stmtext class description

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`stmtext` is a wrapper documentclass around a selection of existing class layouts for LaTeX. Additionally, it allows quick access to the modules of `stmlatex`.

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1. About

`stmtext` is supposed to be an easy-to-use interface to several other document classes with the additional use of the modules of `stmlatex`. The class addresses users who want to use certain features without initially worrying about their implementation. However, there will most certainly come a point in the learning curve of a LaTeX user where this documentclass becomes insufficient. That's what's wanted. Maybe, until this point, the class has helped to bring some possibilities of LaTeX closer.

The goal is to make LaTeX functionalities available to the user. It is not intended to make any changes to the document layout, despite loading the underlying document classes. The rest of the layout can be freely changed by the user.

The complete class and module system can be found at
https://github.com/raedma/stmlatex

2. Options

This section describes the class options. All options are key-value-options, meaning they are set using the definition `KEY=VALUE`. It must be noted that these options can not represent the full features of the module packages. In case more advanced options are required make sure to have a look at the individual package descriptions and consider loading them individually. Maybe you find what you need.

2.1. Overview

This overview contains the most important informations about package options. If there are additional comments about individual options an additional section is created for their description.

Boolean options   These options can only have the values `true` or `false`.

Table 1: Boolean class options

Key	Default value	Description
attachfile	false	Load the `attachfile` package at the correct position relative to `stmhyperref`
bibliography	false	Load the bibliography package
calc	false	Load the `calc` package at the correct position relative to `stmtikz`
cleverref	false	Load the `cleveref` package at the correct position relative to `stmhyperref`
color	true	Load the stmcolors package
conditionallox	true	Load the stmconditionallox package

3

Key	Default value	Description
conditionalloxnewpage	true	Set the value of the **newpage** option in the **stmconditionallox** package
date	false	Load the stmdate package
glossaries	false	Load the stmglossaries package
index	false	Load the stmindex package
hyperref	true	Load the stmhyperref package
listings	false	Load the stmlistings package
math	false	Load the stmmath package
plots	false	Load the stmplots package
tikz	false	Load the stmtikz package
units	false	Load the stmunits package

String options   These options have strings as values. Possible arguments are listed. The default is underlined.

Table 2: String class options

Key	Values	Description
language	german|<u>english</u>	Document language, Load the **stmlanguage** package with this option
layout	standard|dlr|<u>koma</u>	Document layout
type	article|<u>report</u>|book	Base document type

The following options are only available for `layout=dlr` which uses the RM-LaTeX based document classes.

Table 4: Additional string class options for `layout=dlr`

Key	Values	Description
institute	<u>FA-STM</u>	See the RM-LaTeX documentation for alternatives
site	<u>BS</u>	See the RM-LaTeX documentation for alternatives

2.2. **Option** attachfile

The package attachfile is one of the packages that has to be loaded at a specific relative position to hyperref. Thus, this option is only relevant in case the Option hyperref from section 2.7 is used.

2.3. Option `cleveref`

The package `cleveref` is one of the packages that has to be loaded at a specific relative position to `hyperref`. Thus, this option is only relevant in case the Option `hyperref` from section 2.7 is used.

2.4. Option `conditionallox`

In case the option `conditionallox` is used, the document has to be compiled at least three times.

2.5. Option `glossaries`

Setting `glossaries=true` loads the `stmglossaries`. Thus, the user is able to use the glossary entries from the package as described in the package documentation.

In case the `arara` package is used for the build automation of the LaTeX document, add

```
arara: makeglossaries
```

in the build automation part of your preamble. That way, the glossaries are automatically compiled during your document creation.

For the glossaries to show up in your document, simply place the commands to print the glossary entries of your choice at the location in your document where you want them to show up, e.g.

```
\printstmacronyms

\printstmscalarglossary
\printstmvectorglossary
\printstmmatrixglossary
\printstmstateglossary
\printstmindexglossary
\printstmexponentglossary
\printstmoperatorglossary
```

or

```
\printstmacronyms
\printallstmsymbols
```

In case no entries are defined, the lists are simply omitted in your document.

2.6. Option `index`

2.6.1. Base package issues

There are issues with the `nonewpage` option of the base package. Thus, currently, there is no chance to disable that a index is created on a new page.

