

The phflplx package — include PDF graphics with hyperlinks

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phflplx—A handy \LaTeX package for including graphics defined via \LaTeX source code files. Designed for use with the `ltxpdflinks` tool in order to include PDF graphics in documents with external or internal hyperlinks.

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■ 1 Introduction

WRITE DOC!

Usage:

```
\usepackage{phflplx}
\DeclareGraphicsExtensions{.lplx,.pdf}
```

■ 2 Implementation

Load some useful packages.

```
1 \RequirePackage{etoolbox}
```

Check that the user is loading the `hyperref` package! (We don't load it automatically to avoid issues of package loading order, link appearance, etc.)

```
2 \AtBeginDocument{%
3   \ifpackageloaded{hyperref}{}%
4     \PackageWarning{phflplx}{The package 'hyperref' was not loaded. You
5       probably forgot to load it.}%
6   }%
7 }
```

Declaring the graphics rule for the LPLX extension. Note that the LPLX file has the line `%%BoundingBox 0 0 <W> <H>` so that the size of the graphics can be parsed by the default graphics graphic size inspector, which is designed to parse `%%BoundingBox` commands in EPS files.

```
8 \DeclareGraphicsRule{.lplx}{lplx}{*}{}{}
```

Declare the driver functions for the graphics package internals.

```
9 \def\Ginclude@lplx#1{%
10   \message{<#1>}%
11   \input{#1}%
12 }
```

This command gets called from within the LPLX files to actually include the underlying graphics.

```
13 \def\lplxIncludeGraphics{%
14   \edef\x{\noexpand\hbox to Opt{%
15     \noexpand\Ginclude@graphics{\Gin@base\lplxiGraphicExt}}}%
16   \x
17 }
```

Declare some simple helpers that are used in our automatically generated LPLX files.

```
18 \newdimen\lplxiBboxWcrdim
19 \newdimen\lplxiBboxHcrdim
20 \def\lplxSetBbox#1#2#3#4{%
21   \def\lplxiBboxX{#1}%
22   \def\lplxiBboxY{#2}%
23   \def\lplxiBboxW{#3}%
24   \def\lplxiBboxH{#4}%
25   \ifnum\lplxiBboxX>0\relax\lplx@bboxzerowarn\fi
26   \ifnum\lplxiBboxX<0\relax\lplx@bboxzerowarn\fi
27   \ifnum\lplxiBboxY>0\relax\lplx@bboxzerowarn\fi
28   \ifnum\lplxiBboxY<0\relax\lplx@bboxzerowarn\fi
29 }
30 \def\lplx@bboxzerowarn{%
31   \PackageWarning{phflplx}{LPLX bounding box is not pinned at (0,0), not supported}%
32 }
```

Utility to set up the appropriate command arguments to use for `\scalebox`, etc.

```
33 \def\lplx@noscale{1,!}
34 \def\lplx@exclam{!}
35 \def\lplxSetupScaleAndBbox{%
```

First, we locally define a macro `\lplxaDoScale{...}` that will generate the correct `\scalebox` call with the given contents, according to the requested size.

```
36   \def\lplx@tmp{\Gin@scalex,\Gin@scaley}%
```

```

37 \ifx\lplx@tmp\lplx@noscale%
38 \def\lplxaDoScale{}%
39 \else
40 \ifx\Gin@scaley\lplx@exclam
41 \edef\lplxaDoScale{\noexpand\scalebox{\Gin@scalex}}%
42 \else
43 \ifx\Gin@scalex\lplx@exclam
44 \edef\lplxaDoScale{\noexpand\scalebox{\Gin@scaley}}%
45 \else
46 \edef\lplxaDoScale{\noexpand\scalebox{\Gin@scalex}[\Gin@scaley]}%
47 \fi
48 \fi
49 \fi

```

Second, we need to take care of setting the bounding box correctly. Define `\lplxvCropX` and `\lplxvCropY` which are the (X, Y) position of the lower left corner the part of the image we want to pick out, in user space units. Define `\lplxvCropW` and `\lplxvCropH` as the requested width & height of the subimage we want to use.

```

50 \edef\lplxvCropX{\Gin@llx}%
51 \edef\lplxvCropY{\Gin@lly}%
52 \edef\lplxvCropW{\strip@pt\dimexpr\Gin@urx pt-\Gin@llx pt\relax}%
53 \edef\lplxvCropH{\strip@pt\dimexpr\Gin@ury pt-\Gin@lly pt\relax}%
54 }

