Subject: IDL graphics & LaTeX
Posted by Markus Schmassmann on Thu, 21 Sep 2017 11:10:49 GMT
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Hi,

I'm putting graphics created with the IDL graphics functions into a
LaTeX document.

Does someone here know a way to make sure that the text elements of the
graphic (axis labels,axis tickmarks,titles,legends...) are typeset by
LaTeX such that they have the same fonts & sizes as the rest of the
LaTeX document?

I'm looking for something similar to GNUplot's epslatex terminal.

A brute force approach would be:

idl -e "(plot(/test)).save,'example.eps'&exit"
grep '^(.*)$' -A 1 example.eps

; remove those lines from the eps file and parse them to get what I want
in LaTeX

But I hope someone of you has a better way than to grep & sed an eps file.

Markus

Subject: Re: IDL graphics & LaTeX
Posted by Craig Markwardt on Fri, 22 Sep 2017 14:06:16 GMT
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On Thursday, September 21, 2017 at 7:10:52 AM UTC-4, Markus Schmassmann wrote:
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> But I hope someone of you has a better way than to grep & sed an eps file.
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> Markus

There used to be a package called psfrag which allowed one to do this. I haven't used it in something like two decades, but it sounds like what you want.

Subject: Re: IDL graphics & LaTeX
Posted by Markus Schmassmann on Mon, 25 Sep 2017 14:27:16 GMT
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On 09/22/2017 04:06 PM, Craig Markwardt wrote:
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> this. I haven't used it in something like two decades, but it sounds like
> what you want.
Hi Craig,

Thanks, this helped, although I have not yet figured out how to
automatically remove all the escapes of the labels in the eps file and
how to get the alignment of the new labels correctly.

But given that IDL doesn't get the label alignment right in eps I doubt there is an automatic way to correct that in post processing.

For anyone who wants to try to fix this, or to use it despite it's shortcomings, below is the procedure PSFRAG_PREP, which takes <filename>.eps, outputs <filename>_tagNum.eps in which all labels have been replaced by label# as well as <filename>.tex which contains the \psfrac commands to replace the labels.

Markus

```
pro psfrag_prep, filename,example=example,verbose=verbose
; +
; PSFRAG_PREP:
; INPUT:      FILENAME: <filename>.eps file to be processed
; OUTPUT: none in idl
; CREATES FILES:  <filename>_tagNum.eps, labels replaced by 'label#'
;                 <filename>.tex,        \psfrag commands
;                                        may have to be edited manually
; KEYWORDS:      EXAMPLE: creates an example file
;                VERBOSE: prints the edited lines
; WARNING:   eps file escapes area not delt with, must be edited out
;         e.g.  \psfrag{label1}{title $\sin\(2\pi x/25\)\exp\(-x/100\)$}
;         -->   \psfrag{label1}{title $\sin (2\pi x/25 )\exp (-x/100 )$}
;           allignment may be problematic
;
; ~~~~~ MWE for LaTeX ~~~~~
; \documentclass{article}
; \usepackage{graphicx,psfrag}
; \begin{document}
; blablabla
; \begin{figure}
;    \centering
;    \include{example}
;    \includegraphics[width=\linewidth]{example_tagNum}
;    \caption{blublabla}
;     \label{fig:ex}
; \end{figure}
; \end{document}
; ~~~~~ to be compiled by LaTeX,dvi2ps,ps2pdf ~~~~~
; -

if ~isa(filename,/string) then begin
    filename='example'
```

```
    example=!true
endif
if keyword_set(example) then (plot(/test,xtitle='x', $
    title='title \$\sin(2\pi x/25)\exp(-x/100)\$')).save,filename+'.eps'

cmd= !version.os_family eq 'unix' ? 'wc -l '+filename+'.eps' : $
     'findstr /r /n "^" '+filename+'.eps | find /c ":"'
spawn, cmd, out &
nLines=long(stregex(out[0],'[0-9]*',/extract))

lines=strarr(nLines)
openr, lun, filename+'.eps', /get_lun
readf, lun, lines
free_lun, lun

w=where(stregex(lines, '^\(.*\)$', /boolean),cnt)
tagLines=lines[w]
lines[w]='(label'+string(indgen(cnt)+1,format='(i0)')+')'

openw, lun, filename+'_tagNum.eps',/get_lun
printf, lun, lines, format='(a)'
free_lun,lun

noPadDollar=stregex(tagLines,'\([a-zA-Z\ ]*\)',/boolean) or $
    strpos(tagLines,'$') ne -1
tex=strarr(cnt)
for i=0,cnt-1 do begin
    tag=strmid(tagLines[i],1,strlen(tagLines[i])-2)
    tex[i]='\psfrag{label'+string(i+1,format='(i0)')+'}{' + $
        ( noPadDollar[i] ? '' : '$' ) + tag + $
        ( noPadDollar[i] ? '' : '$' ) + '}'
endfor

openw, lun, filename+'.tex'
printf, lun, tex, format='(a)'
free_lun, lun

if keyword_set(verbose) then for i=0,cnt-1 do print, $
    tagLines[i], lines[w[i]], tex[i],'',format='(a)'

if keyword_set(example) then print, 'PSFRAG_PREP, WARNING:', $
'eps file escapes area not delt with, must be edited out manually', $
'    e.g.  \psfrag{label1}{title $\sin\(2\pi x/25\)\exp\(-x/100\)$}', $
'    -->   \psfrag{label1}{title $\sin (2\pi x/25 )\exp (-x/100 )$}'
end
```