2.6.2. Individual indices

In case it is desired to use other than the default index settings, e.g. create a new index next or replacing the standard, it is recommended to load `stmtext` with the option `index=false` and loading the index individually. Otherwise, there might be conflicts in case `tikz=true` is used in combination.

```
\documentclass[%
  ...
  index=false,%
  ...
]{stmtext}


...


% replace standard index
\usepackage[
  standard=false
]{stmindex}


...


% Must come after \makeindex, e.g. from stmindex
\usepackage{stmtikzexternalization}
```

2.7. Option `hyperref`

https://tex.stackexchange.com/a/26592

2.8. Option `layout`

This class is supposed to be an interface between different class bundles. Currently, this class offers an interface to the standard LaTeX class bundle (`article`, `report`, `book`), the KOMA-script bundle (`scrartcl`, `scrreprt`, `scrbook`) and the RM-LaTeX bundle.

It is not the goal to implement all options of all classes rather than to allow an easy switch for standard documents. In case you miss an option for a specific bundle, feel free to implement it.

2.9. Other options

All other options are passed to the underlying document class. Thus, it has to be made sure that the underlying document class understands these options. At this point, switching the argument in the Option `layout` may lead to problems in case the options is specific to a document class.

3. Usage

3.1. `type`-independent document structure

coseoul package

Index

A. The code

A.1. `stmtext.cls`

```
 1  %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
 2  % Header                       %
 3  %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
 4  %
 5  % This is a document class for structural mechanics
 6  % documentation
 7  %
 8  % Usage
 9  %  - Premble:
10  %    - \documentclass{stmtext}
11  %
12  % Revisions: 2019-11-25 Martin Raedel <martin.raedel@dlr.de>
13  %                       Initial draft
14  %
15  % Contact:    Martin Raedel,  martin.raedel@dlr.de
16  %             DLR Composite Structures and Adaptive Systems
17  %
18  %                                __/|__
19  %                               /_/_/_/
20  %             www.dlr.de/fa/en      |/ DLR
21  %
22  % Copyright (C) 2019-... DLR Composite Structures and
23  %    Adaptive Systems
24  %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
25  % Content                       %
26  %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
27
28  % Declare that this style file requires at least LaTeX
29  %    version 2e.
    \NeedsTeXFormat{LaTeX2e}
30
31  % Provide the name of your page, the date it was last
    %    updated, and a comment about what it's used for
32  \ProvidesClass{stmtext}[2019/11/25 STM documentation class]
33
34  % -------------------------
35  % Package
36  % -------------------------
37
```

```latex
38  \@ifpackageloaded{kvoptions}{}{\RequirePackage{kvoptions}}%
39  \@ifpackageloaded{ifthen}{}{\RequirePackage{ifthen}}%
40
41  % --------------------------
42  % Options base
43  % --------------------------
44
45  \SetupKeyvalOptions{%
46    family=stmtextbase,%
47    prefix=stmtextbase@,%
48    setkeys=\kvsetkeys,%
49  }
50
51  % String options
52  \DeclareStringOption[report]{type}
53  \DeclareStringOption[koma]{layout}
54
55  % Process options
56  \ProcessKeyvalOptions{stmtextbase}
57
58  % --------------------------
59  % Options
60  % --------------------------
61
62  \SetupKeyvalOptions{%
63    family=stmtext,%
64    prefix=stmtext@,%
65    setkeys=\kvsetkeys,%
66  }
67
68  % Bool option
69  \DeclareBoolOption[false]{bibliography}
70  \DeclareBoolOption[true] {color}
71  \DeclareBoolOption[true] {conditionallox}
72  \DeclareBoolOption[true] {conditionalloxnewpage}
