle$	Label of the $x$ axis
<code>ylabel</code>	$\langle empty \rangle$	Label of the $y$ axis
<code>xtagsep</code>	0.4	Separation of the $x$ tags from the $x$ axis
<code>ytagsep</code>	0.5	Separation of the $y$ tags from the $y$ axis
<code>xlabelsep</code>	0.8	Separation of the $x$ label from the $x$ axis
<code>ylabelsep</code>	1	Separation of the $y$ label from the $y$ axis

Both the `xunit` and `yunit` are normalized inside the `pstaxes` environment, i.e., the top rightmost corner of the drawing box is the point (1,1). This normalization has two advantages:



**Figure 1:** `pstaxes` keys

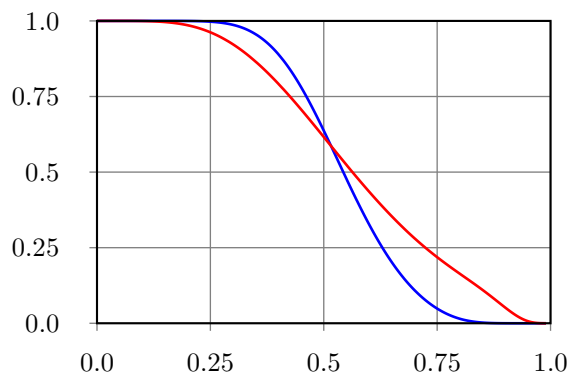
- It simplifies the usage of `\fileplot` without the need to explicitly specify the `xunit` and `yunit`.
- It significantly enhances resizing the final figure in both  $x$  and  $y$  directions without the need to make any further modifications inside the environment.

`pstxlabel`      The  $x$  and  $y$  labels can be set anywhere inside the `pstaxes` environment using the `\pstxlabel` and `\pstylabel` commands, respectively, as follows.

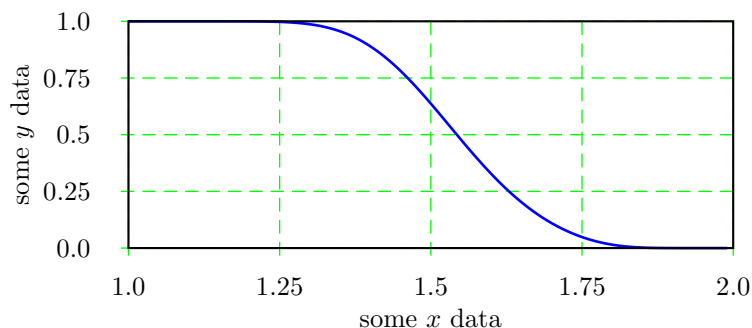
```
\pstxlabel{\langle xlabel \rangle}
\pstylabel{\langle ylabel \rangle}
```

## 2 Examples

```
\begin{pstaxes}[xbox=6,ybox=4,xgriddiv=4,ygriddiv=4]
  \fileplot[linecolor=blue,linewidth=1pt]{data1.data}
  \fileplot[linecolor=red,linewidth=1pt]{data2.data}
\end{pstaxes}
```



```
\pstaxessetup{xmin=1,xmax=2,xbox=8,ybox=3,xgriddiv=4,ygriddiv=4,
  ylabelsep=1.25,gridstyle=dashed,gridcolor=green}
\begin{pstaxes}
  \fileplot[linecolor=blue,linewidth=1pt]{data1.data}
  \pstxlabel{some  $x$  data}
  \pstylabel{some  $y$  data}
\end{pstaxes}
```



```

\begin{pstaxes}[xmax=5,ymin=-1,ymax=2,xbox=6,ybox=4,
               xgriddiv=5,ygriddiv=3,gridstyle=dotted,
               xtagsep=1,xticksiz=.5]
  \fileplot[linecolor=green,linewidth=1pt]{data2.data}
\end{pstaxes}

```

