The tikzpagenodes package

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CTAN: http://www.ctan.org/pkg/tikzpagenodes

VC: https://bitbucket.org/martin_scharrer/tikzpagenodes

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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 `tikzpicture`s 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:

Node	Description
`current page text area`	Text area[a] (`\textwidth` $\times$ `\textheight`)
`current page marginpar area`	Marginpar area (`\marginparwidth` $\times$ `\textheight`)
`current page header area`	Header area (`\textwidth` $\times$ `\headerheight`)
`current page footer area`	Footer area (`\textwidth` $\times$ `\headerheight`[b])

[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

```
1  \tikz[remember picture,overlay] {%
2      \draw [blue,line width=2mm]
3          (current page.south west)
4          rectangle
5          (current page.north east)
6  ;
7      \draw [green]
8          (current page text area.south west)
9          rectangle
10         (current page text area.north east)
11 ;
12     \draw [yellow]
13         (current page marginpar area.south west)
14         rectangle
15         (current page marginpar area.north east)
16 ;
17     \draw [red]
18         (current page header area.south west)
19         rectangle
20         (current page header area.north east)
21 ;
22     \draw [orange]
23         (current page footer area.south west)
24         rectangle
25         (current page footer area.north east)
26 ;
27 }%
```

4 Implementation

```
28  %<!COPYRIGHT>
29  \NeedsTeXFormat{LaTeX2e}[1999/12/01]
30  \ProvidesPackage{tikzpagenodes}[%
31  %<!DATE>
32  %<!VERSION>
33  %<*DRIVER>
34      2099/01/01 develop
35  %</DRIVER>
36      Special PGF/TikZ nodes for areas of the page]

37  \RequirePackage{tikz}
38  \RequirePackage{ifoddpage}
```

4.1 Different margins for odd and even pages in `twoside` mode

Update the page conditional for every picture which uses `remember picture`.

```
39  \tikzset{every picture/.append style={execute at begin picture={⤸
    %
40      \ifpgfrememberpicturepositiononpage
41          \checkoddpage
42      \fi
43  }}}
```

\currentsidemargin

Expands to the current left side margin, i.e. **\oddsidemargin** for odd pages in `twoside` mode and all pages in `oneside` mode or **\evensidemargin** for even pages in `twoside` mode.

```
44  \def\currentsidemargin{\ifoddpageoroneside\oddsidemargin\else\⤸
        evensidemargin\fi}%
```

4.2 Often used lengths

\current@textarea@left

Complete left margin including 1in constant and offset. This value is used multiple times and therefore stored in macro.

```
45  \def\current@textarea@left{(1in+\hoffset+\currentsidemargin)}
```

Complete top margin including 1in constant, offset and header. This value is used multiple times and therefore stored in macro.

```
46  \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.

```
47  \def\@newtikzpagenode#1{%
48      \expandafter\let\csname pgf@sh@ns@#1\expandafter\endcsname\↙
            csname pgf@sh@ns@current page\endcsname
49      \expandafter\let\csname pgf@sh@nt@#1\expandafter\endcsname\↙
            csname pgf@sh@nt@current page\endcsname
50      \expandafter\let\csname pgf@sh@pi@#1\expandafter\endcsname\↙
            csname pgf@sh@pi@current page\endcsname
51      \expandafter\def\csname pgf@sh@np@#1\endcsname
52  }
```

4.4   Current Page Text Area Node

```
53  \@newtikzpagenode{current page text area}{%
54      \def\southwest{\pgfpoint{\current@textarea@left}{\↙
            paperheight-\current@textarea@top-\textheight}}%
55      \def\northeast{\pgfpoint{\current@textarea@left+\textwidth↙
            }{\paperheight-\current@textarea@top}}%
56  }
```

4.5   Current Page Marginpar Area Node

```
57  \@newtikzpagenode{current page marginpar area}{%
58      \def\southwest{\pgfpoint
59          {\current@textarea@left\ifoddpageoroneside+\textwidth+\↙
                marginparsep\else-\marginparsep-\marginparwidth\fi}%
60          {\paperheight-\current@textarea@top-\textheight}%
61      }%
62      \def\northeast{\pgfpoint
63          {\current@textarea@left\ifoddpageoroneside+\textwidth+\↙
                marginparsep+\marginparwidth\else-\marginparsep\fi}%
64          {\paperheight-\current@textarea@top}%
65      }%
66  }
```

4.6 Current Page Header Area Node

```
67 \@newtikzpagenode{current page header area}{%
68     \def\southwest{\pgfpoint{\current@textarea@left}{\
           paperheight-\current@textarea@top+\headsep}}%
69     \def\northeast{\pgfpoint{\current@textarea@left+\textwidth
           }{\paperheight-\current@textarea@top+\headsep+\headheight
           }}%
70 }
```

4.7 Current Page Footer Area Node

