

Including images with pdf \TeX

\TeX itself does not support graphics directly, but programs that process the dvi files that \TeX outputs usually do support graphics of various kinds. And \TeX can be told to pass on instructions for the dvi processor. In particular, dvips supports graphics in postscript form. So, if you have a picture in the form of an encapsulated postscript file

```
foo.ps
```

then you can get it into your output ps file as follows.

(a) If you are a user of Plain \TeX :

```
\input epsf          (somewhere near the start of your file)
:
\epsfbox{foo.ps}     (where you want the picture)
:
```

(b) If you are a user of \LaTeX :

```
\usepackage{graphicx} (after your \documentclass command)
:
\includegraphics{foo} (where you want the picture)
:
```

Now pdf is a simpler language than postscript, and pdf viewers (like Acrobat Reader) probably do not understand postscript. So your picture has to be converted to another form—either pdf, png, jpeg or tiff—before pdf \TeX can include it into a valid pdf file. You can do the conversion by the command

```
epstopdf foo.ps
```

This will produce a file called foo.pdf. Now \LaTeX users can proceed as before (except that, of course, you run pdflatex instead of latex). Your tex file does not have to be changed at all since things have been configured so that pdf \LaTeX knows that `\includegraphics{foo}` means “look for foo.pdf or foo.png or foo.jpeg or foo.tiff”[†], whereas \LaTeX knows to look for foo.ps or foo.eps. Plain \TeX users have to change their file by removing “`\input epsf`” and replacing “`\epsfbox{foo.ps}`” by “`\pdfximage{foo.pdf}`” followed by “`\pdfrefximage\pdflastximage`”.

PStricks

Since neither pdftex nor dvi $\text{p}dfm$ have postscript interpreters built in to them, pstricks users have to remove their pstricks code from their main document, and make a separate file for each picture. Tex these in the usual way (e.g. tex foo) and then run dvips with the E option to make an encapsulated postscript file:

```
dvips -E foo
```

The encapsulated postscript file is just the same as the postscript file would be, except that it starts with the line “%!PS-Adobe-2.0 EPSF-2.0” and a few lines further down it has a BoundingBox comment. This comment specifies four numbers, the first two of which are the coordinates, measured in points, of the lower left corner of the picture, and the last two are the coordinates of the upper right corner. Here the origin is the lower left corner of the page. If you find that bits of your picture are chopped off, you can directly edit the encapsulated postscript file and change these coordinates.

[†] It also recognizes variants on the suffixes, like jpg or tif.