73  \DeclareBoolOption[false]{date}
74  \DeclareBoolOption[false]{glossaries}
75  \DeclareBoolOption[false]{index}
76  \DeclareBoolOption[true] {indexstandard}
77  \DeclareBoolOption[true] {hyperref}
78  \DeclareBoolOption[false]{listings}
79  \DeclareBoolOption[false]{math}
80  \DeclareBoolOption[false]{plots}
81  \DeclareBoolOption[false]{tikz}
```

```latex
 82 \DeclareBoolOption[true] {tikzexternalization}
 83 \DeclareBoolOption[false]{units}
 84
 85 %
 86 \DeclareStringOption[english]{language}
 87
 88 % DLR options
 89 \DeclareStringOption[FA-STM]{institute}
 90 \DeclareStringOption[BS]{site}
 91
 92 % Options that are dependent of the position of hyperref
 93 \DeclareBoolOption[false]{attachfile}
 94 \DeclareBoolOption[false]{cleveref}
 95
 96 % Options that are dependent of the position of tikz
 97 \DeclareBoolOption[false]{calc}
 98
 99 % any other options are passed to the base class
100 \DeclareDefaultOption{%
101   \ifthenelse{\equal{\stmtextbase@type}{article}}{%
102     \ifthenelse{\equal{\stmtextbase@layout}{standard}}{%
103       \PassOptionsToClass{\CurrentOption}{article}%
104     }{}%
105     \ifthenelse{\equal{\stmtextbase@layout}{dlr}}{%
106       \PassOptionsToClass{\CurrentOption}{dlrartcl}%
107     }{}%
108     \ifthenelse{\equal{\stmtextbase@layout}{koma}}{%
109       \PassOptionsToClass{\CurrentOption}{scrartcl}%
110     }{}%
111   }{}%
112 }
113 \DeclareDefaultOption{%
114   \ifthenelse{\equal{\stmtextbase@type}{report}}{%
115     \ifthenelse{\equal{\stmtextbase@layout}{standard}}{%
116       \PassOptionsToClass{\CurrentOption}{report}%
117     }{}%
118     \ifthenelse{\equal{\stmtextbase@layout}{dlr}}{%
119       \PassOptionsToClass{\CurrentOption}{dlrreprt}%
120     }{}%
121     \ifthenelse{\equal{\stmtextbase@layout}{koma}}{%
122       \PassOptionsToClass{\CurrentOption}{scrreprt}%
123     }{}%
124   }{}%
125 }
```

```latex
126  \DeclareDefaultOption{%
127    \ifthenelse{\equal{\stmtextbase@type}{book}}{%
128      \ifthenelse{\equal{\stmtextbase@layout}{standard}}{%
129        \PassOptionsToClass{\CurrentOption}{book}%
130      }{}%
131      \ifthenelse{\equal{\stmtextbase@layout}{dlr}}{%
132        \PassOptionsToClass{\CurrentOption}{dlrbook}%
133      }{}%
134      \ifthenelse{\equal{\stmtextbase@layout}{koma}}{%
135        \PassOptionsToClass{\CurrentOption}{scrbook}%
136      }{}%
137    }{}%
138  }
139
140  % Process options
141  \ProcessKeyvalOptions{stmtext}
142
143  % --------------------------
144  % Base class
145  % --------------------------
146
147  % Load screprt class
148
149  \ifthenelse{\equal{\stmtextbase@type}{article}}{%
150    \ifthenelse{\equal{\stmtextbase@layout}{standard}}{%
151      \LoadClass{article}
152    }{}%
153    \ifthenelse{\equal{\stmtextbase@layout}{dlr}}{%
154      \LoadClass{dlrartcl}
155      \RequirePackage{auxhook}
156    }{}%
157    \ifthenelse{\equal{\stmtextbase@layout}{koma}}{%
158      \LoadClass{scrartcl}
159      \RequirePackage{auxhook}
160    }{}%
161  }{}%
162  \ifthenelse{\equal{\stmtextbase@type}{report}}{%
163    \ifthenelse{\equal{\stmtextbase@layout}{standard}}{%
164      \LoadClass{report}
165    }{}%
166    \ifthenelse{\equal{\stmtextbase@layout}{dlr}}{%
167      \LoadClass{dlrreprt}
168      \RequirePackage{auxhook}
169    }{}%
```

```
170    \ifthenelse{\equal{\stmtextbase@layout}{koma}}{%
171      \LoadClass{scrreprt}
172      \RequirePackage{auxhook}
173    }{}%
174  }{}%
175  \ifthenelse{\equal{\stmtextbase@type}{book}}{%
176    \ifthenelse{\equal{\stmtextbase@layout}{standard}}{%
177      \LoadClass{book}
178    }{}%
179    \ifthenelse{\equal{\stmtextbase@layout}{dlr}}{%
180      \LoadClass{dlrbook}
181      \RequirePackage{auxhook}
182    }{}%
183    \ifthenelse{\equal{\stmtextbase@layout}{koma}}{%