```
71 \@newtikzpagenode{current page footer area}{%
72     \def\southwest{\pgfpoint{\current@textarea@left}{\
           paperheight-\current@textarea@top-\textheight-\footskip}}
           %
73     \def\northeast{\pgfpoint{\current@textarea@left+\textwidth
           }{\paperheight-\current@textarea@top-\textheight-\
           footskip+\headheight}}%
74 }
```

4.8 Current Page Column Areas

```
75 \@newtikzpagenode{current page column 1 area}{%
76     \def\southwest{\pgfpoint{\current@textarea@left}{\
           paperheight-\current@textarea@top-\textheight}}%
77     \def\northeast{\pgfpoint{\current@textarea@left+\columnwidth
           }{\paperheight-\current@textarea@top}}%
78 }

79 \@newtikzpagenode{current page column 2 area}{%
80     \def\southwest{\pgfpoint{\current@textarea@left+\columnwidth
           +\columnsep}{\paperheight-\current@textarea@top-\
           textheight}}%
81     \def\northeast{\pgfpoint{\current@textarea@left+2\
           columnwidth+\columnsep}{\paperheight-\
           current@textarea@top}}%
82 }

83 \@newtikzpagenode{current page column 3 area}{%
84     \def\southwest{\pgfpoint{\current@textarea@left+2\
           columnwidth+2\columnsep}{\paperheight-\
           current@textarea@top-\textheight}}%
85     \def\northeast{\pgfpoint{\current@textarea@left+3\
           columnwidth+2\columnsep}{\paperheight-\
           current@textarea@top}}%
86 }
```

```
87  \@newtikzpagenode{current page column 4 area}{%
88      \def\southwest{\pgfpoint{\current@textarea@left+3\↙
            columnwidth+3\columnsep}{\paperheight-\↙
            current@textarea@top-\textheight}}%
89      \def\northeast{\pgfpoint{\current@textarea@left+4\↙
            columnwidth+3\columnsep}{\paperheight-\↙
            current@textarea@top}}%
90  }

91  \@newtikzpagenode{current page column 5 area}{%
92      \def\southwest{\pgfpoint{\current@textarea@left+4\↙
            columnwidth+4\columnsep}{\paperheight-\↙
            current@textarea@top-\textheight}}%
93      \def\northeast{\pgfpoint{\current@textarea@left+5\↙
            columnwidth+4\columnsep}{\paperheight-\↙
            current@textarea@top}}%
94  }

95  \@newtikzpagenode{current page column 6 area}{%
96      \def\southwest{\pgfpoint{\current@textarea@left+5\↙
            columnwidth+5\columnsep}{\paperheight-\↙
            current@textarea@top-\textheight}}%
97      \def\northeast{\pgfpoint{\current@textarea@left+6\↙
            columnwidth+5\columnsep}{\paperheight-\↙
            current@textarea@top}}%
98  }

99  \@newtikzpagenode{current page column 7 area}{%
100     \def\southwest{\pgfpoint{\current@textarea@left+6\↙
            columnwidth+6\columnsep}{\paperheight-\↙
            current@textarea@top-\textheight}}%
101     \def\northeast{\pgfpoint{\current@textarea@left+7\↙
            columnwidth+6\columnsep}{\paperheight-\↙
            current@textarea@top}}%
102 }

103 \@newtikzpagenode{current page column 8 area}{%
104     \def\southwest{\pgfpoint{\current@textarea@left+7\↙
            columnwidth+7\columnsep}{\paperheight-\↙
            current@textarea@top-\textheight}}%
105     \def\northeast{\pgfpoint{\current@textarea@left+8\↙
            columnwidth+7\columnsep}{\paperheight-\↙
            current@textarea@top}}%
106 }

107 \@newtikzpagenode{current page column 9 area}{%
108     \def\southwest{\pgfpoint{\current@textarea@left+8\↙
            columnwidth+8\columnsep}{\paperheight-\↙
            current@textarea@top-\textheight}}%
```

```
109      \def\northeast{\pgfpoint{\current@textarea@left+9\↙
           columnwidth+8\columnsep}{\paperheight-\↙
           current@textarea@top}}%
110  }

111  \@newtikzpagenode{current page column 10 area}{%
112      \def\southwest{\pgfpoint{\current@textarea@left+9\↙
           columnwidth+9\columnsep}{\paperheight-\↙
           current@textarea@top-\textheight}}%
113      \def\northeast{\pgfpoint{\current@textarea@left+10\↙
           columnwidth+9\columnsep}{\paperheight-\↙
           current@textarea@top}}%
114  }
```