```

Finally, a utility that will help us place links in the picture environment. Usage is `\lplxPutLink{<x>}{<y>}{<w>}{<h>}{<hyperstartcmd>}{<hyperendtokens>}`. Here `{<hyperstartcmd>}` and `{<hyperendtokens>}` are any tokens that will be inserted immediately before and immediately after an invisible rule of the given width and height. The rule will be in curly braces, so it can be considered as a mandatory argument to the last macro token in `{<hyperstartcmd>}`.

```

55 \def\lplxPutLink{%
56 \ifGin@clip
57 \expandafter\lplx@clipputlink
58 \else
59 \expandafter\lplx@doputlink
60 \fi
61 }%
62 \def\lplx@doputlink#1#2#3#4#5#6{% x,y,w,h,hyperstart,hyperend
63 \put(#1,#2){#5{\phantom{\rule{#3bp}{#4bp}}}}#6}%
64 }%
65 \newdimen\lplx@tmpx
66 \newdimen\lplx@tmpy
67 \newdimen\lplx@tmpw
68 \newdimen\lplx@tmph
69 \def\lplx@clipputlink#1#2#3#4#5#6{% x,y,w,h,hyperstart,hyperend

```

Some notes: 1) We use “pt” as dummy unit of measure here just to do the floating point arithmetic and we use `\strip@pt` at the end. 2) Here `\lplx@maybeskip`

serves as a flag that if set, asserts the link was entirely cropped out of the picture. Initially it expands to an empty string but when set it expands to \p@<\z@ \relax (=“1pt < 0pt”), so it can be placed in front of all \ifdim’s so that they are skipped if the link was determined to be out of the picture.

```

70 \def\lplx@maybeskip{}%
71 \def\lplx@setskip{\def\lplx@maybeskip{\p@<\z@ \relax}}%
72 \lplx@tmpx=#1pt \relax
73 \lplx@tmpy=#2pt \relax
74 \lplx@tmpw=#3pt \relax
75 \lplx@tmph=#4pt \relax
76 \ifdim\lplx@maybeskip\lplx@tmpx<\lplxvCropX\p@ \relax
77   \ifdim\dimexpr\lplx@tmpx+\lplx@tmpw>\lplxvCropX\p@ \relax
78     \lplx@tmpw=\dimexpr\lplx@tmpx+\lplx@tmpw-\lplxvCropX\p@ \relax
79     \lplx@tmpx=\lplxvCropX\p@ \relax
80   \else
81     \lplx@setskip
82   \fi
83 \fi
84 \ifdim\lplx@maybeskip\dimexpr\lplx@tmpx+\lplx@tmpw>\dimexpr\lplxvCropX\p@+\lplxvCropW\p@ \relax
85   \ifdim\lplx@tmpx<\dimexpr\lplxvCropX\p@+\lplxvCropW\p@ \relax
86     \lplx@tmpw=\dimexpr\lplxvCropX\p@+\lplxvCropW\p@-\lplx@tmpx \relax
87   \else
88     \lplx@setskip
89   \fi
90 \fi
91 \ifdim\lplx@maybeskip\lplx@tmpy<\lplxvCropY\p@ \relax
92   \ifdim\dimexpr\lplx@tmpy+\lplx@tmph>\lplxvCropY\p@ \relax
93     \lplx@tmph=\dimexpr\lplx@tmpy+\lplx@tmph-\lplxvCropY\p@ \relax
94     \lplx@tmpy=\lplxvCropY\p@ \relax
95   \else
96     \lplx@setskip
97   \fi
98 \fi
99 \ifdim\lplx@maybeskip\dimexpr\lplx@tmpy+\lplx@tmph>\dimexpr\lplxvCropY\p@+\lplxvCropH\p@ \relax
100   \ifdim\lplx@tmpy<\dimexpr\lplxvCropY\p@+\lplxvCropH\p@ \relax
101     \lplx@tmph=\dimexpr\lplxvCropY\p@+\lplxvCropH\p@-\lplx@tmpy \relax
102   \else
103     \lplx@setskip
104   \fi
105 \fi
106 \ifdim\lplx@maybeskip\p@>\z@ \relax
107   \edef\x{\noexpand\lplx@doputlink%
108     {\strip@pt\lplx@tmpx}{\strip@pt\lplx@tmpy}{\strip@pt\lplx@tmpw}{\strip@pt\lplx@tmph}}%
109   \message{*****\detokenize\expandafter{\x}*****}%
110   \x{#5}{#6}%
111 \fi
112 }%
113

```

Change History

v0.1

General: Initial version 1

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Numbers written in *italic* refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; numbers in **roman** refer to the code lines where the entry is used.

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