184      \LoadClass{scrbook}
185      \RequirePackage{auxhook}
186    }{}%
187  }{}%
188
189  % -------------------------
190  % Commands for communality between document classes
191  % -------------------------
192
193  % Commands for the standard document classes
194  \ifthenelse{\equal{\stmtextbase@layout}{standard}}{%
195
196    \@ifundefined{subtitle}{    \def\subtitle#1{\gdef\
         @subtitle{#1} }%
197                                \def\@subtitle{}}{}%
198
199  }{}%
200
201  % Commands for DLR document classes
202  \ifthenelse{\equal{\stmtextbase@layout}{dlr}}{%
203
204    \dlrinstitute{\stmtext@institute}%
205    \dlrsite     {\stmtext@site}%
206
207  }{}%
208
209  % Commands from RM-LaTeX that other classes need to
         understand
210  \ifthenelse{%
211    \equal{\stmtextbase@layout}{standard} \OR%
```

```
212      \equal{\stmtextbase@layout}{koma}%
213 }{%
214
215      % These commands are created to allow for an easy switch
               between
216      % dlrreprt and bootstrap_dlrreprt.
217
218      \@ifundefined{subject}{      \def\subject#1{\gdef\
             @subject{#1} }%
219                                    \def\@subject{}}{}%
220      \@ifundefined{keywords}{      \def\keywords#1{\gdef\
             @keywords{#1} }%
221                                    \def\@keywords{}}{}
222      \@ifundefined{restrictions}{\def\restrictions#1{\gdef\
             @restrictions{#1} }%
223                                    \def\@restrictions{}}{}
224      \@ifundefined{author}{      \def\author#1{\gdef\@author
             {#1} }%
225                                    \def\@author{}}{}
226      \@ifundefined{coauthor}{      \def\coauthor#1{\gdef\
             @coauthor{#1} }%
227                                    \def\@coauthor{}}{}
228      \@ifundefined{savedby}{      \def\savedby#1{\gdef\
             @savedby{#1} }%
229                                    \def\@savedby{}}{}
230      \@ifundefined{approvedby}{   \def\approvedby#1{\gdef\
             @approvedby{#1} }%
231                                    \def\@approvedby{}}{}
232      \@ifundefined{releasedby}{   \def\releasedby#1{\gdef\
             @releasedby{#1} }%
233                                    \def\@releasedby{}}{}
234      \@ifundefined{contactname}{ \def\contactname#1{\gdef\
             @contactname{#1} }%
235                                    \def\@contactname{}}{}
236      \@ifundefined{telnumber}{   \def\telnumber#1{\gdef\
             @telnumber{#1} }%
237                                    \def\@telnumber{}}{}
238      \@ifundefined{faxnumber}{   \def\faxnumber#1{\gdef\
             @faxnumber{#1} }%
239                                    \def\@faxnumber{}}{}
240      \@ifundefined{email}{      \def\email#1{\gdef\@email
             {#1} }%
241                                    \def\@email{}}{}
```

```
242    \@ifundefined{reportno}{      \def\reportno#1{\gdef\
           @reportno{#1} }%
243                                   \def\@reportno{}}{}
244
245       % From dlrinstitutes.sty
246       \@ifundefined{institute}{    \def\institute#1{\gdef\
              @institute{#1} }%
247                                   \def\@institute{}}{}
248       \@ifundefined{site}{         \def\site#1{\gdef\@site{#1}
              }%
249                                   \def\@site{}}{}
250
251       % The command for the second titlepage
252       \newcommand{\secondpage}{}%
253    }{
254
255      \RequirePackage{dlrsecondpage}
256
257    }
258
259    % --------------------------
260    % Base packages
261    % --------------------------
262
263    \ifstmtext@bibliography
264      \RequirePackage{stmbibliography}
265    \fi
266
267    \ifstmtext@color
268      \RequirePackage{stmcolors}
269    \fi
270
