The tikzpagenodes package

Martin Scharrer
martin@scharrer.me

CTAN: http://www.ctan.org/pkg/tikzpagenodes
VC: https://bitbucket.org/martin_scharrer/tikzpagenodes

Version v1.1 – 2012/09/16

1 Introduction

The drawing bundle PGF/TikZ provides a special rectangle node current page which allows users to access all edges and the center of the current page. This is useful if material should be drawn or placed on absolute positions of the page. For this to work the tikzpicture need to use the remember picture option to remember its position relative to the page origin.

Often material should also be drawn or placed relative to other areas of the page, e.g. the text area. Such a node can be defined manually as shown in the post More special nodes on the pgf-users list. This package was written to simplify this by providing real special nodes which are defined in the same way as current page. One difficulty is that in twoside mode odd and even pages have different margins. For this the author’s other package ifoddpage is used.

2 Usage

The provided nodes can be used in all tikzpictures which use the remember picture option. In the majority of the cases the option overlay should also be used to avoid that the picture reserves any space at the position its code is placed.

The following special nodes are provided. They are rectangle in shape, possess
all anchors of this shape:

<table>
<thead>
<tr>
<th>Node</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>current page text area</td>
<td>Text area(^a) (\textwidth \times \textheight)</td>
</tr>
<tr>
<td>current page marginpar area</td>
<td>Marginpar area (\marginparwidth \times \textheight)</td>
</tr>
<tr>
<td>current page header area</td>
<td>Header area (\textwidth \times \headerheight)</td>
</tr>
<tr>
<td>current page footer area</td>
<td>Footer area (\textwidth \times \headerheight(^b))</td>
</tr>
</tbody>
</table>

\(^a\)Up to the baseline of the text area, i.e. the depth of the last line is not included
\(^b\)Officially there is no footer height. Its baseline has a distance of \footerskip from the baseline of the text area. Because using this value would make the upper edge equal to the lower edge of the text area node, the \headerheight is used as a decent replacement.
3 Examples

\begin{tikzpicture}[remember picture, overlay]
\draw[blue, line width=2mm]
  (current page.south west)
  rectangle
  (current page.north east);
\draw[green]
  (current page text area.south west)
  rectangle
  (current page text area.north east);
\draw[yellow]
  (current page marginpar area.south west)
  rectangle
  (current page marginpar area.north east);
\draw[red]
  (current page header area.south west)
  rectangle
  (current page header area.north east);
\draw[orange]
  (current page footer area.south west)
  rectangle
  (current page footer area.north east);
\end{tikzpicture}
4 Implementation

\NeedsTeXFormat{LaTeX2e}[1999/12/01]
\ProvidesPackage{tikzpagenodes}[%
%<!DATE>
%<!VERSION>
%<*DRIVER>
\newcommand*{\tikzset}{
\newcommand*{\currentsidemargin}{
%<!DRIVER>
\ifpgfrememberpicturepositiononpage
\checkoddpage
\else
\fi
}}
\currentsidemargin

4.1 Different margins for odd and even pages in twoside mode

Update the page conditional for every picture which uses remember picture.
\tikzset{every picture/.append style={execute at begin picture={
\ifpgfrememberpicturepositiononpage
\checkoddpage
}}}

\currentsidemargin

Expands to the current left side margin, i.e. \oddsidemargin for odd pages in
\texttt{twoside} mode and all pages in \texttt{oneside} mode or \evensidemargin for even
pages in \texttt{twoside} mode.
\def\currentsidemargin{\ifoddpageoroneside\oddsidemargin\else\evensidemargin\fi}

4.2 Often used lengths

\current@textarea@left

Complete left margin including \texttt{1in} constant and offset. This value is used
multiple times and therefore stored in macro.
\def\current@textarea@left{(\texttt{1in+}\hoffset+\currentsidemargin)}
Complete top margin including 1in constant, offset and header. This value is used multiple times and therefore stored in macro.

\def\current@textarea@top{(1in+\voffset+\topmargin+\headheight+\headsep)}

4.3 Node Definition Macro
Most required macros can be \let to the current page node.

\def\@newtikzpagenode#1{%
  \expandafter\let\csname pgf@sh@ns@#1\endcsname\csname pgf@sh@ns@current page\endcsname
  \expandafter\let\csname pgf@sh@nt@#1\endcsname\csname pgf@sh@nt@current page\endcsname
  \expandafter\let\csname pgf@sh@pi@#1\endcsname\csname pgf@sh@pi@current page\endcsname
  \expandafter\def\csname pgf@sh@np@#1\endcsname
%
}

4.4 Current Page Text Area Node

\@newtikzpagenode{current page text area}{%
  \def\southwest{\pgfpoint{\current@textarea@left}{paperheight-\current@textarea@top-\textheight}}%
  \def\northeast{\pgfpoint{\current@textarea@left+textwidth}{paperheight-\current@textarea@top}}%
%
}

