

# The gnuplottex package\*

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## 1 Introduction

This package allows you to include gnuplot graphs in your L<sup>A</sup>T<sub>E</sub>X documents.

The gnuplot code is extracted from the document and written to `.gnuplot` files. Then, if shell escape is used, the graph files are automatically processed and converted to LaTeX files, which will then be included. If shell escape isn't used, the user will have to manually convert the files by running gnuplot on the extracted `.gnuplot` files.

Shell escape is available in the web2c T<sub>E</sub>X compiler, it allows the execution of shell code during the compilation of a T<sub>E</sub>X document. It's disabled by default, you'll have to edit your configuration files or give the `-shell-escape` option to `latex`.

## 2 Requirements

To use gnuplottex, you'll need the `graphicx`, `latexsym`, `keyval` and `moreverb` packages and, of course, gnuplot.

## 3 Usage

To load the package, simply `\usepackage{gnuplottex}` in your document preamble. Options that can be passed to the package are

[`\shell`] Use shell escape to automatically generate the graphs from the gnuplot source files. This is the default. Normally, you don't need to specify this option.

[`\noshell`] Don't use shell escape, graphs must be generated manually.

[`\miktex`] We're using mikTeX.

The following environments can be used to include graphs:

`gnuplot`      Within this environment, you can specify arbitrary gnuplot code, for example `plot sin(x)`.

The code necessary to write the plot to a file will be inserted by this package. It

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\*This document corresponds to gnuplottex v0.3, dated 2007/08/21.

adds 'set terminal latex' and the name of the output file. Therefore, you cannot specify a terminal or output file in the instructions on this environment because it'll break.

You may specify a scaling factor for the graphs by adding the parameter after the beginning of the environment, like so: `\begin{gnuplottex}[scale= $\langle scale \rangle$ ]`

## 4 Implementation

### 4.1 Initialization

```

1 \newif\ifShellEscape
2 \newif\ifmiktex \miktexfalse
3
4 \DeclareOption{shell}{\ShellEscapetrue}
5 \DeclareOption{noshell}{\ShellEscapefalse}
6 \DeclareOption{miktex}{\global\miktextrue}
7
8 \ExecuteOptions{shell}
9 \ProcessOptions\relax
10 %% test if shell escape really works
11 \ifShellEscape
12 \def\tmpfile{/tmp/w18-test-\the\year\the\month\the\day\the\time}
13 \ifmiktex
14 \def\tmpfile{w18-test-\the\year\the\month\the\day\the\time}
15 \immediate\write18{echo t > "\tmpfile"}
16 \else
17 \immediate\write18{touch \tmpfile}
18 \fi
19 \ifmiktex
20 \IfFileExists{\tmpfile.}{\ShellEscapetrue}{\ShellEscapefalse}
21 \immediate\write18{del "\tmpfile"}
22 \else
23 \IfFileExists{\tmpfile}{\ShellEscapetrue}{\ShellEscapefalse}
24 \immediate\write18{rm -f \tmpfile}
25 \fi
26 \fi
27
28 \ifShellEscape
29   \PackageInfo{gnuplottex}
30   {Automatically converting gnuplot files.}
31 \else
32   \PackageWarningNoLine{gnuplottex}
33   {Shell escape not enabled.\MessageBreak
34   You'll need to convert the graphs yourself.}
35 \fi
36 \newcounter{fignum}

```

### 4.2 .gnuplot write out

```

37 \def\figname{\jobname-gnuplottex-fig\thefignum}
38
39 \def\gnuplotverbatimwrite#1{%
40   \def\BeforeStream
41   {\message{Opening gnuplot stream #1}%

```

```

42         \immediate\write\verbatim@out{\string set terminal latex}
43 \immediate\write\verbatim@out{\string set output '\figname.tex'}
44     }
45     \@bsphack
46     \immediate\openout \verbatim@out #1
47     \BeforeStream%
48     \let\do\@makeother\dospecials
49     \catcode'\^M\active
50     \def\verbatim@processline{%
51         \immediate\write\verbatim@out
52         {\the\verbatim@line}}%
53     \verbatim@start}
54 \def\endgnuplotverbatimwrite{%
55     \immediate\closeout\verbatim@out
56     \@esphack
57 \catcode'\0
58 \catcode'\{1
59 \catcode'\}2
60 \catcode'\$3
61 \catcode'\&4
62 \catcode'\^M5
63 \catcode'\#6
64 \catcode'\^7
65 \catcode'\_8
66 \catcode'\ 10
67 \catcode'\%14}

```

### 4.3 Environment definition

```

68 \define@key{pic}{scale}{\def\gnuplotscale{#1}}
69 \newenvironment{gnuplot}[1][\stepcounter{fignum}%
70 \def\gnuplotscale{1}
71 \setkeys{pic}{#1}
72     \xdef\gnuplotCutFile{\figname.gnuplot}
73     \gnuplotverbatimwrite{\gnuplotCutFile}}
74     {\endgnuplotverbatimwrite%
75     \gnuplotgraphicsinclude}

```

### 4.4 .gnuplot file processing

```

76 \long\gdef\gnuplotgraphicsprocess{%
77 \ifShellEscape
78 \IfFileExists{\figname.gnuplot}{%
79 \immediate\write18{gnuplot \figname.gnuplot}
80 \IfFileExists{\figname.tex}{%
81 \PackageInfo{gnuplottex}
82 {\figname.gnuplot converted}}
83 {\PackageWarningNoLine{gnuplottex}
84 {Conversion of \figname.gnuplot failed.}}}{%
85 \fi}

```

### 4.5 Graph inclusion

```

86 \long\gdef\gnuplotgraphicsinclude{\gnuplotgraphicsprocess%
87 \IfFileExists{\figname.tex}{%
88 \scalebox{\gnuplotscale}{\input{\figname}}}

```

```
89 {\PackageWarningNoLine{gnuplottex}  
90 {Please convert \figname.gnuplot manually}}  
91 }
```