Relative Viewport for Graphics Inclusion*

Boris Veytsman†

2011/08/27, v1.0

Abstract

The package adds a new keyword \texttt{rviewport} to the \texttt{graphicx} package specifying Relative Viewport for graphics inclusion: a window defined by the given fractions of the natural width and height of the image.

Contents

1 User Interface 2

2 Examples 2

3 Implementation 5

\hspace{1cm} 3.1 Declarations .............................................. 5

\hspace{1cm} 3.2 The New Key .............................................. 5

\hspace{1cm} 3.3 The Last Words ............................................ 6

\footnotesize*\textcopyright Boris Veytsman, 2011. E-mail: borisv@lk.net

\footnotesize†This work was partially supported by the Food and Agriculture Organization of the United Nations
1 User Interface

Package graphicx provides a useful keyword viewport which allows to show just a part of an image. However, one needs to put there the actual coordinates of the viewport window. Sometimes it is useful to have relative coordinates as fractions of natural size. For example, one may want to print a large image on a spread, putting a half on a verso page, and another half on the next recto page. For this one would need a viewport occupying exactly one half of the file’s bounding box, whatever the actual width of the image may be.

Here we define the new option rviewport for Relative Viewport. It works like this. Suppose the image has the bounding box $x_{ll}, y_{ll}, x_{ur}, y_{ur}$. We give four numbers $\xi_{ll}, \eta_{ll}, \xi_{ur}, \eta_{ur}$, and the viewport coordinates become

- $x'_{ll} = x_{ll} + \xi_{ll} \Delta x$
- $y'_{ll} = y_{ll} + \eta_{ll} \Delta y$
- $x'_{ur} = x_{ll} + \xi_{ur} \Delta x$
- $y'_{ur} = y_{ll} + \eta_{ur} \Delta y$

where

- $\Delta x = x_{ur} - x_{ll}$
- $\Delta y = y_{ur} - y_{ll}$

This means that the left half of the image can be defined as $\text{rviewport} = 0 \ 0 \ 0.5 \ 1$, and the right half can be defined as $\text{rviewport} = 0.5 \ 0 \ 1 \ 1$.

The package may be loaded before or after graphicx package.

2 Examples

\includegraphics[rviewport=0 0 1 1,clip]{vitruvian}
3 Implementation

3.1 Declarations

We start with declaration, who we are:

\NeedsTeXFormat{LaTeX2e}
\ProvidesPackage{rviewport} [2011/08/27 v1.0 Relative viewport for graphics inclusion]

The package graphicx loads keyval, but in case we are loaded before graphicx we require it here:

\RequirePackage{keyval}

3.2 The New Key

We add a new key for the graphicx package:

\define@key{Gin}{rviewport}
\let\Gin@viewport@code\Gin@rviewport\Gread@parse@rvp #1 \%
\Gread@parse@rvp

We parse four numbers into the corresponding macros:

\def\Gread@parse@rvp#1 #2 #3 #4 \#
  \def\Gin@vllx{#1}
  \def\Gin@vlly{#2}
  \def\Gin@vurx{#3}
  \def\Gin@vury{#4}
\Gin@rviewport

And the viewport code. Note that pdftex.def relies on the values of \Gin@v... macros, so we redefine them as well.

\Gin@rviewport
\let\Gin@ollx\Gin@llx
\let\Gin@olly\Gin@lly
\let\Gin@ourx\Gin@urx
\let\Gin@oury\Gin@ury
\Gin@nat@width\Gin@urx\p@
\advance\Gin@nat@width-\Gin@llx\p@
\Gin@nat@height\Gin@ury\p@
\advance\Gin@nat@height-\Gin@lly\p@
\dimen0\Gin@vurx\Gin@nat@width
  \edef\Gin@vurx{\strip@pt\dimen0}\%
\advance\dimen0\Gin@llx\p@
\edef\Gin@vux{\strip@pt\dimen0}\%
\dimen0\Gin@vury\Gin@nat@height
  \edef\Gin@vury{\strip@pt\dimen0}\%
\advance\dimen0\Gin@urly\p@
\edef\Gin@vuy{\strip@pt\dimen0}\%
\dimen0\Gin@vllx\Gin@nat@width
  \edef\Gin@vllx{\strip@pt\dimen0}\%
\advance\dimen0\Gin@llx\p@
\edef\Gin@vxl{\strip@pt\dimen0}
\edef\Gin@llx{\strip@pt\dimen}\%
\dimen\Gin@vllly\Gin@nat@height
\edef\Gin@vllly{\strip@pt\dimen}\%
\advance\dimen\Gin@lly\p\%
\edef\Gin@lly{\strip@pt\dimen}\%

3.3 The Last Words

(</style)
## Index

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.

| Symbols | G | \textbackslash \  
|---------|---|-----------------------|
| A       | 7, 8 | \begin{align*}
\textbackslash \texttt{Gin@ollx} & 14, 19, 24, 32, 33 \\
\textbackslash \texttt{Gin@olly} & 15, 21, 28, 36, 37 \\
\textbackslash \texttt{def@key} & 6 \\
\texttt{advance} & 19, 21, 24, 28, 32, 36 \\
\texttt{d@imen} & 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37 \\
\texttt{Gin@ollx} & 14 \\
\texttt{Gin@olly} & 15 \\
\texttt{Gin@ourx} & 16 \\
\texttt{Gin@ury} & 17 \\
\texttt{Gin@viewport} & 7, 13 \\
\texttt{Gin@vllx} & 9, 30, 31 \\
\texttt{Gin@vury} & 10, 34, 35 \\
\texttt{let} & 7, 14, 15, 16, 17 \\
\texttt{d@im@ene} & 7, 14, 15, 16, 17 \\
\texttt{p@} & 18, 19, 20, 21, 24, 28, 32, 36 \\
\texttt{Gin@urx} & 18, 19, 22, 30 \\
\texttt{Gin@ury} & 17 \\
\texttt{Gin@viewport@code} & 7 \\
\texttt{strip@pt} & 23, 25, 27, 29, 31, 33, 35, 37 \\
| L | \begin{align*}
\textbackslash \texttt{Gread@parse@rvp} & . 7, 8 \\
\texttt{Gin@nat@height} & . . . . \\
\texttt{Gin@nat@width} & . . . . \\
\texttt{Gin@ollx} & 14, 19, 24, 32, 33 \\
\texttt{Gin@olly} & 15, 21, 28, 36, 37 \\
\texttt{Gin@ollx} & 14 \\
\texttt{Gin@olly} & 15 \\
\texttt{Gin@ollx} & 14, 19, 24, 32, 33 \\
\texttt{Gin@olly} & 15, 21, 28, 36, 37 \\
\texttt{Gin@ollx} & 14 \\
\texttt{Gin@olly} & 15 \\
\end{align*} |