4.5 Current Page Marginpar Area Node

\@newtikzpagenode{current page marginpar area}{%
  \def\southwest{\pgfpoint{\current@textarea@left\ifoddpageoroneside+textwidth+\marginparsep\else-\marginparsep-\marginparwidth\fi}{paperheight-\current@textarea@top-\textheight}}%
  \def\northeast{\pgfpoint{\current@textarea@left\ifoddpageoroneside+textwidth+\marginparwidth\else-\marginparsep\fi}{paperheight-\current@textarea@top}}%
%
}
4.6 Current Page Header Area Node

\@newtikzpagenode{current page header area}{% 
\def\southwest{\pgfpoint{\current@textarea@left}{\paperheight-\current@textarea@top+\headsep}}% 
\def\northeast{\pgfpoint{\current@textarea@left+\textwidth}{\paperheight-\current@textarea@top+\headsep+\headheight}}%
}

4.7 Current Page Footer Area Node

\@newtikzpagenode{current page footer area}{% 
\def\southwest{\pgfpoint{\current@textarea@left}{\paperheight-\current@textarea@top-\textheight-\footskip}}% 
\def\northeast{\pgfpoint{\current@textarea@left+\textwidth}{\paperheight-\current@textarea@top-\textheight-\footskip+\headheight}}%
}

4.8 Current Page Column Areas

\@newtikzpagenode{current page column 1 area}{% 
\def\southwest{\pgfpoint{\current@textarea@left}{\paperheight-\current@textarea@top-\textheight}}% 
\def\northeast{\pgfpoint{\current@textarea@left+\columnwidth}{\paperheight-\current@textarea@top}}%
}

\@newtikzpagenode{current page column 2 area}{% 
\def\southwest{\pgfpoint{\current@textarea@left+\columnwidth}{\paperheight-\current@textarea@top-\textheight-\footskip}}% 
\def\northeast{\pgfpoint{\current@textarea@left+\columnwidth+\columnsep}{\paperheight-\current@textarea@top-\textheight}}%
}

\@newtikzpagenode{current page column 3 area}{% 
\def\southwest{\pgfpoint{\current@textarea@left+\columnwidth+2\columnsep}{\paperheight-\current@textarea@top-\textheight}}% 
\def\northeast{\pgfpoint{\current@textarea@left+3\columnwidth+2\columnsep}{\paperheight-\current@textarea@top}}%
}
\newtikzpagenode{current page column 4 area}{
\def\southwest{\pgfpoint{currenttextarea@left+3\columnwidth+3\columnsep}{paperheight-\currenttextarea@top-textheight}}%
\def\northeast{\pgfpoint{currenttextarea@left+4\columnwidth+3\columnsep}{paperheight-\currenttextarea@top}}%
}
\newtikzpagenode{current page column 5 area}{
\def\southwest{\pgfpoint{currenttextarea@left+4\columnwidth+4\columnsep}{paperheight-\currenttextarea@top-textheight}}%
\def\northeast{\pgfpoint{currenttextarea@left+5\columnwidth+4\columnsep}{paperheight-\currenttextarea@top}}%
}
\newtikzpagenode{current page column 6 area}{
\def\southwest{\pgfpoint{currenttextarea@left+5\columnwidth+5\columnsep}{paperheight-\currenttextarea@top-textheight}}%
\def\northeast{\pgfpoint{currenttextarea@left+6\columnwidth+5\columnsep}{paperheight-\currenttextarea@top}}%
}
\newtikzpagenode{current page column 7 area}{
\def\southwest{\pgfpoint{currenttextarea@left+6\columnwidth+6\columnsep}{paperheight-\currenttextarea@top-textheight}}%
\def\northeast{\pgfpoint{currenttextarea@left+7\columnwidth+6\columnsep}{paperheight-\currenttextarea@top}}%
}
\newtikzpagenode{current page column 8 area}{
\def\southwest{\pgfpoint{currenttextarea@left+7\columnwidth+7\columnsep}{paperheight-\currenttextarea@top-textheight}}%
\def\northeast{\pgfpoint{currenttextarea@left+8\columnwidth+7\columnsep}{paperheight-\currenttextarea@top}}%
}
\newtikzpagenode{current page column 9 area}{
\def\southwest{\pgfpoint{currenttextarea@left+8\columnwidth+8\columnsep}{paperheight-\currenttextarea@top-textheight}}%
}
\def\northeast{\pgfpoint{\current@textarea@left+9\columnwidth+8\columnsep}{\paperheight-\current@textarea@top}}%
}\newtikzpagenode{current page column 10 area}{%
  \def\southwest{\pgfpoint{\current@textarea@left+9\columnwidth+9\columnsep}{\paperheight-\current@textarea@top-\textheight}}%
  \def\northeast{\pgfpoint{\current@textarea@left+10\columnwidth+9\columnsep}{\paperheight-\current@textarea@top}}%
}