271    \ifstmtext@conditionallox
272      \RequirePackage[%
273        newpage={\ifstmtext@conditionalloxnewpage true\else
              false\fi},%
274      ]{stmconditionallox}
275    \fi
276
277    \ifstmtext@date
278      \RequirePackage{stmdate}
279    \fi
280
281    % This must be loaded ahead of tikz externalization
```

```
282  \ifstmtext@index
283    \PassOptionsToPackage{%
284      standard={\ifstmtext@indexstandard true\else false\fi},%
285    }{stmindex}%
286    \RequirePackage{stmindex}
287  \fi
288
289  %\ifstmtext@language
290    \PassOptionsToPackage{%
291      language=\stmtext@language,%
292    }{stmlanguage}%
293    \RequirePackage{stmlanguage}
294  %\fi
295
296  \ifstmtext@listings
297    \RequirePackage{stmlistings}
298  \fi
299
300  \ifstmtext@math
301    \RequirePackage{stmmath}
302  \fi
303
304  \ifstmtext@plots
305    \RequirePackage{stmplots}
306  \fi
307
308  % Must be loaded before tikz
309  \ifstmtext@calc
310    \RequirePackage{calc}
311  \fi
312
313  \ifstmtext@tikz
314    \PassOptionsToPackage{%
315      externalization={\ifstmtext@tikzexternalization true\
             else false\fi},%
316    }{stmtikz}%
317    \RequirePackage{stmtikz}
318  \fi
319
320  \ifstmtext@units
321    \RequirePackage{stmunits}
322  \fi
323
324  % --------------------------
```

```latex
325  % Packages with dependencies
326  % -------------------------
327
328  % -------------------------
329  % Coseoul to get a level-independent document structure
330  % -------------------------
331
332  \RequirePackage{coseoul}
333
334  \newcommand{\basetoclevelnr}[1]{#1}
335  \ifthenelse{\equal{\stmtextbase@type}{article}}{%
336    \renewcommand{\basetoclevelnr}{5}%
337  }{}%
338  \ifthenelse{\equal{\stmtextbase@type}{report}}{%
339    \renewcommand{\basetoclevelnr}{6}%
340  }{}%
341  \ifthenelse{\equal{\stmtextbase@type}{book}}{%
342    \renewcommand{\basetoclevelnr}{7}%
343  }{}%
344
345  \setcounter{currentlevel}{\basetoclevelnr}
346
347  % -------------------------
348  % Commands dependent of the document base type
349  % -------------------------
350
351  \ifthenelse{\equal{\stmtextbase@type}{article}}{%
352
353  }{}%
354  \ifthenelse{\equal{\stmtextbase@type}{report}}{%
355
356  }{}%
357  \ifthenelse{\equal{\stmtextbase@type}{book}}{%
358
359    % http://mirrors.ctan.org/macros/latex/contrib/biblatex/
           doc/biblatex.pdf#subsubsection.3.1.2
360    \ExecuteBibliographyOptions{%
361      refsection=part,% Individual bibliograpy for each part
362    }
363
364  }{}%
365
366  % -------------------------
367  % Hyperref - make sure it is loaded as the last package
```

17

```latex
368 % ---------------------------
369
370 \ifstmtext@hyperref
371   %\makeatletter
372
373   \@ifpackageloaded{etoolbox}{}{%
374     \RequirePackage{etoolbox}
375   }
376
377   %\AtBeginDocument{
378   \AtEndPreamble{
379
380     %
381     \RequirePackage{stmhyperref}
382
383     % After hyperref for links to work
384     % dependency on babel language
385     \ifstmtext@glossaries
386       \RequirePackage{stmglossaries}
387     \fi
388
389
390     \ifstmtext@attachfile
391       \RequirePackage{attachfile}
392     \fi
393
394     \ifstmtext@cleveref
395       \RequirePackage{cleveref}
396     \fi
397   }
398   %\makeatother
399 \else
400   \ifstmtext@attachfile
401     \RequirePackage{attachfile}
402   \fi
403
404   \ifstmtext@cleveref
405     \RequirePackage{cleveref}
406   \fi
407 \fi
408
409 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
410 % That's it                   %
411 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
```

```
412
413  % Finally , we'll use \endinput to indicate that LaTeX can
         stop reading this file. LaTeX will ignore anything after
         this line.
414  \endinput
```