

# Embed Python inside L<sup>A</sup>T<sub>E</sub>X

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## 1 Install

You can embed Python code inside L<sup>A</sup>T<sub>E</sub>X file by just installing `python.sty` file. The process is straightforward. The example below was tested on Gentoo Linux distribution, other distros may change TeX directory.

```
# mkdir /usr/share/texmf-dist/tex/latex/python
# cd /usr/share/texmf-dist/tex/latex/python
# curl www.imada.sdu.dk/~ehmsen/python.sty > python.sty
# texhash
```

## 2 Use

Just define the package.

```
\usepackage{python}
```

And create a normal block statement.

```
\begin{python}
# python code
print "Hello World"
for i in range(10):
    print i
\end{python}
```

Pay attention on indentation. I used *four spaces* instead *tab*.

## 3 Compile

You need pass `-shell-escape` parameter to enable the `\write18{command}` construct used on `python.sty`. The command can be any shell command. This construct is normally disallowed for security reasons<sup>1</sup>.

```
$ pdflatex -shell-escape file.tex
```

Output on *pdf* file:

Hello World 0 1 2 3 4 5 6 7 8 9

<sup>1</sup>Note that running Python code you are able to do anything within user's permissions.

## 4 Example

Suppose that you had a code to generate some graphic. I used *pylab* and *scipy* to generate it. Saved on disk as *image.png* and standard L<sup>A</sup>T<sub>E</sub>X `graphicx` package to insert figure on text.

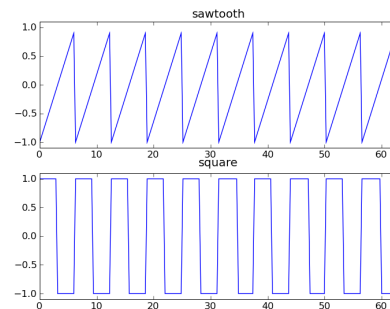
```
\begin{python}
from pylab import *
from scipy import signal

cycles = 10
t = arange(0,2*pi*cycles, pi/10)
waveforms = [ 'sawtooth' , 'square' ]

for i, waveform in enumerate(waveforms):
    subplot(2,2,i+1)
    exec 'y = signal.' + waveform + '(t)'
    plot(t,y)
    title(waveform)
    axis([0, 2*pi*cycles, -1.1, 1.1])
savefig('image.png')
\end{python}

\begin{center}
\includegraphics[scale=0.3]{image}
\end{center}
```

Output on *pdf* file:



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